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#### Ambiguities in the OST that allow private appropriation have kicked off a race to develop space, setting the stage for a debris crisis and the domination of space by unaccountable billionaires. Current laws fail due to lax rules and forum shopping.

Dovey 21 [Ceridwen Dovey, “Space Exploration At What Price?,” Readers Digest Asia Pacific, 5/1/21. <https://www.pressreader.com/australia/readers-digest-asia-pacific/20210501/281487869174485>] CT

One environmental risk all stakeholders agree on is that posed by space debris. There’s already about 5000 satellites in orbit around Earth, of which roughly 2000 are operational, plus hundreds of millions of tiny pieces of debris. Ninety-five per cent of the stuff in low-Earth orbit is classified as ‘space junk’. More space debris makes accessing space costlier in terms of loss of equipment (and possibly of human life). There’s also the risk of the Kessler effect: a cascade of collisions, to the point where the most useful orbital slots become permanently clogged. “We are in the process of messing up space, and most people don’t realise it because we can’t see it the way we can see fish kills, algal blooms or acid rain,” Michael Krepon, an expert on nuclear and space issues, said in 2015. Maybe we’ll understand only when it’s too late, “when we can’t get our satellite television and our telecommunications ... when we get knocked back to the 1950s”. The current clashes over space are rooted in the nitty-gritty of international space law. There are five multilateral UN treaties governing space, most importantly the 1967 Outer Space Treaty (OST), which has been ratified by 109 states, including all major spacefaring nations. It defines outer space as a global commons, the province of all humanity, free to be used and explored “for the benefit and in the interests of all countries”, “on a basis of equality” and only for “peaceful purposes”. Article II of the OST has become the major sticking point in the new space race. It forbids “national appropriation by claim of sovereignty, by means of use or occupation, or by any other means”. No nation can make a territorial claim on the Moon or on any other celestial bodies, such as asteroids. While the OST contains no explicit ban of appropriation by private enterprise, Steven Freeland, a professor specialising in space law at Western Sydney University and Australia’s representative to the UN Committee on the Peaceful Uses of Outer Space (COPUOS), says discussions at the time of the OST negotiations clearly show the states parties, including the US, were “of the opinion that Article II prohibited both public and private appropriation”. Yet this perceived legal uncertainty is the loophole that commercial companies are now exploiting. They’ve actively lobbied for an interpretation of OST Article II in the domestic space law of certain countries, to allow for private ownership of resources extracted from the Moon or other celestial bodies. They argue that, because the OST declares all humans are free to “use” space, companies can exercise this right by mining anywhere they like. They won’t claim ownership of the land itself, but will claim ownership of the resources they mine there. They’ve already had a major win in this regard. The space industry lobby in the US put pressure on members of Congress to reinterpret the US’s obligations under international space law, to become more ‘business friendly’. The outcome was the 2015 Commercial Space Launch Competitiveness Act, signed into law by President Obama. Since then, companies owned by US citizens have been given the right to claim ownership of – and sell – any resources they mine off-Earth. Further emboldened by the Trump administration, the “commercial [space] industry is becoming far more aggressive in how it lobbies for its own interests” in the US, Freeland says. There have been Acts proposed in recent years to enable a corporate space culture of “permissionless innovation”, with little regulatory oversight. In a 2017 speech, President Trump’s space law adviser Scott Pace said, “It bears repeating: outer space is not a ‘global commons’, not the ‘common heritage of mankind’, not ‘ res communis’ [area of territory that is not subject to legal title of any state], nor is it a public good.” Even if you accept the US government’s interpretation of Article II – that space resources, but not the territory on which they’re located, can be owned – what happens if someone mines an asteroid out of existence, which is an act of outright appropriation? Should the public trust that companies mining in space will do the right thing? We’re still uncovering the full extent of terrestrial mining companies’ cover-ups. For instance, inhouse scientists at Exxon – now Exxon-Mobil, one of the biggest oil and gas companies in the world – knew long ago that burning fossil fuels was responsible for global warming, but they actively buried those findings and discredited climate change science for decades. We live in a world where ‘meta-national’ companies can accrue and exercise more wealth and power than traditional nation-states. Silicon Valley is believed to be becoming more powerful than not only Wall Street but also the US government. Branson and other space billionaires like to reassure the masses they’re “democratising” space: just as plane travel started out for the wealthy and gradually became cheaper, so too will space travel. Yet this conveniently overlooks the fact that railroads, airlines and now space industries have all been heavily subsidised by taxpayers. “When we take a step back and notice that private corporations are often even less accountable than governments, then it seems mistaken to say these decisions have been democratised,” Ryan Jenkins, an emerging sciences ethicist at California Polytechnic State University, says. “They’ve merely been privatised.” Lenient supervision. In 2017, Luxembourg – already a corporate tax haven, complicit in international investor tax avoidance and evasion – followed the US’s lead and passed a space-resources law that allows companies to claim resources they extract from space as private property. Guardian journalist Atossa Araxia Abrahamian recounted a chilling comment from an American space executive: “We just want to work with a government who won’t get in the way.” Companies anywhere in the world can stake resource claims in space under this new law; their only requirement is an office in Luxembourg. This sets a murky precedent of ‘regulatory forum-shopping’, where companies choose to incorporate in states where they’ll be most leniently supervised. In 2018, a Silicon Valley start-up called Swarm Technologies illegally launched four miniature satellites known as CubeSats into space from India. They’d been refused launch permission in the US due to safety concerns over whether the satellites could be tracked once in orbit. Fined US$900,000 by the US Federal Communications Commission, the company was subsequently given permission to start communicating with its satellites, and launched more CubeSats as part of a payload on a SpaceX rocket that November. In January 2019, the company raised $25 million in venture capital. Space start-ups that are prepared – unlike Swarm Technologies – to play by the rules are nonetheless still proposing to launch their own swarms of hundreds or thousands of satellites into very low orbits around Earth. SpaceX has already launched over 1000 internet-beaming Starlink satellites, aiming to have a constellation of at least 30,000 in orbit eventually. The UK’s Royal Astronomical Society said these satellites will “compromise astronomical research” due to light pollution, and questioned why there’d been no proper consultation with the scientific community before launch.

### Advantage 1: Space Debris

#### 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://cjil.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.

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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. Telestar 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 ali, 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 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 modem 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: Corporate Colonialism

#### Tech-billionaires advance a vision of private space colonization as a source of infinite resources to cure society’s ills. This rationalizes unrestrained consumption and replicates the logic of imperialism.

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](https://wellcomecollection.org/works?query=%22bills+of+mortality%22&production.dates.from=1600&production.dates.to=1699&sortOrder=asc&sort=production.dates) was the stuff of weekly news and [commentary](https://doi.org/10.7227/TSC.27.3.2). ¶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)](http://nationalhumanitiescenter.org/pds/amerbegin/exploration/text5/hakluyt.pdf) 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](https://www.digitalhistory.uh.edu/disp_textbook.cfm?smtID=3&psid=70), 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](https://doi.org/10.1163/15733823-00215p01)” — 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](https://www.gutenberg.org/files/2434/2434-h/2434-h.htm) 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](https://quod.lib.umich.edu/cgi/t/text/pageviewer-idx?cc=eebo2;c=eebo2;idno=a68588.0001.001;node=A68588.0001.001:5;seq=29;vid=15242;page=root;view=text).” 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](https://www.dhi.ac.uk/hartlib/view?docset=main&docname=62A_08)” 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](https://www.dhi.ac.uk/hartlib/view?docset=main&docname=64_18).” ¶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](https://www.geekwire.com/2018/jeff-bezos-isdc-space-vision/) 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](https://space.nss.org/the-colonization-of-space-gerard-k-o-neill-physics-today-1974/)” (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](https://www.businessinsider.com/nasa-just-quashed-elon-musks-plans-to-make-mars-habitable-for-humans-2018-7)” Mars using resources and technologies that don’t yet exist. ¶Musk planned to [send the first humans to Mars in 2024](https://www.businessinsider.com/elon-musk-spacex-mars-plan-timeline-2018-10), and by 2030, he envisioned breaking ground on a city, [launching as many as 100,000 voyages from Earth to Mars](https://www.businessinsider.com/elon-musk-says-we-could-put-a-million-people-on-mars-within-a-century-2015-6) 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](https://doi.org/10.1177/1354066120928127) 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](http://bostonreview.net/science-nature/alina-utrata-lost-space). ¶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.

#### If only wealthy elites can tap the vast resources of outer space, we lock in a permanent and unconscionable inequality. Private space colonization amounts to unchecked exploitation and authoritarian corporate control of future settlements. 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. //](https://www.jacobinmag.com/2017/02/mars-elon-musk-space-exploration-nasa-colonization.%20%20//) 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](http://www.astronautix.com/m/mpk.html) 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](http://www.businessinsider.com/startups-in-space-2009-8) 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](http://www.space.com/19981-private-mars-mission-married-2018.html) of the red planet. Mars One, a Dutch nonprofit, wants to [fund](http://www.mars-one.com/faq/finance-and-feasibility/what-is-mars-ones-funding-model) a permanent human colony through “merchandise sales, ads on video content, brand partnerships, speaking engagements, [b]roadcasting rights, intellectual property rights, games & apps, and events.” The most famous — and perhaps most likely to succeed — comes from entrepreneur and engineer Elon Musk, the multibillionaire CEO of SpaceX and Tesla Motors. Musk’s articulation of his Mars mission reveals not only what’s wrong with how we think about extraterrestrial colonies and resources, but also how little faith most people have in democracy here on Earth. Interplanetary Technocracy Given his reputation as an engineering genius, Musk’s vision for colonization seems the most plausible of the private missions to Mars. After all, SpaceX, which he admitted to founding [specifically](https://www.bloomberg.com/news/articles/2016-09-27/elon-musk-s-vision-for-mars-travel-focuses-on-reusable-rockets) 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](https://www.wired.com/2016/09/elon-musk-colonize-mars/) 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](https://www.nytimes.com/2016/09/28/science/elon-musk-spacex-mars-exploration.html?_r=0) of the transit system in action and [details](http://www.slate.com/blogs/future_tense/2016/09/27/elon_musk_details_his_crazy_very_real_plan_to_colonize_mars.html) 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](https://www.nasa.gov/image-feature/frosted-dunes-on-mars)? 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](https://mars.jpl.nasa.gov/gallery/atlas/olympus-mons.html) in the solar system become a [trash heap](https://www.washingtonpost.com/news/morning-mix/wp/2015/03/03/decades-of-human-waste-have-made-mount-everest-a-fecal-time-bomb/) 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](https://www.nasa.gov/open/data.html), 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](https://www.nasa.gov/feature/first-cubesat-built-by-an-elementary-school-deployed-into-space) into space and hosted [public naming competitions](https://www.nasa.gov/press/2015/april/nasa-extends-campaign-for-public-to-name-features-on-pluto) 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](https://www.nytimes.com/2016/09/28/science/elon-musk-spacex-mars-exploration.html?_r=1), 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](https://www.theverge.com/2016/9/30/13114704/spacex-elon-musk-vs-mars-one-nasa-mission-timeline) 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](https://www.dailykos.com/story/2015/5/5/1372730/-Skylab-and-the-Sit-Down-Strike-in-Space) 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](https://www.newscientist.com/article/mg21628855.100-build-a-mars-base-with-a-box-of-engineered-bugs.html) 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](https://www.outsideonline.com/1929131/how-much-does-it-cost-climb-everest). Climbers’ journeys are only made possible by their Sherpas’ exploited labor, many of whom die in accidents and are paid [as little as](https://kristof.blogs.nytimes.com/2016/03/28/sherpa-they-die-we-go-home/) $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](http://www.businessinsider.com/starbucks-boycott-after-ceos-refugee-support-2017-1) his plan to hire ten thousand refugees and was immediately hailed as a [liberal hero](http://www.huffingtonpost.com/entry/boycott-starbucks-backfires_us_58903e39e4b0c90efeffd8af). 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](https://www.jacobinmag.com/2016/11/david-brock-clinton-sanders-donald-trump/)? The plethora of private Mars proposals reflects a [lack of faith in democracy on Earth](https://www.jacobinmag.com/2016/07/populism-democracy-technocrats-brexit-trump-sanders-voting-referendum/), 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](https://www.jacobinmag.com/2015/04/aliens-extraterrestrials-active-seti/)!

#### This private expansion into space results in corporate colonization of planets that undermines the interests of the rest of humanity. Spencer ’17

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](https://www.washingtonpost.com/news/the-switch/wp/2017/09/29/elon-musk-says-his-next-spaceship-could-not-only-take-to-you-the-moon-and-mars-but-from-n-y-to-london-in-29-minutes/?utm_term=.85279aa2076a) 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](http://nypost.com/2017/10/07/elon-musks-inspiring-vision-for-reaching-mars-and-the-stars/) 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](http://blogs.discovermagazine.com/80beats/2010/02/01/obamas-nasa-budget-so-long-moon-missions-hello-private-spaceflight/) 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](http://www.theregister.co.uk/2012/03/08/nasa_private_space_nasa/) Dr. S. Pete Worden, the director of the NASA Ames Research lab, in 2012. And in a Wall Street Journal [op-ed](https://www.wsj.com/articles/america-will-return-to-the-moonand-go-beyond-1507158341?mod=e2fb) this week, Vice President Mike Pence wrote of his ambitions to bring [American-style capitalism to the stars](https://www.salon.com/2017/08/06/tacoma-the-next-video-game-from-gone-home-creators-imagines-the-gig-economy-in-space/): “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 be 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](https://www.theguardian.com/world/2015/mar/04/east-india-company-original-corporate-raiders) 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](https://www.salon.com/2017/09/19/trumps-interior-secretary-on-national-monuments-sell-em-and-strip-em/) [right](https://www.salon.com/2016/12/15/exxonmobil-ceo-and-trump-pick-rex-tillerson-my-philosophy-is-to-make-money_partner/) 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](https://www.jacobinmag.com/2017/02/mars-elon-musk-space-exploration-nasa-colonization) of running the show on Mars, their interests will inherently be at [odds with the workers](http://www.dailykos.com/story/2015/5/5/1372730/-Skylab-and-the-Sit-Down-Strike-in-Space) and employees involved. After all, a private foundation [is not a democracy](https://www.jacobinmag.com/2015/11/philanthropy-charity-banga-carnegie-gates-foundation-development); and as major philanthropic organizations like the Bill and Melinda Gates Foundation [illustrate](https://www.jacobinmag.com/2015/11/philanthropy-charity-banga-carnegie-gates-foundation-development), often [do the bidding](http://www.peterfrase.com/2011/08/the-decay-of-the-capitalist-class/) of their rich donors, and take an [important role in ripening industries](https://www.salon.com/2016/02/21/corporate_reformers_wreck_public_schools_billionaire_foundations_and_wall_street_financiers_are_not_out_to_help_your_kids_learn/) 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](https://www.recode.net/2016/9/27/13081488/elon-musk-spacex-mars-colony-space-travel-funding-rocket-nasa) 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](http://www.telegraph.co.uk/science/2017/06/21/elon-musk-create-city-mars-million-inhabitants/) 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](https://www.jacobinmag.com/2017/02/mars-elon-musk-space-exploration-nasa-colonization), 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](http://www.businessinsider.com/working-with-elon-musk-tesla-2015-5). 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](https://harpers.org/archive/2011/11/the-bleakness-stakes/) 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.”

**Neoliberalism destroys ethics, locks in poverty and exploitation, decimates the environment, and causes war.**

**Werlhof 15** – Claudia, Professor of Political Science/Women's Studies, University Innsbruck (Austria), 2015 (“Neoliberal Globalization: Is There an Alternative to Plundering the Earth?” Global Research, May 25th, Available Online at http://www.globalresearch.ca/neoliberal-globalization-is-there-an-alternative-to-plundering-the-earth/24403)

At the center of both old and new economic liberalism lies: Self-interest and individualism; segregation of ethical principles and economic affairs, in other words: a process of ‘de-bedding’ economy from society; economic rationality as a mere cost-benefit calculation and profit maximization; competition as the essential driving force for growth and progress; specialization and the replacement of a subsistence economy with profit-oriented foreign trade (‘comparative cost advantage’); and the proscription of public (state) interference with market forces.[3] Where the new economic liberalism outdoes the old is in its global claim. Today’s economic liberalism functions as a model for each and everyone: all parts of the economy, all sectors of society, of life/nature itself. As a consequence, the once “de-bedded” economy now claims to “im-bed” everything, including political power. Furthermore, a new twisted “economic ethics” (and with it a certain idea of “human nature”) emerges that mocks everything from so-called do-gooders to altruism to selfless help to care for others to a notion of responsibility.[4] This goes as far as claiming that the common good depends entirely on the uncontrolled egoism of the individual and, especially, on the prosperity of transnational corporations. The allegedly necessary “freedom” of the economy – which, paradoxically, only means the freedom of corporations – hence consists of a freedom from responsibility and commitment to society. The maximization of profit itself must occur within the shortest possible time; this means, preferably, through speculation and “shareholder value”. It must meet as few obstacles as possible. Today, global economic interests outweigh not only extra-economic concerns but also national economic considerations since corporations today see themselves beyond both community and nation.[5] A “level playing field” is created that offers the global players the best possible conditions. This playing field knows of no legal, social, ecological, cultural or national “barriers”.[6] As a result, economic competition plays out on a market that is free of all non-market, extra-economic or protectionist influences – unless they serve the interests of the big players (the corporations), of course. The corporations’ interests – their maximal growth and progress – take on complete priority. This is rationalized by alleging that their well-being means the well-being of small enterprises and workshops as well. The difference between the new and the old economic liberalism can first be articulated in quantitative terms: after capitalism went through a series of ruptures and challenges – caused by the “competing economic system”, the crisis of capitalism, post-war “Keynesianism” with its social and welfare state tendencies, internal mass consumer demand (so-called Fordism), and the objective of full employment in the North. The liberal economic goals of the past are now not only euphorically resurrected but they are also “globalized”. The main reason is indeed that the competition between alternative economic systems is gone. However, to conclude that this confirms the victory of capitalism and the “golden West” over “dark socialism” is only one possible interpretation. Another – opposing – interpretation is to see the “modern world system” (which contains both capitalism and socialism) as having hit a general crisis which causes total and merciless competition over global resources while leveling the way for investment opportunities, i.e. the valorization of capital.[7] The ongoing globalization of neoliberalism demonstrates which interpretation is right. Not least, because the differences between the old and the new economic liberalism can not only be articulated in quantitative terms but in qualitative ones too. What we are witnessing are completely new phenomena: instead of a democratic “complete competition” between many small enterprises enjoying the freedom of the market, only the big corporations win. In turn, they create new market oligopolies and monopolies of previously unknown dimensions. The market hence only remains free for them, while it is rendered unfree for all others who are condemned to an existence of dependency (as enforced producers, workers and consumers) or excluded from the market altogether (if they have neither anything to sell or buy). About fifty percent of the world’s population fall into this group today, and the percentage is rising.[8] Anti-trust laws have lost all power since the transnational corporations set the norms. It is the corporations – not “the market” as an anonymous mechanism or “invisible hand” – that determine today’s rules of trade, for example prices and legal regulations. This happens outside any political control. Speculation with an average twenty percent profit margin edges out honest producers who become “unprofitable”.[9] Money becomes too precious for comparatively non-profitable, long-term projects, or projects that only – how audacious! – serve a good life. Money instead “travels upwards” and disappears. Financial capital determines more and more what the markets are and do.[10] By delinking the dollar from the price of gold, money creation no longer bears a direct relationship to production”.[11] Moreover, these days most of us are – exactly like all governments – in debt. It is financial capital that has all the money – we have none.[12] Small, medium, even some bigger enterprises are pushed out of the market, forced to fold or swallowed by transnational corporations because their performances are below average in comparison to speculation – rather: spookulation – wins. The public sector, which has historically been defined as a sector of not-for-profit economy and administration, is “slimmed” and its “profitable” parts (“gems”) handed to corporations (privatized). As a consequence, social services that are necessary for our existence disappear. Small and medium private businesses – which, until recently, employed eighty percent of the workforce and provided normal working conditions – are affected by these developments as well. The alleged correlation between economic growth and secure employment is false. When economic growth is accompanied by the mergers of businesses, jobs are lost.[13] If there are any new jobs, most are precarious, meaning that they are only available temporarily and badly paid. One job is usually not enough to make a living.[14] This means that the working conditions in the North become akin to those in the South, and the working conditions of men akin to those of women – a trend diametrically opposed to what we have always been told. Corporations now leave for the South (or East) to use cheap – and particularly female – labor without union affiliation. This has already been happening since the 1970s in the “Export Processing Zones” (EPZs, “world market factories” or “maquiladoras”), where most of the world’s computer chips, sneakers, clothes and electronic goods are produced.[15] The EPZs lie in areas where century-old colonial-capitalist and authoritarian-patriarchal conditions guarantee the availability of cheap labor.[16] The recent shift of business opportunities from consumer goods to armaments is a particularly troubling development.[17] It is not only commodity production that is “outsourced” and located in the EPZs, but service industries as well. This is a result of the so-called Third Industrial Revolution, meaning the development of new information and communication technologies. Many jobs have disappeared entirely due to computerization, also in administrative fields.[18] The combination of the principles of “high tech” and “low wage”/”no wage” (always denied by “progress” enthusiasts) guarantees a “comparative cost advantage” in foreign trade. This will eventually lead to “Chinese wages” in the West. A potential loss of Western consumers is not seen as a threat. A corporate economy does not care whether consumers are European, Chinese or Indian. The means of production become concentrated in fewer and fewer hands, especially since finance capital – rendered precarious itself – controls asset values ever more aggressively. New forms of private property are created, not least through the “clearance” of public property and the transformation of formerly public and small-scale private services and industries to a corporate business sector. This concerns primarily fields that have long been (at least partly) excluded from the logic of profit – e.g. education, health, energy or water supply/disposal. New forms of so-called enclosures emerge from today’s total commercialization of formerly small-scale private or public industries and services, of the “commons”, and of natural resources like oceans, rain forests, regions of genetic diversity or geopolitical interest (e.g. potential pipeline routes), etc.[19] As far as the new virtual spaces and communication networks go, we are witnessing frantic efforts to bring these under private control as well.[20] All these new forms of private property are essentially created by (more or less) predatory forms of appropriation. In this sense, they are a continuation of the history of so-called original accumulation which has expanded globally, in accordance with to the motto: “Growth through expropriation!”[21] Most people have less and less access to the means of production, and so the dependence on scarce and underpaid work increases. The destruction of the welfare state also destroys the notion that individuals can rely on the community to provide for them in times of need. Our existence relies exclusively on private, i.e. expensive, services that are often of much worse quality and much less reliable than public services. (It is a myth that the private always outdoes the public.) What we are experiencing is undersupply formerly only known by the colonial South. The old claim that the South will eventually develop into the North is proven wrong. It is the North that increasingly develops into the South. We are witnessing the latest form of “development”, namely, a world system of underdevelopment.[22] Development and underdevelopment go hand in hand.[23] This might even dawn on “development aid” workers soon. It is usually women who are called upon to counterbalance underdevelopment through increased work (“service provisions”) in the household. As a result, the workload and underpay of women takes on horrendous dimensions: they do unpaid work inside their homes and poorly paid “housewifized” work outside.[24] Yet, commercialization does not stop in front of the home’s doors either. Even housework becomes commercially co-opted (“new maid question”), with hardly any financial benefits for the women who do the work.[25] Not least because of this, women are increasingly coerced into prostitution, one of today’s biggest global industries.[26] This illustrates two things: a) how little the “emancipation” of women actually leads to “equal terms” with men; and b) that “capitalist development” does not imply increased “freedom” in wage labor relations, as the Left has claimed for a long time.[27] If the latter were the case, then neoliberalism would mean the voluntary end of capitalism once it reaches its furthest extension. This, however, does not appear likely. Today, hundreds of millions of quasi-slaves, more than ever before, exist in the “world system.”[28] The authoritarian model of the “Export Processing Zones” is conquering the East and threatening the North. The redistribution of wealth runs ever more – and with ever accelerated speed – from the bottom to the top. The gap between the rich and the poor has never been wider. The middle classes disappear. This is the situation we are facing. It becomes obvious that neoliberalism marks not the end of colonialism but, to the contrary, the colonization of the North. This new “colonization of the world”[29] points back to the beginnings of the “modern world system” in the “long 16th century”, when the conquering of the Americas, their exploitation and colonial transformation allowed for the rise and “development” of Europe.[30] The so-called “children’s diseases” of modernity keep on haunting it, even in old age. They are, in fact, the main feature of modernity’s latest stage. They are expanding instead of disappearing. Where there is no South, there is no North; where there is no periphery, there is no center; where there is no colony, there is no – in any case no “Western” – civilization.[31] Austria is part of the world system too. It is increasingly becoming a corporate colony (particularly of German corporations). This, however, does not keep it from being an active colonizer itself, especially in the East.[32] Social, cultural, traditional and ecological considerations are abandoned and give way to a mentality of plundering. All global resources that we still have – natural resources, forests, water, genetic pools – have turned into objects of utilization. Rapid ecological destruction through depletion is the consequence. If one makes more profit by cutting down trees than by planting them, then there is no reason not to cut them.[33] Neither the public nor the state interferes, despite global warming and the obvious fact that the clearing of the few remaining rain forests will irreversibly destroy the earth’s climate – not to mention the many other negative effects of such actions.[34] Climate, animal, plants, human and general ecological rights are worth nothing compared to the interests of the corporations – no matter that the rain forest is not a renewable resource and that the entire earth’s ecosystem depends on it. If greed, and the rationalism with which it is economically enforced, really was an inherent anthropological trait, we would have never even reached this day. The commander of the Space Shuttle that circled the earth in 2005 remarked that “the center of Africa was burning”. She meant the Congo, in which the last great rain forest of the continent is located. Without it there will be no more rain clouds above the sources of the Nile. However, it needs to disappear in order for corporations to gain free access to the Congo’s natural resources that are the reason for the wars that plague the region today. After all, one needs diamonds and coltan for mobile phones. Today, everything on earth is turned into commodities, i.e. everything becomes an object of “trade” and commercialization (which truly means liquidation, the transformation of all into liquid money). In its neoliberal stage it is not enough for capitalism to globally pursue less cost-intensive and preferably “wageless” commodity production. The objective is to transform everyone and everything into commodities, including life itself.[35] We are racing blindly towards the violent and absolute conclusion of this “mode of production”, namely total capitalization/liquidation by “monetarization”.[36] We are not only witnessing perpetual praise of the market – we are witnessing what can be described as “market fundamentalism”. People believe in the market as if it was a god. There seems to be a sense that nothing could ever happen without it. Total global maximized accumulation of money/capital as abstract wealth becomes the sole purpose of economic activity. A “free” world market for everything has to be established – a world market that functions according to the interests of the corporations and capitalist money. The installment of such a market proceeds with dazzling speed. It creates new profit possibilities where they have not existed before, e.g. in Iraq, Eastern Europe or China. One thing remains generally overlooked: the abstract wealth created for accumulation implies the destruction of nature as concrete wealth. The result is a “hole in the ground” and next to it a garbage dump with used commodities, outdated machinery and money without value.[37] However, once all concrete wealth (which today consists mainly of the last natural resources) will be gone, abstract wealth will disappear as well. It will, in Marx’s words, “evaporate”. The fact that abstract wealth is not real wealth will become obvious, and so will the answer to the question of which wealth modern economic activity has really created. In the end it is nothing but monetary wealth (and even this mainly exists virtually or on accounts) that constitutes a monoculture controlled by a tiny minority. Diversity is suffocated and millions of people are left wondering how to survive. And really: how do you survive with neither resources nor means of production nor money? The nihilism of our economic system is evident. The whole world will be transformed into money – and then it will disappear. After all, money cannot be eaten. What no one seems to consider is the fact that it is impossible to re-transform commodities, money, capital and machinery into nature or concrete wealth. It seems that underlying all “economic development” is the assumption that “resources”, the “sources of wealth”,[38] are renewable and everlasting – just like the “growth” they create.[39] The notion that capitalism and democracy are one is proven a myth by neoliberalism and its “monetary totalitarianism”.[40] The primacy of politics over economy has been lost. Politicians of all parties have abandoned it. It is the corporations that dictate politics. Where corporate interests are concerned, there is no place for democratic convention or community control. Public space disappears. The res publica turns into a res privata, or – as we could say today – a res privata transnationale (in its original Latin meaning, privare means “to deprive”). Only those in power still have rights. They give themselves the licenses they need, from the “license to plunder” to the “license to kill”.[41] Those who get in their way or challenge their “rights” are vilified, criminalized and to an increasing degree defined as “terrorists” or, in the case of defiant governments, as “rogue states” – a label that usually implies threatened or actual military attack, as we can see in the cases of Yugoslavia, Afghanistan and Iraq, and maybe Syria and Iran in the near future. U.S. President Bush had even spoken of the possibility of “preemptive” nuclear strikes should the U.S. feel endangered by weapons of mass destruction.[42] The European Union did not object.[43] Neoliberalism and war are two sides of the same coin.[44] Free trade, piracy and war are still “an inseparable three” – today maybe more so than ever. War is not only “good for the economy” but is indeed its driving force and can be understood as the “continuation of economy with other means”.[45] War and economy have become almost indistinguishable.[46] Wars about resources – especially oil and water – have already begun.[47] The Gulf Wars are the most obvious examples. Militarism once again appears as the “executor of capital accumulation” – potentially everywhere and enduringly.[48] Human rights and rights of sovereignty have been transferred from people, communities and governments to corporations.[49] The notion of the people as a sovereign body has practically been abolished. We have witnessed a coup of sorts. The political systems of the West and the nation state as guarantees for and expression of the international division of labor in the modern world system are increasingly dissolving.[50] Nation states are developing into “periphery states” according to the inferior role they play in the proto-despotic “New World Order”.[51] Democracy appears outdated. After all, it “hinders business”.[52] The “New World Order” implies a new division of labor that does no longer distinguish between North and South, East and West – today, everywhere is South. An according International Law is established which effectively functions from top to bottom (“top-down”) and eliminates all local and regional communal rights. And not only that: many such rights are rendered invalid both retroactively and for the future.[53] The logic of neoliberalism as a sort of totalitarian neo-mercantilism is that all resources, all markets, all money, all profits, all means of production, all “investment opportunities”, all rights and all power belong to the corporations only. To paraphrase Richard Sennett: “Everything to the Corporations!”[54] One might add: “Now!” The corporations are free to do whatever they please with what they get. Nobody is allowed to interfere. Ironically, we are expected to rely on them to find a way out of the crisis we are in. This puts the entire globe at risk since responsibility is something the corporations do not have or know. The times of social contracts are gone.[55] In fact, pointing out the crisis alone has become a crime and all critique will soon be defined as “terror” and persecuted as such.[56] IMF Economic Medicine Since the 1980s, it is mainly the Structural Adjustment Programs (SAPs) of the World Bank and the IMF that act as the enforcers of neoliberalism. These programs are levied against the countries of the South which can be extorted due to their debts. Meanwhile, numerous military interventions and wars help to take possession of the assets that still remain, secure resources, install neoliberalism as the global economic politics, crush resistance movements (which are cynically labeled as “IMF uprisings”), and facilitate the lucrative business of reconstruction.[57] In the 1980s, Ronald Reagan and Margaret Thatcher introduced neoliberalism in Anglo-America. In 1989, the so-called “Washington Consensus” was formulated. It claimed to lead to global freedom, prosperity and economic growth through “deregulation, liberalization and privatization”. This has become the credo and promise of all neoliberals. Today we know that the promise has come true for the corporations only – not for anybody else. In the Middle East, the Western support for Saddam Hussein in the war between Iraq and Iran in the 1980s, and the Gulf War of the early 1990s, announced the permanent U.S. presence in the world’s most contested oil region. In continental Europe, neoliberalism began with the crisis in Yugoslavia caused by the Structural Adjustment Programs (SAPs) of the World Bank and the IMF. The country was heavily exploited, fell apart and finally beset by a civil war over its last remaining resources.[58] Since the NATO war in 1999, the Balkans are fragmented, occupied and geopolitically under neoliberal control.[59] The region is of main strategic interest for future oil and gas transport from the Caucasus to the West (for example the “Nabucco” gas pipeline that is supposed to start operating from the Caspian Sea through Turkey and the Balkans by 2011.[60] The reconstruction of the Balkans is exclusively in the hands of Western corporations. All governments, whether left, right, liberal or green, accept this. There is no analysis of the connection between the politics of neoliberalism, its history, its background and its effects on Europe and other parts of the world. Likewise, there is no analysis of its connection to the new militarism.

### Solvency

#### Since, in a just world, outer space would be treated as a global commons, and a global commons model precludes appropriation by private entries, then the appropriation of outer space by private entries is unjust.

#### Thus, the plan: States ought to adopt a binding international agreement that bans the appropriation of outer space by private entities by establishing outer space as a global commons subject to regulatory delimiting and global liability.

#### The aff:

#### solves debris and space colonialism by ensuring the sustainable and equitable use of outer space resources.

* prevents circumvention by aligning the interests of state parties
* is normal means since it models numerous successful agreements governing all other global commons.

Vollmer 20 [Sarah Louise Vollmer (St. Mary's University School of Law), “The Right Stuff in Geospace: Using Mutual Coercion to Avoid an Inevitable Prison for Humanity,” 51 ST. MARY'S L.J. 777 (2020). <https://commons.stmarytx.edu/thestmaryslawjournal/vol51/iss3/6?utm\_source=commons.stmarytx.edu%2Fthestmaryslawjournal%2Fvol51%2Fiss3%2F6&utm\_medium=PDF&utm\_campaign=PDFCoverPages> ]CT

The common heritage of mankind anchors the governance of global commons.56 While some scholars have yet to accept such verbiage as international custom,57 others submit it as establishing an emerging principle of jus cogens. 58 Proponents suggest that because “mankind” replaces the typical language of “all States,” then any mention of “mankind” insists humanity must be able to enjoy the collective benefits of resources within a global commons.59 As a result, mankind itself has become the “one to dispose of . . . resources,” and upon invoking the interest of mankind “the interests of future generations have to be respected in making use of [resources].”60 One can analogize this position to property principles against waste in the context of a present interest holder’s duty to vested future interests.61 In summarizing the five shared conceptions of the common heritage of mankind principle, Dr. Shackleford provides support to this construction:

First, there can be no private or public appropriation of the commons. Second, representatives from all nations must manage resources since a commons area is considered to belong to everyone. Third, all nations must actively share in the benefits acquired from exploitation of the resources from the common heritage region. Fourth, there can be no weaponry or military installations established in commons areas. Fifth, the commons should be preserved for the benefit of future generations.62

Logically following, the OST’s presentment of outer space as the common heritage of mankind grants an implied property right to all persons in the geospace commons. Applying Dr. Shackleford’s principles, the credible treaties 63 operate in tandem with the non-appropriation, nonproliferation, and equitable benefit-sharing elements of the common heritage principle. Permanently enjoining claims of sovereignty thus prohibits the establishment of exclusive economic rights and reinforces equitable benefit-sharing.64 However, the lack of resource management and preservation language disallows mankind a mechanism to protect its interest in the geospace commons if its usage results in damage, waste, or destruction of its resources.65

A. Orbital Utility

In the context of orbital real estate, spacefaring entities formulate satellite acquisition strategies for either low earth orbit (LEO) or geosynchronous orbit (GSO).66 While each particular orbit can accommodate most space objects,67 satellite positioning requires careful consideration due to the distinct orbital mechanics appurtenant to each orbit.68

1. Low Earth Orbit

Objects in LEO orbit between 100 to 1,200 miles above Earth’s surface.69 Because it is so “close,” LEO acquisition provides spacefarers a lower cost option as launches require relatively low energy budgets to achieve proper positioning.70 However, unlike GSO, LEO satellites are not fixed above a targeted location, which necessitates the placement of multiple satellites at various inclinations if a telecommunications operator intends to provide uninterrupted service to its subscribers.71 In the past five years, LEO has become riddled with massive satellite constellations, further compounding the negative utility of LEO.72 To the dismay of the International Space Station’s (ISS) residents, every piece of jettisoned launch vehicle debris—whether rocket bodies, mission-related objects, or paint flecks73—resides in LEO.74 While most of these objects eventually find their way into various decay or graveyard orbits, the transient status of debris still poses a substantial threat to functional satellites and human lives.75

2. Geosynchronous Orbit

To contrast, reaching GSO requires an increased energy budget,76 but once attained, the orbital mechanics of GSO allows space objects to remain stationary above one location throughout the object’s entire orbital transit, with minimal requirements to adjust for perturbances caused by Earth’s gravity.77 This stationary attribute creates incredible demand on GSO acquisition services because, unlike LEO, only one satellite is necessary for the same transmission services in GSO. But unlike LEO, the physics of radio frequency allocation places spatial restrictions on the permissible number of GSO satellites. Additionally, due to the distance between GSO satellites and radio transmitters on Earth, only three suitable radio frequencies exist.78 While these limitations prevent harmful radio interference, it inflates the scarcity of GSO slot availability.79 As a result, GSO is the highest valued orbit available.80

B. Kessler Syndrome—Fueling the Tragedy

Today, over eighty sovereign actors and private organizations participate in space activity.81 The OST’s Cold-War-inspired objectives failed to make substantial allowances for future development, despite the cautions of such short-sighted construction.82 Over-utilization evaded the immediate concern of signatory nations because the then-current technology did not lend itself to significant exploitation of analogous commons, such as the oceans and Antarctica.83 Considering the dimensions of contemporary real property, one can visualize the boundaries and confines of a tract of land.84 Even in the context of more abstract property interests, such as minerals or the sea, one can envisage the inherent spatial limitations.85 Contrary to Earth-side property, legal scholars proffer that space lacks tangible parameters.86 This mischaracterization marks the point of departure between the current sustainability of geospace and this Comment’s proposed construct.87

The laws of astrophysics physically limit our ability to occupy geospace. And because it is finite, every satellite launched into space adds a corresponding negative utility to geospace.88 In 2019 alone,89 the potential for an interruption capable of derailing any derivative benefit from space drew ever closer—the essence of the tragedy of the commons.90 Without a binding mitigation framework, continued satellite proliferation will only catalyze the destruction of our correlative rights 91 in the geospace commons.

The 2017 Scientific and Technical Subcommittee of COPUOS made a chilling summary of the reality of the space debris threat when it explained:

More than 20,000 pieces of space debris the size of a tennis ball or larger orbit the Earth with a velocity of nearly 17,500 mph. These uncontrolled fragments and other debris (such as discarded rocket bodies, and retired satellites) can collide with each other and generate more debris, in a cycle popularly known as the “Kessler syndrome.” The Kessler syndrome in turn results in an exponential growth of orbital debris as time progresses, with an ever-increasing risk for operational bodies in orbit. In addition to their number, these pieces of debris have enough energy to break the rigid wall of satellites, and destroy satellites.92

Donald J. Kessler cautioned that we would eventually reach a tipping point, triggering a chain reaction in near-Earth orbit of hypervelocity collisions93 that will trap humanity on Earth.94 Prospectively, because the “delay in implementation of [debris mitigation] methods reduces their effectiveness,”95 without comprehensive compliance, once Kessler Syndrome begins, the result will likely revert our telecommunication abilities back to the late 1800s. Yet self-interested parties continue to exploit highly sought-after orbital resources.96

C. Domestic Legislation

One of the primary challenges jurists face when formulating international standards for space activity lies with COPUOS, because the unanimous support of its delegates is a prerequisite for concluding any multilateral agreement.97 While the consensus method initially provided a great deal of strength to the Corpus Juris Spatialis’s mandates, the Committee’s ever-expanding membership has frustrated the adoption of any binding principles and guidelines since the 1980s.98 Despite the dearth of compulsory language, non-binding declarations of law inform us of the likely trajectory toward binding agreements in the future. Even without mandatory language, domestic legislation has mirrored COPUOS’s instruments addressing mitigation efforts.99

The National Aeronautics and Space Administration (NASA), Federal Aviation Administration (FAA), and Federal Communications Commission (FCC) serve key administrative functions in the mitigation of debris attributable to U.S. space activity. Prior to the passage of the Spurring Private Aerospace Competitiveness and Entrepreneurship Act of 2015 (SPACE Act),100 NASA facilitated many of humanity’s first triumphs in space faring and still plays an active role in tracking, cataloging, and formulating debris mitigation standards in the U.S.101 The 2019 update to these standards reflected the culmination of debris research, and sets benchmarks on permissible debris creation.102 While NASA has long been one of the three major space agencies operating in space, the reality of political cycles has forced NASA to look elsewhere to sustain project funding and support of existing national laboratories, namely the ISS.103 Still, much of the commercial activity in space consists of NASA-awarded government contracts for resupply missions, payload transport, and other collaborative projects with other nations.104 However, in the last decade, independent commercial activity has exploded. The SPACE Act thus initiated the privatization of space, as commercial payloads are now being launched into geospace unilaterally without any precursory relationship with NASA, other than the occasional use of NASA launch facilities.105

In order to access space and place a satellite into orbit, a launching party must obtain a launch license from the FAA,106 and an authorization for satellite radio frequency transmission from the FCC.107 Because commercial space contractors have created business models that operate to the exclusion of government contracts, this upsurge of private activity affords the FCC a substantial level of influence over the future of geospace. Aware of its normative power, the FCC proposed a rulemaking for updated debris mitigation standards as part of its licensure reviews.108 But as part of the current administration’s policies toward economic growth and competition, the FCC’s efforts to create these new standards have been “paused.”109 Without NASA oversight and the FCC’s final rule for mitigation standards, COPUOS has become the only feasible avenue for promulgating a framework that considers economic incentives in tandem with intergenerational equity. Under Hardin’s analysis, coercive regulation and management of the commons provide a workable solution to free us from our current trajectory.110

IV. NECESSITY FOR REGULATION TO PRESERVE THE HERITAGE OF MANKIND—A PROPOSAL

Conceptually, all persons hold an implied property right in the space commons.111 As such, spacefaring entities and developing nations possess an equitable right to access and use orbital resources.112 But the sui generis nature of geospace presents a paradox requiring a unique regime for the sustainable usage of its resources.113 The international community cannot realize the advantages of the common heritage principle under a property regime because any conceivable assignment would violate the non-appropriation clause or unjustly enrich a particular interest.114 This means that only regulatory solutions can protect the interests inherent in a commons protected for the common heritage of mankind.

A. The Motivations for International Compliance

The crux of a workable treaty lies in the consent of the parties to the agreement.115 Thereafter, signatories internalize the agreement’s object and purpose into their domestic law, or in the case of international organizations, into an institutional framework.116 To implement a binding international instrument, we must therefore ask the question: Why do nations follow international law,117 and how can we use those behavioral realities to construct a workable framework to ensure geospace survives?118

At the dawn of civilized society, depending on a particular jurisdiction’s values, the laws of nature and morality compelled obedience and social order.119 When nation-states concluded international agreements, it represented the coalescence of the various values-based systems, the overlap of which formed a universal understanding of the law of mankind.120 “[The] fundamental conceptual boundary between municipal and international law . . . view[s] international law largely in terms of contractual relations, therefore assigning to the ‘sovereign’ a central place in the construction of the two orders.”121 In other words, transnational cooperation operated through balancing the competing autonomy and values of the parties involved. Despite centuries of debate, values systems remain the principal motivating factor of compliance with international law.122 Effective regulatory regimes must, therefore, strike at the heart of what nation-states value the most, which is often related to national security.123

When entering an international agreement, whether or not a nation-state will ratify it informs us of the value a nation-state places on the instrument’s subject matter. That value equates to the utility a nation-state places on certain allowances or prohibitions.124 Incorporating these motivating factors with Hardin’s regulatory solution, any freedoms infringed upon must manifest a higher utility than currently realized. If COPUOS proposes a protocol for sustainable uses of space, the provisions must either have a negligible effect on the global community’s perceived utility of space access or substantially increase that utility. Assuming the propositioned regulatory scheme aligns with the values system of each nation-state, the probability of internalizing such regulations through domestic codification is high.

To ascertain the interests of nation-states, we must look to the factors motivating current space utilization. Routine access to space undeniably aids our technological advancement. The ISS’s antigravity environment provides unique conditions to study medicine.125 Satellites provide real-time tracking of environmental conditions and transmit crucial information for disaster recovery planning.126 Space telescopes track objects with the potential to cause the extinction of life of Earth.127 Free from the veil of our hazy atmosphere, satellites can produce better imagery and ascertain the composition of potential resource deposits on celestial bodies.128 And simply receiving satellite imagery of our planet forces us to confront the realities of our fragile existence. These benefits signify the tangible realization of the OST’s object and purpose, which flow to all members of the global community.129 If we do not begin active decontamination and mitigation of space debris, the utility of geospace will cease to exist. Imagining our existence without these advances is a potent method to stress the criticality of unabated pollution in geospace.

B. Existing Proposals

Legal scholars have formulated several frameworks to mitigate space debris. Some recommend implementing a market-share liability regime, which assigns liability according to the volume of each nation-states’ exploits.130 Opponents of this construction rightfully highlight the inequities inherent in such a scheme. Considering the United States, Russia, and China make up the bulk of spacefaring activity, market-share liability would unduly burden these nations, and coerce a categorical exit from the space industry or a repeat of the Moon Treaty.131 Another scholar advocates for an environmental law approach, asserting that the space commons would benefit from a protocol closely mirroring the Madrid Protocol.132 While prospective applications of such a model could prevent additional accumulations, it would not feasibly abate the current collection of debris.133 The strengths of Mary Button’s mitigation proposal lie in the binding nature of the Madrid Protocol and compulsory environmental impact requirements. And though it advocates for a more collaborative conference mechanism, rather than the strict unanimous consent required of UNCOPUOS’s resolutions, it still shies away from compulsory requirements for active debris removal. Along with the Antarctic Treaty (ATS), the Law of the Sea (UNCLOS) also served as a model for the Corpus Juris Spatialis. But oddly, the law of salvage was omitted from the treaties. Unlike abandoned objects at sea, once a nation-state places an object into space, ownership exists in perpetuity. Sandra Drago addressed removing the OST’s property-in-perpetuity mechanism134 so as to permit the active salvage of inoperable satellites.135 Drago’s proposal is vital to any mitigation framework. But while this removes a substantial bar currently restricting debris removal, it does not address free-riding, and spacefaring enterprises are free to choose more lucrative space activities other than salvage operations.136

C. A Coercive Proposal

Mutual coercion lies at the core of Hardin’s solution.137 To summarize, law-abiding citizens make concessions to regulatory social constructs in the interest of conserving some utility otherwise lost.138 The coercive element lies in relinquishing one’s ability to exploit some freedom, the detriment of which cannot be realized at that moment in time.139 Conceding to a regime that tempers free exploitation of the commons allows everyone to benefit from the positive externalities of individual usage. Equated to space, nation-states currently concede to non-appropriation in the interest of maintaining equitable access. But because of the sui generis nature of geospace, even non-participants receive a benefit from the use of the commons. In effect, beneficiaries are free-riding from the capital investment of spacefaring nations and entities. This informs the structure of the ensuing two-part framework: geospace delimitation and global liability

1. Geospace Delimitation

The history of regulatory delimitation illustrates its effectiveness at balancing the rights of individuals, sovereigns, and mankind. Each instance explained in Part II infra, arose out of public necessity to ensure and protect the maximum utility of the global commons, without the deleteriousness of inhabitability, sovereign interference, or over-exploitation.140 The regimes governing Antarctica, the High Seas, the Atmosphere, and the radio-frequency spectrum evidence that mutually coercive delimitation can honor the common heritage of mankind, without encroaching on the peaceful enjoyment and benefits attributable to these areas.

a. Antarctica

In the 1950s, there was concern that Antarctica would succumb to Cold War hysteria, becoming a target for international discord and nuclear arms testing.141 In a move to reestablish global scientific exchange, the international scientific community hosted the International Geophysical Year project, and after identifying the potential of Antarctica, sought to protect it from any ruinous power posturing.142 This necessity for regulating permissible activity resulted in the formation of the ATS.143 Subsequent technological advancement revealed mineral deposits, triggering commercial interest in exploiting its natural resources. The threat catalyzed the promulgation of the Madrid Protocol.144 Again, these delimitations did not sever humanity’s utility in Antarctica. Rather, mankind conceded to the prohibition of deleterious usage in the interest of preserving its scientific utility.145

b. The High Seas

Similar to Antarctica, the High Seas faced threats in the 1960s when nation-states began unilaterally and arbitrarily, extending resource recovery activities further into the depths of international waters.146 In the interest of equity, particularly the interests of landlocked nations, UNCLOS delimited sovereign access to the seas, allowing usage only within the established exclusive economic zones (EEZs).147 An annex to UNCLOS provided a procedural framework in which resource recovery enterprises could operate in international common areas beyond the EEZs, precluding the unilateral capture of global resources by one nation.148 Once more, a mutually coercive framework removed certain freedoms in the interest of mankind without unjustly limiting equitable access to resources.

c. The Atmosphere

Divergent from the problems of the ice and sea, atmospheric regulation resolved an issue more analogous to geospace debris proliferation. Atmospheric utility is quite simple: breathable air and protection from deadly cosmic radiation. When satellite imagery revealed the sizable hole in the ozone layer, the Montreal Protocol to the Vienna Convention placed an outright ban on ozone-depleting chemicals in everyday consumables.149 This prohibition directly addressed the source of the negative externality, forcing humanity to internalize the externality through alternate investment in refrigerants. Recent evidence of the reduction of ozone loss validates the mutually coercive delimitation within the Montreal Protocol.150

d. Regulating the Telecommunication Spectrum

The business model and financial strategy of telecommunications entities influence satellite deployment planning. Typically, orbital placement aims to “maximize [a] potential user base,” and if that base happens to encompass, for instance, the continental United States, market competition drastically narrows the availability of slots for satellite positioning.151 Realizing that satellite acquisition becomes moot without conscientious “use of telemetry and control . . . required for spaceflight,”152 the Space Radiocommunication Conference convened to revise the Radio Regulations in 1963,153 granting the ITU authority to allocate radio frequencies among spacefaring entities.154 Originally, the ITU:

[A]llocated orbits and frequencies solely through a first-in-time system. This led to concern that developed countries would secure all of the available slots before developing countries had the technological capacity to use them. Although some orbits and frequencies are still allocated on a first-in-time basis, each state is now guaranteed a certain number of future orbits and frequencies, regardless of its current technological capacity.155

The FCC regulates the segment of the electromagnetic spectrum allocated to the United States.156 Arguably, the ITU and agencies like the FCC engage in de facto appropriation of the more highly sought-after orbits.157 Yet to an extent, the ITU’s delimiting of the radio-frequency spectrum remedied the negative externalities of non-appropriation in geospace, such as the overcrowding of active satellites and the resultant interference. Where the ITU’s scheme does not remedy the byproduct of geospace resource use, it succeeds in ensuring communication capabilities remain free from inequitable use.158

e. The OST’s Ineffective Delimitations

The recurrent theme among the aforementioned regulatory schemes is the preservation of utility within the commons concerned.159 The frameworks each provide a means to enjoy shared resources while removing the potential for destruction. The OST’s nonproliferation provisions properly regulate the usage of the space commons to further the enjoyment of space’s true utility: scientific discovery and telecommunications. Likewise, the Liability Convention reinforces the necessity to maintain heightened situational awareness to guarantee the mutual, uninterrupted enjoyment of activity in space.160 But nation-states exploit the loop-holes within these documents to avoid internalizing some of their externalities. Specifically, the Liability Convention only assigns liability for damage caused to space objects when fault can actually be determined.161 Though it would be simple to assign fault to a collision caused by an intact and inoperative satellite, it is virtually impossible to identify the owner of smaller pieces of debris. Further, while the ITU reserves slots for nations not represented in space,162 it does nothing to stop those capable of reaching geospace from littering the commons and destroying the utility of reserved slots.163 Holistically, none of the delimitations in the Corpus Juris Spatialis negate the cause of the growing belt of debris in geospace.

As a sui generis resource, the mere occupation of LEO or GSO equates to the reduction of the overall utility of geospace. When an entity launches a rocket into space, the accompanying payload causes either (1) temporary reduction of the aggregate utility of geospace or (2) permanent reduction of the aggregate utility of geospace.164

The first delimitation prong will recommend bifurcating the applicability of the Corpus Juris Spatialis, with separate regimes for outer space and geospace. While the commercialization of outer space is not overly injurious to the international commons or interests of developing nations, the overcrowding of affluent spacefaring entities vying for orbital acquisition puts immense pressure on the finite resources within geospace. Therefore, demarcating the upper limit of geospace will allow entities to continue exploring the universe without imposing the restrictions placed on those seeking geospace positioning.165 This modification will allow continued use of both regions, but coerce more sustainable usage of geospace with the assistance of the secondary prong below.

2. Global Liability

Operating under the theory that humanity holds an implied property right in the global commons but limited under the non-appropriation clause to protect those interests through traditional property mechanisms, the logical alternative is to impose liability on actions violative of the global interest.166 Further, assuming humanity collectively benefits from utilization of this commons, then humanity likewise must internalize the cost of the negative externalities imposed.167 This means that spacefarers, as members of the global collective, hold both the right and obligation to protect that right for others.168 Therefore, anyone utilizing or benefitting from the utilization of the geospace commons has an equitable duty to ensure its sustainability. Under traditional tort theories, when one has a duty, breach of that duty causally linked to a measurable injury is actionable. In terms of the duty to humanity when utilizing geospace, the culmination of Kessler Syndrome represents the measurable injury.

Kessler informed the scientific community in 1970 of the probable cataclysmic chain-reaction and destructive conclusion of unabated geospace debris pollution.169 This theory, reiterated consistently since its dissemination, materialized in 2009.170 Fundamentally, every spacefaring entity and approving launching state knows of this monumental threat to the utility of geospace. Yet to date, mitigation guidelines remain non-binding, and four-figure satellite constellations continue to receive approval.171 To incorporate a time-honored risk calculation method, the Hand Formula is instructive and evidences a trend toward unapologetic endangerment to the utility of geospace in isolation of the associated tort regime.

Let us assume the burden to mitigate space debris is $18.5 million172 but the probable magnitude of not mitigating the accumulation of space debris equates to reverting our technological capabilities back to the 1800s. Considering the accumulation of debris from the accidental or intentional breakup of geospace satellites, the probability of Kessler Syndrome fully concluding in the absence of a comprehensive mitigation protocol is one hundred percent.173 While difficult to quantify, the value of our scientific progress attributable to the advent of space travel far outstrips the burden to mitigate space debris. Should Kessler Syndrome become our reality, the measurable injury is the cost of reestablishing global communications without the usage of satellite relays. To add insult to injury, the invaluable utility of geospace will cease to exist.

A viable alternative would institute a regime of shared global liability which makes consideration of capital investors as well as nonparticipating beneficiaries in the interest of equity. That is, should the inevitable prison for humanity become a reality, the entire global community will be liable to pay an equitable share of the overall cost of recovery efforts.174 The Liability Convention should undergo a similar trifurcation, adding this new scheme to the current strict and absolute liability mechanisms.175 As such, shared global liability will consider the responsibility of nation-states and private entities in isolation.176 This will coerce cooperation among all agencies, nations, and private entities because the equitable share of responsibility will drive collective resolution.

V. CONCLUSION

In light of the emerging global sentiments regarding environmental conservation and sustainability, instituting a regime that clearly defines a legal consequence in the event of environmental ruin boasts greater coercive force than non-binding resolutions. 9 This international agreement aligns with the universal value that the international community places on the utility of geospace.177 In essence, it protects geospace by forcing the signatory to face the reality of their negative externalities. It is unlikely that a nation-state exists that does not value space exploration and the benefits attributable.

In April of 2019, in the spirit of the Sustainable Development Goals (SDGs), COPUOS adopted an agenda that focused on the long-term sustainability of the space commons, space traffic management, equitable uses of GSO, and the mitigation of space debris.178 Mindful of space’s critical role in attaining many of the SDGs, the Committee put forth guidelines to facilitate capacity building without prejudice to any one nation-states’ economic capabilities. To be sure, the Guidelines for the Long-Term Sustainability of Outer Space Activities are an important step forward, but many delegates reiterated the importance of developing binding instruments, particularly in light of developments in “space resource exploitation, large constellations, and space debris remediation.”179

Looking forward, research continues to advance the availability of debris mitigation mechanisms, such as the European Space Agency’s newly-commissioned ClearSpace-1 satellite.180 Mission objectives increasingly include end-of-life procedures to place satellites in appropriate orbits to decrease clutter in areas where active satellites operate.181 In the context of private entities, Planetary Resources—originally positioned to become a principle player in the space mining industry—merged with Consensys Space and quickly launched TruSat, a crowd-sourced situational awareness forum that compiles the reports of private citizens to track objects in geospace.182 These developments instill confidence in the international community’s sentiments toward ameliorating this ever-approaching catastrophe. It is with great hope that this trend continues, and COPUOS promulgates binding regulations to ensure the sustainability of geospace for the common heritage of mankind. “But we can never do nothing. That which we have done for thousands of years is also action. It also produces evils.”183

#### 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 associate 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.

#### 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 astronomics 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 planet. 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 Corp­oration, 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 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.

#### 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 conventions 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.

#### Development of space resources is still possible with a commons model. Property rights are not necessary. Existing models governing commons encourage responsible development, numerous examples prove.

Saletta Sterling & Orrman-Rossiter 18 [Sterling Saletta, Morgan; Orrman-Rossiter, Kevin (2018). Can space mining benefit all of humanity?: The resource fund and citizen's dividend model of Alaska, the ‘last frontier’. Space Policy, (), S0265964616300704–. doi:10.1016/j.spacepol.2018.02.002] CT

On the other hand, it has also been suggested that modifications and additions to the OST based on terrestrial models will provide sufficient guarantee of the right to make profits from the exploitation of outer space resources. Henry Hertzfeld and Frans von der Dunk argue the current regime does not pose a problem for exploitation rights and that terrestrial models would allow private ventures the right to reasonable returns on investment from resource exploitation in space [41]. Furthermore, in addition to important, and possibly irreconcilable, differences between a California gold rush style approach and the OST [42], arguments suggesting fee-simple or similar ownership is necessary for profitable private outer space resource exploitation simply do not stand in the face of contrary evidence from numerous terrestrial examples. These include offshore oil drilling, mining, timber and grazing operations in the United States and internationally which are regularly and profitably undertaken without ownership [43]. Thus P. M. Sterns and L. I. Tennen argue that the current international regime does provide an adequate framework for commercial development in space, that fee-simple ownership is unnecessary and:

“those who advocate the renunciation and abandonment of the nonappropriation principle are either seeking to increase their own bottom line by disingenuous and deceptive constructs, or lack an appropriate appreciation and respect for international processes [[44], p. 2439]”.

Thus, claims that a lack of private property rights in outer space will be a deterrent to commercial resource exploitation ventures in space do not reflect an adequate reflection and analysis of the manner in which current terrestrial practices might be extended into outer space without abrogating the current treaty regime. Nor would a system based on fee simple ownership be likely to tangibly benefit more than a small proportion of the world's population. Instead, the eventual wealth from exploiting celestial bodies would be concentrated in the hands of a few, exacerbating rather than alleviating existing problems for humanity and global sustainable development.

The Outer Space Treaty has provided an effective legal framework for the exploration of outer space for over 50 years. Based on the history of treaty regimes governing other international spaces, UNCLOS and the ATS, it seems likely that, in future, additional protocols and agreements will be layered onto the OST and that calls to abrogate and to negotiate a wholly new treaty system are unlikely to succeed. While low participation in the Moon Agreement, also known as the Moon Treaty of 1979, which has not been ratified by either the United States, Russia, or China, has raised questions of legitimacy, it has recently been argued that the Moon Treaty may receive renewed interest in the international community. René Lefeber argues that, far from stifling commercial ventures, the Moon Agreement “provides the best available option for mankind, states and industry to develop space mineral resources in a harmonious way [[5], p. 47]”, and that, as resource exploitation in outer space now seems likely, the need to elaborate an international regime to prevent conflict over resources may bring other parties to ratify, accede to, or sign the treaty.

Ultimately, some form of international governance of outer space as a global commons [45] building on the OST and the current corpus juris spatialis seems both more likely and more desirable than an abrogation of the OST and its replacement with an entirely new treaty regime. Thus, an international regime built upon this existing regime will need to be constructed which takes a balanced approach to space exploration, development and exploitation and which encourages entrepreneurial development but also moves beyond vague utopian platitudes to real and concrete benefits for all of humanity.

### Underview

#### Scholarly discourse and engagement with politics is key to effective structural reform - critique is insufficient.

**Purdy ’20 -** Jedediah S. Britton-Purdy et al, 20 - ("Building a Law-and-Political-Economy Framework: Beyond the Twentieth-Century Synthesis by Jedediah S. Britton-Purdy, David Singh Grewal, Amy Kapczynski, K. Sabeel Rahman :: SSRN," 3-2-2020, <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3547312)//ey/>

To embrace the possibility of democratic renewal requires rejecting the terms of the Twentieth-Century Synthesis. We believe that the legal realists—and thinkers in a much longer history of political thought—were right in believing that "the economy" is neither self-defining nor self-justifying. The emphasis in these traditions has been the right one: on power, distribution, and the need for legitimacy as the central themes in the organization of economic life. Moreover, precisely because economic ordering is a political and legal artifact, the idea of an "autonomous" economic domain has always been obscurantist and ideological, even when accepted in good faith.' Law does not and never could simply defer to such a realm. Rather, **law is perennially involved in creating and enforcing the terms of economic ordering,** most particularly through the creation and maintenance of markets. One of its most important roles, indeed, is determining who is subject to market ordering and on what terms, and who is exempted in favor of other kinds of protection or provision.' Thus the program of law, politics, and institution building often called "neoliberalism" is, and can only be, a specific theory of how to use state power, to what ends, and for whose benefit.'The **ideological work** of the Twentieth-Century Synthesis has been **to** naturalize and **embed in legal institutions from the Supreme Court to the** Antitrust Office and **W**orld **T**rade **O**rganization a specific disposition of power**.** This power represents a deployment of market ordering that produces intense and cross-cutting forms of inequality and democratic erosion. However, Twentieth-Century Synthesis theorists tend not to see this, precisely because the Synthesis makes it so hard to see (or at least so easy to overlook). If it is to succeed, **law and political economy** will also **require something beyond mere critique. It will require a positive agenda.** Many **new** and energized **voices**, from the legal academy to political candidates to movement activists, are already building in this direction,' **calling for** and giving shape to **programs for more genuine democracy that also takes seriously questions of economic** power **and racial subordination;**171 more equal distribution of resources and life chances;172 more public and shared resources and infrastructues;173 the displacement of concentrated corporate power and rooting of new forms of worker power;174 the end of mass incarceration **and broader contestation of** the long history of the criminalization and **control of poor people and people of color in building capitalism;**175 the recognition of finance and money as public infrastructures;176 the challenges posed by emerging forms of power and control arising from new technologies;177 and the need for a radical new emphasis on ecology.178 These are the materials from which a positive agenda, over time, will be built. **Political fights interact generatively with scholarly and policy debates in pointing** the way **toward a more democratic political economy.** The emergence of new grassroots movements, campaigns, and proposals seeking to deepen our democracy is no guarantee of success. But their prevalence and influence make clear the dangers and opportunities of this moment of upheaval—and highlight the stakes of building a new legal imaginary. 179 Neoliberal political economy, with its underlying commitments to efficiency, neutrality, and anti-politics, helped animate, shape, and legitimate a twentieth-century consensus that erased power, encased the market, and reinscribed racialized, economic, and gendered inequities. By contrast, **a legal imaginary of democratic political economy**, that takes seriously underlying concepts of power, equality, and democracy, **can inform a wave of** legal **thought whose critique and policy imagination can amplify and accelerate these movements for structural reform** and, if we are lucky, help remake our polity in more deeply democratic ways.

#### Reform makes revolution more likely. Rejecting it condescendingly asserts the possibility of radical change is better than the certainty of real improvement.

**Delgado ’87 -** Delgado, Richard [teaches civil rights and critical race theory at University of Alabama School of Law. He has written and co-authored numerous articles and books], “The Ethereal Scholar:  Does Critical Legal Studies Have What Minorities Want?”, Harvard Civil Rights - Civil Liberties Law Review, 1987

Critical scholars reject the idea of piecemeal reform. Incremental change, they argue, merely postpones the wholesale reformation that must occur to create a decent society.38 Even worse, an unfair social system survives by using piecemeal reform to disguise and legitimize oppression. 39 Those who control the system weaken resistance by pointing to the occasional concession to, or periodic court victory of, a black plaintiff or worker as evidence that the system is fair and just.40 In fact, Crits believe that teaching the common law or using the case method in law school is a disguised means of preaching incrementalism and thereby maintaining the current power structure.41 To avoid this, CLS scholars urge law professors to abandon the case method, give up the effort to find rationality and order in the case law, and teach in an unabashedly political fashion. 42

**The** CLS **critique of piecemeal reform is** familiar, **imperialistic and wrong.** **Minorities know from bitter experience that occasional court victories do not mean the Promised Land is at hand.**43 **The critique** is imperialistic in that it **tells minorities and other oppressed peoples how they should interpret events affecting them.**44 **A court order directing a housing authority to disburse funds for heating** in subsidized housing **may postpone the revolution, or it may not. In the meantime, the order keeps a number of poor families warm.** This may mean more to them than it does to a comfortable academic working in a warm office. **It smacks of paternalism to assert that the possibility of revolution later outweighs the certainty of heat now**, unless there is evidence for that possibility**.** The Crits do not offer such evidence.

Indeed, some **incremental changes may bring revolutionary changes closer**, not push them further away**.** Not all **small reforms** induce complacency; some may **whet the appetite for further combat.** The welfare family may hold a tenants' union meeting in their heated living room. CLS scholars' **critique of piecemeal reform** often **misses these possibilities, and neglects the question of whether total change, when it comes, will be what we want.**

#### Adopt a hybridizing strategy - exploiting contradictions in hegemonic discourse maintains critical distance while effectively challenging the state. Kapoor ‘08

Kapoor, 2008 (Ilan, Associate Professor at the Faculty of Environmental Studies, York University, “The Postcolonial Politics of Development,” p. 138-139)

There are perhaps several other social movement campaigns that could be cited as examples of **a ‘hybridizing strategy’**.5 But what emerges as important from the Chipko and NBA campaigns is the way in which they **treat** laws and **policies**, institutional practices, **and ideological apparatuses as deconstructible**. That is, they refuse to take dominant authority at face value, and proceed to reveal its contingencies. Sometimes, they expose what the hegemon is trying to disavow or hide (exclusion of affected communities in project design and implementation, faulty information gathering and dissemination). Sometimes, they problematize dominant or naturalized truths (‘development = unlimited economic growth = capitalism’, ‘big is better’, ‘technology can save the environment’). In either case, by contesting, publicizing, and politicizing accepted or hidden truths, they hybridize power, challenging its smugness and triumphalism, revealing its impurities. They show power to be, literally and figuratively, a bastard. While speaking truth to power, a **hybridizing** strategy also **exploits the instabilities of power**. In part, this involves showing up and taking advantage of the equivocations of power — conflicting laws, contradictory policies, unfulfilled promises. A lot has to do here with **publicly shaming the hegemon, forcing it to** remedy injustices and **live up to stated commitments** in a more accountable and transparent manner. And, in part, **this involves** nurturing or **manipulating the splits and strains within institutions. Such maneuvering can take the form of cultivating allies**, forging alliances, or throwing doubt on prevailing orthodoxy. Note, lastly, the way in which a **hybridizing** strategy **works with the dominant discourse**. This reflects the negotiative aspect of Bhabha’s performativity. The strategy may outwit the hegemon, but it does so from the interstices of the hegemony. The master may be paralyzed, but his paralysis is induced using his own poison/medicine. It is for this reason that cultivating allies in the adversarial camp is possible: **when you speak their language and appeal to their own ethical horizons,** you are building a modicum of common ground. It is for this reason also that **the master cannot easily dismiss or crush you.** Observing his rules and **playing his game** **makes it difficult for him not to** take you seriously or **grant** you **a certain legitimacy**. The use of non-violent tactics may be crucial in this regard: state repression is easily justified against violent adversaries, but it is vulnerable to public criticism when used against non-violence. Thus, the fact that Chipko and the NBA deployed civil disobedience — pioneered, it must be pointed out, by the ‘father of the nation’ (i.e. Gandhi) — made it difficult for the state to quash them or deflect their claims.

#### Using the government as a heuristic is better pragmatically and forces us to truly investigate political structures in search of ways to improve instead of using abstract solutions for concrete impacts.

**Zannoti ’13 -** Zannoti, Laura, associate professor of Political Science at Virginia Tech., Ph.D. from the University of Washington in 2008 and joined the Purdue University faculty in 2009. “Governmentality, Ontology, Methodology: Re-thinking Political Agency in the Global World”, originally published online 30 December 2013, DOI: 10.1177/0304375413512098, P. Sage Publications MC

By questioning substantialist representations of power and subjects, inquiries on the possibilities of political agency are reframed in a way that focuses on power and subjects’ relational character and the contingent processes of their (trans)formation in the context of agonic relations. **Options for resistance to governmental scripts are not limited to ‘‘rejection,’’ ‘‘revolution,’’ or ‘‘dispossession’’ to regain** a pristine ‘‘freedom from all constraints’’ or **an immanent ideal social order. It is found** instead **in** multifarious and contingent **struggles** that are **constituted within the scripts of governmental rationalities and at the same time exceed and transform them. This approach questions oversimplifications** of the complexities **of liberal political rationalities and** of their interactions with non-liberal political players and **nurtures a radical skepticism about identifying universally good or bad actors or abstract solutions to political problems.** International power interacts in complex ways with diverse political spaces and within these spaces it is appropriated, hybridized, redescribed, hijacked, and tinkered with. **Governmentality as a heuristic focuses on performing complex diagnostics of events.** It invites historically situated explorations and careful differentiations rather than overarching demonizations of ‘‘power,’’ romanticizations of the ‘‘rebel’’ or the ‘‘the local.**’’** More broadly, theoretical formulations that conceive the subject in non-substantialist terms and focus on processes of subjectification, on the ambiguity of power discourses, and on hybridization as the terrain for political transformation, open ways for reconsidering political agency beyond the dichotomy of oppression/rebellion. **These alternative formulations** also **foster an ethics of political engagement,** to be continuously taken up through plural and uncertain practices, **that demand continuous attention to ‘‘what happens’’ instead of fixations on ‘‘what ought to be.’’**83 **Such ethics of engagement would not await the revolution to come** or hope for a pristine ‘‘freedom’’ to be regained**. Instead, it would constantly attempt to twist the working of power by playing with whatever cards are available and would require intense processes of reflexivity on the consequences of political choices.** To conclude with a famous phrase by Michel Foucault ‘‘my point is not that everything is bad, but that everything is dangerous, which is not exactly the same as bad. If everything is dangerous, then we always have something to do. So my position leads not to apathy but to hyper- and pessimistic activism.