# 1AC

## Thesis

#### [Bormann 1] “Space” may be an objective place, but it becomes subjective the moment we interact, visualize, or conceptualize it – access to information determines how we conceptualize and think about space, thus, an analysis of outer space must begin with the military technology that determines the types of information we receive

Bormann 09 [(Natalie Bormann teaches at the Department of Politics, Northeastern University, Boston. Prior to that she held a position at the Watson Institute for International Studies, Brown University.) *Securing Outer Space*. London Routledge, 2009. |http://library.lol/main/595AB4C6B8521A6F9E7323DD023CC97E|Accessed 29 Dec. 2021.] PW

In this chapter I seize upon Virilio’s insights on the space/technology relationship but want to begin by shifting the focus slightly away from speed and informational systems to the one of space itself, the question of what happens to space and the role of spatial inventions. I want to probe on Virilio’s notion of ‘critical space’; as the author contends, space ﬁnds itself in a critical situation, just like one would speak of critical times, or of a critical situation. Space is under threat. Not only matter is threatened, space too is being destroyed. But it is being rebuilt at the same time. (Virilio 1999: 33) Following Virilio, space becomes critical by virtue of performances that generate a sense of instantaneity and ubiquity – in the context of this chapter this is reﬂected by means of military technology and weaponry in outer space: we are now enmeshed in a practice of warﬁghting that can be easily projected and simulated, without delay, and onto various dimensions (sea, air, exoatmospheric). A virtual – yet ‘earth bound’ – battleﬁeld can be mapped onto outer space, where weapons are placed a long distance away – yet the proximity and instantaneity of ﬁghting against an ‘other’ appears possible at all times and from anywhere. In this sense, I argue that the concept of critical space allows us to unearth the ways in which military technology deterritorialises physical space – the doing away of matter – while it simultaneously constitutes the condition of possibility for the production of certain (new) spatial imageries which serve to create and perpetuate a particular claim to the legitimacy and authority regarding weapons in space and their modes of destruction. However, in order to fully appreciate the signiﬁcance of critical space and technology, we need to remind ourselves of the contemporary wisdom about space, spatiality and its invention. A short analogy may prove useful: A short story of ‘ﬁsh consciousness’ by Frank White (1998: 7–8)8 A ﬁsh glides through a liquid world, aware of light and dark, predators and prey, dimly perceiving the ocean bottom below. On occasion, it may leap out of the water and experience something else strange and different. That experience, however, is rare and not an essential element of the ﬁsh’s life. This is ‘ﬁsh consciousness’. In regard to land, water, air, and sky, the ﬁsh’s knowledge of reality is highly conditioned and extremely restricted by its physical surroundings. If you were a ﬁsh, you would have no idea what land is like and only vaguest notion of what water is like, because water would be the fundamental medium in which you lived. An idea of ‘sky’ would be far beyond your comprehension. What a change it would have been for the ﬁrst ﬁsh to crawl onto land! It would have been assailed with new experiences unique to its species. For the ﬁrst time, the ﬁsh would be able to see the ocean, and what had been the whole world would be seen as part of something far larger. [...] How would it have described the colors that other ﬁsh had never seen, sounds they had not heard, views they couldn’t imagine? How would they have adapted to calling what had been ‘the world’ simply the ocean? The ﬁsh analogy highlights some of the key notions on space and how we (or, ﬁsh, for that matter) invent space at a certain time and under certain circumstances. Frank White uses the ﬁsh story as a means to point out the ways in which to makes sense of the experiences and perceptions of space astronauts in their new environment. White makes a vital claim in this regard: outer space is always constituted by various astronauts – differently – by that which already precedes their perception of space. In other words, previous experiences, expectations, historical events (such as the Challenger disaster), and the individual state of mind have an impact on the ways outer space is seen, imagined, mapped, and subsequently narrated to us – in White’s case, by various individuals at certain times. To put it differently yet again: nothing about outer space is ‘out there’; what we get to know about outer space is always socially, spatially and locally embedded. Virilio (2000: 116) agrees; he writes, ‘a landscape has no ﬁxed meaning, no privileged vantage point. It is orientated only by the itinerary of the passerby’. Thus, when alluding to outer space as space it must be understood that the concept of space does not lie in space; but space is constituted ‘from the outside’. It is ‘what we (can) know about space’ and how a space is understood and framed at any given time which provides us with one reality of that space. In this sense, outer space as a space does never pre-exist independently and is never explored nor innovated; it is always constituted through that which it precedes (and through that which always-already exists). As Foucault (1986: 22) depicts, ‘space is not an innovation; space itself has a history in Western experience’. Henry Lefebvre (1991) speaks here of the production of space, whereby space becomes a location of a certain type through its association with certain practices, rituals and representations. He uses the example of a church, which gains meaning through its invention as a place of faith (space is thus at once a precondition as much as a result of society and its practices). Following on from this point, it is clear that the social dimension of spatial relations is inescapable; while one might assume that the space of a room or a house could be ‘physically’ cut off from social relations, for example, through the construction of doors and walls, creating these boundaries that demarcate a practice of inclusion and exclusion is inherently always meaning-constructive: the signs and symbols of private property as opposed to the public one (the garden wall or front door), the single room as opposed to the house, outer space as opposed to Earth, is always-already part of that collective social space. In this sense, space is produced, and can be explained, by means of meanings as well as by means of an absence of meaning (Lefebvre 1991). Lefebvre uses the example of a container and argues that one must not think of space in terms of such a container (or conﬁned space) in which we put ‘things’ (buildings, inhabitants etc.). While Virilio may not necessarily speak of a production of space along these lines, he would certainly agree that information and data about something matters more than that which composes something. The author clariﬁes this process by using the example of a mountain: while certain physical aspects of a mountain, such as its mass, are linked to ﬁxed ‘data’ (its density), this is not the case for information about the mountain. For example, the mountain’s name or its topography, is located in a particular point in time; it thus evolves over time given the impact of technology (determining what kind of information we can retrieve) (Virilio 2000). Virilio goes as far as to claim that information about a space will matter exclusively leading to a disappearance of matter and physicality all together. As such, space will stop having a ‘location’ on its own. Michel de Certeau (1984) makes a vital point in this regard, and for this chapter, when he claims that the importance of abstract (non-ﬁxed, non-static) space is not only that it cannot be inhabited in any permanent way but moreover that it makes possible a certain kind of action, and embodies a certain kind of practice. It is in this sense, and at this juncture, that I suggest we must begin when contemplating outer space and its weaponisation. Outer space must be seen, and to use Virilio’s term, as a ‘disembodied space’ with no ﬁxed and static coordinates. It follows from here, then, that two questions emerge; ﬁrst, what dominant information about outer space can we read, see and know; and second, how has this information become our dominant reading, seeing and knowing? What will become clear in the process of addressing these questions is that what we get to know about the space of outer space – our conception of it – is dominated by information provided through the possibilities (and limits) of military technology.

## Advantage

#### [Wittington 21] First, private companies are actively revolutionizing the technologies of violence in outer space

Wittington 21 [Whittington, Mark. “Is the Space Force about to Acquire SpaceX Starships? | TheHill.” TheHill, The Hill, 6 June 2021, thehill.com/opinion/technology/557026-is-the-space-force-about-to-acquire-spacex-starships?rl=1. Accessed 30 Dec. 2021.] PW

Eric Berger over at Ars Technica has [noticed something](https://arstechnica.com/science/2021/06/the-us-military-is-starting-to-get-really-interested-in-starship/) in the Department of the Air Force section of [President Biden](https://thehill.com/people/joe-biden)’s fiscal 2022 budget proposal. The Air Force is proposing to spend money to study how the Starship rocket being developed by SpaceX could be used to deliver 100 tons of cargo anywhere in the world within one hour. The Starship as a point-to-point cargo hauler may be just the first task that the SpaceX rocket ship is asked to perform. Certainly, the military would appreciate having the ability to send supplies to any place in the world within an hour. The practical problems of making the Starship work as a cargo hauler would be formidable. A single insurgent with a ground-to-air missile might turn a landing into a fireball. The Motley Fool, a private investment advice company, [is quite bullish](https://www.fool.com/investing/2021/06/01/how-spacex-could-become-space-forces-no-1-defense/) on the military potential of the Starship. The company envisions the SpaceX rocket ship performing a variety of military missions from low Earth orbit to the vicinity of the moon. Starship could be used as a mobile, versatile reconnaissance platform, using its store of fuel and six vacuum-optimized Raptor engines to maneuver where it needs to go. The SpaceX Starship could perform a number of other military missions, such as striking at the space assets of enemy nations in times of war and defending American satellites and other space-based installations. The rocket ship could refuel American satellites, extending their operational lifespans. It could even be used to help clean up space debris. The [Space Force](https://thehill.com/opinion/technology/512210-the-space-force-moves-to-define-itself-and-its-mission) would thus grow from a handful of personnel manning consoles and conducting planning meetings to a true war fighting branch of the military. The Starship, currently under development at the SpaceX testing facility in Boca Chica, Texas, is the instrument of company CEO [Elon Musk](https://thehill.com/people/elon-musk)’s dream to build a settlement on Mars. Musk envisions the rocket ship taking settlers and the supplies they need to survive to the red planet, making a new branch of human civilization. NASA is already so impressed by the Starship that it has contracted SpaceX to build [a lunar-landing version](https://www.nasa.gov/press-release/as-artemis-moves-forward-nasa-picks-spacex-to-land-next-americans-on-moon/) of it to return astronauts to the moon as early as 2024. The selection has enraged Musk’s rivals such as Blue Origin’s [Jeff Bezos](https://thehill.com/people/jeffrey-jeff-bezos) and has perturbed some members of Congress. Both have only themselves to blame — Blue Origin for offering an inferior design and Congress for underfunding the Human Landing System project. Military technology development has often been defined by the advent of new ways to transport people and cargo. The [racing galleon](https://www.military-history.org/feature/cross-section-inside-a-16th-century-galleon.htm) of the 16th century became the frigates and ships of the line that defined naval warfare in the 18th and early 19th centuries. The steam engine and iron and steel armor led to the dreadnoughts of the early 20th century. Modern warships incorporate nuclear power. Air travel has caused the same sort of evolution, from the motorized kites of World War I to modern jets that can deliver destruction and death from thousands of miles away. Now, space transportation technology is poised to cause a similar revolution in the military’s ability to defend the United States and its allies and to inflict mayhem and death on any enemy that would propose to make war on America. The great irony is that the Starship will be used by a branch of the military that Musk once [compared](https://www.space.com/elon-musk-united-states-space-force.html) to Starfleet, the fictional service depicted in the "Star Trek" television shows and movies. The thought would likely bring a smile to the face of the franchise’s creator, Gene Roddenberry, in whatever afterlife one envisions him inhabiting.

#### [Henry 18] Second, independent of their military ambitions, privatization is a strategic tool to preserve US hegemonic interest and maintain the “ours” and “theirs” mentality that recreates outer space as a place of war

Henry 18 [(Henry, Edward C. is a graduate of the University of Massachusetts, Boston), "The United States of Sol: Privatization as a Tool of American Hegemony in the Solar System" (2018). <https://scholarworks.umb.edu/cgi/viewcontent.cgi?article=1511&context=masters_theses>] Comrade PW

CONCLUSION: PRIVATIZATION IS A TOOL The story of American outer space exploration begins with the Cold War and runs through the rise of the neoliberal practice of capitalism. The rhetoric of privatization emerged in the 1980s under Ronald Reagan, as merely the next step in the retraction of the American state in favor of deregulation and corporate expansion. Beginning in 1990, US Congressional legislation caught up with the presidential rhetoric, creating the necessary legal pathway for direct commercial entry into outer space. Subsequent NASA Authorization acts in addition to various acts such as the National Space Council Act of 1990, and the SPACE Act of 2015 authorized private companies to launch their own equipment into outer space, required the federal executive to seek out commercial opportunities, and grants the legal ability to individual American citizens (including corporations) to extract thus own any resource in outer space. The story is incomplete without considering the international treaty system and the recent historical context. American efforts in outer space, reflected through the presidential rhetoric and congressional legislation, were focused on extending and protecting American hegemonic presence in outer space. Prior to the privatization shift in the outer space rhetoric (that occurs in the 1980s), the presidential rhetoric and related legislation spoke of scientific advancement and peaceful exploration for the betterment of all humanity, through the leadership of “free men” (the United States). This sentiment is more in line with the ethos of the five international outer space tries (including the failed Moon treaty): the common heritage principles of humankind. The key aspects of the common heritage principles (as it relates to outer space law and discussed in the treaties) are: a ban on unilateral sovereignty claims, peaceful (demilitarized) exploration of outer space, and redistribution of the economic and scientific benefit. In short, the whole of the planet must benefit. The common heritage principles were initially proposed and long supported by member states of the Non-Aligned Movement (NAM). NAM’s strong support for the common heritage principles was a response to the both Cold War conflict and political decolonization. NAM worked to represent and protect the interests of the Third World (most of which were recently independent). Within the bipolar balance of power struggles of the Cold War, NAM was a third voice. The common heritage principles (which were also applied to the deep see and Antarctica, in their own forms) are part of an effort to constrain the two warring super powers (demilitarization) and protect out of reach resources for future generations (an attempt to slow the development gap). Reagan’s introduction of commercialization into the outer space rhetoric began the movement further away from the common heritage principles in the treaty. The new paradigm focused on cost cutting, budget efficiency, deregulation, and the expansion of “free” markets (at the expense of discussing scientific, peaceful exploration for the betterment of humanity). By 1990, Congress declared that free market capitalism was the only route to successfully develop outer space. Reagan and his successors’ language differed from that of their predecessors. Eisenhower and Kennedy established a framework dedicated to American leadership as the beacon of “free men.” Eisenhower began with a warning of threats to such moral leadership while Kennedy presented a grand vision of propelling American leadership literally to the moon. Johnson presented a hope that the new international outer space treaties would contain the ravages of war to the planet, keeping outer space a realm of peaceful exploration, stating his hope that astronauts and cosmonauts would interact peacefully on missions of scientific discovery. Reagan introduced privatization and the need for commercial development while highlighting the American space “victories” particularly focusing on being the first and only state to reach the moon. George H.W. Bush continued to emphasize this exception noting the only flag on the surface is the American flag. His son, George W. Bush, and Obama continued the privatization rhetoric. Both of the Bush’s followed a precedent established by previous presidents (such as Kennedy) in connecting outer space exploration to the colonization of the American west. Obama added legislative and policy strength to that endeavor by signing the SPACE Act of 2015 and releasing the 2010 National Outer Space Policy Security document. The 2010 policy document recommitted outer space to the national security of the US (which includes commercializing outer space through expanding the “free” market into orbit and beyond). The policy further stipulated that the American government will defend its national security interests in outer space including its own citizens and actors working to develop it (private companies). This steady progress of commercialization has led to the current administration announcement to sell the International Space Station to private operators. Nearly thirty years after Reagan introduced privatization into the outer space rhetoric, the goal is well on its way to completion: low earth orbit is being developed under free market principles.

#### [D&H 1] This is a project of space control, where commercialization serves as the precursor for the eventual militarization and securitization of profit and capital

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Space control The doctrine of space control has emerged out of the belief that assets in space represent a potential target for enemies of the US.38 There are two kinds of vulnerable US assets: private-commercial; and military. One concern is that rivals may attack commercial satellites, thereby disrupting the flow of information and inflicting significant harm on global markets.39 Militarily, the concern is that, through increasing reliance on satellites for Earth-based military operations, the US has created an 'asymmetrical vulnerability'. An adversary (including a non-state, 'terrorist' organisation) could effectively stop immobilise US forces by destroying disabling the satellites that provide communication, command, and control capabilities. Consequently, the project of space control is designed to protect commercial and military satellites from potential attacks. Its broader purpose, however, is to prevent rivals from having any access to space for activities antithetical to US interests; this is the imperative for 'denial of the use of space to adversaries'. Thus space control has dual functions - it is both a privatising of the commons of orbital space and a military exclusion - in a form of 'inclusive exclusion'.40 Space control represents the extension of US sovereignty into orbital space. Its implementation would reinforce the constitutive effect identified in the previous section on missile defence, namely to reinscribe the 'hard shell' border of the US, now extended to include the 'territory' of orbital space. US sovereignty is projected out of this world and into orbit. Under Article II of the 1967 Outer Space Treaty, 'Outer Space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means'. The US project of space control would entail a clear violation of this article.41 In addition to expanding the scope of US sovereignty, however, this violation of international law has a second constitutive effect of importance, namely to produce a distinctly capitalist sovereignty. In Volume One of Capital, Marx chided classical political economists for their inability to explain how workers became separated from the means of production. Whereas political economists such as Adam Smith argued that a previous accumulation of capital was necessary for a division of labour, Marx argued that this doctrine was absurd. Division of labour existed in pre-capitalist societies where workers were not alienated from their labour. Instead, Marx argued that the actual historical process of primitive accumulation of capital was carried out through colonial relations of appropriation by force.42 While not a perfect analogy, because of the lack of material labour, the value of which is to be forcibly appropriated in orbital space, space control is like such primitive accumulation in constituting a global capitalist order through the colonisation of space as previously common property. One of the purposes of the 1967 Outer Space Treaty was to preserve a commons where all states, regardless of technical ability or economic or military power, could participate in the potential benefits space has to offer. In the years since this treaty was signed, the primary economic use of space has been for commercial communications satellites. This industry has expanded dramatically in the last two decades. Total revenues for commercial space-related industries in 1980 were $2.1 bn; by 2003 this figure had expanded to $91 bn and it was expected to increase at least as rapidly into the foreseeable future.43 Space control is about determining who has access to this new economy. Positions in orbit for satellites are a new form of 'real estate'. By controlling access to orbital space the US would be forcibly appropriating the orbits, in effect turning them into primitively accumulated private property.44 In this way, the US becomes even more than it is now the sovereign state for global capitalism, the global capitalist state.

#### [Bormann 2] These technological developments are shrinking the world while increasing the speed action and reaction, locking in the derealization of warfare and violence that recreates the very catastrophic events which nations are trying to avoid into a self-fulfilling prophecy

Bormann 09 [(Natalie Bormann teaches at the Department of Politics, Northeastern University, Boston. Prior to that she held a position at the Watson Institute for International Studies, Brown University.) *Securing Outer Space*. London Routledge, 2009. |http://library.lol/main/595AB4C6B8521A6F9E7323DD023CC97E|Accessed 29 Dec. 2021.] PW

Military space and permanent war in space ‘[War] now takes place in “aero-electro-magnetic space”. It is equivalent to the birth of a new type of ﬂotilla, a home ﬂeet, of a new type of naval power, but in orbital space’ (Virilio 2000b). What should be clear by now is that material space is pre-constructed. According to Virilio, it is the technical that precedes the spatial. The possibility of new military technology under-pins the ways we invent and organise our environment, geographies and landscapes. And it is the effects of technology which produces outer space as a place and authorises contingent action in support of weaponisation. This is not to suggest that technologies have an existence of and on their own and independent of social practice; of course, technology cannot be studied in isolation (see Bourdieu 1992). The new technologies that allow us to penetrate outer space are pro-ducing new domains of experience and new modes of representations and perception. Now, that technology is deeply infatuated with current policies in outer space comes to no surprise, and we ﬁnd ourselves amidst visions of ‘hyper-spectral imagery’, ‘advanced electro-optical warning sensors’ and ‘space-based radars and lasers’. While I am interested in these technologies of, and soon in, space I am even more interested in the ways in which they augment spatiality and accelerate claims to, and over, spatial authority. Thus, how do these technologies relate to space? Virilio is clear on this: to begin with, and to strip these technologies of their obfuscation, they shrink the planet (and space outwith the planet, the exoatmospheric); and they do so in two ways. First, Virilio insists that technologies lead to a doing away of spatial distance and the geo-strategic reference points that go with it. As the Rumsfeld Commission put it quite aptly, ‘Space enters homes, businesses, schools, hospitals and government ofﬁces’ (US Space Commission 2001). To take this notion further and to include the idea of a space-based laser as an example, from any given spot in outer space we will be able to strike and destroy each other at any given point and at any given time. Space stops to matter. The author contends that technologies therefore lead space to suffer from ‘torsion and distortion, in which the most elementary reference points disappear one by one’ (Virilio 1991: 30). The foreseeable deployment of a space-based laser, or, of a kinetic energy interceptor missile (designed to ‘hit and kill’ an incoming hostile missile) are testament to this sense of distortions insofar as space-based weapons would overcome the ‘location problem’ and the need of proximity close to target. As a recent study put it aptly, ‘interceptors ﬁred from orbiting satellites could in principle defend the United States against ICBMs launched from anywhere on Earth [...]. Their coverage would not be constraint by geography’. The Transformation Study Report of 27 April 2001, reﬂects similar sentiments, claiming that ‘Space capabilities are inherently global, unaffected by territorial boundaries or jurisdirectional limitations’ [emphasis added]. It follows from here that, second, technologies ‘reduce-distance-reduce-reaction-time’ – or, as Virilio puts it much more eloquently: not only does technology deterritorialise space it also de-personalises it (and us in our relation to space). No doubt, outer space plays a key role in the ‘real-time’ enhancement of military operations on a global scale. Satellites are not only used to spot targets as they emerge and transmit data but they also allow us to offset weapons that meet these targets anywhere and at any time – instantly. The swiftness blurs if not erases the assumed (and familiar) distinction between offence and defence, which affects our views on spatiality insofar as the image of the battleﬁeld can now become ubiquitous: ‘Every place becomes the front line’ (Virilio 1991: 132). Virilio further clariﬁes this for us; whereas in the past there was a sense that the ‘front’ is where the tanks are, now, he suggests, we assume that ‘where we ﬁnd the satellites there is the fourth front’ (Virilio 2002: 3). This is furthered and ampliﬁed by the US Air Force vision that calls for ‘prompt global strike space systems with the capability to directly apply force from or through Space against terrestrial targets’ (US Air Force Space Command 2003). And fast forward to the present, the Quadrennial Defense Review of 2006 is clear in its visualisation for Intelligence, Surveillance and Reconnaissance in which it seeks to establish what it aptly terms an ‘unblinking eye’ over the ‘battlespace’ that suggests the instant, constant and ‘persistent surveillance’ of US space in outer space (Quadrennial Defense Review 2006: 55). For Virilio, this process of de-materialisation of space in outer space along these lines can turn into a de-realisation of the objectives of ﬁghting and destruction, and as suggested by the problematic of proximity that this chapter addresses. There is no time left for reﬂecting on, and responding to, warfare and its mode of targeting, hitting, destruction and killing and, subsequently, no time to invent space differently. The author expresses this as the ‘dematerialization of armaments, de-personalisation of command, de-realisation of the aims of war’ (Virilio 2000: 87). In an attempt to close the circle to the start of this chapter and draw the line back to the notion of an imagination of outer space as a battleﬁeld – yet devoid of matter – consider the following: creating, fabricating, moulding and representing a ﬁeld of combat in outer space, ubiquitous and instant in its ability to project modes of destruction and killing, in fact determines, reproduces and locks in the very existence and rationale of the need to defend space against an other, colonise space before a competitor can do so, and divide space into ‘ours’ and ‘theirs’. Put differently, the invention of outer space as a battleﬁeld with the above ‘qualities’ assumes a notion of vulnerability and threat to that space – at any time and from anywhere – before it in fact becomes one. Thus, outer space as a sphere of permanent crisis in effect constitutes and constructs the very reality that it purports to counter. I am referring here to Carol Cohn’s (1987) argument that military projects pre-empt threats and threatening intentions. In the context of past US/Soviet rivalry she contends that, if one asks what the Soviets ‘can’ do, one quickly comes to assume that ‘that is what they intend to do’. In other words, strategic planning and the logic of worst-case-scenarios commit us to assume something will happen. Foucault’s notion of ‘technologies of normalization’ springs to mind by way of summary, and by which the author depicts technology as an essential component in the systematic creation, classiﬁcation and control of space, habitat and its claim to contingent action drawn from that control over that space.

#### [Adams 03] Accidents are integral to technological development; the faster the speed the more dramatic the accident – the technological acceleration of outer space military system has transformed previously localized ones into an inevitable global accident

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The extent to which the bodily perception of space and time is dependent upon the terrestrial body of the earth is illustrated in Virilio's point about the Pioneer 10, which he notes travels at 46,000 kilometers per hour; "but what hour and what kilometer are we talking about, since the probe has been moving away from all geographical landmarks for twenty-three years?"122Thus 'dromospheric' pollution can be thought of as the colonization, mediatization and the de-struction of life-size sensuality that has always provided for the expanse and plurality of the earth; after the introduction of colonization, Virilio argues, it was only a matter of time until every 'square inch' of the earth would come under the imperial fold in one way or another, whether through transmission technologies which bring us into cyberspace or transportation technologies which bring us into outerspace; as he asks, "what can we say at the end of the twentieth century which saw the first moon landing except that we have exhausted the time of the finite world, standardized the earth's expanse?"'23 Indeed, for Virilio, ever since humanity lost its bodily bearings on the Earth with the passing of this event, the Age of Enlightenment has been coming to an end, such that the goal since has been to "break down all resistance, all dependence on the local, to wear down the opposition of duration and extension, not only with regard to the terrestrial horizon but also to the circumterrestrial altitude of our natural satellite" .'~~This is clearly seen when one considers the experience of astronauts such as Buzz Aldrin, who, upon having reached the moon's surface, realized that lunar time is no longer the same as earth time since it is removed from the real spatiotemporality of the terrestrial body, a realization which will surely become more widely understood as animal and social bodies become ever more universally uprooted from the earth. Indeed, for Virilio, the astronauts were the harbingers of grey ecology, since they came to know quite intimately what happens when the three bodies become removed from one another; as he points out, after reentry, Neil Armstrong recounted the surreal feeling that he had not really gone to moon, Mike Collins of having been 'both present and absent at the same time' while Buzz Aldrin ended up in a psychiatric ward after several nervous breakdowns and detoxification treatments; thus it is "as though the two most famous crews in contemporary history - that of the Enola Gay, which dropped the atomic bomb, and that of the Apollo 11 space capsule - had been the prophets of doom of humanity's unhappy future".12' In other words, one might say that the mental disorientation of the uprooted astronauts unconceals one element of what Virilio predicts to be the generalized accident appropriate to the grey ecology of absolute speed that will finally replace the local accident appropriate to the green ecology of relative speed. It certainly is true that the content of the ecological accident has undergone a transformation in the past several decades of technical acceleration; whereas in the past the green ecology of the terrestrial body was threatened only by 'local' accidents such as the Exxon Valdez oil spill or the perennial forest fires in the Pacific Northwest, with the invention of extraterrestrial and circumterrestrial transportation and transmission technologies, the threat of a truly global accident of grey ecology supplants this, unleashing a danger as has never been seen before. As Virilio notes, "if according to Aristotle, 'the accident reveals the substance', the invention of the substance is also the invention of the 'accident" "-~~as has certainly been the case in regard to technology over the course of the twentieth century, when the technical substance of mass production also became the technical accident of mass destruction, from Chernobyl to Bhopal to today, when global populations are increasingly plugging their vital infrastructures into singular networks such as the Internet or international electric grids, or when the Pentagon is sending nuclear materiel into orbit several miles over the surface of the earth. As Virilio notes, what this means is that "whereas in the past the local accident was still precisely situated. ..the global accident no longer is, and its fall-out extends to entire continents. Waiting in the wings is the integral accident, which may some day soon, become our only habitat".127 The incessant drive toward increasingly dynamic technologies is precisely what is leading toward the future accident which will outstrip the excesses of everything we have known until now, because "if to invent the substance is, indirectly, to invent the accident, then the more powerful and efficient the invention, the more dramatic the accident. Eventually the fateful day will come when the progress of knowledge becomes intolerable, not just because of its misuse but also because of its effects - the very power of its negativity".'28 Thus the greatest threat to the territorial body today is that in the move beyond the accidents of land, sea and air, the accidents of cyberspace and outer space increasingly threaten to bring the accident to the global level for the first time; indeed, "this is what is meant by the 'integral accident', the accident which integrates us globally, and which sometimes even disintegrates us physically. So in a world which is now foreclosed, where all is explained by mathematics or psychoanalysis, the accident is what remains unexpected, truly surprising, the unknown quantity in a totally discovered planetary habitat".'29 This 'charted territory' of the world is one in which the great expanses of the oceans and continents are no longer so great, in which the furthest reaches of the planet become more familiar than the town three hours away by car; added to this pollution of distance, Virilio brings up the pollution of darkness by electronic light, which has reached such an extent that the vast majority of humanity no longer experiences night as such, so that even the Milky Way has suddenly become invisible, paradoxically enough, as a result of the desire to make everything on earth entirely visible! Thus, in the great transformation of our times, Virilio argues that "it is no longer God the Father who dies, but the Earth, the Mother of living creatures since the dawn of time. With light and the speed of light, it is the whole of matter that is exterminated" ." ~

#### [D&H 2] Its “first come first serves” – space control consolidates an extra-terrestrial system of rule designed to protect the “us” against the “other” – shreds nuclear deterrence by destroying counterstrike capabilities

Duvall and Havercroft 06 [(Raymond Duvall is a professor in the Political Science department at [University of Minnesota - Twin Cities](https://www.ratemyprofessors.com/campusRatings.jsp?sid=1257). He specializes in critical political economy, critical international relations, global governance, social institutions of global capitalism, and critical security studies. Jonathan Havercroft is an Associate Professor in the Department of Politics and International Relations at the University of Southampton. He teaches in the areas of political theory and international relations.)“Taking Sovereignty Out of This World: Space Weapons and Empire of the Future\* ” |<https://www.files.ethz.ch/isn/111193/Taking%20Sovereignty%20Out%20of%20This%20World.pdf|>] Comrade PW

Space weapons, sovereignty, and the constitution of empire Our argument, in simple terms, is that the unilateral militarisation of space reconstitutes and alters the social production of political society globally in three interlocked ways that are rooted respectively in the three forms of deploying technologies/cartographies of violence in orbital space identified in the previous section: missile defence; space control; and force application. The conjoint effect of those three technologically induced processes of reconstitution33 is to substitute the consolidation of an extra-territorial system of rule - which we refer to as empire of the future - for the competitive sovereignties of the modern states-system. Missile defence The first weapons in space will probably be deployed for missile defence. The US military is testing several prototypes of components of such a system, one of which, the MDA Space Test Bed, is being funded as 2008, with the aim of integrating already existing space technologies into a system that, from orbital space, can intercept ballistic missiles in their boost phase.34 Such a system, when/if highly effective, replaces mutual deterrence with the singular US capability (perhaps extended to allies) to launch unilateral pre-emptive and preventative attacks freed from concerns of retaliation through ballistic missile counter-attacks. The missile defence system now envisioned by the US thus undermines the logic of mutual deterrence. States not included under its umbrella become increasingly vulnerable to (even nuclear) attack by the state that controls it.35 The sovereignty of a state is conceptually and practically linked to its ability to maintain territorial integrity by deterring enemies from attacking. During the Cold War, the deterrent effect of nuclear weapons was acknowledged as a primary means by which 'great power' states in conflict protected their territorial integrity, and, in turn, their sovereignty.36 Kenneth Waltz argued that the proliferation of nuclear weapons would extend deterrent effects to otherwise not-yet 'great powers', thereby strengthening the security of larger numbers of sovereign states and stabilising the international system.37 Following the logic of Herz's nuclear 'one-worldism', an effective missile defence system, by contrast, will strip states of whatever 'hard shell' of territorial defensibility that had been or might be provided by mutual deterrence of missile attacks. The realist argument that has largely carried the day for the past half century in critical response to Herz (that the deterrent effect of mutual assured destruction of two states possessing nuclear weapons reinscribes territorial state sovereignty) accordingly is brought into doubt. If the US were to develop a sufficiently sophisticated missile defence shield, the deterritorialising effect on the sovereignty of all other states would be precisely those that Herz forecasted - their 'hard shell' of defensibility would be lost. There would be a significant twist, however, because, for the US, control of an effective missile defence system would markedly reinscribe its territorial 'hard shell' and its sovereignty in exclusively shielding it from the threat of (missile-based) attack by others. The sovereignty of one state is reinscribed, while that of other states, most notably 'great powers' that have depended thus far on their deterrent capacities, is eroded.

#### [Starr 14] Nuclear firestorms and stratospheric injection ensures a massive nuclear winter –means extinction

Starr 14 {Steven, Senior Scientist for Physicians for Social Responsibility, Director of the Clinical Laboratory Science Program (Missouri), commentator in the Bulletin of the Atomic Scientists and the Strategic Arms Reduction, Associate member of the Nuclear Age Peace Foundation, “The Lethality of Nuclear Weapons: Nuclear War has No Winner,” Global Research: Centre for Research on Globalization, 6/5, <http://www.globalresearch.ca/the-lethality-of-nuclear-weapons-nuclear-war-has-no-winner/5385611>} recut PW

Nuclear war has no winner. Beginning in 2006, several of the world’s leading climatologists (at Rutgers, UCLA, John Hopkins University, and the University of Colorado-Boulder) published a series of studies that evaluated the long-term environmental consequences of a nuclear war, including baseline scenarios fought with merely 1% of the explosive power in the US and/or Russian launch-ready nuclear arsenals. They concluded that the consequences of even a “small” nuclear war would include catastrophic disruptions of global climate[i] and massive destruction of Earth’s protective ozone layer[ii]. These and more recent studies predict that global agriculture would be so negatively affected by such a war, a global famine would result, which would cause up to 2 billion people to starve to death. [iii]¶ These peer-reviewed studies – which were analyzed by the best scientists in the world and found to be without error – also predict that a war fought with less than half of US or Russian strategic nuclear weapons would destroy the human race.[iv] In other words, a US-Russian nuclear war would create such extreme long-term damage to the global environment that it would leave the Earth uninhabitable for humans and most animal forms of life.¶ A recent article in the Bulletin of the Atomic Scientists, “Self-assured destruction: The climate impacts of nuclear war”,[v] begins by stating:¶ “A nuclear war between Russia and the United States, even after the arsenal reductions planned under New START, could produce a nuclear winter. Hence, an attack by either side could be suicidal, resulting in self-assured destruction.”¶ In 2009, I wrote an article[vi] for the International Commission on Nuclear Non-proliferation and Disarmament that summarizes the findings of these studies. It explains that nuclear firestorms would produce millions of tons of smoke, which would rise above cloud level and form a global stratospheric smoke layer that would rapidly encircle the Earth. The smoke layer would remain for at least a decade, and it would act to destroy the protective ozone layer (vastly increasing the UV-B reaching Earth[vii]) as well as block warming sunlight, thus creating Ice Age weather conditions that would last 10 years or longer.¶ Following a US-Russian nuclear war, temperatures in the central US and Eurasia would fall below freezing every day for one to three years; the intense cold would completely eliminate growing seasons for a decade or longer. No crops could be grown, leading to a famine that would kill most humans and large animal populations.¶ Electromagnetic pulse from high-altitude nuclear detonations would destroy the integrated circuits in all modern electronic devices[viii], including those in commercial nuclear power plants. Every nuclear reactor would almost instantly meltdown; every nuclear spent fuel pool (which contain many times more radioactivity than found in the reactors) would boil-off, releasing vast amounts of long-lived radioactivity. The fallout would make most of the US and Europe uninhabitable. Of course, the survivors of the nuclear war would be starving to death anyway. Once nuclear weapons were introduced into a US-Russian conflict, there would be little chance that a nuclear holocaust could be avoided. Theories of “limited nuclear war” and “nuclear de-escalation” are unrealistic.[ix] In 2002 the Bush administration modified US strategic doctrine from a retaliatory role to permit preemptive nuclear attack; in 2010, the Obama administration made only incremental and miniscule changes to this doctrine, leaving it essentially unchanged. Furthermore, Counterforce doctrine – used by both the US and Russian military – emphasizes the need for preemptive strikes once nuclear war begins. Both sides would be under immense pressure to launch a preemptive nuclear first-strike once military hostilities had commenced, especially if nuclear weapons had already been used on the battlefield.

## Framing

#### [B&S 09] Dominant scholarship and literature on space today are still haunted by a Cold War sentiment, thus the role of the ballot is to vote for the debater who best deconstructs the militarized image of outer space

Bormann and Sheehan 09 [(Natalie Bormann teaches at the Department of Politics, Northeastern University, Boston. Prior to that she held a position at the Watson Institute for International Studies, Brown University. Michael Sheehan is Professor of International Relations at Swansea University. His current research focuses on European space policy, and on the relationship between liberalism, democracy and war.) Bormann, Natalie. Securing Outer Space. London Routledge, 2009. |http://library.lol/main/595AB4C6B8521A6F9E7323DD023CC97E|Accessed 29 Dec. 2021.] PW

For ﬁfty years, much of our thinking about socio-political, economic and military-related issues were deﬁned, shaped and driven by the Cold War and the centrality of a comfortable paradox – that of a bipolar nuclear confrontation. A decade and a half after the end of that confrontation we are still deemed to be living in a period, the ‘post’-Cold War era, that is deﬁned only in relation to the preceding one. And while there is a strong temptation, if not an expectation, for some scholars to adhere to these well-known and totalizing terms of the debate, for others the past two generations have been animated by a different, and pervasive, intervention – the ‘space age’. The movement of humanity into space and the development of satellite technology in retrospect may well appear as the deﬁning characteristic of this period. The ﬁftieth anniversary of the beginning of the space age was marked on 4 October 2007. It was on this day, in 1957, that the Soviet Union launched Sputnik 1, the ﬁrst satellite to be placed in orbit. This dramatic event not only ushered in the space era, it also triggered a set of questions regarding the assumptions and effects that were (and are) constitutive of this new endeavour: questions of the global, the international, the political, the ethical, the technical, the scientiﬁc, humankind and modernity – to name but a few. In what ways would these questions guide, alter and intervene with our activities in space? But also, in what ways would the space age guide, alter and intervene with these questions? That day in October 1957 also marked the beginning of serious concerns regarding the modes and kinds of space activities that we would be witnessing, and these concerns were dominated from the outset by the fact that the ﬁrst journey into space was accompanied by – if not entirely driven by – the Cold War arms race. The initial steps in the exploration of space were inexorably linked with pressures to militarize and securitize this new dimension. As a geographical realm that had hitherto been pristine in relation to mankind’s warlike history, this immediate tendency for space exploration to be led by military rationales raised profound philosophical and political questions. What should the purpose of space activity be, and what should it not be? And how would we approach, understand and distinguish between military activities, civilian ones, commercial ones, and so forth? More than a half century later, the questions as to ‘what we bring to space’ as well as how space activities challenge us, and to what effects, seem ever more pressing. While the debate over some of the assumptions, modes and effects of the space age never truly abated, most of the contributors in this volume agree that there is sense of urgency in raising concern, re-conceptualizing the modes of the debate, and engaging critically with the limits and possibilities of the dimension of space vis-à-vis the political. This sense of urgency reﬂects the revitalization of national space programmes, and particularly that of the United States and China since the start of the twenty-ﬁrst century. In January 2004, at NASA headquarters, US President George W. Bush announced the need for a new vision for America’s civilian and scientiﬁc space programme. This call culminated in a Commission’s Report on Implementation of United States Space Exploration Policy, which emphasized the fundamental role of space for US technological leadership, economic validity, and most importantly, security. While this certainly stimulated the debate over the future direction of US space exploration, it has led many to express concern over the implicitly aggressive and ambitious endeavour of colonizing space in the form of calling upon the need for permanent access to and presence in space. A critical eye has also been cast on the Commission’s endorsement of the privatization and commercialization of space and its support for implementing a far larger presence of private industry in space operations. Certainly also at the forefront of the current debate on space activities are notions of its militarization and securitization. The deployment of technologies with the aim to secure, safeguard, defend and control certain assets, innovations and activities in space is presented to us as an inevitable and necessary development. It is argued that just as the development of reconnaissance aircraft in the First World War led inexorably to the emergence of ﬁghter aircraft to deny the enemy the ability to carry out such reconnaissance and then bombers to deliver weapons against targets that could be identiﬁed and reached from the air, so too has the ‘multiplier effect’ on military capabilities of satellites encouraged calls for the acquisition of space-based capabilities to defend one’s own satellites and attack those of adversaries, and in the longer term, to place weapons in space that could attack targets on Earth. Here, the Bush administration’s indication that it envisaged a prominent role for spacebased weapons in the longer term as part of the controversial national missile defence system contributed to the atmosphere of controversy surrounding space policy. As space has become crucial to, and utilized by, far more international actors, so the political implications of space activities have multiplied. The members of the European Space Agency have pursued space development for economic, scientiﬁc and social reasons. Their model of international space cooperation has been seen as offering an example to other areas of the world, particularly in their desire to avoid militarizing efforts. Yet even Europe has begun to develop military space capabilities, following a path that has already been pursued by other key states such as China and India, suggesting that there is an inevitability about the militarization, and perhaps ultimately the weaponization, of space. How we conceptualize space has therefore become of fundamental moral, political and strategic importance. Outer space challenges the political imagination as it has always challenged the human imagination in many other ﬁelds. For millennia people have looked up to the stars and imagined it as the home of gods or the location of the afterlife. For centuries they have looked to it for answers about the physical nature of the universe and the place of mankind’s ancestral home within it. And for decades, it has been seen as the supreme test for advanced technology. Space exploration is a driver of innovation, encouraging us to dream of what might be possible, to push back the boundaries of thought and to change the nature of ontological realities by drawing on novel epistemologies. The physical exploration of the solar system through the application of science and technology has been the visible demonstration of this.

#### [Bormann 3] Militarization of space kills value to life by creating a perpetual battlefield and remove us from the pain and violence of warfare

Bormann 09 [(Natalie Bormann teaches at the Department of Politics, Northeastern University, Boston. Prior to that she held a position at the Watson Institute for International Studies, Brown University.) *Securing Outer Space*. London Routledge, 2009. |http://library.lol/main/595AB4C6B8521A6F9E7323DD023CC97E|Accessed 29 Dec. 2021.] PW

Second, the interrelation of technology and space composes some pressing questions regarding the new modes of destruction and warﬁghting that it gives possibility to. 4 The projection of outer space as a battleﬁeld (‘earth-bound’ albeit in cosmos) is constitutive of certain ‘qualities’. Spacebased weapons that are designed to target threats in space as much as on Earth lead ﬁrst and foremost to a loss of certain known geo-strategic reference points: the possibility of a space-based laser that shoots down targets ‘anywhere’ is such that every place on Earth and in space can be considered a virtual frontline. There is a duality of proximity at work that is puzzling: on the one hand, the placement of weapon systems close to their target is no longer needed. On the other hand, and while the possibility of ﬁghting against threats and engaging in conﬂicts is therefore brought ‘close to us’, the battleﬁeld on which the ﬁghting takes place remains nonetheless ‘distant from us’; virtual and nonvisible in, from and through outer space. Furthermore, and closely related, it is not only the necessity of geographical proximity of combat that is dwindling, so is the proximity of violence and destruction. While the targeting and killing becomes possible at all times and anywhere, the virtual shooting down of enemy missiles and the use of space-based lasers against hostile attack from space removes us – ourselves – from the battleﬁeld, the bodily violence and the experience, pain, and memory thereof. Space technology promises to offer an automated, clean and sanitised mode of destruction and killing. 5,6 It is a process that Virilio (1999) sums up in his notion of an ‘aesthetics of disappearance’ by which the author means to suggest the following: in the same way in which technology leads to a destruction of physicality and matter (and all the way to its disappearance), weapon technology leads to a disappearance of our modes of relating and referring to that space.7

## Solvency

#### Thus, I affirm that “The appropriation of outer space by private entities is unjust”

#### [S&L 17] The future is determined by current practices and ideologies, the affirmation of the resolution is a form of radical vision that disrupt and contest the neoliberal ideology of continued privatization of space

Sammler and Lynch 17 [(Katherine Sammler is an Assistant Professor in Global Studies & Maritime Affairs. Her research focuses on political geography and resource management of non-terrestrial spaces like oceans, atmospheres, and outer space. Casey Lynch is an urban, political, and digital geographer aiming to understand the relationships of power through which particular visions of urban techno-futures come to monopolize popular imagination and guide policy and action.)2017 Sammler, K. & Lynch, C. Spaceport America: Contested Offworld Access and the Everyman Astronaut. American Association of Geographers An- nual Meeting, Boston, MA, 5–9, Apr. Free access here: (<https://csum-dspace.calstate.edu/bitstream/handle/10211.3/207988/Sammler%20-%202019_SpaceportAmericaPreprint.pdf?sequence=1>)] Comrade PW

While private firms increasingly gain control over key technology and infrastructure, their long-term viability is dependent on the emergence of a class of offworld consumers. Virgin Galactic founder, Richard Branson, proclaims his hope is to “create thousands of astronauts over the next few years... [and for] every country in the world to have their own astronauts rather than the privileged few” (September 2004). This anticipatory discourse from the commercial sector’s cultivated imaginary, enticement for the every- man astronaut, is rather different than Congress and NASA’s projection of the everybusiness astromarket–a function of their diverging audiences of citizen taxpayer versus space business mogul. Virgin Galactic is working to build a Future Astronaut global community that they anticipate as a “wonderfully diverse group of pioneering individuals” (Virgin Galactic website), yet requires $250,000 to be paid as an upfront deposit. As of 2013 the Future Astronauts club boasts over 600 men, women, and children from more than 50 nations that have bought in. The spaceport facility is a manifestation of this transitional imaginary away from the publicly-supported space program of the expert astronaut towards publiclysubsidized private ventures, portending an offworld future that reproduces and refines neoliberal relations. As discussed earlier, the image of the everyman astronaut touted by Branson and others has a longer history going back to NASA’s shuttle programs. The fusion of Branson’s pseudo-egalitarian discourse and NASA’s vision of the everyman astronaut are key to securing the dual support needed for the current public-private space model–the transnational class of millionaires and billionaires who stand to become the first space tourists or otherwise stand to benefit from commercial space activity, and the broader, grounded public, whose tax- dollars are needed to support the basic infrastructures needed to make future commercial space enterprises possible. The Spaceport Between Us Spaceport America, while consistently missing its financial and launch goals, still maintains some control of its place within the cultural imaginary. As it continues to sit vacant, awaiting the first commercial launches, the facilities have been used as backdrops for music videos, commercials, and Hollywood film productions. While such activities may seem unrelated to the Spaceport America vision, these forms of media indeed help further spread the image of the everyman astronaut and discursively orient the future of public-private space travel. Spaceport America promotes the first major motion picture filmed at the facility on their website: “The production employed at least 100 New Mexico crew members and approximately 30 New Mexico principal actors and an estimated 1,000 local background talent” (Spaceport America 2016). Spaceport’s kickoff film project, The Space Between Us (2017), is a romantic teen drama about a boy born on Mars who falls in love with a girl he met via the internet back on Earth. In it, the spaceport is pictured as the headquarters of a private space company that has partnered with NASA to found a colony on Mars. The birth of the main character on Mars is seen as a mistake that is covered up by the company managers, who fear the news would hurt the company’s support from NASA and their private investors. The film is littered with discussions of the company’s business model. Yet, the vision of the everyman astronaut touted by the private space sector and NASA, and reproduced in popular media, has not been completely successful in securing public support for Spaceport America. Google reviews of Spaceport America reveal some public concerns, as Bryan Lindenberger writes: “A great idea at one time, but turned into more tax- payer funded welfare for the wealthy and wired-in. I played a small part in touting it as a huge boon for local economy through tourism, but there’s really not much to see here.” User “Rich Alfano,” writes a one star review, “A huge taxpayer funded boondoggle in the frigging desert! A waste of time and money on a white elephant built for the wealthy,” while another claims “Space Port. The place for rich people only. NO POOR ALLOWED.” These criticisms have been echoed more broadly across the state as the New Mexico State Auditor found that in 2016 only $2.2 million of an over $10 million operating budget was covered by income from commercial lease- holders (NM State NPR, Dec. 8 2017; New Mexico Spaceport Authority 2016). As the facility is not yet self-sufficient, it has relied on “excess funds” from state coffers to cover its daily operating budget. The facility has also drawn criticism for failing to meet public transparency requirements, including refusing requests for public documents and blacking out key information from those documents released (Las Cruces-Sun News, Aug. 23 2017). Indeed, Spaceport managers have asked the New Mexico state legislature to exempt the facility from public records laws with the express intent of offering privacy to their corporate tenants (El Paso Proud, Mar. 14, 2017). While New Mexico residents have criticised the fiscal model and state policies supporting Spaceport America, activists and amateur astronauts elsewhere have focused their attention on proposing alternatives to the public-private model of offworld activity that it represents. The final declara- tion of the Association of Autonomous Astronauts reads: “On April 23rd 2000, which marks the fifth anniversary of the official launch of our inde- pendent space exploration programme, the AAA will spontaneously dissolve itself in order to initiate a new phase of selfhistorification. We will enter the realm of myth, an inspiration for the Next Generation of space explorers.” Since the spontaneous self-dissolution of AAA in 2000, the Next Generation has indeed arisen. Space for a Constellation of Actors The Autonomous Space Association Network (ASAN, NASA’s acronym in reverse), which sees themselves as a direct descendant of AAA’s activities, is “planting the ideological and technical seeds for future space revolutionaries...to let the world know that autonomous space exploration is not only possible, it is imperative.” The network launches high altitude balloons through their Aphrodite Balloon Program and hopes to experiment with open-source rocketry and cubesat technology. In 2017, one ASAN launch made headlines as the “First protest in space” (a claim that potentially over- looks actions like the 1973 Skylab strike discussed above) for sending a printout of a tweet high into Earth’s atmosphere criticizing the Trump administration’s reduced funding for NASA’s space program (The Washington Post, Apr. 14 2017). The message read “@realDonaldTrump: Look at that, you son of a bitch.” This was a sentiment taken from astronaut Edgar Mitchell (quoted in Swearingen 2017), describing viewing earth from outer space: “You develop an instant global consciousness, a people orientation, an intense dissatisfaction with the state of the world, and a compulsion to do something about it. From out there on the moon, international politics look so petty. You want to grab a politician by the scruff of the neck and drag him a quarter of a million miles out and say, ‘Look at that, you son of a bitch.’” Other projects ASAN is developing include producing open-source rocket engines, placing a cubesat in orbit by 2020, and creating programs teaching youth how to receive signals from the International Space Station and amateur satellites. ASAN’s logic stems from the fact that “everyone is already an astronaut by virtue of existing on this vast spaceship we call ‘Earth.’ Our members are distressed that the exploration of the cosmos has been entirely monopolized by military actors and, increasingly, private interests.” This network of community-based groups do both discursive work and material projects to (re)claim a collective place in space, advancing a mission that is two-fold: on the one hand, we seek to overturn this government and corporate monopoly on space exploration by raising awareness that everyone is entitled to space and should demand its peaceful exploration. Secondly, ASAN is pursuing the development of open-source technologies so that space exploration becomes a truly global phenom- enon in the future, rather than the privilege of a handful of government astronauts (Laika Valentina, ASAN Director General, personal comm. Dec 8, 2017). As ASAN pursues its goals, it will be able to take advantage of designs, plans, and data from a growing open source space movement. The notion of “open source” has its origin in the software development sector and is used to describe software whose source code is not subject to private intellectual property regimes, and is thus available to study, edit, modify, and reuse. By allowing open experimentation and decentralized cooperation, the open source development model has spawned constant innovation in software while promoting alternative models of work and ownership (Coleman 2013). In recent years, the successes of the open source software movement has prompted similar activities across hardware development, including the development and production of satellites, rockets and spacecraft (Powell 2012; Simmons, Moran, and Black 2011). ASAN plans to make use of recent developments in open source Cubesat technology–small satellites weighing between 1 and 10 kilograms that can be easily launched into orbit by “piggybacking” on other launches (Woellert et al. 2011). Copenhagen Suborbitals may be the most technologically advanced group in the growing open source space movement. Founded in 2008, Copenhagen Suborbitals touts itself as “the world’s only manned amateur space program.” The program relies on crowdfunding, volunteers, and open-source technology and has launched five rockets and space capsules since 2011. The group operates out of a shipyard in Copenhagen, Denmark and launches from a ship in a military firing practice area in the Baltic Sea off the coast of the Danish island of Bornholm. In order to carry out their rocket launches, they negotiate complicated state regulations which limit access to outer space. The group claims to be “the only space organisation that launches rockets from a sailing platform in international waters, since it’s virtually impossible to get permission to do it from the ground in any country” (CopSub website, accessed Dec. 24, 2017). Yet, the group still needs to cooperate with the Danish and Swedish navies and other authorities to ensure the closure of the airspace over their launch sites, access to the firing practice area, and to ensure the launches occur under proper weather conditions. Thus, while the group is autonomous, its activities rely on at least the passive acceptance of national governments, demonstrating that the state is not absent from off- planet activities, but that its main thrust is shifting to facilitation and coordination of such endeavors. Copenhagen Suborbitals is based around the development, testing, and use of open source technology. They post frequent text and video updates on their blog about the evolution of their designs and their successful and failed experiments with rocketry systems, space capsules, parachutes, space suits, and communication systems, among other technical aspects of their mission– designs and plans that then may be taken and modified by other DIY (Do-It- Yourself) space programs. Copenhagen Suborbitals’ autonomous, open source, volunteer-based, and crowdfunded model presents a different image of the everyman astronaut than those promoted by NASA or the private space industry. While the group works toward launching their first crewed rocket, they describe who their first astronaut may be: We’re ordinary guys building a big rocket, so our astronaut should also be an ordinary person. Hiring a professional superhero just wouldn’t match our philosophy (or budget). It should be someone like ourselves, a teacher, engineer, unemployed or housewife with a very, very special dream and balls made of rocket- grade alloy... It will fit with our DIY culture that she or he has been building the rocket herself. (Copenhagen Suborbitals website, accessed Dec. 21, 2017) While echoing other familiar discourses around the everyman astronaut (and working through some gendering regarding housewives and testicles), coupled with Copenhagen Suborbitals’ broader organizational model and relationship to technology, this discourse presents a far more collective understanding of offworld access. Conclusion With the shifting role of nation-states in offplanet activity, there are openings for outer space to become another site of capital accumulation and neoliberal relations of domination and exclusion. Yet, there is also potential to manifest outer space as envisioned by social movements such as the Association of Autonomous Astronauts. Connecting the cultural and political dimensions of the “everyman astronaut” with the techno-material infrastructures of Spaceport America and decentralized, communal space programs, demonstrates how the future is rendered present through a spectrum of visions and practices. The actors discussed in this paper are each negotiating various anticipatory futures. The premises set forth in the Outer Space Treaty – outer space exploration and use for the benefit of all – are not guaranteed visions for the future. Congealed in the upward-looking infrastructure of Spaceport America is the material and symbolic rhetoric of publicly funded, private space development, a trajectory that runs from the defunding of NASA’s shuttle program through the U.S. Space Act. Autonomous outer space collectives activate radical visions and practices that plug into the technological assemblages of open source rocketry that erode status quo development models emerging for offplanet activities. These competing outer space imaginaries, and multiple others, are vying to reconfigure the political economic, technological, and cultural aspects of offworld access. Within this field of diverging ideologies and actors, Spaceport America exists in the desert, lacking the private launches it was built for, disappointing public taxpayers, and making its big screen debut in a movie critics call “A sci-fi-tinged heap of sentimentality” (Tribune News Service). However, despite its failings, the performative nature of this infrastructure, and the set of practices that accompany it, represent a daunting inertia, infused with decades of neoliberal doctrine. The building itself, with all its futuristic motif and technological radiance, already seems outdated. The future it stands for seems to harken back to past futures of the 1960s, a popular imagination where everyone drives a flying car. In this sense, as ASAN contends, functionally Spaceport America does not really exist ...one can only imagine the dismay of the tourists as they traverse this dead facility, a monument to a space-age that will never materialize....Spaceport America points to a reality that has never existed, a reality where spaceports offer uninhibited access to the cosmos for everybody. Arguably, Spaceport America doesn’t exist (Laika Valentina, ASAN Director General, personal comm. Dec 8, 2017, emphasis in original). Instead Spaceport America is neither a spaceport, in that it demonstrates no relation to a public infrastructure in the way that an airport does. Nor is it for America in any broad sense, but instead for the few, super-rich, while being supported by the people of the sixth poorest state in the nation. Yet, new imaginaries of offworld futures continue to proliferate, while intertwining with persistent political and material relations. Advances in robotic technology have fueled interest in future possibilities for private exploitation of mineral deposits on asteroids, the moon, and other offplanet environments–with the Colorado School of Mines even launching a program in Space Resources in 2018 (NPR, Sept. 25, 2018). In 2017, a bipartisan proposal in the US House of Representatives called for the foundation of a “United States Space Corps” within the US Air Force, while in 2018 the Trump Administration began calling for an entirely new branch of the military known as the “Space Force.” A critical geopolitics of outer space needs to be able to address–and contest–these developments, and indeed geographers are well positioned to do so. Given existing geographical scholarship on questions of human-environment interactions, extractivism, spatio-legal regimes, militarization, social movements, and processes of technological innovation and political economic change, geographers have much to contribute to understanding the shifting contours of offworld access and imagining and enacting alternative futures.

#### [Bormann 4] Dismantling the leftover Cold War sentiment via a perspective focused on military technologies leads to effective policymaking and a potential for peace

Bormann 09 [(Natalie Bormann teaches at the Department of Politics, Northeastern University, Boston. Prior to that she held a position at the Watson Institute for International Studies, Brown University.) *Securing Outer Space*. London Routledge, 2009. |http://library.lol/main/595AB4C6B8521A6F9E7323DD023CC97E|Accessed 29 Dec. 2021.] PW

As the contributors in this volume highlight, there is no denying US attempts to codify a strategy of conducting warfare ‘in, from and through’ space. With a new National Space Policy at the ready and plans for spacebased missile defence components ﬁrmly in place, efforts to understand the recent push for weaponising space seem ever more pressing. Yet, despite the proliferating theoretical and empirical discourses on outer space, most existing theories tend to neglect the concept of spatiality as a category for analysing US practices. In trying to eradicate this shortcoming, this chapter directly links recent US policies to some of the recurring spatial representations of, and narrations about, outer space as a ‘ﬁnal frontier’. It is suggested here that the imagination of outer space as a ‘place’ of permanent crisis, a ‘battleﬁeld’, tells us something about that which informs the preferences underlying US policies. In so doing, this chapter turns to Paul Virilio’s theorising on the military organisation of the category of space. According to Virilio, and here with an eye on what informs the current space ‘vision’, we must direct our attention to the development of new military technologies as it is these that produce our modes of representation, and that ultimately underpin our relation to, and invention of, space and habitat. For Virilio, hence, any representation of spatiality, such as exposed in the legendary image of another ‘Pearl Harbor’ in space, is necessarily given a priori to it; what we ‘see’ in outer space is not spatially organised in and of itself, rather, the ‘seeing’ is made possible through the effects of technology in its production of space (or, one reality of it) and its subsequent authorisation of spatially contingent action (the defence of ‘our space’). 2 I argue that such connection between technology and space is tantamount for explaining the modalities and limits of, and possibilities for, space weapons in that any spatial production of outer space always-already comprises an exploration of the logic of military technology. In Virilio’s view, the invention of military technology occurs simultaneously with the invention of a space to be defended and secured, invaded and colonised, weaponised and commercialised. In other words, in order to grasp the modes of representation that underpin outer space weaponisation we must turn to the technologies that provide the condition for visualising the need to weaponise, colonise, secure, and so forth. The work of Virilio can thus open some valuable insights, I believe, for understanding the weaponisation of outer space by drawing upon the, mostly overlooked, relationship and interaction of technology, spatiality and outer space as military space. By so doing, a Virilian reading offers not only a stringent critique of the ways in which current space policies are rendered meaningful but it also provides us with a tool for unpacking the very spatial (re)constructions of outer space that are presented to us as seamless and common-sensical. Why should this matter? In this chapter I want to point towards two signiﬁcant arguments in support for a renewed interest in questioning and criticising modes of spatiality – and that which informs them. The ﬁrst argument is concerned with the logic of spatiality and the practices it claims to render meaningful. The second one has to do with the new military technologies in their role of conducting space warfare and the modes of automated ﬁghting and killing that they appear to evoke. To begin with the ﬁrst point, it seems clear to me that only by unbundling the processes which lead to the creation of seeing and inventing outer space as a sphere of permanent crisis and its ‘in-built’ logic of the need to weaponise that sphere can we bring back the, hitherto, marginalised possibility of an alternative process of organising outer space (e.g. peacefully). In other words, it must be understood that it is the invention of space as a place of crisis and combat which precludes the peaceful use of space. 3