

Anti-capitalists, post-colonialists, and the controversy about the ‘colonisation of space’

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1 | INTRODUCTION

The successful Apollo programme, which achieved the first (and later five more) moon landings in the late 1960s and early 1970s, was followed by several lost decades for manned space travel. Despite NASA's accomplishments in unmanned space exploration such as the development of the Webb Space Telescope, progress in manned space exploration ground to a halt for decades. The shuttle programme, which ran from 1981 to 2011, failed to live up to expectations. A new study from Matthew H. Hersch arrives at a sobering conclusion: “By every measure, the shuttle had fallen short of even the modest hopes that had surrounded it. And the shuttle remained flying only because every effort to replace it with a better-winged, reusable craft also failed” (2023, p. 7).

Only the emergence of private space companies such as Elon Musk's Space X and Jeff Bezos' Blue Origin has brought a new dynamic to the space industry. According to a study by the World Economic Forum (2024), the space economy is expected to grow to US\$1.8 trillion by 2035. Chad Anderson from the US investment firm Space Capital estimates: “Over a quarter of a trillion dollars has been invested into nearly 2,000 unique space companies over the past decade alone” (2023, p. xx).

However, with the emergence of a new, dynamic private space industry, criticism is also growing.

2 | THE GOAL: TO COLONISE OUTER SPACE

Elon Musk argues that mankind essentially has a duty to colonise other planets because sooner or later an asteroid impact could lead to the extinction of our species. Researchers today widely concur that the dinosaurs – along with 75 per cent of other life on Earth – were wiped out by a meteorite strike 66 million years ago. There is plenty of evidence of past asteroid collisions; our

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planet Earth bears the visible scars of countless impacts in the form of craters that can still be seen today. An asteroid with a diameter of 30–50 metres hit Arizona 50,000 years ago with 150 times the force of the atomic bomb that destroyed Hiroshima. Asteroids are often smaller, such as the one that hit the Pacific Ocean on 1 October 1990, although even that had the same explosive power as a Nagasaki bomb. If it had hit a populated area, such as a city, tens or even hundreds of thousands of people would have died.

It's not a question of whether another asteroid capable of causing mass extinction will hit the Earth at some point, but when. While science fiction movies such as *Armageddon* depict scenarios in which asteroids are successfully destroyed or diverted from their paths, the reality of such a feat would be far more complex. For Elon Musk, the human settlement of Mars is a life insurance policy against the extinction of our species and a first step on our journey towards becoming an interplanetary civilisation.

The feasibility of colonising Mars remains a topic of debate throughout the scientific community. Robert Zubrin, founder and president of the Mars Society, and a significant influence on Elon Musk, believes that, given the harsh conditions on Mars, people would initially have to live under protective domes or, even better, underground to shield them from the deadly radiation. Drawing on the findings of several unmanned Mars missions, Zubrin concludes that no planet – and no moon – within our solar system is as suitable for colonisation as Mars. Abundant in resources, Mars boasts a sufficient water supply, albeit not in liquid form, and an even greater supply of essential elements for soil cultivation than Earth (Zubrin, 2021, p. 213). In particular, Zubrin explains, Mars possesses all the necessary elements to produce fuel, a critical component for reducing the cost of returning to Earth. While he concedes that there are challenges associated with travelling to and inhabiting Mars, such as radiation and reduced gravity, he also proposes innovative solutions to address these obstacles.

The objective, he suggests, should not merely involve replicating the moon landing by making a brief visit to Mars, planting a flag, and spending the next few decades basking in the pride of that achievement. Such an endeavour, he believes, would be a total waste of time, money, and effort. The true aim, according to Zubrin, should be the colonisation of Mars. He suggests that, while the first Mars missions would probably be state-funded, the long-term goal of establishing a colony on the planet would require private-sector innovation and investment:

While a Mars base of even a few hundred people can probably be supported out of pocket by government expenditures, a developing Martian society, one that may come to number in the hundreds of thousands, clearly cannot. To be viable, a real Martian civilization must be either completely autarkic (very unlikely until the far future) or be able to produce some kind of export that allows it to pay for the imports it requires. Around this question will hang the future of Mars, and not just human civilization on Mars but the very nature of the planet itself. If a viable Martian civilization can be established, the population and powers to change the planet will continue to grow. Mars was once a temperate planet, and with enough work, it can be made so again. The advantages to Mars settlers of a terraformed world are so obvious, that put simply, if Mars is colonized, then it will also be terraformed.

(Zubrin, 2021, p. 234)

Zubrin believes that the challenging living conditions on Mars and the constant need to find novel solutions to problems would lead to an innovative boost, which would ultimately also benefit the economy on Earth.



In short, Martian civilization will be practical because it will have to be, just as nineteenth century American civilization was. This forced pragmatism will give Mars an enormous advantage in competing with the less-stressed and therefore more tradition-bound society remaining behind on Earth. If necessity is the mother of invention, Mars will provide the cradle.

(Zubrin, 2021, pp. 252-253)

Zubrin has faith in the inventiveness of the colonists and believes that they would be able to establish a thriving economy and society on Mars, much like the early European settlers who paved the way for the United States to become the most successful nation in history. And he hopes that this would serve as a catalyst for stagnant and bureaucratic societies back on Earth.

The long-term goal of Zubrin, Musk, and other visionaries is 'terraforming'. The term was coined by science fiction author Jack Williamson in his 1942 novel *Collision Orbit* and was later embraced by the scientific community. Terraforming involves technologies that could potentially transform inhospitable planets into habitable environments suitable for human colonisation over the course of several centuries.

3 | CRITICISING SPACE COLONISATION: DO ROCKS HAVE RIGHTS?

The ongoing debate is not, however, only about whether terraforming is possible, but also whether it is ethically justifiable. Nearly four decades have passed since Jeff Bezos addressed a group of students at Princeton University and speculated on the quickest way to make asteroids usable for humans. During the discussion, one student jumped up, shouting angrily: "How dare you rape the universe!" before storming out of the room. All eyes turned to Bezos, who asked: "Did I hear her right? Did she really just defend the inalienable rights of barren rocks?" (quoted in Rubenstein, 2022, p. 120). Alongside Elon Musk, the Amazon founder Jeff Bezos and his company Blue Origin are the most prominent names in the field of private space travel today.

In her book *Astrotopia: The Dangerous Religion of the Corporate Space Race* (2022), the American religious studies scholar Mary-Jane Rubenstein, who is better known for her work on environmental and gender issues, references the above scene involving Bezos and the outraged student. Rubenstein professes her sympathy with the student and empathises with her anger.

She raises an issue that resonates with many intellectuals who align themselves with anti-colonialism, anti-capitalism, and the 'woke' ideology – there is a growing opposition to the ambitious plans of entrepreneurs like Jeff Bezos and Elon Musk to explore and potentially colonise space, and particularly to Musk's goal of establishing a human presence on Mars.

While past American presidents, from George W. Bush to Donald Trump, expressed aspirations of sending humans to Mars, Musk's vision goes beyond mere exploration. He aims to transform humanity into an interplanetary species by settling a million people on Mars as a first step. This audacious goal has sparked fierce resistance. The crux of the opposition lies in concerns about the rights of microbial life on Mars (should such life even exist) and the rights of rocks. Rubenstein critiques what she terms 'Western antimineralism', which is "a tendency to value those rocks that have been removed, installed, carved, stacked, and shaped by human hands (and market forces) over those rocks that remain where and as geological (and ancestral) processes made them" (Rubenstein, 2022, p. 123).

To most people this probably sounds absurd and can be understood only in the context of an anti-Western, 'post-colonial' philosophy. The proposals from Elon Musk and others to



‘colonise’ Mars were bound to provoke backlash from today’s modern ‘post-colonialist’ ideologists. Obviously, however, the key distinction between colonising countries on Earth (such as the Americas) and space is that the Earth is populated with humans, whereas Mars, the moon, and asteroids are either devoid of life or at best inhabited by microbes. But the post-colonialists do not accept this argument. Rubenstein approvingly quotes the American astrophysicist Carl Sagan, who argued, “if there is life on Mars, I believe we should do nothing with Mars. Mars then belongs to the Martians, even if the Martians are only microbes” (quoted in Rubenstein, 2022, p. 138).

One argument that is probably more popular than insisting on the rights of microbial life forms is playing off the significant investment in space exploration against efforts to solve other problems. Rubenstein is not only against the colonisation of Mars, but also against the moon landing, for example. Neil Armstrong’s Moonwalk, Rubenstein declares, has done very little for poor, black, indigenous, and immigrant people of the United States (2022, p. 157). And she poses the following question:

How would the late-sixties lunar landing advance the civil rights of black Americans back on Earth? How would it contribute to resolving the mess Apollo was escaping in Vietnam? How would the moon shot help decolonize India and Africa? What was its stance on the labor movement, the women’s movement, reproductive justice, gay rights, food shortages, poverty, dictatorial regimes, refugee resettlement, nuclear proliferation, water rights, and the growing sense that there was something very wrong with the climate?

(Rubenstein, 2022, p. 97)

These questions are clearly irrelevant, as no one has ever suggested that the moon landing played any kind of role in the decolonisation of Africa or the improvement of gay rights. That was never the aim of the mission, nor could it have been. One could just as easily ask what the construction of any major bridge, or hospital, or university contributed to the decolonisation of India or how it improved the rights of black Americans.

Deondre Smiles, Professor at the University of Victoria, Canada, whose research focuses on “critical indigenous geographies; human-environmental interaction; political ecology; and tribal cultural resource preservation”, argued in an online essay on ‘The Settler Logics of (Outer) Space’ (2020) that the perspective of indigenous peoples is given too little consideration in the discussion about space travel:

In one example, when asked about the Moon landings, several Inuit said: ‘We didn’t know this was the first time you white people had been to the moon. Our shamans have been going for years. They go all the time ... We do go to visit the moon and moon people all the time. The issue is not whether we go visit our relatives, but how we treat them and their homeland when we go.’

What is Smiles trying to tell us? That the Western perspective on space travel is characterised by one-sided, rationalist thinking and must be expanded to include indigenous perspectives: “These previous examples should serve as a reminder that the historical underpinnings of our great national myth are built upon shaky intellectual ground – we need to be honest about this.” Above all, he wants to question “the prioritization of ‘science’ over indigenous epistemologies”.



These questions have now even found their way into official documents from institutions that advise NASA. A paper published in 2020 by the Equity, Diversity, and Inclusion Working Group of the Planetary Science and Astrobiology Decadal Survey states:

... the Moon and other planetary bodies are sacred to some cultures. Is it possible for those beliefs to be respected if we engage in resource utilization on those worlds? Lunar exploration must be prepared to adjust its practices and plans if the answer is no. An alternative approach to how we interact with these environments can be found in indigenous knowledge, which is inherently interdisciplinary, multigenerational, and expressed through sustainable practices.

(Taveres et al., 2020, p. 5)

Another paper published in 2020, this time by members of NASA's Planetary Protection Office and others ('Absolute Prioritization of Planetary Protection, Safety, and Avoiding Imperialism in All Future Science Missions: A Policy Perspective'), calls for massive regulation of private space travel, which must, according to the authors, be placed under the primacy of "anti-imperialism" (Vidaaurri et al., 2020).

To return to the topic of colonising Mars: In order to decide whether it is right and legitimate to try to colonise Mars, it is essential to carefully weigh up the pros and cons. The counter-arguments include the rights of microbes or rocks and the question of whether the religious feelings of indigenous peoples, or even the feelings of the moon itself, might be hurt.

Rubenstein and others argue that we should at least consider whether rocks do not have rights of their own. They point to the historical first moon landing in 1969, where astronauts found it difficult to ram the American flag into the ground (they hit hard rock under the dust), and interpret this as the moon trying to defend itself: "In fact, the Moon might even *desire* things. Considering the respiratory trouble it's given our astronauts and the functional trouble it's given their machines, the Moon might well be expressing a geologic desire that human beings remain on their home planet" (Rubenstein, 2022, p. 150).

The human colonisation of Mars is not only being debated among philosophers, but has also caught the attention of NASA. Linda Billings, a consultant to NASA's Planetary Defense Coordination Office specialising in communication strategy and planning, is one of the prominent opponents in this discussion. In 2019, she wrote an essay 'Should Humans Colonize Mars? No', in which she argues it would be "immoral to transport a tiny, non-representative, subset of humanity – made up of people who could afford to spend hundreds of thousands to millions of dollars on the trip – to live on Mars, as Bezos, Musk, and their advocates propose" (Billings, 2019, p. 341).

4 | 'THE GREAT COLONIZATION DEBATE'

These topics are currently being discussed not only at conferences and in specialist journals but also among a wider public. A debate at a conference in Reno, Nevada, which was later published under the title 'The Great Colonization Debate', included the following statement from John Traphagan (Smith et al., 2019, p. 7): "Humanity itself seems to function more like an infection to the Earth than anything else, so I would ask at what point is our 'right' to survive outweighed by the rights of all the other species on Earth to survive?" In the same debate, the neuroscientist Lori Marino rejected the idea of humans taking other animals with them to Mars



as these creatures could not be consulted or give their consent for such a journey: "... if humans do go they should not bring other animals with them because the other species did not sign up for this!" (Smith et al., 2019, p. 9).

Another frequently cited argument is: "It's deeply perverse to say humanity must be saved by destroying other ecosystems because it's humanity's fault we are in this situation in the first place" (Smith et al., 2019, p. 7). The portrayal of humanity as an inherently malevolent species, responsible for centuries of misery and destruction on our planet, was a prevailing and entirely unquestioned theme during the debate. The message was that resolute resistance to the plans to colonise Mars was needed: "We have an ethical duty to sabotage the elitist notion of colonisation: As people thinking about these things, it's our job to infiltrate, convince, convert and take over" (Smith et al., 2019, p. 12).

Proponents of this anti-space exploration movement remain confident in their ability to thwart the proposed initiatives. They refer to an emerging 'anticolonial spacewave' which manifested itself in the publication of a white paper in October 2020. Written by the Equity, Diversity, and Inclusion Working Group of the Planetary Science and Astrobiology Decadal Survey, it makes recommendations to NASA and other government agencies in the United States.

These recommendations read like an anti-capitalist and anti-colonialist manifesto, with the paper stating that "It is critical that ethics and anticolonial practices are a central consideration of planetary protection. We must actively work to prevent capitalist extraction on other worlds" (Taveres et al., 2020, p. 1). The basic tenor of the paper is that capitalism, driven by its relentless pursuit of profit, has destroyed the Earth and now wants to extend this destruction to other planets. Absurdly, the – false – assertion by past colonial powers that they conquered uninhabited land is now put on a par with the argument of the proponents of Mars colonisation that there are no humans on the Red Planet. The paper states: "We must first reject the idea that microbial life is beyond moral consideration due to the label 'non-intelligence' or the claim that Mars is an empty place. We cannot repeat the notions of 'terra nullius' that perpetuated colonial violence on Earth" (Taveres et al., 2020, p. 5).

Rubenstein (2022, p. 60) asserts that the rationale behind those advocating for the colonisation of Mars mirrors that of historical colonialists on Earth, as both groups claimed that the land they sought to colonise was uninhabited. The same claim may have been made then as it is now, but it was mostly wrong then, whereas it is right now.

Yet another paper published in 2020 and authored by several individuals affiliated with NASA's Planetary Protection Office calls for 'anti-imperialism' and anti-colonialism to be prioritised in the development of legislation governing private space travel (Vidaurri et al., 2020).

The proponents of private space travel should not make the mistake of underestimating such efforts. Yes, some arguments, such as accusing anyone who does not recognise the 'rights of rocks' of 'antimineralism', do seem absurd. I am reminded of a quote by George Orwell, who famously said: "One has to belong to the intelligentsia to believe things like that: no ordinary man could be such a fool" (Orwell, 1968, p. 429).

But history teaches us that while entrepreneurs and engineers are working to find new technological and economic solutions to humanity's problems, there are intellectuals working to prevent them in the name of anti-capitalism. It would not be the first time that irrationality has ultimately triumphed over rationality. The consequences would be fatal if politicians influenced by such ideas ended up preventing projects such as the one spearheaded by Elon Musk.



Why do anti-capitalists so vehemently oppose the idea of colonising other planets and asteroids for economic purposes? Their fear lies in the potential loss of a key argument central to their ideology, namely that our planet has limited resources, so we can't grow indefinitely. They argue that capitalism, because it is based on growth, must be abolished. Warnings about the limits to growth are not new; they have been around for centuries. We know today that most of the warnings – from Malthus to the Club of Rome – never came to fruition, largely because they massively underestimated the inventive power of people, which is by far our most important resource.

Based on numerous data series, the American scientist Andrew McAfee demonstrates that economic growth has decoupled itself from the consumption of raw materials in his book *More from Less* (2020). Data for the US show that of 72 commodities, only six have not yet reached their consumption maximum. Although the US economy has grown strongly in recent years, consumption of many commodities is declining (2020, pp. 80–2).

As soon as it becomes clear that we can extract valuable raw materials from asteroids or by colonising Mars, it should become clear to everyone that the argument 'Our planet has limited resources, so we can't grow indefinitely', which has already been debunked anyway, is wrong. This is one reason why anti-capitalists are against the conquest of space. Another reason is that anti-capitalists want everything to be regulated by the state and therefore see private space travel as a threat. This is because the progress made in private space travel shows that private solutions are often much more efficient than state solutions (Zitelmann, 2024a).

NASA was able to make significant strides in scientific exploration through research flights using unmanned space probes. However, over the last 50 years it made no progress in the fields of space transportation and manned space travel. NASA's shuttle programme was an "economic disaster": "Every single mission cost a billion dollars. Operating the shuttle was so expensive that all attempts to find a more viable successor aircraft failed to materialize for more than three decades" (Reichl, 2022, p. 4).

There were no further manned missions to the moon, let alone to Mars. And the cost of a space launch remained static from 1970 to 2010, until Elon Musk's SpaceX succeeded in reducing the cost of a rocket launch by 80 per cent, from US\$10,000/kilogram to \$2,000/kilogram with a mostly reusable launch vehicle (Zubrin, 2024, p. 2).

22 December 2015 was a historic day for space travel, as Musk's successful launch of the SpaceX Falcon 9 marked the first time the first stage of a rocket landed back on Earth after take-off. This groundbreaking technology has revolutionised the cost efficiency of space travel. Just imagine if every aircraft became unusable after a single flight and had to be replaced – the expense would be astronomical. And this was far from the only innovation that made rockets like that of SpaceX so much cheaper than ever before.

Parallel to these advances in private space travel, there has been a notable surge in opposition from anti-capitalists, advocates of woke ideology, and self-proclaimed 'post-colonialists'. Arguments such as advocating for the 'rights' of boulders and microbes as the rightful inhabitants of Mars are obviously absurd. Especially when you consider that precisely those intellectuals for whom the protection of private property is otherwise – to put it mildly – not a priority at all, but who often even see it as the root of many evils, suddenly discover their love of property when it is not a matter of humans, but of microbes that may exist on other celestial bodies. During the same debate on space colonisation cited above, the anthropologist Michael Oman-Reagan presented the following argument: "If there are microbes in Mars, I think Mars belong to them. If there is water on Mars, that water belongs to them" (Smith et al., 2019, p. 4).



Martyn J. Fogg, a British physicist, geologist, and specialist in terraforming, has rejected these and similar arguments in an article on ‘The Ethical Dimensions of Space Settlement’:

The argument amounts to saying that humans actually have the *lowest* degree of intrinsic worth of any class of formed object. Rocks are free to rust and crumble over the aeons, asteroids and meteorites free to batter the Martian surface, and microbes free to hitch a ride if they can survive the trip there to evolve into new forms that are Martian. Only humans should be constrained from fulfilling the evolutionary potential according to this philosophy. Yet if spacefaring is a legitimate activity for microbes, why should it not be so for humans? The allied ideologies of misanthropy and sentimentality cannot provide a satisfactory answer.

(Fogg, 2000, p. 210)

Gonzalo Munévar, Professor Emeritus at Lawrence Technological University, has published a comprehensive examination of the philosophy of space exploration under the title *The Dimming of Starlight*. Munévar (2023) distinguishes between “ideological” and “social” criticisms of space exploration. Intellectuals who are convinced that technology, growth, and capitalism have caused a lot of harm on Earth see space travel as a continuation of a path that they think is wrong anyway. The second argument is that the billions allocated to space exploration would be better utilised in addressing pressing issues such as hunger, poverty, climate change, and other urgent human problems.

The second argument is relatively easy to refute as it suggests that eradicating hunger and poverty is simply a matter of spending enough money on development aid. However, evidence from 60 years of development aid in Africa demonstrates that this approach is not only ineffective, it is often detrimental. The only way to combat poverty is more economic freedom, more capitalism (Zitelmann, 2024b).

5 | SHOULD WE POSTPONE SPACE SETTLEMENT TO THE DISTANT FUTURE?

In 2023, Kelly and Zach Weinersmith published a book titled *A City on Mars: Can We Settle Space, Should We Settle Space, and Have We Really Thought This Through?* For them, there are too many uncertainties. They argue that we might be able to think about space settlement sometime in the distant future, but we are nowhere near that point yet (2023, p. 87).

Some of the concerns they raise are worth considering, including unresolved questions as to whether humans can reproduce safely in low-gravity conditions and whether babies can develop normally in such environments (2023, pp. 70–88). However, many of the questions are contrived, and it is clear that the authors have adopted the common approach of intellectual doubters, who first want a definitive and final plan that answers all conceivable questions before they will even begin to act. This contrasts with the mindset of the entrepreneur, who takes action and continuously solves new challenges as they arise.

Some concerns are absurd, such as the idea of states bombarding each other with asteroids, a notion that Robert Zubrin effectively debunks in his review of the book (Zubrin, 2023). Concerns raised by the Weinersmiths include how to safely perform surgery under microgravity conditions (Weinersmith & Weinersmith, 2023, p. 65), whether couples would have to tether themselves to each other during sex in low gravity (p. 70), how psychiatric care could be



provided for people suffering from mental illness on Mars (p. 91), whether a permanent stay on Mars would have a negative effect on the psyche (p. 109), whether medication for mental disorders would be negatively affected by space radiation (p. 110), and how the profits from asteroid mining could be distributed “fairly” (p. 159).

The authors declare themselves to be supporters of the so-called 1979 Moon Agreement (UN Agreement Governing the Activities of States on the Moon and Other Celestial Bodies).¹ This international agreement, which, fortunately, has only been signed by a total of 17 countries (not including any space-faring nations), declares the solar system to be a particularly communal form of *res communis*, known in international law as ‘common heritage of mankind’ (CHM). The authors explain what that would mean: “If the Moon were under a CHM framework and you wanted to use Moon water, you would have to compensate *all of humanity* by some means” (Weinersmith & Weinersmith, 2023, p. 258). Such an approach could also be described as space socialism. And under such conditions, what company would want to fund space missions or get involved in asteroid mining?

In response to the assertion that “space exploration is a natural urge”, the Weinersmiths argue that: “Most of us are not in fact famous explorers. Most of us prefer to vacation in places that have pastries and air-conditioning, not Mount Everest or the Amazon basin ... If exploration is a natural human urge that must be satisfied, why are so many of us happy to sit on our couches ...” (2023, p. 28–9). To this I would counter: progress has never been achieved by the kinds of people who prefer to sit on their couches, but by those who refuse to settle for an average existence, those who stand out from the crowd, who are more curious, and who are perhaps also more adventurous.

An entrepreneur who, before setting up a business, thoroughly considered every one of the hundreds of potential problems that could occur, as the Weinersmiths do when they raise myriad concerns against the colonisation of space, would end up doing exactly what the authors recommend: “What we do think is that space settlements probably are, and ought to be, a project of centuries, not decades ... Wait for big developments in science, technology, and international law, then move many settlers at once” (2023, p. 18). They would dawdle and delay – and never do anything at all. Just imagine: if the Weinersmiths had been around when our first human ancestors learnt to make fire, they would have said: “Hold on! We need to wait until we’ve got a perfectly functioning fire brigade and precise plans on what to do if a fire gets out of control. You should wait until we’ve got every eventuality covered.”

6 | CONCLUSION

Private space travel is still in its infancy. Companies such as Elon Musk’s SpaceX have already made significant strides in reducing launch costs. With investments in satellites and rockets proving economically viable in the short and medium terms, visionaries like Musk have set their sights on colonising Mars. There is resistance to this, particularly from anti-capitalist intellectuals. Even if many arguments (e.g. that Mars belongs to the microbes, if there are any there, or that the original rights of rocks on Mars should not be violated) are not taken seriously, it is important not to underestimate the opposition to private space travel. After all, throughout history, there has never been a law that guarantees rationality and progress will prevail over irrationality and ideology.



ENDNOTE

- ¹ https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXIV-2&chapter=24&clang=_en (accessed 7 September 2024).

REFERENCES

- Anderson, C. (2023). *The Space Economy: Capitalize on the Greatest Business Opportunity of Our Lifetime*. Wiley.
- Billings, L. (2019). Should humans colonize Mars? No. *Theology and Science*, 17(3), 341–346. <https://doi.org/10.1080/14746700.2019.1632524>
- Fogg, M. (2000). The ethical dimensions of space settlement. *Space Policy*, 16(3), 205–211. [https://doi.org/10.1016/S0265-9646\(00\)00024-2](https://doi.org/10.1016/S0265-9646(00)00024-2)
- Hersch, M. (2023). *Dark Star: A New History of the Space Shuttle*. MIT Press. <https://doi.org/10.7551/mitpress/13589.001.0001>
- McAfee, A. (2020). *More from Less*. Simon & Schuster.
- Munévar, G. (2023). *The Dimming of Starlight: The Philosophy of Space Exploration*. Oxford University Press. <https://doi.org/10.1093/oso/9780197689912.001.0001>
- Orwell, G. (1968). *As I Please: The Collected Essays, Journalism and Letters of George Orwell* (Vol. 3). Penguin.
- Reichl, E. (2022). *Die Zukunft der Raumfahrt: Private Projekte*. Motorbuch Verlag.
- Rubenstein, M.-J. (2022). *Astrotopia: The Dangerous Religion of the Corporate Space Race*. University of Chicago Press. <https://doi.org/10.7208/chicago/9780226823171.001.0001>
- Smiles, D. (2020). The settler logics of (outer) space. *Society and Space*. <https://www.societyandspace.org/articles/the-settler-logics-of-outer-space> (accessed 29 July 2024).
- Smith, K., Abney, K., Anderson, G., Billings, L., Devito, C., Green, B., Johnson, A., Marino, L., Munevar, G., Oman-Reagan, M., Potthast, A., Schwartz, J., Tachibana, K., Traphagan, J., & Wells-Jensen, S. (2019). The great colonization debate. *Futures*, 110, 4–14. <https://doi.org/10.1016/j.futures.2019.02.004>
- Taveres, F., Buckner, D., Burton, D., McKaig, J., Prem, P., Ravanis, E., Trevino, N., Venkatesan, A., Vance, S., Vidaurri, M., & Walkowicz, L. (2020). *Ethical Exploration and the Role of Planetary Protection in Disrupting Colonial Practices A Submission to the Planetary Science and Astrobiology Decadal Survey 2023–2032*. <https://arxiv.org/pdf/2010.08344> (accessed 29 July 2024).
- Vidaurri, M., Wofford, A., Brande, J., Black-Planas, G., Domagal-Goldman, S., & Haqq-Misra, J. (2020). Absolute prioritization of planetary protection, safety, and avoiding imperialism in all future science missions: A policy perspective. *Space Policy*, 51, 1–6. <https://www.sciencedirect.com/science/article/abs/pii/S0265964619300803> (accessed 7 September 2024)
- Weinersmith, K., & Weinersmith, Z. (2023). *A City on Mars: Can We Settle Space, Should We Settle Space, and Have We Really Thought This Through?* Penguin Random House.
- World Economic Forum (in knowledge partnership with McKinsey & Company). (2024). *Space: The \$1.8 Trillion Opportunity for Global Economic Growth*. Insight Report April 2024. https://www3.weforum.org/docs/WEF_Space_2024.pdf (accessed 29 July 2024).
- Zitelmann, R. (2024a). The future of the space industry. *Quillette*, 26 May. <https://quillette.com/2024/05/26/the-future-of-space-industry-mars-jeff-bezos-elon-musk-nasa/> (accessed 29 July 2024).
- Zitelmann, R. (2024b). *How Nations Escape Poverty: Vietnam, Poland and the Origins of Prosperity*. Encounter Books.
- Zubrin, R. (with R. Wagner) (2021). *The Case for Mars: The Plan to Settle the Red Planet and Why We Must* (25th anniversary ed.). Free Press.
- Zubrin, R. (2023). Why we should settle Mars. *Quillette*, 4 December. <https://quillette.com/2023/12/04/why-we-should-go-to-mars/> (accessed 29 July 2024).
- Zubrin, R. (2024). *The New World on Mars: What We Can Create on the Red Planet*. Diversion Books.

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