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Mars: a free planet?

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Abstract

We are witnessing the enormous breakthroughs of space technology, which will eventually allow us to reach Mars. However, it seems that the technological evolution is expanding at a faster rate than the moral development. Are we ethically ready to take human beings to Mars? Will it be a private company the first one that manages to take us there? Should we colonize Mars or leave it like it is right now? Are astrobiological interests being contemplated when discussing human presence in Mars? These are some of the questions that we must answer since the moment of stepping on Mars does not seem to be far away. Therefore, the objective of this article is to evaluate the idea of Mars being a free planet from any of Earth's governments, and to analyse the idea of colonizing Mars considering that by doing that we could seriously endanger native life. What it proposed is that its unavoidable that we will reach Mars, however, we may not be prepared as humanity and this is something that we must face.

Research Article

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The aspect of the expansion of humanity in space is an astrobiological point of interest that has always been necessary in the distant future. However, that scenario is close and does not necessarily represent the interests of a nation, but of a private company. We refer specifically to the message that was disseminated in the Starlink Beta Terms of Service, available to its users, where it was mentioned that:

> For services provided on Mars, or in transit to Mars via Starship or other colonization spacecraft, the parties recognize Mars as a free planet and that no Earth-based government has authority or sovereignty over Martian activities. Accordingly, Disputes will be settled through self-governing principles, established in good faith at the time of the Martian settlement (Salmeri, 2020, par. 2).

It is not sure if this fragment will remain intact in the final version of the Terms of Service, but it is already causing us concern. The original publication was made by a user of the service through the social platform Twitter, which, unfortunately, has already been eliminated. However, there was enough time to circulate it. Today is SpaceX talking about the possibility of landing on Mars, tomorrow maybe it will be another company, and thus, until we have a specific 'Space environmental protection' for Mars, we would be putting the potential life we find at risk. Since we do not have another life reference that is not ours, we could not detect it in time. It remains to define how to detect it (Azua-Bustos and Vega-Martínez, 2013). It is not possible that if a company or person currently has sufficient resources, it can send rockets to Mars without being observed or without complying with certain precautions that go beyond peaceful uses. Space tourism can be a peaceful use, but if care is not taken to avoid contamination against potential Martian life, it is no longer a harmless activity.

Soon humanity will be able to land on it, technologically we will be enabled, but will we be ethically? This is no longer just a technological issue and is now also a social one (Szocik *et al.*, 2020b). We know that from the Outer Space Treaty (United Nations, 2002), the celestial bodies do not belong to any nation, and neither should they be used for war purposes. This can lead to some controversy about the extent to which we could consider Mars 'free'.

The idea of considering Mars as a free planet has many risks. The fact that it does not have at this time a particular treaty to be able to govern it politically does not mean that we can make free use of it. In fact, we could even say that the concept of the 'free' planet can result in a very Western, almost totally American vision (Szocik *et al.*, 2020b), and that it needs reconsideration and inclusion of different non-Western points of view.

This work is framed within the astrobioethics discussion. Astrobioethics is the ethical branch that is in charge of studying and analysing the moral implications of astrobiology, such as the evaluation of what to do in the face of a possible contamination that puts at risk any possible form of Martian life. For this reason, we understand as 'astrobiological interest' any aspect that involves interacting with any potential life form or conditions that allow us to understand the origin of life in the universe. This interest may be for scientific research but may also include considering extraterrestrial life to be of value in its own right (Chon-Torres, 2020, 2021).

For these reasons, this article will discuss the idea of a free Mars, from the legal and astrobioethics point of view, and the possible scenarios we are faced with (on whether to colonize it

or not). The first part of this paper discusses the risk of considering Mars as a planet free of any form of governance that does not make explicit the astrobiological care it should have. For example, how long is it prudent to wait until exploring certain areas, without having to jeopardize any local life that may exist? In the second part I outline some of the reasons why Mars should or should not be colonized. Here I also discuss the unspoken idea behind some of Elin Musk's statement about reaching the red planet. Finally, conclusions are presented.

Liberty for Mars?

What is freedom? If we are going to talk about the freedom of Mars, we have to ask ourselves the question about the meaning of this singular word. Perhaps what is freedom for some is irresponsibility for others. How can we agree on whether Mars can be conceived as a free planet? In order to talk about the liberty of Mars and to understand if it is a free planet, we must observe a couple of ideas. The idea of freedom can be understood from two perspectives: negative liberty and positive liberty. Negative liberty refers to the possibility that an individual has to do what he wants, to do what he wants, but under certain limits, since he cannot suppress the freedom of another individual. This is the concept that John Stuart Mill handles when it tells us that:

> A person should be free to do as he likes in his own concerns; but he ought not to be free to do as he likes in acting for another, under the pretext that the affairs of the other are his own affairs. The State, while it respects the liberty of each in what specially regards himself, is bound to maintain a vigilant control over his exercise of any power which it allows him to possess over others (Mill, 2014, p. 101).

With some modifications according to the context, negative liberty could be reformulated in a Martian context, since it allows the individual some movement within the limits established, in this case, by the colony.

On the other hand, we have positive liberty, which consists of each individual being aware of himself and his actions, or as Berlin (2014) indicates:

> The positive sense of the word 'liberty' derives from the desire on the part of the individual to be his own master. I wish my life and my decisions to depend on myself and not on external forces of whatever kind. I wish to be a subject, not an object; to be moved by reasons, by conscious purposes which are my own, and not by causes which affect me, as it were, from outside (pp. 194–195).

We can realize that this concept of freedom cannot be applied to a Martian context, in which it is impossible to go for a walk to take fresh air as it is done on Earth, since environmental constraints do not allow it. Moreover, one action by a subject can endanger the entire population of the respective colony, even more so in an extreme environmental setting.

However, Mars is not an individual like us, it is a planet, and the discussion of freedom that we will employ here has to do with geopolitical freedoms in relation to the astrobiological responsibilities we have for the possible life found there and everything that helps us understand the possible evolution of life in the universe. Therefore a negative liberty perspective is more in line with this work, more in line also for consideration of future Martian colony policies.

The idea of 'freedom' is one that resonates in our environment. There is a danger in hinting at great ideals to carry out an action. And it is that when the ideal becomes more important than the facts, usually through a political discourse, we run the risk of losing our way, although this 'loss' is relative depending on where it comes from. The importance of Mars has grown over time thanks to the positive results on the possibility of life on it (Jones, 2008; McKay, 2019). Should we put possible Martian life at risk by developing human colonies on Mars? Interest in the red planet is no longer limited to those of a space agency, such as the National Aeronautics and Space Administration (NASA), but in this new context, we can see that some private company has also generated this interest to get there. The scenario would be quite different if Mars had been shown to be totally sterile. We would not have an astrobioethic problem (Chon-Torres, 2018). If we look at the Outer Space Treaty, in Article I of the first part, we read:

> The exploration and use of outer space, including the Moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind (United Nations, 2002).

Let us suppose that the use in research and free knowledge that is made on that planet is respected. The next thing to ask ourselves is about the different reasons why we might decide it is necessary to visit Mars. Levchenko *et al.* (2019) offers us a series of options by which we should make that trip. The first one is that our survival as a species would depend on it (it could be perceived as in the distant future but we should not ignore it now); the second is to explore the potential for life on Mars to support human beings (it's interesting because it would allow us to know if there is Martian life); the third is to dedicate technology that would later be used to improve living conditions on Earth (this is a question that involves space sciences in general); the fourth is to develop ourselves as a species (this one is a reality today even without emigrating to Mars); and the fifth is to gain political and economic leadership (this is a fairly specific purpose, in which I strongly agree, since the final decision will not be exclusively a matter of scientific curiosity).

The interest of a private company fits more with the last option, which leaves us with the question of how it could proceed. What if it were a company like Space X that was the first to reach Mars? Let us review again the Outer Space Treaty, Article II of the same section:

> 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 (United Nations, 2002, Article II).

This would imply that Mars cannot be proclaimed as 'free' in the sense that government could be applied. If a company wants to administer a form of government, it must not declare that it will be autonomous from all legislation on Earth. No, Mars is not free in the sense that anyone with the means can get there and legislate as they see fit. We must consider astrobiological interests, the fact that life can exist there. We must propose an exclusive Space environmental protection for Mars (Alexandrov, 2016), we must think about defining the form of government that considers, for example, protected areas on Mars (Cockell and Horneck, 2004; Rettberg *et al.*, 2016; Lupisella and Race, 2018; Chon-Torres, 2020).

> Human exploration could, in fact, confound the search for life on Mars, since the presence of humans will dramatically increase the amount of terrestrial organic material, potentially making the detection of indigenous

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> organic matter exceedingly difficult, if not impossible (Glavin *et al*., 2004, p. 269).

It is not clear to what extent astrobiological research is sufficient to determine if it is really the time to send humans there. Who would define it? Whether we are astrobiologically prepared or not, in terms of ways of preserving potential Martian life, I think the time will come sooner or later. It will be up to the space agencies of each country, in coordination with the United Nations, to develop the necessary protocols for when that happens.

It is inevitable that humans will reach Mars, but they should not do so 'freely', and the country that does it first, either as a space agency or as a company, must consider the plurality of cultures if it intends to outline or propose a form of government to Mars according to technological limitations. Here we show concern not only about how humanity should govern itself on Mars, but also about how it should relate to its environment. We speak of a form of planetary environmental protection: "If we one day will really find extraterrestrial life, be it on Mars or elsewhere in our Solar System, additional issues will be raised, that I want to consider under the heading of 'environmental protection'" (Losch, 2019, p. 262).

This is one of the points that must be considered in addition to the legal aspects. Let us remember that we only have one chance not to put potential extraterrestrial life on Mars at direct risk, but many opportunities to get back there. "This poses a challenge to the field of environmental ethics, which is a discipline that has never before looked beyond the Earth" (Mackay & Marinova, p. 105). From this perspective, thinking about reaching Mars as soon as possible and the rocket flight and return samples should not be the only thing that is applauded, but new treaties and policies of interplanetary government that can nurture potential Martian life. What would be the position of a private company in the face of astrobiological interest?

Caring for potential extraterrestrial life has a higher value (Persson, 2012; Peters, 2018), not only because it represents an academic interest, but it also represents the answer to whether we are alone in the universe. Reaching Mars will be a necessity, but we must do it with a plan drawn up according to the care it deserves. However, also remembering the principle of deep ecology of Naess and Sessions (1984), in which it is emphasized that we should not put life and its diversity at risk, except for questions of human survival. Which brings us to the next question about whether we should colonize Mars. A new way of understanding risk is required to reach Mars in the framework of astrobiology, one that considers the pros and cons of any action taken in the astrobiological field, being aware of its implications in the short, medium and long term. Therefore, it is necessary to resort to creative ways of weighing risks and benefits, especially in one that involves the search of extraterrestrial life (Maynard, 2018).

This also leads us to the idea of considering an astrobioethics that goes beyond anthropocentrism and raciocentrism (Smith, 2009). That is, to think of an ethic that gives value to life not for the use of reason that it may have. After all, we do not expect life on Mars to possess intelligence. This also leads us to pose the challenge of which ethical theory would be indicated for this type of situation (Randolph and Mckay, 2014).

As Smith (2018) says, ethics is often criticized for not being able to have a unified theory of morality, but this would be analogous to what happens with physics: 'In fact, the tension between them mirrors other well-known tensions in science: we lack a grand unified theory of gravity, which bothers the theoretical physicists a lot' (p. 466). For this reason, it would be convenient to go beyond disciplinary limits and propose a transdisciplinary way of working, which 'is the interaction of several disciplines in an equitable way and the formation of a methodology that is consolidated during the research process' (Chon- Torres, 2021, p. 8) and that the product of their knowledge would be greater than the sum of its parts (Santos *et al*., 2016).

As we see, the challenges of posing an ethical position for Mars are not only moral, but they are also epistemological, since the diverse ethical perspectives that each involved discipline may have must be interconnected. Added to this, and the unprecedented scenario in which we find ourselves, a certain flexibility is required to propose ethical guidelines, but that are based on certain unbreakable premises, as far as possible, such as respecting the confirmed presence of Martian life. Although this should be an imperative, in the distant future we may have the dilemma of choosing between us and them. I just hope that by the time that happens, all options and research options have been exhausted.

Regarding the question of whether Mars is free, we can infer that it should not be considered free. Possession of potential astrobiological interest indicates that there must be regulatory ways that control both the way humanity would be governed on that planet and their way of interacting. Which would also imply establishing criteria for planetary environmental protection. There must be an international agreement to establish and update the protocols that exist. Technology seems to advance faster than our moral philosophy on protecting Martian life.

Mars colonization: ethical discussion

The astrobiological ethical debate is not only a matter of legal discussion, like the one that is framed in the Outer Space Treaty and the attempts of some companies that want to propose their own forms of government. The moral aspect has differences with the legal aspect, since the legal does not always accompany the moral. Now the question we could ask ourselves is whether we should colonize Mars? We will not approach it from the perspective of natural sciences, but from an ethical discussion.

Stoner (2017) offers us some reasons to think about why we should not colonize Mars. The first of them has to do with our interest in the exploitation of minerals. If our first intention is to go to Mars in search of minerals, it would be better to look for it in asteroids, since it would be more convenient for us in use of resources. On the other hand, if our intention is to reach Mars by our impulse to want to expand in the universe. Arguably, it is because that is what humans do.

> More generally, the claim 'it is what humans do!' has never been a good justification for anything, anywhere, ever. Humans apparently harbor drives not only for expansion, but also for revenge, war, sexual assault, scapegoating the socially marginalized, exploiting the downtrodden, denying the humanity of culturally unfamiliar people, stigmatizing disabled people, and arrogating to ourselves every kind of resource beyond all reason (Stoner, 2017, p. 338).

And he is right, the fact that we colonize Mars because it is in our nature to expand, as if it were a birthright, is not a sufficient reason. However, it is the tone in which some space agencies sometimes refer to the expansion of the human being in the cosmos:

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> Why Mars? Mars is the horizon goal for pioneering space; it is the next tangible frontier for expanding human presence. Our robotic science scouts at Mars have found valuable resources for sustaining human pioneers, such as water ice just below the surface (NASA, 2015, p. 2).

But it is also the case of SpaceX when it refers to its intention to reach Mars (Thomas, 2007). For the same reason, we see that there is a discourse, but the ethical intention in this regard has not been made explicit. No moral support is perceived beyond technological or scientific interest. 'Why colonize Mars? Because it is in our nature to expand in the cosmos.' It is not an argument; it is an impulse. Like any act motivated by impulse, it will make us repeat the same mistakes that we have been able to make on Earth.

Another of the arguments that Stoner (2017) finds about why we should colonize Mars but does not find a good ethical space, is the one that represents a new beginning for new generations and that it would be a backup planet. Both positions, of course, are very selfish and would not make an adequate ethical argument. Treating Mars as a backup planet feels like we can have any place we want now we need it; it is the same idea of taking over nature generated by Francis Bacon's idea of dominating nature, and a similar one we can find in the concept of 'cosmic vandals', not appreciating what is in front of us, making us look like brutes and vandals for damaging it (Sparrow, 2015). Only if it were a real threat to the human species and we could no longer live on Earth, could it be viable to colonize Mars or start to enable some places on it in case that ever happens. Stoner concludes two moral principles by which it is ethically unfeasible to colonize Mars:

> The tread lightly principle holds that we ought to tread lightly when we visit wilderness. The principle of scientific conservation holds that we should avoid significantly invasive or destructive research methods if they would threaten the value of the subject of study or if there are minimally invasive methods available. Because a colony on Mars would highly likely contaminate Mars with microorganisms from Earth, fundamentally altering the Martian environment forever, both principles entail that colonizing Mars is morally wrong (Stoner, 2017, p. 349).

So, from this point of view, colonizing Mars is morally wrong. It would attack 'Martian interests' in the case of life there. Should we respect their interests and ignore ours? Should we stop developing the technology that makes it possible for us to land there? It does not seem that humanity is going to stop in its intention to colonize Mars because we cannot be less invasive when we take our first steps there. What should we do then? Here we must accept the risk posed by possible biological contamination and an attack on native life forms on Mars. In other words, travelling to Mars implies an astrobiological risk (also human, but we are not dealing with that here). The concept 'astrobiological risk' must be calculated based on the possible changes and impact that our activities on Mars could have. A kind of Martian environmental impact study should be done and the places and activities to be carried out should be defined. The principles that consider that it is not ethically viable to colonize Mars are right, but I believe that we must accept the fact that in the next few years humans will be on the red planet, despite the arguments against it. For this reason, it is imperative to continue discussing this future scenario. It is not enough, then, the classification of the Planetary Protection Policy, which is divided into five categories (Kminek and Rummel, 2015). 'Humans cannot protect everything on Mars perfectly, but they can try to protect what they can, and do so with pragmatism and wisdom' (Szocik *et al.*, 2020a, p. 3). Perhaps a positive step towards this new way of running on Mars is the Manifesto for Governing Life on Mars (Cowley, 2019).

However, we could also argue that currently, sending an unrepresentative group of people through a private company would be putting possible life on Mars too at risk (Billings, 2019). Before we have discussed moral viability in general, but if we shorten the times and ask ourselves the question towards the present, for example: should a private company send human beings to Mars for the purpose of developing space tourism? If this happened in 2021, for example, would there be a government that prevents it, or will we simply get carried away by the logic of 'whoever does it first wins'? Seen from this other perspective, at this time there is no government in the world that really prevents this hypothetical private company from achieving its objectives on the red planet. Would losing it be an affront to scientific and technological development? They are complex questions that do not have totally objective answers because those involved represent interests.

We have the interests of the company, the interests of the scientists and the political interests. The interest of the company would basically be that this activity becomes lucrative over time; the scientific interest would be in studying the possibility of life on Mars, but also in examining the red planet more closely from multiple perspectives, such as geological, chemical, by pointing out some; and the political interest would be in being the first to get there, either as a government space agency, or as a company of a specific country. We put aside the idea that it will be useful in the future for humanity to begin our human expedition to Mars, since we are going to concentrate on whether it would be feasible to start colonizing it next year and / or if there would be any legal impediment. The Outer Space Treaty tells us about the peaceful uses that humanity should have for the celestial bodies, but what if that peaceful use camouflages a political interest? What if monopolizing research areas on Mars is a political strategy of technological superiority? A similar concern can be seen with respect to the Moon, in Elvis *et al.* (2016). Here they discuss the *de facto* appropriation of areas with Peaks of Eternal Light, these being scarce and important for scientific research, but which could also hide subaltern interests.

In the scientific world we use the scientific method, and anyone who replicates an experiment, following the appropriate steps, will be able to arrive at an answer. This is not the case at the political level. The policy has no answers that can be replicated. A system of government does not apply in the same way in one country as in another. We are used to politicians on Earth making promises to us and ultimately not keeping them. What guarantee do we have that the same will not happen with peaceful uses and technological development on Mars?

Billings (2019) recalls that to date, for example, NASA does not have an ethical procedure that includes humans on missions to Mars, limiting itself to suggesting prior considerations, such as ensuring by means of robots that there are no life there. It also raises the idea that if we have not been able to resolve our own planetary issues, it would be inappropriate to expand at this time, in addition:

> Given the state of the world today—the world that human beings have completely reconfigured, to the detriment of the existence of many species and even (poorer members of) the human species itself—there is no reason to believe the claims of Zubrin and his ilk that humans living on Mars would 'start anew,' eliminating all their bad habits and behaviors that have put, and are keeping, our home planet in jeopardy (Billings, 2019, p. 345).

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It is curious to see how the problem of the colonization of Mars is related to our own unsolved problems on Earth. The opposite position is the one represented by Elon Musk, where on several occasions before the press and events he states that it will be going to Mars that will save humanity.

Philosophically speaking, humanity will not be saved by going to Mars or to another galaxy, because technology will not rid humanity of its problems. If we compare moral problems and technological and scientific problems, we see that it is the latter that have had the most development. So much so that there is still a faith in progress and in science as the option that will help us completely solve moral problems. So much so that even the father of utilitarianism, Jeremy Bentham, tried to make a hedonistic calculation and get the morally correct action as a result. Now we know that there is no such precise calculation that can tell us which is the right path. To think that we can colonize Mars just because we can, would be falling into hubris, which can lead to undesired consequences, an excess of arrogance that can have a high cost (Sparrow, 2015).

It could even be said that the idealization of humanity on Mars is the result of an updated myth of the lands of Prester John, which in the Middle Ages was conceived as a distant place but where you could live well (Brewer, 2016). Then, having confirmed that such distant paradise lands did not exist, attention was fixed on some place in South America called 'Paititi' or 'El Dorado'. If we make an interpretation along the lines of distant idealizations, it seems that now the future of Mars could fit with some idealized forms of some private company.

But when asked, should humans colonize Mars? If by colonizing we include respect for special protected areas, that a special space environmental protection for Mars is managed, that promotes the peaceful development of humanity both on Earth and on Mars, that the interests of potential Martian life are respected, that in parallel to our trip to the red planet, the problems on Earth are not neglected, and that there is a serious commitment both by private companies and by nations to ensure that all this is fulfilled, then yes, we should do it. It is not an answer that is a 'yes' and nothing more. It is an answer that must be argued with conditions.

Conclusions

Talking about the legal conditions of Mars is not a remarkably simple matter, especially if we consider that there may still be legal loopholes through which a company or country can take advantage. However, when asked whether Mars should be considered a free planet, the answer that evokes prudence is no. Furthermore, due to astrobiological considerations and the Outer Space Treaty, it can be understood that it is not simply a matter of having the resources and technology to do so. It is also necessary to meet certain requirements, although there may not be defined penalties for those who manage to get there and compromise local life. It is therefore necessary to prepare at the level of nations and space agencies, the legal procedures and sanctions that must be complied with by everyone who wishes to reach the red planet. Can self-government be made on Mars by a private company? No, and not on a general scientific, astrobiological and legal level. Here a communication between disciplines will be of vital importance that allows us to give us a theoretical framework that manages to cover the different dimensions of this scenario.

Faced with the question of whether we should colonize Mars, we must first consider the different interests represented by the business, scientific and political level. These three do not always go hand in hand, so it is necessary to define and propose a specialized Space environmental protection for Mars, and this must be done as soon as possible, without sacrificing astrobiological interests. The answer to this question could be given with a yes, we should do so, but under the condition of complying with the conditions that we formulate internationally. We cannot be a true planetary species if we cannot even manage in the most terrestrial affairs. For this objective to not be a mere expansion of our desire of idealize outside once more, the opportune would be that these space breakthroughs should come with mankind's too, so that we could stop clinging to the hope of humanity's salvation with its new beginning in Mars.

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