


# Moral challenges of going to Mars under the presence of non-intelligent life scenario

Octavio A. Chon-Torres 

Programa de Estudios Generales, Universidad de Lima, Lima, Peru

## Research Article

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### Author for correspondence:

Octavio A. Chon-Torres,

E-mail: [ochon@ulima.edu.pe](mailto:ochon@ulima.edu.pe)

### Abstract

Much is discussed what would be the ideal position in terms of our ethical treatment with respect to other forms of life, particularly those that can be discovered in other worlds, in addition to our role in terms of the expansion of terrestrial life in the universe. This represents a great philosophical challenge, but what if we should make a moral decision in the face of the inevitable situation of being forced to colonize, for example, Mars? Is there a position in which we can feel safe to act legitimately? This paper tries to force us into a mental and conceptual exercise about what can really be worth beyond the concept or the positions we may have and analyse them in light of the practicality that decision making requires in this problem.

To date we do not know if life exists on Mars, our detection capacity is not strong enough to perform a sweep that scans both its surface and below it. I could even say that we have no guarantee or assurance that we have unwittingly annihilated some form of life not possible to detect even with our current methods. However, evolution has relatively defined paths to develop, so we could identify them (Levin *et al.*, 2019). This uncertainty generates a series of problems that can be filled by imagination, as we have registered with Percival Lowell in the headline of the New York Times entitled ‘Mars inhabited, says Prof. Lowell’ on 30 August 1907. However, since that time until today much has changed in science and technology, in addition, the philosophy of science and astrobiological ethics have been nourished by new discoveries and advances.

For example, we can now think about how we could colonize Mars, or if it currently harbours some form of life. It may be several years before we reach a conclusion of something certain, but the truth is that if we as species wish to prolong our existence, it will be necessary to think seriously about how to finally live on Mars. The current technology does not allow it, but that is not an impediment to perform philosophical exercises in the ethical sense to be able to consider certain scenarios. In this paper, we assume the following scenario: expanding to other planetary environments is inevitable, so we must make a decision, or rather a strategy.

Let us say also that in this scenario we have reached the point where we have no choice but to expand. This paper would not make sense if we had other options besides trying to prolong terrestrial life, but imagine that we are in a critical situation and we have no other alternative. How should we proceed? Also, to add an element of drama, consider that the place where we want to expand already has evidence of some microscopic way of life, or at least has had it, but due to our position of life or death, we need to expand ourselves. It is a point in which the point made by Cirkovik (2002) is relevant on a more palpable dimension when he said that ‘the number of potentially viable human lifetimes lost per a century of postponing of the onset of galactic colonization is  $5 \times 10^{46}$ ’. Unlike the consequentialist ethic of Baum (2016), where we can still think of the multiple effects, pros and cons of settling on Mars, in this work we only have one option: expand or perish. This represents a kind of mental experiment, although this has its limitations as will be seen. In any case, the administration of this paper is as follows: first, we will talk about mental experiments in this scenario, then a discussion regarding a possible discovery of life on Mars and, finally, a reflection on the intrinsic value of non-terrestrial life under the ratiocentrism perspective, that is to say: ‘the view that the possession of reason is the primary means by which we differentiate entities having moral’ (Smith, 2014).

### On mental experiments and astrobiology

Mental experiments help us to raise problems that we do not normally have opportunities or ways to perform empirically, either due to technological limitations or due to their mathematical nature. Essentially, they do not look for a solution, but they do set up possible scenarios to exercise critical sense. Einstein’s thought experiments (trains travelling at light speed) and Schrödinger (the cat and the box) were adequate to represent a problematic situation at a mathematician and counterfactual level but never have been materialized (Sorensen, 1992). This is important if we want to understand a situation that is difficult for us to present. However, mental experiments in ethics are not necessarily based on mathematics, they belong

to the empirical world. On the other hand, they are not necessarily counterfactual situations and are more related to our daily experiences, although at a more complex level. A mental experiment that tries to manifest itself at the ethical level, for example, is that of the violinist connected to us without having even consulted us and that it depends on us whether he should continue to live (Thomson, 1971). This thought experiment is used to discuss the case of abortion. However, the differences here between a fetus and a person are categorical and the debate between whether a fetus is a human being or not comes into play with this debate. The use of mental experiments in ethical situations is limited by the very situation that seeks to problematize. In fact, the solutions can be given by consensus or be subject to vote, as could be the case of abortion, so that the mental experiment plays a role to a certain extent, that is, to the point at which a decision is made.

In the case of mathematical mental experiments, this does not happen, Schrodinger's cat remains in a situation in which no vote or consensus can fully define it. On the other hand, in the mental ethical experiments, especially in the astrobiological ones, it can be a matter of time until we make a decision about colonization. It can help us to problematize about what action we should take, we might even never reach a definitive solution, but as it was said, a decision will have to be made in our special scenario. What decision will it be? No ethical mental experiment is so strong to go so far, but its usefulness will be in giving us all possible solutions to help us evaluate which of them is the one we will choose. After all, as mentioned by Milligan (2015) 'But where experience cannot guide us, something more imaginative may be required, at least until we know better'. In this sense our critical exercise gives us the necessary help to be able to make an argued choose.

### Why Mars as the scene of our analysis?

The planet Mars is taken as a reference since it represents an interesting and exemplary case to be able to raise this problematic, in addition to the potential that it has to terraform it and because previously it has already been the object of moral consideration (McKay, 1990). In the writing done by McKay (1990), we find a support of if it is morally viable to colonize Mars and if it is, under what circumstances. He makes a summary of environmental ethics to extrapolate to an astrobiological ethic. In fact, his proposal at the end of his writing is that just before venturing to Mars, we must amplify the environmental ethic we have. The summary that makes the environment ethics and its principles are the following: anti-humanism, wise stewardship and intrinsic worth. Of the three, he says that only the first would not be so viable for a possible colonization directed to Mars since it means that we leave intact and reduce the human impact on nature. In our extreme case scenario that we have to go to Mars, this option would also be discarded, or in any case, it would be at a lower level of relevance. We would not want to intervene in every possible corner where there it could be Martian life because this would really mean an interventionism that would even harm our scientific interest to study other forms of life. The second principle, which consists in knowing how to wisely manage the resources of nature is, in words of McKay (1990): 'It is probable the only fundamental principle of ecological ethics that has universal appeal. This universal appeal may stem from the clear human need for the goods and services that nature can provide and the desire to maintain these benefits' (p. 190). If we want to venture to Mars and if it is already inhabited, then this

principle would help us to know how to balance and organize the presence of non-terrestrial and terrestrial life. Finally, the intrinsic worth principle gives value to everything that makes up the biosphere. However, if it were applied it would not be possible to move to Mars if it had life.

So from what we see the second principle would be viable for our context. Number one and three are discarded for their radicalism. McKay (1990) also tells us that if Mars does not have life, it is our imperative to improve it to start to have it and if it had life, we would have to do everything possible to study it, avoid putting it in danger and promote its development. It is at this point that we take a different position disagreeing with McKay because in our scenario we know that there is life and it is imperative to colonize the red planet. If there is life and we need to inhabit Mars, the questions would be: to what extent to colonize it? (a), the whole planet? (b), should we modify the atmosphere or limit ourselves to domes? (c). These are very daring questions because they presuppose the existence of the technology capable of doing it, but sooner or later they may come true. The level of colonization should be the one that allows us to subsist and coexist with other forms of life (a); possibly not the entire planet, unless the conditions demand it, since doing so could put the present Martian life at risk (b); it is derived from the above that in principle the domes, then evaluate the possibility of terraforming entirely (c).

### How to act in response to the discovery of microbial life on Mars?

If we want to think of a way of acting in this type of situation, Race and Randolph (2002) carry out an analysis and recommendations about an ethical theoretical framework to know how we should proceed if a non-intelligent type of extraterrestrial (ET) life is discovered. To summarize their idea, they propose the following steps:

- (1) If evidence of ET life is detected, do no harm. Avoid intrusive action until full consultation can be made.
- (2) If presumed evidence of ET life is detected, seek to verify and confirm that the life form is truly ET.
- (3) Prior to the public announcement, confirm the discovery by independent observations with research colleagues and institution elsewhere.
- (4) If the discovery is credible, inform the United Nations (UN) and appropriate government agencies (Race and Randolph, 2002).

As for the first step, in our context, we have the haste to colonize other planetary environments, but we will do everything possible to avoid some kind of damage. However, the query of whether to go or not is already discounted and also we assume that there is ET life non-intelligent, so we skip step two and three. And on step four, in our context people and nations already know it. All of these steps are appropriate in a context in which the discovery is potential. Those are steps in a situation where we have time without feeling limited by dedicating attention and postponing our future colonization, which is ethically correct in that case. But in this paper, we are forcing the conditions either for survival or for some reason that forces us to begin to populate another planetary environment, we must think about what to do after having passed these points. The other following elements presented by the authors are:

- (5) All data should be made available to the scientific community.
- (6) Protect and preserve the ET life form.
- (7) No further missions or activities prior to international consultation.
- (8) Continue to review and update procedures and policies (Race and Randolph, 2002).

Case five should be respected in our scenario. While it is true we have the imperative to go out and expand in the universe, that does not mean that we have to hide information from people. No matter how urgent we are, everything must be kept as transparent as possible and accessible to the entire scientific community also. This is a journey of humanity and life on Earth, not of a small group of people with selfish interests involved. It is an opportunity to do things differently and avoid falling into any kind of corruption that is like a cancer for human relationships. The number six is also applicable for us, we must look for a coexistence that must be carried out in a peaceful way protecting and preserving ET life that we have to deal with (which in our case is not – intelligent). And as a branch of five and six, all activity related to it must be consulted by international media to ensure the interest of humanity. Finally, the eight reveals the *a posteriori* nature of astroethics (Chon-Torres, 2018a); that is, we do not have previous experience in this type of situation, so having them will help us to provide feedback and have the necessary heuristics to continue optimizing our ethical framework around the colonization of other worlds.

From all that we could say that if there is proven life on Mars, the succession of events could be the following, in a simplified and enumerated way:

- (1) Safeguard all relevant area for the study of Martian life (Cockell and Horneck, 2004).
- (2) Study Martian life forms including some way of extracting samples from it without harm.
- (3) In parallel, continue the exploration of the red planet in places that have not been done before.
- (4) Ensure that the following landings do not compromise local life.
- (5) Landing with people in the places allowed and duly studied to avoid some form of contamination against Martian life.
- (6) Development of human colonies and promotion the protection of places with presence of Martian life.

We could argue that if ET life has intrinsic value, we could expose different positions with respect to it, which would give us a theoretical framework to be able to maintain a position. In fact, the work of Baum (2016) makes an interesting recount of all the utilitarian approaches at a theoretical level. However, in our context, we need to define what we will have to do.

The proposal that I have presented would include safeguarding the ‘rights’ of the Martian life to exist, that is, having an intrinsic value. And why not? Every form of life follows Darwinian mechanics and seeks to develop, insofar as it has that ‘interest’ has a value in itself. A separate question is whether the human being wants to respect it. In life on Earth, this happens partially, we do not always respect the right to exist of other species (especially in the case of animals that have a type of cognitive process more developed than just insects). It also has to do with the fact of the abundance or scarcity of the way of life in question. We do not hesitate when we wash our hands with soap and water to

eliminate bacteria, but if those bacteria were a Martian way of life we would have another treatment, because once they are erased, we may never find another one. Besides, it would be a way of life that can help us understand what we are with respect to the universe. Here we agree with McKay (2009) to consider that Martian life has value in itself for the fact that it is Martian. The bacteria that we eliminate when washing our hands are abundant and we know that we can acquire more. Therefore, an interesting differential factor here is that of the unique quantity and quality. In addition, an environmental ethic would be differentiated from an astrobiological ethics or astroethic by this same argument. Astrobiological ethics will be biocentric in some sense, but it does not prevent us from satisfying our academic curiosity about it or issues of survival. It is not easy to determine where we are going to be more anthropocentric and less of it depending on these special circumstances.

But continuing with the previous proposal on the six simplified points, it would satisfy our interest to understand its nature. Besides, that it would not prevent us from continuing with our expansion in the universe, which is inevitable if we think in terms of survival (and here I am omitting a lot of debate in between about whether or not we should colonize Mars). This same scenario could apply for the Moon or any other non-terrestrial environment achievable for humanity, also if the life-form we find shares the same origins with us.

At this point the position we show is closer to the ratiocentrism, which considers that the moral weight falls on the rational quality of the being in question, to differentiate it from anthropocentrism, which emphasizes the human being only more valuable only because it is human. In the case of the ratiocentrism, although it is true that we only have as an example the human being, this does not mean that it is limited to it, but it leaves open the possibility that other beings are included in case they are identified (I omit the word ‘discovered’ on purpose since it would imply a strong anthropocentric influence.) Ratiocentrism helps us to realize that we rational beings have the opportunity to administer and treat other living beings in the best way possible, whether they are from Earth or not and that being rational does not give us the right to abuse other forms of life (Smith, 2009).

The reason why I assume the position that human beings go to Mars or another planetary environment in this context is that when we are facing a situation of conditioned decision we are prioritizing aspects above others intentionally. If it were another scenario we could put ourselves in different situations and argue about whether it is necessary or not that human beings should go to another planet (Milligan, 2015), or if we should wait some prudential time to do it (Chon-Torres, 2018c).

Does that mean that one species has more value than another? Could the egalitarianism of species and location be applied as proposed by Baum (2016)? The egalitarianism of species and location tell us that all species have intrinsic value no matter what species it is or where it is located. This is ideal in concept and is designed for an astrobiological ethics, but if we consider it dispassionately it is not very viable for our purpose. The value of Martian life will have value in itself, but it will not have the same level of value as a terrestrial bacterium under the proposed conditions. Even on Earth, we can say that being alive has value in itself, but this would mean that we must change our way of life in a radical way, like how to modify our diet and how we relate to all forms of terrestrial life. It does not seem that for the moment something like this is going to happen soon, even though we are suffering from climate change due to the excessive pollution generated by us.

On the other hand, an argument that values life more by its location in space would not make much sense if it is limited to having it only physically being on Earth. If an astronaut goes out into space, it is not without value. Rather, it has value because it has terrestrial origins and because it has human dignity. It has value for the fact of being human, in addition, it is a terrestrial being. The forms of life, wherever they come from, have value by themselves, it is true and if it is of Martian origin, it will have an additional value (it does not mean superior), because being an ET life form would respond to our millennial question of whether we are alone or not in the universe. We see that developing an ethic that focuses on astrobiology is not going to be limited only to a position or a theoretical type of Frankenstein, but it will be a position that manages to connect with the different interests and values that we give to life both on Earth and other environments.

McKay and Marinova (2001) make an interesting observation about the implications and usefulness of the principles of the Deep Ecology of Naess and Sessions (1984) in relation to the life in the universe. The first of the principles says that non-human life has value in itself independently of any human use and the second that the diversity and richness of this diversity of life forms are a value in themselves. However, this is to some extent evident in considerations of possible Martian life forms. What should call us more attention for decision making is what is pointed out in the third principle, which tells us that except for survival issues, the human being can not diminish that wealth and diversity of life forms. In the scenario in which we set out, that of having to colonize Mars, this third principle would have to be applied when risking to generate some kind of damage to Martian life. And it does not matter how safe we are that we have established plots of land where we can land and settle, or promote some form of terrestrial life, there is always the difficulty of not being totally sure of avoiding some kind of collateral damage, at least with the current technology. The caveat provided by the third principle of Deep Ecology is the moral option that we could need to be able to establish us on another planet.

We cannot conclude with complete certainty that 'this must be the case' since this will require the collaboration and participation of different disciplines that conclude in a common moral framework. What we do in this case is to force a situation where we already have to make a decision, but without ceasing to think that this will indeed have changes or variations at the very moment of the emergence of the real problem (Chon-Torres, 2018a, 2018b, 2018c).

## Conclusion

Examining some of the possible ways to make a colonization of Mars viable based on current ethical assumptions involves taking risks. That is to say, it means that we have to launch ourselves as a bet to a situation in which human life depends on this decision making. It is not easy if we consider that we could be compromising local life, but we can try to draw a strategy that allows us to coexist in a peaceful way. Ratiocentrism is a fundamental basis for

perceiving us with the moral legitimacy of being able to wisely manage and organize the necessary resources for life. In addition, in Deep Ecology we also have a caveat when it tells us that except for vital issues, non-human life must be respected and in our case it is like that, if we extrapolate it to Martian life. Finally, the decisions we make in the real moment can differ considerably from all our moral theorizing, which is why it has been important to force ourselves to think about what we owe or how we should conceive an inevitable colonization.

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