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Colonizing mars: Why, and Should We?

Elon Musk. You may know him as the epitome of Silicon Valley, the creator of Tesla, or as Donald Trump's friend who may be appointed as the cabinet head of the Department of Government Efficiency. He has many staunch supporters, as well as opponents and nay-sayers to his projects and visions. One of these projects is his company SpaceX. The creator and CEO of the space exploration company, he has helped SpaceX lead in the growing space industry, partnering with NASA to consistently deliver supplies, and soon, astronauts, to the international space station. But, Elon Musk has grander visions for the company than staying in Earth's orbit, and they are coming up fast.

Musk and SpaceX's main mission is to reach Mars and establish a self-sustaining colony there within 20 years. Musk's reasoning for such a rigorous timeline is essentially using Mars as a plan B for Earth. If a mass-extinction event occurs on Earth near in the future or hundreds or even millions of years from now, Musk says that Mars would extend the lifetime of both humanity and all life that we know. The Mars colony would serve as a sort of modern day Noah's Ark, ensuring the survival of our species and the flora and fauna of earth.

This 20-year timeline is absurd and unachievable to some, while simply an ambitious goal to work towards for others. It can be seen as noble to be thinking so far into the future about the preservation of life as we know it. However, Musk faces much opposition in many different fields. The endeavor will require many factors coming together, and his opponents argue that

environmental costs, moral qualms, lack of international cooperation, and the psychological effects of the first settlers are too high costs to justify the colonization goal.

I ultimately believe that Musk's current timeline to establish a colony on Mars is not attainable, and should not be attempted. The project would lack public support, cause environmental damage, take a mental toll on those living in the colony, and would not be able to achieve the international cooperation needed to govern the colony.

While Musk's visions are clear and have a definite trajectory, getting the public to be on his side will be an issue. Although he has plenty of money himself, as well as loads of potential investors to fund the endeavor, ultimately, citizens will be the ones uprooting their lives and populating a colony on Mars. As a survey performed by the Pew Research Center found, 60 percent of Americans believe that NASA's top priority should be to monitor asteroids and other objects that could hit Earth, and another 50% believe that NASA's top priority should be to monitor Earth's climate system (Kennedy). This shows that a big population of the world wants to prioritize keeping Earth safe and stable, instead of focusing efforts on expansion into deeper space. However, SpaceX's mission is "Making humanity interplanetary:...SpaceX is working on a next generation of fully reusable launch vehicles... capable of carrying humans to Mars and other destinations in the solar system" (Making Humanity Interplanetary). This goal of theirs fully contradicts the desires of the general American public, and ignores the pressing concerns of Earthbound crises. From the growing impacts of climate change that more people face every day, to the thousands of meteors hurtling through space, humanity needs to focus on keeping themselves alive and thriving before we set our visions on new frontiers. As SpaceX's company mission says, settling a colony on Mars is the only goal they are working towards, instead of utilizing their immense resources to support the planet we live on now, and will need for the foreseeable future.

As the effects of climate change spread, we have to wonder what the environmental effects of Mars colonization could be, during both the process and simply the ethics of settling on the planet in the first place. As SpaceX has been working toward their goals of getting their Starship rockets to Mars, they have been test launching at a facility in Texas. Geoff Brumfiel, a senior editor and reporter who focuses on space and national security for NPR, reports on SpaceX's test launches and how they affect the surrounding environment. Local environmentalists say that each of these test launches expels "tens of thousands of gallons" of water contaminated with "high levels of dissolved solids and potentially toxic chemicals like zinc and hexavalent chromium." This water comes in contact with the environment around the launch site, which is a state park and wildlife refuge (Brumfiel). The consequences of the water could be dangerous to the wildlife in the surrounding area, as it has already destroyed bird nests and could continue to harm other animals if unchecked. Earth's current climate crisis also leads to moral concerns of moving humanity to Mars. A group of scientists, anthropologists, philosophers, and ecologists came together to study the many moral facets of colonizing Mars. In their collaborative essay, "The Great Space Debate," they "point to humanity's abysmal environmental record on Earth and ask if we have the right to subject another world to our destructive presence" (Colmenares). My answer is no. How can we justify the expansion of humanity onto another planet when we have failed to care for our own? Humanity has caused the extinction of hundreds of species, let alone the fact that many humans are struggling to survive and are feeling the effects of climate change in the air and natural disasters that are growing in their intensity. Focusing efforts on Mars would only cause humans to have less regard for the consequences of our actions here on Earth, and lead to the faster demise of this planet.

There is also the problem of how humans will do psychologically while living on Mars. Assuming that we do get to the point where humans are being sent to live on Mars, will humans be able to stay sane? According to the [European space agency](#), Europe's agency devoted to space

exploration, there is no immediate communication between Earth and Mars, as it takes an average of about 13 minutes to send a message between the planets (Ormston). This means that in any sort of emergency, those on Mars would not be able to rely on any advice or help from Earth, and would need to be completely self-sufficient. This would also mean that those with loved ones back on earth would not be able to converse, and would often be out of the loop about the life they left behind, during important events, anniversaries, birthdays, or emergencies. As Wang Yue, a participant in a Russian Mars simulation that lasted 520 days, described, “The 520 days are really not easy to get through... It’s impossible to stay happy all the time” (Rich). The psychological toll of being confined in a new place with no connection to a former life or any known comforts can be intense, as I’m sure anyone could imagine. Just think about being disconnected from all friends and family, living in the same confined space with strangers for months or years on end. The experiment that Yue participated in found that the subjects experienced decreased motivation, less effective work, and increased feelings of isolation as the experiment progressed (Rich). This further tells us that the first astronauts, or even many of the colonists in Musk’s vision of mars, would suffer mentally and feel isolated and unmotivated. This deterioration of mental states could potentially lead to setbacks or even failure within the colony.

Adopted by the United Nations General assembly in 1966 during the height of the space race and humanity's first steps into space came the Outer Space Treaty. The agreement included the United States, Russia, Britain, and most other countries around the world, and stated that “Outer space... is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means” (United Nations, Outer Space Treaty...) This means that no country can claim ownership of any part of space, so this mars colony would be internationally governed. The concept raises countless questions, as so many countries’ laws contradict each other. In addition to the question of laws is cooperation. Simply put, world peace has not been achieved.

How can we expect a colony that is meant to serve as, in Musk's mind, a sort of Noah's Ark, to keep peaceful when every part of the world comes to live in one place and has endlessly differing views, values, and laws. As examined in a comprehensive study of the viability of a Mars colony, performed by Levchenko et al, we can look at abortion as a particularly relevant issue. Countries have vastly differing views on whether or not abortion should be allowed, with some countries saying absolutely not and others asserting that it is a basic human right. This would make it extremely difficult to come to an agreement on what law would govern those on Mars, regarding abortion as well as other issues, such as religion, theft, murder, and speech (Levchenko et al). Ultimately, governmental agreement would be crucial to create a new, smoothly-functioning society, and we are not at a point where that can happen within Musk's timeline.

Ultimately, Elon Musk's current vision of the establishment of a colony on Mars is unviable and attempting to fulfill it would cause harm in multiple ways. It would continue to damage Earth's environment, and cause mental distress to those who end up on Mars. It would also potentially exacerbate international disagreement when the time for establishing laws and government on Mars arrives, and ultimately would not represent the will of most citizens.

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As stated in a tweet from SpaceX's account, the company's goal is to send uncrewed missions to Mars in 2 years, send the first crewed missions in 4 years, and establish a self-sustaining colony in 20 years.