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Science Writing: Living on Mars

By Annalise Hayward

It is the year 2090. My home planet, Earth, has become uninhabitable due to the carelessness of humans' actions over the years which has caused pollution and climate change. The oceans and seas that so many people used to be able to swim in are now toxic due to the amount of plastic that has built up in them over the years. The skies are grey and full of pollutants. The air quality is poor. It is extremely difficult to breathe due to the lack of oxygen and the increase of carbon dioxide in the air. Many people fear that this could be the end of our species, but I am working with NASA in order to try and prepare a new planet which can efficiently sustain life. More specifically, human life.

I have been selected as one of the team members for a team of 15 to investigate and make Mars a liveable planet as part of NASA's new program. I have a huge challenge ahead of me and I know that if something goes wrong, even if it is the tiniest mistake, the end result could be fatal. I have a huge responsibility on my shoulders and the fate of my species is in my hands.

The spacecraft for Mars is leaving in a few hours and my team members and I are all getting prepared for the huge mission ahead of us. We are packing food, water, clothes, seeds, oxygen tanks, oxygen generators (which use electrolysis) and a variety of tools that we might need to prepare Mars for the rest of the population (Mamta, 2020).

My team members and I are now boarding the spacecraft and the sudden realisation of the task that I am about to attempt has only just hit me. The workers in the control room are broadcasting our launch live to the rest of the world and starting a countdown. There are ten seconds until the launch. 9, 8, we're about to launch, 3, 2, 1. We've officially launched into space and begun our seven month journey to Mars, soon to be our new home planet.

Seven months have gone by now and my team and I are landing on Mars. It is covered in red dust and its terrain consists of a rocky surface with canyons, volcanoes, dry lake beds and craters all over it (NASA, 2015). I can see dust storms in the distance blowing the red dust around. My space suit is on and my oxygen tank is connected and working. I take my first steps on this new planet and the red dust is dry beneath my feet. The atmosphere here is much thinner than that of Earth's. It contains 95% carbon dioxide less than 1% oxygen, meaning I must have an oxygen tank on at all times, otherwise the consequences could be fatal (NASA, 2015). This is something that we must be very mindful of in order to sustain human life. The gravity on Mars is about a third of the gravity on Earth, meaning it takes a longer amount of time for gravity to pull me back down to the ground when I walk or jump up (NASA, 2015).

There is already a small space shelter on Mars, so we have somewhere to stay and sleep during the night. One of my first observations that I noticed on Mars is the temperature. During the day, the temperature is usually around 70 degrees Fahrenheit whereas during the night, the temperature can get down to -100 degrees Fahrenheit (Sharp, 2017). The temperature variation is very different to that of Earths which I am used to. From several experiments that I have undertaken, I have come to the conclusion that growing fresh

produce such as vegetables on Mars is extremely difficult. This is due to the lack of nutrients in the soil/dust which covers the surface of the planet, the lack of light, the inconsistent temperatures and the lack of water. However, a benefit of growing produce on Mars is that higher concentrations of carbon dioxide increase the rate of photosynthesis and reduce the amount of water that is lost through the process of transpiration. Although, only certain species of plants can grow on Mars due to the temperature and the light intensity, but this problem can be easily fixed by creating a structure of some sort where there is an abundance of light and a temperature that allows a variety of plants to grow. Human waste could also be used as fertiliser to supply nutrients to the plants as there is a lack of nutrients in the soil/dust on Mars.

My team and I have begun constructing greenhouses for the plants and fresh produce that will be grown here as well as buildings for the rest of our species if our mission is successful. The materials that these buildings are made from are extremely durable and tough as there are many dust storms that occur on Mars. Sometimes, there are much larger dust storms on Mars that can cover the whole planet. This means that the structures we build here must be tough and durable so that they don't succumb to the weather patterns and storms here on Mars.

It is now my 348th day on Mars and we have successfully constructed many greenhouses and planted a sufficient amount of plants to supply food by using human waste as fertiliser to supply nutrients to the plants. We are also halfway through constructing the buildings for everyone to live in.

It has been 704 days since I arrived at Mars, my team and I have completed creating the buildings for the rest of the population on Earth to live in. We have also started terraforming the land to make it more habitable for civilizations to live here. This is a big job and will take many months to fully complete. There are two weeks until NASA launches three more spacecrafts carrying materials, food and necessary items for life on Mars as well as a group of 25 people that will become the first civilians to officially live on Mars.

It is now the year 3005. The mission that NASA sent my teammates and I on in 2090 was successful and we have managed to prepare Mars to efficiently sustain life. Earth now has 50 percent of its original population continuing to live there whilst the other 50 percent of the population is now living on Mars. This is because a smaller number of people living on Earth will give the planet some time to recover from all of the damage that has been done it. Life on Mars is quite different to what it was like on Earth. There isn't an abundant supply of water, the atmosphere is very different to that of Earth's, the landscape of Mars is very different to Earth's and there's barely any oxygen except for in the buildings that have recently been built as they all have inbuilt oxygen generators that use 3 to supply oxygen (Mamta, 2020). These are all conditions that the human species will have to learn to adapt to. Our future here looks bright, although I am filled with sadness about the effects of our actions on the planet Earth, and how it ended up going form such a beautiful and clean planet to a toxic wasteland, all because of our selfish and careless actions. Although, I hope that a smaller population will give Earth some time to recover and become a more liveable planet.

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