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Science Writing

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Samarbir Singh

St Andrew's School

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LIVING ON MARS

Submitted By: Samarbir Singh
St Andrew's School,
Walkerville, SA 5081

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Living on Mars

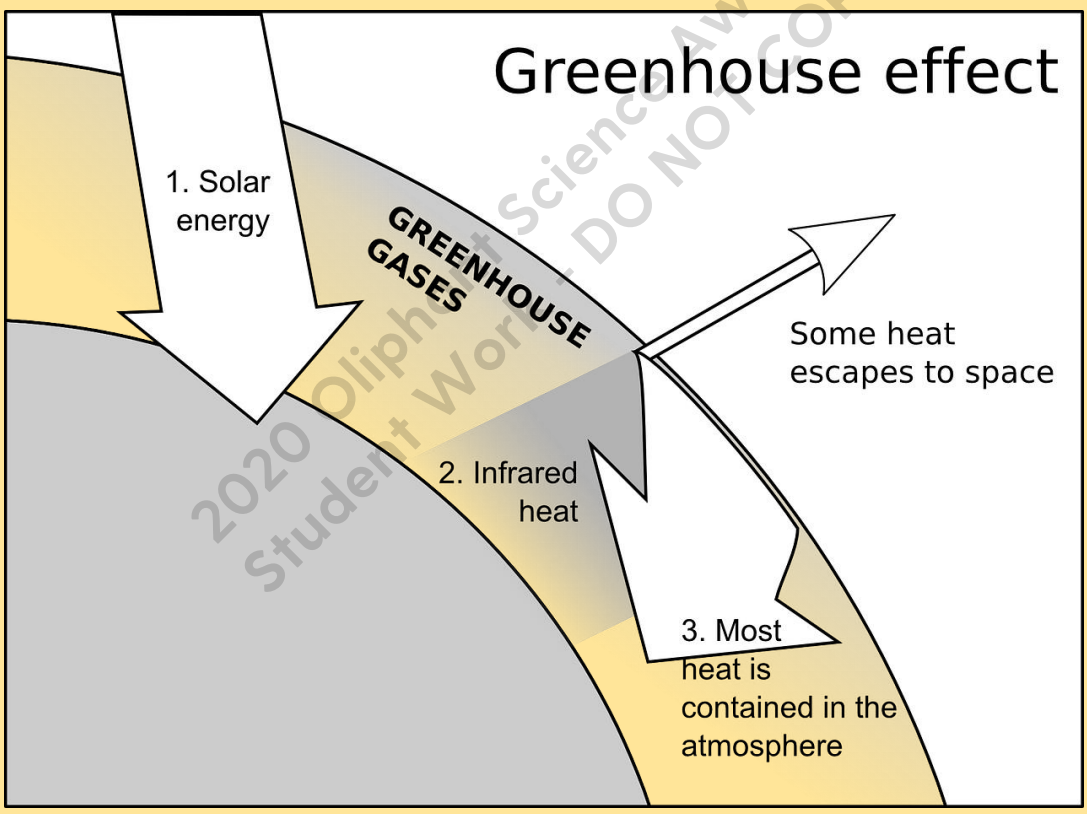
Introduction

Buckle yourself up! We are going to Mars, to explore various dynamics of life and their evolution from what we have on Earth. There are several predictions about the time of onset of humanity on Mars. However, the key is our safe landing and survival there, for which scientists have recommended certain modifications. These modifications will not only be limited to terraforming Mars, but we humans will also have to adapt to build up to this big possibility of 'Living on Mars'.

Mars Modifications to Accommodate Humans

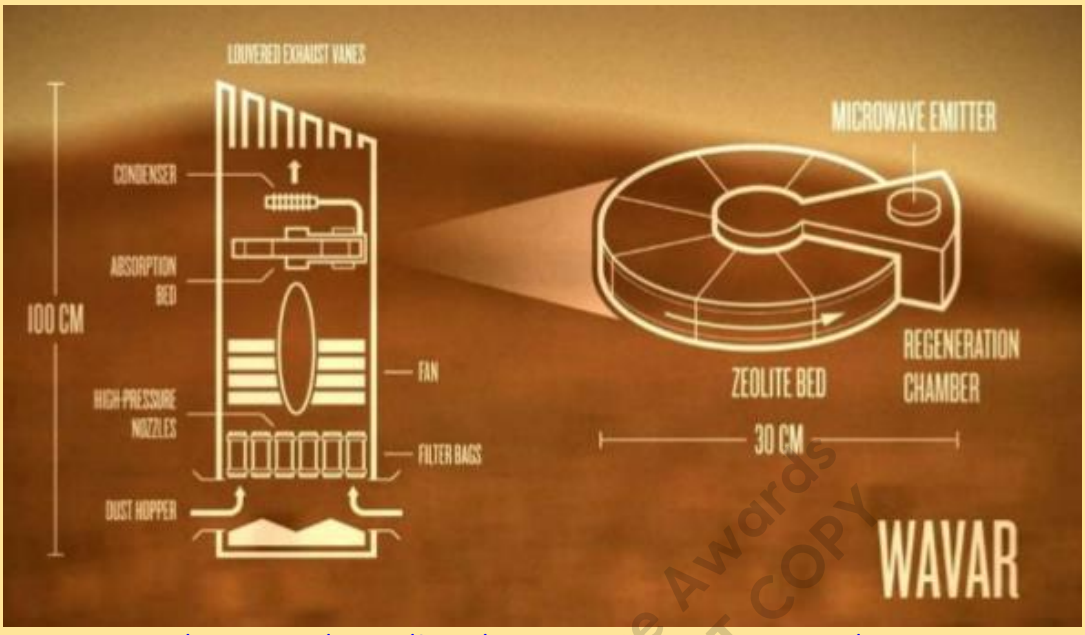
Mars-Warming:

The Martian North and South poles are covered with a massive amount of frozen carbon-dioxide (dry-ice). If we heat this dry ice, it will sublime into vapours to release CO_2 gas in the atmosphere to thicken it up like Earth's atmosphere. The resultant atmosphere will efficiently control the flow of radiations in and out of Mars to make the planet warmer and trigger a vigorous greenhouse effect.



https://www.marketwatch.com/story/heres-how-we-could-warm-up-mars-and-make-it-more-habitable-2016-11-17?link=sfmw_tw

Water Unlocking:
Apart from water being locked as ice and glaciers on Mars, there is a lot of humidity in Martian air, which is another vital water source. The University of Washington has designed a machine named 'Wavar', which is a low-tech dehumidifier. It can extract humidity from the air and condense it into water. This water can then be stored in big containers for further purification to make it drinkable.



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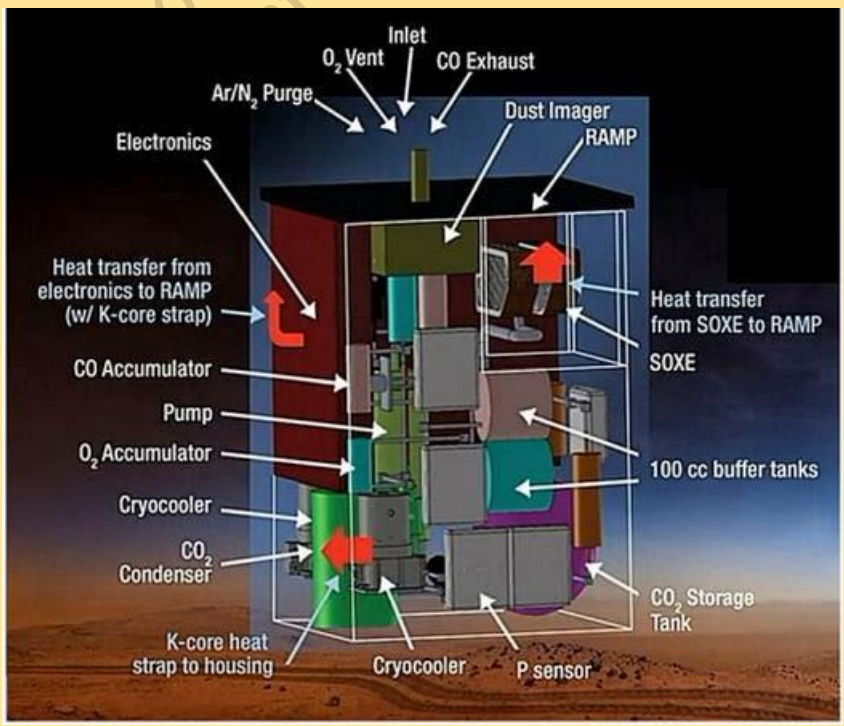
Oxygen-Reclaiming:
Oxygen receives foremost attention when we think about life on another planet. There is 96% CO_2 on Mars, from which about 78% oxygen can be extracted to use for human breathing. Michael Hecht, a MIT scientist, has invented a machine named 'Moxie' which is basically a reverse fuel cell. It produces oxygen by inhaling CO_2 and exhaling O_2 to maintain a constant supply of oxygen on Mars. Moxie is flexible to be altered in size by a factor of a hundred to accommodate the oxygen requirements of multiple people.



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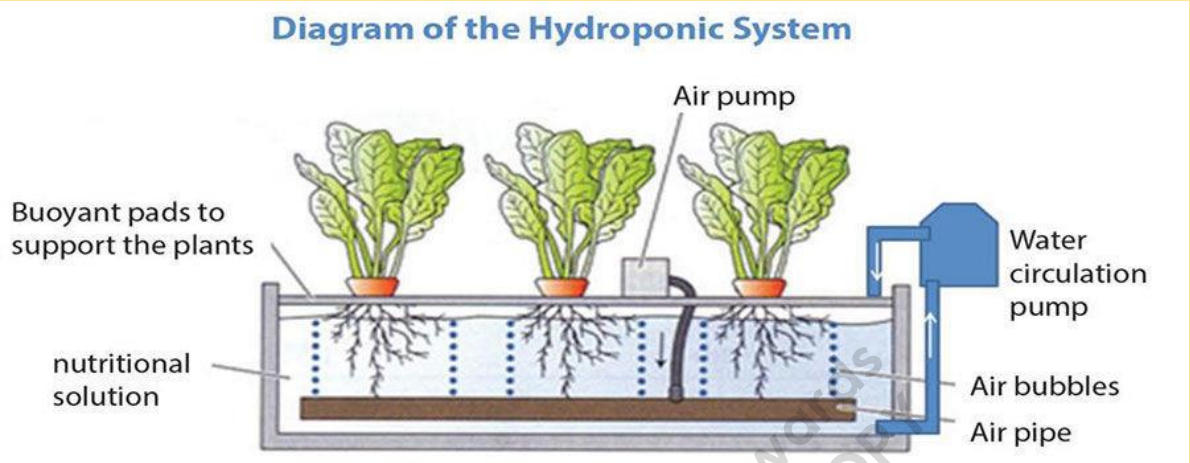
Human Adaptations to Survive on Mars:

Food and Farming:
A switch from traditional soil farming to hydroponic farming will be a massive adaptability change to ensure 20% of our food supply on Mars with an 80% backup from Earth during initial years of settlement.
Cucumbers, tomatoes, onions, lettuce, peppers in addition to insects and lab-grown meats would be on the menu to sustain human survival on Mars.



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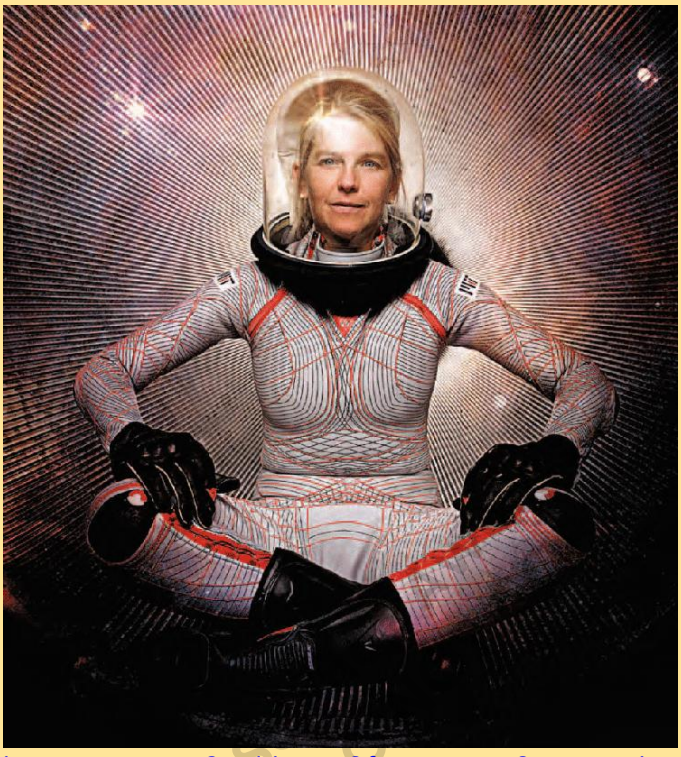
Shelter:
3D printed buildings are the scientific world's preferred choice to construct quick, sturdy, safe and radiation-resistant houses on Red-lands. Microwavable, polymer plastic bricks are another option developed by NASA to establish strong and thick buildings on Mars.

https://i.ytimg.com/vi/Jz5SBUG2eVw/maxresdefault.jpg

http://blogs.nature.com/aviewfromthebridge/files/2016/11/Mars-show-home-use-this.jpg

Apparel:
Our bodies require five pounds of pressure to survive which is currently not available at Mars. We might be able to move around freely and wear something more comfortable once the desired thickening of the Martian atmosphere has been achieved. In the meantime, we will have to explore Mars by wearing a radiation-proof, pressurized and skin-tight spacesuit as designed by Dava Newman, a MIT researcher.



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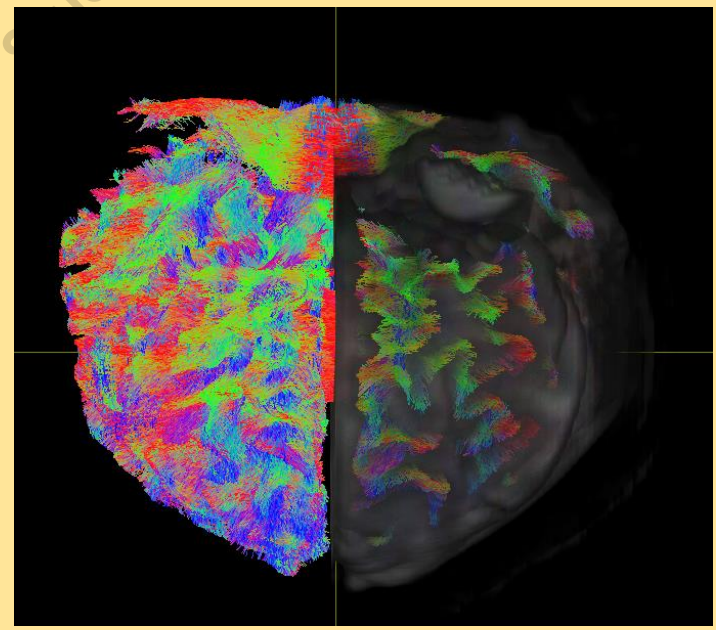
Transportation:
Emergencies happen and we might require going back on Earth quickly, but how? NASA's New Horizons Mission Lander is equipped for venturing to Mars in 39 days. Is this quick enough? The latest study has discovered that travelling via Venus to Mars will be cheaper and faster to allow Earth-Venus-Mars visits as frequently as one month. Additionally, there is also a virtual system of transportation that takes our subconscious mind to the destination by sending our connectome (fundamentally a disc in the brain) with a laser beam to our destination.



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Death:
Living on Mars is interesting enough, but what about death on Mars. Scientists have suggested a few options to respectfully discard a body without polluting Martian lands:-

1. Cremation: Burn body and keep ashes.
2. Body Back: This is a scientific way to decompose bodies in which the dead body would go in a weatherproof bag. This bag would then be preserved in liquid Nitrogen to shake it with a machine to convert the body to a powder.

https://assets.atlasobscura.com/media/W1siZiIsInVwbG9hZHMvYXNzZXRzL2VkNDZmNzgxZTRlZDM3MTZkZl9TY3JlZW4gU2hvdCAyMDE2LTAyLTI0IGF0IDIuMDYuNTIgUE0ucG5nIl0sWyJwIiwiY29udmVydCIsIiJdLFsicCIsImNvbnZlcnQiLCItcXVhbGl0eSA4MSAtYXV0by1vcmllbnQiXSxbInAiLCJ0aHVtYiIsIjYwMHg-Il1d

Zero-Gravity Surgery:
A medical emergency is a problem that we least likely want especially while in space. But, if it happens, then 'Zero-Gravity Surgery' is a ray of light. Problems of floating body-parts and equipment being lost in the air might arise, however, scientists have suggested that robotic-controlled surgeries or use of magnets to keep body parts intact during surgery can be lifesaving.

https://allthatsinteresting.com/wordpress/wp-content/uploads/2016/05/GettyImages-3240701.jpg

Conclusion:

Moving to Mars can be the best chance for civilization, as it will evolve humans to be multi-planetary. The inventions needed for us to thrive on Mars have mostly been made. All problems and situations have been looked into deeply and solutions have been found. We just need to overcome our fears and act together with one goal- a goal to give us all a fresh start, in a newer world…

Please note that I did not include the bibliography, acknowledgement of help received and this note in my word count, however, Microsoft Word is counting those in. The actual word count of my Science Writing is 806 words.

Acknowledgement:

I would like to acknowledge my mum's help in proofreading my work. Mum introduced me to some professional papers through Google Scholar and demonstrated the importance of using a scientific and formal language in my Science writing. She also taught me how to do 'Harvard' style referencing by using a simple app. I am indebted for my mum's continuous encouragement and valuable recommendations.

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