

Alien on Mars!!!

Since a very long time, after the technology developed, we humans have been searching ways of exploring space and the inevitable and interminably stretched world outside. Among the several projects undertaken by the best science institutes of the world, one was about life on Mars. From a very long time, we have found out that there have been many probabilities of finding life on Mars. Though being unsuccessful in finding it in our previous trials and space missions, there has always been a hope. This curiosity of imagining how a Martian alien would look like had preoccupied my mind and thus, I decided to design one! Let's figure out how it looks like and its structure (based on the martial climate) that I have designed as per my imagination.

The physical conditions on Mars

Climate and atmospheric conditions on Mars:

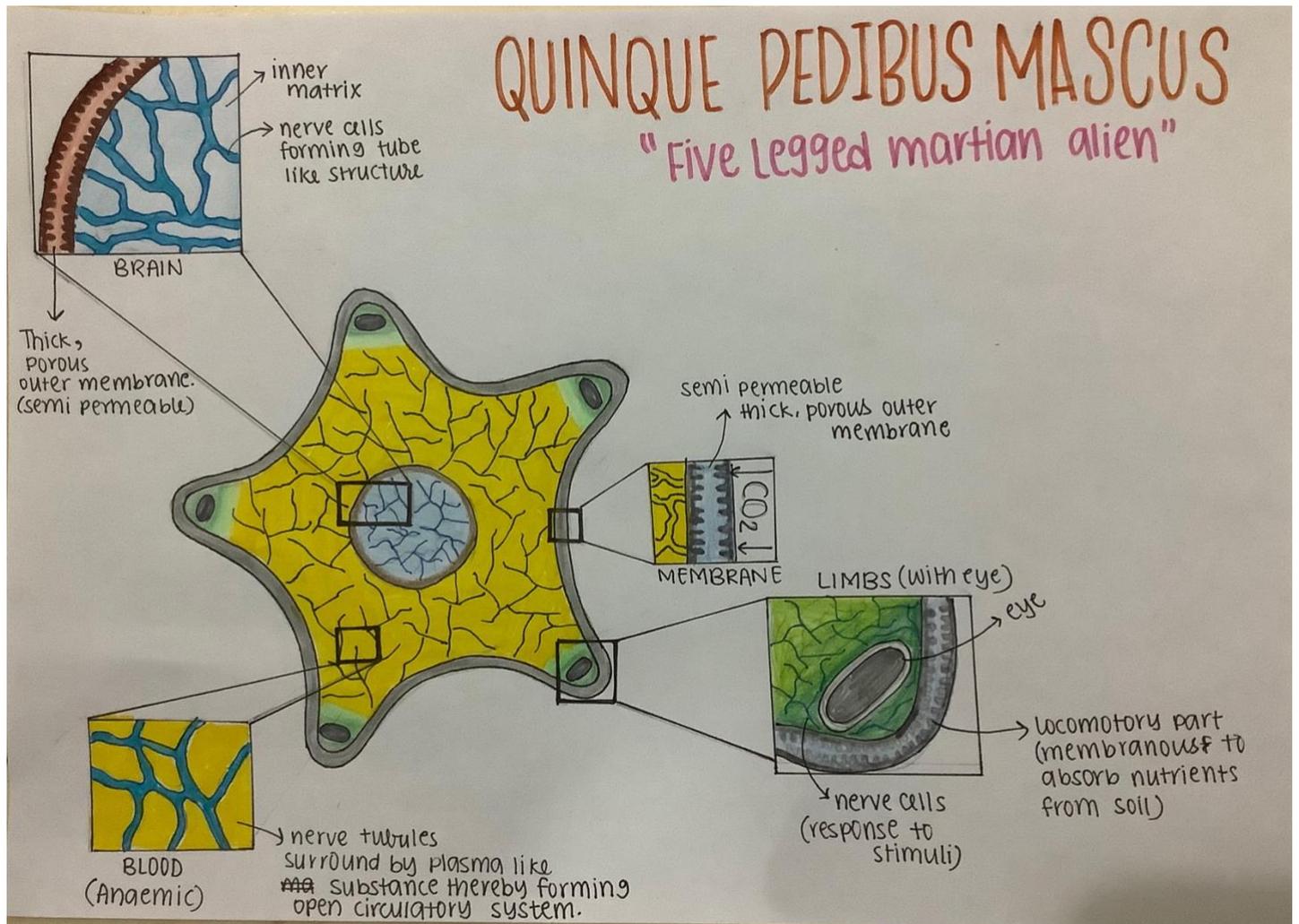
- The atmosphere of mars consists about 96% of carbon dioxide, 1.93% argon, 1.89% nitrogen and some traces of oxygen and water.
- The atmosphere is quite dusty and also has particles of iron oxide suspended in it.
- The tilt of the rotational axis of Mars is similar to that of Earth due to which its seasons are also quite similar.
- The surface temperatures vary from -135 degree Celsius to 35 degree Celsius.
- This significant range in temperatures is due to the thin layer of atmosphere.
- The atmospheric pressure is also low.
- Mars also receives very little sunlight (about 43%) due to which it is a relatively cold planet.
- Mars also has large dust storms with speeds reaching up to 160 km/h.

Martian surface and soil and water:

- The surface gravity on mars is 3.711 m/s^2 .
- Martian soil is slightly alkaline and contains elements such as magnesium, sodium, potassium and chlorine.
- It contains 0.6% salt perchlorate which makes the Martian soil highly toxic.
- Liquid water does not exist on Martian surface due to low atmospheric pressures.
- However there have been some traces of water still left on the planet. The polar caps store high amounts of water in the form of ice.

Structure and characteristics of the alien based on Martian conditions

- Name: QUINQUE PEDIBUS MASCUS (Five Legged Martian Alien)



- **Complexity of structure and size:**

The alien is multicellular and is reasonably small in size with a star kind of shape.

It has five limbs that help in locomotion. It is a eukaryote. As not much resources are available in order to protect itself, the complexity levels of the different structures of the alien are simple. This means that it contains simple respiratory, digestive, circulatory and nervous systems.

- **Adaptations to the surroundings:**

1. The alien is adapted to breathe in the most abundant gas on the planet, carbon dioxide, by the process of diffusion. It is chemoautotrophic and produces its energy and synthesis necessary organic compounds using this gas via the process of chemosynthesis. It takes in CO₂ and uses ionized forms of gas, mainly nitrogen to produce energy. It carries out anaerobic respiration as very less amount of oxygen is present there. As it is chemoautotrophic, it does not have to depend on sunlight like plants, to produce energy and food.
2. The Martian atmosphere is filled with radiations which may harm the alien. Due to this, it is adapted to live inside the soil to shield itself from the harmful radiations.
3. The water present there, though in very small amounts, as well as the soil there is salty which prove them to be toxic. In such a condition, the survival of the alien is only possible if it is halophilic meaning 'salt loving'. Thus, my alien loves salt!
4. Due to extreme temperature differences on the planet and relatively harsh seasons, the alien should have a protecting outer layer in order to sustain those temperatures. Thus, my alien has a thick skin to sustain cold temperatures and it is warm blooded. Warm blooded animals have a constant blood temperature which does not change with any temperature difference in the environment.
5. Due to low atmospheric pressure, the alien has an open circulatory system which makes it easier to maintain the pressure.

- **Exchange of gases by the process of diffusion:**

The alien has a thick, porous, membranous outer skin layer which protect it and also allow the exchange of gases through diffusion. The membrane is semi permeable and made up of many cells. This enables it to absorb the gases and perform chemosynthesis.

- **Nervous and circulatory system:**

The alien has an open circulatory system and simple nervous system. The nerve cells are spread all over the body and form tube like structures called nerves. These nerves are surrounded by the alien blood which does not have hemoglobin. The alien blood only contains plasma like matrix that is circulated all over the body under low pressures. The nerves enable the alien to cause a

response to stimuli. Due to lower complexity level, both the systems work together.

- **Sense organs and limbs:**

The alien has five eyes which enable it to see the surroundings. It has a sensitive skin. It has limbs for locomotion and balance and these limbs also help it to dig through the Martian soil to change its position. As the limbs are exposed to the soil and are constantly being used, the region near the limbs is rich in chlorophyll which helps in healing any kind of wounds and also help in detoxification.

- **Brain and it's structure:**

The alien has a reasonably complex brain filled with simple nerve cells and inner matrix. The chemical reactions in the brain are converted into electric impulses by nerve cells and transferred to all areas of the alien body. The presence of a reasonably complex brain prove the alien to be considerably intelligent.

I assume that these characteristics of the alien which I have designed will somehow help it to survive on Mars. However a lot more research and detailed work is required to predict the exact structure and adaptations. There are thousands of people working in these fields trying to find out life on Mars. I hope this hope of ours turns into a fact soon! Till then, let us all use a bit of our knowledge and design aliens like I did!