FOOD FICTION: SPACE CREATIONS

DESIGN REPORT

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DESIGN BRIEF

Why: This project is a speculative concept based on our idea of how food systems may look and function if we are successful in our attempt to colonize Mars. Through our preliminary research we discovered that certain crops, namely tubers and other starchy vegetables, proved to grow well in simulated “martian” conditions. We tried to imagine what an average dish would look like in this new life and were concerned about the lack of variation in what was able to be grown. We felt that the greatest challenge when it came to food systems on Mars would be food fatigue due to lack of variation so we set out to imagine how we could counter that.

What: Due to limited space on the craft and presumably little to no regular contact with Earth we would have to rely on being self sufficient. We envisioned that the ultimate self reliant, sustainable food system would be utilizing matter or cultivating matter from our own bodies. The current systems on the ISS handle excrement (urine, feces) and recycle all material possible to minimize waste and maximize production however there is currently no use for menstrual matter. For our concept and this early settlement on Mars menstrual blood has many purposes and will serve as the cornerstone for the average diet as it is a sustainable and ethical way to collect stem cells which would be used to grow meat alternatives. Rich in nutrients such as phosphorous, nitrogen and potassium - which are essential for the growth of plants the left over menstrual blood would be collected and utilized as fertilizer for the crops being grown.

How: Before leaving for Mars the women selected for the mission would be prepared and augmented to have an abnormally heavy flow. Once settled on Mars the women would menstruate as normal however a collection and processing system would be in place to sort the matter. When menstruating the women would be equipped with collection pods. The menstruation would be collected via. an object similar to a diva cup, this would open up into a tube which flows into a clear pod that attaches onto the front of the woman’s torso. Adapted to allow them the relative freedom of movement needed to accomplish necessary Martian tasks the pod is fully automated and has no interactive functions. Elasticized suspenders secure the pod to the body fixing it in position, and the shell is contoured and positioned in such a way the wearer can comfortably sit and crouch without needing to remove it. When the menstrual blood has been collected the pod is returned to a machine which sucks out the fluids for processing. This machine and suction are activated when pressure is sensed around the silicone opening. Stem cells are separated to be grown and cultivated for meat products and the remaining blood is sent to be used as fertilizer for the crops.

ATOM DESIGN METHOD

Arc – 10 years
Terrain - Mars
Object - Menstruation
Mood – Tenacious

STORY ARC
Framing the setting - why - what

Private interest in space has turned from concept to reality. Earth's pursuit of colonizing the Red Planet has succeeded and now the future and destiny of the human race looks to the dozens of tenacious humans who were selected to be a part of this program. The journey to Mars is not impossibly long, but the ships which take the colonists will only be able to take enough fuel with them for the trip there. The colonists won't be stranded forever: water held in Martian glaciers is rich in carbon and can be made into fuel. It will take awhile though before they can set up the refinery, about 7 years, during which time they will have no chance of resupply and only intermittent contact with earth.

During the time the occupants of this colony will have to produce most of what they consume as the majority of their ship's cargo capacity was used carry them and the essentials for building the colony. Studies and tests conducted here on Earth have revealed that it's possible to grow numerous vegetable crops in the rugged martian soils of Mars such as potatoes, leeks, tomatoes and some grains in the rugged soil of mars leeks too however to achieve a high level of cognitive function our bodies require protein. Current systems on the ISS sort human excrement which on Earth is considered waste but on Mars can be broken down and recycled for essential matter. Taking from this concept we imagine that colonists too will be required to recycle "waste". New life on Mars will be founded with blood, sweat and tears as these substances become ingredients and building blocks in grapple to establish a colony.

However one substance will stand alone in importance and will be key for the future of food production in this alien climate; menstrual blood. Before leaving Earth the women selected for this project will be specially prepared and equipped to produce menstrual flow far higher than the average period experienced here on Earth. Though this may initially sound unpleasant it is necessary as the precious stem cells found in menstruation can be extracted and used to grow meat-like structures rich in vitamins and nutrients and will become a key protein source for this new civilization.

Despite the inconvenience there are still relatively few colonists and lots of work to do, and so woman wear collection pods which were designed with this in mind. Adapted to allow them the relative freedom of movement needed to accomplish necessary Martian tasks the pod is fully automated and has no interactive functions. Elasticized suspenders secure the pod to the body fixing it in position, and the shell is contoured and positioned in such a way the wearer can comfortably sit and crouch without needing to remove it. These pods are clear and display the amount of blood collected. The women wear these pods as a badge of honour, without their sacrifice and service the rest of the colony would suffer - these women are heroes and are quite literally carrying the fate of the colony with them. When the menstrual blood has been collected the pod is returned to a machine which sucks out the fluids for processing. This machine and suction are activated when pressure is sensed around the silicone opening. Once the fluids are processed, they are grown into a substance that can only be called ‘meat’ and is grown and stored in chambers which colonists can access to as needed.

RESEARCH - INSPIRATION
present and future trends, food tech

1.) The Body Garden is a design exhibition based out of the Netherlands that explores the concept of human waste as a commodity due to the lack better alternatives. In this exhibition dried skin, sweat and hair are displayed in packages not presented with obvious uses, but rather as things which we may inevitably have to use.

2.) We encountered a similar project featured on Dezeen. Hans Ulrich Obrist and chef Michael Pollan worked together to create a series of 11 cheeses from human matter. Bacteria was collected from participants tears, navals, noses, toes and mouths and grown and cultured into cheeses which touted both the scent and taste of the participants’ own body odours.

3.) Another influence on our project was the trend of our reliance on GMOs and other gene related innovations like crisper. We see the development and application of these technologies on humans rising, and from that point we need to consider in what ways we may augments our bodies in the future to better serve our environments.

Thinking of self contained, self sufficient harvesting as a trend and combining it with current technologies and efforts used on the ISS recycle human waste, we felt like a natural progression would be the recycling of menstrual blood.

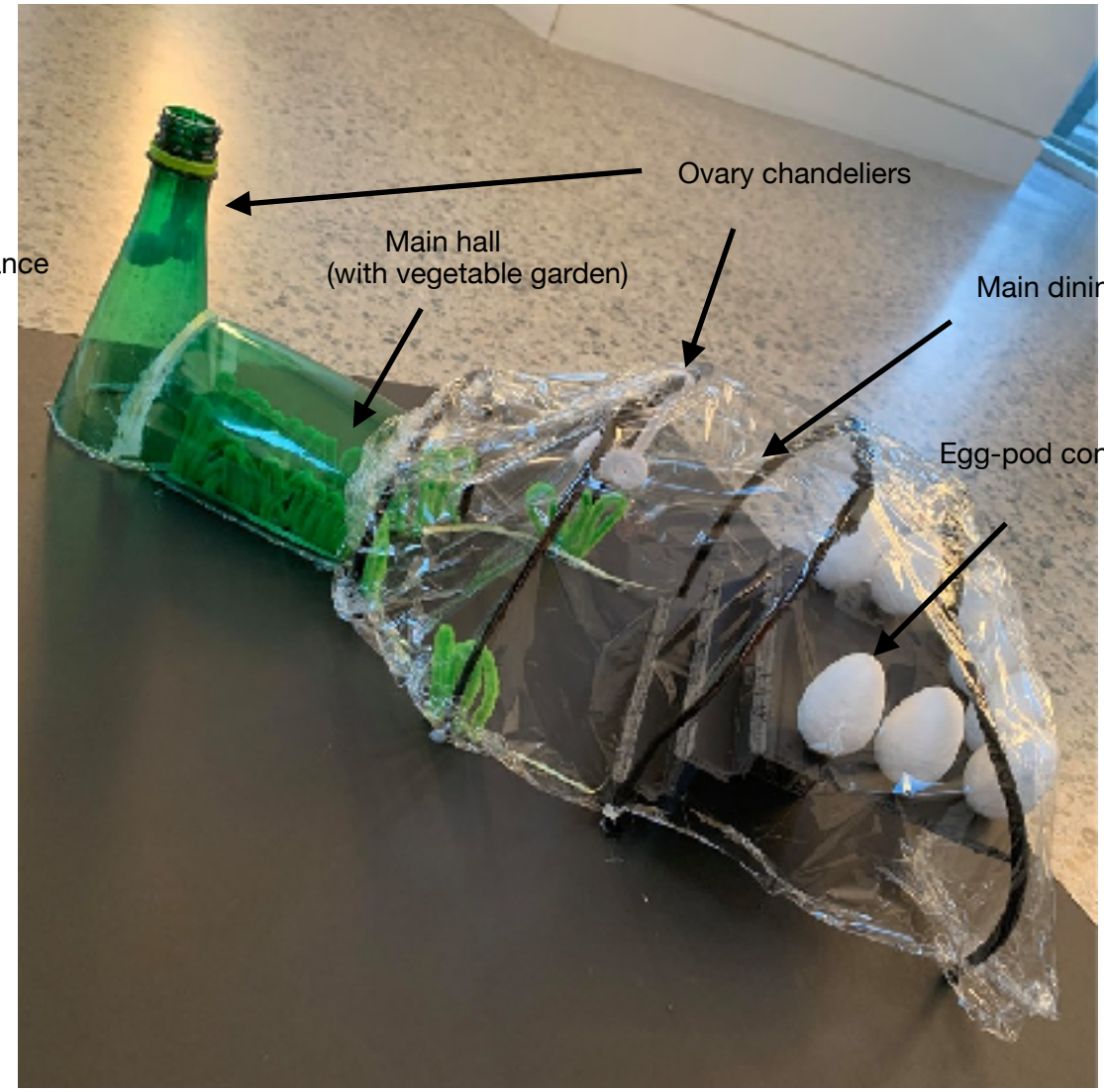
ETHNOGRAPHICS

Location: Okanagan Desert - Summer months
Reason: We were unable to come up with a suitable area within Vancouver that we could see our installation being in. We wanted to create an experience that would replicate Mars the most while still remaining in close proximity to Vancouver. We decided on the Summer because of the increased amount of vacationers visiting the area as well as those months being the most dry or Mars-like.

Age: 16+
Reason: because of more mature content, we feel that those above the age of 16 would be able to appreciate the installation and be able to take the research seriously than those of a younger age. This installation would be of interest to just about everyone because humans naturally have a curiosity for space and therefore, we can visualize a variety of ages with various backgrounds with multiple reasons attending our installation.

https://www.thestar.com/life/travel/2009/06/24/osoyoos_canadas_lone_desert.html

EXHIBIT PROTOTYPE



A closer look at the meat pods. The meat would be housed in these and carved off similar to shwarma as needed

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ESSAY
Project refection, personal experience, thought process

When the subtopics for this project were revealed we immediately gravitated towards the concept of creating a food system for space. In a time where we have people who are constantly pushing what humans and technology can accomplish to the very extremes the idea of life in space doesn't feel like it's that far off. The promise of life on Mars isn't just a new boundary or goal that we have set ourselves though, many people believe that colonizing Mars may be the only way that the human race will survive the future turmoils of Earth.

Our first steps in this project were much like our last, spit balling which turned into the "worst idea" method. Certain team members tend to unintentionally gravitate towards this method where dark jokes or comments are made that reappear later on in their project and end up either framing the concept or playing a key role in the development of ideas. We thought about what this life would look like - dark, barren, possibly lonely, frugal living, limited contact. Our initial research revealed that through experiments here on Earth with simulated "martian" soil it's been confirmed that we will be able to grow specific food though the options appear limited. The success for this Mars colonization theory relies heavily on the plan to extract and refine the carbon retrieved from the water at the "polar caps" to utilize as fuel. Until we manage that the colonies inhabitants would have limited resources and limited to no travel off of the planet. We wanted to design for this time frame where foundations of the new civilization were still being laid and resources are not yet bountiful.

Some of the first "ideas" we imagined were pretty grim. Growing and harvesting yeast from the inhabitant's bodies to make bread which becomes a staple in the diets of the inhabitants, pucks which could have synthesized flavour and texture, VR experiences, cannibalism, production line pregnancies (to get placentas). Nothing really stuck. We knew that the concept of growing and harvesting naturally occurring organisms from one's body was something that had been explored in various other exhibits and designs. We believed that this was the ultimate form of self sufficiency and sustainability and would likely occur in some way due to the limited material/variety that we would be able to send up from Earth.

The concept of using menstrual blood came from a joke which sparked a thought. Could we flavour a synthetic meat alternative with iron from menstrual blood to taste like steak? Would that be the new delicacy? This thought took us down a path which shifted our idea with the discovery of information which would be the framework for our project - you can retrieve stem cells from menstrual blood. Here on Earth we are currently working on the concept of growing "ethical" or "humane" meat alternatives grown from stem cells harvested from animals. Why let menstrual blood go to waste when it is naturally produced and contains the means to a completely cyclic and sustainable protein source. While researching the potential of menstrual blood we came across another key factor; the blood contains phosphorous, potassium and nitrogen which are the three key elements that plants must have to survive and grow. Recycling menstrual blood to nourish plants is a method that some people already utilize though it is maybe not as socially accepted as more traditional fertilizers. The thought that a single human function could potentially sustain an entire food system was provoking which was exactly what we were hoping for from this project.

When designing the concept we had to think about how it would function as a food system and also within the social system since the success of the process relies so heavily on the humans involved. Measures would take place before the mission began to prepare the women to have regular, heavier flows. We thought of this process much like our ability to control the output of certain crops with genetically modified foods or breed animals to bare more eggs, produce more milk etc. While this may sound de-humanizing we imagined it as being the opposite. The woman involved quite literally carry the future and success of the civilization with them - one could almost see the woman as the bearers of this new martian life. The pods or packs which would collect the blood discretely fit through an air-tight access in the outer clothing and into the vaginal canal similar to how a diva cup is used. As the menstrual cycle carries out the matter is collected in the clear pod which is worn on the front, over the woman's lower abdomen. Once the woman's cycle is complete the pod is linked up to a system where the liquids are retrieved and separated into their respective reservoirs - the stem cells will be sent to a chamber where the meat is grown and the rest of the menstruation will be sent to fertilize the plants.

For our exhibit on Mars we were inspired by two different moodboards. We all agreed that we liked the concept of a glass, geo dome structure given that our project revolves around growing food this felt appropriate as it resembles a greenhouse but also feels futuristic and space-like. When entering the space the front entrance is a small pod which takes inspiration in it's shape from diva cups, this opens into a long tunnel where growing shelves are set up along the walls and then opens up into a main space. At the back and up stairs are small egg shaped pods which are used to house the meat and from the ceilings hang lighting that bares a resemblance to ovaries. The exhibit would display prototypes of the pods and would also serve a tasting menu. Small samples of foods proven to grow in martian soil such as potatoes, peas, tomatoes and quinoa would be served with the option of a slice ambiguous meat to simulate the experience of our concept. While we would love to serve up the real deal to give those who visit the exhibit we wouldn't want to get sued. Unlike this distant Mars colony that we've dreamt up, us Earth dwellers are likely not quite ready to eat menstrual grown meat.