The Body Garden

by Fred Erik & Pleun van Dijk

+ Project beginnings

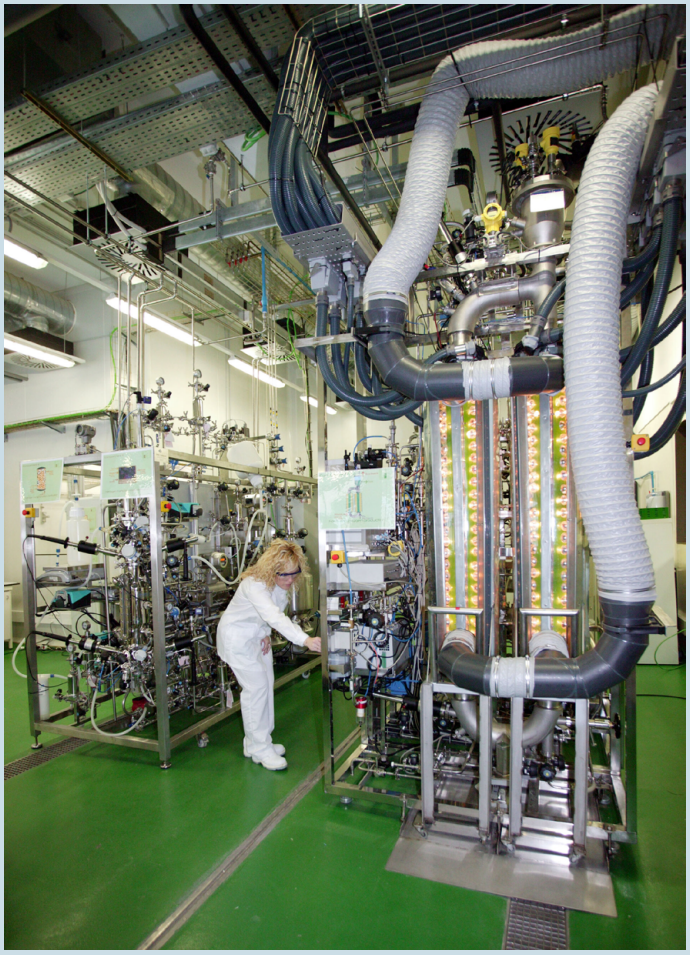
Decreasingly a distant dream, the idea of colonising Mars is slowly getting closer. We have a new blank piece of paper in front of us. Untouched, barely discovered and with just a small amount of local resources to start from. Contrary to the sleek sci-fi bliss of Hollywood movies, filling in this page will be difficult, conflicting, and challenging. The first humans to set foot on Mars will find themselves in a unique, unfamiliar position. They will be - as far as we know - the only organic beings on the red planet. For lack of better alternatives, waste created by the human body becomes increasingly valuable. What was once regarded as trash becomes a goldmine of unexplored possibilities. Harvesting this mine only seems to be a logical step in the context of a bigger self-sustaining system.

The human body is in a constant state of renovation, producing skin, hair, and sweat among others. The Body Garden aims to be a speculative research project where the potential of human body material is explored. This organic material is approached as part of a bigger process, in which the natural geological resources of Mars and local parameters are taken into account. Beyond the reality of going there, speculating about these possibilities will be most valuable. Mars might be the mirror reflection we need to rethink our everyday lives on earth.

+ Subsequent Research

For her graduation project - similarly called The Body Garden - Pleun van Dijk explored the grotesque side of the human body by investigating the rich variety of materials our bodies produce. It served as a base for our research, in which the main project vision was repositioned in an interplanetary context.

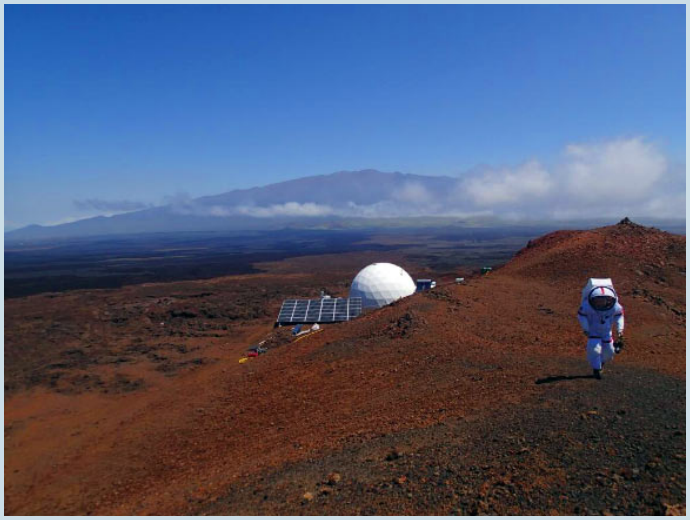
Everyday we are being exposed to an endless stream of photos and images. We see beautiful clean polished bodies, stripped of anything that might make it look grotesque. This gives us the illusion of a finished and controllable body, something far away from reality. The human is always in process and in a state of renovation.



Everything that lost its function will be pushed off, we constantly lose skin, hair, saliva, snot, sweat etc. Most things we lose without being aware of it. We call this body waste but in fact this waste is full of hidden information. It is a microscopic world that we find difficult to understand and comprehend. By zooming in on what is normally hidden, it tells us a visual story and changes our view on our own body waste.

Beyond being a speculative research, the body garden is aligned with scientific research currently being undertaken by various institutes. An example is MELiSSA, or Micro-Ecological Life Support System Alternative, which aims to develop a regenerative life support system for long term human space missions. The projects makes use of the most mainstream bodily materials, like sweat, urine and faeces.

For us, getting in touch with individuals behind the extensive team of the MELiSSA project was important to get a sense of what's happening in the scientific field, and to ground the relevance of our project. Besides adding confidence to our more speculative research, the project also influenced the selection of bodily materials we focused on in our final project. If mainly focussing on urine and faeces, the projects would neglect the rich variety of organic materials our bodies produce. Therefore, we decided to highlight materials that usually go unnoticed in scientific research on regenerative life support systems.



Another scientific, almost performative experiment/ research which related to our project is Hi-SEAS.
The Hawaii Space Exploration Analog and Simulation (HI-SEAS) is an analog habitat for human spaceflight to Mars. HI-SEAS is located in an isolated position on the slopes of Mauna Loa volcano on the island of Hawaii. The area has Mars-like features and an elevation of approximately 8,200 feet (2,500 m) above sea level.

The first HI-SEAS study was in 2013 and NASA's Human Research Program continues to fund and sponsor follow-up studies. The missions are of extended duration from four months to a year During the HI-SEAS IV mission, 6 crew members lived for exactly 1 year in a fictive settlement as if they where on Mars. The experiments aim was to conduct research on the effects on human behaviour is this specific context. During the analogue mission, crew members collected bodily materials with the aim of fuelling a regenerative system. Getting in touch with one of the crew members felt as close as we could get to talking to a Martian. We wondered how the mission affected their view on their bodies and if it influenced their perception towards bodily materials.

- **FE**: We know that during the mission, you and other crew members were collecting faeces for agricultural purposes. Can you tell a bit more about it?

- **CV**: Yes, we didn't use it because we weren't allowed to because of hygiene and safety reasons. We were basically using a composting toilet in which microbes were turning feces into compost. Then we gathered the compost and just stored it in bags. We didn't use it for agriculture, but on Mars you could try to get nutrients back.

- **FE**: We learned that from time to time there were problems with this toilet?

- **CV**: Yes, normally the microbes turn faeces into compost which is odourless and almost dry. But the microbes were not really happy and it took us months to get it to work properly. So for months we had this liquid thing which smelled really badly. We often had to open up the bathroom and clean this liquid mess. It was smelling in the whole habitat.

- **FE**: How did you feel about this? Especially since in western culture, going to the toilet is something very private?

- **CV**: It was smelly for sure and the cleaning was almost like speleology since you had to unmount the thing and clean all the hidden parts. We had to completely cover ourselves because there was no way to do that in a clean way. It was rather messy.

- **FE**: Where there besides feces any other bodily materials that you were collecting during the mission?

- **CV**: Urine as well, normally it also went into the toilet but since the compost was really liquid we had to collect it in cans while trying to fix it. Apart from that we tried to compost the food waste. We used a system called anaerobic composting were you put the waste in a bucket, and some microbes and close the lid. It makes a compost which doesn't smell bad.

- **FE**: And then afterwards you can use that for?

- **CV**: You can use it as nutrients for plants.

- **FE**: But once again you weren't allowed to use it?

- **CV**: We could have used it but we didn't have the right facilities and were producing much more than we could use. But on a real Mars mission you would try to recycle all the nutrients.

- **FE**: What was happening with for example your hair after you got a haircut during the mission?

- **CV**: We would put it in general waste afterwards we would store it.

- **FE**: How and why did you do that?

- **CV**: We would store it outside under the solar panels.

+ Subsequent thoughts

The act of colonising another planet can be described as arrogant and extremely human centred. Given the short time-frame of our project (approx 50-100 years) we continue surfing this wave not because we believe it is the right thing to do, but because it exposes the status we grant ourselves.

Therefore, our Mars-based, human-centred approach, amplifies the egocentric position humans have within the ecosystem on Earth. It illustrates the unfulfilled potential and one-sided relation of the human body within a multi-species ecosystem.

The scarcity of resources on Mars therefore exposes our questionable relation with other life forms on Earth. It illustrates our dependance on species while we - mistakenly? - positioning ourselves as a dominant form of life.

The Body Garden can therefore both be seen as mirror to question our role on Earth, and a stepping stone to reposition ourselves within an interplanetary context. What started as a human-centred project, could eventually turn into an engine which fuels a bigger independent eco-system in which both humans and other species co-exist.

+ Final Project

For our final project, we have canalized our research findings in 3 conversation pieces which each talk about a specific bodily material: hair, skin and sweat. Evoking the aesthetics from vertical farms, each 'sculpture' consists out of 3 parts which focuses on a different parts of build- ing a regenerative system. First we have the tool(s) needed to harvest, second the harvested material and third the application of the bodily material within the process.

This last step will elaborate on 3 different aspects of a regenerative system: creating clean water, creating oxygen and the production of food.The outside of the greenhouses will be imprinted with information and reflect both the volume's content and its surrounding. It creates an extra visual layer which aesthetically dehumanizes the installation as a whole and forces us to perceive it as an inde- pendent system.

Overall, the installation questions if this human-centred approach to space colonization is that human-dependent after all?