



This vitrine contains materials related to Mission Requirement: MARS LICHEN.

**Panorama** AI-generated image of what Mars could look like if lichen were to travel there and start growing. Prompt: "martian surface with xanthoria elegans lichen, growing on the mars soil and rocks, while looking from a high vantage point towards the distance, with a rust colored sky, high quality photograph". The worker at the photo studio where I printed this noted immediately that it was an image of Mars. Take that as one gram of support for the idea that we can use these AI systems to simulate

worlds that don't currently exist, but perhaps should.

**"Viability of the lichen *Xanthoria elegans* and its symbionts after 18 months of space exposure and simulated Mars conditions on the ISS" (2015), scientific article by Annette Brandt, Jean-Pierre de Vera, Silvano Onofri, and Sieglinde Ott and published in the *International Journal of Astrobiology*. Details an experiment where lichen (and other organisms) were mounted to the outside of the International Space Station, exposed to the harshness of space for over a year and a half, and then returned to Earth. The results? Over 70% of the**

lichen photo- and mycobionts were still viable even after exposure to space. Tantalizingly suggests that lichen could potentially be involved in panspermia, assuming they could survive re-entry. From a speculative standpoint, suggests that lichen could survive on the surface of Mars.

**Stereo and light microscopy of lichen collected in the Netherlands.** Note how in the darkfield image you can see the fungal cells (yellowish and whiteish), as well as the circular algal cells.

**Scanning electron microscopy images of lichen collected in Denmark.** Note the hyphae that wrap

themselves ever so tightly around the algal cells, nestling them in a tight embrace that may or may not be pleasurable or painful. Scans courtesy of Bo Thorning, FabLab RUC.

**Samples of lichen collected in Sweden, Denmark, The Netherlands, and Germany.** Based on the lichen collected we can surmise the levels of air pollution in these various regions. I invite you to guess where each sample came from.

**“Directed Panspermia” (1973), article in *Icarus* by Francis Crick and Leslie Orgel.** Intriguing analysis of how life on Earth might have been sent here by extraterrestrials somewhere else in the universe. Nevertheless, contains the following statement:

One further point deserves emphasis. We feel strongly that under no circumstanc-

es should we risk infecting other planets at the present time. It would be wise to wait until we know far more about the probability of the development of life on extrasolar planets before causing terrestrial organisms to escape from the solar system.

What this quote fails to recognize is the fact that we are doing this already, no matter our attempts to “sterilize” our space probes in the name of “planetary protection”. To send something to another planet or moon is to always already contaminate it.

**Fragments of the “Campo del Cielo” meteorite, originally from Argentina.** We should ask ourselves how it's possible that it migrated to Europe for sale. Purchased on Ebay.

**Fragment of the “Homestead” meteorite from my**

**home state of Iowa.** Accompanied by certificate of authenticity. Purchased on Ebay.

**50g of MGS-1 simulated Martian regolith in sealed sample container.** Minus the perchlorates that are actually found on Mars, which could kill you. The simulated regolith is still hazardous due to the small particle sizes which could cause lung irritation and possibly cancer if inhaled. Please do not open.

**Prototype of rock formed by a mixture of plaster, MGS-1, and water.** Lichen samples will eventually be growing on elements collected from humans, such as hair and fingernails. Thus, the humans will provide a substrate for lichen flourishing.

# TX-2

# MOONSHADOW