

Body ◀ back



Project description STAR Design

The project proposal is:

In which way is it possible to have a ceremony and to store a dead body / friend with dignity, on a mission to Mars?

How is it possible to unite science and religion with a design that will not affect the Universe and the environment on Mars and other planets?

A Mission to Mars always brings great risks to the crew

There is no knowledge yet of how dangerous it actually will be with the radiation.

Another aspect is to be away isolated from earth for a longer period of time.

In case some of the crew member dies the question is, what to do with the body?

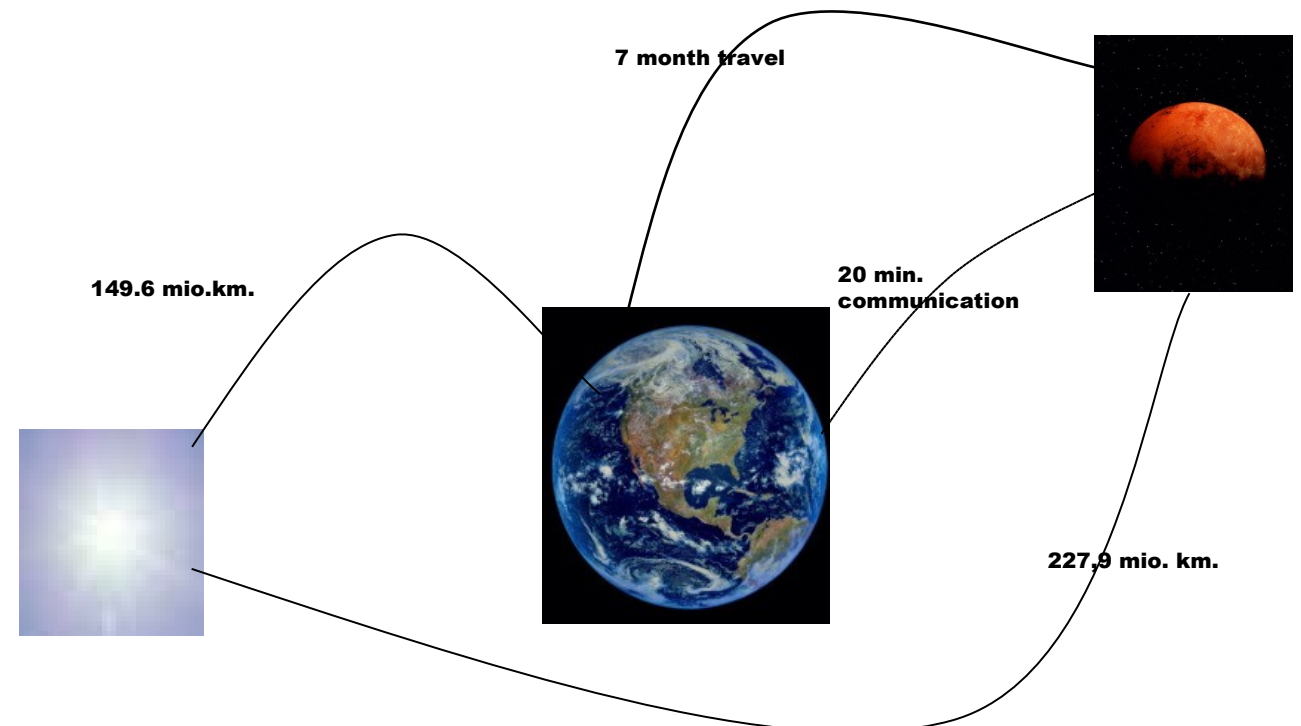
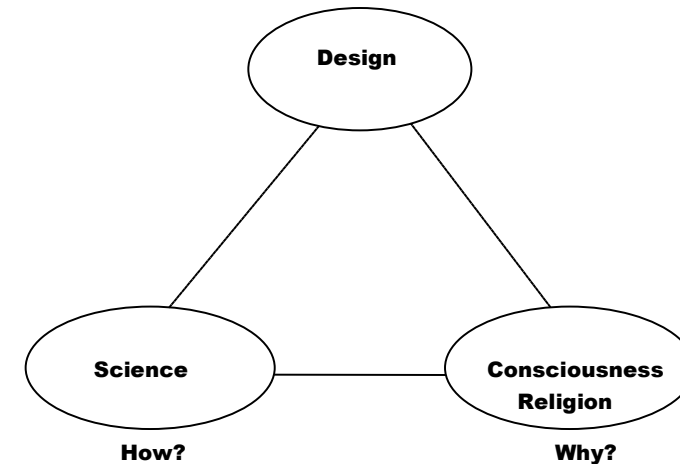
How do you store the corpse?

How is storage possible while avoiding infecting the rest of the crew in case of a fatal disease?

What are correct ethics?

Do you bring back the dead body to the relatives on Earth?

How are they going to survive and stay psychologically and physically strong?



Physical aspect

The Universe is -272 C

Mars is between -40 to -120 C

The Universe has no pressure and Mars less than 1 %

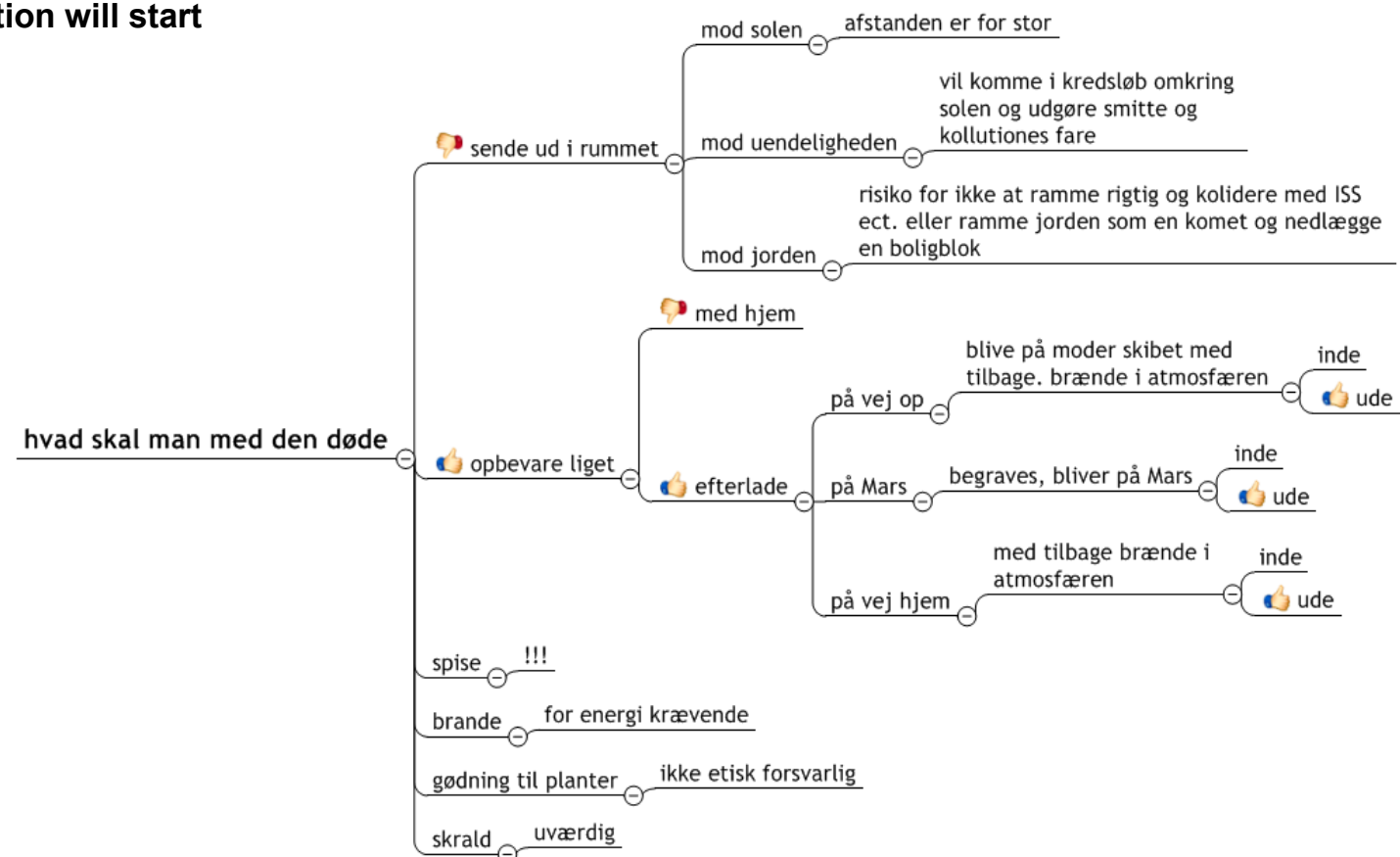
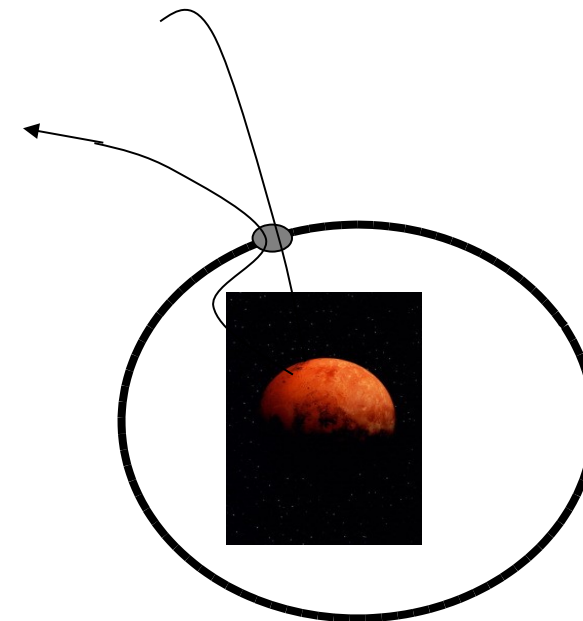
Gravity is 0 and $\frac{1}{3}$ on Mars

There is strong radiation during the whole mission

The Mission will last almost 3 years

It takes 7 months each way and either 3 months or 2 years on Mars (depending on the sun and the planet's position).

The minute a person is dead the putrefaction will start and bacteria will effect the environment



Psychological Aspects

Very important that the crew consider a testament.

Nobody knows how they will react under the circumstances.

Reaction pattern:

Threatening danger – Fear

Loss – Sorrow

Responsibility – Guilt

You might feel guilt and take blame for it.

Other crew members might blame you.

This is the most difficult situation which causes big problems in a small group. Nobody will ever trust you, and you might get isolated.

A funeral is very important and must be trained on Earth.

The best place to keep a corpus is where others do not see it, otherwise the survivors might be put back in the state of sadness.

Effort ending with the corpus

Outside = is a goodbye

Inside = Repression



Why bring the corpse back?

Dealing with the sorrow of the relatives

Security reasons

Remaining crew

Knowledge that you will be cared for respectfully and with ethical correctness.
You are aware what will happen to you if you die on mission.
The crew feels secure having a procedure, and it helps them through the loss.



Political matter: The Government shows responsibility

In war situations they bring the dead back to their relatives.
It is important for the relatives and friends that they have concrete and physical remains in order to help dealing with the sorrow.



Why have a Ceremony?

A ceremony guides you through a very difficult situation in a decent way.

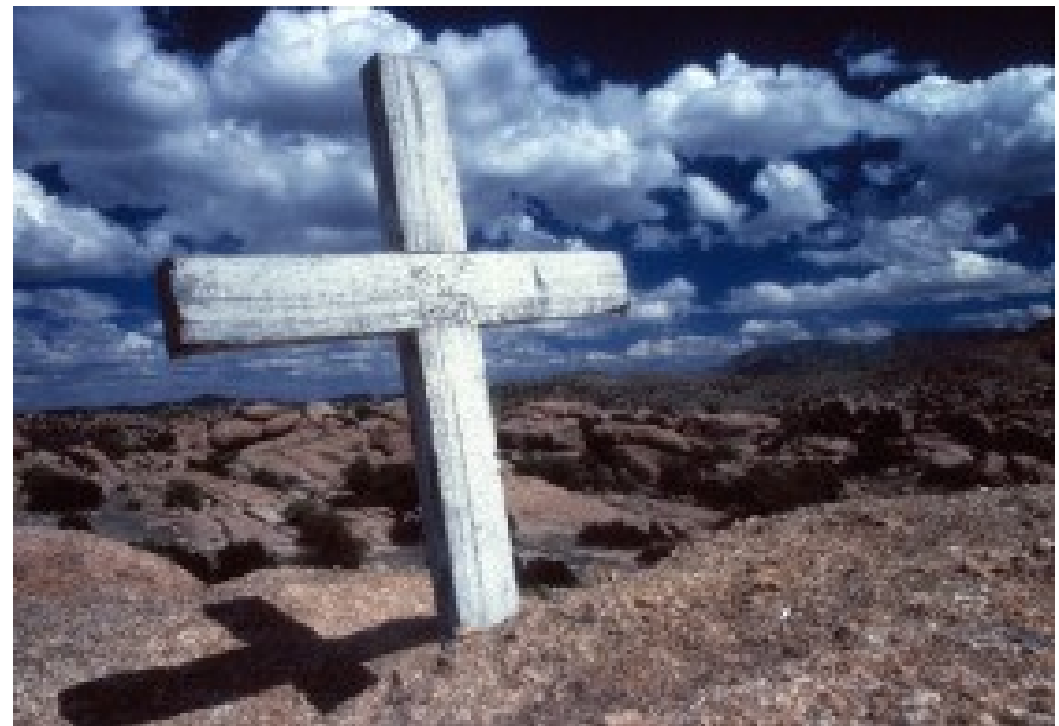
It is a tool to handle the enormous feeling of sadness.

In order to create a well known setting in a chaotic situation, the ceremony has to remind of the ceremony on Earth with all the elements within.

It takes time to accept that a person is dead, and in a small environment where e.g. 6 persons are being reduced to 5 persons, there will be some elements of shock reactions.

Preferably the ceremony has to be flexible so it becomes personal.

It is important for the surviving crew members to arrange an opportunity to express feelings and thoughts about the situation / dead person to prevent disturbance of the further mission.



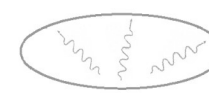
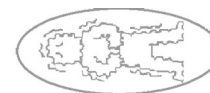
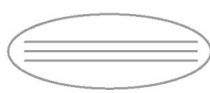
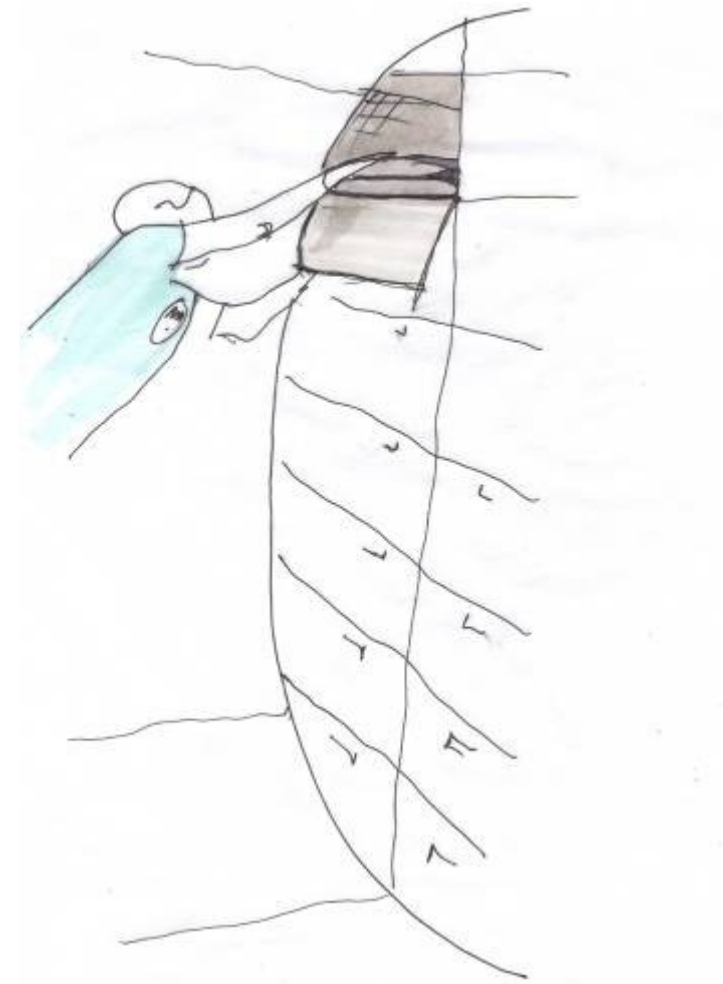
Death

In action something goes wrong and a crewmember dies.

In the closed environment the ceremony has to be completed after 24 hours to prevent infections.

Generally you normally have 1-7 days to prepare the ceremony.

Using formalin and other chemicals will make the environment worse.



Tests and preparation

The Body back is folded out

The electricity from the battery makes the “intelligent alloy” sticks stretch out the fabric

The crew has to run tests

The dead crew member will be dressed in the indoor NASA space suit

When the corpus is inside the Body back you zip it and fill it with air

The Body back is fixed in the medical area, and the body can easily be put inside even in 0 gravity, because of the hardness of the metal.

On Mars it will be placed on the medical table.

The Body back will be moved to the area with contact to the Earth.

Psychological aspects

It is important to see the death body to make you realize the facts of death. But you do not want to have the feeling of a corpus in a “plastic bag” when you move it. When the Body back is closed the physical and visual feeling is hidden.



A Psychological break

The report is being done at this break.

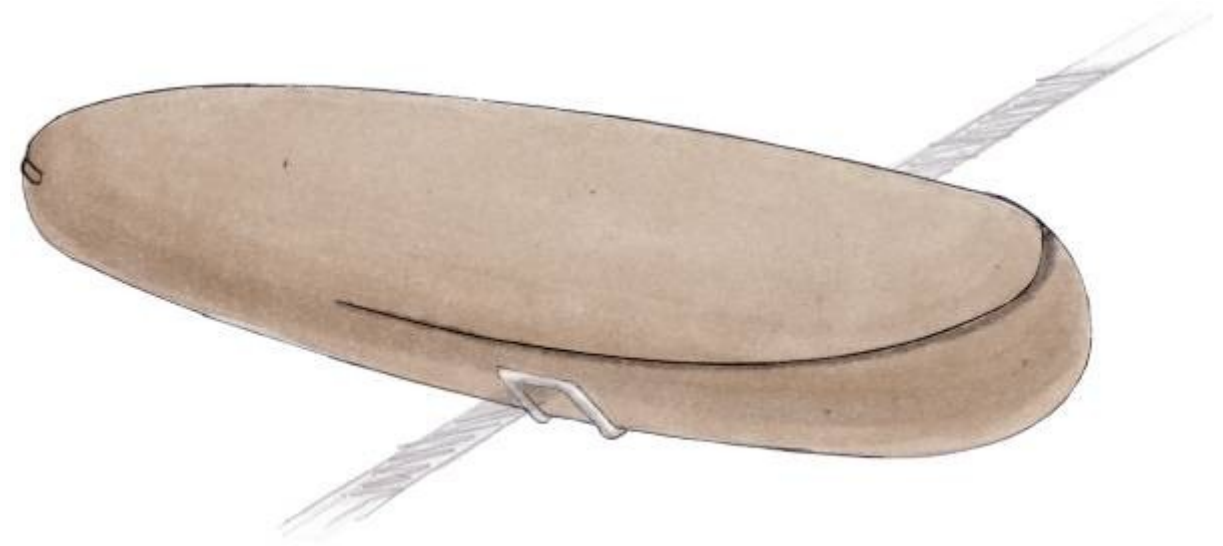
Waiting for the Earth with responding material for the coming ceremony

The personal belongings have to be stored in a safe locked place, but only what is necessary. Some parts must be stored as trash and burned up in the atmosphere along with other elements of waste.

Psychological aspects

The crew must have a debriefing. All thoughts and feelings must be discussed.

If there is any guilt question it is important that the person responsible for psychological matters deal with it, and have authority to lead the process.



The ceremony

A speech from the nation.

Following a speech from the crew captain.

The crew's last goodbye, writing on the *Body back*, songs....

And then the relatives might talk

It will be possible to transfer data to the *Body back*
(not readable for the crew)

Physical aspects

The ceremony is held in the area with Earth contact. It will be filmed and send back to Earth.

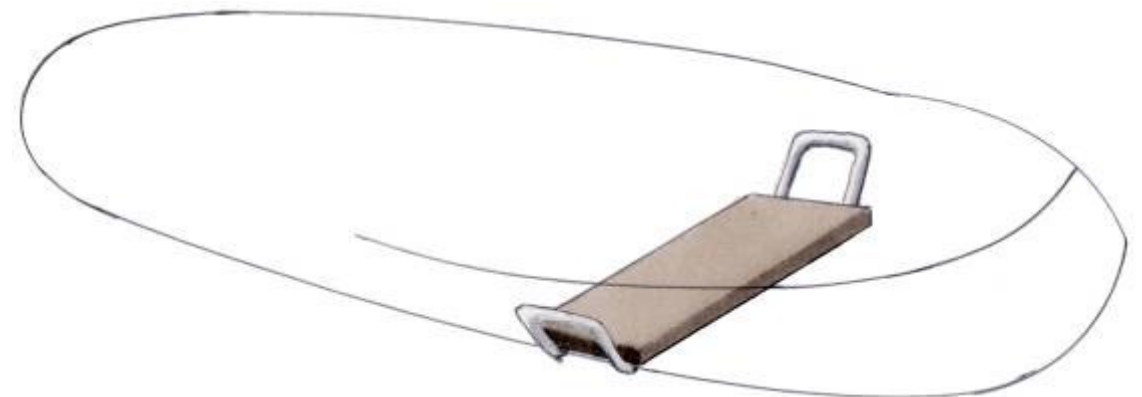
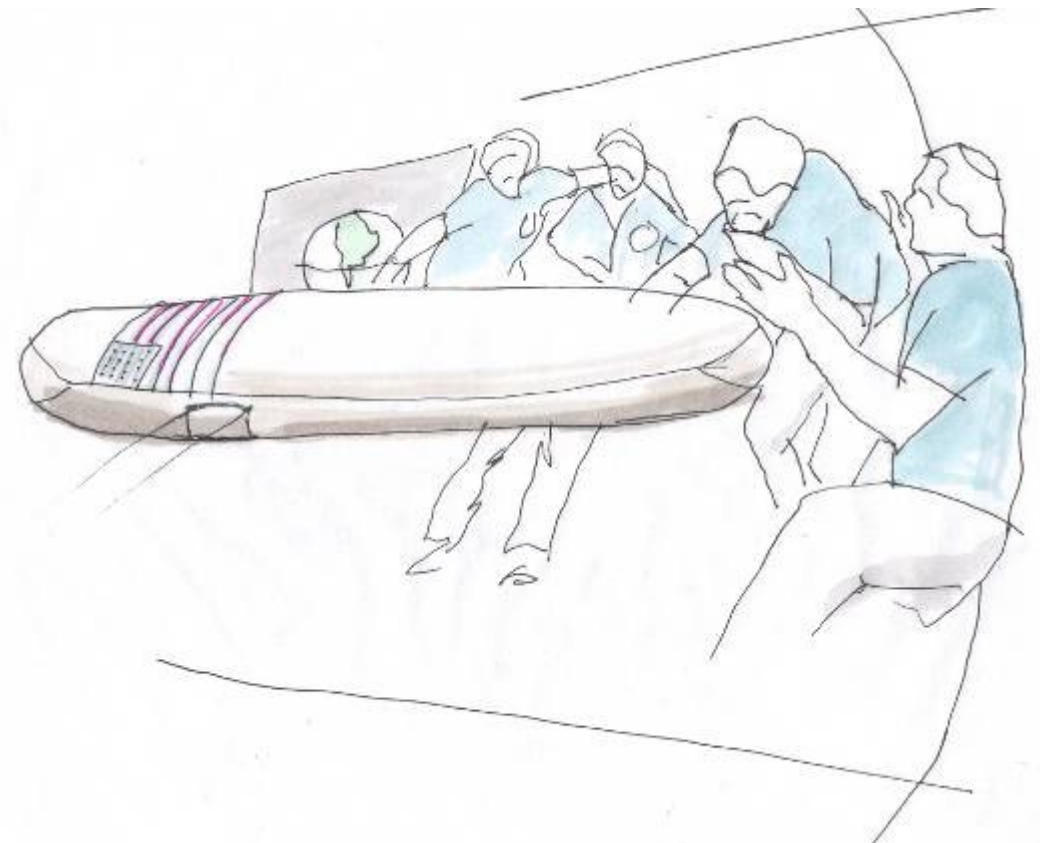
The tape from Earth has to be cut so that it will come in the right order.

In 0 gravity the crew members will be around the *Body back*, but if the *Body back* is fixed it is more like a funeral on Earth.

Psychological aspects

The concept is flexible for religion.

The *Body back* is fixed in the middle of the area, symbolic with the string by birth. And when they move the body back they cut the fixing point strings.



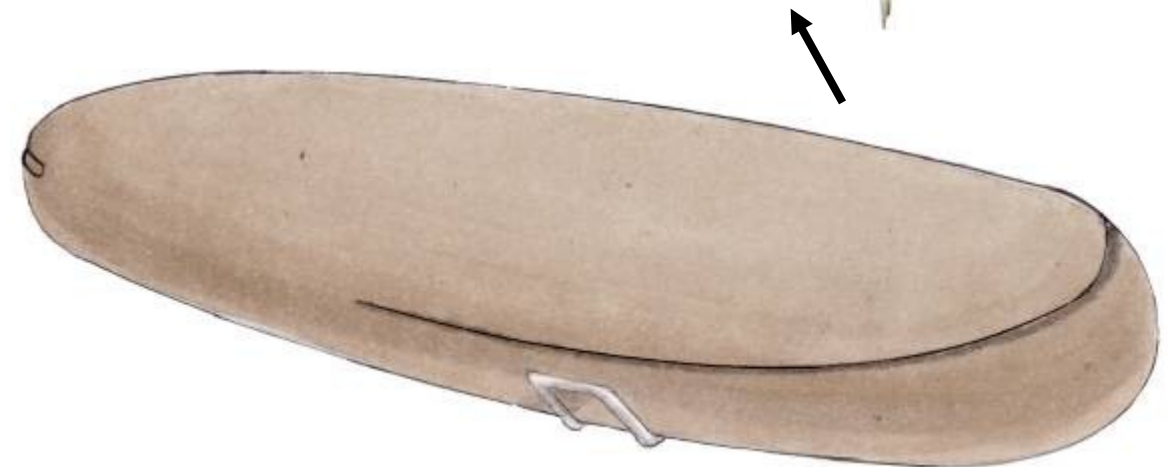
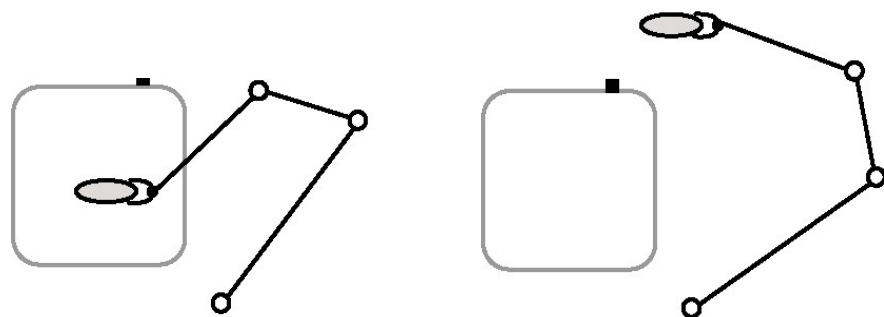
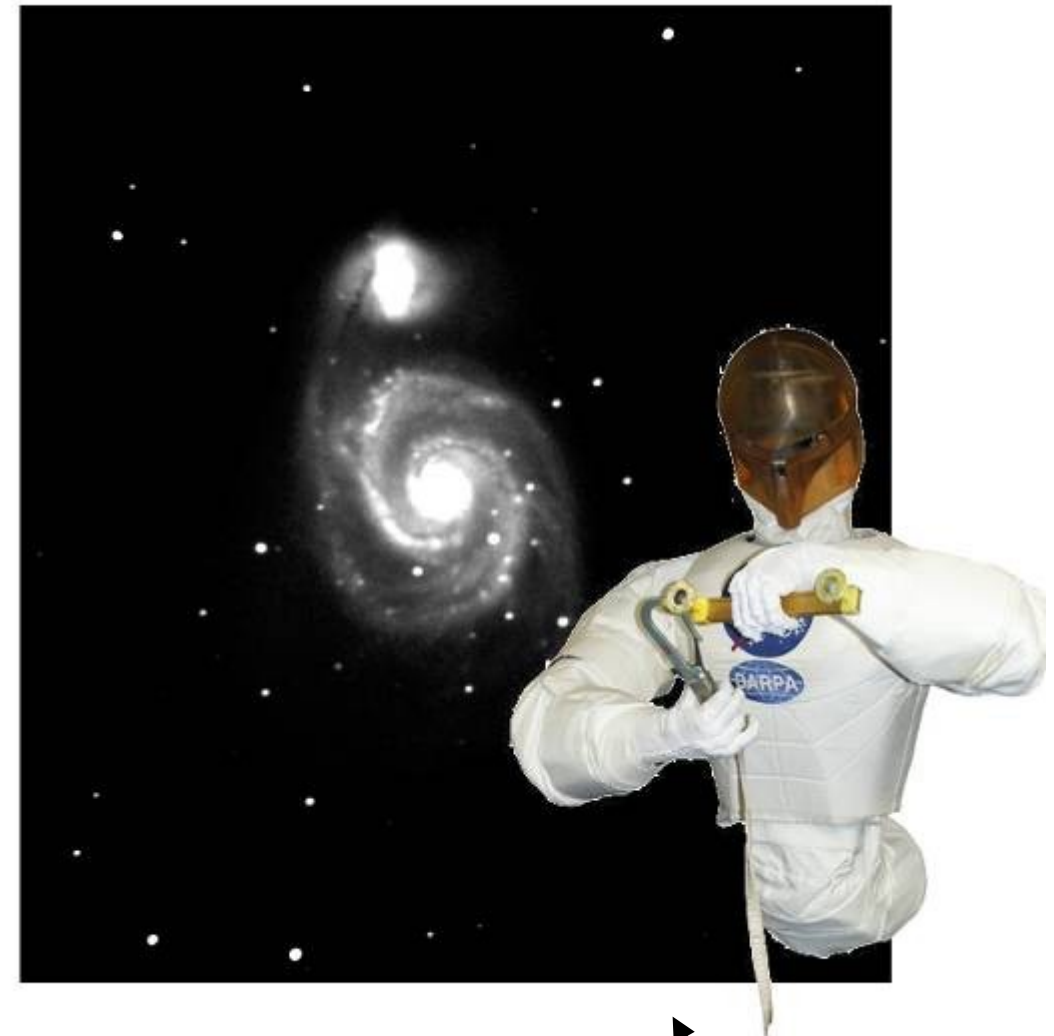
Promession

The crew lead the body *back* to the air lock.

The Body back will be safety locked to the Robertnaut, witch will carefully lift it out from the air lock.

The corpus will be crystal frozen in 1 hour .

In that time the robernaut holds it.



Vibrations

The vibrations will start

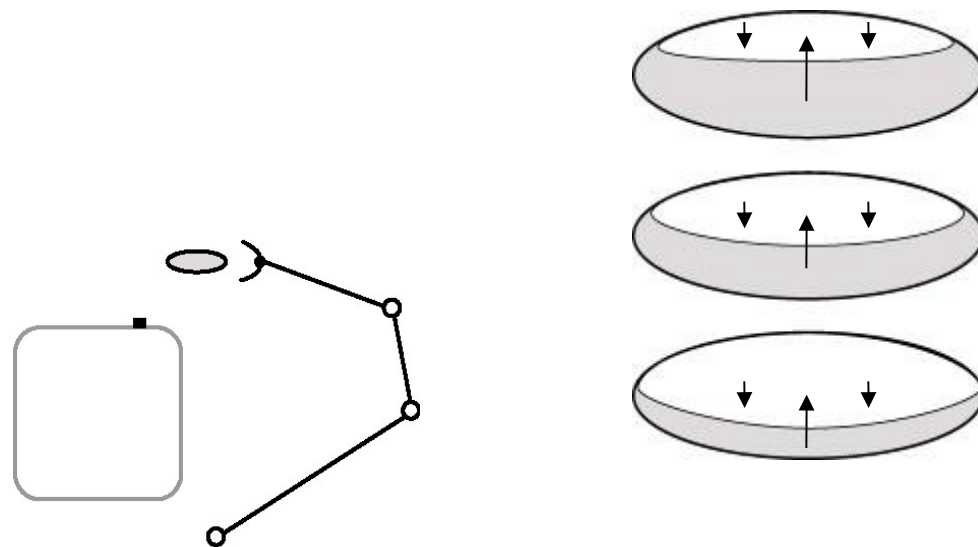
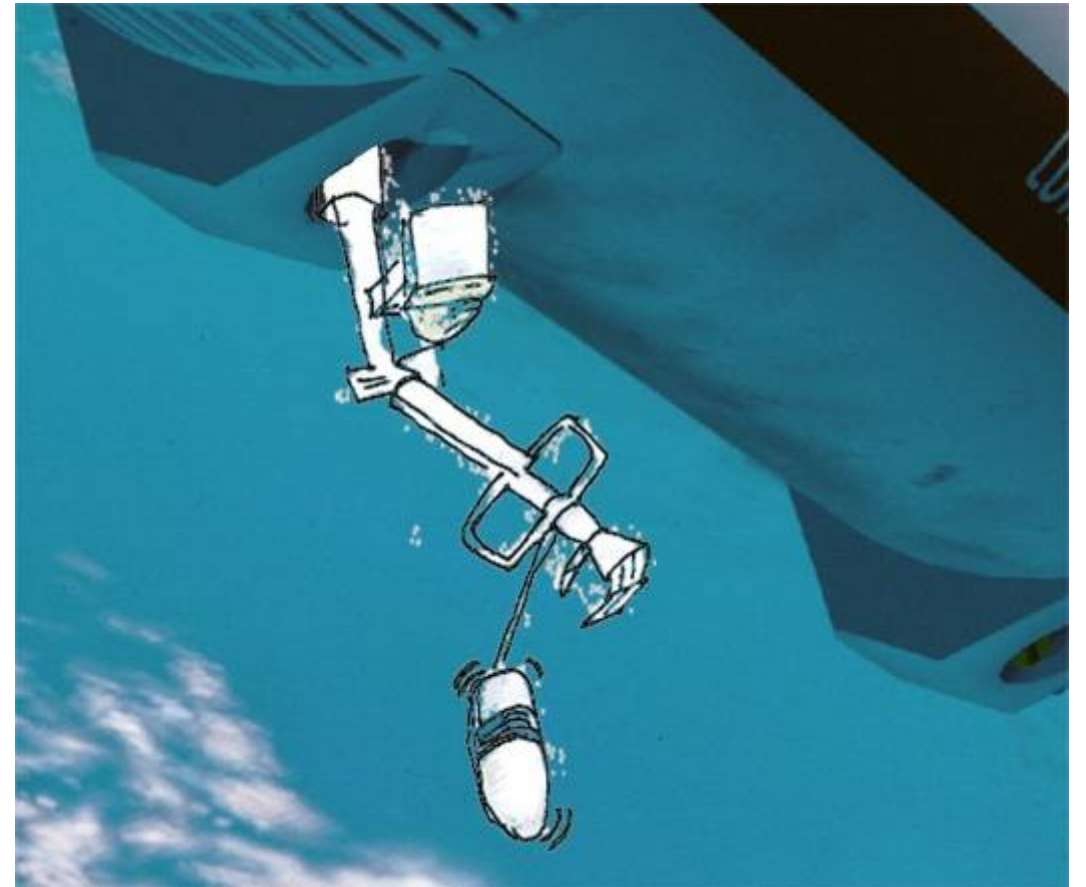
The Robernaut let the Body back hang in the safety line.
(Because of the danger of vibrations in the Space instruments.)

On Mars

The vibrations will be on the surface.

The vibrations lasts for 15 minutes. The corpus is now powder.

The Robernaut holds the Body back again and moves it to the final fix point on the surface of the space shuttle and leaves it there.



Microwave

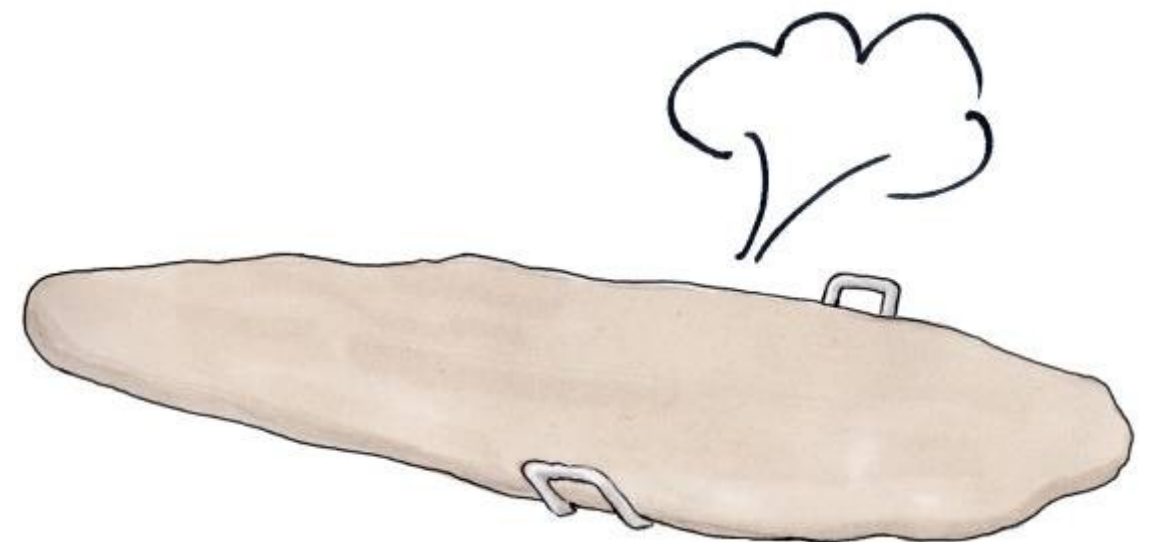
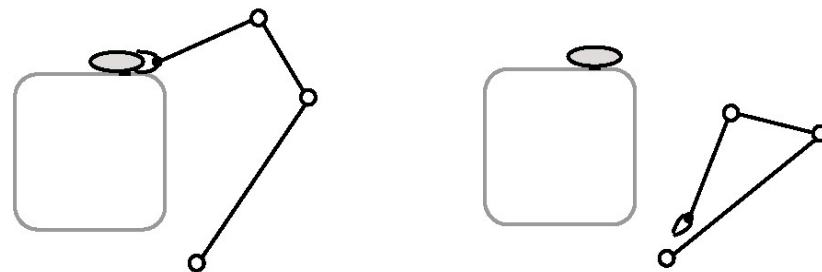
The microwaves evaporate the frozen water in the powder

Microwave elements are integrated in the fix point

Alufolio keeps the waves inside the Body back

It will evaporate through a Gore-Tex filter in the bottom of the Body back

The pressure equalizes and the water evaporate at lower temperatur



50 kilogram water

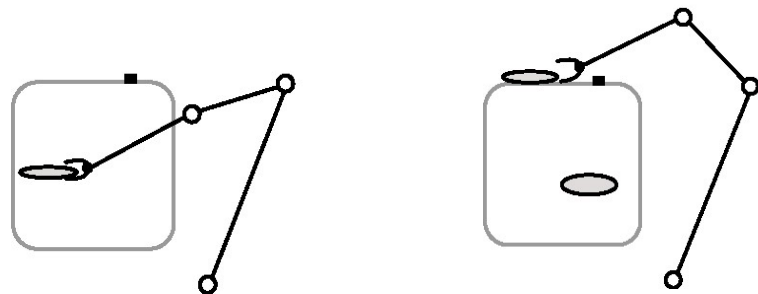


Folding

In a few days when the electricity turns off and the intelligent alloys starts folding the Body back.

It will now be a small squared form with vision not to see the folding process. That is to respect ethical matters when handling it afterwards.

Before entering the atmosphere to Earth the Body back returns into the Space capsule.



25 kilogram powder

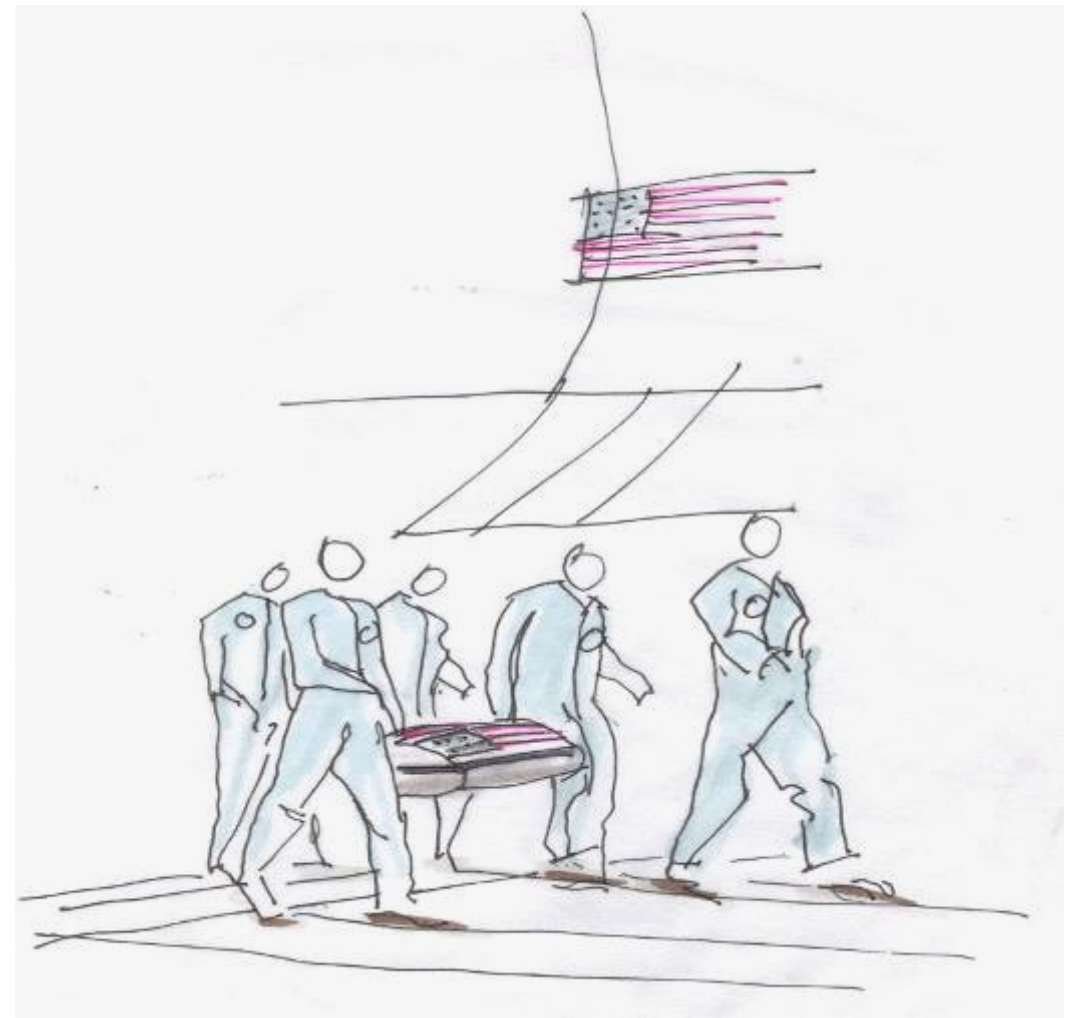


Back on Earth

When the Body back enters 1 Bar from 0 Bar, the powder will be vacuumed.

The Body back can be carried by two persons by using the handles from underneath.

The form will be very clean and will not unveil that there is a corpus inside nor show any part of the process



Technical drawings



Kevlar
Alufolio
Fabric /
polymer

