TPO50 从地球飞到火星的困难及解决方案

Both the reading and the lecture talk about problems of sending humans to Mars. The reading talks about three problems needs to be solved, and the lecture proposes solutions to them.

First, the reading thinks that because a round-trip to Mars and back is likely to take at least two years, it’s impossible for space vehicles to put on board the food, water, and oxygen required for such a long time. Such a situation is presented differently in the lecture. The lecture holds that due to hydroponics, astronauts don’t need to worry about the food, oxygen and water, because astronauts can use hydroponics to cultivate food crops in the spacecraft with relatively little space. Plants can recycle waste water and release clean water. It can also absorb carbon dioxide and release oxygen.

Second, the reading claims that spending a long time in the zero-gravity environment has negative effects on the human body and after the two-year course, the human will suffer grave medical problems. It again challenges what is stated in the lecture. The lecture harbors the idea that zero-gravity is not a problem, because astronauts have learned to use several techniques to safely manage the effects of zero gravity such as taking regular exercise, vitamins and so on.

Finally, the reading puts forward that astronauts on a mission to Mars would be exposed to dangerous levels of space radiation and it’s impossible to construct a shield that protect the whole spaceship from space radiation because it would add too much weight to the ship. The lecture however provides an alternative explanation in this point. The lecture asserts that astronauts traveling to Mars will be exposed to some solar radiation but this radiation will not be at dangerous levels all the time. So by using a special instrument that monitors solar radiation and a small shelter that is shielded against radiation but doesn’t add much weight to the ship, astronauts can always stay in safe place.