Re: Manned interplanetary travel is IMPOSSIBLE today, but PROBABLE soon.

Source: http://sci.tech−archive.net/Archive/sci.space.policy/2006−03/msg00094.html

- *From*: "H2−PV NOW" <H2.PV@xxxxxxxxxxx>
- *Date*: 4 Mar 2006 00:28:11 −0800

jacob navia wrote:

> There is a widespread misconception that with today's technologies
> it would be possible to send people to Mars.
>
> That is not possible. There are TWO major show stoppers.
>
> Problem (1)
>
> "Man" as we know it now, is not able to survive in space for
> more than 6 months without damage, and after more than 1.5 years
> the damage is so great as to be equivalent to a death sentence.
>
> The longest stay of a man in space runs up to 400 days.

Since we have no data longer than one case of 400 days, we cannot know what a terminal length duration is. Did the person die on the 400th day, or did they live? I have heard of no deaths on space stations whatsoever. The soviets, with their disregard for personal lives and comforts, paid for the endurance records by keeping the atmospheric pressure low, which would surely impact overall health and fitness over time. Perhaps a two−atmospheres pressure is all it takes to stay fit indefinitely? Nobody will know until habitats can be launched in sufficiency to try the experiments. Nothing definite can be known yet.

> This is due to muscle degeneration due to lack of gravity. This
> is a SHOW STOPPER for any manned missions beyond the moon.
>
> Spaceships for interplanetary travel must have artificial gravity
> (spin) so they need to be much bigger than they are now.
>
> Note that this problem does NOT go away with exercise machines.

Spaceships for Interplanetary travel need to be luxury liners, not tin

cans with all the amenities of a 3rd world jail cell, like
over−crowding and lack of bathing.

How much gravity is needed has yet to be determined.

> Problem (2)
>
> Space is full with Gamma rays and cosmic rays. For any mission longer than a few weeks you need shielding with at least several meters of water. Without this, "Man" dies from cancer and DNA destruction.

This is a conjecture based on nothing meaningful.

Earth lifeforms do not have the equivilent of several meters of water between them and the nasty radiation. Don't be fooled by tall columns of air. The real determination of atoms between you and all hell breaking loose out there is 14.7 pounds of pressure per inch square, which in metric units is 1 kilogram per cm^2. Water has a density of 1 gram per cm^3 and 1000 of those is 1 kilogram of water. So ONE exactly kilogram of water offers all the same mass as 75 miles tall column of air.

It doesn't take "several meters of water", but exactly one. You could have done this exercise yourself if you wanted to but you preferred to buttress your opinion with gross exaggeration. That doesn't say good things about your trustworthness as a source of information.

> This means that spaceships must carry thick shielding, what makes them even heavier. The crew must live behind several meters of water to survive in space.

You repeat your gross exaggeration again. Doesn't it bother you to be wrong in public enough to check your facts first before publishing something?

> With time, that water becomes radioactive and must
> be changed. This will not happen in short trips (Mars/Venus) but in longer expeditions that would take several years (Uranus/Neptune).

You mind giving your source for this data. Exactly what becomes radioactive? Is it the Hydrogen? Does it transmute to tritium? Is it

the Oxygen?

http://en.wikipedia.org/wiki/Tritium
"Tritium is radioactive with a half−life of 12.32 years. It decays into helium−3 ... releasing 18.6 keV of energy. The electron has an average kinetic energy of 6.5 keV, while the remaining energy is carried off undetectably by the electron antineutrino. The low−energy beta radiation from tritium cannot penetrate human skin, so tritium is only dangerous if inhaled or ingested."

Hmmm, you planning to inhale the shielding or ingest it?

http://en.wikipedia.org/wiki/Oxygen
"Oxygen has fifteen known isotopes with atomic masses ranging from 12 to 26. Three of them are stable and twelve are radioactive. The radioisotopes all have half lives of less than three minutes."

Radioactive for three minutes. Well that scares me. NOT!

> Note too that Mars does not offer any protection against radiation since its magnetic field is VERY weak or non−existent. After eons of being hit by cosmic rays, the surface of Mars is quite radioactive.

I was able to find no immediate sources to support a statement that Mars is "quite radioactive"

http://science.nasa.gov/headlines/y2005/08sep_radioactivemoon.htm?list197914

NASA claims on the subject that they will BEGIN to study radiation on the moon in 2008. It seems you are getting your information from a psychic friend hotline at $2.95 per minute.

http://lsda.jsc.nasa.gov/books/apollo/S2ch3.htm
"Radiation doses measured during Apollo were significantly lower than the yearly average of 5 rem[*] set by the U.S. Atomic Energy Commission for workers who use radioactive materials in factories and institutions across the United States. Thus, radiation was not an operational problem during the Apollo Program. Doses received by the crewmen of Apollo missions 7 through 17 were small because no major solar−particle events occurred during those missions. One small event was detected by a radiation sensor outside the Apollo 12 spacecraft, but no increase in radiation dose to the crewmen inside the spacecraft was detected."

> It would re−radiate into any not−shielded vessel. Astronauts would be forced underground. Gravity in mars is only 1/3 of earth's. Not enough to avoid muscle decay. It would be necessary to have a rotating base.

There is not enough data to know what partial gravity is sufficient for perpetual muscle tone. We have data from a few short landings on the moon and from zero gravity space stations. Where are you getting your information?

> A moon base is of course feasible, but it should be at least several meters below the ground to take care of (2). But since lunar gravity is too weak, the moon base should be rotating as well to take care of problem (1).

Well, we are in luck. Any base on the moon will be rotating. The moon is rotating. In fact it is rotating three ways: around it's polar axis, rotating around the Earth and rotating around the sun. We could throw in rotating around the galactic center, but that would make our heads spin.

> Conclusion:
>
> We need to build spaceships of enormous size to get to the planets. That technology will be ready maybe 2040−2050. Not now.

What's this "WE"? I don't remember inviting you along. In fact, I would be surprised if anybody wanted somebody making bonehead mistakes on their spaceship.

> On the other hand, look at the Mars rovers. They have survived unscathed more than TWO YEARS in marsian conditions, and they allow "Man" to explore Mars NOW, not in a century. Even easier is to explore the moon robotically since the time−lag is just 2 seconds round trip.
>
> Look at Cassini. It is cruising without any problems near Saturn. The time−lag is around one hour, and yet, we have managed to land in one of the moons of Saturn.
>
> Let's face it: manned space exploration beyond the space station is just science fiction now. It will be reality in a few decades, but not before.

A spaceplane could be operational by 2011 to beginning the permanent settlent of space, initially with factories in Low Earth Orbit. This

orbit is substantially shielded by the Van Allen Radiation Belts from the worst ionizing radiation.

Within a relatively short time over 500 ships would be servicing the growing habitation modules, and one of the industries will be the building of outgoing modules for higher and farther habitations at Geostationary orbit, L−5 and LL1. Spacecraft which cannot be launched from Earth will be built in orbiting space drydocks.

You can't stop it and I think that makes you feel bad enough to tell scary stories to frighten people.

.