Voyager Program

(From appendix F; Dr. von Braun, MSFC)

"Pending approval of the Voyager program by the Congress, we expect that the Marshall Center will play a major role in its development. Voyager is an unmanned spacecraft designed to go to Mars, explore the planet from orbit through photographic and remote sensor techniques, and send a lander to measure the Martian atmosphere and surface. The present plan is to fly four Voyagers, the first in 1973; the second in 1975; the third in 1977; and the fourth in 1979. Each mission would be launched by a Saturn V, and each flight will carry two independent planetary vehicles. Each of the planetary vehicles would consist of the spacecraft that goes in orbit around Mars and a lander that will soft land, unmanned, on the Martian surface.

The Effects of Space Flight on Man

(From appendix H; Dr. C. A. Berry, MSC)

Prior to Mercury and Gemini people in the biomedical community had some grave concerns about whether man could perform in a space flight environment. Not only that, but they had concern about whether he could even survive in it. There were predictions made about the environments, and about what was going to happen to man, and these are discussed.

For example, meteorite density and its effects were of concern, but this has not been a particular problem, as far as man has been concerned, thus far.

It has not been a problem to maintain pressure within the spacecraft and there has not been a loss by any spacecraft pressure except when done deliberately for EVA operations, nor has there been any inadvertent loss of any suit pressure.

There has not been encountered any significant radiation levels as yet, realizing that spacecraft haven't actually flown into the Van Allen Belt areas, with the exception of one flight where the area was just brushed by.

Isolation was predicted as a real problem. No confirmation of this has been seen. Physical confinement or restraint has been uncomfortable, but no serious effects have resulted.

The acceleration or gravity loads have been no problem. One problem that was not predicted to be a problem was the workload observed during extravehicular activity. Dysbarism or the bends was predicted, but this was prevented by denitrogenating the flight crew prior to launch by the use of 100 percent oxygen environment. No skil infection and skin breakdown was observed. There was some dryness and dandruff on some of the long-duration flights.

There was some minor interference with sleep, and some sleep cycles have been altered. There was some minor fatigue. No reduction in visual acuity was observed in a space-flight environment.

There were two effects that were not predicted, some eye irritation and some nasal stuffiness and hoarseness. These are thought to be related to the use of a 100 percent oxygen environment.

Disorientation and motion sickness were major predictions and this was not experienced within the spacecraft or in the extravehicular