

Mr. GURNEY. I am talking about Earth orbital missions.

Dr. MUELLER. The spacecraft that we are using for the resupply of the orbital workshop is, of course, capable of returning some individuals from the orbital workshop. The problem we have is that in order to carry out the rendezvous we need to send at least one man and normally two men up into the orbital workshop that then leaves at most one or two, generally speaking, one vacant seat to bring someone down. Therefore one would have to have three of these devices if you used a two-man flight to go up there. That will be considerably improved if we can in fact develop the land landing capability with the Apollo spacecraft and the ability to carry six men because then that would carry four or five people back from orbit on a single vehicle that might have a reasonable rescue capability. So in a sense, we are working on that, we are trying to develop the capability for this kind of an operation.

Mr. GURNEY. I guess you have answered my questions. Let me finish it off with another question. In examining the air taxi concept or shuttle concept, is your rescue mission or factor in this being given as much emphasis as recently the shuttle capability?

Dr. MUELLER. In all honesty at this point in time, we are primarily concerned with the development of the capability of rendezvousing and refueling.

Mr. GURNEY. Don't you think it would be a good idea to think of the other thing. You have the propulsion that is sufficient enough even for a six-man spacecraft.

Dr. MUELLER. I only pointed out that we are, in fact, looking at the other as well, but the constraints of, among other things, the budget limits the amount of effort we can devote to many things that would be very desirable.

Mr. TEAGUE. Do you have any questions, Mr. Roudebush?

Mr. ROUDEBUSH. No.

Dr. MUELLER. In the area of Space Science in Earth Orbit, the PSAC recommended the establishment and Earth orbit of a number of astronomical facilities which by the end of the 1970's will constitute an orbiting astronomical observatory (fig. 20, MC67-5993). We will present to this committee as part of the Apollo Applications missions, the Apollo Telescope Mount, which is a necessary preliminary step toward achieving this goal. The Apollo Telescope Mount will place in orbit astronomical instruments capable of gathering important solar scientific data. Later, if the advanced manned missions studies reach fruition, manned Earth orbital telescopes of 38-inch, 60-inch, and finally 120-inch configurations can be placed in Earth orbit.

It is of interest to note that even a 38-inch telescope in Earth orbit would be superior to the 200-inch Mount Palomar telescope in effective resolution capability as well as in spectral range. The 120-inch telescope should increase our capability for resolving celestial objects by a factor of 20, extend range by four magnitudes of brightness and allow observations to detect planets the size of Jupiter in orbit about the closest star Alpha Centauri.

Continuing on with the recommendations of the PSAC report in the area of Biomedical Studies and the Qualifications of Manned Prolonged Space Missions (fig. 21, MC67-5989), they recommend that