

ences. A Space Station Working Group later was added to integrate requirements and to consider corresponding configurations in earth orbit.

These in-house activities have, of course, drawn heavily upon the information obtained from our Advanced Study program over the past several years. But more important, the Planning Coordination Steering Committee has recognized the need for an integrated program utilizing each mode of operation, manned or unmanned where it is most effective.

Basic objectives unchanged

Throughout these planning efforts, the basic objectives we have previously reviewed with you have remained unchanged. We wish to explore the moon and the near planets; we wish to develop our capability to conduct earth orbital operations to serve science, particularly astronomy; to realize economic benefits to life on earth through earth-oriented applications; and to enhance our national security through R&D support of the Department of Defense and by developing new capabilities which are available for defense applications if needed. The pacing and scope of implementation, while recognizing current budgetary constraints, must be such as to stimulate a vigorous technology development which will lead toward U.S. preeminence in space activity.

MSF program evolution—Baseline program

The planning efforts I have described now enable us to define, as an example of possible options, a baseline program which eventually could logically grow out of Apollo Applications. This baseline program would provide long-duration earth orbital flight with a 9 to 12 man space station, and lead to manned planetary reconnaissance/exploration with the possibility of planetary sample return.

Three assumptions that we have made as the basic premise in defining the baseline program were that man will be used in space missions, that we will have an orbital laboratory workshop in being by 1970, and that we will maintain continuous space operations in the 1970's.

Our immediate objectives will be to determine the uses of men in space in four broad areas: to work over long periods of time; to make effective observations; to reduce the cost of acquiring scientific practical applications, and operational data; and to perform extended lunar exploration.

Manned space station

Such a baseline program is illustrated in these charts (fig. 106, MT66-10,256; fig. 107, MC66-5358A). In Apollo Applications, we could have 56 to 180 day earth orbital flights in 1968-69 evolving to 240 day missions in 1970 and a 1-year capability, with resupply and crew rotation, in 1971.

By 1973, we could fly a space station with an inherent 5-year lifetime which can have the potential of serving as the 2-year mission module for manned planetary exploration in 1975. In addition, it can provide a research and development and capability to advance our knowledge of astronomy, communications, and earth resources. At some point during the 1970's we would achieve the capability for continuous earth orbit. During this same time period, unmanned Mariner/Voyager missions would provide the necessary design validation data for the manned planetary spacecraft.

Manned planetary missions

A 1975 manned Mars exploration mission could have the capabilities of exploring Mars by remote sensors and, by means of an unmanned probe, of returning a sample of Mars surface material and atmosphere to earth for subsequent laboratory analysis. This mission could be followed by a triple planetary reconnaissance, Venus/Mars/Venus, in 1977. This later mission offers particular promise of early exploratory data on both nearby planets in the solar system with the possibility of sample return. It is important to note, however, that the opportunity for such a triple encounter may not occur again for a decade or more.

Manned lunar exploration

During this time period, manned lunar exploration could continue, starting with the Apollo Applications 3-14 day missions. Payload and mobility capability would be increased, employing a lunar survey module for surface exploration near the landing site. Later, manned scientific stations might be established with operational life times up to 3 months.