the spent stage. A hatch in the airlock permits the astronauts to go into space without depressurization of the workshop or the spacecraft. In orbital flight, the Command and Service Module docks with the airlock and the crew activates systems to pressurize the workshop for habitation. The experiment equipment for use in the workshop is stored elsewhere and carried into the workshop for operation.

An extensive list of experiments is planned for operation within the Orbital Workshop. Some are directed at evaluating the habitability of the workshop for long duration flight, the work capability, and mobility of astronauts in zero-g, and the effect of long duration zero-g on man. Others are directed at engineering and technology experiments which utilize the large enclosed volume of the workshop.

The Apollo Telescope Mount provide a new capability for a variety of solar and stellar scientific experiments to be performed above the Earth's atmosphere, where the Sun and stars can be clearly observed without being obscured by the Earth's atmosphere. Film can be returned from a space astronomy mission, and for the first time the role of the astronaut in astronomical observations can be evaluated. The ATM provides a stabilized platform which will be carried on Apollo Applications missions to accommodate instruments requiring finely controlled pointing. The ATM will be mounted in a structural rack attached to a Lunar Module ascent stage.

Five experiments using 13 separate instruments to obtain solar data during the period of maximum solar activity have been selected for development for the initial ATM mission. These experiments are: Intensity of solar flares; ultraviolet spectrometer; X-ray telescope; solar atmosphere photography; and white light coronagraph.

Applications experiments are planned to develop techniques for, and to measure the effectiveness of, man's participation in such fields as orbital meteorology, communications, and remote sensing of Earth resources. Low-altitude orbits at medium and high inclinations have been studies for meteorology and natural resources missions during 1969 and 1970. An initial synchronous orbit mission is planned to test man and spacecraft operation in that operational mode. Also planned is a test of operational techniques for communicating between the low-altitude manned spacecraft, synchronous spacecraft, and ground control stations. Later synchronous orbit missions are under study for continued operational use, as well as for experiments in astronomy, space physics, meteorology, and advanced communications techniques.

The extended lunar exploration missions planned for Apollo Applications include both orbital mapping missions and extended lunar surface exploration. The objective is to extend knowledge of the Moon beyond that achieved in the earlier Ranger, Surveyor, Lunar Orbiter missions, and Apollo missions, and to provide the basis for the decisions on the establishment of semipermanent or extensive research facilities or manned stations on the Moon.

The lunar orbital missions are planned to acquire high-quality mapping and survey photography from polar or near-polar lunar orbits. This will allow the detailed study of the geologic features of the total lunar surface. Lunar surface missions are planned to provide up to 2 weeks staytime at selected lunar sites for extensive geological, geo-

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