instruments, cameras, electronic equipment and other devices we will study and develop efficient and effective means of living and operating in this orbital environment.

In the Orbital Workshop, we will investigate questions such as how much cubic footage do we need for routine functions of life, experiments for science, maintenance of equipment.

What is an optimum floor plan for crew quarters and work stations? What is the best way to sleep in the zero gravity of space? What forms of exercise are most effective in keeping a crew physiologically fit?

We will investigate methods of food preparation, types of food, provisions for personal hygiene, management of human wastes, ways of "keeping house."

We can learn the best means of moving from place to place under zero gravity and restraining ourselves at work stations. Here we will be able to build on our earlier expeirence during similar work in Gemini, but in a controlled environment.

The data from our experiments will be used in planning and developing both the later flights in Apollo Applications and the flights for future programs. Our experiments will be instrumental in making the most effective use of man during long-duration missions in space.

In effect, the Orbital Workshop may be considered an embryonic space station. It increases our useful habitable workspace volume by a factor some 30 times greater than provided by the Apollo Command Module Spacecraft. This Orbital Workshop can be exploited to make many contributions in the major fields of space science, earth-oriented applications, and support for space operations.

EXPERIMENTS

Five types of experiments will be flown on flights of the first Apollo Applications mission: Scientific, Technological, Medical, Engineering. Some of the experiments support Department of Defense studies.

SCIENTIFIC EXPERIMENTS

The scientific experiments are designed to take advantage of space operations to learn more about the universe, the space environment, and the phenomena that exist in the solar system that affect the environment of man on earth.

Scientific experiments and their objectives are as follows:

(1) *Synoptic Weather Photography.*—Obtain selective, high quality, color cloud photographs for studying the fine structure of the earth's weather system.

(2) *Nuclear Emulsion.*—Investigate the physical and chemical characteristics of cosmic radiation in near earth space.

(3) *X-Ray Astronomy.*—Study X-ray sources originating beyond our system to determine source position and strength.

(4) *Micrometeorite Collection.*—Collect and study composition and flux rate of small micrometeorites in near earth space.

(5) *Ultraviolet Steller Astronomy.*—Obtain ultraviolet spectrum photographs of stars to determine their temperature and composition.

(6) *Ultraviolet Airglow Photography.*—Photograph and study the airglow band surrounding the earth to determine its characteristics and composition.

(7) *Multiband Terrain Photography.*—Photograph the earth's surface in four different spectral regions to determine earth's characteristics and resources.

(8) *Ultraviolet/X-Ray Astronomy.*—Obtain detailed information about the sun in the ultraviolet and X-ray emission regions.

TECHNOLOGICAL EXPERIMENTS

The technological experiments are designed to learn more about the space operational environment to improve man's ability to operate effectively and perform useful work in space.

Technological experiments and their objectives are as follows:

(1) *Manual Navigation Sightings.*—Evaluate the ability of a navigator to accurately measure the angle between celestial bodies with a hand held sextant.