

## ASTRONAUTICS

# Propose Moon Base

AS A FIRST step to building a permanent base on the moon, The Martin Company has proposed to the National Aeronautics and Space Administration a "lunar housing simulator" in which five men could live indefinitely.

One of the simulator's chief purposes, said Dr. James G. Gaume, head of Martin's space medicine work at Denver, Colo., would be to permit scientists to "close and balance" the ecological system of men, animals and vegetation so they can live harmoniously as a self-sustaining unit.

In doing this, scientists would seek the best ways to process all wastes from humans, animals and vegetables to obtain nutrients for plants and algae. They would seek to extract water from the sealed-in atmosphere and, after harvest, from chemical solutions in which plants had been grown. Dr. Gaume said getting water that way might be better than trying to recover it from human wastes, as has been proposed earlier.

The lunar simulator would be built of steel. It would consist of two spheres. The 32-foot-diameter inner sphere would be the space lab. This would be surrounded by a 55-foot outer sphere. The inner sphere would have half an atmosphere's pressure, about the equivalent altitude of 18,000 feet. (Mt. Everest is 29,000 feet high). The space between the two spheres would be at the near-vacuum atmospheric pressure equal to an altitude of 100,000 feet.

This roughly would correspond to space conditions. Men would enter the simulator through air locks in a long tube. The tube terminates at an elevator shaft. The ele-

vator would carry them to the inner sphere, which is supported on legs.

On the first floor would be mechanical equipment for processing wastes, extracting water and air conditioning. The second floor would be crew quarters having bunks, a kitchen, recreation room and library suitable for five men. The third floor would be the hydroponic farm where algae would be grown in chemical solution to replenish the air with oxygen; some small animals also would be installed on this floor. There would also be a small laboratory next to the elevator shaft that could be used to support the scientific work.

The fourth floor would be the hydroponic farm in which vegetables would be raised.

Science News Letter, May 30, 1959

## CARTOGRAPHY

## Survey Completes Large-Scale Maps of New York

THE GEOLOGICAL Survey has just published the last in a series of 28 large-scale maps of metropolitan New York City.

For the first time, the area has been completely mapped, topographically, at a scale of 1:24,000, or one inch to each 2,000 feet.

The latest map, the Central Park Quadrangle, covers about 60 square miles in the heart of the city, a tract representing seven and one-half minutes of latitude and longitude. Each previously published quadrangle in the series covers the same amount of area.

The area of the Central Park map includes Manhattan north of Pennsylvania Station, a section of northwest Queens in-

cluding most of La Guardia Field, most of Rikers Island, western Bronx, and Cliffside Park, Englewood and Fort Lee in New Jersey.

The five-color map depicts elevations, most schools, hospitals and important buildings; bridges and tunnels; streets, railroads, and many other detailed features.

By late 1960 the Survey hopes to publish seven composite maps compiled from the presently available 28 quadrangles. This is in line with its policy of producing what are referred to as city-and-vicinity maps, for handier use.

The Central Park quadrangle, or any of the other 27 quadrangles covering metropolitan New York, are available at 30¢ each from the Geological Survey, Washington 25, D.C.

Other maps are also available. The Survey has said that only 40% of the country is adequately mapped. Consequently it is in the process of mapping the entire United States in one or the other of the two scales, 1:24,000 or 1:62,500. Only populated, industrial or other special areas will be mapped in the larger scale.

Index maps of each state, Hawaii and Puerto Rico, showing areas covered by topographic maps and at what scale, can be obtained free from the Survey.

Science News Letter, May 30, 1959

## ASTRONOMY

## New Device Records Star's Ultraviolet Light

ASTRONOMERS at Case Institute of Technology, Cleveland, Ohio, are using a new device, the first in the United States, to record ultraviolet light from faraway stars.

Called an ultraviolet prism, the device permits astronomers to analyze invisible radiations given off by stars 6,000 times as bright as the sun. The stars in which they are particularly interested are thousands of light years away in the outer spiral arms of the Milky Way galaxy, the gigantic pinwheel of billions of stars in which the sun, earth and other planets are located.

The National Science Foundation granted Case \$10,500 to purchase the device, which was made by the Perkin-Elmer Corporation. The prism is installed at the eyepiece of the Schmidt telescope located near Chardon, Ohio, reported Dr. Jason J. Nassau, Case's astronomy department chairman.

It will be used to study the "blue" stars, classified by astronomers as the OB group. Much of the radiation emitted by these relatively young stars, with ages measured in millions instead of billions of years, is in the ultraviolet range.

Ultraviolet rays are the part of the sun's light responsible for tanning skin.

The prism is two feet in diameter and weighs 72 pounds. It breaks up the star's radiations into a band of rays that can be photographed and studied. Very faint stars can be photographed using the device, so discoveries of previously unrecorded blue stars are expected.

Science News Letter, May 30, 1959



**MODEL MOON BASE**—The lunar simulator proposed by the Martin Company is shown in this model, in which can be seen the various floor levels, laboratories and work areas planned for the moon building. The outer sphere would have a 55-foot diameter while the inner sphere, the space laboratory, would have a 32-foot diameter.