aerospace

NASA POLICY

Science advisory board

As a research and development agency, the National Aeronautics and Space Administration has relied heavily on advice from the technical and scientific communities. Over the past decade, this has been accomplished largely through six committees and sundry other groups in areas such as astronomy, lunar and planetary sciences, science and technology, physics, and space science and applications.

Now, however, scientific payloads are becoming more complex—one spacecraft may carry experiments in physics, biology and astronomy—and a less fragmented approach is needed. So NASA created one council last month to replace the former ones—the Space Program Advisory Council (SPAC).

SPAC's chairman is Dr. Brian O'Brien, a physics consultant. SPAC has four committees. Dr. Shields Warren of the Deaconess Hospital in Boston will chair the one on life sciences. (As a physician he pioneered in the use of and protection from radiation in medicine.) Courtland Perkins of Princeton University, an aeronautical engineer, was appointed chairman of the space systems committee. Dr. William Fowler of the California Institute of Technology, best known for his work in nuclear astronomy and physics, will chair the physical sciences committee. Chairman of the applications committee which will include the expanding field of earth resources, will be Dr. Brockway McMillan, vice president of Bell Telephone Laboratories. His background is largely in mathematics and communications theory.

Executive secretary of the council is George H. Duncan of NASA. Ex-officio members are Dr. Homer E. Newell, NASA associate administrator, Dr. Charles H. Townes, chairman of the National Academy of Sciences Space Science Board, and Dr. Ray Bisplinghoff, deputy director of the National Science Foundation.

APOLLO 16

Microbe response to space

The Russian Vostok series and NASA's Geminis 9 and 12 and Biosatellite 2 carried microorganisms into space to study the response to weightlessness and to changes of oxygen pressure. The results showed that the space conditions altered the growth and mutation rates of the microorganisms.

In March 1972, on Apollo 16, NASA will fly another microbiology experiment. Its purpose will be to study the differences in these growth rates and the manner in which the mutation occurs. Studies of the genetic factors and the responsive alterations stimulated by ultraviolet radiation are also prime objectives.

Dr. Gerald Taylor of NASA's Manned Spacecraft Center in Houston is the principal coordinating scientist. Two types of fungi, *Rhodotorula glutinis* and *Chaetomium globosum,* and five kinds of bacteria—*Streptococcus mitis, Escherichia coli, Bacillus subtilis, Aeromasas proteolytica* and *Pseudomonas boreopolis*—will be used. Viral phage particles will be included with some of the bacteria.

The microorganisms will be carried in a small package containing three separate trays. Each tray will contain 280 chambers into which temperature sensors, ultraviolet measuring solutions and the microorganisms will be placed. Dr. Taylor estimates that about 60 million organisms will be used for the experiment, two-thirds in a dry state inside the chamber and the rest in a water suspension.

The package will be placed outside the spacecraft for a 10-minute exposure on the way back from the moon.

GEOLOGY

Earth rocks to the moon

Moon rocks are characterized by a lack of water and other volatile materials found in terrestrial igneous rocks. They have been weathered or eroded by very different processes, such as solar wind bombardment. Scientists do not know for sure how fast the volatile materials were lost from the moon rocks or even if water was ever present. They need baselines for determining the types and rates of the weathering processes.

A unique experiment that might help interpret these lunar characteristics has been proposed to NASA by a science panel of the Colorado School of Mines. It is called project "Switcho."

The researchers propose that pieces of common earth rocks, including sulfides, sulfates, clay and earth-captured meteoric material, be taken to the moon. Some of the rocks would be exposed to the lunar conditions and returned to earth on the same Apollo flight. Another set of samples would be left on the moon to be brought back years later.

Scientists would then be able to tell how certain minerals are degraded on the surface, how much erosion occurs during a certain period, and whether the volatile elements of the igneous rocks are lost.

"The lunar surface would be used as a laboratory," says Dr. Ramon E. Bisque, originator of the proposal. "It is the consensus," he says, "that simultaneous simulation of all the factors contributing to the uniqueness of the lunar surface environment is impractical if not impossible on earth."

INTERNATIONAL EXCHANGE

COSPAR meeting in U.S.

The fourteenth meeting of the Committee on Space Research (COSPAR) will be held this year in Seattle, June 17 to July 2. The National Academy of Sciences, host of the meeting, announced the topics for discussion last week.

Results of both the United States' and the Soviet Union's lunar and planetary programs will be discussed. (At least 30 delegates are expected from the U.S.S.R.) Studies on weightlessness, gravity waves, solar flares and the possibilities of Martian life will be presented. For over a decade now, one of the chief concerns of the International Council of Scientific Unions (ICSU), which organized COSPAR, has been the possibilities of contaminating other planets with terrestrial microbes. This issue will again be probed. Topics for other working groups include the 1970 solar eclipse, the results of astronomical experiments in space, the use of stratospheric balloons in research and results from the lasers left on the moon.