SPACE

Keep Mars "Clean"

Irreparable damage will result, if scientists, seeking prestige in the race for Mars, neglect sterilization and possibly contaminate the planet—By Ann Ewing

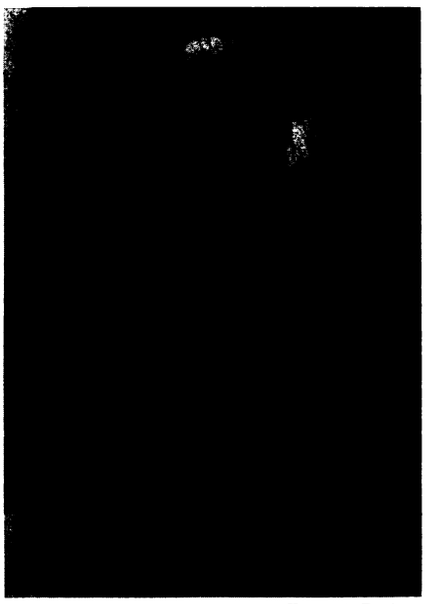
➤ THE RUSSIA-U.S. space race must not "mess up Mars" by contaminating the planet with earth bacteria.

This was the unanimous agreement of eight of the nation's top space scientists attending the 100th annual meeting of the National Academy of Sciences at Washington, D. C.

They also agreed that the question of life on Mars was of "highest importance" and could not be determined if space vehicles, whether manned or carrying only instruments, were not sterilized before being sent to the moon or planets.

Dr. Colin S. Pittendrigh, Princeton University biologist, urged President John F. Kennedy to announce that this country's national policy is to pursue the Martian life question with the "rigorous understanding" that it was not a prestige race and that no attempt to land would be made unless the U.S. was confident that the contamination danger was the lowest possible.

Dr. Pittendrigh also said that the U.S. should not be involved in a narrow nationalistic race to be ahead of other nations in landing on the moon or planets.



Fremont Davis

PROBLEM SOLVING—Dr. Lewis Slack, director of physical science, National Academy of Sciences, works on a puzzle that schematically represents the mathematical techniques used in an International Business Machines computer for solving business and management problems. The exhibit was displayed during the Academy's 100th annual meeting.

If scientists relax sterilization standards in their race to be first, there is grave risk of ruining forever the "irreplaceable opportunity" to inspect the solar system uncontaminated by the drastic changes earth bacteria could cause.

Concerning the risk of so-called "back contamination"—or bringing back other, possibly deadly, forms of life from other planets—Dr. Pittendrigh said that some form of quarantine would be necessary. This applies to spacecraft returning from the moon, although scientists believe there is little likelihood of life there, but particularly to vehicles returning from Mars, believed the most likely candidate for extraterrestrial life in the solar system, if any.

Dr. Pittendrigh said that an epidemic caused by such imported organisms was "highly unlikely," but should be guarded against.

The eight scientists were also unanimous in agreeing that there should not be a slowdown in the U.S. space effort, as has been suggested editorially in Science, journal of the American Association for the Advancement of Science, and by others. However, the space program's aim should be redirected more toward science and less toward adventure, they believe.

To achieve this, they urged an educational program for both the public and Congress so that everyone would be more interested in whether the first spaceman to land on the moon finds dust there than such "trivialities of daily living" as how he squeezed food from a tube.

The space program will bring broad, now unforeseen, advances, Dr. Martin Schwarzschild of Princeton University Observatory predicted. Just as the Egyptians could not know when they built the pyramids what are now considered the priceless relics of the time, neither can we know now what will be the most valued results of the space race in times to come.

Dr. Harold C. Urey, Nobel Prize winner now at the University of California, San Diego, said it was up to the scientists to make sure that something more permanent than "adventure" resulted from the space program.

National prestige as well as adventure is involved, Dr. Thomas Gold of Cornell University pointed out. The problem, he said, is for the public to understand the long-range values of space exploration.

The scientists all expressed concern that the U.S. space effort was turning into an "out-and-out" prestige race with Russia instead of being undertaken for its own sake. They are convinced the benefits from space exploration make the venture extremely valuable in itself without need for justification.

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Radio "Stars" Identified

➤ ODDBALL radio "stars," a puzzle to astronomers since their discovery, have turned out to be exploding gas clouds in distant galaxies.

This is the "only reasonable interpretation" of the small radio sources, Dr. Jesse L. Greenstein of Mt. Wilson and Palomar Observatories, Pasadena, Calif., told the 100th annual meeting of the National Academy of Sciences at Washington, D. C.

The radio stars 3C-273 and 3C-48 are two billion and four billion light years away. In order to be observed at such a great distance—one light year is the equivalent of six million million miles—the brightness of the radio stars must be "approximately 100 times that of our own galaxy," Dr. Greenstein reported.

This glare of light results from synchrotron radiation and "enormous clouds of gas" weighing thousands of times as much as the sun that obscure viewing objects near the radio stars.

"If there is any galaxy of ordinary stars present, it is invisible," Dr. Greenstein said. A "giant explosion" must have occurred about 100,000 years ago as time is measured in these distant galaxies.

Study of the radio stars may lead to photographs farther out among the galaxies than was ever thought possible. It is expected that the strong radiation sent out by the radio stars will enable astronomers to detect objects more than eight billion light years away.

Discovery of other fainter radio stars with a red shift similar to 3C-273 and 3C-48 should help "illuminate the problems of the expansion of the universe," Dr. Greenstein said.

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METEOROLOGY

Worldwide Weather Service Planned

➤ PLANS for a worldwide weather service were outlined by the National Academy of Sciences-National Research Council in Washington, D. C.

Recent advances in science and technology combine to make this "an opportune time" to increase man's understanding of the "behavior of the atmosphere," to put weather forecasting "on a firmer scientific basis" and to explore the possibilities of making large-scale changes in "weather systems and climate," officials said.

Mastery of space and use of atomic energy for industrial purposes depend on extended knowledge of the atmospheric processes, they said.

Collaboration between scientific institutions and national governments "to raise the effectiveness of the meteorological services on a worldwide basis" was requested.

The plans were drawn up by an Academy-Research Council panel headed by Dr. Sverre Petterssen, professor of meteorology at the University of Chicago, under the direction of the Geophysics Research Board led by Dr. Merle Tuve of the Carnegie Institution of Washington.

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