ASTRONAUTICS

Space Leadership Lacking

The United States' space program has been severely criticized by some scientists during a meeting at which some of the latest space research developments were discussed.

THE LACK of decisions and direct leadership has caused a bigger snag in this country's race for space than lack of money, a pioneer in the development of the German V-2 rocket said.

"There are too many people who can say 'no' and not enough people who can say 'yes' when a decision should be made," Dr. Walter R. Dornberger, vice president and director of engineering at Bell Aircraft Corporation, Buffalo, N. Y., told SCIENCE SERVICE. The German-born scientist presented a paper at a lecture series on aero space medicine held at Brooks Air Force Base, Texas.

He compared project Mercury, the United States' attempt to send a man into space and recover him, to packing sardines into cans. The U.S. is now concentrating its efforts on small projects but what is needed is development of heavy thrusts that can lift tons into space, he said.

Predicting that chemical fuels will be used for initial thrust and nuclear power for upper stages, Dr. Dornberger then stressed the importance of harnessing solar energy. He also predicted future space crews will not wear clumsy, uncomfortable pressure suits, but loose-fitting clothing.

Some day, in the not too distant future, man will utilize space, he said. Presently, however, man is only observing space. Dr. Dornberger envisions space ferries that will carry men to space ships operating only in space.

Space will then be used for navigational purposes, communications (a letter could be sent to any spot on the globe in one second), and observation of earth. There is a possibility other planets will yield new elements that may become as precious as diamonds or gold or as useful as iron.

In addition, he said, man may find new sources of food and energy that can be brought back to the earth. If Christopher Columbus were alive today, he would have sent a missile to observe the Western Hemisphere and he would have determined the location and size of the hemisphere with automatic instruments aboard. Man will soon investigate other planets in this manner and, perhaps, find even more interesting discoveries, Dr. Dornberger said.

Monkey to Be Mated

SAM, the seven-pound rhesus monkey that soared into space last Dec. 4, may next year have as a mate the female monkey scheduled for a space trip the end of January.

Dr. James Green, medical physiologist at the School of Aviation Medicine, Brooks Air Force Base, Texas, said that much can be learned, however, even if Sam is mated with a grounded female monkey. Scientists want to know what effects, if any, exposure to cosmic radiation has had on Sam's ability to reproduce and whether or not the offspring will be normal.

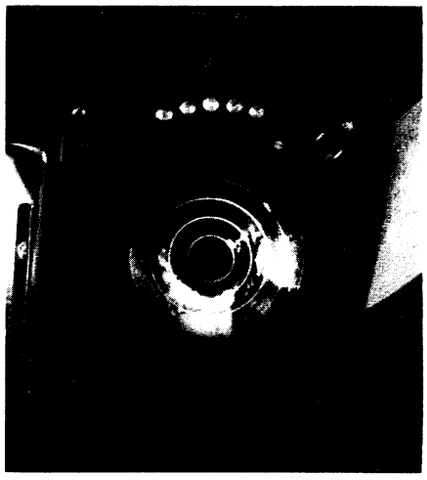
The "Little Joe" shot carried Sam 55 miles into a heavy band of radiation. The next "Little Joe" shot will be from Wallops Island, Va., location of the last shot. Scientists expect this shot to yield more information than the last, and the space path of the shot will be different, Dr. Green said. A male monkey may make the shot, instead of the female scheduled to be Sam's mate.

Dr. Harry Gorman, chief of the veterinary services at Brooks Air Force Base, pointed out that male monkeys do not mature until they are at least three and one-half years old. Sam is only two and a half. On the other hand, female monkeys are interested in a mate when they are just two years old.

Glasses for Space Travel

AMERICANS some day soon will purchase sunglasses that are so light sensitive they will automatically adjust to the amount of brightness in a room or outdoors.

These glasses are now being developed by the National Cash Register Company for the United States space program. Their use in space will reduce the hazard of possible eye damage that occurs when the retina of the eye is exposed to darkness followed by sudden brightness, Dr. Hubertus Strughold, adviser for research, School of Aviation Medicine, Brooks Air Force Base, Texas, said.



DAYLIGHT INDICATOR — The image of this indicator is 1,000 times brighter than a previous model. Developed by Sperry Gyroscope Co., Great Neck, N. Y., the indicator, when used with radar, will enable pilots to obtain correct weather information even in strong sunlight or glare.

The German-born scientist described the visual condition that will be experienced by man in space flight as "black and bright" in a paper presented at a lecture series on aero space medicine.

The human eye will see either black or white-light brightness, depending on where the sunlight falls. This is because there are no particles to diffuse light in space, Dr. Strughold said, thus, there are no shades of gray. Intense darkness dilates the pupils of the eye, but when the spaee ship shoots into bright light, the wide-open pupil cannot close rapidly enough to prevent bright light from hitting and scarring the retina of the eye.

Since a man in a space craft cannot act fast enough to avoid such exposure, scientists are now perfecting glasses that will automatically react in time to prevent such damage to the retina, Dr. Strughold said.

A scar on the retina of the eye will produce a blind spot in vision, Dr. Strughold said. Recalling his childhood, Dr. Strughold told SCIENCE SERVICE that at the age of 11 he covered his left eye and gazed at a solar eclipse with his right eye, which was covered by an inadequate piece of smoked glass. He scarred the retina of his eye, producing a blind spot.

The scientist explained that if he looks at a person's head with the right eye only, the person appears to have a hole in his head.

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PHARMACOLOGY

Mosses Inhibit Growth Of Bacteria and Fungi

ANTIBIOTICS from common mosses may result from some studies reported by a team of Arizona State University researchers.

Sources of antibiotics include the flowering plants, algae and lichens as well as the "more highly advertised fungi." Since there are few published cases of fungi being parasites on mosses, some mosses were studied to see if they contained some special substance.

Three mosses collected locally were found to inhibit the growth of *Micrococcus flavus, Streptococcus pyogenes, Candida albicans* and *Micrococcus rubens,* the scientists say in *Science* (Jan. 8). Somewhat less than one-half pound, 200 grams, of each kind of moss was mashed in a blender along with various solvents and the extracts salvaged.

Antibiotic activity varied, James A. McCleary, Paul S. Sypherd and David L. Walkington point out. The extracts were not always effective against the same organisms. There is evidence that several antibiotic compounds may be involved since extracts of the same moss species by different solvents gave different results.

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