

Texas. The mice are special Air Force C-57 blacks, raised at the space animal institute at the School of Aviation Medicine. Both white rabbits and gray chinchillas also are bred there, while cats and rats are supplied by specialists in research animal breeding. This varied space menagerie is under the tender loving care of Col. Harry Gorman, veterinary surgeon.

Col. Gorman told SCIENCE SERVICE that the cats, rats and rabbits are making equally important if less spectacular contributions than have the space-flying mice and monkeys to our national space effort.

The rats have been used in experiments designed to show the effects of motion, vibration and other forms of stress on the digestive system. The rabbits are relaying information about the effect of radiation exposure from internal dosimeters attached to their spleen and an area above the kidney. Radiation is one of the major hazards of space travel.

Aeromedical experiments with cats may have saved countless lives from fatal concussion, a hazard of jet aviation as well as space flight, Col. Gorman said.

The biopack on Sally, one of the three black moustronauts that traveled 5,000 miles through space last Oct. 13 in the Air Force Atlas nose cone, was painlessly attached to the skin of the tiny space pioneer who was first anesthetized in a Gorman-designed and built anesthetic chamber for mice. As important as may be the information received from the high-flying mice, Col. Gorman believes monkeys and other primates can contribute more to men in space.

Presently six rhesus monkeys are being prepared for an orbit in a Discoverer satellite scheduled for launch in the very near future.

"All are equal in training and physical qualifications," Col. Gorman said. "And prior to launch, just as in the case of the Mercury astronauts, we will select the one we believe to be best qualified."

The space monkey chosen to go will be confined prior to launch anywhere from 12

to 30 hours, just as the Mercury astronaut will be. If for any reason the missile is not ready to go, the selected candidate, whether monkey or man, will have to yield his place to one of his stand-by companions.

Man's place in space is yet to be achieved. So far animals have far surpassed man's exploration of the outer atmosphere. The success they have achieved in withstanding short-range flights in space have prompted researchers to long-range studies and preparation for more extended space flights for animal astronauts.

Assess Animal Performance

Dr. C. P. Crocetti, a member of the U. S. Air Force's Air Research and Development Command's behavioral sciences advisory panel, has assembled a group of psychologists who are developing a general research program for assessing animal performance in an orbiting vehicle. The program is aimed at answering these questions:

"Can behavior of the simplest types, even well practiced, be maintained by animals in a space environment?"

"Are the major visual and auditory processes affected?"

"Are the protective processes of the organism that must be used in dangerous situations still functional under conditions of prolonged space flight?"

"What effects do repeated flights have on the animal?"

The advanced training activities required to produce the answers to these and other questions will be concentrated at the new comparative psychology branch at Holloman under the leadership of Dr. Frederick Rohles, an Air Force major.

Prolonged training of chimpanzees as well as other animals will be under his leadership. The work is planned to develop special space-oriented feeding devices and parachute-box cages; new techniques for testing monitoring and response capabilities, and experimental vehicle designs and equipment.

• Science News Letter, 79:10 January 7, 1961

AEROMEDICINE

Test Against Irradiation

➤ NONE OF THE MATERIALS tested as protective or therapeutic agents against radiation damage can be endorsed without qualification, two scientists from the Argonne National Laboratory, Lemont, Ill., reported in San Antonio, Tex.

The most successful approach to the problem of recovery in irradiated animals has been the use of bone marrow injections, Dr. John F. Thompson and Dr. Harvey M. Patt have found.

However, a serious deterrent to using transplants is secondary radiation sickness arising several weeks after the animals have recovered from the acute phase of radiation damage. This has been demonstrated primarily in studies with small rodents, as well as dogs, chimpanzees and monkeys. Bone-marrow treatment has been most effective in monkeys.

In the limited use of bone-marrow injections in man, in a few cases of attempted

treatment of leukemia and for five victims of radiation from a reactor accident in Yugoslavia, there was no "clear-cut evidence of a 'take' of the transplanted marrow" in any case, the Argonne scientists found.

The reactor victims showed a dramatic response to the injections of bone marrow, and their recovery from the effects of mixed neutrons and gamma radiation was apparently accelerated. Possibly the most practical solution for post-irradiation treatment of man would be the use of "autologous" marrow.

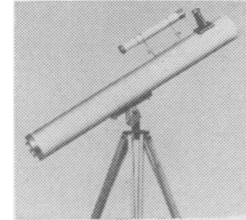
For example, if a man were to venture into space knowing he would be exposed to radiation, some of his bone marrow could be removed and stored until after exposure and then re injected into him. The procedure works well in dogs, the scientists said, and might be of value for man.

• Science News Letter, 79:11 January 7, 1961

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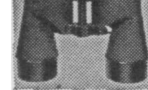


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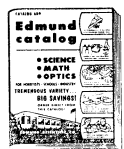
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