

Crew Is Accompanied By Spiders and Mice

Special to The New York Times

CAPE KENNEDY, Fla., July 28—When the Skylab 2 astronauts left the earth today, they were accompanied by a menagerie of tiny creatures—pocket mice, minnows, vinegar gnats, flies and two female spiders.

This unusual cargo was part of more than 60 scientific experiments scheduled to be performed during the planned 59-day Skylab 2 mission in earth orbit.

The mice and the gnats rode in a self-contained living compartment inside the service module, the equipment unit at the rear of the Apollo command module. The fish and spiders were to be taken into the Skylab workshop. The flies were going along as food for the spiders.

The two spiders, named Arabella and Anita, were included in the mission at the suggestion of Judith Miles, a 17-year-old high school student from Lexington, Mass. She is one of 19 high school students around the country whose experiments were selected for the mission.

"I thought it would be interesting to see how weightlessness would affect their web weaving," Miss Miles explained.

The cross spiders were chosen because they are common and their web-building habits have been well studied. Females were picked because they are better at spinning webs than males.

The spiders went into space inside a traveling case about the size of a cigarette package. In the next two or three days, the astronauts are to put the spiders in a 15-inch-square cage where they can observe and photograph the spiders' activities.

On earth spiders use two organs on their forelegs to determine the direction of gravity—up from down. Without gravity, will the spiders have trouble spinning their web? Will the patterns of the web be different? These are among the questions that Miss Miles



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Dr. Peter N. Witt, research director of North Carolina Department of Mental Health, measuring size of web spun by a cross spider. Two of the spiders are on present Skylab mission to enable scientists to study effects of weightlessness on web-building.

hopes to answer after analyzing the astronauts' pictures of Arabella and Anita in orbit.

It was Dr. Owen K. Garriott's idea to take along two minnows and 50 minnow eggs. He is the mission's scientist-astronaut, and he wants to see if fish will become disoriented in weightlessness and swim in spirals instead of a straight line.

The two live minnows should live about two weeks after they arrive at Skylab. By then

the eggs should hatch, giving the astronauts about five weeks to observe the fish adapting to zero gravity in their plastic aquarium.

The mice and gnats are part of a study to determine if space flight alters the daily physiological rhythms, or biological clocks, of mammals or the emergence of gnats from the pupal stage.

During the flight, body temperatures and activity level of the six mice will be monitored

automatically and this data will be compared with the performance of ground-based mice.

Experiments on earth show that vinegar gnats do not emerge from the pupae as adults until some kind of internal signal is given. This signal can be triggered by a flash of light in the laboratory.

So on Skylab a light will be flashed in the gnats' darkened container at different times for the four groups of pupae to see if the gnats emerge in different ways and times in weightlessness.

Rhodesian Students Protest Charges Against University

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SALISBURY, Rhodesia, July 28—About 300 students of the multiracial University of Rhodesia demonstrated yesterday against allegations by a member of Parliament that the university was "a center of filth,

prostitution and trouble-making."

The police stood by as the students, most of them black, marched past Parliament and the office of Prime Minister Ian J. Smith.

The target of the protest demonstration, which was peaceful, was Rodney Simmonds, a Government Member of Parliament who had said on

Wednesday that there had been a "deplorable decline in civilized standards" at the university. Mr. Simmonds said in Parliament that in one residential block, prostitutes accosted students in their rooms and there were pools of urine on a washroom floor.

The university principal, Prof. Robert Craig, characterized Mr. Simmonds' remarks as "nonsense."

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