

Russians Reach Venus

The Soviet spaceship that apparently landed on Venus means relatively little to the US-USSR lunar race, but two dogs tell a different story—By Jonathan Eberhart

➤ ON MARCH 1, a Russian spaceship landed on Venus. But was it supposed to? And when it landed was it "clean," or did it bring with it tiny germs from earth that could ruin the planet for biological investigators?

And for that matter, some scientists have asked, did it really land at all? Signals from the spacecraft cut off before the possible impact time, and one theory is that the Soviet Union was merely salvaging what it could from an attempted fly-by that crashed.

Assuming that it actually did land (reportedly carrying a Soviet flag), then, if the landing was unintentional, the only real question is whether or not the spacecraft contaminated the planet. Similarly, there would be little to gain from a vehicle that was supposed to orbit the moon crashing into it instead.

The danger of contamination by foreign microorganisms is a very real problem. A spaceship from earth, unless it had been carefully sterilized by exposure to heat, or gas, or both, could set loose on another planet any number of tiny creatures that the planet's natural defenses were not equipped to handle.

An official of the National Aeronautics and Space Administration has estimated that a single bacterium with a reproduction time of 30 days, if

turned loose on Mars could equal the bacteria population of earth in a mere eight years.

If the Soviet Venus landing was deliberate, however, the implications are of a different sort. Besides the biological question, there is the ever-present matter of where the U.S. now stands in the space race.

Since the landing was apparently not a soft one, the only credit due the Russians is for good marksmanship. Nevertheless, this is important, since the difficulties of hitting the target multiply enormously over greater distances. When the U.S. Mariner 4 flew by Mars at a distance of less than 6,000 miles, it had a lot more latitude in which it could complete its mission successfully than if it had had to hit the planet, which is little more than 4,000 miles in diameter.

Does the feat put the Russians any closer to the moon? Well, the Soviet news agency, Tass, said the "precise rendezvous of the probe with the planet was achieved as a result of a mid-course correction of the flight trajectory." Such corrections will be equally critical on lunar flights, both U.S. and Soviet. But the Mariner flight required such changes, as did the Ranger lunar flights that took pictures and then crashed (both goals intended).

Another Russian space feat eight days

earlier, however, does indicate a difference in national space policies. On February 22, two dogs named Veterok (Breeze) and Ugolyok (Little Coal Nut) were launched into orbit aboard Cosmos 110. Television pictures of the dogs were sent back to earth. But what does this mean? The age of dogs and monkeys going into space was supposedly over years ago.

And that is exactly the point. Before several cosmonauts had shown variations in blood pressure and other physiological functions the Soviets presumably had no thoughts of sending dogs aloft again. However, difficulties with humans set Russian space scientists to improvising, and the result was an orbiting animal laboratory.

Such flexibility as this—adding a special-purpose flight in mid-program—is unlikely to be seen in the U.S. lunar effort, which is already blueprinted all the way to the moon with the exception of an occasional change in flight plan or the addition or subtraction of a practice flight.

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SPACE

All Apollo Programs To Be Going by June

➤ ALL FOUR of the key programs for putting a man on the moon will have taken to the air by June, if everything goes well.

The first Apollo spacecraft ever to actually aim for space was launched Feb. 26 from Launch Complex 34 at Cape Kennedy, Fla. The Gemini manned program is more than half completed and the first Surveyor robot will be sent to soft-land on the moon probably in May. A month later, the first of three Lunar Orbiters will be launched to photograph possible landing sites for Apollo astronauts.

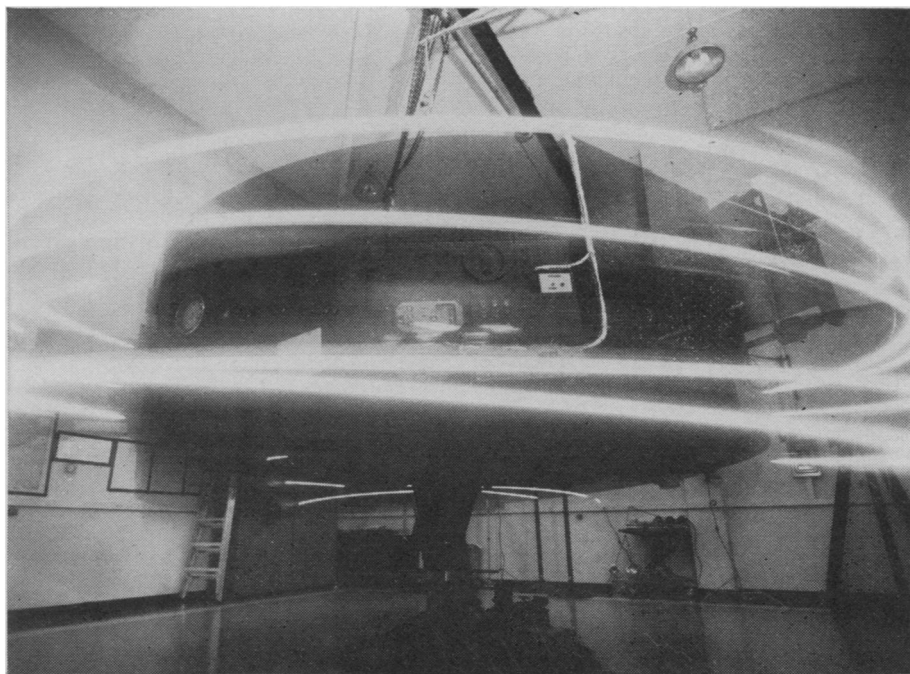
Sometime in the spring, a second unmanned Apollo will be launched, and in late summer a Saturn IB booster will follow, with no spacecraft atop it, in order to test the effect of weightlessness on liquid hydrogen fuel.

After these tests three astronauts may be sent into orbit aboard a fully "humanized" Apollo. If difficulties crop up in the meantime, however, another unmanned test will be scheduled.

The Apollo shot was postponed several times due to cloudy weather and the resulting poor optical tracking. However, on Feb. 23 a solid-fuel rocket motor 22 feet in diameter was test-fired, lighting up the landscape with a flame visible for 100 miles. The motor generated about 3.6 million pounds of thrust, almost half as much as the huge first-stage of the Apollo spacecraft's moon-voyage booster.

Solid propellants offer several advantages over conventional liquid fuels, the most important being storability. Solids can be kept for long periods of time with none of the dangerous, expensive techniques that are required to handle liquid fuels.

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Honeywell

APOLLO-GO-ROUND—This futuristic carousel is actually a test stand that can spin and tilt to test the stabilization system of the Apollo spacecraft command and service modules. Fully loaded, the table weighs nine tons, is 13 feet in diameter and stands seven and a half feet high.