

DISCOVERER XXV (U.S.) June 16, 1961-June 18, 1961 (capsule); July 12, 1961 (satellite). Tested improvements of orbital period controls, capsule recovered from sea after 33 orbits. 139.1-251.6 miles. 90.87 minutes.

**TRANSIT IV-A—GREB III and INJUN (U.S.) June 29, 1961-1962 (Transit); indefinite (Greb and Injun). Three satellites, two not separated; data for navigational satellite system, on solar X-rays and on cosmic rays. Transit 547-620 miles. Greb and Injun 548-619 miles. 103.8 minutes.

*DISCOVERER XXVI (U.S.) July 7, 1961-July 9, 1961 (capsule); 1962 (satellite). Same as Discoverer XXV, capsule recovered in mid-air after 32 orbits. 142-410 miles. 93.5 minutes.

**TIROS III (U.S.) July 12, 1961-1961. Data for meteorological satellite system, TV pictures of clouds. 457-510 miles. 100.3 minutes.

*MIDAS III (U.S.) July 12, 1961 for indefinite time. Tested system for detection of missile launchings. 2,084-2,197 miles. 161.5 minutes.

VOSTOK II (USSR) Aug. 6, 1961-Aug. 7, 1961. Manned spaceship, studied effects on man of long orbital flight, recovered in 18th orbit. 110.3-115.3 miles. 88.6 minutes.

**EXPLORER XII (U.S.) Aug. 15, 1961-1962. Data on solar wind, interplanetary magnetic fields, particles in space, Van Allen belts. 165-47,858 miles. 26 hours and 24 minutes.

RANGER I (U.S.) Aug. 23, 1961-Aug. 30, 1961. Tested systems for lunar probes, particles in space. 105.3-312.5 miles. 91.1 minutes.

EXPLORER XIII (U.S.) Aug. 25, 1961-Aug. 28, 1961. Tested Scout vehicle, studied micrometeorites. 174.60-606.34 miles. 97.27 minutes.

DISCOVERER XXIX (U.S.) Aug. 30, 1961-Sept. 1, 1961 (capsule); Sept. 10, 1961 (satellite). Same as Discoverer XXV, carried biological experiments, capsule recovered from sea on 33rd orbit. 140-345 miles. 91 minutes.

**DISCOVERER XXX (U.S.) Sept. 12, 1961-Sept. 14, 1961 (capsule); unknown time (satellite). Same as Discoverer XXV, carried biological experiments, capsule recovered in mid-air. 154-345 miles. 92.4 minutes.

MERCURY-ATLAS IV (U.S.) Sept. 13, 1961-Sept. 13, 1961. Tested systems and tracking network for manned space flight, capsule recovered after one orbit. 100-158 miles. 89 minutes.

**DISCOVERER XXXI (U.S.) Sept. 17, 1961—for unknown time. For measuring radiation, Discoverer performance and reliability. 152-255 miles. 91 minutes.

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SPACE

Mercury Capsule Orbiting Two Satellites Launched

► THE FIRST Mercury capsule has been orbited around the earth and successfully recovered. On Sept. 13, the capsule carrying an astromech, or mechanical man, made the trip in 89 minutes and then descended into the Atlantic Ocean east of Bermuda, the National Aeronautics and Space Administration reported. The next step in the manned space flight program is expected to be an orbital trip of the capsule carrying a chimpanzee.

Two Discoverer satellites, XXX and XXXI, have been launched. On Sept. 12, Discoverer XXX went up to test orbital period controls. It also carried biological experiments for studies of radiation effects on living matter. The capsule was recovered Sept. 14 in the Pacific Ocean north of Hawaii. The satellite is still orbiting.

Discoverer XXXI was launched Sept. 17 to measure radiation and Discoverer performance and reliability. However, the goldplated capsule failed to separate from the satellite and no recovery of the capsule is expected. The Air Force satellite Discoverer XXXI was the 21st of its series to orbit successfully.

On Sept. 13 an experiment to measure atmospheric winds, temperatures and density high in the earth's atmosphere was launched by NASA from the launching site at Wallops Island, Va.

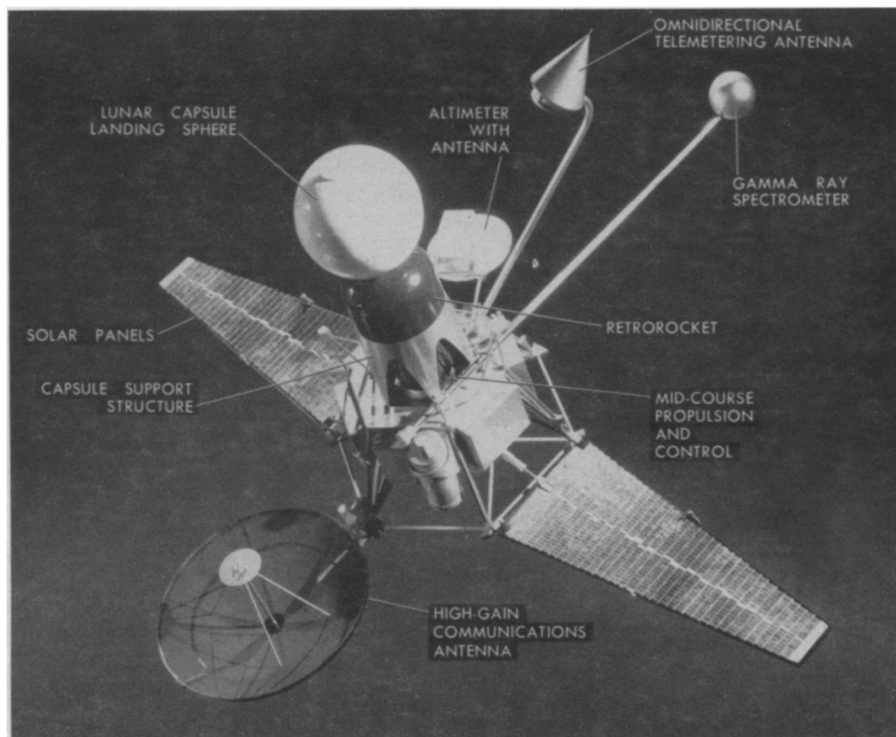
A four-stage sounding rocket sent forth a sodium vapor cloud at two altitudes, 120 and 228 miles up. Trails of bright orange clouds at both altitudes were visible for hundreds of miles.

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SPACE

"Talking Ball" to Land, Investigate Moon in 1962

► A "TALKING BALL" covered with balsa wood is scheduled to land on the moon in 1962.



MOON BALL ON TOP OF RANGER SPACECRAFT

The ball will contain a seismometer to record moon quakes, and temperature devices and instruments for sending information back to earth about conditions on the moon.

It will travel to the moon on top of the Ranger spacecraft, now under development at Jet Propulsion Laboratory, Pasadena, Calif. After the 240,000-mile trip, the "moon ball" will be detached from the Ranger and hit the moon at less than 150 miles an hour. A retro-rocket will slow it down to this speed.

The separation of the moon ball, made by the Ford Motor Company's Aeronutronic Division, Newport Beach, Calif., will take place 20 to 25 miles above the lunar surface.

The Ranger vehicle will continue its flight at 5,000 miles an hour until it crashes into the moon.

Inside the 25-inch sphere a "survival sphere" holding the instruments floats in a liquid, an arrangement planned to ease the impact of the landing after the 60- to 70-hour flight.

The Ranger vehicle will be boosted into space by the Atlas-Agena B rocket. The moon ball will be "hospital clean" before launch to eliminate any earth germs that might contaminate the moon and destroy evidence or clues to the way the solar system was originally formed. Internal instruments in the sphere will be biologically sealed to further insure sterilization.

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