The Ranger III lunar probe, which failed to impact, showed that the intensity of gamma rays in interplanetary space is probably ten times as high as previously thought.

The U.S. sent Ranger IV into impact with the moon but no scientific data was obtained; two other Rangers were in solar orbit.

Several more satellites in both the Explorer and Discoverer series were successfully launched.

The rocket that launched Cosmonaut Titov and other Soviet spacemen into orbit was announced as having three stages.

The Russians launched a series of 11 Cosmos satellites, to investigate the upper layers of the atmosphere and cosmic space.

Three Saturn C-1 rockets were successfully flight-tested as part of a program leading to manned circumlunar exploration.

The first U.S. liquid hydrogen rocket, designed for use in the Centaur program of a soft landing on the moon, passed its preliminary flight-rating test.

A space propellant, oxygen difluoride, was developed that will make smaller and lighter spaceships and will make moon landings safer.

An electrolytic cell, capable of producing oxygen when weightless in space, was developed.

A convertible aluminum mirror to catch the sun's rays to power vehicles in space was developed.

The X-15 aircraft was flown to a world altitude record of 314,750 feet on July 17, for which the pilot, Maj. Robert M. White, was awarded an astronaut's wings.

On June 27, Joseph A. Walker flew the X-15 to a new world's speed record of 4,104 miles per hour.

Instruments for using the high-flying X-15 as a space platform for studying the stars from above most of the earth's atmosphere were developed.

Astronaut Donald K. Slayton was barred from space because of a "heart flutter" occurring during exposure to stresses of simulated space flight.

Pieces believed to be part of the disintegrated Russian satellite, Sputnik IV, were found in northeastern Wisconsin with the help of Moonwatch teams; parts of the rocket that launched Astronaut John H. Glenn Jr. into space in February were recovered in South Africa.

The "Glenn effect," particles observed during flight by Astronaut John H. Glenn Jr., which looked like luminous fireflies, were found to originate from the capsule.

A U.S. B-52H bomber set a world record for non-stop, non-refueling distance in a closed circuit of 11,400 miles at an average speed of 510 miles per hour in 22 hours, 38 minutes, 41.8 seconds.

The National Aeronautics and Space Administration announced the selection of nine new space pilot trainees.

Eight test pilots were chosen by the Air Force for training at Edwards Air Force Base, Calif., for such military aerospace projects as the X-15, Dyna Soar and other follow-up space projects.

A small instrument using radioactive broth was developed for landing on Mars in 1964 to help solve the question of whether or not life forms exist on Mars.

Full-scale tests were conducted for stopping jet airplanes in emergencies by hooking the plane onto a cable that operates water pistons.

GENERAL

U.S. and Russia Study Joint Space Weather Plan

The United States and Russia made a start of cooperating in space research by officially designating representatives who mapped out a report on the worldwide benefits obtainable from weather satellites.

An Office of Science and Technology was established as part of the President's Executive Office, headed by the President's Science Adviser.

At the Department of State a new office of International Science Affairs was established.

A Presidential memorandum setting standards of conduct for scientific consultants was issued to insure scientists' compliance with the conflict of interest statutes.

President Kennedy and Premier Khrushchev exchanged proposals aimed at a program of space cooperation.

At the United Nations, a 110-nation committee voted to set up a system of worldwide monitoring of radioactive fallout at the earliest possible date.

A group headed by the U.S. Ambassador to the International Atomic Energy Agency urged continued support by the U.S. of IAEA and Atoms-for-Peace.

Congress authorized, after long debate, establishment of a broadly based, privately owned corporation to be formed specifically to handle communications satellites.

The suit against the Government brought by the manufacturer of battery additive AD-X2 was dismissed "with prejudice" by the U.S. Court of Claims, ending nearly a decade of controversy.

Fallout from nuclear test explosions in the atmosphere became a matter of concern in certain areas—Utah and Minnesota—so that countermeasures were taken by the two states.

Controversy on the pressing problems raised by widespread use of insecticides was heightened by publication of "Silent Spring."

Science Clubs of America and 4-H clubs initiated a cooperative program whereby scientific projects are eligible for recognition by both groups.

Sweden, Mexico, Peru, Chile and Colombia joined the growing list of nations with science fair programs aimed at increasng student interest and activity in all fields of science.

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INVENTION

Patents of the Week

A spaceman's belt for maneuvering under zero gravity conditions, consisting of tube bundles containing a gas propellant under pressure, has won a patent.

➤ A BELT for the spaceman of the future to use in moving around when the attraction of gravity is near zero won a patent.

The device uses a gas propellant under high pressure that is stored in tube bundles around the user's waist. These tubes are so connected to the control mechanism that thrust is exerted in the desired direction by moving the controls in that direction.

The belt has been successfully tested in some 80 flights under zero gravity conditions in an Air Force Convair, inventor Wendell F. Moore of Youngstown, N. Y., said. This model used nitrogen for the propellant instead of the hot rocket fuel planned for space maneuvering.

Mr. Moore received patent 3,066,887, rights to which he assigned to Bell Aerospace Corporation, which also holds the patent on the highly successful one-gravity rocket belt by which soldiers can maneuver as high as 360 feet above the ground in controlled flight. Average altitude on distance flights with this personal rocket, which is carried on the back, has been three to four feet.

Mr. Moore, a rocket propulsion engineer, said the most recent rocket belt had also been tested underwater and maneuverability accomplished successfully.

Gyro Control System

A method for controlling unmanned aircraft, particularly gliders, was awarded patent 3,066,895 more than 17 years after the patent application, the long delay being due to the need for keeping the device secret.

Jacob Rabinow of Rabinow Engineering Company, Inc., Rockville, Md., and Harold K. Skramstad were awarded the long-delayed patent, rights to which they assigned to the Government through the Secretary of the Navy. Two gyroscopes are used to regulate the movement of the aircraft's control surfaces so that motion is stable.

One gyroscope keeps the glider horizontal while the other maintains stability around the up-and-down axis. The two are so mounted as to also prevent rolling.

Radioactivity Test Sampler

A paper tape holder that can be used to test for radioactively exposed materials or the presence of bacteria won patent 3,066,342. Walter B. Jackson and George W. Johanson of Waltham, Mass., and Lester F. Lowe of Ashland, Mass., assigned rights to the Government through the Secretary of the Air Force.

The Atomic Energy Act requires that smear tests for contamination of the surroundings be taken wherever radioactive materials are used. Instruments for doing this must protect the user from radioactivity, yet be easy to use.

Other Patents:

A new way to light your way to bed—tiny flashlights attached to the toes of your bedroom slippers. The light goes on when a foot is placed in the slipper and off when the foot is removed, according to patent 3,067,322, awarded to Errett O. Sala of Avon Lake, Ohio.

A method for making color reproductions of radar information, in order that objects may be more easily identified by their color, granted patent 3,067,415. Lloyd C. Downes assigned patent rights to Hoffman Electronics Corporation of Los Angeles, California.

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