A P O L L O - 1 5

SCIENTIFIC LUNAR EXPLORATION

JULY 26 - AUGUST 8, 1971

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CONTENTS

KEY FACTS ABOUT APOLLO-15

CREW:

Astronaut David R. Scott, 39, Commander
Astronaut Alfred M. Worden, 39, Command Module Pilot
Astronaut James B. Irwin, 41, Lunar Module Pilot

Scott and Irwin will land on moon in Lunar Module while Worden awaits their return in main Apollo craft in moon orbit.

MISSION DURATION:

12 days, seven hours, 12 minutes

FLIGHT PLAN:

Launch at 1334 GMT, Monday, July 26, 1971, at Cape Kennedy, Florida.
In moon orbit from 2005 GMT, July 29, to 2118 GMT, August 4, 1971.
Landing on moon (with Lunar Module) at 2215 GMT, Friday, July 30, 1971.
Moon exploration outside landing craft on foot and with Rover vehicle for two periods of seven hours each beginning at 1324 GMT, July 31, and 1044 GMT, August 1, and one period of six hours beginning at 0724 GMT, August 2.
Liftoff from moon at 1712 GMT, Monday, August 2, 1971.
Begin return to earth (leave moon orbit) at 2118 GMT, August 4.
Splashdown in Pacific Ocean at 2046 GMT, Saturday, August 7, 1971.

TIME NOTE:

Australian EST is GMT plus 10 hours.

PRIMARY OBJECTIVES

- Scientific inspection and survey of moon; collect moon rocks and soil.
- Set up and activate automatic research instruments on moon.
- Conduct scientific experiments on moon.
- Assess new Apollo equipment, including Rover vehicle, for usefulness in extending astronaut mobility and stay time on moon and for enhancing operational ability of men outside landing craft on moon.
- Photograph and otherwise observe moon with scientific equipment from orbit.

LANDING SITE: Hadley-Apennine region at southeastern edge of Sea of Rains (Mare Imbrium), 465 miles (748 kilometers) north of moon's equator. Astronauts will land about halfway between foothills of Apennine mountain range, which has peaks of 13,000 feet (4,000 meters), and the 60-mile (100 kilometer) long Hadley Rille, stretching like a meandering dry river bed half a mile (800 meters) wide and 1,200 feet (360 meters) deep. The site is by far the northernmost point on the moon yet visited by men. The region is believed to offer unique opportunities for discovering knowledge about moon's and solar system's evolution.

MAJOR NEW ASPECTS OF MISSION: Apollo-15 is expected to become history's fourth landing by men on the moon. For the first time men will bring along an automobile, a "Rover", to transport them on the moon. Engineering improvements in astronaut moon suits and Apollo craft will permit longer stay for astronauts in moon orbit and more than double their stay time on moon and on lunar surface outside landing craft.

For the first time, a manned spacecraft will release an unmanned satellite. It will automatically relay information about its scientific observations from moon orbit for about one year. A formerly empty equipment bay in Apollo command ship has been outfitted with new equipment for observations of moon from moon orbit. Apollo-15 will constitute the heaviest object ever lifted by men into space.

TV COVERAGE: Ten telecasts are scheduled by Apollo-15 during earth-moon round trip and from moon orbit and moon's surface. (See Apollo-15 TV Schedule in this packet.)

TENTATIVE TIMELINE OF APOLLO-15 MISSION EVENTS

	Local (Aust. EST) Time	Date	Time from Liftoff (Hr/Min)
Launch	11.34 pm	July 26	
Earth Orbit Insertion	11.46 pm	July 26	00:12
Trans Lunar Injection	2.24 am	July 27	2:50
Lunar Orbit Insertion	6.05 am	July 30	78:31
Descent Orbit Insertion	10.14 am	July 30	82:40
Spacecraft Separation	3.48 am	July 31	100:14
Lunar Landing	8.15 am	July 31	104:42
Lunar Exploration I	11.24 pm	July 31	119:50
Lunar Exploration 2	8.44 pm	August 1	141:10
Lunar Exploration 3	5.24 pm	August 2	161:50
Lunar Liftoff	3.12 am	August 3	171:38
Spacecraft Docking	5.04 am	August 3	173:30
Trans Earth Injection	7.18 am	August 5	223:44
Trans Earth EVA	1.34 am	August 6	242:00
Pacific Ocean Splashdown (26° N. Lat./158° Long.)	6.46 am	August 8	295:12

BIOGRAPHICAL DATA

David R. Scott (Colonel, U.S. Air Force)
Apollo-15 Commander

BIRTHPLACE AND DATE: Born June 6, 1932, in San Antonio, Texas.

PHYSICAL DESCRIPTION: Blond hair; blue eyes; height: 6 feet; weight: 175 pounds.

EDUCATION: Received a Bachelor of Science degree from the U.S. Military Academy and the degrees of Master of Science in Aeronautics and Astronautics from theMassachusetts Institute of Technology.

MARITAL STATUS: Married to the former Ann Lurton Ott of San Antonio, Texas.

CHILDREN: Tracy, born March 25, 1961; Douglas, October 8, 1963.

RECREATIONAL INTERESTS: Swimming, handball, skiing, photography.

EXPERIENCE: Scott graduated fifth in a class of 633 at the U.S. Military Academy and subsequently chose an Air Force career.

Studied at the Massachusetts Institute of Technology where he completed work on his Master's degree. His thesis at MIT concerned interplanetary navigation. After completing his studies at MIT in June 1962, he attended the Air Force Experimental Test Pilot School and then the Aerospace Research Pilot School.

CURRENT ASSIGNMENT: Colonel Scott was one of the third group of astronauts named by NASA in October 1963.

On March 16, 1966, he and command pilot Neil Armstrong were launched into space on the Gemini-8 mission.

He served as command module pilot for Apollo-9, March 3-13, 1969. This was the third manned flight in the Apollo series.

He served as backup spacecraft commander for the Apollo-12 flight.

BIOGRAPHICAL DATA

James Benson Irwin (Lieutenant Colonel, U.S. Air Force)
Apollo-15 Lunar Module Pilot

BIRTHPLACE AND DATE: Born March 17, 1930, in Pittsburgh, Pennsylvania.

PHYSICAL DESCRIPTION: Brown hair; brown eyes; height: 5 feet 8 inches; weight: 160 pounds.

EDUCATION: Received a Bachelor of Science degree in Naval Sciences from the U.S. Naval Academy in 1951 and Master of Science degrees in Aeronautical Engineering and Instrumentation Engineering from the University of Michican in 1957.

MARITAL STATUS: Married to the former Mary Ellen Monroe of Corvallis, Oregon.

CHILDREN: Joy, born November 26, 1959; Jill, February 22, 1961; James, January 4, 1963; Jan, September 30, 1964.

RECREATIONAL INTERESTS: Skiing, paddleball, handball, squash, fishing, diving, camping.

EXPERIENCE: Irwin was commissioned in the Air Force on graduation from the Naval Academy in 1951.

He was graduated from the Air Force Experimental Test Pilot School in 1961 and the Air Force Aerospace Research Pilot School in 1963.

CURRENT ASSIGNMENT: Irwin is one of the 19 astronauts selected by NASA in April 1966. He was crew commander of an experimental lunar module which finished the first series of thermal vacuum tests on June 1, 1968. He also served as a member of the astronaut support crew for Apollo-10 and as backup lunar module pilot for the Apollo-12 flight.

BIOGRAPHICAL DATA

Alfred Merrill Worden (Major, U.S. Air Force)
Apollo-15 Command Module Pilot

BIRTHPLACE AND DATE: The son of Merrill and Helen Worden, he was born in Jackson Michigan, on February 7, 1932.

PHYSICAL DESCRIPTION: Brown hair; blue eyes; height: 5 feet 10½ inches; weight: 153 pounds.

EDUCATION: Received a Bachelor of Military Science degree from the U.S. Military Academy in 1955 and Master of Science degrees in Astronautical/Aeronautical Engineering and Instrumentation Engineering from the University of Michigan in 1963.

MARITAL STATUS: Married to the former Pamela Ellen Vander Beek of Bayside, New York.

CHILDREN: Merrill, born January 16, 1958; Alison, April 6, 1960.

RECREATIONAL INTERESTS: Bowling, water skiing, swimming, handball.

EXPERIENCE: Worden was graduated from the U.S. Military Academy in June 1955.

Prior to his arrival for duty at the Manned Spacecraft Center, he served as an instructor at the Aerospace Research Pilots School from which he was graduated in September 1965. He is also a graduate of the Empire Test Pilots School in Farnborough, England, and completed his training there in February 1965.

CURRENT ASSIGNMENT: Major Worden is one of the 19 astronauts selected by NASA in April 1966. He served as a member of the astronaut support crew for the Apollo-9 flight and as backup command pilot for the Apollo-12 flight.

APOLLO-15: THE MISSION

SEARCH FOR KNOWLEDGE WILL DOMINATE APOLLO-15 ACTIVITIES

By Walter Froehlich

Well-traveled as the road to the moon already is, to the world's scientific community it is only now opening as a promising region for manned research.

Until now, Apollo space flight crews, and the corresponding ground support cadres, have been so overwhelmingly preoccupied with getting the spacecraft to the moon and back that scientific work had to be severely limited. Often it seemed merely incidental or even disruptive to a mission.

That is true no longer. The mechanics of the round trip are now solidly established.

Scientific experiments are the only major justification for this mission. They dominate the flight plan from shortly after launch to just before splashdown.

Scientists, astronauts and officials of the U.S. National Aeronautics and Space Administration (NASA) are usually conservative in assessing the benefits of a mission before its start.

Yet, all are publicly predicing massive scientific results for Apollo-15.

For example, Rocco A. Petrone, Apollo program director, told the press in Washington, D.C., that tremendously expanded research facilities aboard the spacecraft "will make Apollo-15 certainly one of the greatest scientific endeavors ever undertaken".

Edward M. Davin, program scientist for the Apollo-15 lunar surface experiments, said: "Considering the increased scope of Apollo-15 over the earlier experiments, I think we are going to bring back science several orders of magnitude greater than that achieved in the earlier program."

That may not be an exaggeration. Photographic exposures on thousands of feet of film in a variety of specialized cameras alone will require weeks of human and computer analysis plus months of assembling into charts and maps showing the moon's geography, gelolgy, chemistry and other properties.

Other data are expected to flow from the moon in such huge quantities as to fill hundreds of kilometers of magnetic tapes. Their examination and interpretation could, indeed, take many years of laboratory work.

The Apollo-15 scientific experiments are divided into three categories:

1. Experiments en route to and from the moon
2. Experiments in moon orbit
3. Experiments on the moon's surface

In the mid-1960's, NASA called on the world scientific community for suggestions for the then impending moon exploration by astronauts. In 1965 and 1967, NASA organized conferences and panel discussions involving some of the world's most distinguished scientists from many nations to analyze moon exploration recommendations.

From these and other deliberations evolved the Apollo program's scientific objectives. Scientists and engineers have spent several years designing, building and testing the equipment for scientific experiments now aboard Apollo-15.

Scott and his crew, astronauts James B. Irwin and Alfred M. Worden, have spent several years preparing for space flight and many months in training particularly for Apollo-15.

The main reason for the increased science program for Apollo-15 is that modifications on the Saturn-5 rocket and on the Apollo spacecraft are making it possible to carry substantially heavier loads to the moon. This permits more and heavier scientific equipment and also allows the astronauts to remain in space longer.

Apollo-15's mission is expected to last slightly more than 12 days from launch to splashdown. By comparison, Apollo-11, 12 and 14, the only successful manned moon landings, lasted eight, ten and nine days, respectively.

The Apollo-15 moon landing craft has sufficient life support equipment for the men to remain on the moon's surface for slightly longer than 67 hours -- nearly three days. Earlier lunar landing craft were equipped for a stay of 33.5 hours.

While Scott and Irwin explore the moon's surface during that period, Worden will carry on moon observations from the command ship in lunar orbit.

During their stay on the moon's surface, Scott and Irwin are expected to be outside the landing craft for three separate exploration periods totalling 20 hours -- more than twice as long as any astronauts before them.

After Scott and Irwin return to the command ship, the three men will remain in moon orbit for slightly more than two days for additional scientific observations.

Thus, the Apollo-15 command ship will spend six days in moon orbit for scientific purposes -- unprecedented for manned flight.

The weight of the scientific equipment which Apollo-15 will use in moon orbit will total 1,050 pounds, or more than four times the 250 pounds of earlier flights. Scientific equipment to be landed on the moon by Apollo-15 will total 1,200 pounds, or more than double the previous maximum of 510 pounds.

Each of the experiments will enhance man's knowledge about that part of the universe which surrounds the earth.

HISTORY'S FIRST "MOON DRIVE"

THE AUTO AGE IS ABOUT TO BEGIN IN SPACE

The first moon drive will be the strangest motorized excursion ever attempted and will introduce the auto age in outer space.

From the landing craft the astronauts will unload "Rover", a small car especially designed for lunar sight-seeing and scientific jaunts.

Until now, astronauts on the moon have found themselves in a paradoxical situation: they have flown to the moon with the most sophisticated transportation system ever devised, yet after arriving have had to use the most primitive means of human locomotion -- the feet.

Rover -- space engineers call it LRV for Lunar Roving Vehicle -- will multiply the mobility, exploration range and load-carrying capacity of U.S. astronauts on the moon.

With Rover, astronauts will be able to move at least five times farther than any other lunar explorers have, and they will be able to do so with less effort and therefore less drain on their oxygen and cooling water reserves.

Rover can attain a speed of 10 miles an hour and has a range of 45 miles. As a safety precaution, the astronauts will not drive it at top speed -- perhaps only at five miles an hour -- and will remain at all times within about five miles of the landing craft. They will drive in circular paths near their lunar base so they can walk back to the landing craft if Rover gets stuck.

Rover is no ordinary car. It can transport more than twice its own weight of 450 earth pounds, including two astronauts in their moon suits plus their gear and scientific equipment. Most ordinary cars are designed to carry less than half their weight.

But the most astonishing characteristics of Rover are how it arrives on the moon's surface and how it performs there.

Folded up, the 122-inch long, slightly more than six feet wide Rover requires no more storage space than a baby's play pen in an equipment bay of the Apollo moon landing craft.

After the astronauts step on the moon, the sequence is this: the astronauts pull a series of rings that cause the Rover to pop out from the landing craft's side. Hinges unsnap and the Rover sets itself up all by itself. Automatically, the four wheels, tucked in at the top, move into place, rotate, and lock into position.

Crew seats align themselves. Flaps open and torsion bars extend. Cables lower the vehicle to the moon's floor along these bars.

After unfastening the lowering cables, the astronauts take their seats and start the electric engines. On the moon, which has no atmosphere, an ordinary car's internal combustion engine would not work.

A forward push on the control stick, located between the seats, accelerates the vehicle. A partial backward pull causes braking; a complete pull reverses the vehicle. Sideways motions of the stick steer the Rover.

Only one of the two exposed batteries near the front end is needed. The second is a spare. Each of the four wheels is driven by its own electric motor; Rover will still move even if as many as two of these motors fail.

Rover is designed to withstand the shock and acceleration and vibrations of launch from earth, the temperature extremes and vacuum during flight and on the moon, and the deceleration of moon landing.

Rover has no rubber tires. Its wheels are covered with steel wire mesh on which it can ride over foot-high rocks, cross 28-inch crevasses, climb 25-degree slopes, all from a standing start, if necessary, and descend 35-degree grades. The wheels, made of zinc-coated piano wire with spun-aluminum hubs, have a diameter of 32 inches.

The vehicle's center of gravity is so low it would be difficult to overturn it on the moon where the gravity pull is only one-sixth that on earth. Rover's ground clearance is 14 inches.

Extending from Rover's forward section is an umbrella-like antenna for transmissions from the attachable color television camera. It will be used with the vehicle is parked on the moon.

It is easy to get lost on the moon, where the horizon is always nearby and there are only few reliable landmarks for guidance. A complex, built-in navigation system on Rover will help astronauts find their way to their exploration sites and then back to the landing craft.

The main traffic problem Rover will encounter is the rough lunar terrain. That is not a minor problem.

Even what would be considered a relatively minor traffic accident on earth -- an astronaut being thrown out of Rover (though astronauts do wear seat belts) -- could prove very serious on the moon. Such a mishap could puncture a moon suit, with possibly fatal consequences.

Considering the many qualifications Rover had to meet -- small size, low weight, high payload capacity, resistance to severe environmental conditions and operational safety -- many engineers a few years ago considered the designing of such a vehicle almost as imposing a feat as landing men on the moon.

Proudly surveying a moon-ready Rover, recently a space engineer wryly commented: "It may be a small step for man, but Rover represents a giant leap for machines."

UNITED STATES MOON MISSIONS

Apollo-11 -- First Lunar Landing
(Columbia, Eagle, Tranquillity Base)

Date: July 16-24, 1969

Recovery Ship: Hornet

Crew: Civilian Neil A. Armstrong
Air Force Lt. Col. Michael Collins
Air Force Col. Edwin E. Aldrin, Jr
(Col. Collins is retired)

Time in space: 195:18:35

Apollo-12 -- Second Lunar Landing
(Yankee Clipper and Intrepid)

Date: November 14-24, 1969

Recovery Ship: Hornet

Crew: Navy Comdr. Charles Conrad Jr.
Navy Comdr. Richard F. Gordon Jr
Navy Comdr. Alan L. Bean

Time in space: 244:36:25

Apollo 13 -- Aborted after service module oxygen tank rupture
(Odyssey and Aquarius)

Date: April 11-17, 1970

Recovery Ship: Iwo Jima

Crew: Navy Captain James A. Lovell Jr
Civilian Fred W. Haise Jr
Civilian John L. Swigert Jr

Time in space: 142:54:41

Apollo-14 -- Third Lunar Landing
(Kitty Hawk and Antares)

Date: January 31-February 9, 1971

Recovery Ship: New Orleans

Crew: Navy Captain Alan B. Shepard, Jr
Air Force Major Stuart A. Roosa
Navy Cmdr. Edgar D. Mitchell

Time in space: 216:02

TELEVISION SCHEDULE

The following telecasts are tentatively scheduled from space during the Apollo-15 mission:

Date of Telecast	Starting Time Aust. EST	Length Hrs:Min	Subject to be Covered
Tuesday, July 27	1.59 a.m.	00:25	Transposition and docking (Astronauts maneuver command craft in a half circle, then connect its nose with moon landing module in proper position for later descent to moon).
Wednesday, July 28	9.20 a.m.	00:45	Astronauts Scott and Irwin crawl through tunnel from command craft to moon landing module and test its systems.
Saturday, July 31	00.20 a.m.	00:14	View through command ship window of Hadley-Apennine site on moon at which astronauts Scott and Irwin are to land about eight hours after start of this telecast. TV view will be from moon orbit.
Saturday, July 31	11.34 p.m.	06:40	Astronauts leave landing module and walk and work on moon's surface; astronauts will attach TV camera to Rover moon car and activate camera whenever Rover is stopped. Telecast will show astronaut activities and moon scenes.
Sunday, August 1	9.09 p.m.	06:20	Astronauts leave landing module for a second period of moon surface explorations. Telecast will show astronaut activities and moon scenes.

Date of Telecast	Starting Time Aust. EST	Length Hrs:Min	Subject to be Covered
Monday, August 2	5.49 p.m.	05:45	Astronauts leave landing module for a third period of moon explorations. Telecast will show their activities and moon scenes.
Tuesday, August 3	3.04 a.m.	00:30	View of astronaut liftoff from moon in upper section of landing module. This unprecedented telecast will be transmitted by a camera mounted on and powered by Rover moon car parked near launch site. Camera will be controlled by radio from earth.
Tuesday, August 3	4.27 a.m.	00:06	Rendezvous (Astronauts Scott and Irwin steer the upper section of moon landing module into formation flight with command ship operated by astronaut Worden in moon orbit).
Tuesday, August 3	4.50 a.m.	00:05	Docking (upper section of moon landing module, with Scott and Irwin aboard, connects to command ship in moon orbit).
Friday, August 6	1.34 a.m.	00:30	Views of astronaut Worden's "space walk" while Apollo-15 craft is returning to earth. Worden will be shown outside spacecraft as he retrieves film cassettes from the command ship's Scientific Instrument Module (SIM).

Other telecasts may be added to this list. The Apollo-12 and 14 crews conducted televised in-space press conferences (with newsmen's questions being read to the astronauts from Mission Control) during the return lap of the trip. A similar press conference may be arranged for Apollo-15.

APOLLO-15 WILL MAKE TELEVISION HISTORY

When the Apollo-15 astronauts lift themselves off the moon to go home, television viewers on earth will be able to see the take-off just as if they were standing on the moon only a few feet away.

A color television camera, to be left behind on the moon by the astronauts, will transmit the scene live.

If it succeeds, viewers on earth will see the upper section of the Apollo lunar module -- the "ascent stage" with two astronauts aboard -- lifting itself from the spindly-legged lower section -- the "descent stage"-- which will act as a launching platform.

Never before has the launch of a manned spacecraft from a celestial body been watched from earth or even photographed from the moon's surface.

In past manned moon landings, the television camera used by astronauts during their moon walks was connected by cable to the descent stage and received its electric power from it. But the descent stage has no antenna. Transmission had to end when the ascent stage with its antenna was disconnected during launch preparations.

After using the camera to show their descent down the landing craft's boarding ladder and their walks and work on the moon, astronauts David R. Scott, Apollo-15 commander, and James B. Irwin, lunar module pilot, will attach the camera to the Rover, the little electric automobile in which they will ride on the moon.

The Rover's batteries will power the camera. An umbrella-shaped S-band antenna, also attached to the Rover, will relay the camera's output to earth.

Because the antenna has to be pointed precisely toward earth during transmissions, the astronauts will turn off the camera while they ride in the Rover. But each time they park the vehicle, they will readjust the antenna and activate the camera.

While the astronauts conduct experiments or collect moon rocks near the Rover, the camera will be controlled remotely by radio from Mission Control in Houston, Texas.

Before the astronauts return to their landing craft for the last time, they will park the Rover about 300 feet from the craft and adjust the antenna and camera for the launch telecast. During that telecast, the camera will be under radio control from earth.

Some engineers have expressed concern over the clarity of the TV pictures.

Even if the astronauts position the Rover with the camera at some distance from their liftoff point, dust might obscure some of the launch scene.

SCHEDULE VOA LIVE COVERAGE APOLLO-15

Following is the schedule of live broadcasts covering the flight of Apollo-15, presently scheduled to begin July 26.

Date	Event	Time: Aust. EST
July 26	Launch	11.25 pm-midnight
July 31	Land on moon	8.00-8.30 am
July 31	Surface description - Scott opens docking hatch, stands half-way out and gives 40-minute description of lunar panorama	9.15-9.55 am
July 31	First long EVA - astronauts walk on surface	11.00 pm-midnight
August 1	First long EVA - astronauts ride Rover to rille and mountain site	00.15-1.30 am
August 1	First long EVA - Rover leaves mountain site	2.30-3.00 am
August 1	Second long EVA	9.15-9.30 pm
August 1	" " "	10.15-11.00 pm
August 1	" " "	11.15-11.30 pm
August 2	" " "	00.30-1.00 am
August 2	" " "	1.15-1.30 am
August 2	Third long EVA	11.10-11.20 pm
August 3	Liftoff from moon	3.00-3.30 am
August 6	EVA during coast to earth	1.30-1.40 am
August 8	Splashdown and recovery	6.15-8.00 am

VOA coverage will follow its regular pattern. Norman Geron will be anchorman in Washington, assisted by experts from the National Aeronautics and Space Administration, with live coverage by VOA's space specialist Rhett Turner reporting from Cape Kennedy and Mission Control in Houston.

NO MORE QUARANTINE FOR RETURNING MOON ASTRONAUTS

It's official now -- such things as "moon disease" or "moon germs" do not exist.

This is good news for astronauts for two reasons. They need not fear illness from their moon visits and they need no longer be quarantined after they return to earth.

In the previous three moon-landing flights -- Apollo-11 and 12 in 1969 and Apollo-14 in February 1971 -- the crews were welcomed back from the moon as if they were afflicted with a dangerous infectious disease.

They had to wear insulated garments and face masks before they were allowed to leave the spacecraft after splashdown on the ocean.

Immediately upon arrival on the recovery ship, they had to enter a large house trailer called "MQF" for Mobile Quarantine Facility. In it, they were transported to the Manned Spacecraft Center in Houston, Texas.

They lived in isolation until 21 days had passed from the time they had closed their spacecraft's hatch for the last time on the moon's surface.

During that quarantine period, the men were closely watched for any symptom of illness.

Only after the required period had elapsed could the astronauts mix once again with their fellow men.

All these precautions were taken to assure that no strange disease agents from the moon would be spread on earth.

Careful examination of the astronauts failed to disclose even a hint of any illness related to their moon journey. Examination of the rocks and soils which the astronauts brought back from the moon also showed no living entities or disease-causing materials.

However, moon rocks and soil collected by the astronauts will continue to be subjected to quarantine. The main reason for this is to protect these precious samples from contamination by the earth's environment.

Scientists want to examine the samples as they existed on the moon. Exposure to the earth's atmosphere could change some of their characteristics. The samples will continue to be kept under vacuum conditions during shipment and initial examination.

Also, while quarantine for astronauts after a flight is being discontinued, the crews will remain in partial isolation for three weeks before a flight. This semi-quarantine is called by space physicians the "Preflight Health Stabilization Program".

Its purpose is to prevent astronauts from being infected, through contact with others, with any illness that might prevent them from beginning the flight or might cause them to become sick during the mission.

Thus, quarantine procedure has been reversed from the early moon flights. Then, crews were quarantined after the mission, but not before. Now post-flight quarantine has been eliminated and pre-flight semi-quarantine has been instituted.
