America in Space: The First Decade – 1968

Narrator: When did the exploration of space begin? At what time did man first embark upon his journey to the stars? Primitive man gazed in awe at the infinite lights of the heavens and wondered how different they were from his own Earth. Other men searched the night sky for religious signs or mathematical movements or imaginary adventures. For the earthbound astronomer, space was a lifetime of study beyond the impassable window of his observatory. For countless centuries, the exploration of space remained a dream in the mind of man. Then on the fourth day of the month of October 1957, it became a reality. The Soviet Union hurled the first manmade satellite into orbit, 558 miles above the Earth. The Space Age had begun.

A year later, Congress created the National Aeronautics and Space Administration, a new civilian agency with parallel missions to continue research and improvement in aeronautics and to build a team and a technology capable of sending unmanned and manned craft to explore the new ocean of space.

Today, after a decade of research and discovery, America stands ready for the next step: a journey to the Moon.

This day began on an island off the coast of Virginia. It is one of many places from which man now explores the realm of space. Over the past 10 years, hundreds of small sounding rockets have carried scientific instruments into the stratosphere, ionosphere, and exosphere. They have gathered data on high-altitude winds, on cosmic and ultraviolet rays, on radiation belts, and solar flares. Both American and international experimenters have dissected and evaluated these data to expand vastly our knowledge of near space.

At other NASA centers, scientists, engineers, and technicians developed and tested new families of scientific satellites, unmanned spacecraft which would extend man's senses where he could not yet see or hear or touch, spacecraft which took scientific equipment and experiments into the unknown darkness and sent back the light of new knowledge. From these satellites man has learned the nature of microscopic particles in space. He has measured air density at great altitudes, discovered how electrons deflect radio waves in the ionosphere, and where radiation belts encircle our planet. He has determined the true shape of the Earth and mapped it more precisely, made new measurements of solar energy, and sent telescopes into the night for a first clear look at the stars. Some satellites were joint efforts to add to man's knowledge, the combined scientific quest of other nations and the launch technology of our own. The early scientific satellites carried only instruments into space. Later, they would carry life, plants and animals ranging from microorganisms to primates. These biosatellites told us how weightlessness, radiation, velocity, and pressure affected life in the new environment called space.

As man learned more about the Earth and near space, he sought to know about his neighbors in the solar system. Probes were hurled through interplanetary space to the neighborhood of Venus and Mars. Nearing Venus, our spacecraft reported the atmosphere to be very dense, the surface hot enough to melt lead. These investigations told scientists that on Venus there is little likelihood of life as we know it.

In one of the most spectacular feats of the decade, NASA sent a deep space probe sailing across uncharted seas, more than 360 million miles, to look for a brief but wondrous moment at our nearest planetary neighbor, Mars. We learned that Mars is probably more like the Moon than Earth, pockmarked with craters, with little or no magnetic field or gravity. As important as the return of scientific information, as the return of scientific information was the new confidence gained in our technological maturity, that man could design and control such complex operations across millions of miles of interplanetary space.

Over the past decade scientists also developed complex new instruments to probe the intimate secrets of the long-mysterious Moon. Television cameras took us live and close-up to the lunar surface. Our spacecraft landed softly in the lunar seas. They examined the Moon's color and sampled its chemical composition. Man witnessed a sunset on the surface of the Moon, saw the Sun eclipsed by the Earth, and looked back at his own planet a quarter of a million miles away. Other spacecraft circled the Moon, photographing its yawning craters and soaring peaks, mapping more than 95 percent of its entire surface. These studies prove that man could land and walk upon the lunar soil.

In this first decade of the Space Age, the science and technology which was used to explore outer space was also applied to practical benefits here on Earth. Down-to-Earth satellites provide a constant watch on the world's weather, serve as beacons for navigation by ship or plane, send voice and picture from any point on Earth to any other. In 10 years, we have come from a few experimental weather satellites to an operational system capable of night and day observations around the world. Today satellites take portraits of storms that span half a continent and transmit them to meteorologists in many nations. They have detected hurricanes and typhoons and given valuable hours of warning to those who live and work in their pathways.

Man has also learned to communicate by satellite. First, with a great balloon that served as a reflector in the sky for earthbound transmitters. For most of the past decade, it provided millions around the world with their first glimpse of a manmade star zooming across the sky. Other satellites followed that could perform increasingly complicated communication tasks. Today the technology proved out by these first families of satellites has been put to commercial use in an operational system which is available not only to television networks and businesses but to people everywhere. All the world has been united to witness historic moments. Communication satellites have provided a valuable bridge to scientists working at distant points in the world.

But space research was not the only mission of NASA. The first "A" in the name of this new organization stands for aeronautics. An airplane without wings, the lifting body, an effort to link man's continuing journey through air and space. Someday, such a vehicle may be used to bring man back from space through the fiery reentry of the Earth's atmosphere to a landing on the runway of tomorrow's airport. In 10 years the field of aeronautics has kept pace with man's desire to fly ever higher, faster, and farther. Research has led to the development of aircraft that fly many times the speed of sound. New planes have been developed that rise vertically and fly at jet speeds. Man has attacked the problems of the new age of aeronautics: jet engine noise and the sonic boom. He has concerned himself with the safety of aircraft and their passengers. In 10 years man has designed, built, and tested sleek new hypersonic aircraft that today fly to the dark edges of space.

But the journey to the edge of space was not far enough. Man long dreamed of bigger rockets and greater power, the ability to cross the threshold of space for himself. In the 1960s, manned space travel became a reality. Many men here on Earth helped ready the systems, which would take a few men across that frontier. The astronauts, star sailors on a formidable sea, conditioned themselves for the new phenomena of space. Then came the day when the first man was ready.

Capsule Communicator (CAPCOM): Five, four, three, two, one, zero. Ignition.

Alan Shepard: Ah, Roger. Lift-off and the clock is started.

CAPCOM: Okay, José, you're on your way!

CAPCOM: Lift-off… [Unintelligible].

Alan Shepard: Yes sir, reading you loud and clear.

CAPCOM: Roger and you.

Narrator: Many astronauts would follow on longer voyages into space. The experience of each added more knowledge to the textbook for all of those who would come after them.

CAPCOM: Missile power. Go. RF systems. Go. [Overlapping system confirmations]

CAPCOM: Three, two, one, zero.

John Glenn: Roger. The clock is operating. We're underway.

CAPCOM: Hear loud and clear.

John Glenn: Roger. We're programming in roll okay. Little bumpy along about here.

CAPCOM: Standby for 20 seconds.

John Glenn: Roger.

CAPCOM: Mark.

John Glenn: Roger. Backup clock is started.

Narrator: From these first flights came important information about the men, their spacecraft, and the facilities and personnel who supported them. Man could withstand the force of gravity many times his own weight. He could live for extended periods weightless in the vacuum of space. Man could maneuver his own spacecraft in orbit, make scientific measurements, take photographs of the space around him and the Earth below.

CAPCOM: Gemini VI. Houston is standing by.

Thomas Stafford: Roger. We are at 120 feet, steady.

CAPCOM: Roger. Understand. Station keeping at 120 feet.

Narrator: Man could locate other spacecraft hundreds of miles across the ocean of space.

CAPCOM: Gemini IX, Hawaii.

Thomas Stafford: How are ya? I've got a weird looking machine here.

CAPCOM: What does it look like?

Thomas Stafford: The jaws are just like an alligator's jaw that's open and it looks like they're fully extended.

CAPCOM: Roger.

Narrator: Man could rendezvous and dock with spacecraft sent into orbit ahead of him.

Neil Armstrong: Okay, we're going to cycle our stop on switch now.

CAPCOM: Roger.

Neil Armstrong: Flight, we are docked.

Narrator: Man could perform complex scientific and technological experiments in space. Man could walk and work outside his spacecraft. The astronauts could meet successfully all their objectives and safely sail back to home port on the Earth below.

Man 1: There it is!

Man 2: Hey!

Man 3: White, do you see it on the screen?

Man 1: I see it. Houston, we've got you on the boob tube. You look good.

Narrator: These first steps into space had taken man 800 miles above the Earth. Yet he dreamed of more distant and demanding voyages, expeditions which would require bigger rockets and more sophisticated spacecraft, larger crews and longer times. And so man began his rehearsal for the Moon. And the nation was ready to meet the challenge.

Facilities of many kinds were constructed throughout the country to support the space programs of the future. Offices, research laboratories, testing chambers, clean rooms, carpentry shops, tracking stations, block houses, and launch pads. Most were designed and built to house a science and technology that did not exist 10 years ago.

To meet the new demands of the space program, basic research was expanded and strengthened at institutions throughout the nation. At universities and NASA research centers, the space sciences moved forward along a broad front of accomplishment.

Behind the spacemen have stood thousands of engineers, scientists, and technicians, all part of the team dedicated to building and testing the many components which contributed to the dream. America called upon its industry and its institutions, placed new demands and offered new challenges to the establishments of our time. Education contributed ideas and experiments, scientific expertise, and trained manpower. Industry solved thousands of insoluble problems, found new methods and new materials when they were needed, achieved new heights in quality control and rates of performance.

Sometimes there were failures and accidents that claimed men's lives. The astronaut pilot of this research vehicle landed safely. But we learned from our failures, corrected the faults, and continued the work to be done.

Youth witnesses the culmination of a dream. Here in the Vehicle Assembly Building at Cape Kennedy, a mighty Saturn V rocket is readied. Soon, another will take shape in this same building, which will thrust three Americans toward the Moon in the greatest voyage of this century.

And now a new rocket is rolled out for another test of our lunar mission capabilities.

And the men who will fly the missions of tomorrow train for their challenge in space.

Astronaut 1: Is that closing velocity about right?

Astronaut 2: That's correct.

Astronaut 2: Quantity monitor, descent.

Astronaut 1: Descent.

Astronaut 2: Medium monitor select switch to supercritical position.

Astronaut 1: Supercritical.

Narrator: In 10 short years, America has come a long way. It has explored near space in the vicinity of Earth. It has developed weather watchers and space communicators. It has dispatched laboratories to study the Moon and the sun and the nearby planets. The past decade has seen man exceed all his previous achievements in air and space. It has provided a broad new technology with spin-off benefits to earthbound people and confidence in our ability to explore the solar system as we wish. What has been done and what has been learned belongs to all who live now and in the future in this age of space.

CAPCOM: Stages reporting ready for launch. T minus 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9. Ignition sequence starts. 5, 4. We have ignition. All engines are running. We have lift-off. We have lift-off.

Narrator: And now, at the end of the first decade in space, America stands ready. The men are ready; the machines are ready. Man is prepared for the next great step in his continuing journey, the exploration of tomorrow.