

## CHAPTER ONE

### BIRTH OF A SPACESHIP

When it first took to the sky, the space shuttle *Columbia* was the most sophisticated – and the most complicated – flying machine ever built. Not even the mighty Saturn V rocket, with its miles of wiring and awesome power, could come close to the elaborate design of the original space shuttle. With 2.5 million parts, including almost 230 miles of wire, more than 1,060 plumbing valves and connections, over 1,440 circuit breakers, and more than 27,000 insulating tiles and thermal blankets, it was one of mankind's most magnificent accomplishments. On April 12, 1981 Commander John Young and Pilot Robert Crippen sat atop the giant vehicle as the countdown ticked toward zero for *Columbia's* first mission into space.

#### EARLY DAYS

The seeds of the space shuttle program had been sown years before, however, when the Apollo program was just a faraway dream. Twenty years earlier in 1947 the popular press had captured the public's collective imagination with *A Trip to the Moon and Back*, a collection of fanciful stories speculating what it might be like to travel to the moon in a rocket. Later, in 1954, *Collier's* magazine published a series of futuristic articles written by the German rocket scientist Wernher von Braun, who would later design the Saturn V. He described large cargo-carrying rocket ships that would not only ferry astronauts and materials between Earth and orbit, but would be able to return to space again and again, requiring a much smaller investment than the expendable rockets that existed at the time.

But the late '50s were dominated by America's space race against the Russians, and the development of reusable spacecraft was put on the back burner so that the Saturn V could be developed. The Russians had been first to orbit a spacecraft - the tiny Sputnik - and at the time it looked as though they might be first to set foot on the moon as well. In a 1961 memo, President Kennedy asked Vice President Lyndon Johnson if there was a program that would help the nation restore its prominence in space:

Do we have a chance of beating the Soviets by putting a laboratory in space, or by a trip around the moon, or by a rocket to land on the moon, or by a rocket to go to the moon and back with a man? Is there any other space program which promises dramatic results in which we could win?

Johnson replied that a moon landing was possible by the end of the decade, and stressed that any nation to accomplish it would be regarded as a world leader. With nothing less than national pride at stake, Kennedy gave the famous speech at Rice University on September 12, 1962 in which he dedicated the country to the moon race.

As the Mercury, Gemini and Apollo programs continued through the 1960s, engineers still puzzled over the possibilities of reusable spacecraft. It was obvious that an expensive behemoth like the Saturn, which dumped most of its stages into the ocean in order to get the small Apollo capsule into orbit, was impractical for regular access to space. By February 1967, with the moon landing still two years away, the President's Science Advisory Committee noted the need for a space transportation system: "For the longer range, studies should be made of more economical ferrying systems, presumably involving partial or total recovery and use." Thus the concept of a two-part system began to take shape: a large detachable booster which could be recovered and returned to base, and a cargo-carrying component which would be able to return from space and land on a conventional runway.

On January 5, 1972, President Richard Nixon set the shuttle program in motion. “The United States should proceed at once with the development of an entirely new type of space transportation system designed to help transform the space frontier of the 1970s into familiar territory, easily accessible for human endeavor in the 1980s and ‘90s,” he said. “It will revolutionize transportation into near space by routinizing it... It will take the astronomical costs out of astronautics... This is why commitment to the space shuttle’s program is the right next step for America to take.”