

Social, Cultural, and Educational Legacies

NASA Reflects America's
Changing Opportunities;
NASA Impacts US Culture



Education: Inspiring
Students as Only NASA Can





NASA Reflects America's Changing Opportunities; NASA Impacts US Culture

Jennifer Ross-Nazzari
Shannon Lucid
Helen Lane

The Space Shuttle, which began flying in 1981 and ushered in an entirely new human spaceflight program, was a watershed for cultural diversity within NASA and had substantial cultural impact outside the realm of spaceflight. In the 1950s and 1960s, opportunities for American women and minorities were limited as they were often segregated into pink collar and menial jobs. NASA's female and minority employees faced similar obstacles. The Space Shuttle Program opened up opportunities for these groups—opportunities that did not exist during Projects Mercury and Gemini or the Apollo and Skylab Programs. NASA's transformation was a direct consequence of a convergence of events that happened in the 1960s and 1970s and continued through the following 3 decades. These included: public policy changes instituted on the national level; the development of a spacecraft whose physical capabilities departed radically from the capsule concept; and an increase in the number of women and minorities holding degrees in the fields of science and engineering, making them attractive candidates for the space agency's workforce. Over the course of the program, the agency's demographics reflected this transformation: women and minorities were incorporated into the Astronaut Corps and other prominent technical and administrative positions.

The impact of NASA's longest-running program extends beyond these dramatic changes. Today, the shuttle—the crown jewel of NASA's spaceflight programs—symbolizes human spaceflight and is featured in advertisements, television programs, and movies. Its image exemplifies America's scientific and economic power and encourages dreamers.



Social Impact—NASA Reflects America’s Changing Opportunities

Before the Space Shuttle was conceived, the aerospace industry, NASA employees, and university researchers worked furiously on early human spaceflight programs to achieve President John Kennedy’s goal of landing a man on the moon by the end of the 1960s. Although these programs employed thousands of personnel across the United States, White men overwhelmingly composed the aerospace field at that time, and very few women and minorities worked as engineers or scientists on this project. When they did work at one of NASA’s centers, women overwhelmingly served in clerical positions and minorities accepted low-paying, menial jobs. Few held management or professional

positions, and none were in the Astronaut Corps, even though four women had applied for the 1965 astronaut class. By the end of the decade, NASA offered few positions to qualified minorities and women. Only eight Blacks at Marshall Space Flight Center in Alabama held professional-rated positions while the Manned Spacecraft Center (currently known as Johnson Space Center) in Texas had 21, and Kennedy Space Center in Florida had only five.

Signs of change appeared on the horizon as federal legislation addressed many of the inequalities faced by women and minorities in the workplace. During the Kennedy years, the president ordered the chairman of the US Civil Service Commission to ensure the federal government offered positions not on the basis of sex but, rather, on merit. Later, he signed into law the Equal Pay Act of 1963, making it

illegal for employers to pay women lower wages than those paid to men for doing the same work. President Lyndon Johnson signed the Civil Rights Act of 1964, which prohibited employment discrimination (hiring, promoting, or firing) on the basis of race, sex, color, religion, or national origin. Title VII of the Act established the Equal Employment Opportunity Commission, which executed the law. The Equal Employment Opportunity Act of 1972 strengthened the commission and expanded its jurisdiction to local, state, and federal governments during President Richard Nixon’s administration. The law also required federal agencies to implement affirmative action programs to address issues of inequality in hiring and promotion practices.

One year earlier, NASA appointed Ruth Bates Harris as director of Equal Employment Opportunity. In the fall

Changing Faces of the Astronauts From 1985 Through 2010



In 1985, STS-51F—Center: Story Musgrave, MD, mission specialist, medical doctor. To Musgrave’s right, and going clockwise: Anthony England, PhD, mission specialist, geophysicist; Karl Henize, PhD, mission specialist, astronomer; Roy Bridges, pilot, US Air Force (USAF); Loren Acton, PhD, industry payload specialist; John-David Bartoe, PhD, Navy payload specialist; Gordon Fullerton, commander, USAF.



In 2010, STS-131 and International Space Station (ISS) Expedition 23—Clockwise from lower right: Stephanie Wilson, mission specialist, aerospace engineer; Tracy Caldwell Dyson, PhD, ISS Expedition 23 flight engineer, chemist; Dorothy Metcalf-Lindenburger, mission specialist, high school science teacher and coach; Naoko Yamazaki, Japanese astronaut, aerospace engineer.



Guion Bluford, PhD

*Colonel, US Air Force (retired).
Astronaut on STS-8 (1983),
STS-61A (1985),
STS-39 (1991), and
STS-53 (1992).*



Astronaut Guion Bluford conducting research on STS-53.

In 1983, Colonel Guion Bluford became the first African American to fly in space. He earned a Bachelor of Science in aerospace engineering from Pennsylvania State University, followed by flight school and military service as a jet pilot in Vietnam, which included missions over North Vietnam. He went on to earn a Master of Science and Doctor of Philosophy in aerospace engineering with a minor in laser physics from the Air Force Institute of Technology. He also earned a Master of Business Administration after joining NASA. Prior to joining NASA as a US Air Force astronaut, he completed research with several publications. Since leaving NASA, he has held many leadership positions.

As a NASA astronaut, he flew on four missions: two on Challenger (1983, 1985) and two on Discovery (1991, 1992).

Dr. Bluford has said, "I was very proud to have served in the astronaut program and to have participated on four very successful Space Shuttle flights. I also felt very privileged to have been a role model for many youngsters, including African American kids, who aspired to be scientists, engineers, and astronauts in this country. For me, being a NASA astronaut was a great experience that I will always cherish."

of 1973, Harris proclaimed NASA's equal employment opportunity program "a near-total failure." Among other things, the agency's record on recruiting and hiring women and minorities was inadequate. In October, NASA Administrator James Fletcher fired Harris and Congress held hearings to investigate the agency's affirmative action programs. Legislators concluded that NASA had a pattern of discriminating

against women and minorities. Eventually, a resolution was reached, with Fletcher reinstating Harris as NASA's deputy assistant administrator for community and human relations. From 1974 through 1992, Dr. Harriett Jenkins, the new chief of affirmative action at NASA, began the process of slowly diversifying NASA's workforce and increasing the number of female and minority candidates.

Though few in number, women and minorities made important contributions to the Space Shuttle Program as NASA struggled with issues of race and sex. Dottie Lee, one of the few women engineers at Johnson Space Center and the subsystem manager for aerothermodynamics, encouraged engineers to use a French curve design for the spacecraft's nose, which is now affectionately called "Dottie's nose." NASA named Isaac Gillam as head of Shuttle Operations at the Dryden Flight Research Center, where he coordinated the Approach and Landing Tests. In 1978, he became the first African American to lead a NASA center. JoAnn Morgan of Kennedy Space Center served as the deputy project manager over the Space Shuttle Launch Processing Systems Central Data Subsystems used for Columbia's first launch in 1981.

Astronaut Corps

Forced to diversify its workforce in the 1970s, NASA encouraged women and minorities to apply for the first class of Space Shuttle astronauts in 1976. When NASA announced the names in January 1978, the list included six women, three African Americans, and one Japanese American, all of whom held advanced degrees. Two of the women were medical doctors, another held a PhD in engineering, and the others held PhDs in the sciences. Two of the three African Americans had earned doctorates, while the third, Frederick Gregory, held a master's degree. The only Asian member of their class, Ellison Onizuka, had completed a master's degree in aerospace engineering. This was the most diverse group of astronauts NASA had ever selected and it illustrated the sea change brought about within the Astronaut Corps by 1978. From then on, all



astronaut classes that NASA selected included either women or minorities. In fact, the next class included both as well as the first naturalized citizen astronaut candidate, Dr. Franklin Chang-Diaz, a Costa Rican by birth.

Admitting women into the Astronaut Corps did require some change in the NASA culture, recalled Carolyn Huntoon, a member of the 1978 astronaut selection board and mentor to the first six female astronauts. “Attitude was the biggest thing we had to [work on],” she said.

Astronaut Richard Mullane, who was selected as an astronaut candidate in 1978, had never worked with professional women before coming to NASA. Looking back on those first few years, he remembered that “the women had to endure a lot because” so many of the astronauts came from military backgrounds and “had never worked with women and were kind of struggling to come to grips on working professionally with women.”

When “everyone saw they could hold their own, they were technically good, they were physically fit, they would do the job, people sort of relaxed a little bit and started accepting them,” explained Huntoon.

Sally Ride, one of the first six female astronauts selected, remembered the first few years a bit differently.

The Gemini and Apollo-era astronauts in the office in 1978 were not used to working with women as peers. “But, they knew that this was coming,” she said, “and they’d known it was coming for a couple of years.” By 1978, the remaining astronauts “had adapted to the idea.” As a sign of the changing culture within NASA, she could not recall any issues the women of her class encountered. This visible change signaled a dramatic shift within the agency’s macho culture.

The 1978 group was unique in other ways. Several of the men and women came from the civilian world and their experiences differed greatly from those of their classmates who had come from the military. Previously, test pilots had comprised the majority of the office. Many of the PhDs were young, with less life experience, according to Mullane, than many of the military test pilots and flight test engineers who had completed tours in Vietnam.

The shuttle concept brought about other measurable changes. The versatility of the Space Shuttle, when compared with the first generation of spacecraft, provided greater opportunities for more participants. The shuttle was a much more flexible vehicle than the capsules of the past, when astronauts had to be 6 feet tall or under to fit into the spacecraft. (The Mercury astronauts could be no more than 5 feet 11 inches

in height.) The capabilities of the shuttle were so unusual that astronauts of all sizes could participate; even James van Hoften—one of the tallest astronauts ever selected at 6 feet 4 inches—could fit inside the vehicle. Eventually, flight crews, which had previously consisted of one, two, or three American test pilots, expanded in size and the shuttle flew astronauts from across the globe, just as Nixon had hoped when he approved the shuttle in 1972. Indeed, the shuttle became the vehicle by which everyone, regardless of protected classes—sex, race, ethnicity, or national origin—could participate.

After the first four flights, the shuttle crews expanded to include mission specialists (a new category of astronauts that would perform research in space, deploy satellites in orbit, and conduct spacewalks). In addition to these scientists and engineers, the shuttle allowed room for a different category—the payload specialist. These individuals were not members of the Astronaut Corps. They were selected by companies or countries flying a payload on board the shuttle. Over the years, payload specialists from Saudi Arabia, Mexico, Canada, West Germany, France, Belgium, the Ukraine, Italy, Japan, the Netherlands, and Sweden flew on the shuttle as did two members of Congress: US Senator

International Participation in the Space Shuttle Program

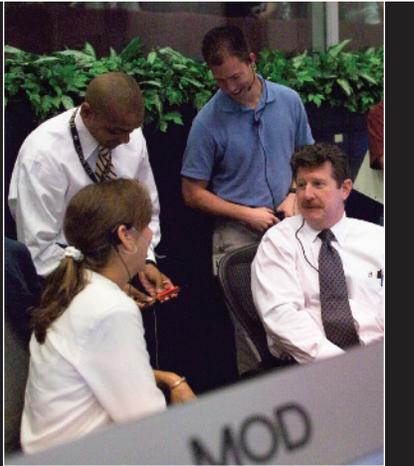
American astronauts flew with representatives from 15 other countries.





Diversity Succeeds

In 2005, NASA selected a new class of flight directors, one of the most diverse ever selected, which included the first African American (Kwatsi Alibaruho) and the first two Hispanics (Ginger Kerrick and Richard Jones). At the time of their selection, only 58 people had served in the position. All three began their careers with NASA as students and then rose through the ranks. Since their selection, Kerrick and Alibaruho have guided shifts in Russia and in the International Space Station flight control room, while Jones has supervised shuttle flights. In all, the class of 2005 dramatically changed the look of shuttle and station flight directors.



A diverse workforce.

Jake Garn of Utah and Congressman Bill Nelson of Florida. Industry also flew its own researchers, who managed their commercial payloads, with the first being McDonnell Douglas' Charles Walker. In 1972, NASA Deputy Administrator George Low remembered that this was one of the things Nixon liked about the program: "the fact that ordinary people," not just test pilots "would be able to fly in the shuttle, and that the only requirement for a flight would be that there is a mission to be performed."

Over the years, women and minorities also made their way into the pilot seat on board the shuttle and eventually went on to direct their own missions, with Eileen Collins serving as the first female pilot and commander. Space Transportation System (STS)-33 (1989) featured the first African American commander, Frederick Gregory, who later became NASA's deputy administrator. An example of NASA's diverse workforce, African American

former Space Shuttle Commander Charles Bolden became NASA administrator in the summer of 2009. In all, 48 women flew on the shuttle over the course of the program between 1981 and 2010.

The female and minority shuttle astronauts quickly became heroes in the United States and abroad for breaking through barriers that had prevented their participation in the 1960s and 1970s. Millions celebrated the launches of Sally Ride, Guion Bluford, John Herrington, and Mae Jemison: first American woman, African American, Native American, and African American woman, respectively, in space.

When the crews of STS-51L (1986) and STS-107 (2003) perished, Americans grieved. Lost in two separate-but-tragic accidents, the astronauts immediately became America's heroes. In honor of their sacrifice, two separate memorials were erected at Arlington National Cemetery to the crews of the Challenger

and Columbia accidents, and numerous other tributes (coins and songs, for instance) were made to the fallen astronauts. Naturally, national interest in the Return to Flight missions of STS-26 (1988) and STS-114 (2005) was high, with a great deal of attention showered on America's newest idols. Richard Covey, pilot of the STS-26 flight, recalled, "it was unprecedented, the attention that we got." The crews of the Return to Flight missions after the accidents also symbolized the changes within the Astronaut Corps. For Return to Flight after the Challenger accident, the crew members were all male. By 2005, the Return to Flight mission following the Columbia accident had a female commander.

Johnson Space Center, Texas, Changes

As the definition of the term "astronaut" became more fluid over time, America's idea of what constituted a flight director or flight controller also evolved. In NASA's heyday, all flight directors and nearly all flight controllers were men, with the exception of Frances Northcutt. She blazed the trail during the Apollo Program, becoming the first woman to work in the Mission Control Center. The number of women expanded over the years as the agency prepared for the orbital test flights. Opportunities to work in the cathedral of spaceflight (Mission Control) also expanded for other underrepresented groups, like African Americans. Angie Johnson, the first African American female flight controller in the control center in 1982, served as payloads officer for STS-2.

Over the years, the number of women working in mission operations increased dramatically. But, in general, NASA was slow to promote women into the coveted position of flight director, with the first selected



in 1985—7 years after women were first named as astronaut candidates. Change came slowly, however. Eventually, flight teams became so open to women that they were nearly equally composed of men and women.

Kennedy Space Center, Florida, Changes

In the mid 1970s, women and minorities did not have a strong presence at Kennedy Space Center (KSC). In fact, many operational facilities at KSC did not even provide separate restroom facilities for women. Women had to work extra hard to gain acceptance within the KSC community. Nevertheless, a handful of talented and dedicated women and minorities broke through the cultural barriers that were in place. JoAnne Morgan became the first and, at the time, only female system engineer. By the mid 1980s, many men from the Apollo-era workforce began retiring from NASA, providing management opportunities for women and minorities. Ann Montgomery became the first female flow director for the shuttle and Ruth Harrison was one of the first system engineers within the External Tank Ground Support group. The first female senior executive—JoAnne Morgan—was soon joined by others. Ruth Harrison rose to the level of associate director of shuttle processing. By the 1990s, Arnold Postell, an African American engineer, and Hugo Delgado, a Hispanic American engineer, became branch chiefs for the shuttle Launch Processing System on their way to senior management. As of October 2010, all flow directors at KSC were women along with the lead test director and the directors for shuttle processing. The workforce culture at KSC clearly evolved into one of inclusion and equal opportunity.

Marshall Space Flight Center, Alabama, Changes

Alabama women broke the glass ceiling and accepted Space Shuttle management positions during the 1990s and the following years. From 1992 to 1996, Dewanna Edwards served as deputy manager of the Space Shuttle Main Engine Project Office. In 2002, Jody Singer was appointed manager of the Reusable Solid Rocket Booster Project, making her the first woman to lead a propulsion element office at NASA. She remained in that position until 2007, when she became deputy manager of the Shuttle Propulsion Office, which was responsible for the main engines, boosters, and External Tank. Management appointed Sandy Coleman project manager for the tank project in 2003—a position she held until 2006. From 2000 to 2004, Ann McNair managed the Ground Systems Department of Flight Projects. She was responsible for the Huntsville Operations Support Center and its key facilities, including the Payload Operations Integration Center that supported payload and science research for the International Space Station. During the same period, she led the development of the Chandra X-ray Observatory Operations Control Center. In 2004, McNair was appointed manager of the Mission Operations Laboratory in the Engineering Directorate. In 2007, she was named the center's director of operations.

Summary

Despite these advancements at NASA's shuttle field centers, women and minorities did not break into some key positions. As of 2010, not one minority or woman served as shuttle launch director or managed the Space Shuttle. NASA could, however, point to significant workforce diversification by the end of the program.

NASA Impacts US Culture

Since its inception, NASA has captivated the dreamers and adventurers, and its Apollo Program captured the public's interest and imagination. Similarly, the Space Shuttle broadly impacted art, popular music, film, television, and photos, as well as consumer culture. Over the years, the shuttle became a cultural icon—a symbol of America's technological prowess that inspired many people inside and outside of the agency.

Paintings and murals of the shuttle, payloads, and flight crews abound. Numerous pieces of art in a variety of mediums—fabric, watercolors, acrylic, oil, etching, triptych, and pencil—depict the launch and landing of the shuttle, simulations, spacewalks, and the launch facilities. Artist Henry Casselli used watercolors to depict Astronaut John Young as he suited up for the first shuttle flight (1981). Space artist Bob McCall painted several of the murals that adorn the walls of many of NASA's centers, including Johnson Space Center. “Opening the Space Frontier: The Next Giant Step”—the large mural in the now decommissioned visitor center—includes the shuttle and one of NASA's female astronauts. Coincidentally, at Young's urging, McCall designed the STS-1 patch.

Music

The shuttle, the crews, and the missions inspired many musicians, who composed songs about the shuttle and its flights. Canadian rockers Rush, who were present at the first launch, wrote their 1982 song “Countdown” about that event and dedicated that song



to “Astronauts Young, [Robert] Crippen, and all the people of NASA for their inspiration and cooperation.” When First Lady Hillary Rodham Clinton announced that a woman would command a mission for the first time in NASA’s 40-year history, the NASA Arts Program asked Judy Collins to write a song to commemorate the occasion. She agreed and composed “Beyond the Sky” for that historic flight. The song describes the dream of a young girl to fly beyond the sky and heavens. The girl eventually achieves her goal and instills hope in those with similar aspirations. This is foreshadowed in the fifth verse.

*She had led the way
beyond darkness*

*For other dreamers who
would dare the sky*

*She has led us to believe
in dreaming*

*Given us the hope that
we can try*

Authored for NASA as part of the NASA Arts Program.

Inspiration

The shuttle inspired so many people in such different ways. Much as the flag came to symbolize American pride, so too did the launch and landing of the shuttle. As an example, William Parsons, Kennedy Space Center’s former director, witnessed his first launch at age 28 and recalled, “When I saw that shuttle take off at dusk, it was the most unbelievable experience. I got tears in my eyes; my heart pounded. I was proud to be an American, to see that we could do something that awesome.”

Film and Television

IMAX® films built on the thrill of spaceflight by capturing the excitement and exhilaration of NASA’s on-orbit operations. Shuttle astronauts were trained to use the camera and recorded some of the program’s most notable events as the events unfolded in orbit, like the spacewalk of Kathryn Sullivan, America’s first woman spacewalker. Marketed as “the next best thing to being there,” the film *The Dream is Alive* documented living and working in space on board shuttle. *Destiny in Space* featured shots from the dramatic first Hubble Space Telescope servicing mission in 1993, which boasted a record-breaking five spacewalks. Other feature films like *Mission to Mir* took audiences to the Russian space station, where American astronauts and cosmonauts performed scientific research.

The excitement inspired by the Space Shuttle and the technological abilities—both real and imagined—did not escape screenwriters and Hollywood directors. In fact, the shuttle appeared as a “character” in numerous films, and several major motion pictures featured a few of NASA’s properties. These films attracted audiences across the world and sold millions of dollars in tickets based on two basic themes: NASA’s can-do spirit in the face of insurmountable challenges, and the flexibility of the shuttle. They include *Moonraker*, *Space Camp*, *Armageddon*, and *Space Cowboys*.

Television programs also could not escape the pull of the Space Shuttle. In 1994, the crew of Space Transportation System (STS)-61 (1993), the first Hubble servicing mission, appeared on ABC’s *Home Improvement*. Six of the seven crew members flew to California for the taping, where they starred as guests of *Tool Time*—the fictional

home improvement program—and showed off some of the tools they used to work on the telescope in space. Following this episode, astronauts from the US Microgravity Laboratory-2, STS-73 (1995), appeared on *Home Improvement*. Astronaut Kenneth Bowersox, who was pilot for one flight and commander of two flights, made three appearances on the show. Bowersox once brought Astronaut Steven Hawley, who also flew on STS-82 (1997).

The Space Shuttle and its space fliers were also the subject of the television drama *The Cape*. Based on the astronaut experience, the short-lived series captured the drama and excitement associated with training and flying shuttle missions. Set and filmed at Kennedy Space Center, the series ran for one season in the mid 1990s.

Consumer Culture

The enduring popularity of the Space Shuttle extended beyond film and television into consumer culture. During the shuttle era, millions of people purchased goods that bore images of shuttle mission insignias and the NASA logo—pins, patches, T-shirts, polos, mugs, pens, stuffed animals, toys, and other mementos. The shuttle, a cultural icon of the space program associated with America’s progress in space, was also prominently featured on wares. Flight and launch and re-entry suits, worn by the astronauts, were particularly popular with younger children who had hopes of one day flying in space. People still bid on thousands of photos and posters signed by shuttle astronauts on Internet selling and trading sites.

Photos of the shuttle, its crews, astronaut portraits, and images of notable events in space are ubiquitous.



Chiaki Mukai, MD, PhD

Japanese astronaut.

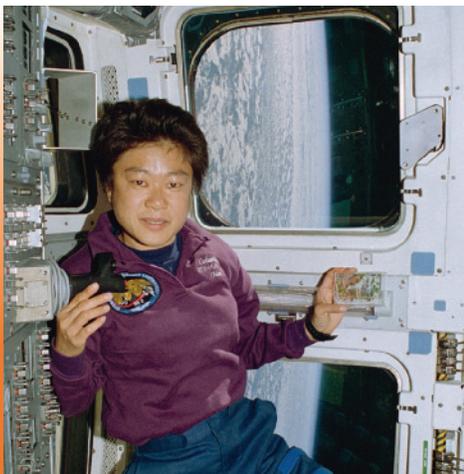
Payload specialist on STS-65 (1994) and STS-95 (1998).

Deputy mission scientist for STS-107 (2003).

My Space Shuttle Memory

“From the mid 1980s to 2003, I worked for the space program as a Japanese astronaut. This was the golden time of Space Shuttle utilization for science. Spacelab missions, which supported diverse fields of research, were consecutively scheduled and conducted. The science communities were so busy and excited. I flew two times (STS-65/IML [International Microgravity Laboratory]-2 and STS-95) and worked as an alternate crew member for two other science missions (STS-47 and STS-90). On my last assignment, I was a deputy mission scientist for the STS-107 science mission on board the Space Shuttle Columbia.

I really enjoyed working with many motivated people for those missions. I treasure these memories. Among the many photographs taken during my time as an astronaut, I have one favorite sentimental picture. The picture was taken from the ground showing STS-65, Columbia, making its final approach to Kennedy Space Center. The classic line of the shuttle is clearly illuminated by the full moon softly glowing in the dawn’s early light. When I see this photo, I cannot believe that I was actually on board the Columbia at that moment. It makes me feel like everything that happened to me was in a dream.



© 1994, Toru Fukuda. Reproduced with permission. All rights reserved.

The Space Shuttle Program enabled me to leave the Earth and to expand my professional activities into space. My dream of ‘Living and working in space’ has been truly realized. Thanks to the enormous capacity of human and cargo transportation made by the Space Shuttles between Earth and space, people can now feel that ‘Space is reachable and that it is ours.’ I want to thank the dedicated people responsible for making this successful program happen. The spirit of the Space Shuttle will surely live on, inspiring future generations to continue using the International Space Station and to go beyond.”

They can be found in books, magazines, calendars, catalogs, on television news broadcasts, and on numerous non-NASA Web sites. They adorn the walls of offices and homes across the world. One of the most famous images captures the historic spacewalk of Astronaut Bruce McCandless in the Manned Maneuvering Unit set against the blackness of space. Another

well-known photo, taken by the crew of STS-107 (2003), features the moon in a haze of blue.

Tourism

The Space Shuttle attracted vacationing travelers from the beginning of the program. Tourists from across the country and globe flocked to Florida to

witness the launch and landing of the shuttle, and also drove to California, where the shuttle sometimes landed. Kennedy Space Center’s Visitor Complex in Florida and the US Space and Rocket Center in Alabama welcome millions of sightseers each year—people who hope to learn more about the nation’s human spaceflight program. Visitors at Kennedy Space Center have



the unique opportunity to experience the thrill of a simulated launch on the Shuttle Launch Experience, with veteran shuttle Astronaut Bolden walking riders through the launch sequence. Others visit Space Center Houston in Texas and the Smithsonian’s Udvar-Hazy Center in Virginia, the latter of which includes the Enterprise, the first Space Shuttle Orbiter rolled out in 1976.

One need only visit the areas surrounding the space centers to see the ties that bind NASA’s longest-running program with their local and state communities. In the Clear Lake area (Texas), McDonald’s restaurant attracted visitors by placing a larger-than-life astronaut model donned in a shuttle-era spacesuit on top of the roof. A mock Space Shuttle sits on the lawn of Cape Canaveral’s city hall. Proud of its ties to the space program, Florida featured the shuttle on the state quarter released by the US Mint in 2004; Texas, by contrast, included the Space Shuttle on its state license plates.

Summary

For nearly 30 years, longer than the flights of Mercury, Gemini, Apollo, and Skylab combined, the Space Shuttle—the world’s most complex spacecraft at the time—had a tremendous influence on all aspects of American culture. Television programs and motion pictures featured real-life and imaginary Space Shuttle astronauts; children, entertained by these programs and films, dreamed of a future at NASA. Twenty-five years after Sally Ride’s first flight, thousands of girls—who were not even born at the time of her launch—joined Sally Ride’s Science Club, inspired by her career as the first American woman in space.



Brewster Shaw
Colonel, US Air Force (retired).
Pilot on STS-9 (1983).
Commander on STS-61B (1985)
and STS-28 (1989).

Space Is For Everyone

“I was on STS-9 and we had waved off several revs before landing in California. My wife joined me after the postflight conference. I asked her what she thought. She replied that I said ‘Space is for everyone.’ I have reflected on that. I remember looking out the back window of the shuttle and looking at Earth as it passed by very quickly. I marveled at the fact the human brain has developed the capability to lift 250,000 pounds of mass into orbit and is flying around at the orbital velocity of 17,500 miles per hour—what an accomplishment of mankind! Looking at Earth from that vantage point made me realize that there are a lot of people on Earth who would give their arm and a leg to be where I am! Here I was a 30-something macho test pilot and I was humbled!

“Suddenly it occurred to me how privileged I was to be here in space! It was a revelation. I had no more right than any other human being to be here—I was just luckier than they were. There I realized that space is for everyone! I decided to dedicate my career to helping as many humans as possible experience what I was experiencing.”

An Expansive Legacy

The Space Shuttle became an “icon” not only for the capabilities and technological beauty of the vehicles, but also for the positive changes NASA ultimately embraced and further championed. Through the efforts of those who recognized the need for diversity in the workplace, the Space Shuttle Program was ultimately weaved into the fabric of our nation—on both a social and a cultural level. The expansion of

opportunities for women, minorities, industry, and international partners in the exploration of the universe not only benefitted those individuals who had the most to gain; the expansion also made the program an even greater success because of each individual’s unique and highly qualified contributions. No longer regarded as a “manned” spaceflight in the most literal sense of the term, the shuttle ushered in a new era of “human” spaceflight that is here to stay.



*SPACE COWBOYS © WV Films LLC. Licensed By: Warner Bros. Entertainment Inc. All Rights Reserved.