

THE RIGHT PLACE

By Jennifer Ross-Nazzari

HOUSTON MAKES HISTORY

The Space Task Group

NASA Lyndon B. Johnson Space Center's roots were firmly planted in 1958—the same year that the National Aeronautics and Space Administration (NASA) was established—when the space agency created the Space Task Group (STG) headed by Robert R. Gilruth. Gilruth had been working as an engineer at the National Advisory Committee for Aeronautics (NACA) Langley Aeronautical Laboratory in Hampton, Virginia, since 1937. When the Soviets launched Sputnik 2 with a dog onboard in 1957, Gilruth recognized that the NACA needed to start pursuing a human spaceflight program.

“When I saw the dog go up, I said, ‘My God, we better get going because it’s going to be a legitimate program to put man in space.’”¹ He began working with people in Washington, D.C., to determine how the United States could do so. NACA continued to explore the possibility of manned spaceflight through 1958, when NACA became NASA. It seemed obvious to appoint Gilruth as head of the STG. After all, he had been heavily involved in these early efforts.

On November 3, 1958, Gilruth announced that thirty-six individuals (eight women and twenty-eight men) from the Langley Research Center would be transferred to the STG, which would be located at Langley but report to NASA Headquarters in Washington, D.C. Employees of the STG were charged with developing a manned satellite program, later known as Project Mercury.

Few senior members of the Center joined the group; most everyone was young. Some of Langley’s older engineers discouraged recent college graduates from joining because spaceflight seemed like a passing fancy, nothing on which to build a career. Even before NASA was formed, the NACA Administrator Hugh L. Dryden likened a ballistic space project to a circus stunt—like shooting a lady from a cannon. Alan B. Kehlet, one of the original members of the group, remembers his boss telling him, “You know, this place is not going to make it. I think you ought to think more than once about whether or not you want to go, because when it does fail, there isn’t any job for you back here.”²

Members of the 1960 Flight Operations Division stand outside their temporary office at the Houston Petroleum Center.



NASA S64-26644



The original Mercury astronauts are (standing, left to right) Alan B. Shepard Jr., Walter M. Schirra Jr., and John H. Glenn Jr.; (sitting, left to right) Virgil I. Grissom, M. Scott Carpenter, Donald K. Slayton, and L. Gordon Cooper Jr.

NASA S6C-02704

Over the next year, the STG's ranks increased as individuals from the Lewis Research Center in Cleveland, Ohio, joined the team and other Langley personnel began working on the project. However, staffing soon became a problem. Fortunately for Gilruth, a group of experienced aerospace engineers became available when the Canadian government scrapped the AVRO Arrow CF-105 fighter airplane in February 1959. NASA offered about fifty positions to the Canadians, with half accepting. Later, a few other former AVRO employees ended up accepting positions within the American space agency.

Project Mercury

On November 26, 1958, the manned satellite program officially became known as Project Mercury. The project had three major goals: one, to insert a spacecraft into Earth orbit with a human being onboard; two, to determine man's ability to function in microgravity; and three, to safely recover the passenger and capsule. These objectives required engineers to design a vehicle to protect the occupant from the vacuum of space and heat of landing. They designed a capsule that proved to be effective. Maxime A. Faget was the chief designer of the Mercury spacecraft and, along with six other members of the STG (Andre J. Meyer, Robert G. Chilton, William S. Blanchard, Alan B. Kehlet, Jerome B. Hammack, and Caldwell C. Johnson), held the patent for the bell-shaped capsule.

The astronauts, the heroes of the space program, were selected and assigned to the STG. Introduced to the American public in 1959, the Mercury 7, as they were affectionately called, included M. Scott Carpenter, L. Gordon Cooper Jr., John H. Glenn Jr., Virgil I. "Gus" Grissom, Walter M. Schirra Jr., Alan B. Shepard Jr., and Donald K. "Deke" Slayton. Six manned flights flew between 1961 and 1963. Shepard became the first American in space in May 1961, and Glenn was the first American to orbit the Earth in February 1962. (Slayton was the only member of his class who did not fly until much later because of a heart condition.)

When the Mercury Project ended, the space agency had learned a great deal. Mercury proved that humans could safely launch into orbit and land from space. And, astronauts could operate safely in microgravity.

Location, Location, Location

In 1958, the STG was located in Virginia but was to become part of the Goddard Space Flight Center being built outside of Washington, D.C., in Maryland. Once the Center opened in 1959, the STG was made a part of the Maryland Center, with Gilruth as assistant director. Harry J. Goett of Ames Research Center was appointed as director. NASA planned to keep the STG at Langley through the end of Project Mercury, when their staff would move north. But, the plan to include the STG at Goddard strained relations between Goddard and the STG and created a rift between Gilruth and Abe Silverstein, NASA's director of the Office of Space Flight Programs. The STG did not remain under Goddard for long; in January 1961, the group again reported to Headquarters and remained at Langley.

NASA began contemplating whether it should move the STG to a site separate from Langley, when, fortuitously,

Robert R. Gilruth, MSC Director, receives the Presidential Award for Distinguished Federal Civilian Service from President John F. Kennedy.



NASA S6E-04652



NASA 562-03707

Astronaut Walter Schirra smiles at the crowds during the 1962 Fourth of July parade through downtown Houston in honor of the new NASA Center.

President John F. Kennedy committed the United States “to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to the Earth” in a 1961 speech before Congress. The endorsement of a program to put a man on the moon shifted the nation’s attention to NASA’s manned spaceflight program and the STG. Human spaceflight was no longer a fad, and NASA intended to move the STG to its own location.

On September 19, 1961, NASA announced that the new spaceflight Center would be located in Houston, Texas. But why Houston?

NASA had criteria for the proposed site which included: transportation in ice-free water by barge, a mild climate, all-weather commercial jet service, a Department of Defense (DoD) air base that could handle military jet aircraft, a university nearby, at least 1,000 acres of land, and property that fell within certain cost parameters. Twenty-three sites were visited. Tampa, Florida, emerged as the winner because the Air Force planned to close down its Strategic Air Command Operations at MacDill Air Force Base. Houston originally came in second place, but became the top choice when the Air Force chose not to close MacDill.

Texan politicians probably had a hand in the establishment of a spaceflight laboratory in Houston. Lyndon B. Johnson, an enthusiastic supporter of the space program, served as vice

president under President Kennedy. Other Texans served in various leadership positions within the Congress, like Sam Rayburn, who served as speaker of the house. Albert L. Thomas represented the area adjacent to Clear Lake and chaired the House Appropriations Committee. Olin E. Teague served on the House Committee on Science and Astronautics and headed the Subcommittee on Manned Space Flight.

Some of those working for the STG were not thrilled to hear that they would be leaving the shores of the Virginia coast for the prairies of Texas. Hurricane Carla had recently hit the Texas Gulf Coast and devastated the area south of Houston where the Center would be built. Public Affairs Officer Paul P. Haney flew over the area and remembers that water filled the site and a shrimp boat landed on the exact spot of the Center’s future administration building, now known as Building 1. Jack A. Kinzler of the Technical Services Division remembers his visit as being “kind of scary.” He and some of his fellow travelers recognized that their “wives might not be too happy to move into an area where there is the obvious possibility of extensive hurricane damage.”³

Houston, Space City

Contrary to popular belief, Houston was a great place to live. Houstonians were thrilled that their city had been selected as the home of the new Manned Spacecraft Center (MSC).

(The STG was renamed MSC in the fall of 1961.) The city opened its arms to the 751 NASA employees who relocated to Houston and the 689 new hires. When they came, they were surprised by the response of the local community which had embraced the newcomers; Houston—the sixth largest city in the country—welcomed NASA.

Thousands of Houstonians came out to greet the MSC workers at a Fourth of July parade in 1962. Following the spectacle, MSC employees feasted on barbecue at the Sam Houston Coliseum, while local high school bands played “The Eyes of Texas” and “Dixie.” George T. Morse, the Houston Chamber of Commerce president, told NASA employees, “We are deeply proud of the fact that the Manned Spacecraft Center has moved to our area,” and Senator John Tower admitted, “We rejoice in your presence here; we like you and hope you’ll like us.”⁴ After the presentations, the astronauts, Gilruth, Walter C. Williams, and John A. Powers received Texas-style hats and deputy sheriff badges, making each of the men members of the Reserve Deputy Sheriff’s Posse.

The city became known as Space City and those associated with NASA were treated as VIPs. For example, William A.

Parker, a procurement officer, recalled that people asked him for his autograph at a grammar school Halloween party. He explained, “It was a real embarrassing situation because, golly, we weren’t astronauts or anything like that, yet we were being given this kind of treatment by the local people.”⁵

Construction at the site began in April 1962. With no buildings yet erected in Clear Lake, MSC employees were spread out across the city. The Farnsworth-Chambers Building served as a temporary headquarters while a former Canada Dry Bottling Plant served as a machine shop. Ellington Air Force Base and other local buildings housed a number of employees.

Between February and April 1964, more than two thousand employees relocated from their interim offices and moved onsite. By June 30, 1964, the relocation was complete and MSC opened its doors to the public, but the Center was not finished. Construction continued on many of MSC’s unique facilities, which were completed later that year or in 1965. The facilities included the Space Environment Simulation Laboratory, the Mission Control Center, the Flight Acceleration Facility, and the Vibration and Acoustic Test Facility.

The original seven Mercury astronauts, each wearing a cowboy hat, are on stage at the Sam Houston Coliseum during the welcome ceremonies and barbecue dinner.



NASA 592-03717

Gemini

If NASA were to successfully put a man on the moon by the end of the decade, MSC engineers, scientists, and medical doctors had to learn a great deal more about living and working in space. NASA created the Gemini Program as a follow-on to Mercury and announced the program in 1962. Gemini had to prove that astronauts could rendezvous and dock in space. This was necessary for the Apollo Program to be successful, since the Lunar Module that the astronauts would take to the moon would have to launch from the moon, rendezvous, and then dock with the Apollo Command/Service Module. Astronauts had to be able to conduct spacewalks. This ability was important for the Apollo Program when men would walk on the moon. Finally, the program had to demonstrate that humans could safely stay in space for long periods of time.

Nine new astronauts—called the New Nine—were selected in September 1962 and flew a total of ten Gemini missions along with the previous class of astronauts. (Compared to the Mercury spacecraft, the Gemini vehicle was larger and could hold two astronauts.) Members of this second class included Neil A. Armstrong, the first man to walk on the moon, and

Ellington Air Force Base served as a site for training astronauts including Gemini IV crew Jim McDivitt (left) and Ed White.



NASA 565-19293



NASA AS17-134-20384

Jack Schmitt stands next to the U.S. flag at the Taurus-Littrow landing site on the moon during the Apollo 17 mission. The Earth is visible in the distant background.

John W. Young, the commander of the maiden flight of the Space Shuttle *Columbia*.

Gemini III, the first manned flight of the program, launched from Cape Canaveral in Florida in March 1965, and the new Mission Control Center in Houston backed up the flight. In June of that year, Gemini IV became the first mission managed by flight controllers in Houston; earlier flights had been controlled from the Cape. It was also a particularly notable flight as Edward H. White II conducted America's first extravehicular activity or spacewalk. This mission permanently established MSC as the home of the Mission Control Center for future human spaceflight programs. Since 1965, the Mission Control Center has controlled the agency's most memorable human spaceflights.

Apollo

Landing a man on the moon is considered one of the greatest accomplishments of the twentieth century, and MSC employees played a major role in achieving this victory. Astronaut Joseph P. Allen noted that the project built upon the “collective efforts of hundreds of thousands of people,” from the engineers who calculated the trajectory to the seamstresses who stitched the spacesuits. “These bits and pieces of knowledge, processes, techniques, technologies, are across the entire spectrum of the human intellect, and they were all combined to accomplish Apollo.”⁶

Eleven manned missions flew from 1968 through 1972. The first manned flight, Apollo 7 which launched in 1968, featured veteran astronaut Schirra with Donn F. Eisele and Walter Cunningham, both rookies. Apollo 8 was the first mission to fly around the moon. Apollo 11 was the first to land on the moon. For MSC employees, the success of the

lunar landing was a proud moment. Once the capsule splashed down in the Pacific Ocean and the astronauts were safely onboard the USS *Hornet*, flight controllers celebrated the conclusion of the first successful mission to the moon by waving American flags and lighting up cigars.

Five more missions landed on the moon, with the program ending in December 1972 with Apollo 17. This flight included astronaut Harrison H. Schmitt, the first scientist to fly a lunar mission. Three more scientist-astronauts would fly in the follow-on program to Apollo—Skylab.

MSC Becomes Johnson Space Center

As MSC busily worked on the Skylab and ASTP missions, one of NASA's biggest proponents passed away—former President Lyndon B. Johnson. U.S. Senator Lloyd Bentsen of Texas introduced a resolution to rename the Center in memory of Johnson, who had died on January 22, 1973. The Senate passed the resolution, and MSC became Johnson Space Center (JSC) on February 17, 1973. In August of that year, Lady Bird Johnson, wife of the late president, attended a formal dedication ceremony. Center Director Christopher C. Kraft, who led the ceremonies, said, “It’s been just a few months since the legislation was enacted, designating this Center in honor of

our late president. The new name is so appropriate, however, that it seems now that we’ve always been known as the Johnson Space Center.” The Skylab 3 crew, in Earth orbit, admitted that “the work in which we are right now engaged in Skylab would not have been possible except for his [Johnson’s] strong support and leadership in the Senate and in the presidency.”⁷

Skylab

Skylab was America’s first space station. The program had two basic objectives: to prove that human beings could live and work in a space laboratory for extended periods of time, and to learn more about the Earth, solar astronomy, and man’s health in space. On May 14, 1973, NASA launched the unmanned laboratory, Skylab, from the Cape. (The mission, though unmanned, was called Skylab 1.) There were problems with the mission from the beginning. The meteoroid shield and sunshade tore off during launch. This damaged the solar cells designed to provide power to the workshop. Once in Earth orbit, the loss of the shade exposed the workshop to the sun, and temperatures inside the workshop rose quickly. Because of these problems, NASA delayed the launch of the Skylab 2 crew.

Numerous people at MSC and the Marshall Space Flight Center in Huntsville, Alabama, scrambled to save the ailing

NASA formally dedicated the Manned Spacecraft Center in honor of Lyndon B. Johnson on August 27, 1973, which would have been the former president’s sixty-fifth birthday. On hand for the event was Lady Bird Johnson, pictured with Center Director Chris Kraft.



NASA S79-39323

workshop. MSC's own Jack Kinzler of the Technical Services Division is credited with saving the Skylab mission. He and his employees created a parasol that provided shade for the space laboratory and would be deployed by the crew of Skylab 2, which was commanded by moon-walker Charles C. "Pete" Conrad Jr. The crew successfully installed the parasol sunshade and remained in space twenty-eight days, where they conducted numerous scientific studies and medical experiments.

Two more manned missions flew between 1973 and 1974. Astronauts Alan L. Bean, Jack R. Lousma, and Owen K. Garriott flew on the second manned mission, which remained in space for fifty-nine days. The final crew broke all U.S. space records by living in space for a eighty-four days. No additional missions flew to the space station and, in 1979, the workshop tumbled back to Earth, with most of the laboratory burning up in the atmosphere. A few pieces survived and fell in Western Australia; in jest, one county council in the region fined NASA \$400 for littering.



MSC employees help a seamstress feed material through a sewing machine to create the three-layered sunshade for use as a parasol to protect the Skylab space station from excessive heat after it was damaged during launch.

Apollo-Soyuz Test Project

America's final Apollo flight was its first international mission. In 1970, MSC Center Director Gilruth, Glynn S. Lunney, Caldwell C. Johnson, and Marshall Space Flight Center's George B. Hardy traveled to the Soviet Union and were joined by Arnold W. Frutkin and State Department interpreter William Krimer. While there, they discussed how the U.S. and USSR might rendezvous and dock their two spacecraft in Earth orbit. A few months later, Lunney became NASA's project director for the Apollo-Soyuz Test Project (ASTP). Discussions with the Soviets and MSC engineers continued through 1972. Their labor paid off when President Richard M. Nixon and Soviet Premier Aleksey Kosygin signed an agreement to rendezvous and dock an Apollo Command/Service Module with a Soyuz vehicle in 1975. MSC's Lunney remained head of the project, seeing the goodwill flight to completion.

The Americans chose Thomas P. Stafford, Vance D. Brand, and Slayton to represent the U.S. in this one-of-a-kind flight. They received intensive training in the Russian language and studied the Soyuz spacecraft in Star City, Russia. Their counterparts, cosmonauts Alexei Leonov and Valeriy Kubasov, participated in simulations and in-flight training activities in Houston. They even visited Kennedy Space Center in Florida, where they toured the facilities and learned about operations at the Cape. As an added bonus, they toured Disney World in Orlando, Florida.

The crews launched on July 15, 1975, and rendezvoused and docked on July 17, 1975. Once linked, Stafford shook hands with Leonov. President Gerald R. Ford, then watching the mission from a TV feed in the Oval Office, noted the significance of the mission, saying it had "taken us many years to open this door to useful cooperation in space between our two countries."⁸ Two days later, the spaceships undocked, marking the end of the first joint mission between the U.S. and the Soviet Union.

Space Shuttle

In addition to their work on the Mercury, Gemini, Apollo, and Skylab Programs, JSC employees have played an integral role in the design, development, and operation of America's workhorse, the Space Shuttle Orbiter. MSC engineers still remember the day that they were told to report to Building 36. It was April 1, 1969, and many thought it was an April Fool's prank, including Ivy E. Hooks, who was one of twenty called.

"In a few minutes, Dr. Max Faget walked in," Hooks recalled. "And he was carrying a balsa wood model of an airplane ...



NASA SPS-60341

Engineer Max Faget demonstrates his early concept of the space shuttle which, unlike the previous NASA spacecraft, would land like a plane.

and he strolled across the room, flew it across at us and said, “We’re going to build America’s next spacecraft. And it’s going to launch like a spacecraft; it’s going to land like a plane.”⁹

For the next few years, MSC engineers worked on the basic design and definition of the shuttle. They came up with the DC-3 design. The design changed many times, due in part to the political and economic climate of the early 1970s; the payload bay grew larger to accommodate DoD requirements and delta wings were added, not the straight-wings Faget and MSC engineers had envisioned.

In 1972, President Nixon approved the Space Shuttle Program, and MSC became the lead Center for the program. Development on the shuttle and its systems began soon after, with North American Rockwell receiving the contract to build the orbiter. Several subcontractors received contracts to build the orbiter’s wings, the vertical tail section, and mid-fuselage. With the shuttle under development, no spaceflights flew until April 1981.

With so few spaceflights in the 1970s, many of the Gemini- and Apollo-era astronauts elected to retire, and their numbers began to dwindle. In 1976, NASA announced that the Agency would be selecting a new class of astronauts for the Space Shuttle Program. More than 8,000 individuals applied, but only a few made the cut. In 1978, NASA announced the first class of shuttle astronauts, known as the Thirty-Five New Guys. This group was the first to include women and minorities. Since then, such diversity has been included in every class.

These first twenty years, 1958–1978, laid the foundation for a new era of human spaceflight that would include long-duration flight, planetary satellite deployment, science studies, and a partnership of sixteen countries aboard the International Space Station. The dedication and commitment of individuals working together for a common cause in the first days remains evident in the workforce today as NASA prepares for its latest program, Constellation, that includes missions to the moon and on to Mars. ★