

Air and Space this Week

Item of the Week

THOMAS STAFFORD AND THE STAFFORD AIR & SPACE MUSEUM

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Apollo-Soyuz Test Project ASTP**

I had occasion to drive across Oklahoma on I-40 over the Holidays. The most interesting thing I saw was the Stafford Air & Space Museum, in Weatherford. It's a fine example of how a person who had a stellar career in aviation, astronomy, or Space exploration can still find the time to share their experiences and enthusiasm for the endeavor with the next generation!

THOMAS PATTEN STAFFORD

Thomas Stafford was born on September 17, 1930, in Weatherford, Oklahoma. His father was a dentist, and his mother had come to Oklahoma in a covered wagon. She would live to see her son fly around the Moon!

Young Stafford's interest in aviation came early, amplified by the WWII aerial activity at the nearby AAC training base in nearby Reno, OK. He made his first flight at age 14, at the start of high school! Stafford was also a good athlete, and was recruited to play football at the University of Oklahoma after graduation in 1948. He declined, opting instead for the USNA at Annapolis instead. USNA grads of that era were in a lottery for staffing the new Air Force upon graduation. Stafford graduated with honors and received an Air Force commission. He graduated from flight training in 1953, with the first assignment of flying F-86 interceptor missions for Arctic defense. The maintenance challenges for aircraft on that duty honed Stafford's interest in aeronautical technology, and would lead him to the USAF Experimental Flight Test program at Edwards AFB. He finished first in his class at Edwards, then stayed there as a flight instructor. He was accepted into the Harvard MBA program, but his acceptance into NASA's Astronaut Group 2 followed shortly thereafter. His astronaut cohort included Neil Armstrong, Frank Borman, Pete Conrad, Jim Lovell, Jim McDivitt, Elliot See, Ed White, and his former *Mississippi* rommie, John Young. What an august group! All but Elliot See would go on to successes in Space; he and Group 3 astronaut Charles Bassett were killed in the crash of the T-33 while on a contractor visit.

ASTRONAUT STAFFORD

Tom Stafford's initial assignment was a plum for a "Second Nine" astronaut; he was slotted to fly the first Gemini crewed mission, *Gemini 3*, with Alan Shepard as commander. However,

Shepard developed a balance-affecting middle ear disorder, [Meniere's Disease](#), which (temporarily) scrubbed him from the flight rotation. Stafford was then paired with Mercury vet Wally Schirra on the *Gemini 3* back-up crew, which positioned them as the prime crew for *Gemini 6*.

Two serious problems arose with *Gemini 6*. It was originally programmed as a test for rendezvous and docking with a specially-built Agena satellite. However, the Agena's booster exploded soon after launch, resulting in a launch scrub for Schirra and Stafford, as no other Agena was readily available.

The mission was then re-designated as *Gemini 6A*, and used to check another technological block on the To-the-Moon checklist. NASA wanted to test the habitability and medical issues astronauts on a longer mission (like to the Moon) might encounter. *Gemini 7* got the long-mission call; *Gemini 6* would test rendezvous techniques. Borman and Lovell in *Gemini 7* would be launched first, on December 4, 1965; Schirra and Stafford would follow in *Gemini 6* on December 12. Borman and Lovell got off OK, but Wally and Tom did not.

Gemini 6's Titan booster ignited on schedule, but immediately shut down. Protocol suggested an immediate ejection by the astronauts, but they did not do so. Their holding fire allowed the problem to be corrected without damage to the capsule, and they were launched successfully on December 15, their mission re-designated as *Gemini 6A*. The rendezvous went off without a hitch, with the two capsules orbiting in very close formation for several orbits, in spite of the *Gemini 7* guys having already been in their very cramped capsule for a week and a half. *Gemini 6* returned to Earth on December 16.

Deke Slayton's three mission rotation scheme had Stafford as the back-up crew commander for *Gemini 9*, paired with Gene Cernan this time, and then be the prime crew for *Gemini 12*. The prime crew for *Gemini 9* was the aforementioned team of Elliot See and Charles Bassett. Both prime and back-up crews flew in separate T-38s to the McDonnell Douglas factory in St. Louis. See and Bassett were killed in a bad weather landing approach. As a result, the astronaut assignment rotation was affected. Stafford and Cernan were now the prime crew for *Gemini 9*, and the team of Lovell and Aldrin became the back-ups.

One of the primary objectives of *Gemini 9* was another rendezvous/docking test with an Agena satellite. The Agena was launched on May 17, 1966, and promptly went awry; there was no replacement available this time, either. NASA launched a different type of docking target, the *Augmented Target Docking Adapter*, or *ATDA*, on June 1. *Gemini 9* was supposed to follow that afternoon, but a computer glitch delayed their launch for two days, now designated as *Gemini 9A*.

The *ATDA* had doors that protected the docking device during launch. They were supposed to open and be jettisoned when the *ATDA* attained orbit. However, they only opened partially, a surprise to the approaching *Gemini 9* team. They likened the *ATDA's* appearance as an "[angry alligator](#)." But to me, it looks very much like the *ATDA* and its mouth was the inspiration for Blofeld's capsule-catching [device](#) on the early James Bond movie, "You Only Live Twice," which came out in 1967, less than a year after the *Gemini 9* flight.

The rendezvous with the *ATDA* was successful, but docking was impossible, and *Gemini 9* returned to Earth on June 6. Further rearranged crew rotation made *Gemini 9* Stafford's final Gemini flight, but set him up to be flying in Apollo.

His initial slot was as backup command module pilot for *Apollo 2*, with Frank Borman as commander and Mike Collins as the lunar module pilot. A shuffle in late 1966 made him commander of the *Apollo 2* back-up crew, with John Young as the command module pilot and Gene Cernan as the lunar module pilot. Then the *Apollo 1* fire happened, and between that and the death of astronaut C.C. Williams in another aircraft accident, the flight assignments and launch schedule were revised again. The original *Apollo 2* crew would become the prime crew for *Apollo 10*, the Moon landing "dress rehearsal."

The *Apollo 10* mission went off without many problems, apart from a rougher-than-expected ascent from Earth and a spinning ascent in the LM from the low part of their lunar orbit, caused by a thruster guidance problem Stafford was able to overcome.

After *Apollo 10*, Stafford was assigned to be the Chief of the Astronaut Office temporarily, and then was assigned to be the commander of the *Apollo-Soyuz Test Project*, the famed "[Handshake in Space](#)" mission, for which he would share a Nobel Peace Prize nomination.

One aspect of Stafford's performance during the *Apollo 10* timeframe is important to all those of us who realize the great value of sharing the excitement and enthusiasm for reaching for the Moon with the public. He was instrumental in the development of a color TV camera suitable for Apollo operations, knowing that a live telecast from Space would be highly engaging. He also saw to it that the *Apollo 10* command module would be named "Charlie Brown" and its LM would be named "Snoopy," as the creations of Charles Schultz and his *Peanuts* characters were very popular at the time.

AFTER NASA

Now-General Stafford was offered the command of Edwards AFB flight test facility after his *Apollo 10* flight, and he accepted. He was involved deeply in a number of development projects while there and afterward when he was Deputy AF Chief of Staff, including the F-117 Nighthawk stealth fighter, which proved highly effective in Project Desert Storm, and the work-up of what would become the B-2 stealth bomber.

He retired from the USAF on November 1, 1979, and returned home to Oklahoma. He served on the boards of several companies, and was the principal of a successful aerospace consulting firm. He chaired the important NASA "Synthesis" committee at the request of Vice-President Quayle, which advised NASA on how to approach their long-range lunar and Mars exploration goals. He also was a key advisor on the work that led to the creation of the *International Space Station*, drawing on his Apollo-Soyuz experience, and on NASA's Shuttle missions to the *Mir* Space Station.

General Stafford retained his friendship with the Russian crew of the ASTP, in spite of the rocky US-USSR relationship. Alexi Leonov is the godfather of the Stafford children born after the ASTP, and he served as pallbearer and delivered the eulogy at Leonov's funeral.

Needless to say, General Stafford received many well-deserved awards and plaudits for his illustrious career! He's in the International Space Hall of Fame; he is a fellow of the American Astronomical Society, the American Institute of Aeronautics and Astronautics, and the Society of Experimental Test Pilots; and he is a member of the exclusive Explorers Club. General Stafford is also in the U.S. Space Foundation [Hall of Fame](#), and [won](#) their General James E. Hill Lifetime Space Achievement Award in 2018. He has received honorary degrees from the Oklahoma City University, Western State University, Emerson College, and Embry-Riddle Aeronautical University.

General Stafford [was inducted](#) into the Oklahoma Aviation and Space Hall of Fame on December 17 (Kitty Hawk Day), in 1980, along with Oklahoma astronauts Gordon Cooper, Owen Garriott, William Pogue, and Stuart Roosa, as well as C.R. Smith (transportation pioneer), General Ira Eaker, the late Wiley Post, and the late Mike Manroney (former chair of the U.S. Senate sub-committee on Aviation).

But I think one of his most important and lasting achievements was the establishment of the Stafford Air & Space Museum at the Weatherford Airport!

THE STAFFORD AIR & SPACE MUSEUM

I have had the pleasure of being surrounded by a number of friends and colleagues who've been dedicated to engaging public education and interest in aviation and Space exploration. The entire crew at the National Air and Space Museum (especially the Docents!), the folks I met and worked with at NASA HQ, and my fellow members of the JPL Solar System Ambassadors volunteer program are all shining examples of this, even after their formal retirement.

General Stafford took things to a whole different level in sparking the development of a first-rate educational facility in his own home town. I am sure he is particularly proud of this accomplishment among the long list of things he's done over a productive life!

The SASM had a modest beginning as a simple display case of some of Stafford's memorabilia at the Weatherford Airport terminal in the late 1970's. Its popularity with the locals and with passersby on nearby I-40 has led to continued growth, first with a dedicated building just for the Museum in 1993 to today's 63,000 square-foot facility housing thousands of artifacts and educational activities.

The SASM became a Smithsonian Affiliate in 2011. It has full-size replicas of a variety of famous aircraft and it has the actual flight versions of a Titan II missile (our ICBM in the 60s and Gemini launch vehicle), the *Gemini 6A* capsule, and a number of classic aircraft, including: Sopwith Pup, F-86, T-33, T-38, A-10, F-16, and MiG-21. SASM also has a number of important pieces of aviation/Space hardware, including an F-1 Apollo main engine and General Stafford's *Apollo 10* spacesuit. In addition to the artifacts and engaging exhibits, the SASM also has a popular

Education Center, public programming, and an annual Camp Invention, where students receive a lot of hands-on learning opportunities.

The next time you find yourself chugging along cross-country in the Sooner State, take a break and drop by the Stafford Air & Space Museum. You'll be glad you did!

REFERENCES

Tom Stafford

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The Stafford Air & Space Museum

SASM Website: <https://www.staffordmuseum.org>

SASM Star Tour Guide: [here](#)

DIDJA KNOW?

Thomas Stafford took his first summer midshipman cruise on the battleship *Mississippi* where his roommate was the future astronaut and fellow *Apollo 10* companion, John Young.

Last Edited on 8 January 2023