

It was assumed that in the fullness of time, Air Force pilots would fly through space in rocket ships.

The Faded Vision of “Military Man in Space”

By John T. Correll

An X-15 is released from a B-52. The X-15 flew to a height of 67 miles, 17 miles higher than the beginning of what is considered “space.”

Science fiction got into space before the astronauts did. The standard assumption in those days—from H. G. Wells to Buck Rogers—was that men would eventually fly through space in rocket ships. It was further assumed that many, perhaps most, of the spacefarers would be military.

In reality, military interest in space took off after World War II, when long-range missiles pointed the way. The first objective was to put an artificial satellite into orbit around Earth but the concept of a “military man in space” was part of the vision. (It was not until many years later that the terminology evolved to the more inclusive “human space flight.”)

The idea of going into space had special appeal for the Air Force, which saw the “aerospace” domain as an extension of air operations closer to earth. The Air Force expected to fly into deep space—and to fight there.

In November 1945, Gen. Henry H. “Hap” Arnold, commanding general of the Army Air Forces, predicted that “true



USAF photo

spaceships, capable of operating outside of the earth's atmosphere" would be launched "within the foreseeable future."

Jimmy Doolittle famously predicted in *Air Force Magazine* in March 1958 that by 2000, "a man or men will be landed on Mars or Venus and brought back."

About the same time, Gen. Thomas D. White, USAF Chief of Staff, said, "It is technically feasible for manned spaceflight to become routine in a very few years," and "in the not-too-distant future, efficient ballistic missiles and true piloted spacecraft will enter our forces as operational weapons."

However, the National Aeronautics and Space Act in 1958 directed that US activities in space be "devoted to peaceful purposes" and created NASA, which—rather than the armed forces—would lead the leap into space.

After the Moon landings in the 1960s and 1970s, the manned space program shifted focus. Spaceflight was consolidated into the Space Shuttle, in which the Air Force was a junior partner. Nevertheless, it revived hopes for a military man in space.

Space had become critical to the armed forces for early warning, communications, intelligence, navigation, weather, and other functions, but the realization gradually set in that these activities did not necessarily require a human presence in space. The Air Force was unable to specify a mission that could not be performed as well or better by operators on earth "flying the satellite."

The armed forces drastically reduced their participation in the shuttle program in 1989. The shuttle itself went out of business in 2011, leaving the United States with no active human space flight capability, military or otherwise, for the next several years.

The vision of military flight in deep space would appear to be dead, returned to the realm of science fiction, but maybe not. The National Space Policy projects a manned mission to Mars by the 2030s. The role of the armed forces in it—if any, and if it happens—is yet to be determined.

Most of USAF's early research dealt with spacemen rather than spacecraft. In 1947, the Air Force School of Aviation Medicine began a project to study ecological conditions on other planets, notably Mars. In 1949, the school opened a department of space medicine to pursue experiments in weightlessness in space, the effects of heavy acceleration and deceleration, and life support capsules for the vacuum of space.

In 1954, the school obtained an "imitation spaceship" to study human passage through space. In 1958, AIC Donald G.

The original seven Project Mercury astronauts in March 1960. First row, l-r, are Walter Schirra, "Deke" Slayton, John Glenn, and Scott Carpenter. Second row: Alan Shepard, "Gus" Grissom, and Gordon Cooper.





A1C Donald Farrell takes a meal in the “imitation spaceship” built by the Air Force School of Space Medicine to test the effects of space travel on the human body. During the actual test, Farrell spent a week in the cramped capsule.

Air Research and Development Command called for “space superiority” and predicted that “several decades from now, the important battles may not be sea battles or air battles, but space battles.”

The next day, Secretary of Defense Charles E. Wilson ordered Schriever to avoid the word “space” in all future speeches.

In early 1958, the Air Force announced “Man in Space Soonest,” a four-phase project to put a capsule with instruments into orbit, followed by primates and then men. The final stage would be a Moon landing. One of the participants was test pilot Neil Armstrong from the Flight Research Center at Edwards AFB, Calif., a former naval aviator and a veteran X-15 pilot who went on to greater fame as the first man on the Moon in 1969.

The Air Force argued that air and space were indivisible, forming a single operating medium that consisted of the total expanse beyond the Earth’s surface. Around 1958, USAF leaders started refer-

ring to this domain as “aerospace” and it was so incorporated into Air Force basic doctrine in 1959.

NASA TAKES OVER

The military man in space movement suffered two critical blows in the summer of 1958 when Congress created NASA and President Dwight D. Eisenhower awarded NASA overall responsibility for human spaceflight.

Military space assets were shifted wholesale to NASA. USAF’s Military Man in Space Soonest was canceled, replaced by NASA’s Project Mercury. At that point, however, the Army and Navy were invested more heavily in space than the Air Force was, and thus took the brunt of the losses.

NASA absorbed the Army’s entire space operation at Huntsville, Ala., and renamed it the Marshall Space Flight Center. Included in the transfer was rocket scientist Wernher von Braun, who became director of the Marshall Center.

By Eisenhower’s order, the Project Mercury astronauts were all military test pilots, but NASA was calling the shots. The pilots wanted to fly the rockets off the launch pad but NASA and von Braun thought otherwise. Von Braun said “human intervention” in the launch process was “actually undesirable.”

He told the astronauts that the program would “substitute automatically controlled guidance for your hands and muscular systems.”

Farrell made national headlines when he spent a week under harsh conditions in a cramped, windowless cabin simulator. He breathed repurified air over and over and lost four pounds but emerged from the experience in good spirits.

The X-15 rocket plane was a joint project initiated by the Air Force and the National Advisory Committee for Aeronautics—the forerunner of NASA—in 1955. The expectation was that the X-15, carried aloft by a missile, might reach an altitude of 300 miles, well beyond the distance required for low Earth orbit. The X-15 was overtaken by other space projects, but not before it flew to a peak altitude of 67 miles. Thirteen X-15 flights went higher than 50 miles, qualifying the pilots for astronaut wings.

Air Force interest in space made officials in Washington, D.C., nervous. In 1957, Maj. Gen. Bernard A. Schriever of

The original Mercury astronauts with a USAF F-106. They were all military test pilots, and wanted to fly a rocket plane directly off the launchpad. Wernher von Braun, the director of NASA’s Marshall Center, thought otherwise.



NASA photo



USAF photos



The rocket plane pilots at Edwards hooted in derision, gleefully applying the phrase “Spam in a can” to Project Mercury. Their view, according to Tom Wolfe in *The Right Stuff*, was that “anybody in Project Mercury was more of a test subject than a pilot.” The astronauts disliked the term “capsule” for the vehicle they would ride into space and promoted the nomenclature of “spacecraft” instead.

The organizational realignment left the Air Force with the strongest space program in the armed forces. In 1961, USAF was designated the lead service for space R&D. For a while, the Air Force managed to hang on to a few of its manned space initiatives.

Foremost among these was the X-20

Dyna-Soar spaceplane, which evaded NASA’s clutches because it was intended to fly in the atmosphere as well as in space.

The X-20 was a hypersonic glider that would dip out of space (“dynamic soaring”) to perform reconnaissance or some other task, then fire its rockets to resume orbit. At the end of the mission, Dyna-Soar would land on a runway on Earth.

Dyna-Soar had a low-wing delta shape and more than a passing resemblance to the Space Shuttle and the more advanced spaceplane designs of later years. However, the X-20 never flew. It was canceled in 1963 before it was built, supposedly replaced by another Air Force program, the Manned Orbiting Laboratory.

The X-20 Dyna-Soar spaceplane was a hypersonic glider that would dip into the Earth’s atmosphere out of space to perform a mission, then resume orbit. The program was canceled in 1963 and Dyna-Soar never flew.

The MOL anticipated in limited fashion the space station concepts of the future. It would have used refurbished spacecraft from Project Gemini—the second stage of NASA’s Moon program—to send military astronauts into near-Earth orbit for up to 30 days to perform experiments.

The MOL was also canceled, in 1969, before making any flights. Secretary of Defense Melvin Laird explained that “the most essential Department of Defense space missions can be accomplished with lower cost by unmanned spacecraft.”

TO THE MOON

The Air Force had not given up on the idea of a fighting spaceship and in 1962 floated the notion of a military platform to “rendezvous with hostile craft” in space. However, the Kennedy Administration adhered to the congressional charter for “peaceful purposes” in space and kept the concentration on NASA.

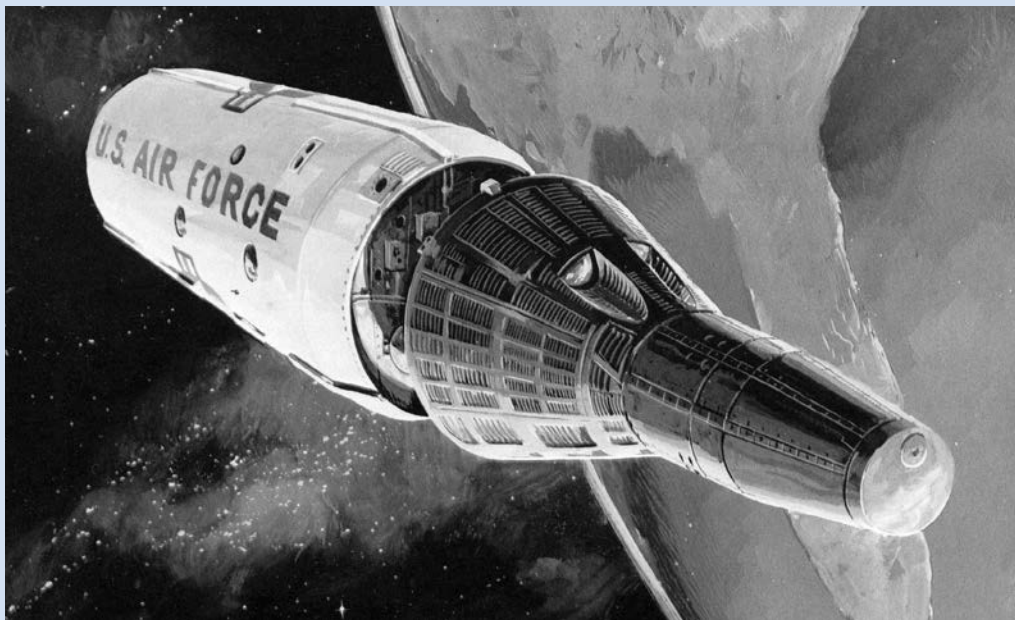
The orbital flights of Project Mercury were followed by Project Gemini, in which two-member astronaut crews in larger capsules explored space travel techniques for the coming voyage to the Moon. The Gemini astronauts had considerably more control of orbital maneuvers than the Project Mercury astronauts did.

There was a flurry of interest in “Blue Gemini,” in which the Air Force would obtain a few Gemini capsules for use in a “Military Orbital Development System.” The Air Force leadership, fearing a competing program that might put Dyna-Soar in jeopardy, wanted nothing to do with it and the proposal foundered.

Project Apollo, the final stage of the NASA Moon program, introduced spacecraft to be flown by three-member astronaut crews. In addition to the command module there was a service module and a lunar lander. Most of the astronauts were still military, but by then, Neil Armstrong, the first man on the Moon in 1969, was a civilian.

The Moon landings continued into 1972, but after that, enthusiasm for the NASA space program deflated. It no longer had a driving objective.

Unlike the armed forces, which regarded space as a means for better achieving various military missions, NASA essentially saw spaceflight as an end in itself. The military-NASA partnership continued



The Manned Orbiting Laboratory (MOL) was designed to put astronauts into orbit for up to 30 days, completing experiments, but was canceled by Defense Secretary Melvin Laird, who believed space missions could be better—and more cheaply—accomplished by unmanned spacecraft.

but the conflicting views on space were a signal of friction ahead.

The centerpiece of the US spaceflight program through the rest of the 1970s was NASA's Skylab space station. It was launched unmanned by a Saturn rocket. The astronauts were launched separately, made rendezvous with the station, and spent as much as three months aboard. Skylab functioned as a workshop and solar observatory and was on orbit from 1973 to 1979.

THE SHUTTLE ERA

The space shuttle entered service in 1981, operated by NASA with the Air Force as executive agent for the Department of Defense. It was supposed to be the answer to all of the nation's space needs, military as well as civilian. Procurement of expendable launch vehicles was curtailed.

During the shuttle's development phase, there was some belief that a new era in spaceflight was at hand. Writing in *Air Force Magazine* in August 1974, Lt. Gen. Kenneth W. Schultz, commander of USAF's Space and Missile System Organization, said, "It seems safe to predict, with the trailblazing possible with the shuttle, that before the end of this century—perhaps long before it—people will be flying suborbitally in space, much as we today fly in jet aircraft."

A joint service "Manned Spaceflight Engineer" program in 1979 made a bid for all-military crews on all-military shuttle flights. Some in the Pentagon wanted to go still further with the Department of Defense getting its own shuttle fleet. The

The space shuttle Discovery's crew cabin and part of its payload bay and docking system. Discovery was the third shuttle built, and eventually launched and landed 39 times.

proposal failed but it set off defensive reflexes in NASA, which worried about excessive military influence on the shuttle.

Then, in an initiative that tragically misfired, NASA opened shuttle participation to citizen astronauts, notably "Teachers in Space."

In January 1986, the shuttle *Challenger* exploded 73 seconds into flight, killing all seven persons onboard, including school-teacher Christa McAuliffe.

Critics faulted NASA for an ill-advised public relations scheme and said crew status should be restricted to professional astronauts.

It would be another 20 years before the next teacher, Barbara Morgan—McAuliffe's backup for the *Challenger* mission—flew on the shuttle, and then only after qualifying as a mission specialist.

The *Challenger* disaster grounded the shuttle for almost three years and delayed the scheduled launch of military satellites. Even before that, the Air Force had grown

wary of the cost and unreliability of the shuttle to put its payloads into orbit. In 1989, the Department of Defense went back to expendable booster rockets for space launch.

Nevertheless, NASA continued to draw most of its astronauts from the armed forces. In the 1980s, about 60 percent of the astronauts were Active Duty military officers but the phrase "man in space" was rendered obsolete in 1983 when Sally Ride flew on a shuttle mission.

In 1995, USAF Col. Eileen Collins became the first woman to pilot a US spaceship and in 1999 was the first woman to command a space shuttle. As of 2013, of the 338 astronauts from Project Mercury, 207 have been military and 52—including some of the military astronauts—have been women.

SEARCHING FOR A MISSION

In 1985, the Air Force undertook yet another study, this one entitled "Military Man in Space," to explore possible roles for human spacefarers. The main patron was Edward C. Aldridge Jr., who became Air Force Secretary in 1986 and who had a special interest in space. Aldridge acknowledged the failure of previous attempts to discover a requirement for human military presence in space but he wanted to try again. This effort failed as well and was finally dropped in 1991.





L-r: Jeffrey Ashby, pilot, and Eileen Collins, mission commander, go over checklists in the space shuttle Columbia's middeck in 1999. Collins, an Air Force colonel, was the first woman to pilot a US spaceship and the first to command one as well.

NASA photo

“We’ve had military man in space from the dawn of manned spaceflight, looking for missions, and we have found very few, if any,” said Gen. Donald J. Kutyna, commander of US Space Command, in 1990. “Just look at the nature of things we do in space—communications, surveillance, warning systems, navigation. We don’t use man for most of those things down on Earth, so why would we put man in space to do them?”

Nor was there much logic for human maintenance of satellites 22,300 miles away in geosynchronous orbits. It would cost far more to “take Mr. Goodwrench out to those orbits” than it would to “build reliability into the vehicles [satellites] in the beginning,” Kutyna said.

In 1987, Secretary of Defense Caspar Weinberger directed the military departments “actively to explore potential roles for the military man in space,” but nothing came of that either.

Time and again over the years, the Air Force has taken up the quest for a spaceplane—an aerospace vehicle that would take off from a runway on Earth, enter space orbit or fly through the transatmosphere at hypersonic speeds, and return to land on a runway. The X-15 and Dyna-Soar were early examples.

Development of the X-30, dubbed “the National Aerospace Plane,” was announced with great fanfare in 1986. It was to use scramjets (supersonic-combustion ramjets) powered by liquid hydrogen to reach hypersonic speeds up to 8,000 miles an hour. By the time it was canceled in

1994, the X-30 was almost a decade late and 500 percent over budget. Besides, no compelling mission for it had been found.

That was not the end of the spaceplane idea, though. Between 1996 and 2001, NASA experimented with the X-33 Advanced Technology Demonstrator, a half-scale prototype for a spaceplane to be called VentureStar and flown in either manned or unmanned configuration. In 2014, the Air Force’s X-37B robotic spaceplane test vehicle landed on Earth after 674 days in orbit. There was discussion of a scaled-up version with room for astronauts.

The current spaceplane concept is the X-51A Waverider, a joint test venture of the Air Force and the Defense Research Projects Agency. Independent of DARPA, USAF envisions a hypersonic vehicle that could fly manned space missions sometime around 2040.

OUTWARD BOUND?

In 1984, NASA announced plans for the space station *Freedom*. In the 1990s, this concept evolved into a multinational effort, wherein the US and Russia combined efforts to put the International Space Station into orbit. The shuttle did much of the lifting to deploy modules for the station and afterward flew astronauts back and forth for their tours of duty.

The 135th and last shuttle flight returned to Earth in July 2011. The shuttle was retired with nothing available to replace it.

US astronauts today travel to the space station in seats purchased aboard Russian Soyuz spacecraft, launched by large

expendable rockets. NASA has awarded contracts to Boeing and SpaceX to ferry US astronauts to the station aboard commercial spacecraft, with the first launch projected for 2017. The first four astronauts for these flights have been announced: All are military, two of them—Col. Robert Behnken and Col. Eric Boe—Air Force colonels.

Except for work on the space station, military presence in space is dormant but not necessarily dead. The US is intent, or so it says, on manned flight deeper into space.

The George W. Bush Administration’s Constellation program in 2005 proclaimed a return to the Moon and a base there by 2020, and an ultimate goal of manned flight to Mars. That was superseded by the Obama Administration’s 2010 space policy, which dropped Moon landings but added “crewed missions” beyond the Moon to an asteroid by 2025 and on to Mars in the 2030s.

“Our next step is deep space, where NASA will send a robotic mission to capture and redirect an asteroid to orbit the Moon,” NASA announced in December 2014. “Astronauts aboard the Orion spacecraft will explore the asteroid in the 2020s, returning to Earth with samples. This experience in human spaceflight beyond low-Earth orbit will help NASA test new systems and capabilities such as solar electric propulsion, which we’ll need to send cargo as part of human missions to Mars. Beginning in Fiscal 2018, NASA’s powerful Space Launch System rocket will enable these ‘proving ground’ missions to test new capabilities. Human missions to Mars will rely on Orion and an evolved version of SLS, [which] will be the most powerful launch vehicle ever flown.”

It is difficult to imagine that military spacers will not figure into those plans, one way or another. ✪

John T. Correll was editor in chief of Air Force Magazine for 18 years and is now a contributor. His most recent article, “The Super,” appeared in the October issue.