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WOMEN IN MILITARY AND AVIATION HISTORY

What I never learned in bootcamp; women in military aviation

by Mel Bloom, Founder of 3-5-0 Girls, USAF veteran

special to Aerotech News

When I was in Air Force basic training in 2015, my heritage and history courses briefly covered the Women's Airforce Service Pilots (WASP) and Grace Peterson, the U. S. Air Force's first chief master sergeant, but otherwise left me with the impression that women had been excluded from aviation and military roles until more modern times.

My time in the Air Force forced me to reconsider what an aviation role looked like, since when one thinks of aviation, admittedly they think of pilots, but it takes all types of jobs for a successful aviation mission.

From 1942 to 1948, thousands of American women took new roles with the Army, Navy, Marines and Coast Guard. The WASP were the only women allowed to serve as pilots, but they were not alone in serving and supporting aviation missions in a military role.

The idea of American women serving was first proposed in May 1941 when Massachusetts stateswoman Edith Nourse Rogers suggested legislation for the creation of a Women's Army Auxiliary. That summer, Jacqueline Cochrane and Nancy Harkness Love -- both accomplished civilian pilots -- submitted their own proposals to the Army to develop a non-combat role for women pilots, according to www.army.mil.com.

There was precedent, as Britain incorporated women into their Armed Forces as early as 1938, including as pilots. But in summer 1941, the United States was not expected to join the war that had justified a need for female soldiers and pilots in Britain, so the American women were considered paranoid, and their proposals dismissed.

However, after the attack on Pearl Harbor in December 1941, there was no doubt that women would be needed in some capacity since American manpower was expected to serve on numerous fronts. The military had to deploy manpower to the Pacific, Europe, North Africa, Italy and even the Aleutian Islands.

Each of these theaters demanded men to fill assignments at sea, on the ground, and in the air — all while maintaining a strong presence in the "American Theater" where codes were being broken, battle tactics analyzed, supplies being processed and shipped, radar improved, and troops being trained.

The military needed bodies, and when that need surpassed what the male population alone could manage, they reluctantly called upon the women.

The task of incorporating women into the Armed Forces began in January 1942, when Rogers resubmitted her proposal to create the Women's Army Auxiliary Corps, which passed and was signed into law in May 1942.

This allowed women to serve in the U.S. Army, not as equals but as auxiliary members. According to the official history of the WAAC written by Mattie Treadwell in 1954, the first women in the WAAC could only serve with the Service of Supply, later named the Service Forces. The women were originally meant to fill limited roles such as clerical, cooks, bakers and drivers. The majority were assigned to Army air bases, in support of aviation missions despite not being pilots.

In the first year, more than 60,000 women joined the WAAC. WAACs were not subject to Army regulation or the Articles of War. They also were denied overseas pay and could not receive government life insurance. But by December 1942, the Army was sending the WAAC overseas to places like Algiers, without any of these benefits.

While the WAAC was being established, the Navy was having their own conversations about how to incorporate women into the ranks. Secretary of the Navy Frank Knox proposed women serve in the Naval Reserve, but the Bureau of the Budget pushed back, saying the women in the Navy should model the WAAC where the women were serving adjacent to the Army but not as equal members with benefits and military status.

The bill to bring women into the Navy as equal members of the Navy Reserve passed in July 1942. Although officially named the Women's Naval Reserve, they were best known as the Women Accepted for Voluntary Emergency Services (WAVES). The WAVES would hold equal pay, rank, and status to the men, but unlike the WAAC, the WAVES were limited to serving in the lower 48 until 1944 when they would be assigned to Hawaii and Alaska.

In September 1942, the first program to create a non-combat role for women pilots was reintroduced. Col. William Tunner asked Nancy Harkness Love to oversee a women's aviation program with the intent of ferrying aircraft. Harkness Love drafted a plan that went up to Gen. Hap Arnold, who, after some advocacy by Eleanor Roosevelt, directed Harkness Love on Sept. 5 that "immediate action be taken."

Love started recruiting immediately. This became the Women's Auxiliary Ferrying Squadron (WAFS). They officially launched on Sept. 10, 1942, as a civilian operation. The WAFS were provided with quarters and their own uniforms, but had to pay for them, covering all their own expenses on a paycheck of $250 a month. Due to the rigorous qualifications needed, the WAFS never totaled more than 28 women, and the amount of their assigned work was outpacing their ability to find qualified recruits.

The solution for finding women qualified to fly came from Jacqueline Cochrane. In March 1942 at the direction of Hap Arnold, she had gone to England with a group of American female pilots to serve with the Air Transport Auxiliary. Jacqueline Cochrane returned from England in September of the same year and learned about Love's WAFS program which had been created in her absence.

Shortly after her return, she received permission from Arnold to create the Women's Flying Training Detachment (WFTD) and the first class reported to Houston in October. This provided women with the training they needed for Love's program. In 1943 the WFTD and the WAFS would merge and become the WASP.

In November 1942, while the WAFS and WFTD were getting women in the air, the same bill that had authorized the WAVES was used to bring women into service in the Coast Guard. The Coast Guard originally called this group Women of the Coast Guard, or WORCOGS. By December of 1942, the first director Capt. Dorothy Stratton, had wisely renamed the WORCOGS to SPARS, short for Semper Paratus, the Coast Guard motto.

Also in November 1942, the Marine Corps announced their intention to accept women into the Marine Corps Reserves, and although the name Femmarines was tossed around, Gen. Thomas Holcombe firmly declared, "They are Marines." Officially, they are the USMCWR: United States Marine Corps Women Reserve.

While aviation might not come to mind when one thinks of the Ma-

— See **WOMEN**, on Page 3

U.S. Coast Guard photograph

LEFT: Maj. Martha Westray Battle Boyce, Women's Army Auxiliary Corp Staff Director, North African Theater, reads orders replacing enlisted men of the adjutant general's office with enlisted women, Algiers, North Africa.

U.S. Navy photograph

WAVES Aviation Machinist's Mates working on a SNJ training plane and its Pratt & Whitney R-1340 radial engine, circa July 24, 1943. They are (from left to right) Seaman 1st Class (AMM) Inez Waits, Seaman 1st Class (AMM) Lucille H. Henderson, Seaman 1st Class (AMM) Mary Anne Gasser, AMM 3rd Class Helen Adams, and Seaman 1st Class (AMM) Leona Curry.

Department of Defense photograph

Group photo of Coast Guard SPARS officers dressed in service dress blues during World War II. SPARS was the authorized nickname for the United States Coast Guard Women's Reserve. The nickname is an acronym from the USCG's Latin motto Semper Paratus, meaning "Always Ready."

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rine Corps in World War II, aviation was a key part of the Pacific Theater strategy and heavily involved the Marines.

The main objective of the island-hopping strategy used in the Pacific was to gain control of airfields that allowed the United States to bomb targets closer and closer to the Japanese home islands, putting aviation missions at the heart of the Pacific Theater. This meant that back at home, women serving in the Marines filled in dozens of aviation roles to support the war effort. One of the most common units the WRs were assigned to was known as "AWRS," Aviation Women's Reserve Squadron. There were 20 AWRS across the United States and in Hawaii (after 1944) during World War II.

In the official histories written post war, each branch outlined the different jobs the women held, with aviation roles being the most common. In addition to more traditional roles expected of women such as secretarial work or cooking, the WACS, WAVES, SPARS and WRs packed parachutes and managed the supply and loading of aircraft, cartographers, meteorologists, air traffic controllers, mechanics, and so much more. All things that any pilot depends on for a safe and successful mission.

By the end of 1942, more than 100,000 women had entered the military or joined the WASP. In January 1943, Edith Nourse Rogers put forth new legislation to change the Women's Army Auxiliary Corps to the Women's Army Corps (WAC), giving them full benefits and status as members of the Army. The job opportunities for the WAC expanded, to allow women to serve in the Ground Forces, the Service Forces, and the Army Air Force.

By the end of World War II, 40 percent of women soldiers were serving with the Army Air Forces and were known as "Air WACS." Seven-thousand "Air WACS" served overseas in all theaters of the war, and three of them received the Air Medal for their service. One of the more well-known units in the Army Air Force is the Eighth Air Force, showcased in the HBO series "Masters of the Air." Although not featured in the show, by September 1944, more than 2,000 WACs were serving with the Eighth Air Force in England.

Air Force Historical Support Division photograph

Crew Chief Tech Sgt. Selma "Rusty" Olson, standing below the propeller, directs a Women's Reserve repair crew servicing a North American Mitchell B-25 bomber at Cherry Point, N.C., in March 1945. In World War II, 40 percent of the Women Marines held aviation jobs.

The Air WACS and the WASPs are the most direct connection to the modern-day Air Force, but the Navy also has its own rich history in aviation. While the Air WACS were expanding their roles into aviation in early 1943, the Navy had incorporated women into aviation from the beginning.

More than 20,000 women in the Navy WAVES held aviation roles during World War II. In 1944, new legislation allowed WAVES and WRs to serve in the Pacific Theater, though they were regulated to Alaska and Hawaii.

Eighty WAVES were stationed in those territories as Air Navigation officers on Naval Air Transport flights. Women in the Navy WAVES served on Cape Cod where there were credible risks of U-boat traffic and German aircraft. The WAVES were responsible for maintaining radar and monitoring radio traffic.

Another important mission taking place on Cape Cod was Long Range Navigation (LORAN) Monitor Station Chatham which was part of the Atlantic chain. This station was unique in that it was run entirely by Coast Guard SPARS, the first to be operated solely by women. The safe navigation of aircraft from the East Coast was dependent on these women in the SPARS and WAVES.

Despite the women's success in these various roles, it was never meant to be a permanent opportunity. In December 1944, the WASP program was completely shut down to free up jobs for male pilots returning from war.

Truman Library photograph

An unidentified Women's Army Corp soldier repairs a tool while on duty in North Africa with the North African Theater of Operations, United States Army, in April 1944.

The women who served in the Army, Navy, Coast Guard, and Marines knew they were facing complete demobilization after the war, as their contracts had been "for the duration of the war, plus six months."

However, much had changed since 1942 when that plan had been put into place. In 1946, military leadership, aware of the value the women brought to the Armed Forces, instigated plans to make women a permanent part of the military. The Women's Integrated Service Act was introduced in July 1947 and was signed on June 12, 1948.

The act limited women's roles, not in the job types, but in how many women could serve with percentages varying from two to 10 percent of the total number of men serving. Women were allowed to serve in many of the same jobs, but once the WASP were disbanded in 1944, it would be another 30 years before women would be allowed to fly for the military again.

Editor's note: Mel Bloom is a U.S. Air Force veteran and the founder of 3-5-0 Girls, a group dedicated to preserving and sharing the history of women who served their country, through providing resources, subject matter expertise, continuing research, exhibit consultations, and their own pop-up museum. For more information go to https://threefiveohgirls.com and follow them on Instagram @threefiveohgirls

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Celebrating women in the U.S. military

DOD News

March is Women's History Month and this year's theme is "Moving Forward Together! Women Educating & Inspiring Generations."

From America's first days, women have made profound sacrifices. They have made innovative contributions to national security and blazed trails for future generations, he stated.

Since the Revolutionary War, more than 3 million women have served, even before the military fully recognized their service, he noted.

And the role of women in the U.S. military continues to expand. In 1971, women made up just one percent of the military services. Ten years later, it was 8.5 percent

However, women at that time were not allowed to serve in combat military occupational specialties like infantry, artillery and combat aviation.

Although there were instances of women serving in the military in every U.S. war, it wasn't until World War I when policy allowed them to serve in non-combat jobs to free up men to fight.

Altogether, about 34,000 women served during World War II in the Navy, Marine Corps and Coast Guard. The Army only allowed women to serve as nurses.

With the end of the war on Nov. 11, 1918, women in all military branches were demobilized except for some Army and Navy nurses.

During World War II, the military once again faced a manpower shortage as they had in World War I. The services began accepting women who served in the

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Navy photograph

Navy Cmdr. Rosemary Mariner in the 1990s.

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Women's Army Corps; the Navy's Women Accepted for Volunteer Emergency Service, more commonly known as WAVES; the Marine Corps Women's Reserve; and the Coast Guard Women's Reserve.

In June 1948 President Harry S. Truman signed the Women's Armed Service Integration Act allowing women to receive regular permanent status in the armed forces, which by then included the Air Force.

In 1987, Congress declared March as National Women's History Month in perpetuity.

Air Force photograph by Tech. Sgt. Alex Fox Echols III

Air Force Capt. Rhea McFarland, a C-17 Globemaster III pilot, talks to journalists after receiving the Distinguished Flying Cross for her leadership in Afghanistan during a ceremony at Joint Base Charleston, S.C., Nov. 21, 2022. She was the first Black female to receive the award, which recognizes heroism or extraordinary achievement while participating in aerial flight.

Marine Corps photograph by Cpl. Dalton S. Swanbeck

Marine Corps Capt. Marina Hierl speaks with a Malaysian service member during a standard operating procedures class at Kota Belud Range Complex, Malaysia, Oct. 2, 2019. U.S. Marines and sailors joined Malaysian troops for Tiger Strike 2019, an exercise that included training in jungle survival, amphibious assault, aerial raids and combat service support.

Eileen Collins broke barriers as America's first female space shuttle commander

by Jennifer Ross-Nazzal

NASA

At the end of February 1998, Johnson Space Center Deputy Director James D. Wetherbee called Astronaut Eileen Collins to his office in Bldg. 1.

He told her she had been assigned to command STS-93 and went with her to speak with Center Director George W.S. Abbey who informed her that she would be going to the White House the following week.

Selecting a female commander to fly in space was a monumental decision, something the space agency recognized when they alerted the president of the United States. First Lady Hillary Clinton wanted to publicly announce the flight to the American people along with her husband President William J. Clinton and NASA Administrator Daniel S. Goldin.

At that event, on March 5, 1998, the First Lady noted what a change it would be to have a female in the commander's seat. Referencing Neil A. Armstrong's first words on the Moon, Clinton proclaimed, "Collins will take one big step forward for women and one giant leap for humanity." Collins, a military test pilot and shuttle astronaut, was about to break one of the last remaining barriers for women at NASA by being assigned a position previously filled by men only. Clinton went on to reflect on her own experience with the space agency when she explained how in 1962, at the age of 14, she had written to NASA and asked about the qualifications to become an astronaut. NASA responded that women were not being considered to fly space missions. "Well, times have certainly changed," she said wryly.

NASA photograph

Astronauts Eileen M. Collins, mission commander and Jeffrey S. Ashby, pilot, peruse checklists on Columbia's middeck during the STS-93 mission.

The same year Hillary Clinton inquired about the astronaut corps, a special subcommittee of the U.S. House of Representatives Committee on Science and Astronautics held hearings on the issue of sexual discrimination in the selection of astronauts. Astronaut John H. Glenn, who had flown that February in 1962, justified women's exclusion from the corps. "I think this gets back to the way our social order is organized really. It is just a fact. The men go off and fight the wars and fly the airplanes and come back and help design and build and test them. The fact that women are not in this field is a fact of our social order. It may be undesirable." Attitudes about women's place in society, not just at NASA, were stubbornly hard to break. It would be 16 years before the agency selected its first class of astronauts that included women.

By 1998, views about women's roles had changed substantially, as demonstrated by the naming of the first female shuttle commander. The agency even commissioned a song for the occasion: "Beyond the Sky," by singer-songwriter Judy Collins. NASA dedicated the historic mission's launch to America's female aviation pioneers from the Ninety-Nines—an international organization of women pilots—to the Women Airforce Service Pilots (WASPs), women who ferried aircraft for the military during World War II.

Collins also extended an invitation to the women who had participated in Randy Lovelace's Woman in Space Program, where women went through the same medical and psychological tests as the Mercury 7 astronauts; the press commonly refers to these women as the Mercury 13. (Commander Collins had thanked both the WASPs and the Mercury 13 for paving the way and inspiring her career in aviation and spaceflight in her White House speech.)

In a group interview with several of the WASPs in Florida, just before launch, Mary

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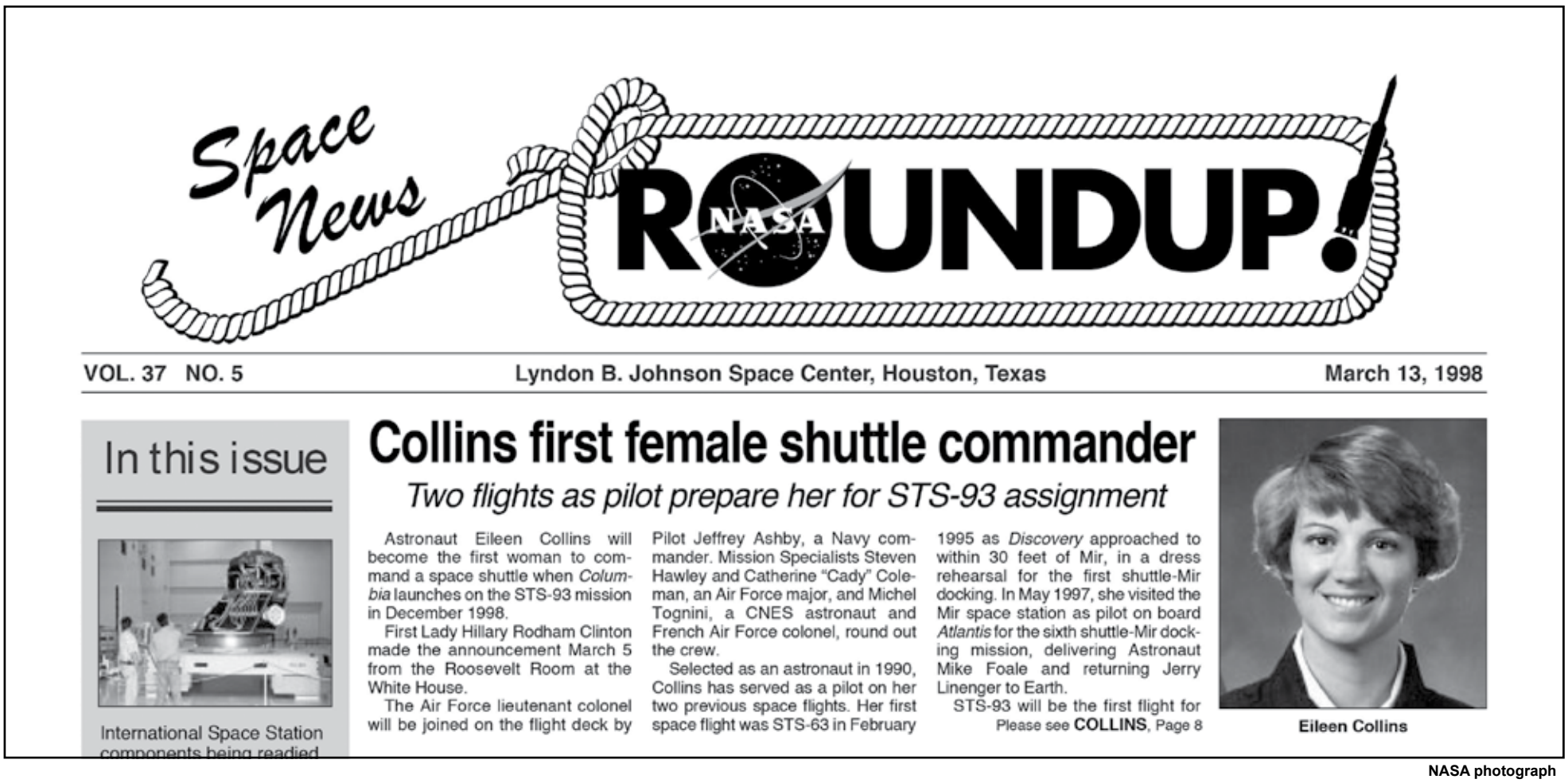

Space News ROUNDUP!

VOL. 37 NO. 5 — Lyndon B. Johnson Space Center, Houston, Texas — March 13, 1998

In this issue

International Space Station components being readied

Collins first female shuttle commander

Two flights as pilot prepare her for STS-93 assignment

Astronaut Eileen Collins will become the first woman to command a space shuttle when *Columbia* launches on the STS-93 mission in December 1998.

First Lady Hillary Rodham Clinton made the announcement March 5 from the Roosevelt Room at the White House.

The Air Force lieutenant colonel will be joined on the flight deck by Pilot Jeffrey Ashby, a Navy commander. Mission Specialists Steven Hawley and Catherine "Cady" Coleman, an Air Force major, and Michel Tognini, a CNES astronaut and French Air Force colonel, round out the crew.

Selected as an astronaut in 1990, Collins has served as a pilot on her two previous space flights. Her first space flight was STS-63 in February 1995 as *Discovery* approached to within 30 feet of Mir, in a dress rehearsal for the first shuttle-Mir docking. In May 1997, she visited the Mir space station as pilot on board *Atlantis* for the sixth shuttle-Mir docking mission, delivering Astronaut Mike Foale and returning Jerry Linenger to Earth.

STS-93 will be the first flight for

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Eileen Collins

NASA photograph

Eileen Collins' assignment as the first female shuttle commander was front page news in the March 13, 1998 issue of Johnson Space Center's Space News Roundup.

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Anna "Marty" Martin Wyall explained why they came. "Eileen Collins was one of those women that has always looked at us as being her mentors, and we just think she's great. That's why we want to come see her blast off." Betty Skelton Frankman expressed just how proud she was of Collins, and how NASA's first female commander would be fulfilling her dream to fly in space. "In a way," she said, "it's like my dream come true." In the '60s it was not possible for a woman to fly in space because none met the requirements as laid out by NASA. But by the end of the twentieth century, women had been in the Astronaut Office for 20 years, and opportunities for women had grown as women were selected as pilot astronauts.

NASA named its second and only other female space shuttle commander, Pamela A. Melroy, to STS-120, and Peggy A. Whitson went on to command the International Space Station. Melroy and Whitson shook hands in space, when their missions coincided, for another historic first — two women commanding space missions at the same time.

Twenty-six years ago, Eileen Collins' command broke down barriers in human spaceflight. As the First Lady predicted, her selection led to other opportunities for women astronauts. More women continue to command spaceflight missions, including Expedition 65 Commander Shannon Walker and Expedition 68 Commander Samantha Cristoforetti. More importantly, Collins became a role model for young people interested in aviation, engineering, math, science, and technology. Her career demonstrated that there were no limits if you worked hard and pursued your passion.

NASA photograph

Astronaut Eileen M. Collins looks over a checklist at the commander's station on the forward flight deck of the space shuttle Columbia on July 23, 1999, the first day of the mission. The most important event of this day was the deployment of the Chandra X-Ray Observatory.

Sharon Farmer and White House Photograph Office

President William Jefferson Clinton and First Lady Hillary Rodham Clinton with Eileen Collins in the Oval Office.

Women's legacy parallels Air Force history

Photograph courtesy of the WASP museum

A Women's Airforce Service Pilots flight team walks from the "Pistol Packin' Mama."

by Martha Lockwood

Air Force News

The story of women in the military, specifically the Air Force, parallels that of the U.S. Air Force itself. In fact, for women pilots and early women Airmen, their history dates back five years before the Air Force officially became a separate service.

The year was 1942. A unit of flight nurses who had not yet quite finished their training, were sent into North Africa on Christmas Day following the Allied invasion in November of that year. It was a slightly different story for flight nurses who were members of the military from the beginning.

As it was with so many advances and innovations resulting from World War II, the U.S. Army Air Corps was forced to radically change military medical care, and the development of air evacuation and the training of flight nurses were advanced to meet this need.

After the invasion of North Africa in November 1942, the need for flight nurses exceeded the supply, and women who had not yet finished their training were called into action and sent to North Africa on Christmas Day. Finally, in February 1943, the first class of Army Nurse Corps flight nurses graduated.

Unlike their stateside-stationed counterparts in the Women's Airforce Service Pilots (WASPs), flight nurses (nicknamed "Winged Angels") in the Army Nurse Corps served in combat. They were especially vulnerable to enemy attacks because aircraft used for evacuation could not display their non-combat status:

These same aircraft were also used to transport military supplies. In anticipation and preparation for almost any emergency, flight nurses were required to learn crash procedures, receive survival training, and know the effects of high altitude on a vast array of pathologies. Of the nearly 1.2 million patients air evacuated throughout the war, only 46 died en route. About 500 medical evacuation nurses (only 17 died in combat) served as members of 31 medical air evacuation transport squadrons throughout the Army Air Corps.

For the most part, the military favored the use of experienced women pilots to fly USAAC aircraft on non-combat missions. Two women's aviator units — The Women's Auxiliary Ferrying Squadron (WAFS — with a capital S) and the WASPs were formed to ease this need. More than 1,000 women participated in these programs as civilians attached to the USAAC, flying 60 million miles of non-combat military missions.

These two units were merged into a single group, the Women Airforce Service Pilots (WASP) program in August 1943, and broke ground for U.S. Air Force female pilots who would follow in their footsteps decades later.

Of the more than 25,000 women who applied for pilot training under the WASP program, 1,830 were accepted, 1,074 were graduated, and 916 (including 16 former WAFS) remained when the program was disbanded in December 1944.

WASP assignments were diverse — as flight training instructors, glider tow pilots, towing targets for air-to-air and anti-aircraft gunnery practice, engineering test flying, ferrying aircraft, and other duties. Although WASPs had

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the privileges of officers, they were never formally adopted into the USAAC. In November 1977 — 33 years after the WASPs program was disbanded — President Carter signed a bill granting World War II veterans' status to former WASPs.

When President Harry Truman signed The National Security Act of 1947 creating the Department of Defense, the U. S. Air Force became a separate military service. At the time, a number of Women's Army Corps (WACs) members continued serving in the Army but performed Air Force duties. The following year, 1948, some WACs chose to transfer to the Women's Air Force (WAFs) when it finally became possible to do so.

Originally, WAF was limited to 4,000 enlisted women and 300 female officers, all of whom were encouraged to fill a variety of ground duty roles — mostly clerical and medical — but were not to be trained as pilots, even though the USAAC had graduated the first class of female pilots in April 1943, during wartime.

In 1976, when women were accepted into the Air Force an equal basis with men, the WAF program ended, but not before many milestones were achieved and marked along the way in preparation for today's Air Force woman.

The WAFs in evolution

The first WAF recruit was Sgt. Esther Blake who enlisted on July 8, 1948 in the first minute of the first day that regular Air Force duty was authorized for women.

She had been a WAC, and she transferred in from Fort McPherson, Ga. The first recruits reported to Lackland Air Force Base, Texas, in 1948. When basic training was desegregated in the Air Force the following year, many African-American women recruits joined, even though the integration of quarters and mess had not yet been achieved.

At first, WAFs wore men's uniforms with neckties. It was "a look" that didn't last long, and interim uniforms for WAFs were modeled after flight attendants' uniforms, using the same material as the men's winter uniforms. The necktie was abandoned early on, and was replaced with tabs on the collar. The summer uniform — a two-piece dress made of cotton-cord seersucker — didn't fare as well. Ill-fitting, it required frequent ironing. It would be years before a suitable women's uniform would be achieved.

By the end of World War II, women were fully incorporated into the military, although still primarily limited to mostly clerical roles such as typists, clerks and mail sorters, and represented only about two percent of the force.

Less than a year after the Air Force became its own service, President Harry Truman signed the Women's Armed Services Integration Act, accepting women as a permanent part of the military. It was the beginning of the Women's Air Force, and

Air Force photograph

Maj. Gen. Jeanne Marjorie Holm was the first female one-star general of the U.S. Air Force and the first female two-star general in any service branch of the United States.

Air Force photograph

Capt. Lillian Kinkella Keil, who had already made 250 evacuation flights (23 of which were transatlantic) during World War II, made 175 evacuation flights during the Korean War.

for the next 30 years would represent a separate, but equal part of the military.

During the Korean War (1950-53), the only Air Force women permitted to serve in the Korean battle zone were medical air evacuation nurses. Service women who had joined the Reserves following World War II, were involuntarily recalled to active duty as Women in the Air Force (WAF).

Together, with already in-service WAFs, the women carried out support roles at rear-echelon bases in Japan. They were air traffic controllers, weather observers, radar operators and photo interpreters. Nurses served stateside, and flight nurses served in the Korean theater.

By the end of the Korean War, 12,800 WAF officers and enlisted women were serving worldwide, and in 1955, Air Force nurses experienced a moment of turnabout when men were accepted into the Air Force Nurse Corps.

These events would prove to be a harbinger of women's emerging equality in all aspects of military service. Yet, it would take two more decades and service in another war to achieve parity.

The Vietnam War (1965-75) numbers reveal a different story than the Korean War. American women military serving in Southeast Asia numbered 7,000, with 600 to 800 reported to be WAFs. However, although the numbers may vary, it is more interesting to note the solid achievements and the expanding role of women in the military that evolved during that time of intense service.

No longer thought of only as nurses or medical evacuation personnel, WAFs also served in a variety of support staff assignments, in hospitals, with MASH Units, in service clubs, in headquarters offices, intelligence, and a in variety of personnel positions throughout Southeast Asia.

With the 1967 repeal of the two-percent cap on the number of women serving, and the lifting of the restriction on the highest grade women could achieve, the first of many glass ceilings was shattered.

Then, in 1968 the passage of Public Law 90-130 allowed women to enlist in the Air National Guard, and on campuses in 1969, Air Force Reserve Officers Training Corps (AFROTC) opened to women.

A notable accomplishment came in 1971 when Jeanne M. Holm was promoted to brigadier general. She was the first female airman to reach that rank. It was an achievement that would serve as inspiration for women throughout the WAFs for two years, until 1973, when she was promoted to major general.

It was that same year, 1973, that the Supreme Court ruled in favor of Air Force Lt. Sharon Frontiero and changed military life forever. The Supreme Court ruled unconstitutional the inequities in benefits for the dependents of military women. Until then, military women with dependents were not authorized housing, nor were their dependents eligible for the benefits and privileges afforded the dependents of male military members, such as medical, commissary and post exchange benefits.

By the end of the Vietnam War in 1975 the Department of Defense had reversed policies and provided pregnant women with the option of electing discharge or remaining on active duty. Previous policies had required women to be discharged if they became pregnant or if they adopted a child.

By the conclusion of the WAF program in 1976 when women were accepted into the Air Force on an equal basis with men, women were laying a solid groundwork for attaining leadership positions and equal opportunities.

It was that year — our country's bicentennial — more than 200 years since women first served on the battlefield of the American Revolution as nurses, water bearers, cooks, laundresses and saboteurs — that women were admitted to the service academies.

After that, the sky was the limit. In 1976, the Air Force selected the first woman reservist for the undergraduate pilot training program, and the Air Force Strategic Air Command assigned the first woman aircrew member to alert duty.

In 1980, the first women graduated from the service academies, and just two years after that (1982) the Air Force selected the first woman aviator for Test Pilot School.

Six Air Force women served as pilots, copilots and boom operators on the KC-135 and KC-10 tankers that refueled FB-111s during the raid on Libya in 1986.

That year was a banner year academically for women as, for the first time in history, the Air Force Academy's top graduate was a woman.

The War in the Persian Gulf (1990-91) deployed 40,000 American military women during Operation Desert Shield and Operation Desert Storm. And at the end of that war, the Air Force Reserve selected its first woman senior adviser and Congress repealed laws banning women from flying in combat.

It wasn't until 1993 that women in the Air Force stood on the threshold of space. In that year, Brig. Gen. Susan J. Helms (then Major Helms) a member of the first class of the U. S. Air Force Academy ('80) to graduate women, became the first American military woman in space as part of the Space Shuttle Endeavor team.

The milestones cited above are just that — the highlights of women in service to their country. Every day, women in the U.S. Air Force distinguish themselves and honor those who have gone before them by doing the jobs that matter to us all — performing in professional, administrative, technical and clerical positions.

Today, women make up 24.0 percent of all U.S. Air Force personnel.

Editor's note: This article first appeared on Sept. 18, 2014.

Air Force photograph

Jeannie Marie Leavitt was a U.S. Air Force general officer. She became the U.S. Air Force's first female fighter pilot in 1993, and was the first woman to command an Air Force combat fighter wing.

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Remembering the Women's Airforce Service Pilots

by Dr. Andrew T. Wackerfuss, Historian

U.S. Air Force history office

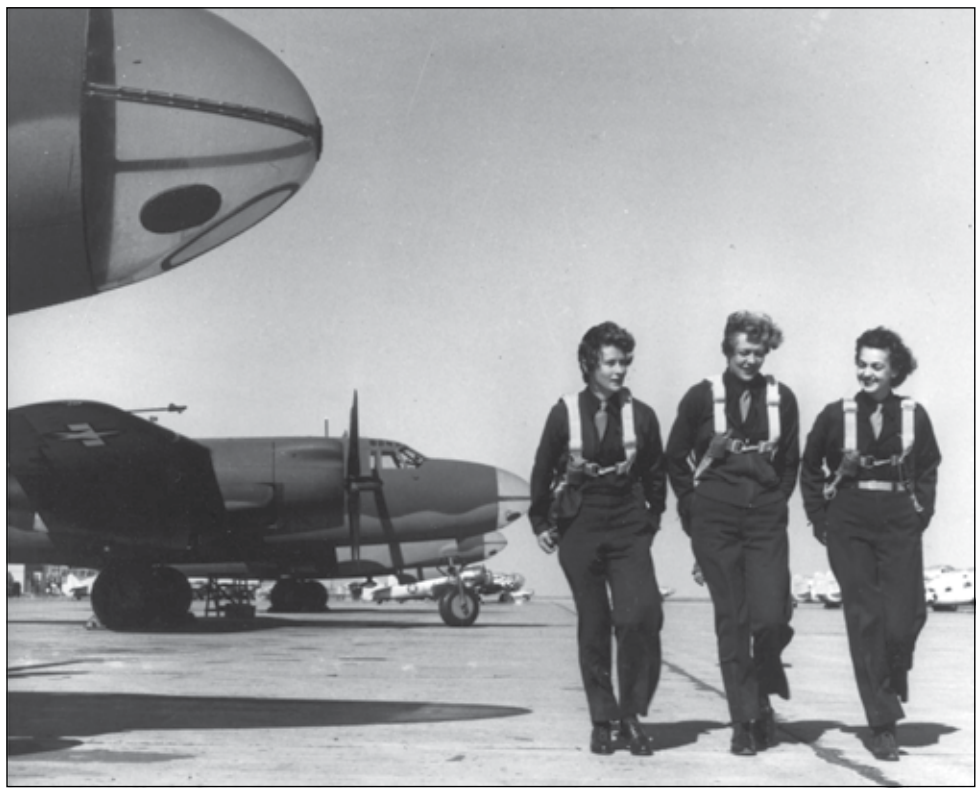
In September 1942, after several times rejecting proposals to use qualified women pilots for flying duties, Army Air Forces Commanding Gen. Henry H. Arnold agreed to form two groups designed to help meet the need for pilots to ferry aircraft.

The Women's Auxiliary Ferrying Squadron (WAFS), led by Nancy Harkness Love, enlisted already-qualified women pilots to transport training aircraft from factories to training bases.

Meanwhile, the Women's Flying Training Detachment (WFTD), led by Jackie Cochran, oversaw an intensive training program to increase the number of women who could fly for the Ferrying Division.

On July 5, July 1943, Arnold put Cochran in charge of all women pilots, with Nancy Love as the executive for women pilots in the Ferrying Command. A month later, on Aug. 5, 1943, the WAFS and WFTD merged into a single unit for all women pilots, who were rapidly extending their qualifications to every type of aircraft in service. The new unified group called itself the Women's Airforce Service Pilots (WASP), with its pilots known as WASPs.

In its first few weeks, the WFTD required women pilots to have a private pilot license and 200 hours of flight time, and would then train them to fly "the Army way." But it soon began accepting women without any prior flying experience. The flight school at Avenger Field, in Sweetwater, Texas, ran most flight training for women pilots, who at first trained only on lighter or smaller planes. Eventually, however, women proved that they could fly almost every type of aircraft in the U.S. military arsenal at the time, including the heaviest bombers and fastest fighters. Their pilot training therefore became the same as their male counterparts.



Air Force photograph

WASPs on the runway in Laredo, Texas, in 1944.

The only aspect women's training did not cover remained combat acrobatics, since the Army Air Corps had from the start intended to use women pilots to free up male pilots for combat roles.

The WASP pilot training program graduated 1,074 graduates, who, combined with Nancy Love's "Originals," ferried over 50 percent of the combat aircraft within the United States during the war years. WASPs flew at 126 bases across the United States, where they also towed targets for gunnery training and served as instrument instructors for the Eastern Flying Training Command. Thirty-eight of these women died in their service, 11 in training and 27 during missions.

Cochran and Love both eventually came to hope that as women proved their abilities and commitment to military aviation, the AAF would agree to militarize the program.

Militarization would mitigate a number of unequal policies in salary and repayment of expenses, and it almost came about in 1944 when Arnold planned to commission women pilots as second lieutenants within the AAF. These plans, however, encountered great opposition in the media and in Congress, where high-profile hearings in the House Committee on Military Affairs questioned the continued need for women pilots. Ironically, just as the military situation of 1942 had argued for the use of women pilots, the military situation of 1944 generated increased opposition. With the air campaign having successfully crushed the German Luftwaffe and now enjoying the ability to bomb German cities almost at will, Allied leaders now planned a massive ground assault that would finally end Nazi Germany. As part of these preparations, the AAF cut back its training for male pilots and revoked male civilian flight instructors' exemptions from serving in combat ground units. The men affected by these policies began a letter-writing campaign to their Congress members and to the media, which accused Arnold of trying to supplant male pilots with women. In June 1944, the Ramspeck Committee report argued that training women pilots was a waste of resources and should be terminated, though it allowed that women already trained could continue to serve. Congress rejected a WASP militarization bill on June 21, 1944, and Arnold himself came to believe that the crisis that had created the need for women pilots had passed. On Aug. 5, 1944, he announced that the current class of trainees would be the WASP program's last.

The last WASP training class graduated at Sweetwater on Dec. 7, 1944, and the WASP program itself ended on Dec. 20.

At the graduation ceremony, Arnold told the last crop of pilots, "We of the AAF are proud of you; we will never forget our debt to you."

But after the war ended the next year, the WASPs were in fact forgotten. Their records were classified and sealed from the public. Americans became absorbed into everyday routines of living, and no longer remembered the WASPs' contribution to the nation.

When in the 1970s the Air Force announced that it would begin to accept women for pilot training, the media reported the story as if this would be the first time women could fly for the U.S. military. The WASPs then rose up to demand the recognition that they deserved. Though opposed by the American Legion and other veterans' groups, on Nov. 23, 1977, President Carter signed Public Law 95-202, Title IV, which granted former WASPs veteran status with limited benefits. Coincidentally, the Air Force graduated its first female pilots this same year.

More recognitions followed in future years: the first WASPs received discharge certificates in 1979, and in 1984 they received World War II Victory Medals. Those who had served one year were also awarded American Theater Campaign medals. In 2009, President Obama signed into law a Senate bill providing the Congressional Gold Medal to the WASPs. Many of the surviving women pilots, accompanied by women Airmen in current service, accepted these medals at a ceremony in the White House on March 10, 2010.

Air Force photograph

WASPs at Romulus Army Air Field, Mich., in 1944.

Air Force photograph

WASPs in a classroom at Romulus Army Air Field, Mich., in 1944.

Kathryn Sullivan: The first American woman to walk in space

Jennifer Ross-Nazzal

NASA

Forty-one years ago, in October 1984, Kathryn D. Sullivan became the first American woman to walk in space. But being the first presented several challenges that started well before she took those historic steps. Things got complicated just after she learned of her assignment.

Questions of physiology

Biomedical researchers at NASA's Johnson Space Center raised what they believed was a serious issue with women walking in space and alerted George W.S. Abbey, the head of the Flight Crew Operations Directorate. Females, he learned, were more likely than their male counterparts to develop the bends in the low-pressure environment of the extravehicular mobility unit, the spacesuit she would wear.

To alleviate the possibility of developing decompression syndrome, all spacewalkers had to breathe pure oxygen before a spacewalk to eliminate nitrogen from their bloodstream. Researchers insisted Sullivan (and any future women spacewalkers) spend more time than their male counterparts breathing pure oxygen before going outside of the space shuttle.

Sullivan quickly learned that there were flaws in the research, which she countered, and Abbey ended up approving the same requirements for men and women doing an extravehicular activity.

Setting the record

After the STS-41G crew had been named in the fall of 1983, a colleague — flush with excitement over the recent flight announcement — congratulated Sally K. Ride and Sullivan on their new titles: Ride being the first woman to fly in space twice and Sullivan the first woman to walk in space. Both shook their heads and explained that it would be many months before launch and that a Soviet woman would fly and do a spacewalk well before the space shuttle Challenger and her crew made it to orbit. As expected, the Soviets assigned cosmonaut Svetlana Y. Savitskaya to a second mission in 1983, less than a month after NASA's crew announcement. In July 1984, Savitskaya, not Ride, went on to become the first woman to enter space twice and earned the distinction of being the first female to walk in space.

Sullivan was not disappointed at losing the title. As she recalled in an oral history interview, being selected for an EVA was an "extraordinary opportunity," and it did not matter where she was in the queue. She could not understand how people arrived at the idea that the "seventh, tenth, or thirteenth … is [any] less meaningful … than some historical first."

Others at the Johnson Space Center still thought there was a way they could best the Soviets. Sullivan's trainers took note of how short Savitskaya's EVA was. It was only about three and a half hours.

"A little bit more than that," they explained, and "you'll get the duration record!" But the idea of breaking her record by a few minutes seemed ludicrous. "I'm certainly not going to go tromping around on dinner speeches … saying, 'Well yes, but I have the duration record.'"

"Hello, I'm right here!"

While the issue of breaking and setting records remained of interest at NASA more than twenty years after the Soviets sent cosmonaut Yuri Gagarin into space, Sullivan found herself grappling with other matters she found equally frustrating.

First, there was the sexist media. No journalist asked how she was feeling about her role in the mission. Flying women in space was still new to the American news media in 1983—Ride had only flown her first mission in June, and while Judith A. Resnik had been named to a mission, she had not yet been in orbit.

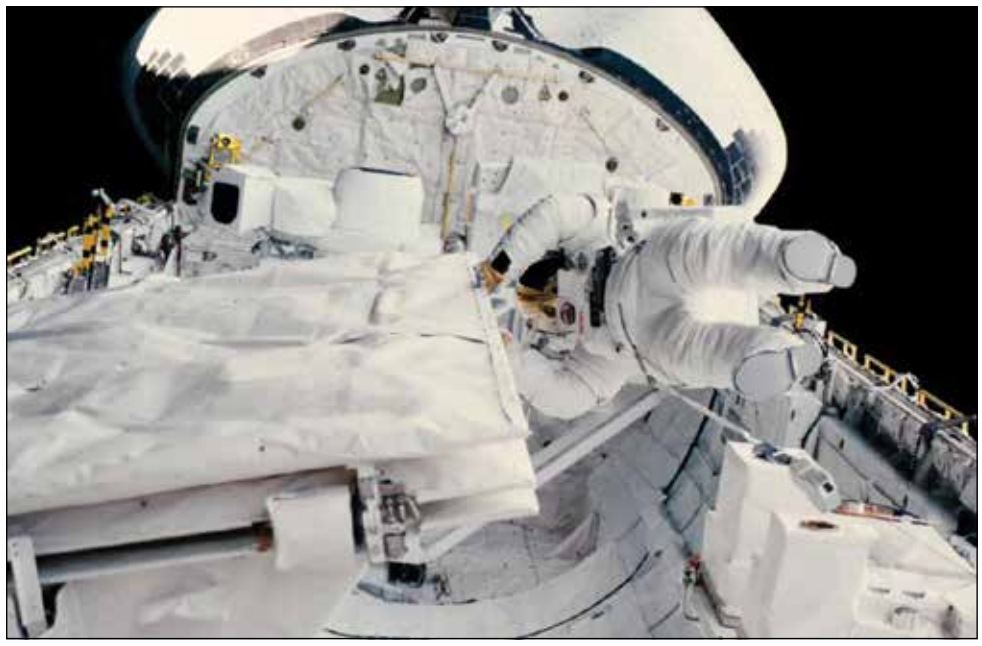
But Ride had not completed an EVA; only men had walked in space, and some found the activity challenging. Astronaut Eugene A. Cernan described his first EVA as the "spacewalk from hell." Spacewalks can be physically demanding, and it was assumed that women might not have the strength to do so.

Reporters asked commander Robert L. Crippen and Ride, "Do you think Kathy can do this?" Sitting at the preflight press conference she reminded reporters that she could speak for herself. "Hello, I'm right here! Hello. Hello."

There was also the matter of why her spacewalking partner, David C. Leestma, led the EVA. She had two years seniority in the Astronaut Office, arriving in 1978; NASA named Leestma to the corps in 1980. She also worked on spacesuit issues and the mission's payload longer than he had, but both were rookies on this mission.

Sullivan did not think Crippen and Abbey thought she was incapable, but for traditional norms to have been breached in this instance she could not explain why she — the senior ranking astronaut — was playing a support role instead of leading. If anyone asked why, Sullivan told Crippen he — not she — would have to answer the tough questions.

See **SPACE**, on Page 14



NASA photograph

LEFT: Astronaut Kathryn D. Sullivan checks the latch of the SIR-B antenna in the space shuttle Challenger's open cargo bay during her historic extravehicular activity (EVA) on Oct. 11, 1984. Earlier, America's first woman to perform an EVA and astronaut David C. Leestma, participated in an in-space simulation of refueling a spacecraft in orbit.

NASA photograph

The crew assigned to the STS-41G mission included (seated left to right) Jon A. McBride, pilot; mission specialists Sally K. Ride, Kathryn D. Sullivan, and David C. Leestma. Standing in the rear, left to right, are payload specialist Paul D. Scully-Power, mission commander Robert Crippen, and payload specialist Marc Garneau. Launched aboard the Space Shuttle Challenger on Oct. 5, 1984, the STS-41G mission marked the first flight to include two women.

NASA photograph

Astronauts Sally K. Ride (right) and Kathryn D. Sullivan, two of three mission specialists, synchronize their watches prior to ingressing the Space Shuttle Challenger on the launch pad at Kennedy Space Center on Oct. 5, 1984.

SPACE, from Page 13

Space suit fit

As she prepared for the flight, she began training in the shuttle EMU, which never quite fit her body. The suit's elbow did not align with hers so when she bent her arm, she had to use extra force. The lower portion of the suit was misaligned, making it difficult to bend her knee.

Being the first American woman to do a spacewalk, she decided what was most important was to perform the EVA and demonstrate the EMU worked for women. "I reckoned the wrong thing to do was to turn the first evolution of a woman doing a spacewalk into a controversy. … I just sucked it up and dealt with it." The suit techs knew the EMU was not quite her size, but she made it work.

Later, when assigned to STS-45, one of the techs noticed how poorly the suit fit. "We ought to do something about it. It ought to fit you," he said. Sullivan responded, "We can start that conversation now, but if you think I was going to make that the conversation on the first EVA you're crazy."

A walk to remember

Two days after Sullivan's 33rd birthday, STS-41G launched on Oct. 5, 1984. Once in orbit, the flight plan changed quickly. A problem with a malfunctioning Ku-band antenna meant that the EVA had to be pushed back to the day before reentry. Sullivan worried that the walk might be scrapped, but when they finally began the pre-breathing protocol, she relaxed. "Challenger, Houston: You are GO for EVA," Sullivan recalled, "were the sweetest words I had ever heard." Sullivan and Leestma's EVA was short — only three hours and twenty-nine minutes — but busy. Leestma demonstrated it was possible to refuel satellites in orbit, while Sullivan monitored his work. When he wrapped up his task, Sullivan finally had the opportunity to "do something, not just watch things." She stowed the malfunctioning antenna and before they went back inside the shuttle, they filmed a scene for an IMAX film, The Dream is Alive — where the two spacewalkers rose from the bottom of the space shuttle's windows and waved at the crew inside, mimicking the "Kilroy Was Here" meme. When filming concluded, Sullivan and Leestma returned to Challenger. "My first spacewalking adventure," Sullivan wrote in her memoir, "was over all too soon."

NASA photograph

Astronaut Kathryn D. Sullivan, STS-41G mission specialist, gets some help with her extravehicular mobility unit (EMU) prior to participating in an underwater simulation of an extravehicular activity (EVA) scheduled for her flight aboard the Columbia in October 1984. Dr. Sullivan and David C. Leestma (out of frame) participated in the rehearsal in NASA's weightless environment training facility (WET-F) at the Johnson Space Center.

The next day, President Ronald Reagan called to ask Sullivan about her experience. "Kathy, when we met at the White House, I know you were excited about walking in space. Was it what you expected?" he asked. Sullivan responded affirmatively and added, "I think it was the most fantastic experience of my life."

When she returned to JSC she learned that the EVA flight team had tried to figure out how to send her a diplomatic message to stay outside longer to beat Savitskaya's record. There ended up being a "five-or six-minute difference" between Sullivan and Savitskaya, "and in the wrong direction as far as they were concerned."

Despite all the challenges she faced as the first American woman to walk in space, Sullivan called the EVA "a fabulously cool experience." She hoped to do another, but she never received another assignment to walk in space. She recognized what a unique opportunity she had — very few people have flown in space, and even fewer "get to sneak outside. I'm not going to diminish one dose of sneaking outside just because I didn't get two, three, or four."

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15 FEMALE FLYERS YOU MAY NOT KNOW

by KC Rawley

Aerotech News

We all probably know of Amelia Earhart's mystery, how Jacqueline Cochran helped form the WASPs and hung out with Chuck Yeager, that astronaut Dr. Sally Ride was the first American woman in space, and maybe that Col. Eileen Collins was the first Space Shuttle commander. We may even know that Maj. Gen. Jeannie Leavitt was the first fighter pilot in combat for the U. S. Air Force.

But there are many women pioneers who are mostly celebrated by aviation historians, people in their hometowns, and air and space museums. Here, randomly chosen, are fifteen women you may not have heard of before.

Library of Congress photo

Harriet Quimby (May 11, 1875—July 1, 1912) was the first woman in the United States to get a pilot's license in 1911, and in 1912 was the first woman to fly across the English Channel. Her license was Fédération Aéronautique Internationale certificate #37, issued to her by the Aero Club of America. Quimby was also a journalist, film screenwriter for D.W. Griffith, and even tried her hand at acting. She died at the age of 37 in a flying accident. A cenotaph of Quimby was erected at Valhalla Memorial Park Cemetery in Burbank, CA, which is dedicated to aviation pioneers. Due in part to her influence, the number of licensed female pilots increased to 200 total by 1930 and between 700 to 800 by 1935.

Associated Press photo

Geraldine "Jerrie" Fredritz Mock (Nov. 22, 1925-Sept. 30, 2014) was an American pilot awarded the FAA's Gold Medal in 1964 by President Lyndon Johnson for being the first woman to fly solo around the world in "Charlie," a single engine Cessna 180 named the Spirit of Columbus. Begun March 19, 1964, in Columbus, Ohio, and ended April 17, 1964, in Columbus, Ohio, the trip took 29 days, 11 hours, 59 minutes, with 21 stopovers and almost 22,860 miles (36,790 km). The flight was part of a "race" that developed between Mock and Joan Merriam Smith. Smith's flight path was the same as Ameila Earhart's final voyage.

Public domain photo

Elizabeth "Bessie" Coleman (Jan. 26, 1892-April 30, 1926) was born into a family of sharecroppers in Texas and attended a segregated one-room school. Interested in flying at an early age, Coleman was stymied by a lack of flight training for African Americans and Native Americans. In Chicago, she saved money and got sponsorships so she could go to flight school in France. On June 15, 1921, Coleman became the first black woman and first Native American to earn an aviation pilot's license and the first black person and first self-identified Native American to earn an international aviation license from the Fédération Aéronautique Internationale.

Navy photograph

Patricia Denkler (born Oct. 4, 1952) U.S. Navy Lt. Patricia A. Denkler performs a preflight check on a Douglas TA-4J Skyhawk aircraft in 1982. She became the first U.S. Navy woman carrier qualified in a jet aircraft when she landed on USS Lexington (AVT-16) in September 1982. With a father and a brother flying in the U.S. Navy, Denkler had an early interest in aviation. In 1977, she was urged to apply to the Navy Flight program, by then Commander John McCain, which had only been accepting women pilots in 1973. She applied for Aviation Officer Candidate School and was accepted for the October 1977 class. At that time, only 15 women were selected yearly. After Navy retirement, she flew at Delta Airlines for 31 years.

Photo www.cedarhillfoundation.org

Mary Goodrich Jenson (Nov. 6, 1907-Jan. 4, 2004) stands next to her Fairchild KR-21 single-engine biplane. In 1927, Jenson became the first Connecticut woman to get her pilot's license and the first woman to fly solo to Cuba. She was the first aviation editor at the Hartford Courant and first woman to write a bylined column for them. One of the original Ninety-Nines organization of women aviators formed in the 1920s, Jenson was also a director of the short-lived Betsy Ross Air Corps (1929-1933), founded during the Depression to support the Army Air Corps, though it was never formally recognized by the U.S. military.

U.S. Army photo

Ola Mildred Rexroat (Aug. 28, 1917-June 28, 2017) was the only Native American woman in the Women Airforce Service Pilots in World War II. Born in Kansas to a Euro-American father and an Oglala mother, she spent much of her youth at the Pine Ridge Reservation in South Dakota. After a year at the Bureau of Indian Affairs, she decided to fly while working for engineers who were building airfields. She joined the WASPs, trained in Sweetwater, Texas, and was assigned to tow targets for aerial gunnery students, and helped transport cargo and personnel. After the WASPs were disbanded in 1944, she joined the U. S. Air Force as an air traffic controller during the Korean War and worked at the FAA for 33 years.

NASA photo

Geraldyn "Jerrie" Cobb (March 5, 1931-March 18, 2019) poses next to a Mercury spaceship capsule. Part of the Mercury 13, Cobb and 24 other women, underwent physical tests like the Mercury astronauts believing they might be astronaut trainees. A military child, Cobb's first flight was in her pilot father's 1936 Waco biplane, at age 12. She barnstormed at 16 in a Piper J-3 Cub dropping advertising flyers for circuses. Cobb was first woman to fly in the 1959 Paris Air Show, and set the 1959 world record for non-stop long-distance flight, the 1959 world light-plane speed record, and a 1960 world altitude record for lightweight aircraft of 37,010 feet, in her 20s.

Courtesy Pearl Scott Collection, Chickasaw Nation Archives

Eula "Pearl" Carter Scott (Dec. 9, 1915-March 28, 2005) at center, a teenaged Scott with her parents and red Curtiss Robin airplane. She was an American stunt pilot and political activist. At 12, pioneer aviator Wiley Post gave her a ride and agreed to teach her to fly. Post also introduced her to humorist Will Rogers. She became the youngest pilot in the United States on Sept. 12, 1929, when she soloed at age 13. In 1972, she became one of the Chickasaw Nation's first community health representatives and served three terms in the Chickasaw legislature beginning in 1983.

Sources: Wikipedia and individual aviator's websites

Courtesy photo

Elinor Regina Patricia Smith (August 17, 1911-March 19, 2010) was a pioneering aviator who grew up on Long Island, New York and was once known as "The Flying Flapper of Freeport." Her mother was a singer, and her father a comedian, singer and dancer. Smith first rode in a Farman pusher plane at age six in 1928 and was hooked. She soloed at age 16, and her Fédération Aéronautique Internationale license was finalized by Orville Wright, which made her the youngest licensed pilot in the world. Three months later, she set an official light plane altitude of 11, 889 in her father's Waco 9. Smith flew under all four of the East River Bridges of New York City in October of 1928. The city grounded her for 10 days.

National Air and Space Museum photograph

Emily Howell Warner (Oct. 30, 1939-July 3, 2020) became the first woman an airline pilot in 1973 and the first woman captain of a scheduled U.S. airline. Interested in airplanes since childhood, Howell Warner wanted to be a flight attendant until at age 17, an airline pilot let her sit in the cockpit and encouraged her to become a pilot. She began flying lessons in 1958, at $13 a week when she was making $38 a week at her job. After she obtained her license, she worked as a traffic reporter. After Frontier hired her, Howell Warner went on to fly for People Express, Continental, and became captain of a Boeing 727 for UPS Airlines.

Smithsonian Institute photo

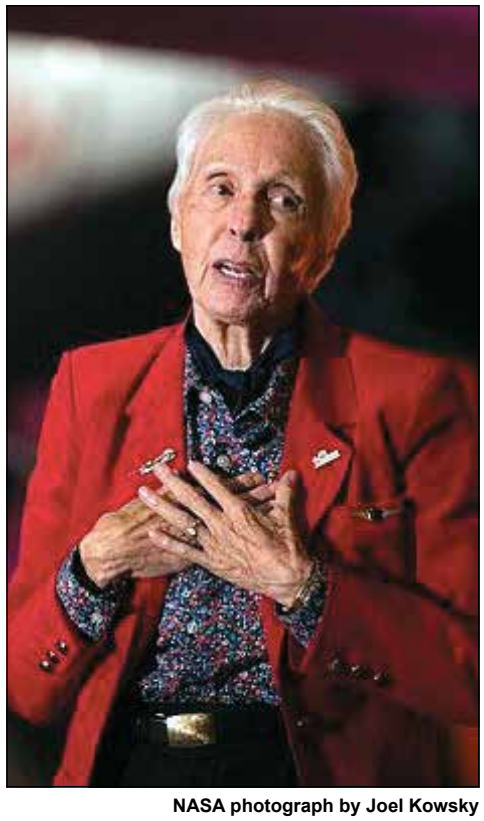
Edna Gardner Whyte (Nov. 3, 1902-Feb. 15, 1992) was an American aviator whose career as a pilot and instructor spanned more than four decades, was also an air racer who won more than two dozen races. After becoming a registered nurse in 1924, Whyte took her first flight in 1926, soloed in January 1931, and she received her pilot's license in May of the same year. The following year, she joined the Navy Nurse Corps. and taught flying. In this photo pilot Edna Gardner Whyte in her Cessna 120. This was her fourth win at the All Woman's International Air Race in 1961, also known as the "Angel Derby." Whyte's student, Martha Wright, was co-pilot.

NASA photo

Fay Gillis Wells (Oct. 15, 1908-Dec. 2, 2002) writer, broadcaster, foreign correspondent, and sailor, began flying in August of 1929, and that September became one of the first women pilots to bail out of a plane, while doing aerobatics over Long Island, N.Y. Later that year she helped found the "Ninety Nines," and was its first secretary, with Amelia Earhart as first president. Instrumental to Wily Post's 1933 record-breaking global flight by managing fuel dumps for the Winnie Mae in Siberia and providing Post with maps and navigation data, he asked her along on his 1935 flight. She declined the offer, so Post asked friend Will Rogers to accompany him. Both died when the Winnie Mae crashed.

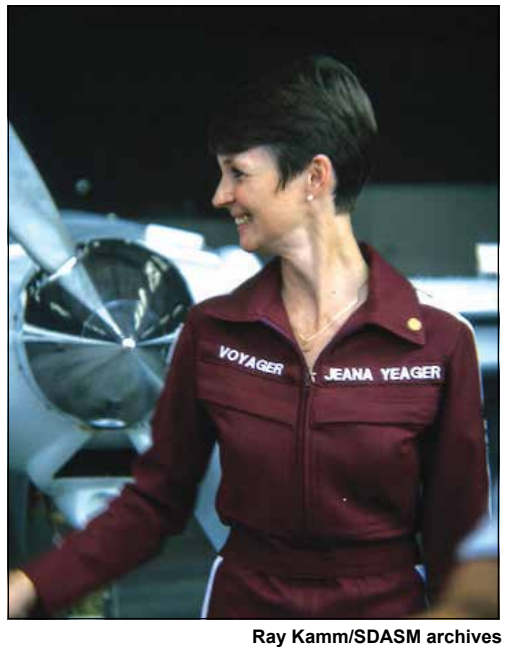
United States Department of Defense photo

Micky Axton (Jan. 9, 1919-Feb. 6, 2010) poses in front of an AT-6. Axton joined the WASPs at 23 and flew BT-13s and Cessna UC78s in World War II. The Boeing Aircraft archives reported: "On May 4, 1944, she was one of the crew of nine aboard "Sweet Sixteen," the 16th of 1,644 B-29s rolled out from the Wichita plant." The engineering flight test chief asked Axton if she wanted to fly the plane. Although the flight was top secret, so she couldn't tell anyone, the chief wrote a letter documenting that Axton just made history as the first woman to fly a B-29.



NASA photograph by Joel Kowsky

Mary "Wally" Funk (Born Feb. 1, 1939) is an American aviator, commercial astronaut, first female air investigator for the National Transportation and Safety Board, first female civilian flight instructor at Fort Sill, Okla., female Federal Aviation Administration inspector, as well as one of the Mercury 13, the only one to fly in space at age 82. On Blue Origin's New Shepard, she remains the oldest woman to fly in space. In the photo, Funk accepts the 2022 Michael Collins Trophy for Lifetime Achievement, March 24, 2022, at the Smithsonian National Air and Space Museum in Chantilly, Va.



Ray Kamm/SDASM archives

Jeana Yeager (born May 18, 1952) is an American aviator who co-piloted, along with Dick Rutan, the first non-stop, non-refueled flight around the world in the Rutan Voyager aircraft from Dec. 14 to 23, 1986. The flight took nine days, three minutes, and 44 seconds and covered 24,986 miles. Yeager and Rutan set a world absolute distance record on the 216-hour flight and Yeager became the first woman to be listed in an absolute category. Yeager met Rutan in 1980 and they soon both set distance records in the Rutan VariEze and Long-EZ planes, designed by Dick's brother Burt Rutan. In early 1982, Yeager set a new women's speed record for the 2,000-kilometer closed course and in the fall of 1984 using the VariEze, she set the open-distance record of 2,427.1 statute miles.

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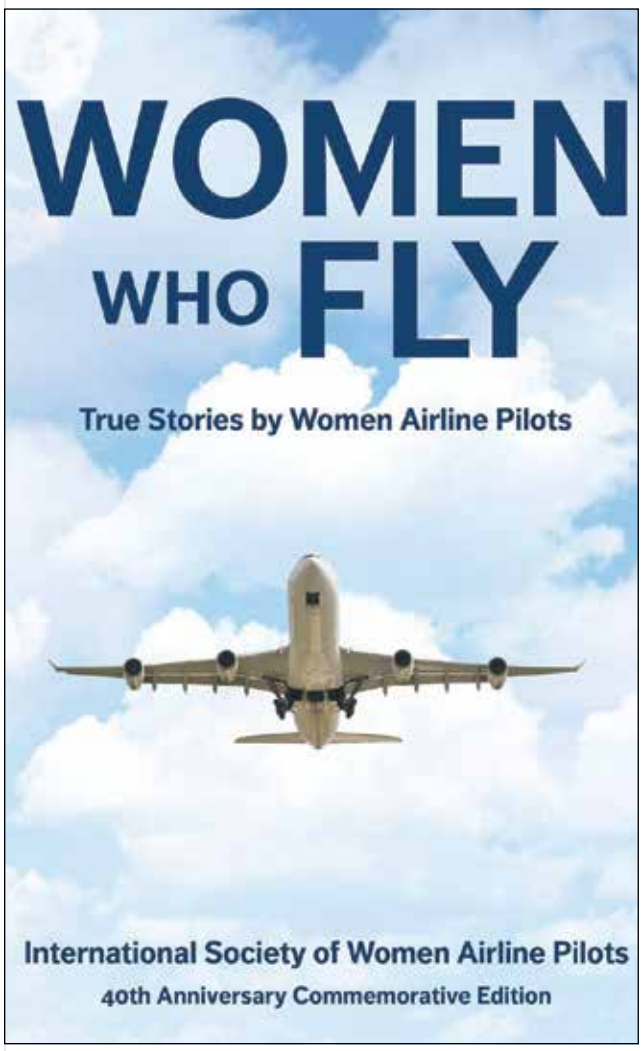


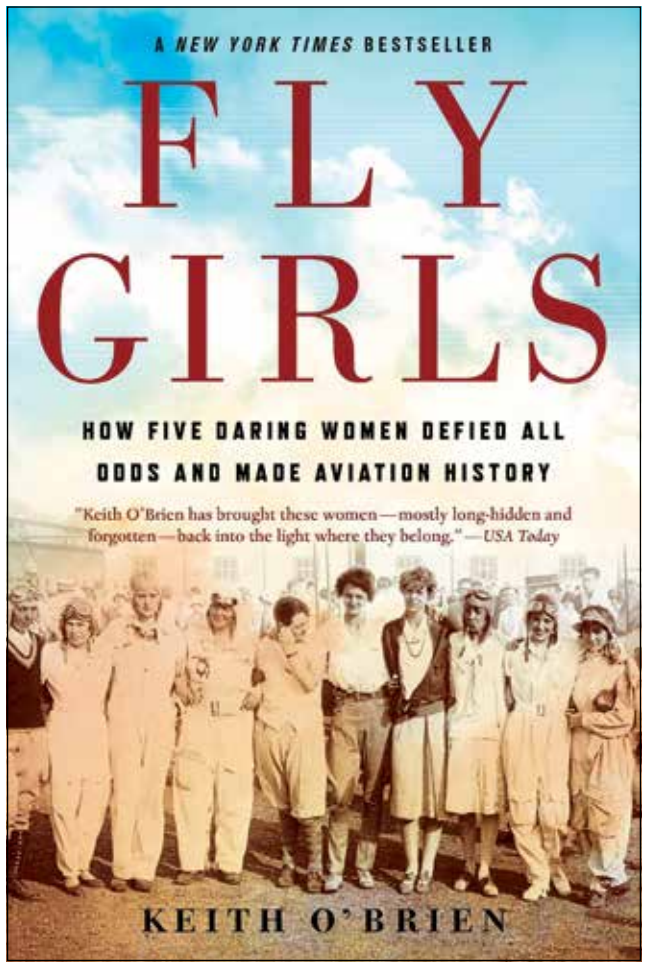
Women Who Fly: True Stories by Women Airline Pilots
By International Society of Women Airline Pilots 40th Commemorative Edition (2018)

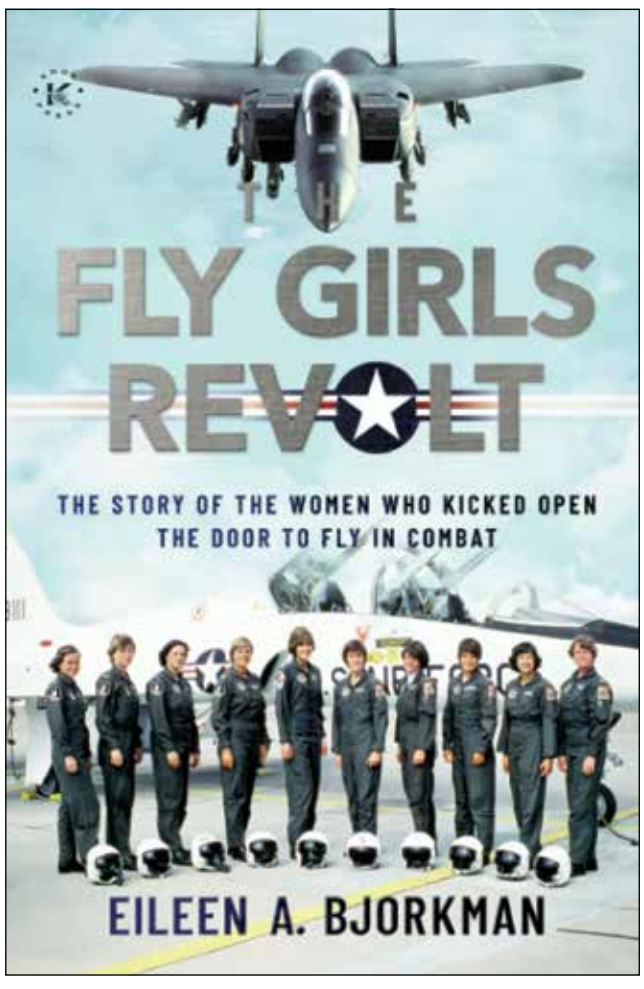
Women airline pilots share their stories, including an emergency landing in Russia, a flight over Antarctica, and a trip to Washington, D.C., to accept a Congressional Medal of Honor. The book includes more than 70 photos, and all proceeds support the International Society of Women Airline Pilots, ISA+21 scholarship fund.

The Fly Girls Revolt: The Story of the Women Who Kicked Open the Door to Fly in Combat

By Eileen A. Bjorkman (2023) A retired U.S. Air Force colonel from Edwards Air Force Base, Calif., Bjorkman served as a flight test engineer, instructor and test squadron commander, has more than 700 flight hours as a flight test engineer in more than 25 different aircraft including the F-4, F-16, C-130 and C-141. Here, she chronicles the path to 1993, when U.S. women earned the right to fly in combat: from World War II's Women's Airforce Service Pilots in World War II, to women flying combat missions in Iraq and Afghanistan.

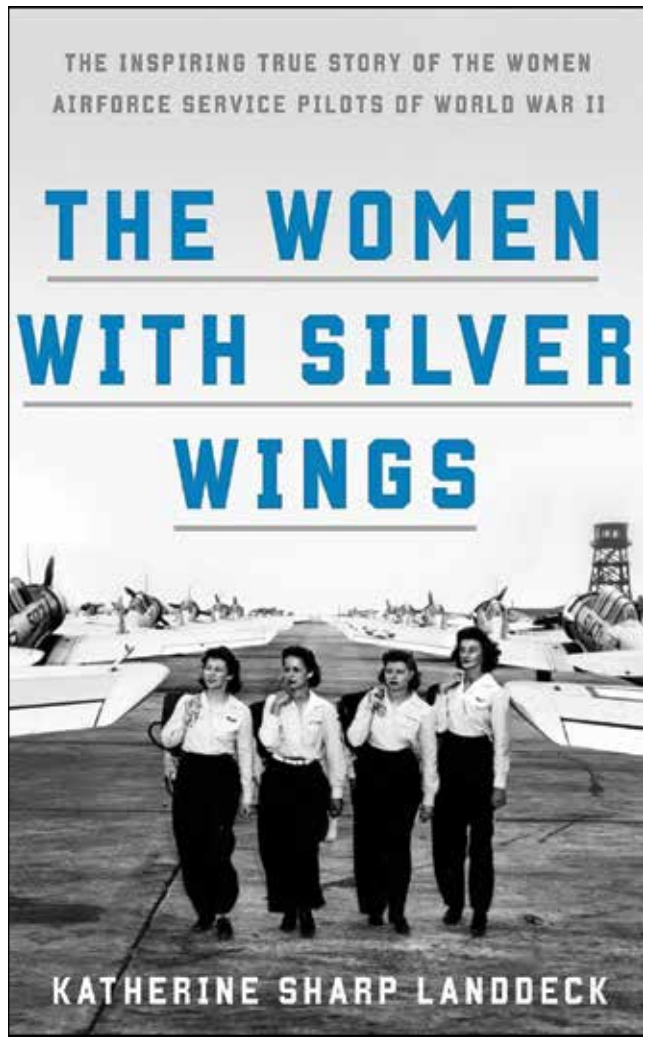
Bjorkman did extensive research, interviews with women who served in the 1970s and 1980s, and drew on her personal experiences in the Air Force to describe how women fought for the right to enter combat and be treated as equal partners in the U.S. military.





Fly Girls: How Five Daring Women Defied All Odds and Made Aviation History

By Keith O'Brien (2019) *Fly Girls* weaves together the stories of Florence Klingensmith, a high school dropout from Fargo, N.D., Ruth Elder, an Alabama divorcée, Amelia Earhart, already famous, but not the most skilled, Ruth Nichols, who defied her aristocratic family's expectations, and Louise Thaden, the young mother of two who got her start selling coal in Wichita, Kansas. Together, they fought for the chance to fly and race airplanes — and in 1936, one of them would beat the men in the toughest air race of them all.



Women with Silver Wings: The Inspiring True Story of the Women Airforce Service Pilots of World War II

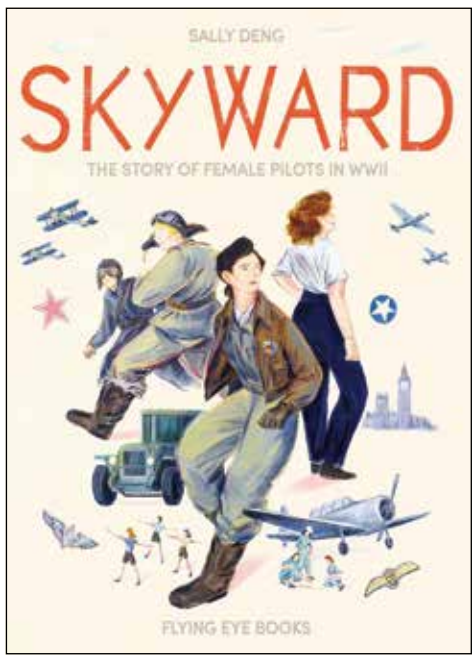
By Katherine Sharp Landdeck (2021), an associate professor of history at Texas Woman's University, the home of the WASP archives.

Nancy Love and Jacqueline Cochran helped initiate the Women Airforce Service Pilots (WASP), giving women a chance to serve in World War II, and to prove that women aviators were just as skilled as men. This is the story of the 1,100 women who joined the WASPs, helped train male pilots for service abroad, and ferried bombers and pursuits across the country.

See **AVIATORS**, on Page 21

AVIATORS, from Page 19

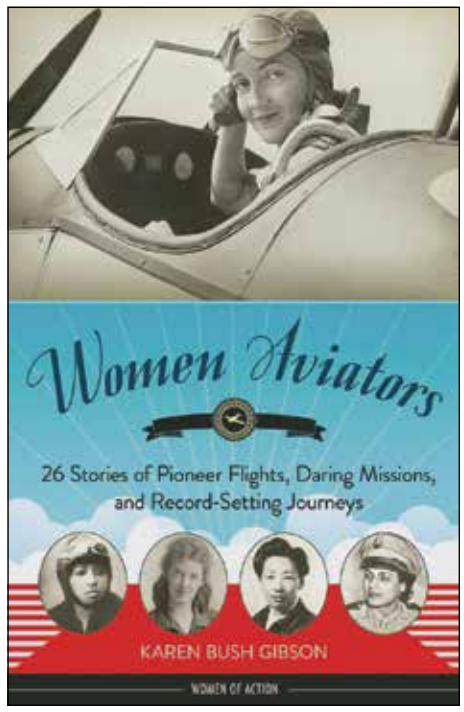
Children and Young Adults



Skyward: The Story of Female Pilots in WWII

By Sally Deng (2018) Ages: 7-12

In this beautifully illustrated book Deng follows girls from the United States, Russia, and England from their first encounters with airplanes circa 1927, their struggle to overcome prejudices about what was possible for females, to their exploits as women in the Women's Airforce Service Pilots (WASP), helping win World War II.



Women Aviators: 26 Stories of Pioneer Flights, Daring Missions, and Record-Setting Journeys (Women of Action)

By Karen Bush Gibson (2020) Ages: 12 and up

Gibson profiles 26 women aviators who overcame sexism and doubt to meet challenges both in the sky and on the ground, like barnstormer Bessie Coleman and racers like Louise Thaden, who bested Amelia Earhart and Pancho Barnes to win the 1929 Women's Air Derby, sometimes called the Powder Puff Derby.

High Flyers: 15 Inspiring Women Aviators and Astronauts (Women of Power)

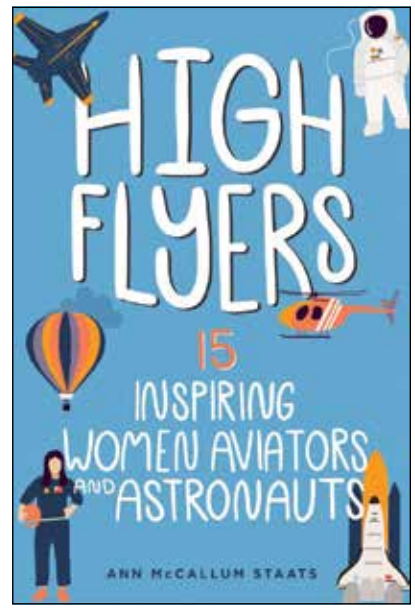
By Ann McCallum Staats (2024) Ages: 12 and up

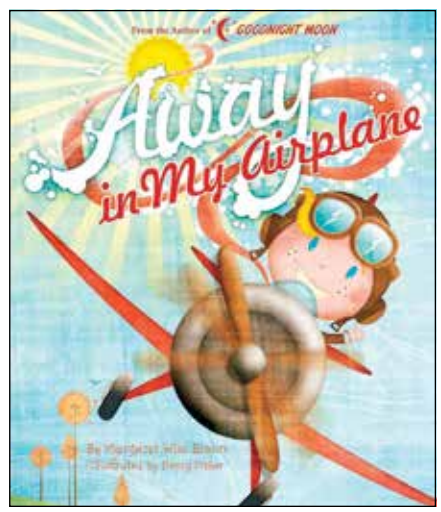
Meet Black Hawk helicopter pilot turned congressperson, Tammy Duckworth; hot air balloonist Edgora McEwan; and medevac pilot Dede Murawsky. Also featured are commercial and military aviators like the Coast Guard's Ronaqua Russell, the first African American female to receive the prestigious Air Medal.

Also, Tammie Jo Shults tells of catastrophic engine failure while commanding Southwest's Flight 1380 with 148 souls aboard.

Pilots share their experiences in military high-performance jets, the Stratotanker, flying in the Blue Angels, and astronauts tell of launching in the cramped Russian Soyus rocket, orbiting Earth while conducting critical science experiments, or living aboard the International Space Station.

These women all overcame obstacles and challenges, but overcame them to fulfill their dreams of flight.





Away in My Airplane

Margaret Wise Brown (2019 reprint) Ages: 3-5

From the author of Goodnight Moon, this child's picture book has all the charm of Brown's other books. It has lots of aerial views of the protagonist's community. The main character is androgynist looking, so while the pilot's gender isn't specifically mentioned, they could be male or female. Either way, it's charming.

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