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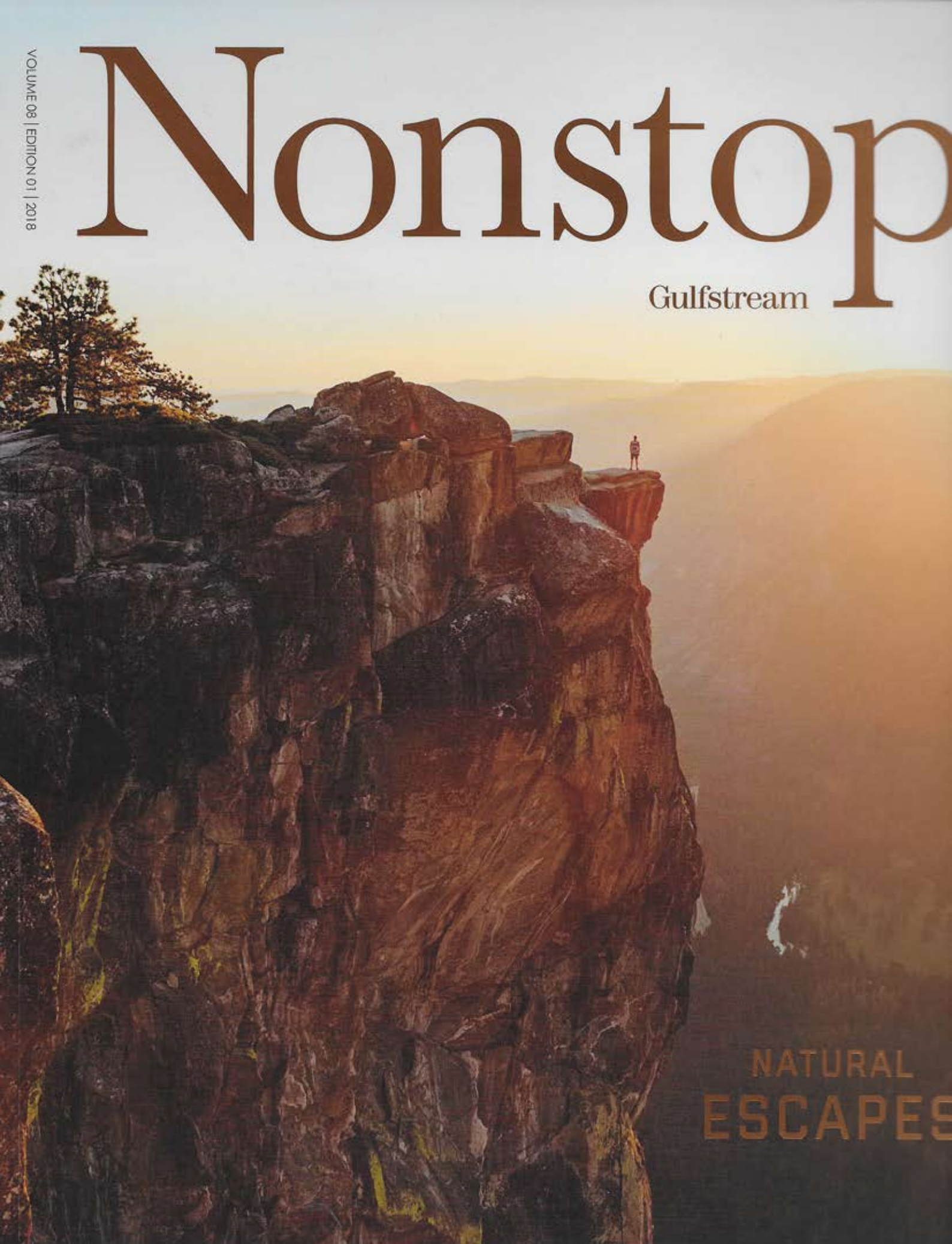
Nonstop

Gulfstream



NATURAL ESCAPES

THE G500 AND G600

STARGAZING IN PARANAL

BEIJING 999

FLIGHT LEADERS

Inspired by pioneering women of aviation and dedicated to mentoring others, these accomplished pilots share their skill and passion for flying

Written by Lesley Conn

MATT DELPHENIS/EAGLE/GETTY IMAGES/ISTOCKPHOTO

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Patty Wagstaff trains p
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unusual attitudes. **OPPOS**
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CLOCKWISE FROM TOP LEFT: *Shaesta Waiz, from Afghan refugee to youngest woman to fly solo around the world in a single-engine plane; Bessie Coleman, America's first female barnstormer; Patty Wagstaff, the first woman to win three U.S. aerobatic championships; Ruth Nichols set nearly 30 aviation records and was the first woman to pilot a regular passenger airline.*

SHAESTA WAIZ REMEMBERS THE EXPERIENCE CLEARLY.

She was strapped tightly into the forward seat of a Super Decathlon airplane. As the small two-seater sped across the Florida sky, the pilot flipped the aircraft quickly to the left, and Waiz was suspended upside down, with only a harness at shoulders and hips holding her in place. She looked through the clear canopy and, 4,000 feet below, watched motorists journey and jockey along Interstate 95.

"We stayed there a few seconds," Waiz recalls. "Here I am, completely upside down, and yet I realized I was so certain of Patty's ability to do anything she wants with an airplane that I wasn't worried at all."

Understandable, given that the pilot was Patty Wagstaff, whose airborne achievements—including three U.S. aerobatic championships and induction into the National Aviation Hall of Fame—earn her status as a living legend of aviation.

Months later, in October 2017, Waiz made her own mark on aviation history, becoming the youngest woman to fly solo around the world in a single-engine plane, a journey to 22 countries in 4½ months.

As Wagstaff monitored Waiz's progress by GPS flight tracking, it was her turn to marvel.

"She was out there all alone in a single-engine plane, over open ocean in the dead of night, making her way in the South Pacific," Wagstaff recalls. "Definitely not for me."

For her accomplishment, Waiz is being honored this year as recipient of the Katherine and Marjorie Stinson Trophy and the National Air and Space Museum's Award for Current Achievement. Wagstaff nominated her for both.

WILD BLUE WONDER

Aviation has always been about challenging norms, pushing against convention, and through innovation and personal courage, finding ever better ways to propel humans into the sky.

Even in the earliest days, there were women, much like Wagstaff and Waiz, who defied convention, tested their limits and became pioneers of aviation.

Most of us, if pressed, can name a few. Amelia Earhart, the first woman to fly solo across the Atlantic Ocean, or perhaps Bessie Coleman, the first female barnstormer. A rare few might recall that in 1963 Russian cosmonaut Valentina Tereshkova was the first woman in space—20 years before Sally Ride, America's first female astronaut.

Visit the International Women's Air & Space Museum, though, and what impresses is not that there were women pioneers, but that there have been so many.

Just down the street from the Rock & Roll Hall of Fame in Cleveland, Ohio, Burke Lakefront Airport serves as the museum's headquarters. Though modest in scale, the exhibits nestled along the airport's main concourse highlight the contributions from women as they sought a meaningful place in aviation. The museum also maintains records on more than 6,000 women in aviation and regularly provides research and data to authors, scientists, historians and others around the world.

Here, visitors can learn about women such as Ruth Nichols, a 1930s phenomenon who was a licensed pilot, aircraft mechanic, first female executive of a million-dollar aviation company and the only woman to simultaneously hold world records for altitude, speed and range, among the nearly 30 world records she set.

Or consider Tracy Pilurs. In the 1960s this mother of six became an aircraft builder, flight instructor and aerobatics champion. Her fuel-injected Smith Miniplane, painted in a delicate lilac and named the "Pretty Purple Puddy Tat" is testament to women's capabilities as aircraft engineers and mechanics.

ASTRONAUT TRAINING

In terms of untapped potential, no other story is as compelling as that of the Mercury 13. In 1960, 25 American women pilots were tested by the Lovelace Foundation to see whether they could meet the same physical and psychological standards as the male astronauts.

Thirteen did.

All the women were experienced pilots; some had more flight hours than their male counterparts; a few had trained male pilots for the military, and some, as members of the Women's Airforce Service Pilots in the 1940s, shuttled aircraft into combat zones, trailed banners for infantry target practice and flew repaired planes to certify them before they returned to service.

"These women went through all of the tests the men went through and passed with flying colors," says Heather Alexander, executive director of the museum. "Then they did a lot of testing the men

Seven of the surviving Mercury 13 at a 1995 space shuttle launch: From left are Gene Nora Jessen, Wally Funk, Jerrie Cobb, Jerri Truhill, Sarah Rutley, Myrtle Cagle and Bernice Steadman.

didn't do, and they proved again and again that they could do it."

The question of admitting women as astronauts went to Congressional hearings in 1962. NASA staff said experience as test pilots for military jets—which none of the women had—most closely resembled the requirements for space travel. John Glenn, the first American to orbit the Earth, also testified it was a question of social order.

"It's just a fact," he said. "The men go

"You would think, 'Don't women know by now they can do anything?' "

off ... and fly the airplanes and come back and help design and build and test them. The fact that women are not in the field is a fact of our social order."

The Mercury 13 were allowed no further astronaut training.

Wally Funk is one of the original candidates. For her, Mercury 13 was a question of possibility. Then a 23-year-old flight instructor, she had passed every test, had even personally paid for some of them. She allowed scientists to strap her into a chair and shoot ice-cold water into her ear; she survived 10 ½ hours in an isolation tank—longer than any of the men. She wanted the chance to keep testing her boundaries.

"My mother had not been allowed to pursue flying," Funk says. "When she was young, she had taken an orientation flight on a Stearman biplane. Her father, who was a banker, told her it was unladylike and inappropriate for a family of their standing, and he forbid her from ever going again. She was denied the choices of her life, so this is why I had the freedom in mine."

Though her space career was grounded, she went on to log more than 19,600 flight hours and train 3,000 pilots, something she continues doing today. She has traveled the world inspiring young pilots, trained with Russian cosmonauts and became the first female inspector for the U.S. Federal Aviation Administration.

But some dreams won't die.

"I wanted to go into space so much. Even now, I want to go to the International Space Station so bad. I've been at every launch, watched every one of them go up," says Funk. "And because I can't, I want to even more."

She hasn't quit hoping. When the Virgin

Galactic spaceplane makes its maiden passenger voyage, anticipated for later this year, she plans to be on it. She paid $200,000 for the opportunity.

FUELING STEM CAREERS

With so many examples of pioneering female aviators, one might wonder what role a museum and professional organizations such as Women in Aviation International (WAI) play.

International and U.S. data show that women pilots compose, at best, about 6.7 percent of licensed pilots, including general aviation. Consider their numbers among professional fliers, and that number falls. According to data from the International Society of Women Airline Pilots (ISA), of 102,244 total airline pilots, only 4.6 percent, or 4,751 are women.

WAI and ISA undertake educational outreach and scholarship opportunities for women to pursue aviation careers. WAI has more than 115 chapters organized around the world, and each year provides a student from each chapter a $3,000 scholarship. WAI also inducts three new members annually to its Pioneer Hall of Fame.

These organizations and the International Women's Air & Space Museum recognize a larger issue that affects similar industries—far too little interest from young people, particularly girls, toward careers in science, technology, engineering and math, fields collectively known by the acronym STEM.

The museum hosts an annual Wings of Women conference geared toward high school females interested in pursuing STEM-related careers. Professional women mentors from various STEM fields spend the day speaking with students about how they got to where they are today.

"You would think, 'Don't women know by now they can do anything?'" says Alexander. "But they don't. We see it so often at the museum. Five years ago, a girl told us she wanted to fly Life Flight helicopters, but her guidance counselor told her she couldn't be a helicopter pilot. A lot of these girls, when they come here, they see women who have accomplished so much in aviation. And until then, they never thought they could do any of this."

MORE THAN FLYING

The perceptions Alexander has encountered echo interactions Wagstaff has had at airshows and at her flight school. All too often, she says, women have a lack of confidence in their potential as pilots.

"The thing about flying is it gives you confidence," she says. "It gave me focus and it gave me a reason to be disciplined."

Wagstaff has shared her expertise around the world, including training pilots with the Kenya Wildlife Service, who protect elephants and rhinos from poachers. She also teaches pilots in aerobatic flying and techniques for upset recovery—the ability to return an aircraft to a normal flight path after an unexpected event, such as wake turbulence or a sudden downdraft, forces a plane into an unusual position in the air.

"The best pilots are the most humble and want to pass it on," she says, crediting aviation legend Bob Hoover and three-time national aerobatics champion Clint McHenry for sharing their expertise with her. "That's what I want to do, too."

She worked with Waiz to help prepare her for her around-the-world flight. Although flight training in the early decades required all pilots to know simple rolls and loops, it is no longer taught in basic instruction. Like so many of Wagstaff's other students, even though Waiz was an experienced pilot, she had never been upside down or flown loops.

"It gave me the confidence to know I could recover the aircraft if something did happen along my route," Waiz says.

FEELING EMPOWERED

Her around-the-world trek was more than a personal mission. Along the way, Waiz met with 3,000 schoolchildren in countries such as Sri Lanka, Oman, Greece, Thailand, Indonesia and Fiji. Her organization, Dreams Soar, is dedicated to increasing the number of women in aviation and STEM careers. Simply seeing someone like her could be all the inspiration a girl needs, Waiz believes.

Waiz knew her share of difficulties as a girl. She was born in a refugee camp to Afghan parents who later immigrated to the United States. She was the first in her family to earn degrees, a bachelor's and a master's from Embry-Riddle Aeronautical University.

"I was one of six daughters, and as a child, I wasn't that good in school," Waiz says. "But once I discovered aviation, every time I got into the aircraft, I no longer had those things against me. I was empowered. I was the pilot in command."

During air shows, aerobatic pilot Patty Wagstaff deploys a smoke trail to make her turns and twists easier for the audience below to follow.

IRON S BUSKIRK/ALAMY STOCK PHOTO