

HORIZONS

A publication of the Massachusetts Air and Space Museum

The Massachusetts Air and Space Museum inspires new generations to explore, experience, and pursue interests and opportunities in science and technology

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Massachusetts Air and Space Museum 200 Hanscom Drive Bedford, MA 01730 www.massairspace.org

Southeastern Massachusetts Aviation Career Fair 2019

On the masthead of every issue of *Horizons* is the mission statement of MASM: “*The Massachusetts Air and Space Museum inspires new generations to explore, experience, and pursue interests and opportunities in science and technology.*” The museum’s board members, steering committee and leadership are dedicated to advancing both aviation and aerospace development by inspiring and channeling the next generation to follow the many career paths that these exciting fields have to offer. Toward this goal, MASM has presented a career fair at Logan Airport for the past nine years in order to introduce Bay-State high school and junior high school students to what these industries have to offer them, and what they’re all about.

This year, MASM coordinated efforts with the authorities at Barnstable Municipal



Airport in Hyannis to offer a similar program to young people from all over southeastern Massachusetts, Martha's Vineyard and Nantucket. Students from many Cape Cod schools and south-eastern Massachusetts flocked to the new airport facility to view first-hand what the aviation and space industries have in store for their futures.

Businesses and government agencies came together to dramatically illustrate the many interesting career paths that are open to the workforce of the near-future. Industry giants are eager to participate in such opportunities due to the rapidly-aging status of the current workforce and the need to generate interest within the next generation. A recent aviation industry estimate claims the world is in immediate need of one million commercial pilots, and the geographic portion of the world most in need is the United States. In addition to pilots, the air and space industries desperately need engineers, scientists, skilled technicians and mechanics, and ground personnel in dozens of disciplines.



Hands-on Simulator Time for Students Provided by Experimental Aircraft Association—Chapter 51



Employee Support of the Guard and Reserve



Massachusetts Civil Air Patrol

The common denominator in all areas of endeavor is a solid foundation in science, technology, engineering and mathematics; or STEM. Many Bay State schools have already incorporated STEM into their curriculum in order to inspire young people to pursue fields of study that will better-prepare them for a



US Military Blackhawk Helicopter



Aircraft and Equipment on Display for Students to Tour



US Coast Guard HC-144



Civil Air Patrol's Gippsland GA-8



Boston Medflight's Airbus MBB-BK 117 D-2





technological future.

The conference presented students with a glimpse into all kinds of career paths; from the business world, military options, and the even the scientific community. The emphasis was placed upon the skill-set required for students who wish to enter the many fields of endeavor represented, and how a solid back-

Tuskegee Airmen Association



Barnstable Municipal Airport

ground in a STEM education can be the key to those fields.

For many of the students attending, this was their first opportunity to get up close and personal with those in the aviation fields where their interests lie. They got to climb aboard a Blackhawk helicopter and see firsthand just how big and powerful a machine it is. They were able to stand next to the giant snowblower used to clear runways at Barnstable Municipal Airport, sit in the cockpit of several aircraft, and fly high-tech flight simulators and get the feel of the yoke in their hands.

It was a day of discovery for the students, but also for the many educators that accompanied them to the conference. Teachers were shown the direct connection between the fundamentals that they teach every day and the practical application of those funda-



Cape Air





Federal Aviation Administration

Heritage Turbines



McFarland Johnson—
airport designers



Barnstable Police
Department—
using drone technology to ac-
complish their mission



A New Book from MASM Member John Wood

The perfect Christmas Gift!

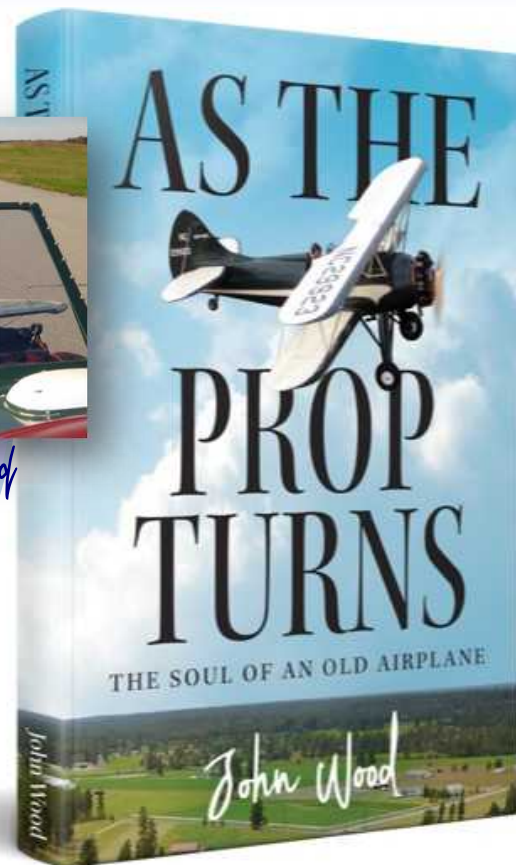
Historical biographies and aeronautical tales—make room for this incredible airplane book. Experience open-cockpit flying with the men and women who flew the antique Waco UPF-7, NC29923, a 1940 biplane still flying today. Enjoy true escapades as you soar with a noted aviatrix, World War II pilots, a freight dog, a tax evader, a crop duster, a missionary dentist, a prominent woman sculptor, and a drug smuggler through their flying careers.

Learn how Waco '923 nearly met total destruction only to be rebuilt several times---from basket case to show piece. As the Prop Turns, by John Wood, fits well with other adventure books for adults, and few airplane books contain as many engaging stories about the Waco UPF-7. A chapter for pilots describes the Waco's handling and provides operational tips. With thousands of research hours, 228 pages and more than 130 photographs, drawings, and maps, this airplane's memoir is sure to top the true adventure list.

Author John Wood graduated from Louisiana Tech University and the Massachusetts Institute of Technology. He studied engineering, retired as a public




John Wood



company CEO, and now serves as a corporate board member. Wood was company spokesman with high-profile exposure in print, television, and radio during investigations of the Pan Am 103 and TWA 800 crashes. On two occasions, he testified before the US Congress about improved airport security.

Rated as an airline transport pilot and certified flight instructor, John Wood has logged seven thousand flight hours and has experience piloting over one hundred aircraft makes and models, including jets, turboprops, seaplanes, helicopters, gliders and balloons. John is a veteran public speaker and lives with his wife in Concord, Massachusetts.

To obtain a copy of John's book, As the Prop Turns, click on this link to Amazon where you can purchase your copy. Remember, it makes a great Christmas gift for the aviation devotee in the family. 



SEO IMAGES BY JOHN WOOD





Bridgewater State University

Barnstable Municipal Airport



New Bedford Regional Airport

Cape Area Pilots Association





Volunteers who made the conference a reality: (L—R): Rick Dupree, Don Almeida, Mary-Lou Bigelow, Keith Young, Barbara Bjacla, Shannon Brown, Georgia Pappas, Ron Mochi, Joe Dini

Ninety-Nines—a sorority of women pilots



Aircraft Owners and Pilots Association, and Jet Blue

MASM elite (L—R):
MASM Chairman Joe Dini
Georgia Pappas
Shannon Brown
Kevin Currie



mentals in the field. Even the exhibitors were inspired by the interest and the curiosity displayed by many of the students. These young adults, about to embark of their life's journey, showed true interest and enthusiasm in the many possibilities that the aviation and space industries have to offer them.

The conference was deemed a great success by everyone involved, and plans are already underway for an even bigger event in 2020. Connecting future generations of students with the possibilities of careers available to them in the aerospace industries is an intricate part of MASM's mission, and both the students and those

Cape Cod Community College



Airport Solutions Group—a company that uses drone technology to build and refurbish airports



A robot from the Massachusetts Army National Guard, and Guard Members below showing students the future with a STEM background



Looming Pilot Shortage Lifts Aviation Schools

By Paul Brinkman

United Press International story



DAYTONA BEACH, Fla., Oct. 29 (UPI) -- A good economy, record levels of air travel and baby-boomer retirement are fueling record enrollment at aviation and aerospace schools around the nation.

The surge comes largely as a response to warnings from the air travel industry of looming global shortages for pilots and those in related jobs. After the Sept. 11, 2001, terror attacks, pilots faced almost impossible odds of being hired at a major airline. Now some of them are being offered guaranteed jobs before they graduate.

Boeing's official pilot outlook for 2019 predicts that 804,000 new civil pilots will be needed to fly its global fleet over the next 20 years, stemming from a mix of growth and retirements and other attrition. Boeing said the Asia Pacific region will lead worldwide growth in that pilot demand.

United Airlines announced earlier this month that it expects half of its 12,500 pilots to retire in the next decade, and that it will hire 10,000 pilots during that period. United is one of several airlines offering so-called pathway programs, providing perks to some students who commit to working for

them upon graduation.

Delta Air Lines' office

confirmed that it expects to hire more than 8,000 new pilots over the next decade, as many of its 13,000 pilots retire at the federally mandated age of 65.

According to the U.S. Bureau of Labor Statistics, airline and commercial pilot demand is projected to grow 6 percent over 10 years. "Most job opportunities will arise from the need to replace pilots who leave the occupation," the bureau said in its report on the industry.

The result will be increasing competition at the best flight schools and a lot of fresh, young faces in the cockpit and much better pay, said Kenneth Byrnes, chairman of flight training at Embry-Riddle Aeronautical University in Daytona Beach, Fla.

"Right now, it's the best time ever to be a pilot," Byrnes said. "They know the sooner they graduate, the sooner they fly, and the sooner they can hit maximum salary in their career."

Embry-Riddle's Florida campus has had record





numbers of freshmen for the past six years. This year's incoming class at the nation's largest university dedicated to aviation is 1,950 students, boosting total enrollment to about 7,000. That's an increase of almost 300 students, or 18 percent, over last year.

Embry-Riddle says flight students can complete schooling in three years, and estimates that students can expect to pay \$40,000 to \$60,000 during that time to acquire required ratings. That's on top of tuition, fees and books that run about \$40,000 per year, although there are some differences depending on scholarships, in-state status and other variables.

International demand for pilots also is showing up at Embry-Riddle, where 13.2 percent of the student body is international at the Daytona Beach campus and 6.5 percent is international at the school's Prescott, Ariz., campus.

The Arizona campus also had its largest-ever incoming class this year with 850 new students, a 23 percent increase over 2018.

Other flight schools from Ohio to California also are seeing surges in enrollment.

"We are definitely feeling the crunch," said Brian Strzempkowski, assistant director at Ohio State University's Center for Aviation Studies. "Our flight school is completely full and we have a wait list."

Enrollment at the center rose by 100 students this year to 350 total, Strzempkowski said. Ohio State has raised pay for its flight instructors -- usually recent graduates who need a few more hours of flight time to become a commercial pilot.

"It's getting harder to keep instructors around," Strzempkowski said. "We're looking at giving them

full salary and benefits now, and other options."

Smaller aviation schools also are seeing a spike, said Fred Barez, chair of the aviation and technology department at San Jose State University in the Bay Area of California.

"Our freshman class in aviation is the largest ever with 88 students, and 75 want to be pilots," Barez said.

While guaranteed jobs are real, criteria for admission to

the best-known schools is rising. Embry-Riddle reported the highest academic achievement for its incoming freshmen, with an average grade-point average of 3.79 and average SAT score of 1236.

Embry-Riddle said it only admitted 59 percent of applicants this year, compared with 71 percent and 70 percent in 2017 and 2018, respectively. Five years ago, the acceptance rate was about 80 percent.


"That is a significant change, and we're seeing a rapid growth in applications still," said BJ Adams, dean of enrollment management in Daytona Beach. "We've got about 1,000 more applications at this time than we did two years ago."

The demand for pilots is a major reason William Lackey, 19, from Maryland, pursues his aviation degree and pilot license at Embry-Riddle in Daytona Beach.

"I kinda always wanted to be a pilot, but I know now everything is growing and they don't have enough pilots to keep up with demand," said Lackey, now in his second year.

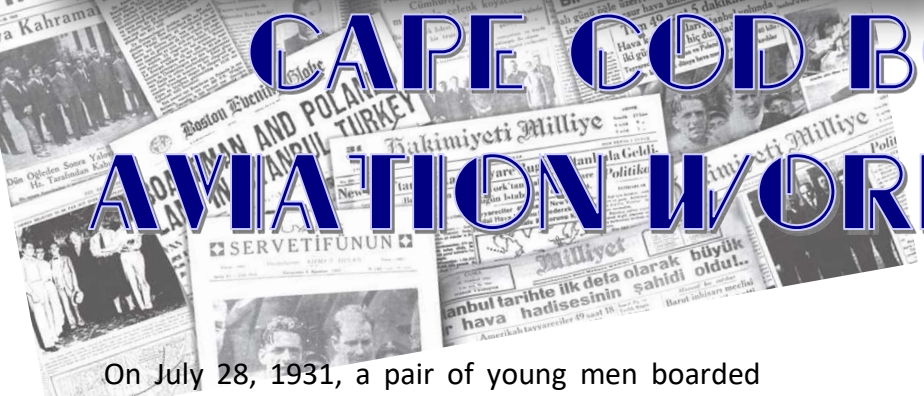
He's already done his first solo flight. He's planning to become an instructor and then move to a commercial airline as soon as possible.

Embry-Riddle's campus has doubled in size with gleaming new classroom buildings and a new student center. Its flight deck adjacent to Daytona Beach International Airport is completely full of planes -- Cessna 172 Skyhawks and Diamond DA42s.

"People are really getting interested in aviation as a career again," said Mike Wiggins, chair of aeronautical science at Embry-Riddle, who has been at the school for more than 40 years. "It's regaining the cachet it once had." 




CAPE COD BOYS SET AVIATION WORLD RECORD



On July 28, 1931, a pair of young men boarded their specially-modified *Bellanca* monoplane at Floyd Bennet Field off Flatbush Avenue in Brooklyn, New York. Forty-nine hours and seventeen minutes later, after flying non-stop across the Atlantic Ocean, Russell Boardman and John Polando landed at Istanbul's Yeşilköy Airport, in the Republic of Turkey with only fifteen minutes of fuel left in their tanks. Only nine years prior to this the ground they landed upon had been part of the Ottoman Empire. After lengthy occupations by foreigner entities and a bloody civil war, Turkey became a republic and was being formally recognized as such by many world powers. The goodwill flight by Boardman and Polando was an unofficial method of recognition by the United States as a letter was delivered by the two fliers from President Herbert Hoover to President Mustafa Kemal.

The record established by Boardman and Polando was for the longest duration of a single flight without refueling. They accomplished this feat in a *Bellanca* that they named "Cape Cod."

Russell Boardman was recognized by John Polando as not only a capable stunt pilot (he'd flown as a stunt pilot for the Howard Hughes film "Hell's Angels"), but an accomplished airplane mechanic. Polando was determined to break an aviation record, and he believed Boardman would make a good copilot on such an adventure. Together, they made the record books, and the airfield at Hyannis was subsequently named for both of them. 





BAY STATE BALLOONING

The Bay State has its share of balloonist who take to the skies regularly during suitable weather. Although they must complete ground school for a license like any other pilot, they have but one control on the craft: its altitude. They can regulate only the height of the balloon in flight. While weather is an important factor to any pilot, balloon pilots are born by the wind and must plan their flights based upon the predicted wind and weather before lift-off.

Passengers also need to plan ahead for balloon flights in order to get the most out of the experience. That is why Horizons is offering this heads-up now, so you can plan for your balloon adventure now before the spring rush. While every balloon ride is thrilling, seeing what you'd most like to see as you drift slowly through the air is what make the trip. Here are just eight Bay State commercial balloon operators that can show you how much fun unpowered flight can be:

[Aerial Adventures](#)—Central Massachusetts

[Aerostat Promotions](#)—Northampton, Springfield and Amherst, Massachusetts

[Aerostation, The Art of Ballooning](#)—Stow, Massachusetts

[Balloon Adventures of New Bedford](#)—Flights over southeastern New England


[Balloon Fantasies of Rehoboth](#)—Southeastern Massachusetts

[DragonFire Balloons](#)—Boston's MetroWest region

[Misty River Ballooning](#)—Pioneer Valley in Western Massachusetts

[Worthington Ballooning](#)—Berkshire Mountains

Contact any of the intrepid Bay State balloonists who offer an elevating experience in the clouds. You'll discover a whole new world just a few thousand feet above the ground. Be sure to bring your camera or a video recorder to capture the spectacular views from the basket of your balloon. It's a great way to celebrate a birthday or an anniversary, and many vendors offer champagne flights. See what it was like when man first took to the skies; no noisy motors, and fresh air and beautiful scenery in every direction.

Climb aboard the basket for the ride of a lifetime. You won't regret it, and you'll never regret it! 


MASM is Recruiting!

Air and Space Museum About to Open— Volunteer Docents Needed

President Bob Segal recently announced that the Massachusetts Air and Space Museum is about to open its doors to the public, and volunteers are needed to make this long-awaited dream a reality. The museum facility will be located at the Cape Town Plaza in Hyannis, and it is currently on track to officially open on February 1, 2020. In addition to preparing exhibits and arranging the physical layout, a cadre of volunteers knowledgeable in aerospace fields will be required to introduce visitors to the many artifacts and displays that are planned.

Although a final schedule has not yet been established, weekends and

holidays will surely be incorporated into the preferred operating hours. Individuals with experience or specific knowledge in any aerospace field are desired. Experience interfacing with the public will be a plus. Volunteers should also be able to commute to and from the museum facility in Hyannis on their own.

To join the team, contact Keith Young at kyoung@massairspace.org for information and to schedule an interview. Become an inaugural member of the cadre that brings the new Massachusetts Air and Space Museum to life. If you know aerospace, and you like talking about it, *we want you!* 

C.A.V.U.

Most people familiar with aviation know that the abbreviation “CAVU” stands for “*Ceiling and visibility unlimited.*” In this recurring feature of ***Horizons***, your ability to see clearly into the history of aviation will be tested through identification of flying machines that once were. The first reader who submits the correct answer will be entitled to bragging rights and have their name and answer published in the subsequent edition of ***Horizons***. Submit your name, the name of the aircraft, the type or version (if applicable), and the country where it was manufactured to the editor-in-chief of ***Horizons*** at: horizons@massairspace.org

Here is your challenge for this edition:



September 2019 Edition's Answer

Letov S 31—Czechoslovakia

Single-seat fighter **Max. speed:** 158 mph(255 km/h)

Ceiling: not disclosed **Range:** 199 miles

Dry weight: 1,830 lbs **Max. take-off weight:** 2,765 lbs

Dimensions: Wing Span 32'-2", Length 23'-5.5", Height 9'-8"

Powered: one 450 HP Walter Juniper VI radial piston engine

Armaments: two 0.303-in (7.7 mm) machine guns



Current Resident or:

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Join Us Today!

The Massachusetts Air and Space Museum will soon come to life in Massachusetts. Your help is needed to turn this vision into reality. Send your tax-deductible contribution to:

Massachusetts Air and Space Museum 200 Hanscom Drive Bedford, Massachusetts 01730

Complete the form below and include it with your contribution to get on our mailing list. Your donation of \$25.00 or more will automatically enroll you as a Member of MASM with the benefits as outlined on our web site. You will receive our electronic newsletter "Horizons" which will be emailed to friends of the museum free of charge. This publication is informative and interactive, and online you will find links that will connect you to an entire world of aviation and history.

✂

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	Other \$ _____

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VIDEO PAGE

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The First Air Force One

Ride a Twin Beech at Oshkosh

Old Ducks—Movietone Archives 1921—1934

Flying Wing—Then

Flying Wing—Now

Bristol Brabazon

Rehab of Victor Xray

The Real Story of Britain's Dam Busters

The Dam Busters After Busting the Dams

Guided Tour of the Space Station

Commercial Supersonics in Our Future?

Crosswind Landings

USCG Rotary-Wing Aviator Nicole Webber

The Costs of Owning/Operating a Cessna 172