



## *The Daedalean*

**Semper Discens**

*Monthly Aerospace Education Newsletter of the Connecticut  
Wing of the Civil Air Patrol*

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### **CALENDAR**

#### **November**

02-07 NOV-USAF Evaluation  
03 NOV-PT-Citrus Fruit Fundraiser ends  
20-22 NOV-Danielson November Bivouac

### **RIFLE SAFETY AND MARKSMANSHIP TRAINING PROGRAM**

Any Squadron interested in starting or continuing in the Wing Rifle Program should contact Maj Rocketto at [srocketto@aquilasys.com](mailto:srocketto@aquilasys.com). So far Stratford and Thames River have expressed interest.

### **2010 COMMANDER'S CUP WING ROCKETRY CONTEST**

The contest is on for 2010. Rules of Engagement are being written by a committee and should be published by the end of the year. The Wing expects full participation from the Squadrons.

### **PLANETA AT ANNAPOLIS**



*Planeta is 3rd from left.*

Midshipman George Planeta, formerly of the Meriden Squadron, reports that he is doing well at the US Naval Academy and is now a member of the varsity rifle team. He also set a new Midshipman record on the M-16 qualification course.

### **ASTRONOMY**

The planet Jupiter is prominent in the night sky to the south. Use a pair of seven power binoculars and you will be able to discern the four major moons of the Jupiter, Ganymede, Europa, Io, and Callisto. They will appear as points of light, aligned along the equatorial band of the planet. You may see all at once. Watch them over a few days and you will see them change position as they rotate around Jupiter.

### **MINIMIZATION OF BANDWIDTH REQUIREMENTS**

*The Daedalean* is using image compression to reduce the size of the included imagery. This should reduce download time and allow those who have limits on how much information may be accepted to receive the publication.

## SHARACK GOES WEIGHTLESS

Thames River Composite Squadron affiliate Stuart Sharack, award winning teacher from Juliet Long Elementary School added an unusual aerospace adventure to his resume last month when departed from Stewart Airport in Newburgh and rode *G-Force One*, a modified Boeing 727-200 through a series of maneuvers which created martian, lunar, and gravitational forces.



*A Faucett Airlines 727 at Aeropuerto Rodriguez Ballon, Arequipa, Peru. This is the type of aircraft employed by Zero-G.*

The Grumman-Northrop Corporation and Zero-G Corporation collaborate to offer weightless flight to teachers in an effort to promote student progress in the study of science, technology, engineering and mathematics. The participants pre-planned experiments which they were able to conduct in the free fall environment created as the aircraft performed a series of parabolic trajectories, diving to pick up speed and then climbing and diving. As the aircraft descended from the maximum height reached in the climb, the teachers fell at the same rate as the plane, becoming weightless. The maneuver is repeated 15 times.

Sharack's main concern was that he would become airsick. He reports that:

The night before flight, I ate very little. It happened to be *Yom Kippur* and I had fasted all day. I broke the fast with a few vegetables and bread. We were advised to minimize dairy, protein, and high acid foods. I also had a ginger ale. The morning of the flight all I ate for breakfast was some apple juice and a bagel. In regards to any other preparation, I had read that mental attitude was a large component of motion sickness so I tried to mentally relax myself and not think I would get sick.

The flight was just so much fun and it all went too fast. I am anxious to view the videos as I now can barely remember that I really had this experience. I am a little disappointed that it seemed often when I was weightless, that I was trying to protect myself from falling which was impossible and unnecessary. I missed some opportunities to do certain planned body motions and positions because of this. I never did get to flip over backwards or sit up straight in the air with my feet crossed.



*Sharack imitates Superman.*

Tom Hanks used the Zero-G flight to prepare for his role in the filming of *Apollo 13*. NASA sponsors flights for qualified undergraduate students. As an unsponsored member of the general public, the tariff is \$5,000 but there is no charge for baggage.

## **HISTORICAL EVENT OF THE MONTH**

The chronology of daily aerospace anniversaries during the coming month which have been featured for the past year has been discontinued. In its place, *The Coastwatcher* will run a feature article highlighting some historical aviation event and aviator for the coming month. The November article follows:

### **HISTORICAL EVENT OF THE MONTH** **SCOTT CROSSFIELD CRACKS MACH 2**

Most Cadets and Officers know that in 1947 Chuck Yeager was first to Mach One. Less well known is that on an unusually cold day in the California desert, another aviation milestone was passed on November 20th, 1953. Scott Crossfield took the Douglas D-558-2 Skyrocket past Mach Two.

The Skyrocket was one of a series of the early "X planes" whose contrails laced the skies over Muroc between Yeager's Bell XS-1 supersonic dash in 1947 to the the 199th and last flight of the North American X-15 in 1968. Albert Scott Crossfield piloted seven of these pioneering ships as a test pilot for the National Advisory Committee on Aeronautics (later NASA) and later, for North American Aviation.

The Douglas Skyrocket, a Navy sponsored project, was one of the many successful aircraft which sprang from the drawing board of the prolific Ed Heinemann. Originally designed to carry a turbojet engine and a rocket and to take off conventionally, a redesign eliminated the turbine and adopted the air drop method for launching.

She was flown by a pantheon of legendary test pilots from the "golden days" of flight testing at NACA's High Speed Flight Research Station, now

known as the NASA Dryden Flight Research Center at Edwards AFB, California. Aside from Crossfield, luminaries such as Gene May, Bill Bridgeman, Marion Carl, Joe Walker, Frank Everest, and Al Boyd also flew one or more of the 311 flights in the Skyrocket program.

A Boeing P2B-1S, the Navy designation for the B-29 Superfortress, lifted Crossfield and the carefully prepared Skyrocket aloft. Technicians had chilled the alcohol fuel to reduce its volume so more of it to could be carried as well as waxed the aircraft skin to reduce frictional drag. At an altitude of 32,000 ft., the Skyrocket was dropped. Crossfield ignited the four barrels of the Reaction Motors rocket and started climbing.



*The Douglas D-558-2 Skyrocket displayed in pristine glory at the National Air and Space Museum, The Mall, Washington. Crossfield had 14 flights in this aircraft.*

At around 72,000 feet, Crossfield initiated a pushover, entered a shallow dive and reached a speed of Mach 2.05 before all the fuel was spent. A standard powerless descent and dead stick landing followed.

He was met on the ground by Walt Williams, another aerospace pioneer. Williams was project engineer for the X-1 program, one of the initiators of the X-15 concept, system engineered the Gemini and Titan programs, and retired as NASA's Chief Engineer in 1982.

According to Crossfield,

Walt Williams undoubtedly has personally contributed more to U.S. Aerospace than any other man of the last half of the 20th century. From the X-1 through the Shuttle, for forty years he has held the key decision role in the entire manned research aerospace operational effort.

Also present that day was Civil Air Patrol icon Mary Feik, a close friend of Crossfield, Feik was on assignment from her duty station at Wright Field, Ohio where she performed flight test duties.

Feik has commented that Crossfield was an extraordinarily generous person who was lavish in praise for those who were connected with his flights. About his Mach Two flight he said:

At least 40 people deserve to share in any credit which is attached to this flight. I guess maybe I should increase that figure to include every man and woman at NACA's high speed Flight Research Station-they all had a part in the preparation and the carrying out of the research flight.

Crossfield was born in Berkeley, California. His academic studies were interrupted by World War Two but he eventually earned both a bachelor's and a master's degree in aeronautical engineering from the University of Washington. A private pilot, he joined the Navy where he served as a flight instructor and maintenance officer. Leaving active duty, he continuing serving in the Reserves. Eventually, he joined NACA and began his work with experimental aircraft.



*As a naval reservist during the post-war period, Crossfield flew Vought Corsairs as part of a Navy aerobatics team.*

Crossfield is notable in that he did not regard himself as a test pilot. He stated that he was "...an aerodynamicist, a designer by training. Flying to me is not an end but a means to the end of designing better handling and performing aircraft for pilots to fly."

None the less, his flying career was remarkable. Among all of the pilots flying the research aircraft at Muroc during the two decades from the X-1 to the X-15, Crossfield ranked second in number of flights, 207, after Gene May's 254. Crossfield was followed by Joe Walker, 168, John McKay, 91, and Chuck Yeager, 59.

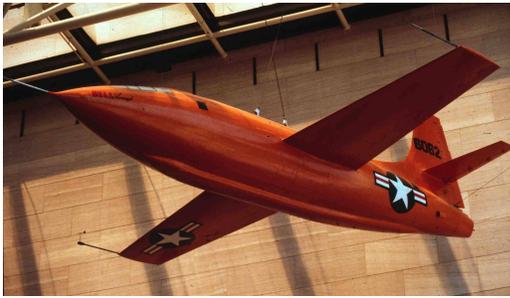
Crossfield piloted some of the following aircraft during those technical and scientifically fruitful but danger filled years.



*Convair's delta winged XF-92 from which much was learned about the behavior of the highly swept and tapered, low aspect ratio, wings.*



*The Douglas D-558-2 turbojet provided much useful data on high subsonic flight handling.*



*Crossfield flew 10 flights in the Bell X-1.*



*Northrop's X-4 Bantam probed the problems of stability in an aircraft with or horizontal stabilizers.*



*The Bell X-5 was equipped with variable sweep wings which could be set in flight at values of 20, 40, and 60 degrees of sweep.*



*North American's X-15A-2 equipped with external fuel tanks allowing 60 seconds more of powered flight.*

When Crossfield left NACA, he went to North American Aviation as a design consultant and ultimately, first pilot of the hypersonic X-15, a vehicle which earned Astronaut Wings for USAF pilots Michael Adams, Joseph Engle, William Knight, Robert Rushforth, and Robert White. Three NASA pilots William Dana, John McKay, and Joseph Walker also exceeded the fifty mile altitude which earned the coveted wings for their military compatriots.

Following North American Aviation, Crossfield' worked in a wide range of aeronautical endeavors. He was a well known figure at the annual Experimental Aircraft Association Show at Oshkosh.

As a Colonel in the Civil Air Patrol he was a strong advocate of CAP and its aerospace education mission. In his honor, those who obtain the Master Rating in the Aerospace Education Specialty Track are awarded the Crossfield ribbon. He also instituted the A. Scott Crossfield Aerospace Teacher of the Year Award which honors a selected primary, elementary, or secondary teacher each year.

Crossfield was a fellow of the American Institute of Aeronautics and Astronautics and the Society of Experimental Test Pilots. In 1961, at a White House ceremony, President John F. Kennedy presented the National Aeronautics Association's Collier Trophy to Crossfield.

He holds numerous awards and recognitions for his research flights from prestigious organizations such as the Air Force Association, the Institute of Aeronautical Sciences (now AIAA), the Air Force Association, the Experimental Aircraft Association, and the *Federation Aeronautique Internationale*,

Crossfield went West, at the age of 84, on April 19th, 2006, in a weather related accident while

flying his Cessna 210. He had given a speech to a group of young Air Force officers who were attending the Air University at Maxwell Air Force Base. As he was returning home his aircraft went down near Ranger, Georgia due to structural failure in severe weather. The wreckage was located by fellow CAP officers flying a search and rescue mission.

Scott Crossfield's accomplishments will live on in the aerospace sciences which he pioneered. More importantly, the technology, science, and art of aviation will advance as a result of the education programs which he so enthusiastically promoted.

### AEROSPACE EDUCATION AT THE WING CONFERENCE

The Aerospace Education Department ran a seminar focusing on the details of the Aerospace Education Excellence (AEX) program. The value of the program was explained and seminar attendees were given handouts explaining how to enroll.

For AEO not attending, simply go to eServices at:

[http://members.gocivilairpatrol.com/aerospace\\_education/](http://members.gocivilairpatrol.com/aerospace_education/)

The AEX program materials is the third green box down under Aerospace Officers. Click on it and you will find all of the information which you need to enroll.

The DAE also presented a series of demonstrations which used simply obtainable equipment to vividly demonstrate the physical phenomena which illustrates Newton's First Law of Motion.

A poster display explaining the ARCHER system was constructed and placed in the area used by the FAA Safety Team for their seminars.

## AMERICAN INSTITUTE OF AERONAUTICS AND ASTRONAUTICS EDUCATOR ASSOCIATE PROGRAM

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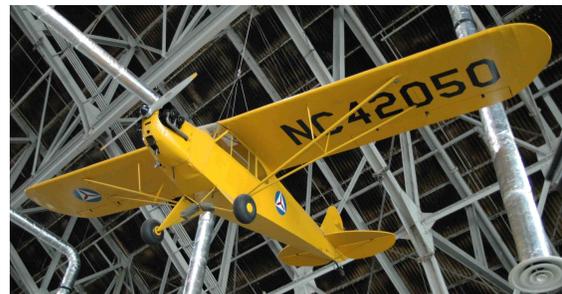


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### SOME BITS OF AVIATION HISTORY



*Hap Arnold's Military Aviator Badge*  
*Note the Signal Corps Motif.*



*Piper J-3 Cub in CAP Colors*