



Missions for America

Semper vigilans!
Semper volans!

The Coastwatcher

Newsletter of the Thames River Composite
Squadron
GON

Connecticut Wing
Civil Air Patrol

<http://cap-ct075.com/default.aspx>

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SCHEDULE OF COMING EVENTS

OCTOBER

24 OCT-CTWG Conference and Cadet Ball
27 OCT-BDUs
31 OCT-CAP Safety Down Day
-Propbusters RC Club Visit
-TRCS Command Post Exercise

FOR FUTURE PLANNING

02-07 NOV-USAF Evaluation
03 NOV-PT-Citrus Fruit Fundraiser ends
-Maj Lesick, Director of Cadet Programs visit
10 NOV-Character Development-Blues
17 NOV-Aerospace-BDUs
18 NOV-USCGA Lecture
20-22 NOV-Danielson November Bivouac
24 NOV-Emergency Services-BDUs
28 NOV-TRCS Rifle Training
TBA-Danielson December Bivouac
TBA-IG visit

CADET MEETING MINUTES

22 October, 2009

Cadets who had previously constructed fizzy flyers and junk rockets launched them.

Maj Bourque conducted a class on the required astronomy material needed for Module Five, Astronomy, of *Aerospace Dimensions*.

The Cadets formed teams and participated in a scavenger hunt which was curtailed by time.

Maj Rocketto announced the passing of Richard T. Whitcomb, the NASA engineer responsible for a number of important developments in aeronautics. A full discussion will be found in this issue.

The impact of the financial crisis on the general aviation industry was discussed. In Wichita, Cessna, Bombardier (Learjet), and Hawker-Beechcraft have laid off 12,000 workers, one-third of their employees. The decrease in production also affects the smaller industries which sub-contract.

Col Kinch, a retired USAF Master Navigator, briefed the Cadets on the processes involved in successfully dropping paratroopers and their equipment. The tactics demand a carefully timed low altitude approach and judgement of winds aloft and surface winds. The Colonel also related some of his experience working with the U.S. Army at Yuma testing the Low Altitude Parachute Extraction System (LAPES) which is used to place large loads into a small area.



Lockheed C-130J Hercules of the 143 Airlift Wing, Quonset, RI, Delivers Palletized Cargo.

DANIELSON BIVOUAC

An Emergency Services Training Bivouac is planned for the Danielson Airport campground on 20-22 November. Col. Provost cautions Cadets to wear wool socks. Wool retains heat even when wet. Other fabrics result in cold feet and increase the chance of frostbite. In addition, Cadets will not wear jungle boots. Only combat or civilian boots will be allowed. Uniform regulations are suspended for this variance in footwear.

SAFETY DOWN DAY/PROPBUSTERS/AF EVAL PREP

31 OCTOBER, 2009

Cadets and Officers will gather at 0800 on Halloween. Both groups will participate in discussions and reviews of CAP safety policy and operations procedures including one on firearms safety. At 0930, the Cadets will depart for the Propbusters Radio Control Airfield in Salem where they will be briefed on model flying safety, observe some flying, and get an opportunity to fly radio controlled aircraft under the guidance of a club instructor.

Seniors will remain at Groton and continue the safety program under the direction of Capt Noniewicz.

The Senior afternoon activity will consist of a Command Post Exercise. Various scenarios based upon SAR problems will be presented and Officers will practice setting up missions based upon the information presented.

CITRUS FRUIT FUND RAISER

Two Weeks to Go!

We are selling 25 and 35 pound boxes of navel oranges, pink grapefruit, or a mix of both. The prices remain the same as last year, \$25 for a 20 lb box and \$35 for a 40 lb box.

At the present time, Maj Rocketto is the leader with 37 boxes sold followed by Cadet Herzog, 17 boxes, Col Doucette, Lts Lintelmann and Miller with seven, Col Kinch with six, Maj Bourque with four, and Maj deAndrade with two. Maj Bridgeman and Lt Humes made generous donations in lieu of selling fruit. The sale will run from now until 03 November and delivery is expected in the first weeks of December. If you have not picked up your fundraising supplies, get to the next meeting and see Maj Rocketto.



*Uncle Steve
Needs You...
to Sell Fruit!*

GONE WEST
RICHARD T. WHITCOMB
1921-2009

Richard T Whitcomb is arguably, the foremost aeronautical engineer of the post World War II period. Although not as well known as Lockheed's Kelly Johnson or as politically influential as CalTech's Theodore von Karman, Whitcomb is responsible for three important aeronautical innovations, all of which are in common use today; the "coke bottle fuselage," the supercritical airfoil, and winglets.

Unlike the highly theoretical von Karman, Whitcomb's design style was akin to that of Johnson, a man who was reputed to be able to "see air." He would study wind tunnel data and intuit the behavior of the air. This would allow him to modify the models until the data indicated that the design feature achieved a higher level of performance.

In 1953, Convair's F-102 Delta Dagger was in trouble. It could not exceed Mach One. Whitcomb's studied had led him to believe that the transonic drag of an aircraft could be reduced if its cross-sectional area remained constant. By narrowing the fuselage where the wings joined and modifying the fuselage fore and aft of the wings, a "coke bottle" shape resulted. Experimentation proved Whitcomb correct, the F-102 was modified, and was able to achieve supersonic speed in level flight. The "Area Rule" was applied to many subsequent supersonic aircraft and Whitcomb was presented the Collier Trophy in 1954, honoring him for the most significant aeronautical engineering achievement of the year.

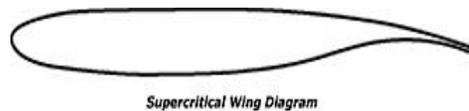


Convair F-102 first to take advantage of the "Area Rule," and flown by the 103rd Fighter Interceptor Group out of Bradley from 1956 to 1971



"Area ruled" Convair B-58 Hustler, first USAF supersonic bomber and winner of the 1962 Bendix Transcontinental Air Race.

A decade later, Whitcomb devised the supercritical airfoil which reduces drag and improves stability at high subsonic speeds by forcing the shock wave to form further aft on the wing. An additional bonus is the high lift characteristic of the wing which allows better landing and takeoff performance. This concept has been engineered into the airfoils of many of the modern airliners and airlifters which cruise in the Mach 0.8 range.



Supercritical Wing Diagram



Vought TF-8A Crusader modified with a supercritical airfoil and on display at NASA's Dryden Flight Research Center.

Move another decade further and Whitcomb's obsession to reduce drag and increase fuel efficiency leads to the development of winglets. The concept actually precedes the Wright Flight. In the late 1890's a British engineering genius by the name of Frederick W. Lanchester working in Birmingham, England not only engaged in seminal studies in aeronautics but also pioneered the field of operations research. His aeronautical work showed that endplates had an effect in reducing the induced drag that occurs when the higher pressure air on the bottom surface of an airfoil flows around the wing tip to the lower pressure region on the top of the airfoil and endplates were sometimes found on wingtips in the form of flat sheets or sometimes fuel tanks.

Knowledge about how birds manipulated their feathers to alter performance, experimental results from the Langley wind tunnel, and the data from actual flights showed that an endplate fashioned as an airfoil, and properly adjusted to a wingtip would provide useful reductions in the lift to drag ratio with a concomitant increase in performance. The device was quickly adopted by producers of business aircraft and gradually found its way into larger transports. For the third time, Whitcomb had made a major contribution to the science of flight.



Note how this soaring Andes condor used his primary feathers to control flight. The wings form a positive dihedral which increases stability and the primary feathers are bent upwards at the tip to form "winglets."



An Embraer 170 displays its winglets.



Winglets on a McDonnell-Douglas C-17 Globemaster III.

A son and grandson of engineers, Whitcomb was born in Evanston, Illinois, built model airplanes as a boy, and received a Bachelor of Science in Mechanical Engineering with Highest Honors from Worcester Polytechnic Institute and commenced work for the National Advisory Committee for Aeronautics at the Langley Research Laboratory, Hampton, Virginia. He made all of his major contributions while at Langley, retiring in 1980.

His honors include not only the Collier Trophy but the National Medal of Science, the highest government award for a science and engineering. He is an inductee both of the National Inventor's Hall of Fame and the National Academy of Engineering.

On October 15th, Richard Whitcomb closed his slide rule and headed West, leaving behind a rich legacy of aeronautical accomplishments.