

Missions for America
Semper vigilans!
Semper volans!



The Coastwatcher

Newsletter of the Thames River Composite Squadron
Connecticut Wing
Civil Air Patrol

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<http://ct075.org>

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SCHEDULE OF COMING EVENTS

17 NOV-Commander's Cup Rocket Contest
18 DEC-Annual Squadron Holiday Party
25 DEC & 01 JAN-No Meetings

CADET MEETING MINUTES

13 November, 2012
Commander's Call

The meeting opened with drill practice on flank and to the rear movements.

C/1Lt Daniels held a drug demand reduction lesson on performance enhancing drugs. Cadets discussed steroids, blood doping, and side effects.

C/TSgt Paquin talked to cadets about the timeline they must follow in developing their meeting classes. Three weeks prior to the lesson, a first draft must be complete. Two weeks prior, cadets should have finalized their lesson. One week prior, cadets will email their lesson to their supervisor

(e.g., flight sergeant or flight commander) for review. One week after the lesson, staff will follow up with cadets critiquing the lesson and teaching technique.

C/TSgt Paquin demonstrated cadets how to organize their lesson with an introduction, three body paragraphs/points, and a conclusion.

C/1Lt Daniels encouraged cadets to complete weekly correspondence with their immediate supervisor in the chain of command. Cadets discussed the topics they should include in their correspondence.

C/SrAmn Johnstone led a safety lesson on flood safety. He discussed how to prepare for flooding similar to that caused by Hurricane Sandy and how to stay safe during a storm.

Capt Wojtcuk informed cadets that the November 27 meeting will contain a forum for those who would like to obtain their private pilot's license through the squadron. Those interested must bring their parents and arrive at 1800 hours. Those not interested will participate in normal meeting activities beginning at the same time.

Capt Wojtcuk held a character development session on gratitude. Cadets considered the difference between gratitude and thankfulness.

The final activity consisted of a flight time session and a cadre meeting.

SENIOR MEETING MINUTES

13 November, 2012

Maj Noniewicz provided information on the activities at the CTWG Conference.

A statistical "State of the Wing" lists the following facts:

1472 flight hours
233 hours of cadet flight training resulting in three private pilot certificates
262 hours of cadet orientation flights
103 hours of CD flights
158 hours on Long Island Sound Patrol

The CTWG has 23 mission pilots, 50 observers, 75 scanners, 31 ground team leaders, and 63 ground team members.

Attendees sensed that our mission is undergoing radical change with a diminishment of ELT searches and an increase in the assignment of photo reconnaissance assignments.

Lt Dickenson provided a two part safety briefing covering food storage, handling, and preparation and the problem of laser illumination of aircraft. Maj Noniewicz added a third section which dealt with aeronautical decision making.

Maj Noniewicz reviewed CAPR 36-1 covering equal opportunity and non-discrimination policies.

Capt Farley and Maj Bourque covered the procedures for updating expiring scanner, observer, and ground team ratings and reminded aircrew members that cell phones are not to be used in flight.

Maj Rocketto described his experiences flying a "Looking Glass" Mission, listing scheduling and operational problems and suggesting solutions. A draft copy of the report was presented to Maj Noniewicz.

CTWG CONFERENCE

10 November, 2012

The Connecticut Wing Conference was held on Saturday. Nine members of Thames River Attended: Col Herbert, LtCol Kinch, Maj Noniewicz, Bourque and Rocketto, Capts Farley, Lintelmann, Wojtcuk, Mrs. Paul Flynn, and C/Maj Flynn.



TRCS Conference Attendees

Maj Rocketto set up a display illustrating the four major kinds of aerial navigation: pilotage, dead reckoning, celestial, and electronic. The collection of navigator's tools included charts, the E6-B computer, sextants, a Narco Superhomer, and ADF equipment.



Navigation Display

Interested visitors to the display were offered the opportunity to work wind drift and ground speed problems on the E6-B and use a practice sextant to determine the elevation of a simulated sun (a ceiling light).

Two squadrons set up aerospace displays and Maj Rocketto assisted in determining which one was best.

Wing members attended the General Assembly where Col Cassandra Huchko, CTWG Commander reviewed the year's achievements. She was followed by guest speaker Col William, Shea, AUS (ret.), a Deputy Commissioner at the Connecticut Department of Emergency Services and Public Protection. Shea presented an informative talk about the work done during the recent weather emergencies and noted CAP's role in running

shelters, flying FEMA and Coast Guard observers, and collecting aerial photographs for damage assessment purposes.

An award ceremony followed and Thames River was honored when Capt Scott Farley was named Connecticut Wing Emergency Services Officer of the Year. Those of us who have observed Farley's dedication to training and organization know that this award was richly deserved.



*Capt Farley
Accepts Plaque
from Col Huchko*

After lunch, the participants had the option of going to up to four seminars. The seminars included an FAA Safety Team workshop which also was attended by a large group of pilots who were not CAP members and presentations on emergency services, cadet issues, and communications.

Maj Noniewics led one seminar on aerial photography and Maj Rocketto ran another on current trends in CAP's aerospace education program.

A formal dinner was held in the evening. The highlight of the day was the naming of C/Maj Brendan Flynn of Thames River as CTWG Cadet of the Year. Flynn was presented with a certificate and plaque and is now a candidate for Northeast Region Cadet of the Year. Flynn's father, Captain Paul Flynn, USCG, attended via Skype. Captain Flynn is currently serving in Bahrain as Commodore, United States Coast Guard Patrol

Forces Southwest Asia.



*Mrs. Flynn. C/Maj Flynn, Col Huchko, and
Capt Wojtuck Holds Computer with Capt.
Flynn's Picture, Transmitted from Bahrain*

WORKING HURRICANE SANDY and the NOR'EASTER

Squadron members continued to work through the week on Operation Looking Glass, the FEMA directed effort to obtain photographic records of the storm damage.

A typical mission was flown by a mixed crew from Hartford and Groton. Mission Pilot SM Jim Skiff, Observer LtCol Tony Cichocki, and Airborne Photographer, Maj Steve Rocketto were assigned two grids in southern Connecticut, running from the Connecticut River to Niantic Bay.

The assignment required the crew to fly six 15 mile legs with one mile spacing in each grid. Photographs were to be taken every five seconds!. The first grid yielded 358 images?

On the second flight, the crew experienced 50 knot winds aloft and moderate turbulence due to wind shear. The buffeting of the aircraft interfered with a steady camera position and induced incipient air sickness in the photographer so the mission was terminated and the crew returned to Brainard Field after taking 143 pictures.

The 501 pictures were then uploaded to a FEMA site, a process which consumed six hours of computer time.

As of Monday, Veteran's Day, all sorties have been cancelled and Operation Looking Glass has ended.

A/S CURRENT EVENTS & AN ASTRONOMY LESSON

*SO YOU THINK CONVERTING TO UT IS
HARD!!!!*

The mission controllers in charge of Curiosity, the latest Martian surface exploration vehicle, are faced with a curious problem.

The Martian day, called a Sol, is about 39 minutes longer than an earth day. The controllers have been working on Mars time so their shift schedule is changed weekly (earth week). This not only causes problems in scheduling their personal lives but also, and more critically, leads to a disruption of their internal body clocks, which are synched to earth time and the light-dark cycle. After 90 days, the problem has been resolved when the leaders of the Curiosity team realigned taskings to put the operators back on a more normal earth work cycle.

A/S CURRENT EVENTS & A/S HISTORY

*BOEING CONSIDERS AN OLD SOLUTION FOR
A NEW PROBLEM*

The larger passenger aircraft now in production are being used at airports designed for smaller planes. This leads to problems in scheduling gates for loading and unloading passengers, maneuvering around the airports, and access to hangars.

Boeing is proposing that the new 777X may be equipped with folding wings. High aspect ratio wings allow for more fuel efficient flight and the 777X will also be equipped with the more fuel efficient engines now available.

The aircraft has a 233 foot wing span and plans are to fold the last ten feet up, reducing the span to 213 feet. Boeing has toyed with this idea before. The first of the 777s had an option in which the wing would fold 21 feet from the wing tip but no customers were interested.

Folding wings are not a new idea. Short Brothers patented a folding wing design in 1913 and subsequent attempts were made after WW I but no many were successful. Richard Byrd took a Fairchild FC-2W2 with him on his 1928 expedition to Antarctica. The aircraft, named *Stars and Stripes*, is now on display in the Virginia Aviation Museum.



Ski equipped Stars and Stripes, displays its rearward folding wing.

The room an aircraft takes up in a hangar or a ramp are not trivial matters and can affect design or operations. When Great Britain realized that war with Hitler's Germany was probable, the Air Ministry issued a specification for two and four engine bombers. According to some sources, a limit of 100 feet was placed on the span so that the aircraft would fit into the existent hangars. There is some dispute about this claim but there is no dispute over the fact that the volume of space which an aircraft occupies has operational importance.

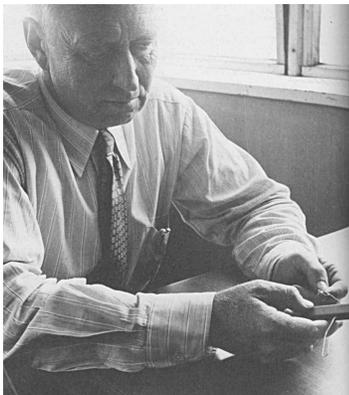
During massive airlifts, the ramp space available at an airport is one factor which controls the rate of movements. The Berlin Airlift and the Military Airlift Command's re-supply of Israel during the Yom Kippur War are good examples. There are limits to how many aircraft will safely fit on a ramp during refueling, loading and unloading, and crew changes. A good aerial port director with the

proper equipment and good scheduling may mitigate some of the problems, but ramp size matters.

One measure of the utility of an aircraft carrier is based upon how many aircraft it can carry. The volume of the hangar deck is limited in all three dimensions and the elevators which transport the aircraft to from hangar deck to flight deck must be considered.

The WW II Essex and Midway Class carriers had hangar decks with 17.5 feet of headroom. This limited the maximum height of a folded wing. When the Navy adopted larger aircraft to support the nuclear strike role, they had to not only fold the wings but the vertical tail also. The first of these aircraft was North American's AJ Savage, a composite powered bomber carrying two piston engines and one jet. The Air Force was not immune. The top section of the Boeing B-50's tail folded down so it could fit into the older hangars.

One solution to the wing fold configuration was a design mechanism developed by Roy Grumman. He worked out the concept of folding wings parallel to the fuselage using a rubber eraser and a paperclip! It was first adopted to the F4F-3 Wildcat and has become a standard ever since.



*Roy Grumman
Demonstrating the
eraser-paper clip
model.*

*The Wildcat's wings
in the folded
position.*



Every engineering solution has its costs. Folding wings adds weight to a design and increases the complexity of the mechanical and hydraulic or electrical systems which must be incorporated to operate the mechanism.

Look at this close-up of the fold joint in a Grumman EA-6.



So there is a cost but there is also a demon of a collection agent lurking within the concept and waiting to pounce on the unwary pilot.

There are many recorded cases of gear-up landings and some evidence of wings-up take-offs. One such case occurred in Vietnam when a USMC Vought F-8 Crusader took off with folded wings. This aircraft recovered successfully. Not all do.

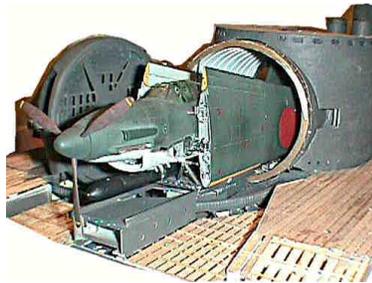


(photo credit: Gunnery Sergeant George Lord)

Engineers who design aircraft for submarine aircraft carriers face real challenges. In World War II, Aichi developed the M6A Seiran for the I-400 class of submarines. In a complex arrangement, the wings and tail were so cleverly folded that the diameter of the stored aircraft was that of the propeller. Would you expect less from the people who invented origami?



Above the last surviving Seiran and below, a model of the aircraft and its submarine hangar.



The intent was to use the Seirans to attack the Panama Canal but none of the aircraft saw combat and only one survives at the Udvar-Hazy Annex of the National Air and Space Museum.

Gliders, which often land off field and must be carted away in special trailers, is another class of aircraft which might be equipped with foldable wings.

And of course, there are a number of amateur build aircraft so designed for east transport and home storage.

Two unusual designs are roadable aircraft. One is the classic Taylor Aerocar. The wings fold but only after one detaches the aft fuselage. The unit then converts to a trailer for towing.



Molt Taylor's Aerocar and the folded tail and wings which form the trailer.

A recent roadable aircraft has been produced by some young boffins out of MIT. This is the Terrafugia Transition.



A Terrafugia demonstrating its flexibility at the Collings Foundation base, Stow Massachusetts.

The fundamental problem which a roadable aircraft faces is maintenance: the clash between FAA standards and road rash.

Let us not forget the helicopter for a rotor blade is nought but a rotating wing. Once again, the Navy and Marines face shipboard storage problems so folding rotors equip most of their helicopters.



A Coast Guard HH-52A Seaguard in Polar Livery

And speaking of helicopters, what about that new category, second cousin to Sikorsky's child, powered lift, generally called the tilt-rotor. The Marines operate the MV-22 and the Air Force flies the CV-22, better known as the Bell-Boeing's Osprey. This aircraft has a unique storage system in the rotors fold and the wing then rotates to lie parallel with the fuselage.



(photo credit-Lt. Col. Kevin Gross, USMC)

In conclusion, let's take a look at some samples of folding wing design.

Grumman continued to use the folding and rotating wings on successive aircraft.



The Grumman TBM-3D Avenger. President George H. W. Bush, USNR, flew this type in World War II.

His son, President George W Bush, an F-102 pilot with the Texas Air National Guard, flew aboard the USS Abraham Lincoln in a Lockheed S-3B Viking.



The Bush Viking is now at the the Museum of Naval Aviation in Pensacola.

Lockheed saves space by using a fold and rotation scheme on its S-3 Viking. In the view following, note how the port wing is at a different angle than the starboard wing.



A Viking on the Ramp at Groton and its criss-crossed wings.

Some designers chose to fold the wings vertically as depicted by a Vought designed, Goodyear built Corsair. The Corsair is the Connecticut State Airplane and many were built in Bridgeport but both Goodyear and Brewster also produced them under license.



This Corsair has a home at the Fighter Aircraft Factory, Pungo, Virginia

The ingenious Brits at Fairey have used a double fold.



AS-6 Gannet At the Imperial War Museum, Duxford

Hey! What about folding fuselages? That's an idea. Oh, its been tried already.



Canadair CL-44, Argentine Registry LV-JTN

ANOTHER HISTORICAL NOTE

Iran-Contra, Iran, Iraq, and Israel

The very CL-44 pictured above had an interesting history. It flew for an Argentine freight hauler called *Transporte Aereo Rioplatense (TAR)* controlled by Argentine military officials. TAR was involved in flying arms to the Nicaraguan Contra rebels in an operation under the direction of Lt. Col. Oliver North representing the US National Security Council.

Later, Argentina, Israel, and the United States used TAR to ship arms to revolutionary Iran, then fighting a bloody war with Saddam Hussein's Iraq.

On 18 July, 1991, LV-JTN was flying from Teheran to Cyprus after delivering a cargo of arms which had originated in Tel Aviv. Cyprus was used as way-point to conceal the real origin of the ordnance. Accidentally crossing the border into what was then Soviet Azerbaijan, she was intercepted by an SU-15 Flagon.

The Soviet story is that the CL-44 carried no identification marks, refused to respond to radio calls, and attempted to flee. A mid-air collision occurred and all the three Argentine crew members and the Scottish supercargo on board the CL-44 were killed. The Soviets reported that the Flagon pilot was also killed.

As it turned out later, the Flagon pilot was not killed and claimed that he rammed the aircraft because he could not get in a position to achieve missile lock. He was awarded the Order of the Red Banner! After reading the report of the incident, most western aviation authorities opine that the Russian misjudged the intercept angle and accidentally crashed into the CL-44.

That concludes *The Coastwatcher's* foray into folding wings (and fuselages). If it was too long, it was your fault. You should never have let me begin.

FEATURING FAMOUS AIRCRAFT

The picture of the Canadair CL-44 in the previous article is not just an example of a type of aircraft but is a picture of the very same aircraft referred to in the story. This new feature will highlight notable aircraft such as the *Enola Gay* and *Glamorous Glennis*. Our first featured aircraft is Lucky Lady II.



Lucky Lady II is a Boeing B-50A Superfortress which became the first aircraft to circle the world non-stop. The plane departed from Carswell AFB, Texas on 26 February, 1949 and headed east. On March 2nd, Lucky Lady II landed at Carswell after 91 hours of flight time, and covering 23, 452 miles. Refueling carried out by KB-29s using a modified grappled line-looped hose technique pioneered by aviation legend Alan Cobham.