



Missions for  
America  
*Semper vigilans!*  
*Semper volans!*

**The Coastwatcher**  
**Publication of the Thames River Composite**  
**Squadron**  
**Connecticut Wing**  
**Civil Air Patrol**

[300 Tower Rd., Groton, CT](http://300TowerRd.com)  
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Official Publication of the  
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Issue 11.41

14 November, 2017

### **CALENDAR**

*See the Squadron Calendar for Meeting  
Details*

21 NOV-TRCS Meeting  
28 NOV-TRCS Meeting  
05 DEC-TRCS Meeting  
08 DEC-First Air Course-Salem  
12 DEC-TRCS Meeting  
19 DEC-Squadron Party-Pot Luck  
26 DEC-No TRCS Meeting

### **ANNUAL FRUIT SALE**

The 2017 Fundraiser has ended and the fruit has been ordered. About 50% of the Squadron participated either by selling at least one of the 237 cases sold or making a donation.

Four member, that is 10% of the active members, sold 33% of the fruit. The sale has been run for eleven years and this year's sales ranks 10th in total cases, one from the bottom!



The best year was 2014 with 353 cases sold and the worst was 2008 with 229 cases sold. The average yearly sales is 282 cases.

### **CADET MEETING**

*14 November, 2017*

Squadron Commander J. Scott Farley led the cadets in a character development session. The topic was "Unsung Hero" appropriate for the recent Veterans Day, where cadets defined the characteristics of a "hero," defined the actions of a hero, discussed how they personally could practice heroic actions, and how those who serve our country are honored.

### **SENIOR MEETING**

*14 November, 2017*

Maj Noniewicz led the group in a discussion of the new 70-1 regulations governing flight operations.

Lt Spreccace's safety briefing covered precautions to take in confined spaces.

Lt Pineau and Lt Col Rocketto reviewed points from the last Wing Commander's Call.

Lt Col Rocketto reviewed the results of the fund raising effort and offered suggestions to improve next year's effort.

## PROMOTIONS AND AWARDS

Nine Squadron members were honored for their hard work.

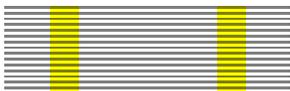
Cadets Sarah Johnson and Jack Race received the John F. Curry Achievement Ribbon and promotion to Cadet Airman.



Cadets Ian Diaz and Owen Gulliams qualified for the Hap Arnold Achievement and have been promoted to Cadet Airman First Class.



Cadets Cameron Wischman and Hayden Kirkpatrick earned their Wright Brothers ribbon and received their Cadet Staff Sergeant stripes.



Cadet Christopher Munzer is now a Cadet Technical Sergeant and wears the Capt Eddie Rickenbacker ribbon.



Squadron Commander Farley presented Senior Member Robert Guilliams with the Membership Ribbon and the Brigadier General Charles “Chuck” Yeager ribbon which is emblematic of completing the Aerospace Education Program for Senior Members.



Second Lieutenant Lt David Pineau was promoted to 1st Lieutenant.

## SAR FLIGHT TRAINING

On Sunday last, five members of TRCS flew for almost three hours and devoted 5½ hours on three practice flights to sharpen search and rescue techniques and practice with the new Becker radio direction finder. Most of the training involved an ELT search and practice creeping line and sector searches.

Maj Neilson was mission pilot and Lt Col Kinch and Lts Pineau, Schmidt, and Spreccace crewed the observer and scanner positions.

## ELKS ARMED FORCES NIGHT

The Squadron assisted the Groton Elks on Friday last at a dinner honoring members of the armed forces.

Cadet Lt Col Hollingsworth led ten of our cadets who performed service tasks for the dinner. Cadets attending were H Ramsey, B. Ramsey, D. Ramsey, Martin, Wischman, Munzer, Guilliams, Thornell, Race, and Schantz.

Lt Col Bright, Lt Schmidt, and SM Guilliams supervised.

The theme of the festival was “Inflate Your Imagination.” A selection of photos take by Gary Rosier will give you some idea of the light-hearted imagination of the balloon enthusiast community.



## SCENES FROM THE CADET BALL



*Hannah Ramsey in the yellow gown demonstrates some steps.*

*Daniel Ramsey practices for the limbo but no one is paying attention.*

(Photos by Maj Roy Bourque)



*The Guys from Roswell?*

## CURRENT EVENTS

*46th Albuquerque Balloon Festival*



*Flying Magazine* reported the 887,970 people from 21 different countries attended the Balloon Festival last month. More than 650 balloons made an appearance.



*Lest We Forget!*



*A Creepy Commercial!*

## AEROSPACE HISTORY

### *Engines on The Tips of the Wings Part One*

Engines have been mounted in many ways: buried in the fuselage, on pylons under or over the wings, on the leading edge or trailing edge of the wings, and aft mounted beneath the horizontal stabilizer. But one of the most unique and rare methods is to mount the engines on the tips of the wings. Keep in mind that a helicopter's rotor is a rotating wing.

This article is comprised of four parts. Parts One and Two deals with helicopters and compound helicopters. Parts Three and Four, discusses aircraft with fixed wings, tilt-wings, and rotating nacelles.

For the purposes of this article, a helicopter is defined as a machine which uses rotors mounted in a more or less horizontal plane to produce lift. The term 'compound helicopter' will be used to indicate that the machine is equipped not only with fixed overhead rotors but utilizes other means to provide horizontal thrust. Sometimes, the compound helicopter is referred to as a compound gyroplane or gyrodyne.

### **Part One Helicopters and Compound Helicopters**

#### *Classic Helicopter Designs*

There are advantages and disadvantages to applying power at the rotor tips. The rotors are merely rotating wings and tip mounted power plants eliminate torque and the need for a tail rotor. However, feeding fuel through the complex rotor hub is not simple and the hollowed blades will have a higher bending moment and may need to be strengthened creating a weight penalty. The high inertia of the rotors is a two-edged sword. If the power fails, the rotors will have enough stored energy to provide additional lift during autorotation but the excess lift can create problems during

the landing flare.

Power can be applied to the rotor tips in a number of ways:

1. Hot-Tips deliver an air and fuel mixture to orifices on the rotor blade tips where ignition occurs.
2. Cold-Tips deliver compressed gas, generally air, to tip orifices.
3. Ram jet engines are mounted on the rotor tips.
4. Pulse jet engines are mounted on the rotor tips.
5. Rockets are directly mounted on the rotor tips.

#### **The First Tip Jet Helicopter**

In 1943 The first helicopter to fly with tip jets was the Austrian *Wiener Neustadter Flugzeugwerke* WNF-342. The hot-tip powered craft was created to meet a German navy requirement for a small observation aircraft capable of being carried by submarines. A piston engine drove an air compressor. The compressed air was then mixed with gasoline and delivered to the jet engines *via* fuel lines in the hollow rotor blades. Only three were built.



*The simple structure will become a hallmark of many of the small experimental helicopters.*

*(Credit: Cornu1907)*

The three principal designers all continued work on “tip” propulsion after the defeat of Germany. Friedrich von Doblhoff went to the United States where he joined McDonnell Aircraft and worked in their compound helicopter program. Teodor Laufer emigrated to France and contributed to Sud-Ouest's S.O. 1221 Djinn. This was the first jet propelled aircraft to enter production and 178 were built. The aircraft used a novel “cold” tip jet method. Compressed air was driven through the rotor

blades and exhausted at the tips. No combustion occurred at the exhaust nozzles. The third member, A. Stephen traveled to England where he assisted in producing a compound helicopter.

#### *Follow-Ups in the Hot Tip Jet Helicopter Line*

Fairey, a British firm, produced its Ultralight intended to fill roles in training, reconnaissance, and casualty evacuation.. A fuselage mounted gas turbine and compressor drove a mixture of air and fuel to the ends of the rotors where the mixture was ignited.

The Ultralight first flew in 1955 but only six were built. Competition from other manufacturers and, as might be expected, financial considerations and the government's agenda to force companies to merge ended Fairey's hopes.



*Royal Navy test of the Ultralight.*

The other extreme in size was the 1952 Hughes XH-17. This behemoth tipped the scales at 15 tons, 30 times more than the weight of the Ultralight. The the rotor diameter was an astounding 134 feet.



Two J35 turbojets drove hot air through the hub. The air was then carried to jets at the rotor tips where it was ignited. The aircraft was what the industry call short-legged. This refers not to its extraordinarily long landing gear struts but to a disappointing 40 mile range. The military

lost interest and the prototype was the only unit built.

#### *Cold Tip Jet Helicopters*

Rotor tip engines found much favor with the foreign builders of light helicopters. France's Sud Ouest produced the S.O. 1100 Ariel. The Ariel used the high pressure air method. A gas turbine drove a pump which compressed air and forced it through hollow rotor blades to orifices on the blade tips. Only three were produced but the experience gained paid off in Sud's next project, the Djinn.



The S.O. 1221 Djinn first flew in 1953. Its satisfactory performance led to adoption by the French army and the military forces of ten other nations. A total of 178 were produced making the Djinn the first and as it turns out only successful tip-jet helicopter.



*German Army Djinn*

*(Credit: Stahlkocher)*

Fiat joined the queue of jet tip helicopter producers in 1961 with it bulbous 7002. The unusual shape of the fuselage provided space for up to seven people. The 7002 could not match the performance of the many other helicopters on the market and only one was made.



A year later, Dornier's Do-32 made an appearance. As with many of the small helicopters mentioned in this article, the German Army was looking for a compact aircraft that could be disassembled, transported, and reassembled by ground troops. But the army failed to follow-up with a contract and three of the four produced were destroyed in crashes. The sole survivor was consigned to a museum.



*(Credit: Karl Kössler)*

*The second part of this four part series will appear in the next issue of The Coastwatcher. It will take a look at tip mounted ramjets, pulse jets, and rockets.*

### **AEROSPACE CHRONOLOGY**

14 NOV, 1935 - The first flight of the Noorduyn Norseman



*One rugged bush plane. A friend, of The Editor, Mike Hirsch was taking off from runway 19 at Orange Municipal in Massachusetts. The engine packed up at 400 feet and the aircraft crashed into heavy brush and some small trees. Only two minor injuries resulted. Mike's stated "...that she was a good airplane and saved us all.*

15 NOV, 1999 – The U.S. Postal Service issues its new 33¢ airmail stamp honoring the Boeing 747. The aircraft has appeared on at least 14 nation's stamps and twice on U.S stamps.



15 NOV, 1920 – In Australia, the Queensland and Northern Territories Air Service (QANTAS) is formed.



*QANTAS 747 painted with an Australian Aborigine them.*

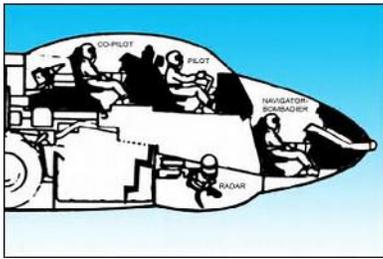
17 NOV, 1954 – A Boeing B-47 Stratojet is forced to remain aloft for 47 hr and 35 min due to bad weather!

The aircraft departed Sidi Slimane, Morocco on a training flight to RAF Fairford in England. Bad weather prevented an approach so the aircraft commander, Col. David Burchinal, the Wing Commander of the 43rd Bomb Wing decided to return to Sidi Slimane. By the time they reached Morocco, bad weather closed down Sidi Slimane.

Waiting for the weather to clear at one of the two bases required nine refuelings and covered a distance of 21,163 miles. A new jet endurance record had been set.



*Stratojet crews did not travel first class.*



The B-47 carried a crew of three; two pilots in tandem in a narrow greenhouse cockpit and a navigator-bombardier in the nose. One wonders about the food supply and sanitary arrangements during the two day flight.

18 NOV, 1939 – German Luftwaffe Generals Ernst Udet and Erhard Milch observe a demonstration of the first jet powered airplane, the Heinkel He 178. They are not impressed with its 10 minute combat endurance.



(Photo Credit: USAF)



20 NOV, 1952 – Scott Crossfield, working for the National Advisory Committee on Aeronautics (NACA), the predecessor of NASA becomes the first man to reach Mach 2.



Photo Credit: NASA)

*The A. Scott Crossfield Ribbon is awarded to CAP Aerospace Education Officers who have earned the Master Rating in the Aerospace Education Career Track*



Crossfield flew the #2 Douglas D-558-2 Skyrocket, now on display at the National Air & Space Museum on the Washington Mall.

19 NOV 1915 – RNAS Squadron Commander Richard Belle-Davies pulls off the first combat search and rescue. Seeing a downed comrade in danger of capture by nearby Turkish troops, he lands his Nieuport 10 nearby. The fellow aviator clammers aboard and they take-off and return safely to base. Belle-Davies is awarded the Victoria Cross and retires as a vice admiral.



*Belle-Davies and a Friend*

*The British issue first day covers and stamps to honor aviators.*



*The B-29 launching the Skyrocket carries US Navy markings. The aircraft was a Navy sponsored experiment.*

(Photo Credit: US Navy)



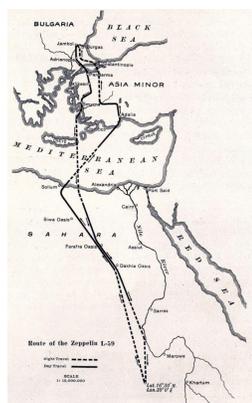
*The #2 Skyrocket is on display at the Planes of Fame Museum in Chino, California.*

21 NOV, 1917 – World War I. Col Paul Lettow-Vorbeck has been engaged with for the last three years, fighting British, Portuguese, and South African troops in German East Africa.

The Germany army attempted to send supplies aboard the Zeppelin LZ-104. It was planned as a one-way flight since no hydrogen would be available for the return to Germany. The ship would be cannibalized and its metals and fabric used to improvise equipment, tents, and clothing for Lettow-Vorbeck's *Schutztruppe*.



The dirigible made it halfway, well into The Sudan, when the Germans lost control of its landing area and the mission was aborted. The LZ-104 returned to Germany after a 4,000 mile, 96 hour flight, still a world record for a military airship flight.



22 NOV, 1935 – A Pan American Martin 130, *The China Clipper*, departs San Francisco on the first trans-Pacific air mail service After refueling and rest stops in Honolulu, Midway, Wake Island, and Guam. The plane lands in Manila harbor six days later logging 59 hours and 48 minutes flight time.



*(Credit: Bill; Larkins)*



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**"CHINA CLIPPER"**

FLIGHTS:	Time	Postage Rates
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San Francisco to Manila	6 Days	50c per Half Ounce
San Francisco to Macao	7 Days	70c per Half Ounce
San Francisco to Hong Kong	7 Days	70c per Half Ounce

*Correcting for inflation, the 70 cents postage in 1935 is equivalent to \$12.61 today!*