



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

### **The Coastwatcher**

Official Publication of the Thames River  
Composite Squadron  
Connecticut Wing  
Civil Air Patrol  
300 Tower Rd., Groton, CT  
<http://ct075.org>.

LtCol Stephen Rocketto, Editor  
[srocketto@aquilasys.com](mailto:srocketto@aquilasys.com)

Maj J.Scott Farley, Publisher  
Lt David Meers & Maj Roy Bourque, Papparazis  
Hap Rocketto, 2nd Lt, AUS, (ret'd.), Features  
Capt Edward Miller, Features

Issue 11.12

04 April, 2017

### **CADET MEETING**

*04 April, 2017*

The cadets engaged in physical training and rocket building.

### **SENIOR MEETING**

*04 April, 2017*

Maj Farley explained the financial decisions which will constrain flying in the near future.

The seniors reviewed the status of Squadron goals. A survey indicates that goal achievement is nominal and predict a successful year.

Department heads reported on their past and current activities and future plan

### **COMING EVENTS**

#### **Orientation Flights**

*02, 09, 22, 23 April*



Contact [srdschmidt@gmail.com](mailto:srdschmidt@gmail.com)

### **HIGH POWER RIFLE CLINIC**

*15 April*



*CTWG High Power Team at the National Championships-2007*

The Connecticut Rifle and Revolver Association Junior Division will sponsor a high power rifle training clinic at the Bell City Rifle Club in Southington. Students will receive instruction in the operation of the AR-15 rifle and will fire the rifle at 200 yards.

The event will run from 0900 to 1300. There is no charge. This is not a CAP sponsored event but cadets are invited to participate. The entry fee is \$10. Contact Lt Steven Schmidt, Deputy Commander of Cadets, to sign up.

## CORPORATE LEARNING COURSE

06 May

**Corporate Learning Course (CLC)** SLS completion is a prerequisite for completing Corporate Learning Course (CLC). The CLC is designed to explain how a wing operates in each of CAP's major mission elements and how mission support functions support these mission elements.

Director: Lt Col Heather Murphy, CAP email: pdo@ctwg.cap.gov

Uniform of the Day: Air Force Blues, Corporate Gray/White or CAP golf shirt/gray pants combo.

This class is no cost and will be comprised of two days of on-site classes, details of which will be emailed to the students once registered.

*For further information send an email to pdo@ctwg.cap.gov*

## CONNECTICUT WING CONFERENCE

20 May

The annual CTWG conference will be held at Bradley International Airport and will feature seminars, expositions, and cadet activities.

Sign up at the address below;

<https://www.eventbrite.com/e/connecticut-wing-fly-in-conference-tickets-32390432656?aff=es2>

## COMMANDER'S CUP ROCKET CONTEST

17 June

The 12th annual CTWG Commander's Cup Rocket Contest will be held at the CATO launch site, 0800-1300 in Durham Connecticut. Participation by cadets will fulfill many of the requirements for building and launching rockets for the CAP Rocketry Badge. Entry is free for both squadrons and individual cadets.

The Rules of Engagement, scoring criteria, and hints on how to build successful rockets have been sent to all squadron aerospace officers and commanders.



## CURRENT EVENTS

*0A-X Program*

*A Paradigm of Air Force Acquisition*

The changing face of war requires that new doctrines of operation and the weaponry which fulfills the new needs be developed. The U.S. Air Force is beset by serious financial problems due to its aging fleet, the need to develop aircraft for the counter-insurgency (COIN) role, and stringent budgetary restrictions set by Congress. An institutional juggling act is taking center ring in the Pentagon circus. What are the priorities and what are the possible solutions. Acquire a new stealth bomber or upgrade the venerable B-52 fleet. Acquire the KC-46 tanker at and reduced rate but retain 135s and KC-10s. Retire the specialized A-10 Warthog so as to provide funds for the F-35 but then acquire a new aircraft type

for close air support (CAS) and COIN missions.

After determining need, the procurement of a new aircraft requires the establishment of performance criteria to fit the expected mission. The OA-X program serves as a useful model of what need be done. First, the primary CAS aircraft is the A-10. Its designed mission was as a tank buster to counter a Soviet attack through the North German Plain or the Fulda Gap. In actuality, it has done yeoman service in the irregular warfare in which U.S. forces have been engaged: the Gulf War, Bosnia and Herzegovina, Kosovo, Afghanistan, Libya, and Iraq. Army and Marine ground-pounders have a high regard for its capabilities in CAS and it has an influential Congressional support group in Washington.

On the other hand, the Air Force is strapped for cash and will realize two benefits if the Warthog is retired. The money spent on maintenance can be applied to its expensive F-35 program and the maintainers will become available to serve the new aircraft. The Air Force argues that the F-35 and other assets such as the F-16 and B-1 can fulfill the CAS mission using modern guided munitions. But can these high performance aircraft meet the specification which have been drawn up for the OA-X program.

1. The CAS mission requires short field operations from austere air fields. Placing the base of the aircraft near to the ground combat zone reduces the time of transit.
2. Remaining at the scene of ground combat or moving to another area in which troops are in contact with the enemy demands a long loiter time.
3. Sufficient hard-points and an internal cannon are needed to carry a useful mix of ordnance.
4. Armored protection of the cockpit and engines and redundancy in control systems are mandatory.
5. Communications should include data link capability for information transmission between the aircraft, the ground troops, and its base.
6. Provisions for the use of precision guided

weaponry is required.

7. Easy maintainability under field conditions.
8. Protective measures to reduce heat signature and to decoy man-portable anti-defense systems.
9. Affordability so as to keep expenses down and allow the acquisition of the aircraft by our penurious allies.

Finally, if the OA-X is adopted, the Air Force must navigate through a minefield strewn with financial burdens, special interest groups, obtuse procurement rules, and national and international policy requirements. Good luck!

## **AEROSPACE HISTORY**

### *Cold War Continental Air Defenses*

If you do not have a good background in history and an obsession with trivia, you might say that the 48 contiguous states have never experienced an aerial bombardment but you would be wrong. The Coastwatcher has uncovered a number of instances of bombings and serious attempts to bomb, by parties both foreign and domestic. However, this feature will concentrate on steps taken by the United States Army, Navy, and Air Force to guard our airspace during the Cold War during the latter years of the 20th century. The story about actual and proposed bombing attacks on our soil by will be the subject of a future article

The United States, blessed by favorable geography and the limitations of aeronautical technology, has been long free from the fear that an enemy might use aircraft to attack our cities. The European nations and China had no such luck. The proximity of warring nations and improvements in technology allowed devastating bombing attacks on civilian populations and infrastructure, most significantly in World War II.

The Cold War changed the game conditions for the United States. Remember Pearl Harbor. Soviet long range bomber forces and the development of intercontinental ballistic missiles led to the

institution of a civil defense program specifically designed to warn the national defense forces of an incoming raid, provide a defense, and protect the citizenry from the effects of aerial bombardment. The United States established two components for defense against aerial attack: ground and airborne electronic early warning systems and ground and airborne bomber interceptors.

The ground defenses were fundamentally an Air Force mission. Three lines of radar sites stretched from Alaska to Iceland. The northernmost was the Distant Early Warning Line (Dew Line). The Mid-Canada Line and the Pinetree Line were radar systems further south. The objective of these sites was early detection of Soviet bombers coming over the north polar region. The lines were manned by airmen, Canadians, and civilian technicians. The Air Force even went to sea. Three radar sites were positioned on Texas Towers offshore from Cape Cod, Nantucket, and New Jersey. Any aircraft detected were reported to the North American Air Defense Command bunker buried in Cheyenne Mountain near Boulder, Colorado.

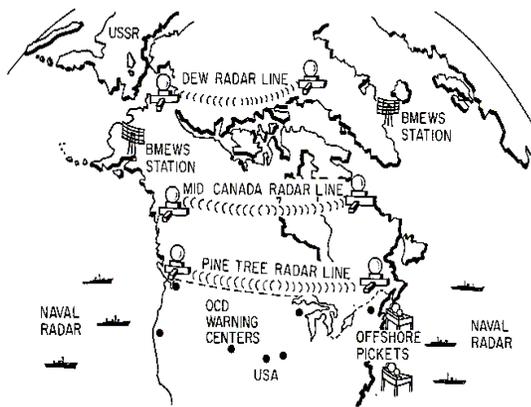


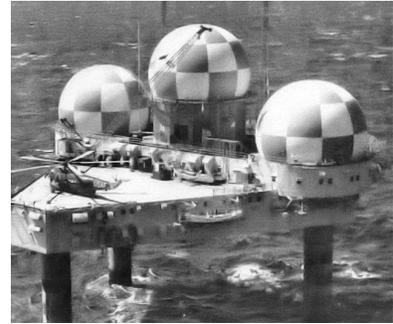
Figure 5.—North American detection radar lines.



Canadian Interceptor- CF-100 Canuck



DEW Line Station  
Note the shadow of the C-130.

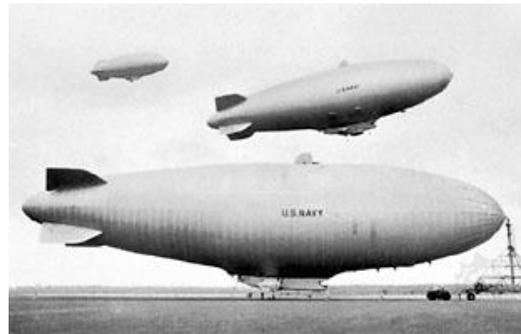


Texas Tower resupplied by helicopter.

The holes in the ground radar sites were plugged, more or less, by airborne early warning aircraft, planes, picket ships, and even blimps.



WV-2 and picket ship USS Sellstrom (DER 255)

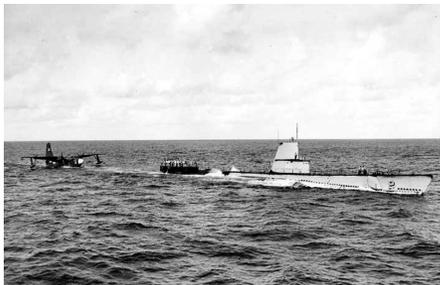


The ZPG-3W carried a dorsal height finder radar and a very large plan position indicator inside the envelope

Parenthetically, the *Coastwatcher* Editor was part of this defense system. Radar is blind at low altitudes so the United States and Canada re-instituted the World War II Ground Observer Corps, (GOC). Civilian volunteers manned observation posts and reported visible aircraft by a dedicated land line to a filter center which plotted the positions and forwarded reports to the military as necessary. The Editor, 14 years old, assisted by his ten year old brother, periodically manned the post, coded Charlie Mike Five Two Black, which was located on the south side of the old Waterford Town Hall.

We would walk there from New London, and climb a vertical ladder to the observation post, sign in, grab the binoculars, and take station on the exterior south facing platform. Any aircraft sighted would be logged and reported to the New Haven Filter Center using a hand-cranked magneto powered telephone.

The Editor's overactive and hyper-fertile imagination soon grasped the reason for the southerly view of the Waterford post. Yes, the Russkies were expected to come over the northern horizon but I knew that they possessed at least three aircraft capable of operating from water and carrying ordnance. Two, the Madge and the Mallow were products of the Beriev Design Bureau. But the third was the Consolidated PBY, built in the United States and Canada. Many had been transferred via lend-lease to the Soviet Union. The Soviets also built a licensed version called the GST (*Gydro Samoliot Transportny* or "cargo hydroplane). Without doubt, the perfidious minions of Uncle Joe Stalin has never paid for or returned the lend-lease aircraft nor paid royalties to Consolidated. "In your face, Capitalists



*They laughed at Thomas Edison. Didn't they?*  
(Photo-credit: US Navy)

Would our generosity now be "rewarded" by a sneak attack from the south, seaplanes refueled by submarines! The Japanese did it to us in World War II. So we assiduously peered south and waited for the attack. You can't put anything over on the Rocketto brothers and the Politburo knew it. The Soviet seaplane fleet was consigned to prosaic patrol duties and the occasional transport of one of the *nomenklatura* from the Kremlin to his dacha on the shores of the Black Sea.

But, as is his custom, The Editor has digressed.

If the Soviets did launch an attack, both the Air Force and the Army stood weapons ready with both aircraft and missiles. The conventional response to incoming bombers is manned interceptors. The North American Air Defense Command, headquartered at Peterson Air Force Base near Colorado Springs controlled a large number of fighter interceptor and missile bases in the United States and Canada. Computerized systems, the Semi-Automatic Ground Environment (SAGE) were located in massive blockhouses scattered around the country. One such unit was at Stewart Air Force Base near Newburgh, New York. SAGE used analog computers to process the information from the radar stations and then direct aircraft and missile interceptions.



*SAGE Bunker*  
(Photo credit: MITRE)



*SAGE Console*  
(Photocredit: MITRE)

Two air defense bases near Connecticut were key and typical facilities. Suffolk County Air Force Base, now the Francis S. Gabreski Airport on Long Island, controlled manned interceptor and missile forces. At one time or another, units at Suffolk flew the Lockheed F-94 Starfire, McDonnell F-101 Voodoo, and the Convair F-102 Delta Dagger and F-106. If fly over or look at an aerial view you can make out the hangars and taxiways designed to minimize the time needed to access the runways.



*The Starfire had no guns. The armament was 48 2.75 in folding fin rockets housed in the nose and two wing pods.*



*F-101B Preserved at Dover AFB*

*One of Connecticut's Own-An F-101 from the 103rd Fighter-Interceptor Group*



The Suffolk County Missile Annex was located about two miles west of the air base proper. A typical launch site housed 60 IM-99 Bomarc missiles, a joint product of Boeing and the Michigan Aeronautical Research Center. The

Bomarc was launched by a liquid fueled booster. As the speed neared supersonic two ramjets ignited. The missile had a Mach 2 cruise, a 400 mile range, and could reach 100,000 feet. Armament was either a conventional high explosive or nuclear warhead



*Bomarc's Erected into Launch Position*  
(Photo Credit: Air Force Magazine)

Otis Air Force Base on Cape Cod (now Otis Air National Guard Base) had a quartet of defense responsibilities. They deployed the Lockheed EC-121 Warning Star early warning pickets over the North Atlantic and Arctic regions. Otis also supported the three Air Force Texas Towers off the northeast coast. The air intercept mission was assigned to a Bomarc facility and interceptor aircraft such as the Lockheed Starfire, the Delta Dagger and the F-106 Delta Dart. The F-106 was equipped with a fire control system which could be linked to the SAGE network allowing a ground controlled intercept. The aircraft could be armed with Falcon and Genie missiles carrying nuclear warheads.



*Some of the Radar Operation Positions in the Warning Star*



*F-106A at Peterson AFB*

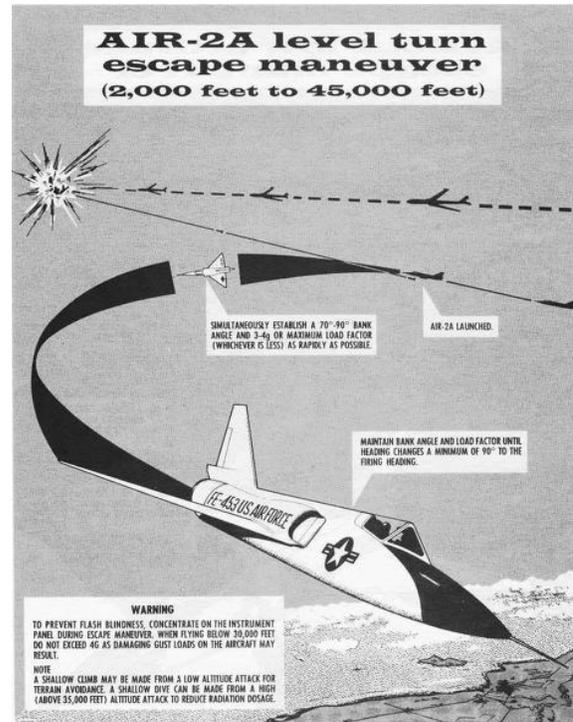
The F-106 could be equipped with Genie or Falcon missiles carrying nuclear warheads. The rationale for using a nuclear warhead was to not only take out a whole formation of bombers with one missile but also compensated somewhat for the inherent inaccuracy of the guidance system. As we shall see, some of the air-to-air missiles carried by manned interceptors were also nuclear tipped. These did raise some concern among the general public given that a rain of radioactive particles from ones own defensive missiles was an unappealing consequence. The Canadians were especially discomfited by the fall-out since most of the detonations would occur over their territory.



*Northrop F-89H Scorpion, an early all-weather interceptor and The Douglas AIR-2 Genie nuclear tipped missile.*

At the time this weapon was conceived, the Soviets had reverse engineered a B-29 which had come into their possession. The aircraft, designated Tu-4 Bull had the range to reach the continental United States. The plan was to

intercept the incoming bomber formation and at a range of six miles, fire the Genie with its 1.5 kiloton warhead. The interceptor would then execute an escape maneuver, one of which is shown below. A rough estimate indicates that the interceptor will be one to six miles away when the detonation occurs. The blast radius of the Genie is about 1000 feet but the shock wave will be chasing the interceptor. Good luck!



*One of Three Recommended Escape Maneuvers*

Ever since the Air Force became independent, they have been engaged in a struggle over the control of air power assets with the Army. The Army's Nike anti-aircraft system was a parallel program with the Air Force Bomarc. The Army wished to maintain its traditional role of anti-aircraft point defense but the Air Force, thinking strategically, horned in with its longer range Bomarc.

Nike's came in three flavors, Ajax, Hercules, and Zeus. They were all vertically launched using solid fuel boosters and a liquid fuel main stage. The Hercules could carry a nuclear warhead the the Zeus, designed to take-down incoming ballistic missiles only carried a nuclear warhead.



*The Nike Family: Zeus, Hercules, and Ajax*  
 Photo Credit: US Army



*Party-time at the shelter. The carte du jour is listed on the sign at the bottom of the supply stack.*  
 (PD)

Over 250 Nike bases were situated around the United States, twelve being in Connecticut. Some of these sites have been converted to public use. Glastonbury maintains public building on their site and the Talcott Mountain Science Center in Avon occupies land formerly housing a Nike radar station.

But why worry. We practiced the “duck and cover” drill in our classrooms, stayed clear of windows, or crawled under our desks. Commercial radio stations would switch to the CONELRAD (Control of Electromagnetic Radiation) so as not to provide homing beacons for the incoming bombers. If the ballon were to go up, you might get to one of the basement fallout shelters and eat, drink, and be merry until the all-clear sounded.



*How fast can you run?*



## AEROSPACE CHRONOLOGY 6-12 APRIL

12 April, 1961-*Vostok I* carries Flight Major Yuri Gagarin from Tyuratán to orbit.



*Photo Credit: Sputniknews.com*

13 April, 1960-The USN launches Transit 1-B, the first navigational satellite using a Thor-Able-Star vehicle.



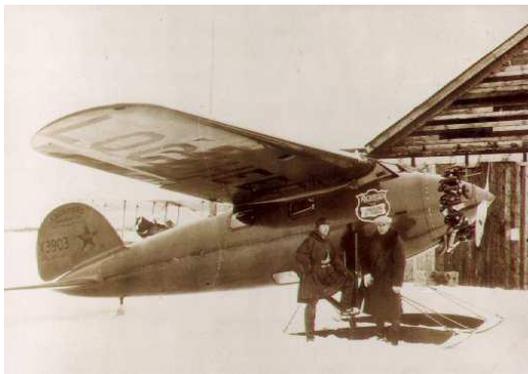
*(Picture Credit: NASA)*

14 April, 1960-The first launch of a Polaris missile from a submerged tube occurs off San Clemente Island, California.



Polaris Emerges  
(Photo Credit: US Navy)

15 April, 1928-Australian explorer George Hubert Wilkins and US pilot Lt Carl Ben Eielson fly a Lockheed Vega in the first successful crossing of the Arctic flying from Point Barrow, Alaska to Spitzbergen, Norway



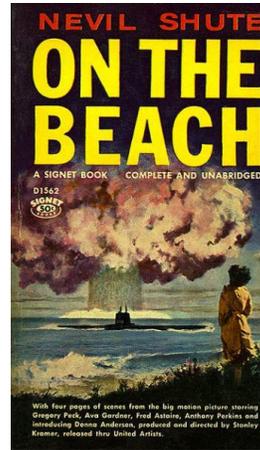
Eielson and Wilkins prepare for the 20 hour flight.  
(PD)

16 April, 1916-US Coast Guard Third Lieutenant Elmer F. Stone begins flight training at Naval Air Station Pensacola in Pensacola, Florida. He will become USCG Aviator #1.



"Archie" Stone  
boarding a  
Grumman JF-2  
(Photo Credit: USCG)

17 April, 1899-BIRTH OF Nevil Shute Norway, novelist and aeronautical engineer. Shute was a founder of Airspeed, Ltd and the author of the post-apocalyptic novel, *On the Beach*.



*"It wasn't the big countries that set off this thing. It was the little ones, the Irresponsibles."*

*Moira Davidson, a hard-partying Aussie Sheila speaking to Cmdr. Dwight Towers, CO of the U.S.S. Scorpion.*

*Airspeed Oxford, 8,500 copies of this versatile trainer were built.*



18 April, 1942.-Doolittle Raiders departed USS *Hornet*



*Started eventful mission to Tokyo. Left ship at 10:40 A.M. (G.C.T.) on first bomber take-off in war, 800 miles from first objective with 200 gal shortage of gasoline and increasing 200 miles in distance. (Excerpt from diary kept by Lt. Eugene McGurl, navigator, Ship Five.)*