

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



## The Coastwatcher

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

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### SCHEDULE OF COMING EVENTS

22 FEB-CTWG SAREX-HFD  
25 FEB-TRCS Meeting

01 MAR-CTWG Pilot Meeting-MMK  
05 MAR-CTWG Commander's Call  
13-15 MAR-CTWG Staff Assisted Visit  
19 MAR-CTWG Staff Call  
29-30 MAR-CTWG West Group SLS-DXR

19 APR-CSRRA AR-15 Rifle Rifle Clinic  
26 APR-04 May-NER Mission Aircrew School  
29 APR-Wing Wide SAREX-GON

10-11 MAY-CTWG East Group CLC-HFD  
17 MAY-Commander's Cup Rocketry (tentative)  
17-18 MAY-Quonset Airshow  
30 May-Ledyard Aerospace Festival

16-21 JUN-Tri-State SAREX (CT/RI/MA)

19 JUL-02 AUG-Nat'l Emergency Services Acad.  
08-16 AUG-CTWG Encampment-Camp Niantic  
23 AUG-Wing Wide SAREX-HFD  
01 OCT-CTWG Commander's Call and CAC  
17-19 OCT-CTWG.NER Conference  
18-25 OCT-NER Staff College-New Jersey  
20 SEP-Cadet Ball-USCGA (tentative)

### CADET MEETING

*18 February, 2014*

Meeting cancelled due to weather.

### SENIOR MEETING

*18 February, 2014*

Meeting cancelled due to weather.

### ON-GOING AIR CREW TRAINING

The Squadron continues its flight crew training. This week Maj Noniewicz and LtCol Bergey flew a training mission which based upon a downed aircraft in the vicinity of Old Lyme. Practice concentrated on aircraft location used the Becker direction finder and the "wing null" method.

The exercise ended with a VOR 23 approach into Groton followed by a miss and a GPS 33 approach to a full stop.

### SAFETY DOWN DAY SCHEDULE

Lt Dickenson has organized the annual "Safety-Down" Day. Here is the schedule of topics and the presenters.

Cadet Protection - Emily Ray  
Tire Safety - Roy Bourque  
Ground Team Safety - Marlene Welch  
Air Safety Quiz - Keith Neilson  
Mishaps/ Accidents - What Are They and How Are They Reported - Charlie Dickinson  
Airplane Safety - In And Around The Airplane And On The Ramp - J. Scott Farley  
Fatigue - Video (TBD)

## SHIRLEY TEMPLE GOES WEST

*by*  
*Hap Rocketto*

"On the Good Ship Lollipop" was the signature song of child actress Shirley Temple. It was first performed in the 1934 movie *Bright Eyes*. The movie's plot revolves around the relationship between bachelor aviator James 'Loop' Merritt and his orphaned godchild, Shirley Blake. The movie is really remembered for just one thing, the song "Good Ship Lollypop."

Temple sings the song and does a dance, which has been said to have been choreographed by her. The "ship" in the song is a Douglas DC-2. To view the scene, go to:

<http://www.youtube.com/watchv=WLLSqYyPD8&feature=kp>

I am sure pilots have shared Shirley's thoughts as expressed in the first verse of the song:

*I've thrown away my toys,  
Even my drums and trains,  
I want to make some noise,  
With real live airplanes.  
Some day I'm going to fly,  
I'll be a pilot to,  
And when I do,  
How would you,  
Like to be my crew?*

*On the good ship  
Lollipop  
Its a sweet trip  
To the candy shop  
Where bon-bon's play,  
On the sunny beach  
Of peppermint bay  
Lemonade stands,  
Everywhere  
Crackerjack bands,  
Fill the air,  
And there you are,  
Happy landings on a chocolate bar.  
See the sugar bowl  
Do a tootsie roll  
In a big bad devil's food cake,  
If you eat too much,*

*Oh, oh,  
You'll awake,  
With a tummy ache.*

*On the good ship Lollipop  
It's a nice trip,  
Into bed you hop,  
And dream away,  
On the good ship Lollipop.*

The song and dance takes place on what seems to be a taxiing airplane at now defunct Grand Central Airport, Glendale, California but the floor of the airplane appears to be level, even though the DC-2 is a taildragger and it would be in a nose up attitude when taxiing. Surely Shirley could have danced with the plane in the three point attitude. Remember her dance on the stairs with Bill "Bojangles" Robinson in *The Little Colonel*. View this scene at:

<http://www.youtube.com/watchv=AjCFYpWdmfM>

## AEROSPACE CURRENT EVENTS

### FAA IN REGULATORY QUAGMIRE

As the FAA struggles with the dubious issue of sleep apnea and more serious problems such as laser strikes on aircraft, a new problem has arisen.

With the exception of Alaska, commercial use of drones is not allowed in the United States. In the last few months, a spectator at a "running of the bulls" event in Virginia was struck by a four foot out of control drone. An airliner on final at JFK reported a near collision with a multi-rotor helicopter.

A drone was used to photograph a documentary at Gettysburg for the Public Broadcasting System with permission from the National Park Service which admitted that they never checked the regulations with the FAA. And Hollywood has fallen in love with the utility of camera equipped drones. The film industry weighs the small risk of getting caught with the economic utility of the drone and guess what guides the decision to break the law?

Furthermore, the FAA does not have the financial or personnel resources to devote to the problem. They had a plan to submit a draft proposal of rules to govern commercial operators by 2011 by that never happened.

One thing is for sure. Tort law and insurance issues will influence the operators of drones more than regulations with no backing. Maybe the TSA can be let loose to bring the malefactors to justice?

## AEROSPACE HISTORY

### THE DOUGLAS DC-2

The Douglas DC-2 was the first success in successful airliner in the “Douglas Commercial” series that started with the DC-1 and ended with the DC-10. The DC-1 was a “one-off” aircraft which Douglas produced to compete with the Boeing 247. Transcontinental & Western Air, later Trans World Airlines (TWA) bought the aircraft and immediately ordered 20 modified versions with more powerful engines and increased seating. The DC-2 was born.

The original DC-1 was eventually sold and went through a number of owners before its employment during the Spanish Civil War when it was written off after a forced landing.



*The DC-1 in TWA Livery (USAF photo)*

But the DC-2 entered full scale production and was license built in the Netherlands by Fokker and in Japan by Nakajima. The US Army Air Force adopted the DC-2 and assigned it a number of designations between C-32 and C-42.



*USAAC C-39 at the Museum of the USAF  
The C-39 is a hybrid of DC-2, DC-3, and B-18 parts.*

A golden moment for the DC-2 was its remarkable finish in the 1934 McRobertson Air Race from London to Melbourne, Australia. A \$75,000 dollar prize was posted by Sir Macpherson Robertson, the owner of an Australian candy company. A specially built deHavilland racer, the DH.88 Comet, whose special stressed skin wooden construction found later employment in the wartime Mosquito, took first but a Royal Dutch Airlines (KLM) DC-2 named *Uiver* (Stork in Dutch) was the second fastest aircraft to finish.



*Uiver refueling at Darwin, Australia  
(credit: Museum Victoria)*

What is noteworthy is that the DC-2, piloted by K.D. Parmentier and J.J. Moll, flew the KLM scheduled route and serviced the passenger and mail stops along the way. Honors for third place was taken by a Boeing 247, the DC-2s chief rival as an air transport. Clyde Pangborn and Roscoe Turner, noted long distance and racing pilots, flew the ship which had been leased from United Airlines.

Although the “Two” was a successful air transport and led directly to the development of the immortal DC-3, she had some features and performance characteristics which provoked hot language from her crews. As Gann's Chief Pilot at Newark said, “You'll learn to love this airplane...and you'll also learn to hate it.”

The cockpit windows leaked like a sieve in rain. Bob Buck, an early TWA pilot and pioneer in exploring aviation weather conditions, stated that a rejoinder to a ground request for weather might be “Light rain outside, heavy rain inside!” He reports that the crew carried rubber ponchos which they spread over their laps. Ernie Gann, American Airlines aviation chronicler, said that “...the effect within was that of a seriously depth-bombed submarine.”

Buck and Gann commented about the difficulty in executing a good landing and her tendency to ground loop. The undercarriage was hand-cranked and the flap control was a Johnson Bar and co-pilots looked forward to advancing to captain so as to be rid of those onerous manual tasks only to discover that the handbrake, operated from the left seat, was an similarly miserable control to manipulate.

But most of all, they cursed the heating system, whose operation was charged to the co-pilot. Often ineffective, snow would leak into the cockpit and remain in its crystalline form. It was, in Gann's words, “designed by Machiavelli” and “brought many co-pilots almost to tears.” Gann further describes it.

*It obtains its heat from the exhaust of the right engine and it is festooned with valves, the majority of which are usually stuck. The entire assembly has a certain human quality—recalcitrant, self-indulgent, and capricious. Everyone is agreed that it was designed by a maniac barely thwarted in his attempt to create an infernal machine. Captains have been known to cherish co-pilots who can keep a DC-2 heater system operating, and others have made life aloft very unhappy for those who cannot.”*

The DC-2 had a very stiff landing gear and if not landed with consummate skill, would bounce like a kangaroo. Ross, a recognized master of the DC-2 and Gann's mentor said:

*There are two kinds of airplanes—those that you fly and those that fly you. With a DC-2 you must have a distinct understanding at the very start as to who is the boss.*

For all of its eccentricities, crews came to love the aircraft. Both Gann and Buck served their airline apprenticeships on the notorious Air Mail Route 21 (AM-21) from Newark with stops at Wilkes-Bare, Syracuse, Rochester, Buffalo, Erie and a termination in Cleveland. These flight segments arguably the most difficult routes in scheduled airlines in the 1930s, fraught with extreme weather, eccentric geography, and unreliable radio reception.

But DC-2 had the structural strength of a battleship and could carry ice like Atlas carried the known universe. She was the pilot's choice when Mother Nature decided to test the quality of the airplane and the mettle of the crew.

### *FOLDING WINGS*

The last issue of *The Coastwatcher* featured an article which discussed the planned folding wing tips for the proposed Boeing 777X. This prompted several readers to raise questions about the history and styles of folding wings.

#### *Folding Wings in World War I*

The Editor recalled an incident in World War I. The SMS *Königsberg* was a German light cruiser stationed in the Indian Ocean and aircraft with folding wings played a part. When war broke out in the fall of 1914, *Königsberg* commenced raiding British and Commonwealth shipping. Hunted by the Royal Navy and in need of boiler repairs, she surreptitiously entered the delta of the Rufigi River and, well hidden, took refuge in what was then the British colony of Tanganyika! However, some captured documents, taken from a

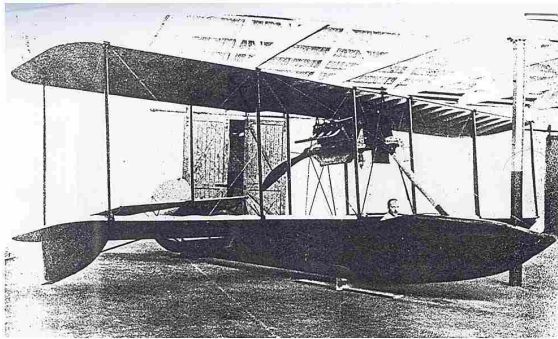


German supply ship, led the British to deduce the location of their quarry.

But the dense mangrove growth, shallow waters, and lack of accurate charts prevented the British from locating the cruiser's lair. A Curtiss hydroplane was brought in from Durban, South Africa and used to reconnoiter the delta but got lost, suffered engine failure, and made an emergency landing.

The aircraft was rented. Information supplied by Mr. Allan Jackson of Durban states that:

*The contract stipulated that the Admiralty was to pay £150 per month for the hire of the aircraft and that it was to assume responsibility for risks posed by the enemy to the full value of the aircraft [£2000] and that the owner and the Admiralty would share the ordinary flying risks to the value of £1000 each.*



*This is Dennis Cutler and the Curtis hydroplane which he flew in his attempt to locate the Königsberg.*  
(credit FBD Website)

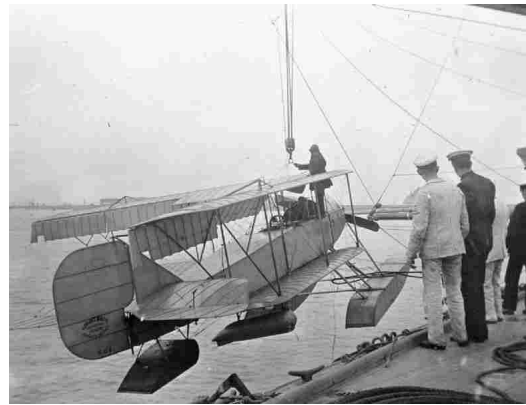
Fortuitously, a British lookout spotted the upper works of the *Königsberg* but naval gunfire could not be properly directed and the *Königsberg* moved to a safer position deeper in the delta.

The British, knowing they has a serious lack of intelligence data about the delta then brought in the legendary white hunter, Peter Pretorius and requested that the Admiralty dispatch military aircraft. Shortly thereafter, an 18 man Royal Naval Air Service unit arrived, supporting two Sopwith 807 seaplanes, equipped with folding

wings. While Pretorius gathered details about the labyrinth of waterways which formed the delta, the Sopwiths attempted to fly but could only get aloft if they left unarmed and with reduced fuel.

By then, the Royal Navy had sunk a block ship in the main channel and brought in two monitors, *HMS Mersey* and *HMS Severn*, from Malta. These shallow draft vessels armed with large guns used information gathered by Pretorius to get within range of the fugitive cruiser. But they intervening mangroves prevented visual direction of the gunfire.

More aircraft were brought, Caudron and Farman land planes based on Mafia Island, The air reinforcements included several Short Admiralty Type 81 floatplanes equipped with folding wings. Using wireless communication, the spotter aircraft were able to direct the gunfire of the two monitors. However, the primitive technology, savage tropical conditions, and a fierce German resistance led six day battle which ended in victory for the British.



*A Short Type 81 being hauled aboard its mother ship.*  
(Credit: Royal Navy)

And so the last of Admiral Von Spee's raiding cruisers settled into the mud but her guns were salvaged and converted to field artillery and they and the crew of the *Königsberg* joined General Paul von Lettow-Vorbeck, commander of the German ground forces in East Africa.

Three years later, on 11 November, 1918 an armistice was declared but news traveled slowly in Africa. Lettow-Vorbeck surrendered two weeks later, the last German field force to capitulate.

### *The Earliest Records of Folding Wings?*

A preliminary stab at some internet research and consultation with LtCol Carl Stidsen revealed that Short Brothers held one of the first patents on folding wings for compact aircraft stowage on ships. Stidsen also noted that even further back, "... Lillienthal's wing design of 1894 folded about a central pivot...and Ader's 1898 Eole also used a Bat-wing fold design."

Sometimes, the span of a hanger influenced the decision to design folding wings for an aircraft. During World War I, the Royal Navy's tender for a new long range bomber demanded that it must fit within a 75 foot by 75 foot hangar. This led Handley Page to produce the O/100 with folding wings. The "O" is a Handley Page model designation and the "100" represents the wingspan of their bomber.



*Handley Page O/400 variant of the O/100 in its wing folded configuration.*  
(credit: Handley Page Aircraft)

### *A Potpourri of Folding Wing Designs*

Now wings can fold in a variety of ways. The following set of photos will illustrate some of the techniques which aeronautical engineers have used.

One of the most common methods is to fold the wings upward and over the fuselage.



*The Martin AM-1 Mauler was the attack bomber that competed for the Navy contract with the Douglas AD Skyraider.*

In order to reduce the height in this configuration, a double fold has been used.



*The Fleet Air Arm's Fairey AS6 Gannet anti-submarine plane not only had the unusual double fold by also sported an Armstrong-Siddeley double Mamba engine. Two Mambas were mounted side by side and spun counter-rotating propellers. The aircraft could be flown on one of the engines, saving fuel and increasing endurance.*

A variation on the upward fold is to fold the wings downward, one example of which is Grumman's F11F.



*The Grumman F11F Tiger*

However, low hangar bays on a carrier led to a method in which the wings rotated and stowed, like a bird's wing, along side the fuselage



*An Israeli Air Force Grumman E-2C Hawkeye at Hatzerim conserves space by rotating the wings and folding the parallel to the fuselage. In Israeli service the aircraft is known as the “Daya” which means kite.*

Fairchild pivoted the wings rearward with the hinge point at the join of the trailing edge and the fuselage. The wings remained parallel to the ground.



*This is the ski equipped Fairchild FC-2W2 which Byrd took to Antarctica on his 1928 expedition.*

But maybe you want to just drive it on a road and fly it in the air. The latest attempt at an “aerocar, the Terrafugia Transition is one such vision.



*The prototype Terrafugia in a partially folded configuration.*

A rotor blade is just a rotating wing and naval helicopters fold their blades to minimize shipboard storage space.



*A Sikorsky HH-52 Seaguard is one example of a helicopter with folding rotor blades.*

Powered lift aircraft with wings and propellers such as the V-22 Osprey

The powered lift V-22 Osprey require an imaginative approach. The rotor/propellers are folded and then the wing is rotated until it is parallel with the fuselage.



*Compacted Osprey at PAX River (USMC photo)*

To see this remarkable mechanism in action go to:  
[http://www.youtube.com/watch?v=\\_45aUrES-j0](http://www.youtube.com/watch?v=_45aUrES-j0)

### *Why Stop at Just Folding the Wings?*

Suppose you want to trailer and aircraft behind a ground vehicle. You might want to fold both the wings and the tail.

The U.S. Army wanted an aircraft that they could move around by road so Stinson designed the L-13



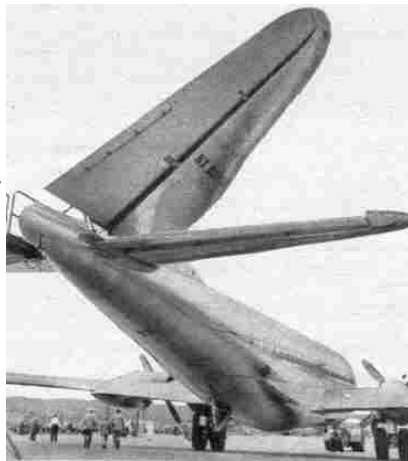


*The L-13 wings folded back, the tail folded up, and the main landing gear moved inward reducing its width to that of a jeep. The aircraft could then be towed to a new operating site.*

Handley Page used folding wings to fit into hangars. When the B-29 was upgraded to the B-20, the height of the tail increased so it could not fit into many of the older hangars. A mechanism was provided to fold the tail down.

*Boeing built a cargo and a commercial version of the aircraft, the C-97 Stratofreighter and the Model 377*

*Stratocruiser. Many had the folding tail.*  
(Boeing Photo)



And for ease in cargo loading, why not fold the fuselage. Under the auspices of Aero Spacelines, a number of Model 377s were heavily modified to carry out-sized cargo. These were the Pregnant Guppy, the Super Guppy, and the Mini Guppy.

The Pregnant Guppy used P&W Wasp Major engines. The Super Guppy and the Mini Guppy were turbine powered. All of the aircraft were heavily modified. NASA and Airbus employed them to haul large spacecraft and aircraft components.



*A NASA Super Guppy loads a pair of Northrop T-38s which have been used by the astronaut corps for training and transportation.*

Canadair used experience building the Bristol Britannia under license to develop the CL-44 which was operated by the RCAF as the CC-106 Yukon. These aircraft had swing tails. Some were sold to commercial operators.



*CL-44D4-6 LV-JTN pictured above had an interesting history.*

### *An Historical Digression*

The registration on the CL-44 pictured above is Argentine, LV-JTN, and was being operated by Transporte Aéreo Rioplatense. On 18 April, 1981, it was returning to Tel Aviv after dropping off a load of weapons in Iran. Its route between the two countries always used Cyprus and as intermediate point as a cover.

At the time, the United States was involved in a convoluted deal which became known as the Iran Contra Affair. Basically, the U.S. Had Israel transfer arms to Iran which was at war with Iraq. The U.S. hoped that Iran would assist in freeing American hostages held in Lebanon and also used some of the money to fund the Nicaraguan contras



who were working to overthrow the communist government of Daniel Ortega.

The plane flew to far north and crossed into Soviet held Soviet Azerbaijan. Soviet SU-15s intercepted the aircraft and one of the Soviet jets crashed into the CL-44 bringing down both aircraft.

### *Walker's Folding Wing Balsa Glider*

Back to folding winged aircraft. They are not unfamiliar to The Editor, who, as an aspiring airman flew a folding wing aircraft in the 1950s. The aircraft were manufactured by the American Junior Aircraft Company and was a balsa wood glider with a difference. The wings were not folded for storage but rather folded for launch!

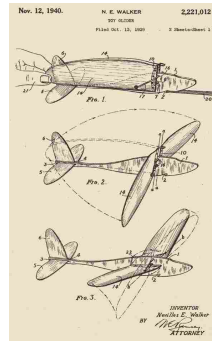
The standard model which most boys of that generation were used to consisted of a flat two dimensional fuselage, slotted to accept a wind and horizontal stabilizer. A metal clip was fitted to the nose for balance. After assembly, the plane was hand launched. Often, as boredom set in, the plane was set afire before launching.

But the folding wing balsa glider was something else. The wings were hinged and folded flat against the fuselage. A rubber band could be hooked on a notch in the fuselage. One hand was extended and the other hand held the plane. The rubber band was stretched and the plane released. It would climb to an impressive altitude, the wings would unfold, and the glide would commence. From time to time, the plane might catch some lift and soar, often becoming unrecoverable. Sometimes competitions would be held for time of flight and 30 seconds to a minute were not uncommon.



The concept was developed by an innovative model enthusiast named Jim Walker in the '30s. Walker invented a number of unique features for

the model aviation community such as controllable throttles for model aircraft and a U-control with a built in reel which allowed one to adjust the length of the line.



*The patent for the folding wing concept.*

During World War II, his glider was adapted to train aerial gunners. A large tripod and rubber band provided the launch direction and energy. The model would climb to 300 feet, unfold its wings, and then glide. Its small size gave it the appearance of an aircraft at a greater distance higher speed and machine gunners would then fire at it.



*US Army photo from Fort Lewis, Washington showing gunner training. The launcher is on the left side of the frame and a glider is barely visible in the center top third.*

In its quarter century of operation, Walker's American Junior Aircraft Company produced around 230 million models. Information on this adaptation of a model may be found at:

<http://www.americanjuniorclassics.com>

And as Longfellow said, we..."shall fold...tents like the Arabs and...silently steal away."