

Missions for America

Semper vigilans!
Semper volans!



The Coastwatcher

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

<http://capct075.web.officelive.com/default.aspx>

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SCHEDULE OF COMING EVENTS

For Future Planning

Cadet meetings normally start with drill and end with aerospace history, current events, and Commander's moment. Blues are worn on the second week of the month and BDUs at other times. Main topics may be indicated on the schedule below. See website for updates.

07 MAY-TRCS O Flights
10 MAY-ETHOS practice/WIMRS photos
10 MAY-GON airport security program
14 MAY-Danielson O Flights
17 MAY Meeting
13-15 MAY-CTWG Great Starts-Camp Niantic
21 MAY-CTWG RST Training

21 MAY-EAA-Aerotech-HFD
24 MAY-Meeting
28 MAY-Cadet Drill and Rockets 0900-1500
28-30 MAY-Long Island Sound Patrols
31 MAY-Meeting

03-05 JUN-Red Cross Exercise
03-05 JUN-CT/RI USAF Evaluation
10-12 JUN-CTWG Mini-Encampment-Stratford
18 JUN-RST Make-Up
19 JUN-Open Cockpit "Day-NEAM
21-25 JUN-National AEO School
30 JUN-First draft IG evaluations due
09 JUL-CTWG Encampment Training-Wing HQ
09-16 JUL-RSC-McGuire AFB
09-16 JUL-Cadet Ldrshp School-Concord, NH
15-16 JUL-Mini-bivouac-ES and Drill
23 JUL-07 AUG-NESA (two sessions)
07-14 AUG-CTWG Encampment
13-20 AUG-Reg. Cadet Ldrshp School-McGuire
17-20 AUG-CAP National Summer Conference
10 SEP-Multi-Squadron SAREX-Tentative
22-24 SEP-AOPA Summit-Hartford
22-23 OCT-CTWG Convention
24 SET-Cadet Ball-Courtyard Marriott, Cromwell

CADET MEETING NOTES

03 May, 2011

reported by

C/1Lt Brendan Flynn

The meeting opened with Physical Training at Poquonnock Plains Park. The mile run was administered there and many Cadets demonstrated improvements in time. We drove back to the squadron for curl ups, push ups, and the sit and reach.

C/Amn Anderson taught a Drug Demand Reduction class on club drugs. This class went over appearances, effects, and D.E.A. classification of GHB, Rohypnol, and Katamine, and how to tell if someone is using them. C/Amn Anderson administered a quiz at the end of her

class and which cadets discussed how to interact with people who use these drugs.

C/A1C Bourque taught a safety class on carbon monoxide, or CO. This is a clear, odorless gas, which may be found in a house due to defects in the fireplace system. C/A1C Bourque explained the symptoms of CO poisoning, many of which are like those of the common cold. He said to watch your pets, such as cats and dogs, which do not normally exhibit the symptoms of a cold, to see if they are coughing. Cadet Bourque gave cadets a "four and out the door" list to follow if they detect the signs of CO poisoning. First: evacuate, second, get fresh air, third, call 911 lastly, report it to the fire department. In order to insure that your house is not subject to carbon monoxide contamination, have your furnace or fireplace inspected before the heating months by a qualified contractor. Place your CO detectors twenty feet away from fuel-burning appliances and ten feet away from high humidity areas, such as the kitchen or bathroom. Also make sure you test the detectors with a test kit available at many commercial outlets.

A short break allowed Cadets to take advantage of the still-lighted sky to play ultimate frisbee.

Capt Wojtcuk and C/1Lt Flynn talked to cadets about the newly-scheduled drill/rocketry day on May 28 (a Saturday) at the squadron. The marching practice segment will last from 0900 hours until noon, and will be an excellent and perhaps one of the only opportunities for cadets to learn new drill movements and do their drill tests. From lunch to 1500 hours cadets will construct rockets and can take the rocketry mini-exams if they wish. However, it is not required that cadets be present for the entire rocketry segment. They are expected to attend the entire drill practice.

Capt Wojtcuk commended cadets for motivating each other and improving their miles, especially C/Amn Cathcart, who has been working hard to pass and did accomplish that goal today

Maj Noniewicz talked about the June fourth SAREX, which will be held in cooperation with the Red Cross. Cadets should ask their parents if they can attend, as a head count is needed.

Maj Noniewicz told Cadets to note that the damaged floor tiles had been replaced in the trailer and the Cadets applauded Lt Looney and Maj Noniewicz for their efforts.

An awards ceremony ended the meeting. Cadet Drew Cathcart was promoted to Airman, upon his completion of the Curry achievement. C/2Lt Lexie Wojtcuk was commended for her completion of the lateral Administrative Officer achievement. C/1Lt Flynn received his recruiting ribbon.



Cadet Cathcart, in PT uniform, salutes the Squadron Commander after receiving his promotion.



C/1Lt Flynn receiving his recruiting ribbon

SENIOR MEETING NOTES

03 MAY, 2011

LtCol Kinch briefed the assembled officers on the **Eyes on the Homeland Skies (ETHOS)** program. ETHOS is a homeland security mission which in its original form carried out a photographic survey of Connecticut's transportation infrastructure concentrating on bridges and transportation hubs. It has evolved towards a disaster response mission in which power plants, bridges, roads, rail lines, and other vital facilities may be assessed photographically if damaged by natural or other forces.

The Wing has allocated funding for 12 hours of training in May and June. Thames River, teamed with Danielson and New Haven can expect tasking sometime during that period.

In order to prepare for ETHOS assignments, the Squadron has planned to practice downloading photographs into WIMRS. A telephone tree is under construction so that our pool or trained pilots, observers, and scanners will be swiftly notified.

LT MILLER RECEIVES DAVIS AWARD

Lt Edward Miller, TRCS Logistics Officer, was presented with the Benjamin O. David Award. The Davis Award is emblematic of the second stage of the CAP Professional Development Program and requires an officer to complete Squadron Leadership School, the CAP Senior Officer Course, and achieve a Technician Rating in a Specialty Track.



Miller at a Mission Briefing

ORIENTATION FLIGHTS

30 April, 2011

LtCol Bergey flew an orientation flight on Saturday last. Cadets Vandevander and Chartier received Syllabus 7 training.

TRAILER MAINTENANCE

30 April, 2011

Lt Looney and Capt Noniewicz replaced the damaged floor tile in the cadet trailer.

JOINT HFD/AEROTECH AND EAA HFD/SKYLARK EVENTS

Lt Col Ken Benson from the Royal Charter Squadron invites CT CAP personnel to attend the Connecticut Aero Tech Open House and Hartford and Skylark Experimental Aircraft Association Young Eagles event at Brainard Field on Saturday, 21 May between 0900 and 1100.

Cadets interested in pursuing a career as an airframe and power plant mechanic will be offered an opportunity to become familiar with the school and ask questions about this federally licensed trade.

CT Aero Tech is part of the Connecticut Technical School System and offers a 2400 hour aviation maintenance curriculum designed to develop those skills needed to meet FAA requirements. Enrollment takes place every four months. The cost for tuition and tools will run around \$10,000 and scholarships are available. For more information, go to: <http://www.cttech.org>



At the same time, the EAA will be flying youth for free as part of their Young Eagles program. Volunteer pilots will offer no-cost orientation flights to youths in the age group of eight-18 age group. Lt Col Benson mentioned that the event might even be open to “old Eagles.” CAP Cadets are welcome but this is not a CAP sponsored activity.

CTWG KC-10 FIELD TRIP

The Wing is planning a two day field trip to McGuire AFB, NJ on 14-15 July, a Thursday and Friday. Lt Kevin McCusker of the 103rd at Bradley is the project officer.



McGuire Based Extender on the Flight Line

Plans are tentative but the plans are to leave from Bradley at 0900 and check in at McGuire at 1500. Meals will be taken at the McGuire dining facilities.

At 0900 on Friday, we travel to the flight line for an orientation flight on a McDonnell-Douglas KC-10 Extender aerial re-fueler. Anticipated departure time from McGuire is 1400 with a return to Bradley in the early evening.

Anticipated cost will be in the \$50 range.

The trip will be limited to 40 Cadets and Officers.

More details will be forthcoming.



Business End of the Refueling Boom

AEROSPACE CURRENT EVENTS

Flight 447 Data Memory Unit Recovered off Brazil

In a remarkable deep sea salvage effort, operators of three autonomous underwater search vehicles have located and raised the missing data unit from the Air France Airbus 330 which crashed off in the South Atlantic in 2009. The aircraft was bound from Rio de Janeiro to Paris when it encountered severe thunderstorm activity and went down with 228 people.



Airbus 330



BEA (Bureau d'Enquetes et d'Analyses), the French accident investigation agency, released a photo of the Flight 447 flight recorder.

The data box was found at a depth of 12,800 ft and is now on the *Ile de Sein*, one of the surface vessels involved in the search.

Officials hope that enough data can be recovered from the unit to help explain what when wrong so that the information can be used to improve future flight safety.

The debris field for the Airbus was discovered in early April. Engines, structural components, and some bodies were recovered. The search continues for a second recorder, the cockpit voice recorder.

Examination of recovered debris and bodies indicate the the aircraft struck the water intact and belly first. The cabin was still pressurized, the flaps were retracted, and the autopilot system was off.

The Remus 6000 submersibles which were used to locate the recorder were designed and operated by Woods Hole Oceanographic Institute on Cape Cod. They were produced with the cooperation of the Naval Oceanographic Office and the Office of Naval Research and constructed by Hydrion, Inc. of Pocasset, Mass.



REMUS 6000 Submersible on the Surface

(WHOI Photo)

In the wake of the two year search of 3,900 square miles of ocean, the International Civil Aviation Organization has proposed changes in flight data and voice recorders which might make them easier to recover. Suggested changes include stronger and longer lived beacons and the ability to float.

Endeavour To Launch No Earlier Than May 10th.

NASA is conducting testing on the electronic switch box thought to be the cause of the last delay in the launch. The lift-off of an Atlas V planned for Friday complicates launch plans for Endeavour.

Boeing Phantom Ray Makes First Flight.

After being ferried from the Boeing-McDonnell facility in St. Louis atop NASA's Boeing 747 Space Shuttle Carrier, the Boeing Phantom Ray made its first flight at Edwards Air Force Base on 27 April.



First Flight-Boeing Phantom Ray

(Boeing Photo)

The flight lasted for 17 minutes and was restricted to a top speed of 205 mph and an altitude of 7,500 ft.

The vehicle is intended to be completely autonomous and fly without the intervention of a pilot once the mission is programmed.

Modified Blackhawks Used in Bin Laden Raid?

One of the helicopter's used in the raid was disabled, perhaps by striking the wall of the compound. It was destroyed by US forces before they departed but its tail lay outside the wall and has been photographed.



The tail boom and tail rotor of the helicopter was not destroyed. Note the saucer shaped fairing over the hub of the tail rotor and the possibility that there are more than the four blades of a normal Blackhawk. In another photo, slightly swept tail planes are observable.
(photographer unknown)

According to some observers, the tail configuration suggests stealth design features. An unusual bowl shaped cover is apparent on the tail rotor.

One might speculate that this raid was a joint operation and the aircraft were versions of the Sikorsky MH-60 flown by the Special Operations Aviation Regiment out of Fort Campbell, Kentucky.



160th SOAR MH-60 L
(US Army Photo)

The dream of a stealthy helicopter has been pursued by the United States since the Vietnam War. The CIA modified two Hughes OH-6 Cayuse aircraft which was then flown by Air American crews to ferry wire-tapping crew behind enemy lines.



*The Vietnam-era "Quiet" Loach
the Hughes 500P*
(A&S Magazine)



Standard US Army OH-6. Compare the size of the exhausts!

The cancelled Boeing/Sikorsky RAH-66 Comanche was another example of a machine with stealth characteristics.



Comanche displays its semi-stealthy geometry. The fenestron rotor and the concealed exhausts are also obvious stealth features. Not so obvious are the fuselage weapons bays and the stowable mini-gun in the nose.

(Boeing Aircraft)

It is very difficult to reduce the radar cross-section of a helicopter because of its structure but fairings over rotor hubs and other external apertures, and retractable gear help. Low flight in ground clutter is one of the helicopter's best defenses against electromagnetic detection.

But flying low makes noise and heat more obvious to forces on the ground. For helicopters, noise reduction is a primary goal in developing a stealthy design. Slow flight reduces both engine and rotor noise as does the addition of additional rotor blades. A second goal is to reduce the infrared signature of the vehicle by ducting the exhaust and perhaps mixing the exhaust with the cooler ambient air.

AEROSPACE HISTORY

The following article is a continuation of our series on notable air missions. It will appear in two parts.

Breaching the Dams

Operation Chastise

16-17 May, 1943

Part I

Conception and Planning

The bombing mission takes many forms. Strategic bombardment receives the most attention but close air support and interdiction are other important roles. Close air support (CAS) has been pioneered and perfected by the US Marine Corps. CAS, a tactical mission, provides support for troops in close contact with the enemy and it closely coordinated by specialists on the ground, forward air controllers, who understand the capabilities of the aircraft and ordnance and can direct them precisely to avoid fratricide. Interdiction refers to tactical missions in which enemy ground targets which are not in close proximity to friendly troops are attacked. These targets might be bridges, supply convoys, or rail lines used to transport supplies to the front lines.

On the other hand, strategic bombardment advocates a form of economic warfare, attacking the industrial infrastructure of a nation in order to destroy its capacity to wage war. First proposed just after World War I ended, by Giulio Douhet, an Italian general, it was practiced in two forms by the Allies in World War II. In its mature form, the British Bomber Command's Main Force preferred to attack the German cities at night in a bomber

stream, guided by well trained Pathfinder crews who illuminated the targets with specially designed pyrotechnic markers. The United States effort, epitomized by the Eighth Air Force in Europe, preferred daylight attacks, utilizing massed close formations of aircraft, using the Norden bombsight to increase the precision of the strike. Both methods have obvious advantages and disadvantages but that discussion will be reserved for a later date. This article will be concerned with a British precision night attack designed to cripple the war production of the Ruhr Valley by destroying its sources of industrial water and electrical energy.

As early as 1937, anticipating the coming war, the British Air Staff identified some 45 power plants and coking plants as possible targets but realized that many targets would require enormous resources and time so they looked for alternatives. Ultimately, they decided that three dams, the Möhne, Sorpe, and Eder, were crucial and their destruction would not only seriously reduce hydro-electric production, produce widespread flooding, and disable large portions of the roads and canals necessary to transport goods. There was one problem. The British possessed no weapon which could destroy these dams.

The lack of a sufficient weapon promoted a wide range of studies on torpedoes, explosives, drones, and attack vehicles which might be able to be used to attack the dams. Enter Barnes Wallis. Wallis was the Assistant Chief Designer (Structures) for Vickers-Armstrong with a history of aviation achievements. He designed the highly successful R-100 dirigible. (ed. note: The Chief Calculator on the project was Neville Shute Norway, better known as Neville Shute, author of a long list of novels including *On the Beach*.) Wallis also adopted the geodesic structural pattern which he

used on the R-100 to design the Vickers Wellington, a standby in the early days of World War II and the only British bomber to be produced for the entire course of the war.

Wallis has studied the problems of the use of bombs for economic warfare for several years and concluded that the bigger the bomb, the better. At that time, the standard British bombs were 500 and 1000 pounders, half of whose weight was casing rather than explosive. Wallis determined that attacks on large structures would be most effective if a very large charge was detonated deep in the earth or water. Shock waves would create the effect of an earthquake. If the bomb was under water, very close, even in contact with the target, the effect can be devastating since the explosive force is tamped by the water and directed into the structure. Two versions of a suitable weapon were finally designed, tested, and used: Highball and Upkeep and they were delivered by a method similar to "skip bombing."

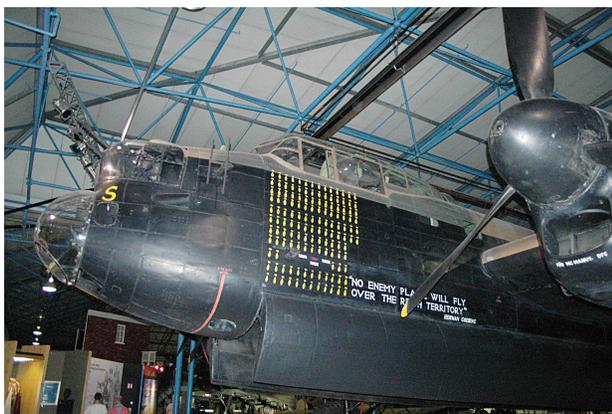
The weapons were essentially rotating depth charges. Highball, the smaller of the two was designed to be carried by the de Havilland Mosquito for use against capital ships. Upkeep weighed in at just over 9,000 pounds of which 6,600 pounds were Torpex, a new explosive 50% more powerful than TNT. The only aircraft which could carry this payload was the Avro Lancaster.

The four engined Lancaster, arguably the best strategic bomber of World War II until the introduction of the Boeing B-29, was the offspring of the Avro Manchester. The Manchester was powered by two of the lamentably unreliable Rolls-Royce Vulture engines. Twenty five percent of all Manchester's built were lost due to engine failure. Roy Chadwick, Avro's Chief Designer, recognizing the virtues of the airframe and the

inadequacies of its power plants modified the design by installing a redesigned center section to support larger wings and four Rolls-Royce Merlin engines.



Lancaster B Mk I, POS. with a 4,000 lb Blockbuster a RAF Museum, Hendon

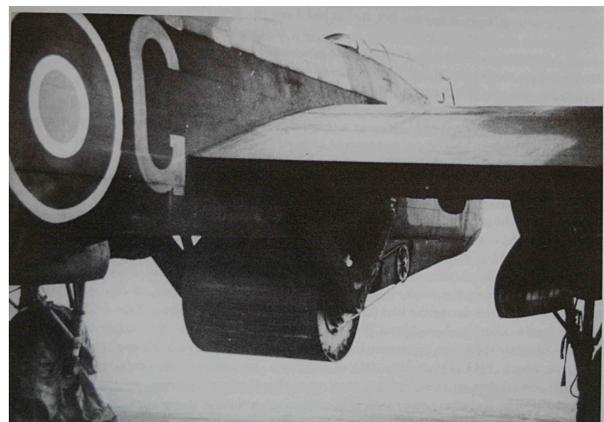


Sugar's Nose Bearing Over 100 Mission Marks and Herr Goering's Famous Boast. Call him Meyer!

Comparing the major allied strategic bombers of World War II is difficult since range varied with bomb load and bomb load varied with mission. Leaving out the B-29 Super Fortress, which entered combat relatively late in the war, for a typical strategic bombing mission, the Boeing B-17G Flying Fortress, Consolidated B-24J Liberator, and the Lancaster Mk III had comparable ranges of about 2,000 miles with the Lancaster carrying a bomb load of 10,000 lb compared to the 17's 5,000 lb and the 24's 8,000 lb. The US bombers carried crews of ten men

compared to seven for the British aircraft. This was due to the heavier defensive armament carried by the Flying Fortress and Liberator which were needed due to their utilization in daylight hours. What was uniquely different about the Lancaster was its huge bomb bay, an unobstructed 30 feet long. This was much larger those of the B-17 and B-24 and comparable with the B-29 but the Super Fortress's bay was divided into two compartments.

And it was this enormous bomb bay and its lifting capacity that allowed the Lancaster to carry the Upkeep bomb. The bomb was so large that the bay doors had to be permanently removed. The final version of the bomb was cylindrical in shape and fitted into the bay with only three inches to spare. It was attached to two Vickers designed caliper arms which would swing aside to release the bomb and which allowed the attachment of a belt driven drive mechanism which rotated the cylinder.

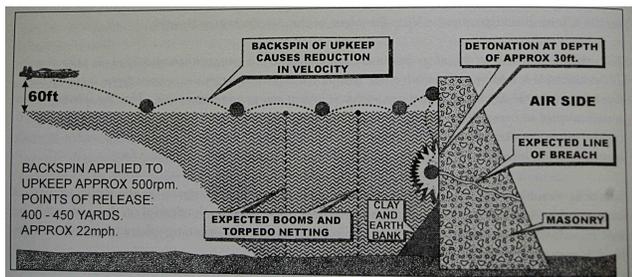


The bomb mounted on Gibson's aircraft. Note the drive mechanism on the starboard side. (RAF Museum Copyright)

The time frame for the envisioning the mission, developing and testing the equipment, planning the strike, and training the crews was skewed. Almost three years passed from the time the mission was considered as a possibility until Wallis started researching targets and ordnance and testing methods in order to design an appropriate weapon.

Scale models of dams were constructed and destroyed with scaled explosive charges and a disused dam in Wales was destroyed in a test of a planted charge. This took around two years more.

During that time, the geometry of the bomb evolved from a sphere to its final cylindrical shape. Tests showed that if the bomb was dropped at the correct airspeed from the correct height with a 500 rpm backspin provided by the aforementioned belt driven mechanism, then the bomb would skip across the surface of the reservoir, strike the wall, roll down the wall to a depth of 30 feet, and could be detonated by a hydrostatic fuse.



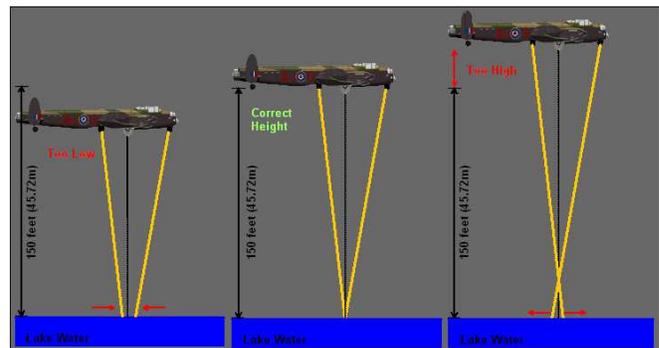
Preliminary Sketch of the "Bouncing Bomb" Attack Technique as Envisioned by Wallis
(Published in the Lincolnshire Echo)

The actual construction of the full-scale bombs and crew training was squeezed into about two months. The final date for a successful attack had to be in the third week of May when the reservoirs were filled to maximum and a full moon would aid the navigators and bomb aimers. In the end, six years on and off preparation were needed to fly the four to six hour mission.

Seven weeks were allowed for the formation and training of what would become Squadron 617. Air Chief Marshall Sir Harris personally chose Wing Commander Guy P. Gibson to lead the new squadron. Gibson was both a bomber and fighter pilot with over 150 combat sorties to his credit. He had already won two Distinguished Flying Crosses and a Distinguished Service Order. Gibson formed his crews and started a rigorous

training schedule of low level flying and the dropping of practice bombs. Two problems needed to be solved. How can one maintain the correct height over water on the final approach and how can one know the correct distance from the target for the bomb release. Two simple solutions were developed.

Altitude was measured by installing a pair of lights in the lower half of the aircraft fuselage. After some experimentation, the forward light was positioned on the left of center and just forward of the leading edge of the wing. The aft light was 20 feet further back, centered in the fuselage and angled forward. Both lights were angled towards the right so that the navigator could observe them from a port on the right side of the aircraft. When the converging beams formed a "figure eight" pattern, the height of the aircraft was correct for the weapons release: 60 feet above the surface.



The Use of Converging Light Beams as an Altimeter
(astrocollection)

Distance was measured by a simple device designed by Wing Commander C.L. Dann. It was a simple wood fixture in the shape of the letter "Y." A piece of wood with a peephole was fixed at the apex of the "Y" and protruding from the arms of the "Y" were two nails. The size of the "bomb sight" was such that when the two towers coincided with the nails, the distance was 476 yards, calculated as correct for a speed of 210 mph. In fact, several crews found the device

awkward to use in turbulence so they devised substitute bomb sights using string and grease pencil markings on the perspex nose of the aircraft.



The Dann Rangefinder
(astrocollection)

Technicians were frantically working to complete the myriad of other tasks: removing the bomb bay doors and the mid upper turret, installing the calipers and motor to hold the bomb and activate the spin, acquiring and installing VHF radios, and constructing bomb casings and loading the torpex into the casings. The schedule was so tight that only one actual bomb was tested and that was three days before the actual mission! The last aircraft was delivered on the day of the raid!

Part II, the execution of the raid and its aftermath will appear in the next edition of The Coastwatcher.

Ground Observer Corps Redux

The Royal Air Force Bomber Command had the longest casualty rolls of any of the British forces in WWII, mostly suffered during their strategic bombing campaign against Nazi Germany. Here a few of the aircraft which were flown by the British, Commonwealth, Polish, French, Czech, Dutch, and other foreign volunteers of Bomber Command.



Airworthy Lancaster X bears the Victoria Cross on its nose in honor of Pilot Officer Andrew who suffered fatal burns while attempting to extricate a fellow crew member from a jammed tail turret.



Handley Page Halifax Mk VIII salvaged from the bottom of Lake Mjøsa, Norway after 50 years underwater and under restoration in Canada.



Vickers Wellington, a Barnes Wallis design, under close examination displays its geodetic structure,



The jack-of-all trades DeHavilland Mosquito, mainstay of the Light Night Striking Force of 8 Group. This is the B.35, last variant of the Mosquito's bomber version.