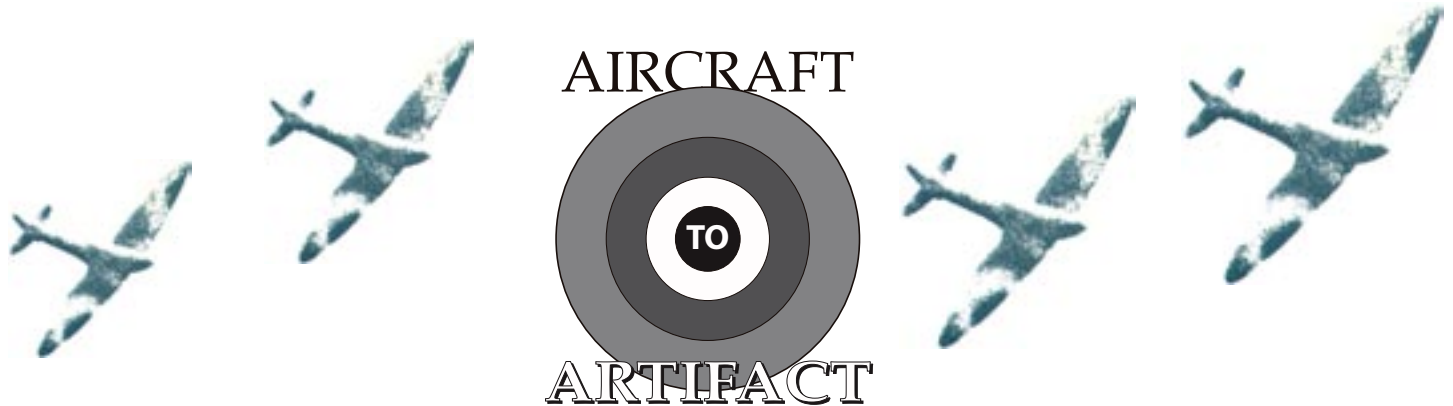


TIGHAR TRACKS

A PUBLICATION OF THE INTERNATIONAL GROUP FOR HISTORIC AIRCRAFT RECOVERY



What if the world leaders in aviation historic preservation sat down together in a public forum to tackle the most important issues facing air museums today? That's exactly what will happen on September 1 & 2 when TIGHAR's open international seminar Aircraft to Artifact convenes at the Royal Air Force Museum in London. On the stage of the museum's 200 seat theatre will be a panel which will include:

Michael Fopp, PhD	Director, Royal Air Force Museum, Hendon
Thomas Crouch, PhD	Chairman, Aeronautics, National Air & Space Museum, Washington, D.C.
David Lee	Ass't Director, Imperial War Museum, Duxford
David Hallam	Senior Conservator of Metals, Australian War Memorial, Canberra
Stephan Grey	Owner, The Fighter Collection, Duxford

In the audience will be directors and representatives of Seattle's Museum of Flight, the San Diego Aerospace Museum, the Royal Netherlands Air Force Museum, and many more. But this is not a closed session for professionals only. Anyone who is interested in the future of aviation historic preservation is welcome and encouraged to attend.

This first-of-its-kind seminar comes at a time when air museums, both flying and static, are under increasing pressure to rethink long held attitudes and practices. This year has seen new and tragic records set in the loss of flying and non-flying historic aircraft (see *A Banner Year for Scrapmetal*,

next page). New discoveries are solving old mysteries (see *The Grail*, page three) and bringing extremely rare aircraft to light (see *No Longer Lost*, page six). It is a time for fresh ideas and hard questions.

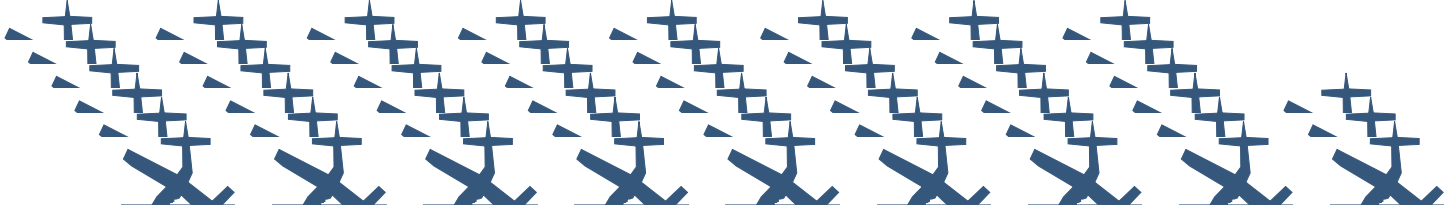
Among those to be addressed at Hendon are:

- Preservation — We can't save everything, so what are the priorities?
- Restoration — Have we been destroying historic aircraft by turning them into like-new replicas?
- Interpretation — Do our static and flying displays describe the aircraft we have, or those we wish we had?
- Operations — What should fly, and what shouldn't?

In addition to the presentations and discussions, attendees will participate in workshops throughout the RAF Museum, including an interior inspection of the B-17, Lancaster, and Sunderland. On Monday, September 3rd, an optional visit to the museum's reserve collection and restoration shops at Cardington has been arranged, as well as a tour of the famous Shuttleworth Collection.

It is fitting that this unique and important seminar take place in England during the 50th anniversary commemoration of the Battle of Britain. Like the Royal Air Force, TIGHAR is committed to preserving the past that it may serve the future. North American TIGHAR members and others interested in attending Aircraft to Artifact should contact Patricia Thrasher at TIGHAR headquarters for registration and tuition information. In Great Britain and Europe, contact Michael Tagg, TIGHAR Seminar, RAF Museum Hendon, London NW9 5LL, phone 81-205 2266. 🐾

A BANNER YEAR FOR SCRAP METAL



It's only August and the 1990 toll of historic aircraft losses is already staggering.

A storage hangar fire at the Musée de l'Air, le Bourget, Paris on May 17 destroyed 43 aircraft including a Lockheed F-5G (photo-recon version of the P-38), Spitfire IXB, B-25, A-26, Dewoitine 520, Bolingbroke, Lysander and many others. This tragedy once more makes it painfully clear that the safeguarding of historic aircraft must go beyond simply removing the risk of flying accidents. Permanent preservation must include display, restoration and storage facilities which provide protection from natural and man-made disaster. Undetected residue from welding operations is believed to have caused the late-night fire at Le Bourget.

The calamity of losing irreplaceable aircraft is compounded when there is also loss of life and so far this year at least 10 aircraft have been lost and no fewer than 10 people have been killed in warbird crashes.

P-51	Crashed in Minnesota	2 fatal
P-51	Crashed at airshow in Canada	2 fatal
P-51	Ditched off Galveston, TX	no injuries
P-51	Crashed on landing, Seattle, WA	no injuries
P-63	Crashed at airshow, France	1 fatal
Seafury	Crashed in forced landing, England	2 injured
T-6	Crashed at airshow, Niagara Falls, NY	1 fatal
T-33	Crashed in New Mexico	2 fatal
Venom	Crashed on takeoff, Oklahoma	1 fatal
SAETA	Crashed at airshow, Alabama	1 fatal

The causes vary from inflight airframe or engine failure, to weather, to incompetent aerobatics. The pilots range from the highly competent professional to the low time amateur. What is consistent is that the airplanes, and the people, are gone forever.

TIGHAR's position on this distressing situation is this:

- The rate of warbird losses is alarmingly high and, unless checked with better safety standards and procedures, will mean the premature extinction of flying examples of these aircraft.
- A far more serious problem is the misconception that the flying of old airplanes is historic preservation. It is not. It is entertainment.
- Entertainment is a perfectly legitimate use for examples of types which are still relatively plentiful and often inspires interest in historical study and genuine preservation. But pretending that a last-of-type or an individually historic aircraft has been saved by making it a "warbird" is folly.
- Extensive restoration, particularly to airworthy condition, is a necessarily destructive process and results in a hybrid replica, which then usually masquerades in colors the individual aircraft never wore. When an individually historic aircraft goes this route, the airshow crash is merely the last step in its destruction.
- Historically important individual aircraft must be identified and set aside for permanent preservation, but that can't happen without a wider public recognition of what preservation is.

TIGHAR is committed to helping the aviation historic preservation community develop intelligent and practical standards for the treatment of historic aircraft, and to the education of aviation enthusiasts worldwide. As long ago as the 17th century British antiquarian John Aubrey recognized that historic properties can be as much at risk from uninformed enthusiasm as from the forces of nature. although written when flight was still but a dream, his words ring true over 300 years later:

Let us bend our best efforts to the saving of antiquities, that they might escape the teeth of time and the hands of mistaken zeal.



PROJECT MIDNIGHT GHOST EXPEDITION XVIII 4/16 — 5/16, 1990

Call it perseverance, conviction, or just plain stubbornness, TIGHAR's search for l'Oiseau Blanc continues to comb the Maine wilderness for the lost French flight described by Charles Lindbergh as having "vanished like midnight ghosts." Evidence continues to mount that Nungesser and Coli's White Bird crashed in the Round Lake Hills of Washington County on May 9, 1927. This spring's expedition, the eighteenth since 1984, meticulously gridded and searched over 2,440,000 square feet of the third and



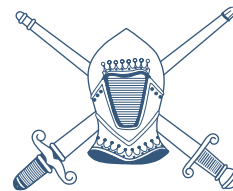
highest of the three hills. Twenty-five TIGHAR volunteers battled steep and treacherous terrain, one of the wettest springs on record, and the infamous Maine black flies to eliminate one of two areas now suspected of concealing the scant remains of the wood and fabric aircraft.

In October Expedition XIX will tackle the remaining area. Use the registration form in this issue of *TIGHAR Tracks* (see *Engagements Volontaires*) to sign up for some of the most miserable fun you'll ever have.





The Grail



It is, quite simply, the most promising clue ever discovered in the 53 year search for Amelia Earhart and, with the help of TIGHAR's members, may soon become the long-sought proof that solves the mystery of her disappearance. Found by TIGHAR on the island of Nikumaroro, September 18, 1989, its aluminum structure and features aroused suspicion that it might be an aircraft component. Subsequent research revealed that the numbers stamped into the metal identified it as Part Number 28F 4023, a Navigator's Bookcase manufactured by the Consolidated Aircraft Corporation of San Diego, California for their Model 28 flying boat, known to the U.S. Navy as the PBY Catalina. Because PBYs were used to resupply the U.S. Coast Guard radio station on the island during World War II, the bookcase was, at first, thought to have come from one of those aircraft (see TIGHAR Tracks Vol. 5, No. 5, December 1989). However, further research has now shown that explanation to be incorrect.

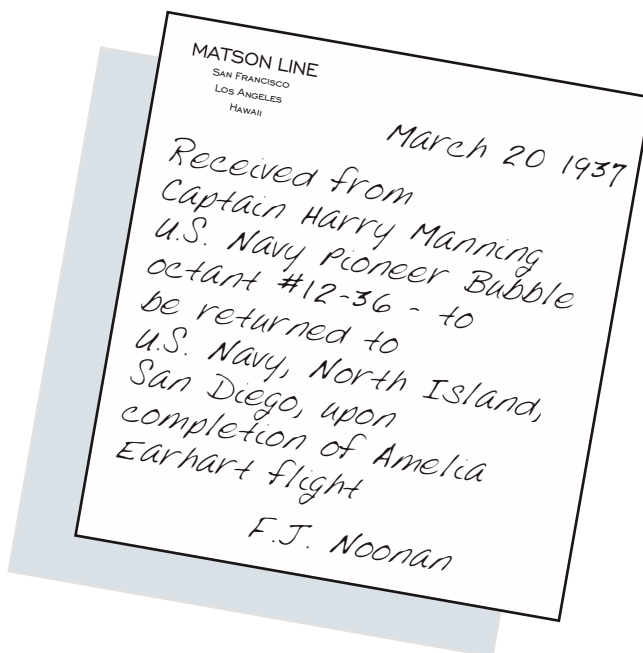
- Wartime PBYs carried a later model bookcase than the one found on the island.
- Paint remnants on TIGHAR Artifact 2-1 do not appear to meet U.S. government specifications.
- The mounting holes and fixtures on our bookcase are all wrong for installation in a PBY and the unique features present are so professionally rendered as to eliminate the possibility of a field modification.

Analysis and opinion by experts at the United States Air Force Museum Restoration Facility at Wright-Patterson Air Force Base, Ohio and at the Smithsonian's Garber Facility, Silver Hill, Maryland, indicate that TIGHAR Artifact 2-1 was obtained from the manufacturer before PBY mounting holes were drilled and that specialized mounting features were added to install the bookcase in some other aircraft — an aircraft that did not have to meet government specs.

The presence of such an artifact on Nikumaroro is, to say the least, intriguing. There has never been an airstrip on the island nor a known airplane wreck (wartime or otherwise). There is, however, an impressive body of evidence that the island's reef-flat was the landing place of the lost Earhart/Noonan flight. Could the bookcase have come from that airplane? Here's what we know so far:

- The Electra's navigator would have need of just such a bookcase in which to stow precisely the navigational reference materials (Air Almanac, Sight Reduction Tables, etc.) it was designed to accommodate.
- Early versions of the bookcase (such as Artifact 2-1) were available in late 1936/early 1937 when the Electra was being outfitted for the 'round-the-world flight.

- The navigator's station aboard the Electra was not part of the original construction by Lockheed but was designed, probably with Harry Manning's advice, and built, probably at Paul Mantz's facility, sometime between September 1936 and early February 1937.
- Harry Manning was borrowing navigation equipment with which to outfit the Electra from the U.S. Navy PBY squadron at North Island, San Diego (see receipt below).



This little gem was discovered by Russ Matthews (TIGHAR #0509) during his examination of the Harry Manning Collection at the American Merchant Marine Museum at King's Point, New York on June 10, 1990. It is a hand written receipt dated March 20, 1937 for U.S. Navy Pioneer Bubble Octant #12-36 given to Manning by Fred Noonan and specifying that the instrument is "to be returned to U. S. Navy, North Island, San Diego upon completion of the Earhart flight." March 20th is the day Amelia groundlooped the Electra on takeoff in Hawaii with Manning and Noonan aboard. After the accident Manning, his confidence in AE's ability much shaken, abandoned the project and turned over all the navigational responsibilities, and the equipment he had assembled, to Fred Noonan. The significance of this receipt is that it proves that the navigator's octant used for the flight was borrowed from the U.S. Navy at San Diego. We suspect the same was true of the navigator's bookcase. Nice goin', Russ.

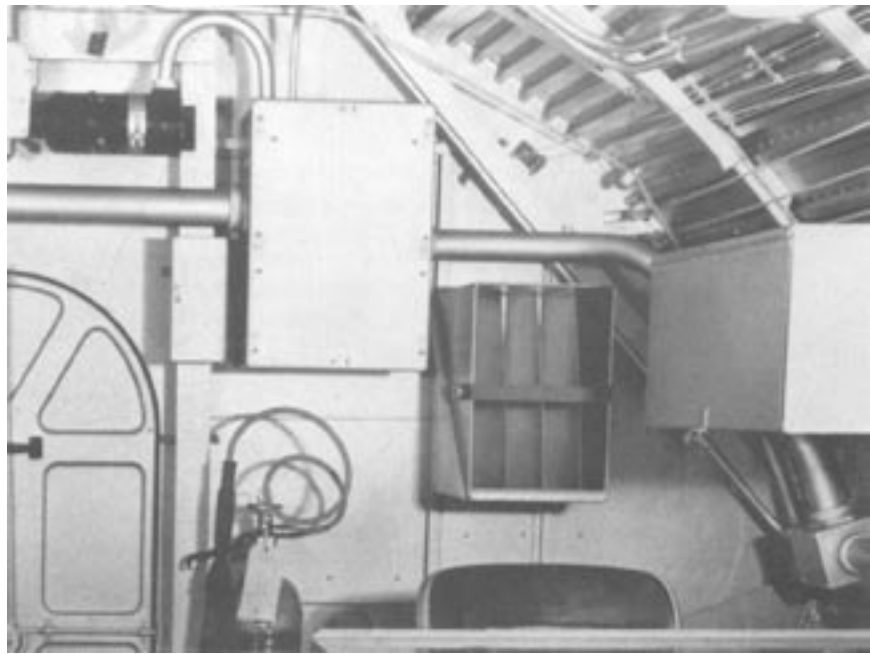
But if the bookcase was aboard the Electra why did it and no other part of the airplane end up on the island? If TIGHAR's hypothesis concerning the aircraft's fate (that it was landed on the dry reef-flat at low tide and was subsequently washed over the reef edge a few days later) is correct, the bookcase is, perhaps, the only aircraft part that would be found on the island. If you were Fred Noonan seeking to rescue your crucial navigational materials from

an aircraft awash on a reef-flat wouldn't you remove five screws and take your bookcase ashore? Later, during the period when the island was inhabited (1938-1963), someone cut the bookcase apart to convert it to their own use. TIGHAR found the discarded portion among the debris of the abandoned village.

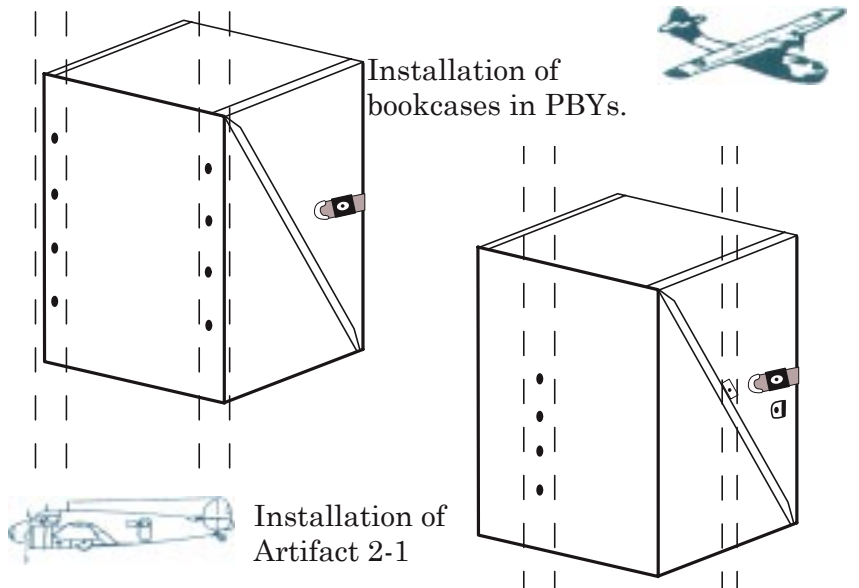
Given what we now know about the artifact, the aircraft and the island the bookcase's presence aboard the Earhart Electra is not merely an enticing possibility but, rather, the most sensible explanation of its presence on Nikumaroro. What we need now is proof and for that **we need your help**. If we can find a photo or official sketch which shows our bookcase in that airplane Artifact 2-1 will become nothing less than the Holy Grail of aviation historical investigation — the diagnostic artifact that solves the Amelia Earhart mystery. With that proof in hand, funding for next year's return to find and photograph the airplane in the deep water near the island would be virtually assured.

So far, we've found documented information about the navigator's station aboard the aircraft to be very scant. The only photos we have show AE and Manning sitting on the navigator's table and looking out the forward, starboard window. They show very little of the actual set-up. Descriptions in Earhart's book *Last Flight* and in contemporary newspaper articles are brief and not very helpful. The cut-away drawing of the Electra which appeared in the *Time/Life* book *Women Aloft* purports to show the navigator's station but we've tracked down the man who supplied the information to the artist and he admits he was speculating. Analysis of the few photos available shows the drawing to be incorrect. Included here are the best reconstructions we've been able to make so far. There seems to be one place where the bookcase would reasonably fit but there may be others.

TIGHAR members who would like to assist in the search for this crucial piece of evidence — in this quest for the Holy Grail— are urged to contact Project Director Richard Gillespie at TIGHAR. He'll tell you what sources have already been covered and help you direct your search. Despite the admittedly Arthurian overtones of this whole thing, Ric has promised not to insist on vows of purity and chastity (although he reserves the right to confer an occasional knighthood). Let us hear from you. 🐾

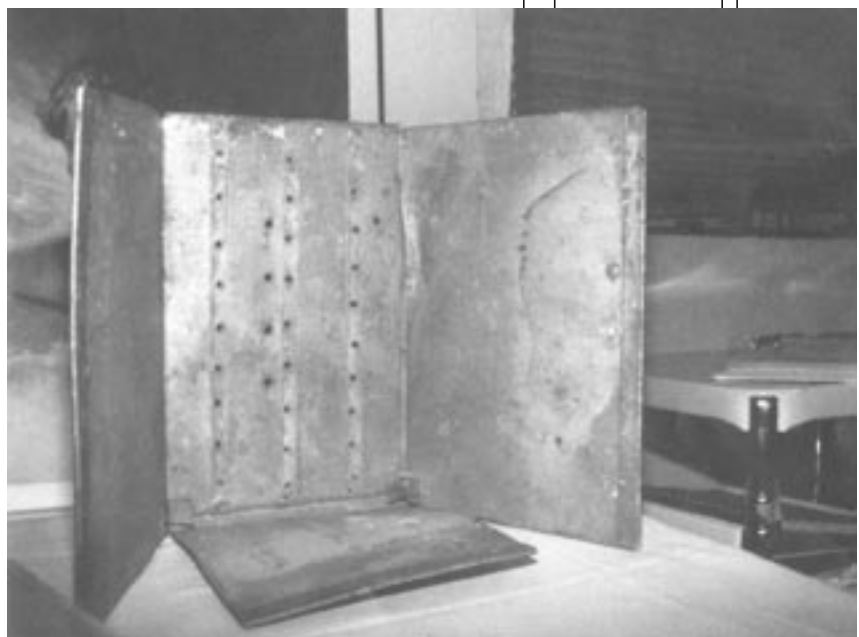


Bookcase as installed in a PB4Y.



Installation of bookcases in PB4Ys.

Installation of Artifact 2-1



Artifact 2-1



Artifact 2-7, Cigarette Lighter

More On The Lighter

Work is continuing in an attempt to find out all we can about the cigarette lighter found on Nikumaroro's southwest beach (see *TIGHAR Tracks* Vol. 5 No. 5). So far we can find no unique markings or features which might allow us to connect the artifact to a particular source but W.T. Chase, Head Conservator at the Smithsonian Freer Gallery of Art, has performed a laboratory examination of the lighter and has offered his opinion that the accumulation of cuprite crystals (a product of oxidation) visible under magnification indicates that the lighter had been in the highly corrosive sands of Nikumaroro for "fifty to sixty years." That puts it within the time frame of the Earhart disappearance in 1937 and the USS Bushnell survey in 1939 rather than the World War II and postwar period. That corresponds with Miami lighter expert Jack Seiderman's opinion that the lighter was sold in the U.S. sometime in the early 1930s. What is clear is that an expanded metal detector survey needs to be done along the island's beach front and that work will be incorporated in next year's return to Nikumaroro. 🐾

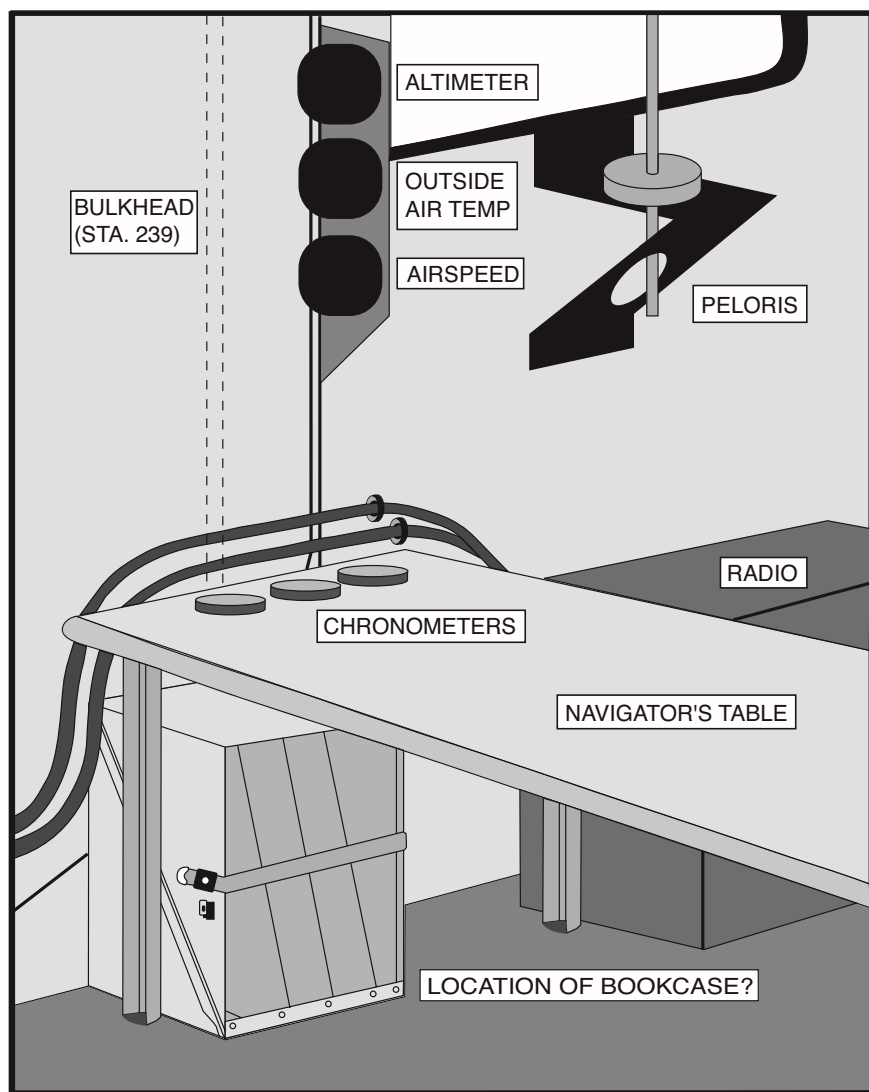
Not Even Close, and Definitely No Cigar

Previous attempts to establish physical proof of Earhart's fate have been disappointing. In 1960 Fred Goerner (*The Search for Amelia Earhart*, Doubleday, 1966) recovered an aircraft generator from the bottom of Tanapag Harbor, Saipan. Earhart's former technical advisor, Paul Mantz, dramatically announced at a press conference, "[I]t looks just like the generator I put aboard AE's plane," but an inspection by the Bendix Corporation later established that the part "...did not come from the plane in which Amelia Earhart disappeared ..."

In 1961 Fred tried again with bones dug up on Saipan. Pathological analysis found the hypothesis that they were the remains of Earhart and Noonan to be "not supported."

A 1979 expedition to the Marshall Islands recovered a fragment of what was thought to be the mysterious "silver container" allegedly buried by Earhart and Noonan prior to their supposed capture by the Japanese (*Amelia Earhart: The Final Story*, Loomis/Ethell, Random House, 1985) Analysis, however, showed it to be a completely nondescript piece of sheet metal.

In 1988 *Witness to the Execution* (T.C. "Buddy" Brennan, Renaissance House) proclaimed a fragment of cloth found buried on Saipan to be the blindfold used in Earhart's execution by the Japanese. Brennan's witness, a Mrs. Blas, claimed to have seen the soldiers "tear the blindfold from her face and throw it into the hole" before shooting her. No explanation is offered for this procedure (at TIGHAR we generally leave the blindfold on when we shoot prisoners) nor for the absence of any bones in the alleged grave. Analysis of the "blindfold" showed it to be simply a piece of cotton cloth. 🐾

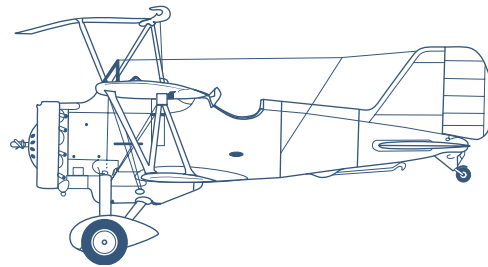
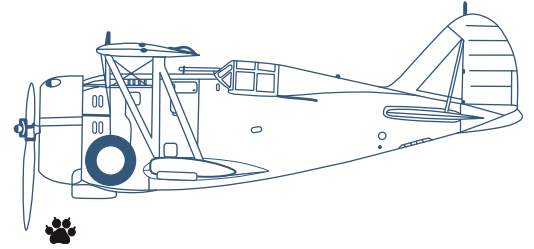


Navigator's station, NR16020, starboard side looking aft.

NO LONGER LOST

Recent discoveries and recoveries have brought some extremely rare aircraft to light and, once more, pointed up the need to bring more professionalism to the field of aviation archeology.

The U.S Navy has raised Grumman F3F-2, Bu. No. 0976 from 1,800 feet of water off the California coast. First found and in virtually undamaged condition in 1988, an amateur salvage attempt wrecked the right wings and empennage before the Navy was able to recover the aircraft this year. Now at the San Diego Aerospace Museum for restoration, the fighter will eventually go to Museum of Naval Aviation in Pensacola. This is a rare second chance for this classic pre-war type which had been extinct since an inflight fire claimed the only surviving aircraft in 1974 (a fuel cap was not secured prior to an aerobatic flight).

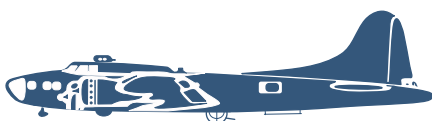
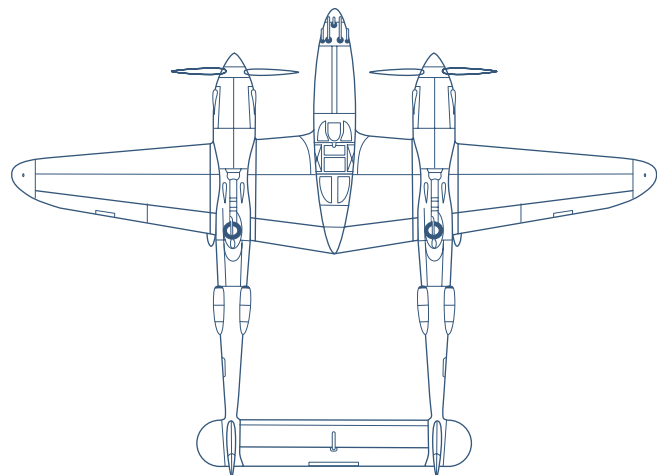


In an encore performance the Navy made another historic discovery off California when, on June 24, the research submersible Seaciff located the wreckage of the airship Macon in 1,500 of water. Lost on February 12, 1935, the 785 foot-long dirigible had four Curtiss F9C Sparrowhawks in the hangar deck when violent winds forced her down. The fighters were ordered jettisoned but reportedly only one went over the side before she settled into the water. The Seaciff photographed two of the aircraft in excellent condition and the Navy is attempting to keep the exact location secret while it organizes a recovery. There are, however, reports of a leak and a repeat of the F3F-2 debacle is feared. TIGHAR has offered its assistance to the Navy to see that these aircraft are recovered quickly and competently. The only other Sparrowhawk known to exist is in the National Air & Space Museum in Washington.

Meanwhile, the on-going drama of the so-called "Lost Squadron" of P-38s and B-17s under the Greenland icecap continues. As of TIGHAR's most recent conversation (July 20) with Patrick Epps, co-founder of the Greenland Expedition Society, the situation was this:

- A ten foot square room had been excavated over one engine of a B-17. The cowling looked good but at least one cowl flap was crushed. They were not sure which direction to dig to get to the fuselage (!) and no one could say what condition it might be in when, and if, they got there.
- A sixteen, now expanded to eighteen-foot, hole had been dug about halfway down to one of the P-38s but glacier melt-water was becoming a serious problem.

Epps is now less than optimistic about getting a P-38 out by the end of this season and has revised his estimate of their condition from good to fair. There is now less talk of flying aircraft off the ice but there was, fortunately, agreement with TIGHAR's recommendation that, should they find that the aircraft are not crushed, particular care should be taken to document and preserve their interiors before the aircraft are disturbed. If intact, these airplanes are time-capsules of information about how it was all done in 1942.



Seattle's Museum of Flight has acquired title to one of the two surviving B-17Fs and has retired the aircraft from flying displays. Formerly owned and flown by the late Robert Richardson, serial number 42-29782 was bequeathed to the museum on the condition that it be set aside for permanent preservation. The only other F is Memphis Belle, part of the USAF Museum collection and preserved in Memphis, Tennessee. TIGHAR congratulates the Museum of Flight on this important acquisition. (Note: the Museum of Flight will host the 1991 TIGHAR Gathering. See THE YEAR OF THE TIGHAR, next page).

THE YEAR OF THE TIGHAR



Major TIGHAR events scheduled for the next twelve months:

1990

- September 1 & 2 *Aircraft to Artifact* — Exploring the Principles of Aviation Historic Preservation. International TIGHAR Seminar, Royal Air Force Museum, Hendon, London, England.
- September 22 New England Regional TIGHAR Gathering. Immediately following the Manchester, New Hampshire warbird airshow on Saturday, September 22, TIGHAR will hold a Gathering for TIGHAR members at a hotel near the airport. The general public will also be invited to this buffet dinner and social evening. More information will be available shortly.
- October 1-27 Expedition XIX, Project Midnight Ghost. Washington County, Maine.
- November 3 & 4 *Introductory Course in Aviation Archeology*, Owl's Head Transportation Museum, Owl's Head, Maine (call or write TIGHAR to register).

1991

- January 19 & 20 *Introductory Course in Aviation Archeology*, San Diego Aerospace Museum, San Diego, CA.
- April 15 - May 3 Expedition XX, Project Midnight Ghost (if required).
- May 15 - 17 TIGHAR Annual Gathering, Museum of Flight, Seattle, Washington.
- May 18 & 19 *Introductory Course in Aviation Archeology*, Museum of Flight, Seattle, Washington.
- June 8 & 9 Introductory Course in Aviation Archeology, TIGHAR Headquarters, Wilmington, Delaware.
- September/October Return to Nikumaroro, Earhart Project Expedition.



STRICTLY BUSINESS


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By now you should have your Directory. If you don't, or if there is anything wrong with it, please get in touch with us ASAP so we can do something about it. We are most grateful to all those who contributed to the Directory Mailing Fund. We now have our floor back.

TIGHAR needs some office furniture, but have you noticed the price of the stuff? If you have an office and are thinking of redecorating, please consider donating your old office furniture to TIGHAR for a tax deduction. It doesn't need to be beautiful, just sturdy. We need large desks, filing cabinets, bookcases (lots of bookcases), and various other accoutrements of a growing-but-not-yet-large business. Any help anyone can give us will be greatly appreciated. Call Pat Thrasher at TIGHAR for further information.

TIGHAR is also looking for donations of aviation magazines, the older the better, for our reference library. As TIGHAR grows, we plan to have a research facility which is open to our members; meanwhile, we are trying to build our collection. Again, a suitable tax deduction is yours for donating such papers to TIGHAR. Get in touch with Ric Gillespie to find out what we have and what we need. Clean out your attic and garage without guilt!

Our other major need is for more members. Spread the word! Tell your friends!! Let us send you a stack of newsletters to pass out, and join in the fun! 

TIGHAR (pronounced "tiger") is the acronym for The International Group for Historic Aircraft Recovery, a non-profit foundation dedicated to promoting responsible aviation archeology and historic preservation. TIGHAR's activities include:

- Compiling and verifying reports of rare and historic aircraft surviving in remote areas.
- Conducting investigations and recovery expeditions in cooperation with museums and collections worldwide.
- Serving as a voice for integrity, responsibility, and professionalism in the field of aviation historic preservation.

TIGHAR maintains no collection of its own; neither does it engage in the restoration or buying and selling of artifacts. Instead, the foundation devotes its energies to the saving of endangered historic aircraft wherever they may be found, and to the education of the international public in the need to responsibly preserve the relics of the history of flight.

TIGHAR Tracks, published nine times each year, is the official publication of The International Group for Historic Aircraft Recovery. A subscription to *TIGHAR Tracks* is included as part of membership in the foundation (minimum donation \$35.00 per year). The editors welcome contributions of written material and artwork. Materials should be addressed to: Editors, *TIGHAR Tracks*, 1121 Arundel Drive, Wilmington, DE 19808 USA. Telephone 302/994-4410. Photographs and artwork will be returned on request.

Editors: Patricia R. Thrasher and Richard E. Gillespie

MEMBERSHIP FORM

I would like to join TIGHAR. Enclosed is my donation of —

\$35.00 for a one year membership

\$60.00 for a two year membership

\$125.00 for a five year membership

\$1,000 for a life membership

As a member of TIGHAR, I will receive the following benefits:

- Annual subscription to TIGHAR Tracks
- Membership patch, directory and catalog
- Expedition and educational opportunities

Name _____

Address _____

Telephone _____

Please return this form with your membership dues to TIGHAR, 1121 Arundel Drive, Wilmington, DE 19808 USA; Telephone 302/994-4410, 9 a.m. to 5 p.m. EST/EDT, M-F. ALL DONATIONS TAX-DEDUCTIBLE WITHIN THE LIMITS OF THE LAW.

