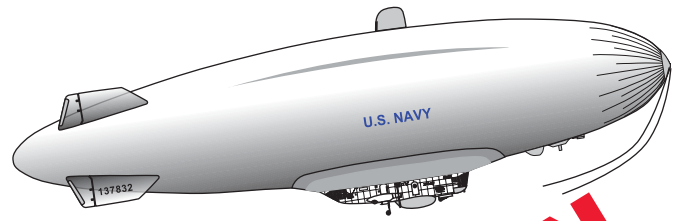
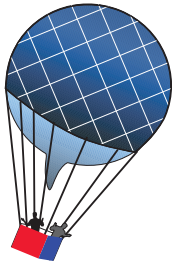
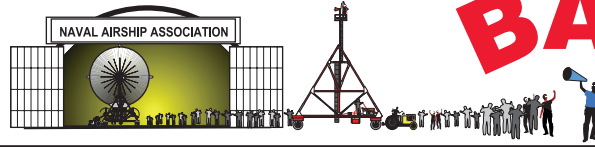


THE
N O O N



BALLOON



The Official Newsletter of THE NAVAL AIRSHIP ASSOCIATION, INC.

No. 93

Spring 2012



Reunion At - 3W #144243



Above: Ex-K-28 aka *PURITAN* as it arrived at New England Air Museum. Below: Restoration fully underway at NEAM today.

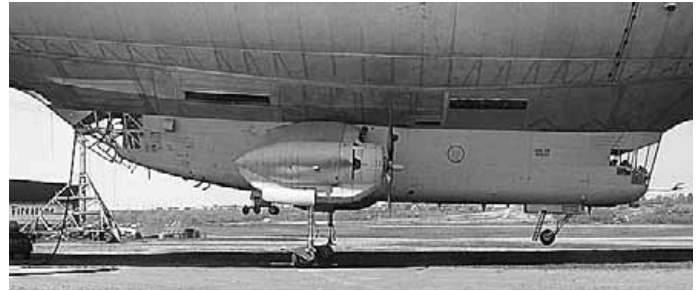


THE NOON BALLOON

Official Publication of the Naval Airship Association, Inc.

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An investment in knowledge always pays the best interest.



THE NOON BALLOON

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All material contained in this newsletter represents the views of its authors and does not necessarily represent the official position of the Naval Airship Association, Inc., nor its officers or members.

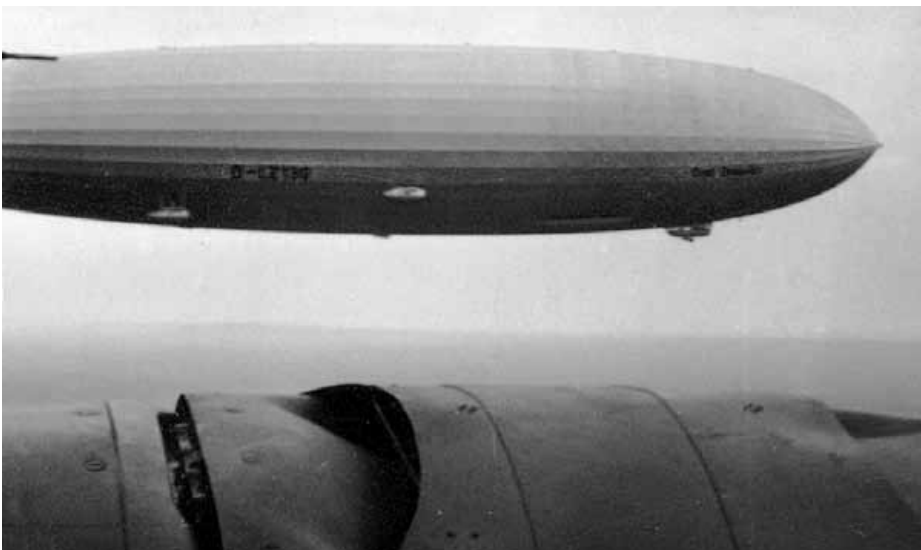
EDITORIAL

R.G. Van Treuren, Box 700, Edgewater, FL 32132-0700, rgvant@juno.com



A recent auction found the 1884 De Dion Bouton et Trepardoux Dos-a-Dos Steam Runabout (above), the oldest running automobile in the world, fetching \$4.62 million. Looking at that contraption one can only marvel at Henri Giffard's flying-weight steam engine of a full generation earlier, 1852, a staggering 160 years ago. The high-tech Gauls of '84 had graduated to electric power for airships and submarines, flying their battery-powered "La France" airship on the world's first successful air round trip. But those folks were undoubtedly grouching progress was too slow, since Jules Verne's novels *Five Weeks in a Balloon* and *20,000 Leagues Under The Sea* had started back when the American states were making war against each other.

Also thought-provoking is the incredible photo below, sent in by Andreas Johns. Taken from a *Luftwaffe* airplane on LZ-130's radar sampling mission, you can see the tiny WWI "spy basket" resurrected from a museum and attached along the keel. Lowered clear of the aluminum-framework's radar-reflecting maze of girders, the plan was



to figure out the operating frequency of British radar. The plan failed for electronic reasons, and the big rigid was harassed away by British planes. But this image from the past – taken just a matter of days before WWII began – helps keep the technology timeline in perspective.

Our fascination with the rigid airship, and what might have transpired by 1942 (for want of 3 or 4 fickle quirks of fate), continues to power our effort to turn *ZRS* the novel into a big-screen movie. Last issue we mentioned embarking on building an airplane to play the role of airship's defensive fighter. Our kit-building, while the biggest challenge of our lives, is not unprecedented. Rigid's were still flying when moviemakers designed and built a futuristic-looking aeroplane that flew for this film, *Things To Come*.



Toyed with in that 1936 film was their super civilization's energy source. Jules Verne had written 60 years earlier, "Water will one day be employed as fuel, that hydrogen and oxygen of which it is constituted will be used." Today's politicians all decry the Carter-created DOE that, billions of dollars later, facing \$6/gal. gasoline. A few give lip service about the issues of renewable resources, but none – even the AIAA LTA TC – say a word about the most pressing problem facing LTA in the immediate future. Luckily, this issue we are blessed with a leader on the "front lines" giving us his input, most timely today, some 160 years after Giffard. Thomas Jefferson, sizing up the first gas balloon in America, suggested the invention might be employed to move things. 228 years later, we're still waiting!

See you in Tucson,

- R. G. Van Treuren

View From The Top: PRESIDENT'S MESSAGE

As the old saying goes.....Time flies when you are having fun! It seems like a short time ago we were in Sunnyvale, California, at our last Reunion. This will be my final letter to the membership. One of the duties of the office, that I will miss, is the opportunity to meet new people, both NAA members and folks who contacted me about LTA in general. And, conversely, I regret not having the opportunity to meet more NAA members. And that's one of the reasons we have Reunions.

Three NAA couples I met, early on, are our Tucson, Arizona, members, delightful people, who represent the whole of the NAA. Trying to find a suitable hotel for the Reunion, I met Jim and Audrey Brodes. Audrey designs and sells jewelry, privately, in the Tucson area. She suggested, and introduced me to the DoubleTree Hotel in Tucson. Tucson hosts one of the biggest gem shows in the U.S. each year, which is headquartered at the DoubleTree. Our hotel problem was solved. Thank you, Audrey!

Jim Brodes was a ZPG-2 pilot in ZP-3, Lakehurst, from early 1959 to June of 1961. After a couple of years as an HTA instructor at Pensacola, Jim went to work for TWA and was with them until retirement in 1994. Today he rebuilds antique cars in his "shop" which measures 77 x 42 feet. The next couple is Larry and Judy Gallagher. Larry was a Second Class Petty Officer – Airborne radar interceptor/operator, assigned to the first ZPG-3W at AT&D at Lakehurst. He was then assigned to ZW-1 with the 3W program. Larry started out at NAS PAX River, spent time at Lakehurst, Sicily, S. Weymouth, U.S.S. *Enterprise*, and ended his career, where he started, at PAX River, as Air Traffic Senior Chief. He and Judy do something very unique in Tucson: they perform as "Mr. and Mrs. Santa Claus" for children's groups, each Christmas season. The third member couple is Ron and Margaret Jackson. Ron was never in the Navy nor was he connected with any LTA activity. He was born in Scotland in the 30's, and came to Montreal as a young man, going to work for Trans Canada Airlines as an engine mechanic. Shortly thereafter he went to work with Rolls-Royce in Canada as an instructor. Fast forwarding some 40 years later, Ron retired as a Rolls Royce Vice President – Product Support.

When he was in Washington D.C., for NTSB and FAA meetings he would visit the Smithsonian Aerospace buildings and became interested in LTA exhibits. He also became friends with one of our NAA members, Cliff Barnes, who would tell Ron about LTA experiences. Ron and Margaret occasionally drive around Tucson in their 1975 Rolls Royce Silver Shadow. A beautiful car!

Another recent meeting started with an e-mail from Mrs. Fred (Joanna) Norris inquiring about her father, Bill Aldrin. Bill (1922-1988) flew Ks out of NAS Richmond, FL. Joanna knew he had been active in the NAA. When Joanna's mother died, she found a box of Bill's artifacts in the attic of her parents' home. Bill was a uniquely talented professional cartoonist. (Some of you may have purchased mailing envelopes from the NAA with Bill's cartoons of LTA activities on the front.) He also did a memorable series of illustrations explaining proper ditching procedures for the K-ship. Joanna was inquiring about where she could send the collection. I brought Richard Van Treuren, Mort Eckhouse, and Don Kaiser into the picture, and we arranged for the collection to be delivered to the National Naval Aviation Museum in Pensacola, and to also be displayed on our website and written up for this issue. I also put Joanna in touch with Dan Cavalier (Noon Balloon #91) who flew with Bill Aldrin at NAS Richmond, in 1945. Joanna was delighted with our response and guidance.

Once again, I would like to comment about the quality of the people who are on the Exec. Council of the NAA. V.P. Fred Morin and Sec./Treasurer Pete Brouwer, as well as Betty Brouwer have been of great assistance. Al Robbins, History Comm. has done a yeoman job of coming up with more LTA data than you could imagine. The ageless Norman Mayer, Technical Comm. continues to prove that he knows more about airships than the rest of us will ever know. I am very optimistic about the future of LTA. New developments are constantly coming forward and public interest in airships, runs high. The wave of the future will be carried forward by a younger age group, but the history of the Naval Airships will always be there to remind folks of many great days past.

- Ross Wood, President, NAA

Past Presidents of the NAA

M.H. Eppes 1985-1991
G.W. Allen 1992-1995
J.A. Fahey 1996-1997
L.W. Prost 1998-1999
W.W. Moore 2000
E.L. Kleinberg 2001
H.E. Biedebach 2001-2003
N.J. Mayer 2004-2005
R.L. Ashford 2006-2007
H.G. Spahr 2008-2010

MEMBERSHIP COMMITTEE UPDATE

Last article I talked about the NAA website and I'd like to expand on that here. Our goal remains to make our website the source for Navy LTA. It can be done, but we need your help. Several members have submitted photos and brief articles and this is a great start. A lot of the photos and articles have brought comments from other members who recognized someone in the photo or just added another incident from their own experience. This is great! These stories and photos are history, no matter how incidental you may feel your story is. Please continue to contribute your stories and photos. The more information we can publish the more attractive our site and organization becomes to other LTA veterans, historians, researchers and those interested in aviation. This has a positive influence in attracting new members. If you have a story to share, please contact any one of us listed inside the front cover and we will gladly assist in getting your thoughts down on paper. We can digitize your photos and return your originals. No story is too small or irrelevant, no photograph too insignificant, someone will find your experience educational or enlightening!

Small Stores continues to do well and Donna Forand continues her outstanding efforts. The new ball caps and shirts have been well received. Shirts are currently available in Navy blue, but white will be introduced by Reunion time. Women's sizes in a variety of colors will also be added by then. It would be good to see a majority of our members around the Reunion hotel or during the Pima Museum/Davis-Monthan tours clad in NAA ball caps and shirts. We are just about out of squadron patches and there are no plans to reorder any at this time. Our investment due to the minimum quantities we have to purchase do not make this a feasible undertaking. Finally, the NAA lapel pin/tie tack is in stock and makes a great addition to that jacket lapel, ball cap or as a tie tack. Many of you have asked about them as yours were lost or broken through the years. We will have items for sale at the Reunion

so please see our table in the Ready Room and save on shipping charges.

As always, we welcome any comments, suggestions or help in recruiting new members to the NAA. It is a cliché, but if everyone signed up one new member our membership would double. Looking forward to the Reunion and touring the fabulous Pima Air Museum and the Davis-Monthan "Boneyard." Let's have a tremendous turnout.

- **Fred Morin, Chairman**

TREASURER'S STRONGBOX

Well, here we are in the year 2012. Just where does the time go? It gives me great pleasure to report that our Naval Airship Association is still a very active and interesting group started by U.S. Naval Airship pilots and enlisted flight and ground crews. The first attended pre-reunion was held at N.A.S. Pensacola in 1980. Henry Eppes was one of our founding fathers who headed up our gathering. We have gone through some changes and we have weathered the storms. We are now in the 21st century and still going strong! Remember, it is our duty to maintain our existence.

At this writing in the month of February, the NAA membership stands at 614 members. We have 600 members in the United States and 14 members from other countries.

WELCOME ABOARD – NEW MEMBERS!

Christopher Carlin – Melbourne, FL
John Bayer – Virginia Beach, VA
Steve Makin – Mission Viejo, CA
Claude Makin's Son
Walter Whitaker – Parkville, MO
John Geoghegan – Woodside, CA
Ron Hochstetler – Arlington, VA
Elaine Huf – Kingsle, PA
Scott Mulvania – Dania Beach, FL
Bert Austin, Jr. – San Jose, CA
David Fossett – Pittsfield, MA
Alvaro Bellon – Sagamore Hills, OH

DONATIONS

Roseanne Belsito, in memory of my father,
Natale "Tony" Belsito
Carolyn Cawley-Rodewald, Dee Dee Cawley and
Glenda Burke Hoke in memory of
Major Daniel C. "Boone" Gibson

donations continued

Donald J. Donatt
Edward Cheng
Thomas R. Cuthbert, Jr.
Donald E. Barker
Kent Von Fecht
Edward Pietrzak
Ralph Fike
Jerry L. Bess
Arnold W. 'Lew' Ayers
John Venios
Woodrow Wilson Smith
Raymond Sacks
Gerald Patrie
Paris Michaels
Robert H. Keneipp
Pam Kelly
Michael Hanneld
John Craggs
David J. Brennan

Joseph Konkel
Salvatore D. Vacanti
Manuel 'Pappy' Sturges
Warren C. Massey
John Warden
Charles Sapp
Richard Shively
Paul J. Larcom
W.W. Lindenhoker

Ross F. Wood
John A. Tkaczuk
Donald Maurer
Raymond Pettigrew
George Mitchell
George L. Munn
LE Hurley
Eugene E. Albro
Eugene L. Reed
Mario Martini

Vincent J. Hoye
John Fahey
William (Bill) Wright
Arthur J. Sullivan
Walter Swistak
James P. Flint
Charles R. Weithaus
Roy Lyon
A.V. VanNostrand
Robert Sorrentino
Wilford H. Stone
David J. Venn
Don Conover
Bob Sparks
Edmund J. Libera
William Smith
Virgil Klibufske
Russell J. Scherer
Evan T. Mathis, Jr.
Dan R. Cavalier

Bill Gustin
Mort Eckhouse
John Robson
Don James
Laurence J. Karadin
Marguerite M. Pouliot
J. William Bissel
Larry Hurley
Norman L. Larson
William C. Ohea
Harvey M. Gladstone
Jeffrey C. Evans
Peter W. Halke
Philip M. Spahr
Charles A. Gray
Stephan "Steve" Ulrich
Robert J. Clancey

- **Peter F. Brouwer**
N.A.A. Sec/Treasurer

State of Florida – Department of State

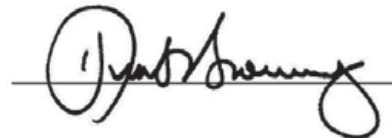
I certify from the records of this office that NAVAL AIRSHIP ASSOCIATION, INC. is a corporation organized under the laws of the State of Florida, filed on November 7, 1985.

The document number of this corporation is N11957.

I further certify that said corporation has paid all fees due this office through December 31, 2012, that its most recent annual report was filed on January 5, 2012, and its status is active.

I further certify that said corporation has not filed Articles of Dissolution.

*Given under my hand and the Great Seal of
Florida, at Tallahassee, the Capital, this the Sixth
day of January, 2012*



Secretary of State



Authentication ID: 700216677497-010612-N11957

To authenticate this certificate, visit the following site, enter this ID, and then follow the instructions displayed.

<https://efile.sunbiz.org/certauthver.html>

PIGEON COTE



Dan "Torp" Toleno sent notice of the passing of Wilbur A. "Bill" Carton on 11 DEC 2011. The notice ran this photo and stated Carton entered the USN in July 1942, then flew blimps on the west coast. HTA in Korea, his last duty station was Lakehurst where "he was in charge of decommissioning the blimps from service," retiring as a CDR in 1962. We seemed to have missed recruiting this man into NAA when possible. Ω

Dorothy Hunter, mother of NAA member **Dr. Bob Hunter**, passed last November. Ω

Theodore Wüllenkemper, founder of the WDL group in 1955, passed 6 FEB 2012. One of his WDL ships, similar to an L-ship, is seen at Essen/Mülheim airport, Germany. Ω



Ron Hurley sent along pictures of NAF Weeksville taken on 14 JAN 2012 from US Coast Guard Auxiliary Aircraft. Hope to use those in TNB #94. Ω

Rick Zitrosa e-mailed, "Enjoyed TNB with the correspondence between Hep Walker and Admiral Rosendahl... reading "between the lines" is almost as much fun as the written correspondence itself. When I first got hold of [Rosendahl's book] SNAFU, I spent a lot of time on the phone with Hep and Gordon Vaeth....my own impression being that reading it was like sitting across a desk having the Admiral YELL at me for six hours.

Charles Emery Rosendahl was a complicated and pivotal individual. He saw things as black or white ... he had very little patience with grays. "Rosie" was notoriously cheap (or "careful with a BUCK" as Gordon once put it!). Every month, a Naval Aviator had to get four hours of flight time to qualify for additional 50% "Flight Pay" and even into late 1930's Rosendahl always made sure there was at least one blimp available to get flight time aboard. (It went, naturally, by rank, and so Rosendahl was always first in line to get a flight at the beginning of the month. The late John Iannaccone remembered that "He always came aboard with his BOOKS....sat and read a book for four hours. Then down, we would swap crews and the next group would come aboard and fly for four hours! Even the dentist was getting flight pay!") One day (about 1938) Rosendahl was in his wife's Packard, driving to New York City with a group of fellow officers via the Holland Tunnel. Traffic was backed up but a Port Authority Police Sergeant spotted him. He approached the car... they had apparently all stopped for "lunch" ... "Good afternoon Commander Rosendahl! We can't have YOU waiting here. Wait a moment please!" They opened up another Toll Lane and waved him through...."Rosie" turned to his companions with a grin and said "I LOVE THIS JOB!" Ω

John Mellburg sent along this issue's centerfold drawing (page 18-19) explaining, "I've had this drawing rolled up in my lateral file drawer since receiving it from former Zeppeliner friend, Bill Kramer (dec'd.), who had it on a wall in his office for years before giving it to me. Bill, worked with Vladimir Pavlecka as a 'master machinist/metal fabricator' for Detroit Aircraft Company in the 1920's-1930's constructing the ZMC-2 Metalclad Airship, and I came to know him when I was living/working in Detroit back in the late 1960's. At that time, he was a liaison/rep. for Wm. Lamb Company, a large German Machine Tool manufacturer, who sold manufacturing machinery to the automobile industry. Kramer came to the U. S. with a 'letter of recommendation' from Ludwig Durr, after earning his apprenticeship as a 'master machinist' at Luftschiffbau Zeppelin GmbH, and wishing to work w/Dr. Arnstein on the *Akron/Macon* project. When he got to Akron, they told him he had to be a US Citizen to work on the project, which would take a

year. Needing work, he went to Detroit, got connected w/Ralph Upson, and hence forth worked on ZMC-2, and became lifelong friends w/Pavlecka, 'Pavy,' and it was through Kramer that I came to know and work with Pavy, and Airships International, of Tustin, CA. in the 1970-s through 1990's. This drawing has never been folded, and the copy Bill Kramer gave me, was printed on a heavy weight parchment paper, so there's no 'kinks/folds in the engineering drawing. I had it scanned today, and here it is. It's a beautiful drawing with great line quality of the details." Ω

Juergen Bock sent along his paper on airship materials and several correspondents offered discussion. Bock answered, "Gentlemen, you are right! I have touched a sensitive topic which will not be solved right away. Let's listen to some stories from the past: Everett C. Linkenhoker ("Link") was rigger on-board of the 3W. During his watch below he climbed the vertical tunnel to the top to find a place for rest and sunbathing, as he used to on-top of the 2W. This time the air was gusty when he walked on the camel's back. Suddenly he noticed deep wrinkles moving over the surface, where the fabric should be taut. Moreover, those wrinkles wandered and caught his foot and he had a hard time to free himself again. Link was not a fearful man, but this effect seemed to worry him and immediately he asked for a transfer to a different ship. Few weeks later that 3W sank near Barnegat.

There are several theories why this happened, but was the largest non-rigid at this time. Charles A. Mills ("Charlie") flew the 2W ("a wonderful ship at good weather"). When asked, how often helium had to be purified, he answered "never - the envelope practically pumped helium into the atmosphere." The replacement gas guaranteed a high degree of purity all the time. The 2W had a two-ply envelope which was strong enough for this service, its permeability was insufficient. Naturally the problem had been solved in the meantime, but one should not forget the relatively high membrane tension at high radii of curvature which are characteristic for large pressure ships. I wonder if anybody has analyzed the unsteady dynamics of large pressure envelopes. Anyway, there are more questions open and I am not content with the belief in modern materials." Ω

Marc Frattasio reports that Francis MacIntire, whose recollections were published in the last issue, had passed just before its release. Marc paid for extra copies to be sent to the MacIntire family. Marc also sent along a transcription of two pages from an internal ZP-11 newsletter that was recently donated to the Shea Field Naval Aviation Historical Museum on NAS S. Weymouth (www.anapatriotsquadron.org). Ω

The Congressional Budget Office Report – highlights of which are run elsewhere in this issue – generated some e-mail traffic, with Al Robbins commenting: "Report well worth reading. Some very interesting observations, unfortunately they've made a couple of painful oversimplifications, and adopted some misleading definitions. They properly state that there is insufficient data to compare the economics of the several candidate systems. Unfortunately they only posit three military missions Low-altitude Intelligence, Surveillance, and Reconnaissance, High- Altitude ISR, and Airlift. (Airlift calculations appear to apply only to delivery, not retrograde.) Unfortunately they assume that:

- a hybrid airship must have powered lift systems,
- that conventional airships don't employ aerodynamic lift,
- that buoyant lift will be supplied only by helium, and that airplanes are less effected by adverse weather than aircraft.

They also seem to believe that because one is up high, he'll be able to see the ground. Slant range through clouds, and dust, leaves a great deal to be desired. Exhibit 1 lists the various DoD funded developmental systems, plus the MZ-3A.

It shows the Goodyear Advertising ship as a reference vehicle, ignoring the NT-07 and the last large airships the ZPG-2 and ZPG-3W.

Exhibit 2 (Wind Speed and Location, Altitude, and Time of Year) ignores the two most important features, actual temperature and wind in the vicinity of the aircraft/airship, and precision forecasts of weather on optional routes to station or destination. I don't think any of you have ever flown in average weather." Ω

Dan 'Torp' Toleno also sent along clippings covering the loss of **CC Moore** (see *Black Blimp*) and the re-launch of the insignia-emblazoned MZ-3A. Ω

*As our investigation into the K-14 "accident" continues, the Mount Desert Islander has run a series of articles on the case and our investigation. One Jonathan Eno contacted VP **Fred Morin**, e-mailing: "Earl Brechlin of the Mount Desert Islander passed your name to me. He is publishing a wonderful piece on K-14 that, I must say, leaves more questions than answers. I had looked into K-14, but for a different reason. I am working on a project to photographically document all the naval vessels that have come to Frenchman's Bay. In the course of my research I ran into the enclosed photo which I thought that you might find interesting. It shows VT-4 Avengers from the USS *Ranger* performing a live fire practice attack on Bald Porcupine Island, about a half mile from Bar Harbor. I was interested to see if perhaps the blimp in the photo was K-14, but I was unable to find the documentation to pin this down. I had tried NARA, but I did not get anywhere. Your intelligence report of the Bar Harbor Sector Base shows that you got much closer than I did. From your message I deduced that you have the records for South Weymouth. The photo I sent you was taken 1/24/1944. There are around a half dozen pics in the group. If you can identify that blimp, it would be great.*



Fred answered, "Jonathan, a search of the war diaries shows the blimp in the photo is the K-38 from NAS South Weymouth. It was assigned for the day to monitor VT-4 tests. If any other of the six photos you mentioned involve LTA, we'd like to get copies."

*Part of the problem with the Navy's position on the K-14 "accident" is the basic improbability of the stern collapse having been caused solely by water impact. **Mark Lutz** looked into it and offers these observations:*

"I became interested in this type of accident when I learned my Father, John Lutz, once flew the bottom of a K-ship car into the ocean by accident, while a WW2 Ensign with senior pilot rating. I've found details on 9 cases of flying a K-ship into the ocean during WW2, some in Rosendahl's book *United States Navy Airships in World War 2*; some in **Bill Althoff's** book *Forgotten Weapon*.

MAD searches tended to contribute to these accidents. Althoff says detection range below the Blimp was just 400 feet in WW2, and height above the water was part of this 400 feet. Therefore crews tried to fly as low as 100 feet, which gave them U-boat detection capability down to 300 feet below the surface. WW2 U-boats had 700-foot-depth limits; operating the K-ship low at least improved the probability of detection. The U-boat might not dive to its limit, or might be in shallow coastal waters. Althoff says flying the 250 foot-long K-ship just 100 feet above the water was difficult. A rudder change could reduce air-speed and thus dynamic lift, dropping you into the water before you realized what was happening. Crews operating at night after 12 to 18 hour patrols were tired and not so alert. Whether MAD searching, or low for other reasons, as Althoff says: "Dope off for a second, you're in the water"

My Father's accident is reported by Althoff (page 246) as follows: "On 3 October 1943, returning from 16 hours of patrol, the senior pilot of K-53 allowed his ship to impact the sea on approach. He gunned the belly-damaged ship clear to a normal landing." When I first read this, it reminded me of a story Dad's brother told me after Dad died. I checked Dad's log book; there it was: 16.1 hour flight as Pilot of K-53 on 3 October 1943. (ZPG-21) Althoff's source: "Fleet Airships Atlantic Semi-Monthly Newsletter" 1 Nov '43 (Smithsonian copy).

Dad's total flying time in K-53 was longer than 16.1 hours that day. His log shows a short 2.4 hour earlier flight in K-53 that same day - I'm thinking a problem developed and Dad had to return to base for repairs, then took off again. So, the accident, likely at night, came after 18 total hours of flight time plus a few hours of presumed repair time - resulting in a very tired pilot.

Dad's brother told me that, following the accident, Dad failed the Schneider test - the universal "pilot" fitness test of WW2. Dad's log shows he kept flying, but not immediately as skipper - the next 3 flights were under Lt Chouteau. 16 days later Dad was again

skipper, I assume he now passed the Schneider test after Navy Doctor supervision, including, I think, increased dietary salt to raise his (low) blood pressure. 12 days after the accident K-53 apparently was repaired – it is back in Dad’s log. The accident may have delayed Dad’s promotion to Lt(jg) until Summer 1944.

K-53 was ill fated: Rosendahl reports that 9 months later, on 7 July 1944, another pilot again flew K-53 into the Caribbean, this time near Jamaica while on special night U-boat search. One man was killed, and the ship lost. Here are 6 other “Flew-K-ship-into-ocean” accidents of WW2 reported by Althoff and Rosendahl:

1) 30 October, 1943: K-17 of ZP-21 flew into Biscayne Bay (Miami), bending both props, car nose and bottom torn out, water up to floor boards. A Coast Guard boat took Commander Mills and Volunteers to it. Mills free ballooned it off the water, returned to base on the less bent prop.

3) August, 1944: K-119 of ZP-33 flew into Tillamook Bay on return from a mission. *[rebuilt]*

4) 6 November, 1944: K-34 of ZP-11 flew into the ocean offshore Boston, killing 1 man. *[after crash]*

5) Sometime in 1944: K-46 hit Gulf of Mexico nose-down; recovery was instant, damage minor.

6) Sometime in 1944: K-24 of ZP-21 was 75 feet up and heavy. Upon turning downwind, ship lost altitude. Pilot free-ballooned out by dropping emergency ballast (including 2 depth charges)

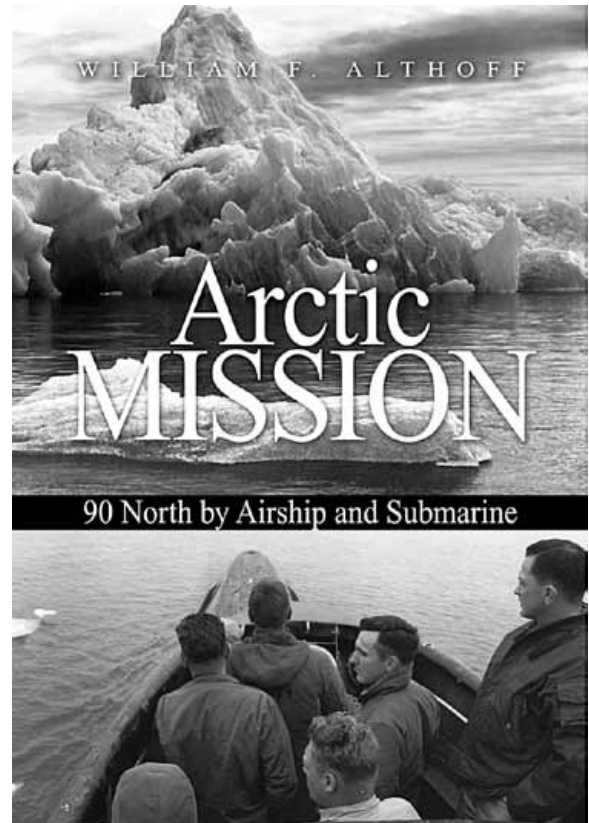
7) Sometime in 1944: K-84 of ZP-41 was checking altimeter just 25 feet above the ocean. Struck Atlantic off Brazil at 43 knots, sheering off radar dome and antenna; returned to base.”

The standout is: 2) 2 July, 1944: K-14 struck the Atlantic while on a MAD search for a reported submarine. Car immediately flooded, killing 5; a 6th died of exposure. Wreck towed ashore, *[some]* bodies retrieved.

-Mark Lutz

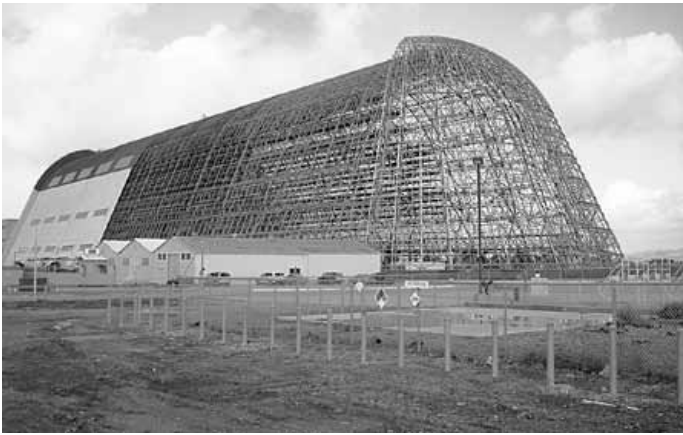
K-53, the only other water-impact accident involving a (single) fatality, remained partially aloft – and afloat – for many hours after the impact. Heavy take-offs found some K-ship lower fins scraped off in the dirt, but without loss of the ship. If, as the report insists, the K-14’s stern collapsed solely by water impact causing the car’s airplane-like rapid sinking and subsequent drowning, it was unique in K-ship ops 1938-1959. Ed.

Speaking of William Althoff, our author-member reports reaction to USNI publishing his work ARCTIC MISSION has been positive. The Naval Institute makes the book available on its website and it is also carried by retailers. Bill has been invited to speak on the subject of “Snow Goose’s” voyage to the far north.



AIR & SPACE SMITHSONIAN is the semi-official magazine of the National Air & Space Museum (owners of the remaining ZPG-3W car). Its editors took the unusual step of reviewing Bill’s primarily LTA-oriented book, but they chose a “frequent contributor” over subject-qualified possible candidates as reviewer. That man’s distain for the subject is seen in statements like “Those who drank the LTA Kool-Aid...” and his resulting casual read missed major points of the work – even the blimp’s name. He states, for example, “...was the Navy’s newest and most modern blimp” whose car was built by Douglas Aircraft. (!) Bill’s book plainly explains “Snow Goose” was in overhaul following a landing incident, hence why it was out of rotation and available for a mission it was never conceived or designed to perform. Good thing the reviewer actually liked and even praised the book, while at the same time carefully supporting the visible NASM position on LTA in general. We in NAA clearly have much work still to do. Ed.

SHORE ESTABLISHMENTS: MOFFETT FIELD



White House May Decide by Dan DeBolt (excerpt)

“The highest levels’ of the federal government are now deciding whether to accept an offer from Google’s founders to restore Moffett Field’s iconic Hangar One, NASA Ames administrator Deb Feng said... A proposal to save the structure came from top Google executives through H211 LLC, which runs private aircraft out of Moffett’s Hangar 211 for Google founders Larry Page and Sergei Brin and board chair Eric Schmidt. In exchange for restoring Hangar One, the executives want a long-term lease allowing them to use Hangar One to park their eight private aircraft, including two jumbo jets. But to the chagrin of those who have been fighting for years to save the hangar, including Congresswoman Anna Eshoo, there’s been no decision from NASA headquarters for four months. If the White House does decide to designate the Moffett runways as surplus,... process could cause years of delays in restoring the hangar while the uncovered frame is exposed to the elements. And \$12 million in scaffolding being used by Navy contractors to remove Hangar One’s PCB- and asbestos-laden skin would be long gone before it’s needed for a restoration project.” Ω

Richmond

The Friends of the Military Museum of South Florida (adjacent to Zoo Miami) unveiled their USS *Biscayne* monument March 11, 2012. The USS *Biscayne*, named for our own Biscayne Bay, fought in WWII at Sicily, Salerno, Anzio, France, Iwo Jima and Okinawa. Veterans of the USS *Biscayne* have commissioned a monument in memory of the ship and crew. Ω



Santa Ana/Tustin

THE ORANGE COUNTY REGISTER reported, “The O.C. Parks Commission has approved a plan for the land around the north Tustin blimp hangar to become a regional park. The hangar would be restored, and the surrounding 84.5 acres could be transformed into park space, with picnic areas, walking trails and fields. The county parks department will work with the finance office to develop a plan for funding the park, which could cost \$69 million to build. The county plans to reopen some of the old buildings for new uses, such as the classroom building, built in 1988. The building now is hidden in a grove of large trees near the hangar. The blimp hangar, Denny said, has “been a very successful location for movie studios to use.” The county would continue renting out the 5 ½ acre hangar. In 2010, the Department of the Navy made \$430,000 in revenue from television commercials and blimp use, reports state. It is owned by the Department of the Navy, but if plans are approved the Navy would transfer the land to the county. No timeline has been set for the land transfer.”

A RBF Consulting report entitled “The Tustin Hangars: Titans of History,” was prepared in 2008 for the city and Orange County. Noted are previously unpublicized historical tidbits, knowing the authors might not have had time to check their facts or basic science. For example, a selection reads: “The helium tank buildings...produced helium that was delivered to the hangar beside it through a system of underground pipes... The helium tanks themselves were encased in heavy concrete liners to counteract the enormous upward force of the gas inside them.” (!)

In past years Ed. would have been so excited with this previously unseen photo – of even more rare nose art on a K-ship – that he would have gone to all lengths trying to figure out what airship it might have been. Ω



LAKEHURST

(from internet) The first Navy airship commissioned in 50 years had its public presentation inside Hangar 1 in Lakehurst (See back cover), the scene



of so much history in lighter-than-air flight — and a center for its potential renaissance. The MZ-3A is the Navy's scientific test platform for surveillance cameras, radars and other sensors, and won't be deployed outside the United States. But it's very significant as a return to an older technology, and there have been two years of testing "to prove LTA has a place in our military construct," said Cmdr. Jay Steingold, the commanding officer of Scientific Development Squadron One.

The sight of a Navy airship again in Hangar 1 was deeply satisfying for Carl Jablonski, president of the Navy Lakehurst Historical Society. "It's a proud day for us. We had a lot to do with getting this going," said Jablonski, whose group helped Navy designers with old Navy airship manuals and memories of society members who worked with Navy blimps decades before. "This is the first time since 1962 there's been a Navy airship in this hangar." "This is also the Navy's 100-year centennial for flight, so we wanted to dress it up a little," explained Steve Huett, director of the Airship System Engineering Team with Naval Air Systems Command at Patuxent River, Md.

The airship is a modified A-170 built by the American Blimp Corp., capable of flying at up to 10,000 feet and cruising at around 50 mph. The Navy began the project in 2006 "to use it as a flying laboratory. The airship is a good platform because it's very stable, and easy to take things on and off," Huett said. "A lot of times you want to go slow." Civilian blimps are built for advertising, tourism and television work. So why the reappearance of military blimps? "Airships bring affordability to the game. You can operate an airship for 40 percent of the cost of fixed-wing or helicopters," said Huett, a graduate of the Navy flight test school who flew Marine helicopters for 15 years, and is earning his own airship certification.

"The Army has a big airship program called LEMV, and the Air Force has one called Blue Devil." The LEMV, for Long-Endurance Multi-Intelligence Vehicle,

is taking shape in Hangar 6 here, while Blue Devil was inflated earlier this month in a World War II blimp hangar at Elizabeth City, N.C. Both are about the length of a football field, much bigger than the 180-foot Navy ship. But the newest airships would be dwarfed beside the giant rigid-hull airships of the 1930s like the *Hindenburg*, the German commercial airliner destroyed at Lakehurst when its flammable hydrogen gas cells ignited during a landing in 1937. "You're probably talking about the *Hindenburg* being 37 to 39 times the volume of this airship," said Mark Kynett, the chief pilot with contractors Integrated System Solutions Inc. of California, Md., which manages the airship for the Navy. Back then Americans had the advantage of using nonflammable helium for their airships, and the Navy ramped up its lighter-than-air program during World War II when blimps patrolled for submarines offshore. If a pilot from those days could board the MZ-3A, he would recognize the same basic controls of rudder pedals and elevator wheels. "There's a lot of physical exertion in flying an airship, mainly in the legs," said Kynett, who flew Goodyear's blimps for 25 years before joining the Navy project. "We have the potential for being up 24 hours, but most of our missions are [8] to 10 hours."

The Navy's old lighter-than-air flight program at the Lakehurst naval air station ran from 1921 to 1962, when the last Cold War-era generation of blimps were decommissioned. At more than 400 feet long, those ZPG-3W ships were twice the size of the Navy's new airship, and carried radar systems as part of the national early-warning network to watch for Soviet bombers approaching coastal cities. The airships carried crews of more than 20 men and logged long-range patrols that stayed in the air for as long as 58 hours. But the Navy aviation community was split internally over the continued use of lighter-than-air technology, which some saw as an absolute drain on resources better spent on rapidly evolving high-performance aircraft.

The July 6, 1960, crash of a Lakehurst-based airship east of Long Beach Island killed 18 sailors, a loss that added pressure on the program. The Navy decommissioned its airship units on Oct. 31, 1961. On Aug. 31, 1962, the last two ZPG-3W ships made a ceremonial last flight over Lakehurst — the base log noted, "This flight terminates operation of non-rigid airships at Lakehurst," Steingold said. Ω

Airships to the Arctic 6: “Game Changers”

5-6 DEC 2011 Seattle, Washington. Dedication: Modern Founders – George Spyrou and Roger Munk

Opening Remarks by Conference Chair Dr. Barry Prentice was followed by “Game Changer” Committee Chair, Oliver Hedgepeth, Ph.D. Program Director, Reverse Logistics Management. First paper was “Logistics of Mineral Exploration in Alaska” by Dr. Paul Metz, (University of Alaska). Dr. Metz showed the astonishing wealth awaiting in currently inaccessible areas of Alaska. Next came “Airships: Get ready for the future” with Hardy Giesler, Business Development Director, Hybrid Air Vehicles – UK, and Stephen Newton, Director, Business Development, Discovery Air Innovations. Mr. Newton’s presentation showed his company’s long history and experience in northern operations, with operation bases across Canada. Their plan for HAVs is to house them only 2 weeks a year, operating 50 weeks out of the year. Likewise they plan no extensive infrastructure development, needed little more than a reasonably flat area 1,000 feet in length at the rail head, source, target, etc. They are currently in negotiations with several provinces and they are courting some 32 launch customers.

Brian Hall presented “Operator’s Perspective on Transport Airships – Lessons from the Zep NT EUREKA cross country tour.” Brian revealed that while the literature suggests only four people to operate the ship, in fact most times ran 20-25 people. Helium use ran between 20 and 50 cubic meters per day, the rate of about a complete refill in a year. Spot shortages in supply were encountered so costs varied with situations; a local hoarder sold a few bottles in St. Louis. In hold for weather often because while the ship is technically capable of IFR, the expensive certification process has not been pursued – [for good reason]. Following was “Varialift: A New Horizon” by Alan Handley, Pres., and Ernesto Kronenburg of Varialift Airships. Their video demonstration of their patented process which, through the use of ultra low power, lightweight pumps to compress helium, will achieve the long-sought “holy grail” of changing their helium airship’s static condition. Discussion of the latest European taxes on carbon emission showed their airship proposal would be more economical for operators than fuel-thirsty HTA.

“Innovative Approaches to the logistics of remote areas” by Michael Talesnikov, VP Marketing and Sales,

RosAeroSystem Intl. Russia, presented a graphic-rich discussion on his company’s airship designs. Their ATLANT 100 was seen as a cargo hauler and passenger ship carrying up to 60 tons, with a target date of 2017. The immediate plan is to modify the existing AU-30 with an active buoyancy control system based on an interior hydrogen chamber supplying a fuel cell for a stern-mounted electric engine.



P-791 Hybrid Game Changer – Dr. Robert Boyd, Hybrid Lift Portfolio Mgr., Lockheed Martin Aeronautics Advanced Development Programs. Opening with a video of P-791, Dr. Boyd covered the \$100 million aircraft program history. A separate program, P-794, has been rolled into the 791 model. Design history: number of lobes, optimal two to three. Structure studied and part built, rejected as heaviness not worth cost. Stern props also proved difficult to justify. Tensys Numeric Model structural safety factor of four. Air cushion landing system withstood 25 knots in grip mode, .3 psi plenum pressure, no dust cloud. Gear must arrest momentum, not just dry weight; huge arm rig was constructed to test the pads. Tested on irregular surfaces for landing and grip mode. Vectored thrust – a hemisphere of vectoring – spreads the load with larger footprint. Vibration on the bag was minimal even as the prop was turning. Next came “Ice roads on the James Bay Coast – community and mining challenges” by Guy Ginter, Acting IBA Director – Moose Cree First Nation. Several presenters showed how the expensive ice roads are usable for a decreasing amount of time each year. “MOREV tool” was presented by Helen Kourous-Harrigan, Michigan Tech Research Institute, Ann Arbor, Michigan. She showed the new software tool with fascinating implications for airship use in the north.

The evening's banquet at Boeing's Museum of Flight was dedicated to George Spyrou and Roger Munk.



After a terrific breakfast Dec 6 got underway with "Airship Flight Simulator and Pilot Training" by Francis Govers III, Special Missions Manager, Airship Ventures. Francis's detailed presentation concerning *Eureka* and company's current pilot training and guest pilot training program. Taking about 20 months, the program includes time on the ground handling crew and minimum simulator time and compares favorably with training to learn to fly the similarly priced Gulfstream IV. Next came "Manufacturing Considerations of Large Lighter Than Air Softgoods Structures" by Tim Miller, ILC Dover, LTA Principal Engineer. Now producing some 10 envelopes a month, discussion covered materials and their seam development and testing. Balance between envelope toughness, weight, cost and helium retention. Envelopes usually last 6-10 years with few visits to hangar, life determined mainly by leak rate.

"Weather and Piloting" Session Chair Peter Wallis, President, Van Horne Institute, Calgary, introduced Dr. Ananthakrishna Sarma, Senior Scientist, SAIC, presenting "Airships and Weather," an that amazing weather modeling and predicting program will be of great use for airship employments and deployments. Reminding the conference of the NAA's existence, your TNB editor presented "Airship Safety in Northern Weather Conditions" and invited everyone to join our organization, passing out NAA brochures.

That day's lunch presentation was "Airship Design Considerations for Cold Weather Operations" by Dale George, Chief Technology Officer, BASI. His real-world experience recommends design to remember you must open the hatch with gloves still on, be able to see

in white-out conditions, etc. "Game Changers in Cargo Airship Design" Chair Ruth Sol, President, Westac, introduced Konstantin Kolpakov, Project Manager and Vladimir Ivanov, Chief Engineer, AIRSHIP GP – Russia, presenting "All Weather Airship based on the New Propulsor." It was a semi-circular airship proposal using a centrally mounted propulsor and directed thrust.



Stephen Newton, Director, Business Development, Discovery Air Innovations, made a presentation covering expectations of cargo airship operations using the proposed civil version of the LEMV. He was emphatic that success of LEMV will be the ice-breaker, lifting all LTA efforts. Next came "Carangifoil Vertical Airship" by Micah Warren, of Windcrafter, a video presentation showing unusual configuration of small advertising craft that could be scaled up.

A panel discussion "What would the Airship mean to the North?" chaired by Dr. Barry Prentice consisted of Dr. Harvey Brooks, Deputy Minister of Yukon Economic Development, Government of Yukon, Whitehorse, and Dr. Allan Weston, Director of Programs and Projects, NASA Ames Research Center (Moffett). Theirs was a graphic-rich presentation on the rich history of Ames and LTA, and included details of the design study called *Pelican*. He emphasized their thinking leaned toward rigids for higher speed and the need to develop ballast-free buoyancy control. Also speaking was Nicholas Mastrodicas, Project Mgr. Dept. of Transportation and Public Facilities, State of Alaska.

The well-planned and executed conference was a delight, leaving all attendees well informed and optimistic about the immediate LTA future. Ω

Congressional Budget Office Report, NOV 2011:
Recent Development Efforts for Military Airships

Alec Johnson, formerly of CBO's National Security Division, prepared the document, with assistance from David Arthur. (Brief excerpt from original 28-page illustrated document)

In light of the demand for aircraft capable of remaining aloft for long periods of time, considerable interest in airships as alternatives to conventional aircraft exists. Although unmanned airships are unproven, they have the potential to remain in the air for long periods—providing mission durations that are many times longer than would be practical for conventional aircraft. Consequently, the military services are exploring a variety of designs for unmanned airships capable of carrying ISR sensors.

In brief, CBO finds that:

- If the speed, payload, and endurance proposed for unmanned airships can be achieved, the resulting craft could serve effectively in the ISR and airlift roles;
- Airships' performance characteristics would provide some advantages and suffer from some disadvantages relative to those of the conventional aircraft currently used for ISR and airlift missions;
- Airships would present new operational challenges such as greater sensitivity to weather conditions and the need to provide unique types of maintenance and support.

The airships discussed in this study fall into three operational regimes: high-altitude ISR, low-altitude ISR, and airlift. In this exhibit, six designs, including both subscale demonstration models intended to test new technologies and full-scale aircraft capable of conducting actual operations, show aircraft proposed for operation at high altitudes. High-altitude operation is preferred when large fields of view or long viewing ranges are needed, for example, when looking deep within a country's border while remaining outside its airspace. Four of those high-altitude vehicles are conventional airships, and two—the Star Light and the High Altitude Shuttle System—are payload-return airships. (Upon completion of a mission, the payload detaches from the gas envelope and returns to base, and the envelope is not recovered.) Three designs show aircraft that would operate at low altitudes. Full-motion video sensors are commonly carried by the low- to medium-altitude ISR aircraft flown today, and would probably be used on airships operating at

similar altitudes. Finally, three designs show aircraft proposed for the transportation of cargo.

The Air Force and the Army have both entered into contracts to purchase low-altitude ISR airships for eventual use in Afghanistan. Two airships being built for this purpose are the Air Force's BD2 and the Army's LEMV. The BD2 is a nonrigid conventional airship; the LEMV is a semirigid hybrid airship. The BD2 is designed to stay aloft onsite at 20,000 feet with a 2,500-pound payload for five days. Its manufacturer, Mav6, is scheduled to deliver one BD2 to Afghanistan in 2012. The LEMV is designed to remain onsite at 20,000 feet with a 2,500-pound payload for 21 days. The first of three LEMVs is expected to be delivered in time for deployment to Afghanistan by early 2012. The planned endurance of those two airships is substantially greater than that of operational fixed-wing unmanned aircraft such as the RQ-4 Global Hawk, MQ-9 Reaper and MQ-1 Predator, all of which can remain aloft for a day and a half or less. Compared to a fixed-wing aircraft such as the RQ-4 Global Hawk, airships operating at high altitude (around 60,000 feet or higher) could be more difficult to detect by adversaries looking for acoustic, thermal, or radar reflections because they could be designed to be quiet and cool and, in some designs, have a structure made of radar-absorbent materials or little rigid structure for radar to detect. They would also be out of range for most surface-to-air missiles or guns. In contrast, airships operating at low altitudes would probably be easier to detect than conventional aircraft at similar altitudes because of their lower speed and much larger size. Once detected, those airships might be easier to hit with ground fire than smaller, faster conventional aircraft, but they might prove to better withstand damage. For example, the low speed of airships makes them less susceptible to the dynamic stresses that can cause conventional aircraft to break up in flight when damaged, and because the gas envelopes rely on just a slightly higher pressure than the ambient atmosphere, helium leaks slowly out of holes that are not too large. Because airships sacrifice speed in exchange for endurance relative to fixed-wing aircraft, they might offer less flexibility to quickly shift the location of ISR orbits in response to changing circumstances on the ground. Similarly, if air defense threats materialized in a previously benign environment, airships would need more time to exit

the area and reach safe airspace. Slower speeds could also reduce search rates for missions that need to cover very large areas. (All else being equal, search rate—the area covered in a given period of time that is theoretically defined as the product of the aircraft’s speed and the sensor’s detection range to either side of the flight path—is lower for lower speeds.) Such a limitation, however, would be less significant for missions calling for close observation of smaller areas.

High-altitude ISR vehicles are at an earlier stage of development than low-altitude systems. Most current concepts for high-altitude airships are of conventional design, although there have also been proposals for hybrids. Design challenges for high-altitude airships include manufacturing fabrics that are light, strong enough for very large envelopes, and durable enough to survive in the upper atmosphere. Operational challenges include navigating through altitudes where winds can be greater than the speed of the airship itself. Once at altitude, however, the aircraft would have the advantage of a large field of view and could be threatened only by air defense systems capable of reaching that high.

The Army’s High Altitude Airship (HAA) program includes the HiSentinel demonstration aircraft and the High-Altitude Long-Endurance Demonstrator (HALE-D) aircraft. The Army is also working with the Defense Advanced Research Projects Agency (DARPA) on a subscale demonstrator of the Integrated Sensor Is the Structure (ISIS) airship, which would integrate a radar antenna into the structure of the airship.

The Star Light and the High Altitude Shuttle System payload-return airships are also technology demonstrators. If the demonstrators are successful, a subsequent generation of vehicles with greater payload capacities and endurance could be developed.

Both the HiSentinel and HALE-D programs, however, have suffered recent setbacks. In November 2010, the HiSentinel had a propulsion failure and landed 8 hours into a planned 24-hour mission. In July 2011, HALE-D had a technical failure and was forced to land 3 hours into a planned 14-day mission. During recovery operations, its envelope and solar cells were destroyed, and its payload was damaged by fire.

[Airlift] Airships would have several advantages over other means of transportation. In particular, airships are likely to rely on fixed ground facilities to

a lesser extent than conventional aircraft, which need air-bases, and ships, which need seaports. Airships, therefore, could deliver large payloads to locations that lack such facilities. Moreover, if some proposed designs prove technologically feasible, airships would be able to carry much larger payloads than fixed-wing aircraft and reach their destination more quickly than ships.



The EMV-Heavy, the SkyTug (Lockheed illustration, above), and the Project Pelican airships would carry payloads from about 20 tons to 60 tons over ranges of about 1,000 to 3,000 nautical miles. Such performance roughly spans the range and payload performance offered by today’s fixed-wing transport aircraft such as the C-130 and the larger C-17 and C-5. The airships would offer much lower speeds than the fixed-wing aircraft would, but the airships would offer the advantage of greater independence from airfields. Hybrid airships would be slightly slower than today’s transport helicopters but have a larger range and the ability to carry a heavier payload. Cargo airships could provide an intermediate capability, delivering cargo more quickly than ships but not as quickly as conventional aircraft. The average throughput capacity provided by an airship relative to a conventional aircraft or ship would depend on its payload. The proposed payloads of the airships shown earlier in this report would yield lower throughput capacity than a C-17 because their payloads would not be large enough to compensate for their slower speed. Larger airships with payloads of 500 to 1,000 tons have been proposed, and they would yield greater throughput capacity than today’s aircraft. An airship with speed and payload large enough to match a ship’s throughput capacity would probably be impractical.

Cargo airships with payloads of 20 to 60 tons have the potential to perform well in missions that would currently require a helicopter or MV-22. Although somewhat slower than contemporary helicopters—operating at 80 to 90 knots versus more than 100 knots for helicopters—the LEMV-Heavy, the SkyTug, and the Project Pelican airships would have larger payloads and longer ranges. The MV-22 is considerably faster than airships when flying in “airplane mode,” with its rotors oriented like propellers on a fixed-wing aircraft, but at the speed of more than 200 knots, the MV-22 is limited to carrying cargo internally, and it loses the substantial capacity for payload that can be carried suspended beneath the fuselage in “helicopter mode.”

At distances up to about 100 nautical miles, the number of airships needed to maintain a given cargo throughput (for example, 1,000 tons per day) would be similar to the number of today’s vertical takeoff and landing aircraft. At distances longer than 100 nautical miles, the greater ranges offered by the proposed airships would enable them to maintain a given throughput with fewer aircraft. That advantage would allow a single airship mission to supply several forward outposts sequentially, instead of the several individual missions that would be needed with today’s aircraft. At least three cargo airship designs that could be fielded to provide airlift capability within the next few years are in development or have been proposed. The Project Pelican is a proposed hybrid airship that would feature a rigid hull and use variable-buoyancy technology to assist with controlling lift. The LEMV-Heavy would be based on the LEMV that is being developed for ISR missions. The SkyTug is a hybrid airship that would be based on the P-791 technology demonstrator that first flew in January 2006. From 2003 to 2006, the Defense Advanced Research Projects Agency pursued a program called the Hybrid Ultra-Large Aircraft (HULA), or Walrus, with the goal of building an airship able to carry 500 to 1,000 tons up to 12,000 miles in less than seven days. If such a large aircraft is ever built, it will most likely be a larger version of a smaller hybrid airship such as the three described above. For an analysis of how very large cargo airships might perform relative to sealift ships and conventional strategic airlift aircraft, see CBO “Options for Strategic Military Transportation Systems” (September 2005). Ω

On the heels of the Congressional Report... Congress: Time for a DoD “Airship Czar” By Bob Brewin

The Defense Department has so many airship programs Congress directed the Pentagon to designate a senior airship official in the 2012 National Defense Authorization Act signed by President Obama last Thursday. This official will have responsibility for programs that include the Army’s football-field sized Long Endurance Multi-Intelligence Vehicle and the equally large, blimp-like Air Force Blue Devil, both designed to carry sensors over battlefields.

Other military airship programs include plans by the Army to develop a massive cargo airship and a blimp to test sensors. Plus, the Army and Air Force have deployed tethered aerostats to carry radars. I suggest that “The Deltoid Pumpkin Seed,” by John McPhee -- the best airship book ever -- be required reading for the Pentagon airship czar....”



Berwin also wrote: “The Navy, meanwhile, spiffed up its only blimp, the MZ-3A, with a new paint job and displayed it in an old dirigible hangar at Lakehurst, N.J. The Naval Research Laboratory uses the MZ-3A to test sensors, and Steve Huett, program manager for the blimp, said, “You can operate an airship for 40 percent of the cost of fixed-wing aircraft or helicopters.” That only works if the airship manages to get airborne.” Ω



Whither the Army Airship? By Bob Brewin
(Excerpts combined from several internet reports)

This February I reported that the Army's Long Endurance Multi-Intelligence Vehicle (LEMV) would take to the air this spring, as scheduled. But, that schedule is now, err, up in the air, and the Army Space and Missile Defense Command has gone mum on when the football-field sized airship will take its first flight. A command spokesman said they'll let me and the whole world know when it does happen, but did not provide a date.

The airship has been inflated since last September and has been hanging around in a former dirigible hangar at the old Lakehurst Naval Air Station in southern New Jersey (which now goes by the awkward name of Joint Base McGuire-Dix-Lakehurst), according to John Cummings, a spokesman for the Army Space and Missile Defense Command. Though the airship has been floating inside that hangar for six months, it has yet to make a flight, as various systems are integrated into the LEMV, which is the size of three football fields. Cummings declined to provide a flight date, but did say the command and contractor Northrop Grumman are pursuing "an aggressive schedule" to get it in the air. Not to be overly cranky, but Northrop originally predicted a test flight in the spring of 2011 and a long endurance flight acceptance test for the Army by the end of 2011.

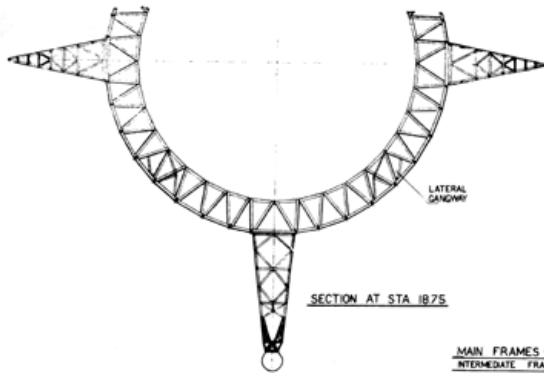
The LEMV will carry a whole bunch of sensor widgets to monitor battlefields, and Stephen Kreider, the Army's deputy program executive officer for intelligence, electronic warfare and sensors, has big plans for the airship. In a Jan. 11 presentation, Kreider envisioned the LEMV becoming a program of record, which could mean the Army could end up with a fleet of airships. Ω

AIAA LTA TC 1st Q 2012 Meeting Minutes

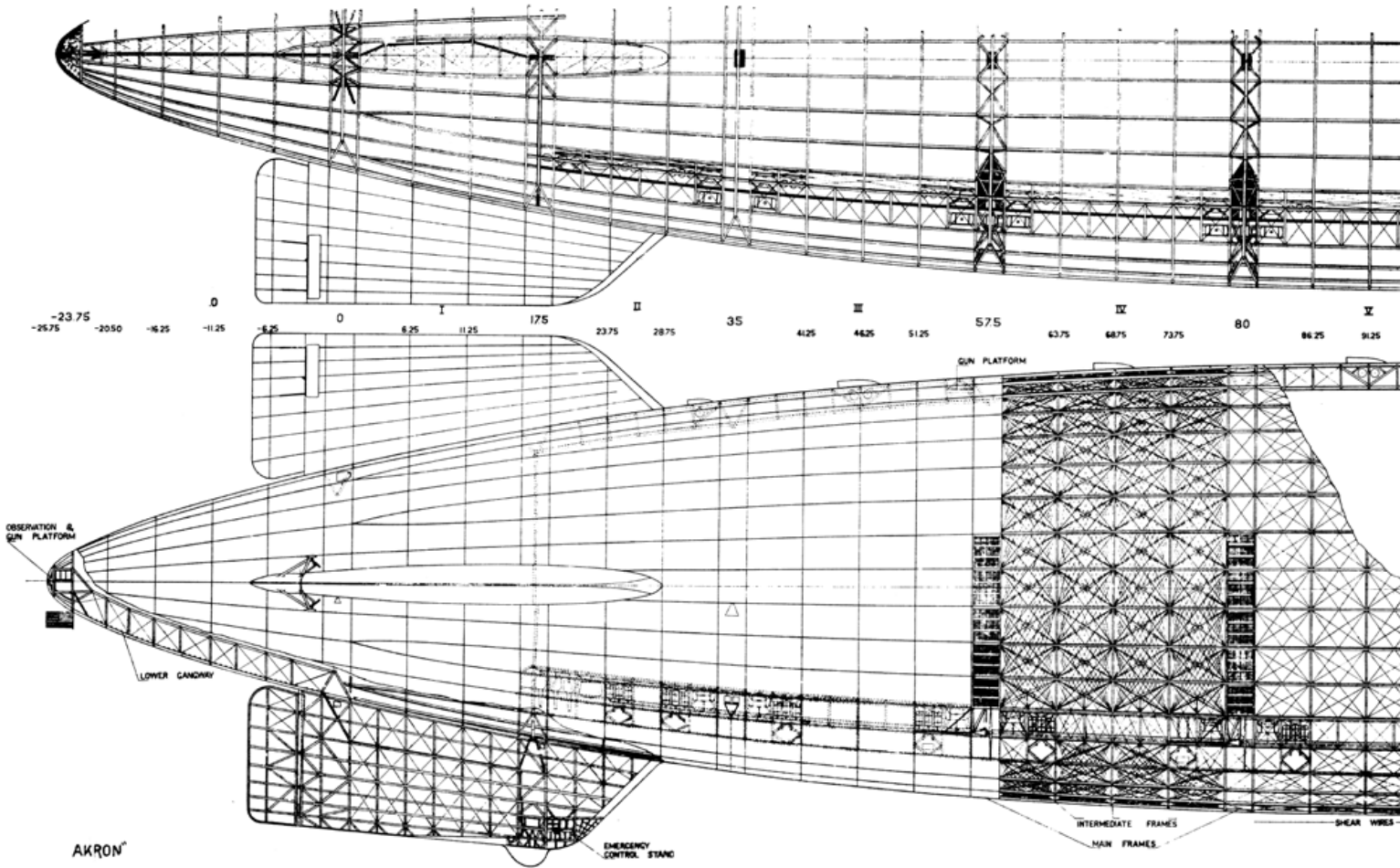
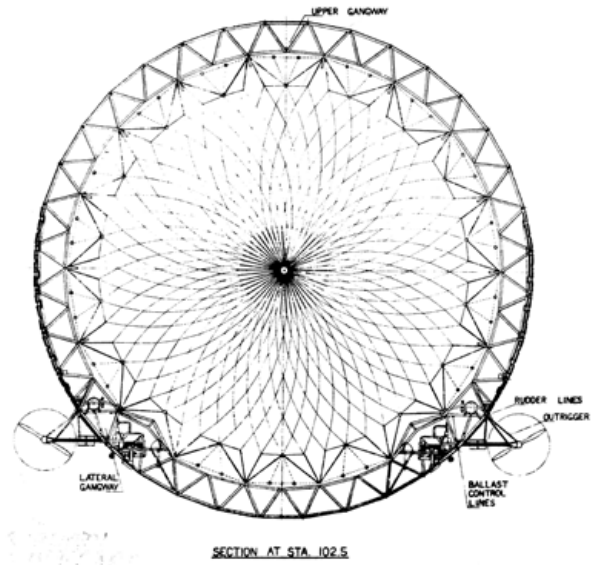
Meeting brought to order by chairman at 11:00 am CST, 2/2/2012.

- Trenton White requested industry support for validation of LTA Optimization tools being developed for Air Force Research Lab.
- TC vision of "relevance and value" to industry and participants discussed.
- B. Buerge proposed co-locating our 2013 LTA Conference with ADS and Balloon TC meeting in Daytona Beach, FL. Motion carried.
- Prof. Pant proposed planning Short Course. Reasons for previous failure (lack of advertising due to logistical difficulties) discussed. Planning is to begin straight away. Sub-committee formed comprised of: R. Pant, B. Buerge, and M. Beyer. B. Buerge to determine whereabouts of surplus funds from past conference.
- Need to advance languishing recommendations from Airship Working Group discussed. Dual issues of needs for updated operating regulations as well as effective foundation for certification criteria of airships identified. Sub-committee formed comprised of: R. Bartel, L. Brooke, B. Boyd, R. Hochstetler, and G. Bland. B. Buerge to find contact info for Regulatory TC.
- "Z Prize" discussed. Related academic initiatives discussed. Working group formed comprised of B. Prentice, M. Beyer, and R. Pant.
- Brandon B. nominated Mark Beyer and Erik Runge as new TC members. Motion carried. Erik Runge identified as new LTA TC "Web Master."
- Geoff Bland identified potential synergies with regulatory challenges of the UAV/UAS community, and brought up upcoming "Unmanned Unlimited" conference.
- R. Pant requested individuals interested in supporting an outdoor autonomous airship in development.
- Position of "Distinguished Lecturer" to advocate for LTA among other TC's discussed. Nominations for this position are welcome.
- R. Hochstetler notified the TC of an upcoming workshop in Alaska to discuss cargo airship operations. More information to follow.
- Meeting adjourned 12:30 pm CST.

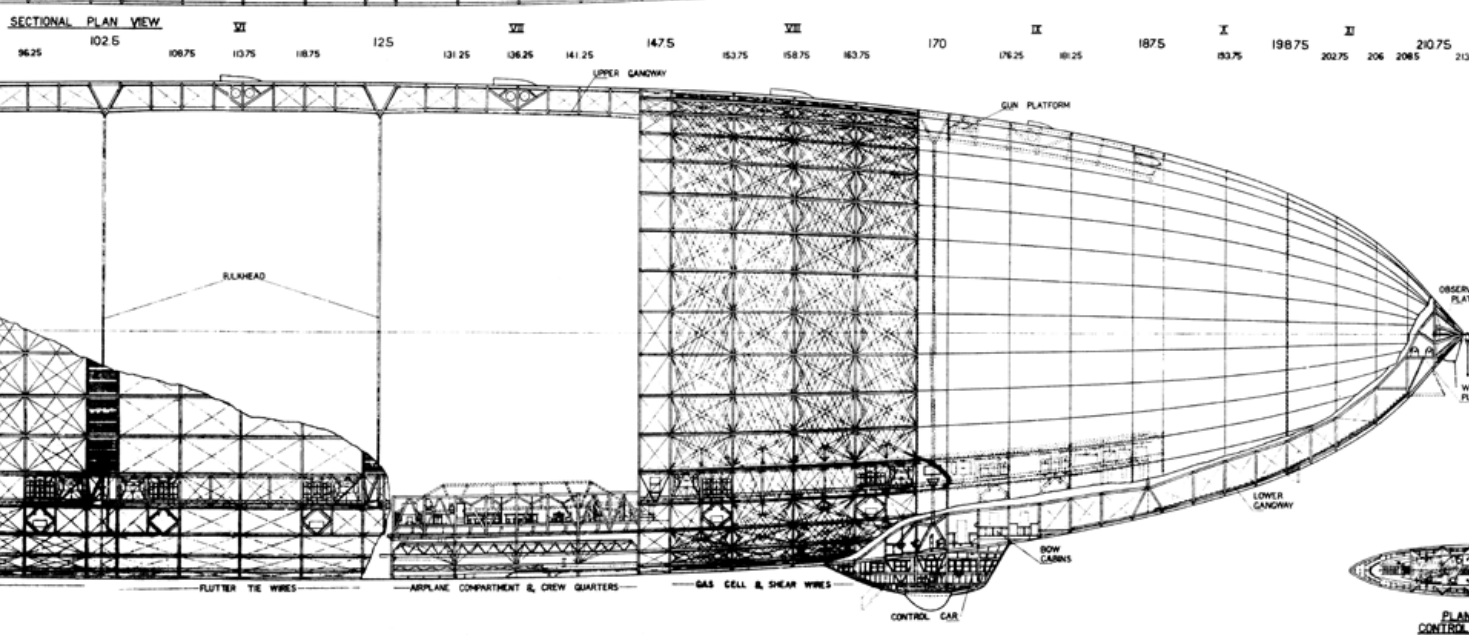
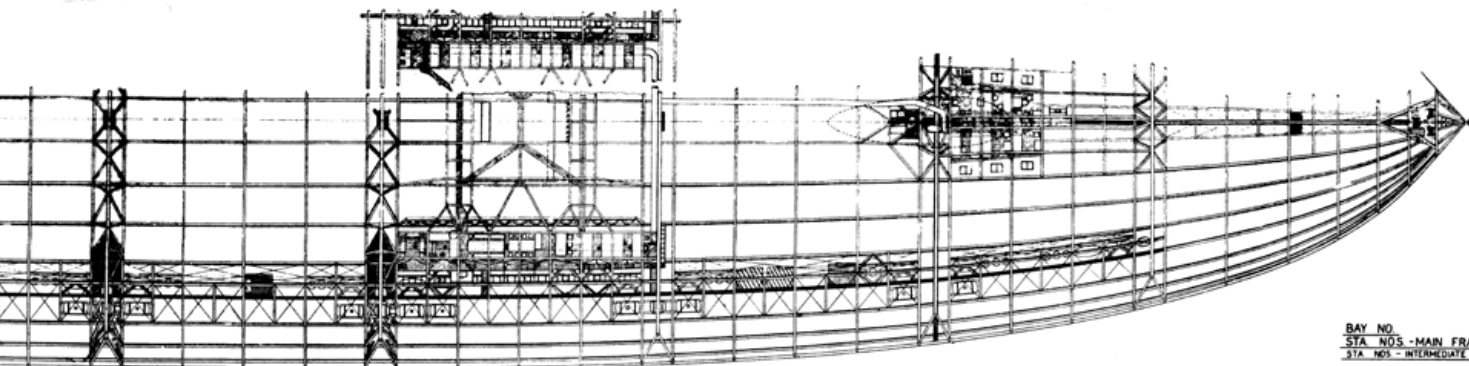
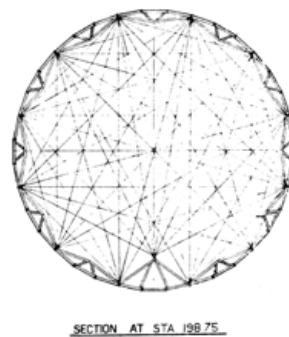
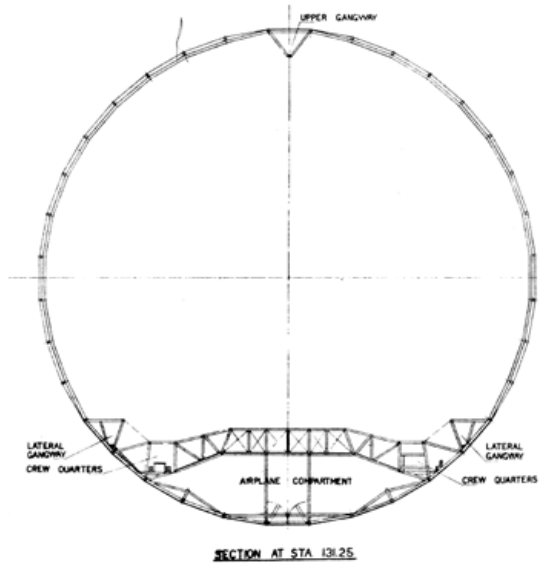
Dr. Brandon T. Buerge,
Chairman, AIAA LTA TC Ω



BAY NO.
 MAIN FRAMES - STA. NOS.
 INTERMEDIATE FRAMES - STA. NOS.



AKRON



REVISED BY: [Signature]
 DATE: APRIL 3, 1928

U.S.S. AKRON
AIRSHIP ZRS-4
GENERAL ARRANGEMENT

BUILDER: GOODYEAR ZEPPELIN CORPORATION, AKRON, OHIO. SCALE: 1/100. APPR. BY: [Signature] 6P-0708

Manned hydrogen gas ballooning has seen a definite revival in the US in recent years. The major factors encouraging this are: 1) the astronomical increase in the cost of helium; 2) the frequent inability to obtain helium at any cost and 3) the very good records of European gas balloonists when flying hydrogen. The German manufacturer Wörner has been building hydrogen capable gas balloon systems for more than 25 years with a very good safety record. These balloons are designed as an integrated system with the goal of managing the static electric charge that gathers during flight on the many square yards of fabric comprising the envelope.

They are constructed of a special fabric that distributes this electrical charge uniformly over the balloon's surface to avoid creating spark generating hot spots. Conduction paths are provided from the basket down through the gondola to smoothly drain off any accumulated charge upon first ground contact. While pure hydrogen is not flammable, the inevitable infiltration of oxygen into hydrogen that occurs during a long flight in a zero pressure (i. e. open bottom appendix) balloon makes the final landing the most worrisome part of the flight. A hydrogen-air mixture is flammable in the range from 5% to 75 % hydrogen. So the introduction of 25% air will result in a flammable mixture.

Several factors have limited the number Wörner balloon systems exported to the US. Cost, FAA registration complications and limited availability of repair and inspection stations are some of the factors. One limitation of hydrogen balloon that has not been overcome is their aversion to lightning. But since every sane pilot whether balloon or fixed wing tries to avoid flying into thunderstorms, and since modern weather forecasting is very good at alerting us to TSTMS, this is a manageable limitation. Still, it must be said that helium balloons are marginally safer in thunderstorms.

For the past six years the America's Challenge Gas Balloon Competition, the de facto US gas balloon championship, has allowed pilots with hydrogen-

capable balloons to fly in their event. In 2011, for the first time, there were an equal number of hydrogen and helium balloon entered in this event. This welcome development is at least partially due to the limited domestic production of a hydrogen-capable gas balloon for the first time in perhaps sixty years. Best Aviation Services of Bally, PA, has worked with a U.S.-based fabric finisher to develop a lightweight urethane coated conductive fabric for use in hydrogen balloons. Best Aviation has, to date, used this fabric to manufacture two hydrogen capable balloons that have been certified for flight by the FAA in the experimental category. Serial #1 has flown safely in the last two America's Challenge competitions with competitive results and it has a total of four flights logged in its flight records.



For distance competitions such as the America's Challenge, hydrogen initially provides about 8% more gross lift for equal volume, but since it is less stable (the low altitude adiabatic temperature lapse rates per 1,000 ft. are 5.4° F for hydrogen, 7.3° F for helium and 3.6° F for the general atmosphere) more ballast is used to maintain altitude during each 24-hour cycle of solar heating and cooling. From the numbers above, in an ascent, helium will super cool more than hydrogen and thus will be more stable. Thus, the recent mixed gas races have been an interesting study in the relative competitive merits of the two gases. Ω

U Of M Prof., Aviation Fans Hope To Solve North's Transport Problem (excerpt from Winn. Free Press)

Barry Prentice and Dale George will this spring begin testing an airship for use bringing everything from fresh fruit and vegetables to fuel and construction supplies to Manitoba reserves. It's an idea of particular interest right now, with warm weather seriously delaying the construction of 2,200 kilometers of winter ice roads that bring critical supplies to 30,000 people who live in 20 northern communities. "These ice roads, they aren't going to last," said Prentice, a transportation expert and professor of supply-chain management at the Asper School of Business. "You can't just pray away the problem." Warm weather has repeatedly cut into the amount of time winter roads are open each year, and more and more often, communities don't have time to truck in all the gas, food and other supplies they need to last them a year.

At a recent conference on airships in Seattle, it was said airships could be a "game-changer" for developing natural resources and improving living standards in the Canadian North. Prentice acknowledged the concept of airships has been difficult to get across because so many people hear airship and think *Hindenburg*... Prentice said to judge modern-day airships on the *Hindenburg* would be like judging current aircraft safety based on the safety of the first flights. Eighty years ago, airships had no radar, no engineering and no weather-forecasting ability. All of that is no longer true, Prentice said.

Just before Christmas, Prentice and Dale George, who started an airship-building company more than two decades ago, unveiled a 24-metre-long airship at the University of Manitoba. The Giizhigo-Misameg ("Sky Whale" in Oji-Cree) will be used as a test ship to see how versatile it can be in delivering supplies to northern reserves. George said in the spring, he will try test flights carrying a symbolic 68-kilogram shipment at a time -- the limit this particular ship can carry. George has been interested in airships since he was a kid. "I jumped the fence at the airport and ran across the tarmac to get a ride on the Goodyear Blimp," said George. "I was about 12."

His interest turned to building models of airships and airplanes and then to building real airships. "It's a hobby that went out of control," he said. Prentice said a few years ago, the province was interested in

funding a pilot project to test an airship in Manitoba, but the ship Prentice procured was damaged before it arrived and the project was abandoned. Manitoba Keewatinowi Okimakanak Grand Chief David Harper said he's interested in the airships idea but doesn't know enough about them to comment on whether they would be something northern chiefs would back. Manitoba Aboriginal Affairs Minister Eric Robinson said eventually Manitoba will have to make a decision about airships, but he wants more information and research done on them first. He is focused instead on the \$1.125-billion system of all-weather roads for the east side of Lake Winnipeg.

Prentice said the airships are better because they



would serve all the communities without permanent road access and are cheaper. He estimated for \$100 million, a hangar and three airships could service northern communities. The critical element, Prentice said, is testing airships in winter conditions. Seeing what happens to the rubber, the motors, the valves and the water used to balance and stabilize the ship. "There is lots of research to do," said Prentice. "There is no reason Manitoba can't be a leader in this endeavour."

Helium, the gas that fills the balloon part of the ship, is inert and non-flammable. "It is no more flammable than water," said University of Manitoba Prof. Barry Prentice, a transport expert who aims to make Manitoba a leader in airship technology for supplying northern remote communities. If an airship is damaged, it leaks gas slowly and the pilot has plenty of time to guide it to a safe landing. Can they operate in winter weather? Not yet. The U of M team is starting research to make the ships compatible with cold-weather flying. Ω

TECHNICAL COMMITTEE

This is a summary of recent developments in the lighter-than-air field.

The U.S. Army's Long Endurance Multi-Intelligence Vehicle (LEMV) is behind schedule. It is six months since the envelope was inflated. It has yet to make its first flight. Despite the delays, the Army Space and Missile command has big plans for the airship and possibly a fleet of them. The present contract requires three airships to be delivered.

MAV6 continues assembly of the Blue Devil 2 airship for the Air Force. Recent reports show installation of a stern-mounted small propulsion unit which is vectorable. Current plans include using a large surface vessel to deliver the Blue Devil to the war zone. This might delay deployment and increase the program's cost. The MAV6 organization has established a partnership with Mississippi State University to develop electrical systems.

Owing to budgetary restrictions the Navy had decided to deflate its MZ-3A for storage. The program for its use is suspended. The previous intention was to keep the airship in a southern location and fly it from there during the winter. She returned to Lakehurst on 27 Feb. 2012 for a few days' general maintenance in historic Hangar #1. MZ-3A then received a reprieve and will again be used as a platform for airborne equipment testing.



Buoyant Aircraft Systems International (BASI) established by Dr. Barry Prentice of the University of Manitoba, Canada, has built an 80 ft. single-place small airship (above). It will be used for research on cold weather effects, cargo exchange and other ideas. The airship costs about \$100,000 not including labor. It is capable of making 50 km/hr. Small electrically

powered propellers mounted on the nose and tail may be installed to obtain improved lateral control. A larger model, 246 ft. long, is planned for later. A hangar has also been built at the Saint Andrews airport just north of Winnipeg.

The World Surveillance Group is testing its Argus One (above) at the Department of Energy Nevada Test Site. Argus One is an unmanned autonomous pressure airship capable of maintaining altitudes between 10-20,000 feet while carrying 33 lbs. of surveillance



equipment. It uses ballonets to control pressure in each of the four envelope modules which are attached to each other to allow the envelope to achieve extreme configurations. The airship allows easy storage and assembly in remote locations. It is not clear that all of the claimed capabilities will be demonstrated during the tests in Nevada or in a later phase.

The current House and Senate conferees on the defense authorization bill have retained a provision for requiring the Department of Defense (DOD) to establish a "focal point" for airship programs. Reports to Congress about the various present lighter-than-air projects have been lacking in "discussing technical challenges and how the Department was pursuing them." If approved, it would require the Secretary of Defense to designate a senior official of DOD to be the one with principle responsibility for airship programs in the DOD.

A conference named "At the Crossroads of Practice and Policy—Commercial Applications of Northern Airships" is scheduled for July 31–August 2, 2012, in Anchorage, Alaska. It will be hosted by the Institute of the North. It is a follow-on to a August 2011 Workshop on "Cargo Airships for Northern Operations" hosted by the NASA Ames Research Center and the Alaska Department of Transportation.

Norman Mayer - Chairman

SHORT LINES



Barco will provide the color avionics displays for three Zeppelin NTs (internet) [Top, Eureka in 2010]

Airship designers at Zeppelin Luftschifftechnik GmbH (ZLT) in Friedrichshafen, Germany, needed engine-indicating and crew-alerting system (EICAS) displays and processing units for three Zeppelin NT lighter-than-air, inflatable airships. They found their solution from Barco NV in Kortrijk, Belgium. Barco engineers will provide ZLT with the Barco CHDD-268 cockpit head-down display with sunlight-readable AMLCD and LED backlight technology, as well as the PU-2000 multi-capability processing unit. Executives of ZLT and Goodyear together are funding and developing a new cockpit display system to be installed in the instrument panel of the new Zeppelin NTs, which will replace nearly all the hardware items of the 10-year-old display system. The redesign of the Zeppelin NT's instrument display panel will upgrade the existing I-Panel to a modern glass cockpit with two off-the-shelf EICAS display units and two dual EFIS displays for primary flight display.

The Barco EICAS display will indicate airship data, such as fuel status, water ballast, and parameter limits. The display can add and remove information indicated on the screen, and make adjustments to key parameters like fuel quantity and water ballast. "The open MOSArt software platform allows a perfect integration with our custom-made avionics suites, and minimizes the certification effort and risk," explains Thomas Brandt, general manager at ZLT.

Goodyear will use the three airships for marketing and for VIP passenger flights for local and national charities. ZLT will deliver the three airships over the next six years, with the first airship entering service in January 2014. Ω



Navy Balloon Launches Drone, Which Drops Two More Spy Bots By Katie Drummond (*excerpt*)

It just might be the most convoluted spy program in the Pentagon's history: Fly a balloon up to 60,000 feet, and have it unleash a drone. Then, have that drone deploy several smaller surveillance drones that glide to the ground and collect data.

The elaborate plot comes courtesy of the Naval Research Laboratory (NRL), which recently announced successful completion of flight tests for their new, Autonomous Deployment Demonstration project. The goal sounds simple enough: land small, sensor-laden drones at precise locations, without being detected. The Cicada drones are tiny gliders, each about the size of a small bird and undetectable to radar. Plus, because the drones don't have a motor or propulsion system, they're essentially noiseless. And their simple construction and inexpensive airframe means that the drones are disposable. Their drones-within-a-drone-within-a-balloon contraption complete, the Navy conducted a series of eight aerial tests. Unreleased at 57,000 feet, the Tempest drones traveled as far as 30 nautical miles before unleashing their Cicada cargo. Once deployed, the Cicada drones glided an extra 11 miles, and landed an average of 15 feet away from their target locations. Eventually, the Navy hopes to deploy hundreds of Cicada drones from an aerial vehicle, and disperse them to deluge a hostile area with secret sensors. Ω

New X-Ray Observatory Will Be Flown On Balloon

POPULAR SCIENCE (1/12, Boyle) reports, “NASA just funded a new X-ray observatory that will float in the upper atmosphere for a day, staring at suspected black holes.” The X-Calibur that will be carried via balloon “will fly in concert with a satellite instrument called the Gravity and Extreme Magnetism Small Explorer (GEMS), and together they will examine the way that space warps in response to a spinning black hole’s gravity.” It is expected to launch sometime either in 2013 or 2014 with “longer follow-up flights... planned in years thereafter.” Ω



The High Speed Solar Airship (HSSA) is a high-flying airship concept that proposes using thin-film solar panels and other off-the-shelf components to create a cost-competitive, high-speed vessel for cargo hauling. The airship has no fuel costs, since it uses 67.2 kW of solar panels, and it capitalizes on the fast winds of the Jet Stream to boost speeds on with west-to-east transport – flying at 30,000 feet, the airship could reach daytime speeds of 182 MPH and even continue flying at night with a speed of 165 MPH.

Using an envelope with expandable gas cells will allow the airship to go from sea level to an altitude of 30,000 feet. This puts the airship above bad weather and also provides a clear, unobstructed environment for the solar panels. The colder temperatures at high altitude can also help boost energy production from the solar panels by up to 30%. The Jet Stream contributes significantly to the airship’s speed (at least on west-to-east runs) — speed projections for the HSSA are based on utilizing a 96 MPH average windspeed. Even without tailwinds, the HSSA could still be faster than trucks when traveling west, although the most efficient routes will follow high altitude wind patterns. This could allow the HSSA to claim some of the \$222.4 billion annual truck-shipping business, particularly for long-haul routes. Ω



Blue Devil Airship To Gain FOENEX Radars

POPULAR SCIENCE (12/1, Dillow) reports, “The Air Force’s Blue Devil airship, a recent PopSci Best of What’s New recipient and a potential answer to the military’s expanding data glut problem is getting yet another high-tech upgrade.” The Blue Devil will be outfitted with two Free-space Optical Experimental Network Experiment (FOENEX) systems that “correct for distortions in the light caused by things like moisture and particulate matter in the air” and can give the Blue Devil the capability to broadcast “with nearly the same transmission fidelity and reception as optical cable.” Ω

Pentagon Shelves Boeing’s Airborne Laser

AVIATION WEEK (1/7, Butler) reports, “After nearly 16 years of development and more than \$5 billion spent on a Boeing 747-400F-based Airborne Laser (ABL) ballistic missile killer, the Pentagon has finally called it quits,” with the US Missile Defense Agency now seeking “smaller directed-energy payloads to be fielded on high-flying unmanned aircraft within the next decade.” Ω

JLENS Aerostat system at White Sands

Raytheon Company recently established a test site at White Sands Missile Range, N.M., for its cruise missile defense system – the Joint Land Attack Cruise Missile Elevated Netted Sensor System. “JLENS provides an incredible capability,” BG Knudson said. “This new test site will enable us to accelerate testing, training of soldiers and integration with Army and Navy air and missile defense systems,” said Mark Rose, Raytheon’s program director for JLENS. “With JLENS testing going well at the Utah Training and Test Range, we will continue to put it through its paces to meet test and evaluation requirements demonstrating the system’s readiness for deployment.” Ω

New Report Says Fuel Cells Should Be Power Source For Drones, Other Military Craft

INNOVATION NEWS TODAY (11/10) reports, “Almost two years ago, an experimental US Navy drone flew nonstop for 26 hours during a record-shattering flight for fuel-cell-powered drones.” That and other tests have “encouraged a new report” sponsored by the Defense Department “to envision fuel cells as the U.S. Department of Defense’s ‘technology of choice’ for powering aerial drones, ground robots and even U.S. military bases within five years.” The “fuel cells have proven” to be “a cleaner and more energy-efficient power source compared to the combustion engines used by Humvees, tanks, jet fighters and base generators.” They could someday serve as wearable power sources for soldiers in Afghanistan or as primary power aboard U.S. Navy ships; however, the recent report sponsored by the Department of Defense advised the U.S. military to focus on acquiring fuel cells for the most immediate uses. That doesn’t mean fuel cells can singlehandedly satiate the U.S. military’s hunger for clean energy solutions. But they could join the spread of energy solutions that may free U.S. troops from dependence on oil and the supply chain of fuel convoys.

One huge opportunity comes from the growing robot swarms of flying, rolling and swimming drones that could use fuel cells to operate longer during missions, boost fuel efficiency and reduce noise and heat signatures. Hybrid versions of ground robots have outperformed their battery-only peers. Fuel cells have also shown promise in boosting the range of both aerial and underwater drones.

Another opportunity exists with military bases using fuel cells to supply all or part of their electric power, heating and cooling needs. Such distributed power generation could either serve as backup power or completely free military installations from dependency on the power grid. Army, Navy and Marine bases already have fuel cell systems provided by companies such as UTC Power and Fuel Cell Energy. Even military warehouses and supply chains give fuel cells a chance to shine. Fleets of fuel-cell-powered forklifts have already proven more productive, cleaner and quieter to run than their battery-powered counterparts in civilian warehouses.

The Defense Logistics Agency report suggests that the DoD require consideration of fuel cells for battlefield robots and military bases. Ω

Nortavia Develops a Safe and Environmentally Friendly Airship (Excerpted from internet report)

The world aeronautical industry is taking its first steps towards the re-birth of the dirigible airship as a means of transport for people and cargo. Combining safety and versatility it will become the sixth form of transport in modern times. In the last five years and realising the movement in this industry, the Portuguese company Nortavia-Transportes Aereos developed an innovative project which is publicly announced at Oporto (Portugal). First presented to the world in December 2011, in Seattle, USA, it has been favourably commented on by international experts. Portuguese engineering was behind the construction of a 1/10 scale prototype, six metres long, three metres high and three metres wide named after the Earth Goddess, GAYA.



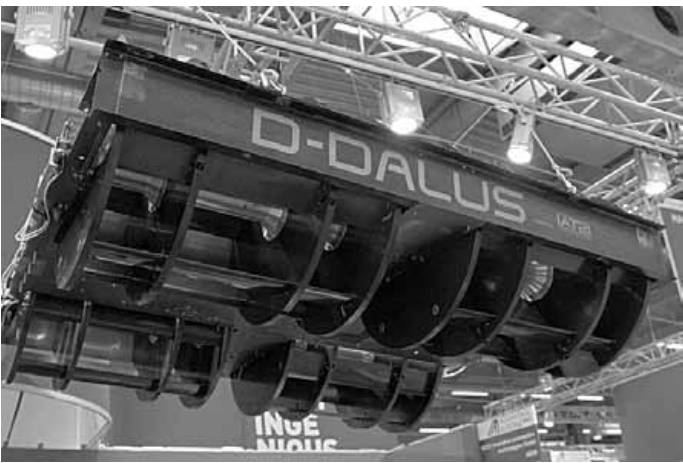
Nortavia created a R&D team which developed its own concept of airship. This differs from the competition on several levels, the aerodynamics, the conceptual structure and the use of a hybrid non-pollutant propeller. All of which make this airship safe, efficient, versatile, economical and environmentally friendly. The project differentiates itself from others and makes for a scientific and technological advance. Not only because of the studies done towards developing it as well as the use of the most advanced materials available at the time of construction. The airship is made up of several modules filled in with helium which allow it to stay in the air enough time to serve its purpose and land in safety, even in the case of a gas leak. The efficiency of the airship developed by Nortavia is noticeable in the type of missions it can undergo, from people transport on business or leisure to medium to large size cargo, especially to areas of remote access either by land, sea or air.

The revolutionary propulsion system that makes this airship different from other projects. It emits minimal CO₂, making it environmentally friendly. The Nortavia airship combines a generator running on bio-fuel and photovoltaic cells. These generate energy which in turn powers the vector electric motors responsible for navigation.

Cassiano Rodrigues, president of Nortavia states: “The project which is being developed by Nortavia fills a gap in the current transport system. Rather than an alternative to the existing ones we are talking about a sixth form of transportation which is safe, efficient, versatile, economical and environmentally friendly.” Ω

Cycloidal propeller debuts on HTA craft without wings or empennage (Internet)

Ideally we would love an aerial platform that can approach as gently and silently as a hot air balloon, can stay in the air like a hummingbird, can rotate in any direction like a football, can ‘glue down’ on the deck of a ship like a ‘tossed pancake’, can see in all directions like a crystal ball, can fly as fast as a jet, is as invisible as a 155mm shell and can be repaired by a local car mechanic. Such an aircraft now appears within reach.



At the heart of D-DALUS is a revolutionary propulsion system containing a number of patented inventions, including a friction-free bearing at the points of high G force, and a system that keeps propulsion in dynamic equilibrium, thereby allowing the guidance system to quickly restore stability in flight. The propulsion consists of four sets of contra-rotating disks, each set driven at the same rpm by a conventional aero-engine. The disks are surrounded by blades whose angle of attack can be altered by off-setting the axis of the rotating disks. As

each blade can be given a different angle of attack, the resulting main thrust can be in any required direction within 360° around any axis. This allows the craft to launch vertically, remain in a fixed position in the air, travel in any direction, rotate in any direction, and thrust upwards thereby ‘gluing down’ on landing.

D-DALUS is currently in prototype stage. Over recent weeks IAT21 have conducted extensive constrained flight tests in a specially prepared laboratory near Salzburg, including the transition from vertical to forward flight, and are now ready to move to an open test range for free-flight tests. In trials to date D-DALUS has met the performance criteria placed upon it and appears to be scalable, becoming more efficient and less complex as it increases in size. It will therefore be ideally suited for applications that range from maritime search and rescue, through the carriage of freight, to operating alongside and within buildings during fires or, for example, nuclear accidents. IAT21 have now formed a collaborative partnership with Cranfield in the UK to take the aircraft forward to full flight certification. IAT21 are now working on an up-scaled engine, the external hull shape and the integration of next generation guidance and control systems. Once the aircraft is mature, IAT21 will explore sales as drones for maritime and land-based operations, use in search and rescue, disaster reporting and assisting emergency services. IAT21 also plans service provision. In the longer term the designers have aspirations ultimately to develop a passenger version for use in public transport networks. Ω *Ed. notes NAA member Roy Gibbens has been a longtime advocate of using Cycloidal props to achieve the “holy grail” of airship control at 0 forward speed – or even flying backwards.*

NASA Awards Microbial Fuel Tech Research Grant

The HUFFINGTON POST (1/5) reports, “According to the US Naval Research Laboratory (NRL), NASA is hoping to use” microbial fuel cell technology “to power small devices, including ‘microrovers,’ for use in space.” NRL spacecraft engineer Dr. Gregory Scott, “who received a grant from NASA to conduct his research” recently developed “a 1-kilogram prototype microrover.” The microrover “has ‘a long-term potential for space and robotic applications,’” Scott says. MFC technology could one day power microrovers on deep-space missions, Ω

Forget Noisy Blimps, Say Hello to the Airfish



(Internet) The next time you're at a music festival and see a giant rainbow trout swishing around in the sky, there's just a chance you might not be intoxicated. It might be scientists testing an airship that moves like a fish. The materials scientists from Switzerland call it the Airfish.

The 8-metre-long helium-filled prototype glides through air as a fish swims through water – by swishing its body and tail from side to side. As well as moving more gracefully than a conventional blimp, the Airfish is also much quieter and cleaner because it doesn't require the fume-belching engines and noisy propellers normally used for mid-air manoeuvres. As such, TV broadcasters might favour it for capturing aerial footage of music and sports events, the team suggests.

Christa Jordi and colleagues from EMPA, the Swiss federal laboratories for materials testing and research in Dübendorf, replaced traditional airship propellers with long artificial muscles strapped on each side of the blimp. The muscles are made from an acrylic polymer with carbon electrodes deposited on either side: when a high voltage is applied across the electrodes, establishing a strong electric field across the polymer, the electrodes are attracted to each other – physically compressing the material and forcing the Airfish to flex.

Alternate the voltages applied to each polymer muscle and the contractions will make the airship sway like a fish. Put some more membranes either side of its hinged tail, and it can swish it back and forth. Ω

US Military Testing Cargo Drone Helicopters In Afghanistan

The AP (1/8, Lekic) reported the US military is testing the Kaman K-MAX, a helicopter drone “intended to fly cargo missions to remote outposts where frequent roadside bombs threaten access by road convoys.” This is “the first time a chopper version designed for transport has been used operationally.” In 20 transport missions, the drones “delivered nearly 18 tons of cargo, mainly thousands of Meals Ready to Eat and spare parts needed at...forward operating bases.” Ω



The Hi-Sentinel 80, launched vertically (photo) before its helium would expand it to shape at altitude (photo of test inflation), had completed what was said to be a successful test and recovery back in November 2010. Little has been said since. Ω

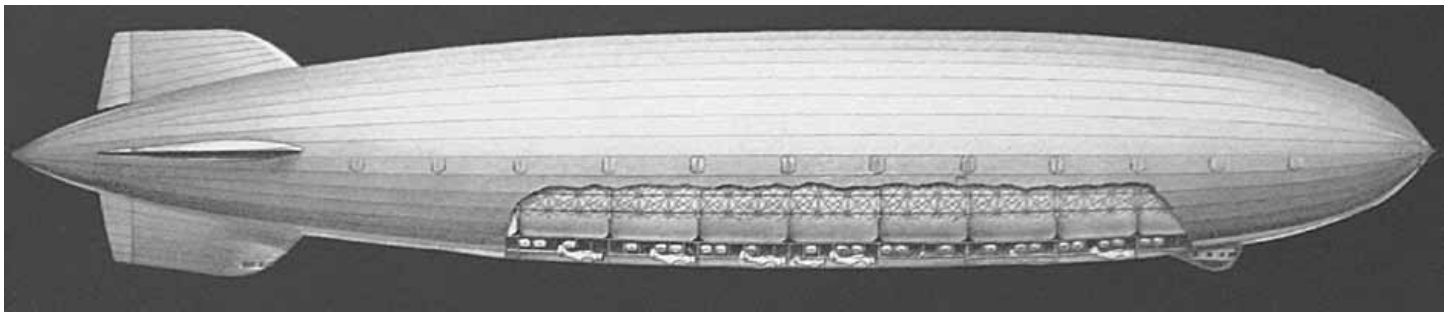
Teenage girl dies after inhaling helium at party (AP)

Last Feb. 14-year-old Ashley Long told her parents she was going to a slumber party. After drinking on the drive, it came time for Ashley to take her turn on a tank of helium that everyone else was inhaling to make their voices sound funny. She passed out and later died at a hospital, the result of an obstruction in a blood vessel caused by inhaling helium from a pressurized tank. Dr. Mark Morocco stated that it is similar to when a scuba diver surfaces too quickly, gas solubility decreases dangerously fast, causing bubbles to form in their blood. Ω

The David Kirch collection of Zeppelin-related memorabilia auctioned beginning March 2012

Wallis & Wallis, Specialist Auctioneers in Southern England, was commissioned to offer for sale at auction the well-known David Kirch Collection of Zeppelin and other airship-related memorabilia: Presentation pieces, medals, coins, postcards, photographs, paintings, prints, original newspaper posters, important documents, badges, brooches, books, uniforms, toys, models, etc. Ω

HISTORY COMMITTEE



(Above: G-Z design for Carrier Rigid via **E. Brothers**)

This is the final section of the 1936 letter to SECNAV from the “Durand” scientific committee which was tasked to investigate the future of LTA, after the *Macon* broke up. I still haven’t seen one of the 15 known copies of the report, nor SECNAV’s original tasking letter to them, but I’m getting closer.

The DURAND REPORT is like the weather, everybody talks about it, nobody does anything about it. In this case, the Navy demonstrated its long-standing ability to totally ignore direction from Congress (and the civilian leaders of the Roosevelt administration). We never procured another rigid airship, or adopted any of the commissions’ recommendations.

- **Al Robbins, Chair**

From the Special Committee on Airships to Honorable Claude A. Swanson, Secretary of the Navy:

RECOMMENDATIONS AS TO FUTURE CONSTRUCTION

It has been already pointed out that the experience with large airships in the United States has not as yet been sufficient to give ground for a wholly settled opinion as to the character and extent of their potential usefulness, either commercial or naval.

In view, therefore, of our expressed opinion as to the practicability of the design, construction, and operation of such airships with a reasonable margin of safety and with the presumption of capacity for useful service, it is the unanimous opinion of this Committee that the best interests of the services in which airships give promise of useful and effective service, both commercial and naval, require a continuing program of construction and use.

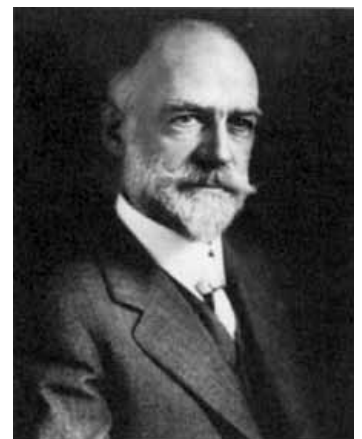
And in pursuance of this opinion it is our recommendation that the Navy Department should continue with a positive, carefully considered program of airship construction including nonrigids and rigid ships of small or moderate size as service requirements might indicate, and extending to a ship or ships of large size, to the point at least for the latter, of furnishing ground for definite conclusions regarding the capacity for useful naval service of constructions of this character.

We further recommend most strongly that the first large airship built under such a program should, at least for a time, be considered not an adjunct to the Fleet but rather a flying laboratory or flying training ship, not only for extensive technical observations of the structure under operating conditions, but also for enlarging our knowledge regarding the best conditions of service for such vessels, and, as well, for giving opportunity for the training of officers and crew in the technique of handling airships under all conditions of weather and service.

In a subsequent report or reports we shall, with suitable recommendations and supporting documents, present in some detail material more fully and directly responsive to the technical phases of your letter of instructions.

Respectfully submitted,
A.V. De Forest,
William Hovgaard,
Frank B. Jewett,
Theodore Von Karman,
Charles F. Kettering,
R.A. Millikan,
Stephen Timoshenko

W.F. Durand,
Chairman (rt) Ω



W.F. Durand



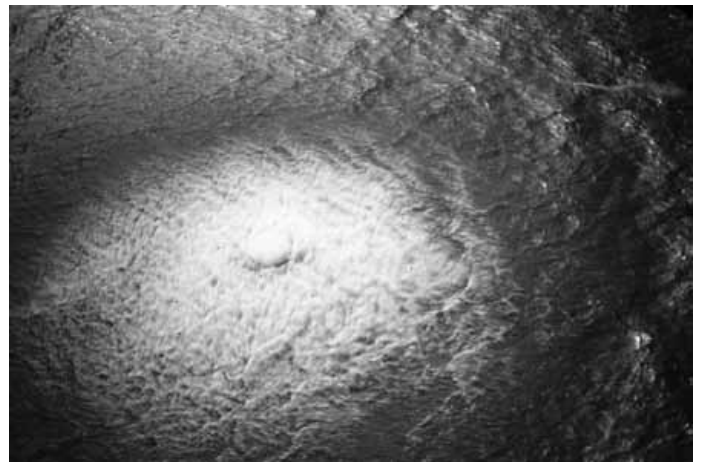
Re: "Bombs Away – On the Ground" by D. Nelson:
A Postscript By **Thomas R. Cuthbert, Jr.**

Dean Nelson's interesting article in NB No. 92, Winter 2011, reminded me of what preceded that aborted takeoff and the jettisoned nuclear depth charge. I was a pilot and electronics division officer in Airship Squadron ZP-2 while in Lakehurst (1950) and NAS Glynco, Brunswick, Georgia (1951-1953).

In 1953 civilian workers made extensive modifications to the bottom of an airship across the hangar deck from our Glynco electronics shop. I asked them what that was for, and they told me as a matter of fact that it was to enable carrying and dropping a nuclear depth charge. I told them that didn't sound like a good idea, given that it could take hours to reach safety at our 57-knot top speed. Their answer was prompt and nonchalant: They would trade a blimp for a submarine any day. I never wanted to be a low and slow Dr. Strangelove and wondered if I was in the right line of work.

In the fall of 1953 I was transferred to shore duty - all the way to the other Glynco hangar housing the Naval Airship Training Unit (NZTU). I taught in ground school and flew training flights until I left active duty in September 1956 to finish college. I heard about the aborted takeoff and jettisoned ordnance, so it must have occurred in 1956. That airship had been upgraded to fly-by-wire flight (control yoke) and engine controls which apparently failed during takeoff. I heard that a dummy nuclear depth charge containing 600 pounds of TNT lay on the ground outside the evacuated ZP-2 hangar for hours until retrieved by experts.

Internet search shows that the Navy wanted to test the effect of nuclear explosions on LTA vehicles, namely the 1957 Plumbbob tests performed at the Nevada Test Site (NTS). The picture at left shows one result on the cover of the July 2010 issue of The Newsletter for America's Atomic Veterans (NAAV). The brief article noted that several surplus airships were placed on masts a few miles from ground zero, and all the tests resulted in their total destruction.



Dean Nelson's description of the thrilling effect of depth-charge blast on blimps is familiar. In the early 1950's we dropped practice Mk 54 depth charges that weighed 354 pounds, including the 250 pounds of Torpex explosive. The picture above shows such a depth charge explosion at a depth of 75 feet. We made sure that newcomers were comfortable leaning out the window by the navigation table to watch. Depth charges never failed to cause first-time panic. The victim instantly assumes that the car is going to separate from the bouncing bag, and we were careful to keep this secret! Ω

A Correspondence of Forty-Two Years (Pt. 2)

By **William W. Walker**

My father, Hepburn Walker, Jr., had given me some of his old Rosendahl letters when I moved to Florida. Also included were letters Dad had received in response to his correspondence to various political and Naval leaders.

Hep wrote Pres. Kennedy in April 1961. The letter was passed to the Deputy chief of Naval operations for air, Vice Adm. R. B. Pirie, who responded,



“Your information is correct in that a Navy proposal to discontinue the LTA program is an action presently under consideration. The Navy budget as submitted to Congress does not include enough funds to permit the continued operation of all the Navy’s aviation forces. As a result of this limitation on our financial resources, LTA is one segment of the U.S. Navy which is being considered for inactivation. I might add that this proposal was made only after a detailed examination of all naval aviation forces in order to determine which cuts would have the least harmful effect on the Navy’s overall combat readiness.

Airships can no longer compete successfully with HTA types of aircraft primarily because of their lack of speed. Two of the most vital capabilities required of modern anti-submarine warfare forces are mobility and versatility, which airships lacked in comparison to other anti-submarine warfare systems. The recent advances in submarine and missile technology have forced the Navy to concentrate its dollars on those weapons systems that show the greatest promise.

Your comparison of the operating economy of LTA with HTA is true if only fuel is considered. However, the total operating cost per patrol airship greatly exceeds the same cost per patrol aircraft. In addition, the airships are far more expensive in terms of Fleet personnel ... In the event that you have been unable to study Pres. Kennedy’s special message to the Congress on the Defense budget, I believe it appropriate to quote the following: the elimination of waste, duplication,

and outmoded or unjustifiable expenditure items from the defense budget is a long and arduous undertaking, resisted by special arguments and interests from economic, military, technical, and other special groups. There are hundreds of ways, most of them with some merit, for spending billions of dollars on defense; and it is understandable that every critic of this budget will have a strong preference for economy on some expenditures other than those that affect his branch of the service, or his plant, or his community.

But hard decisions must be made. Unneeded facilities or projects must be phased out, the defense establishment must be lean and fit, efficient and effective, always adjusting to new opportunities and advances, and planning for the future. The national interest must be weighed against special or local interests; and it is the national interest that calls upon us to cut our losses and cut back those programs in which a very dim promise no longer justifies a very large cost.

Your personal expressions in this matter are sincerely appreciated. Such interest on your part is indicative of a deep sense of responsibility regarding our national defense. Our nation would benefit if all citizens were equally motivated.

Sincerely yours, R.B. Pirie

A Walker telegram of August 3, 1961, to the president concerning reevaluation of airships in the anti-submarine warfare and early warning missions was referred to the office of the assistant Secretary of Defense:

The Department of the Navy has made a thorough and searching review of the requirement for airships in the anti-submarine and early warning roles and has considered the capabilities of lighter-than-air types of aircraft in the performance of these mission requirements compared to other weapon systems. Fleet commanders have been consulted in detail and their recommendations made in matter of record. Various weapons systems evaluation groups have concluded their inputs, together with the recommendations of the staff of the Chief of Naval Operations. All of these have been a part of a thorough assessment by the Navy of the operational requirement for airships in ASW and EW missions. The Navy finding was that airships do not offer cost versus effectiveness basis, sufficient

Sep 11 1959

From: CAPT Marion H. EPPES, USN,
To: Chief of Naval Operations
Via: (1) Commander Fleet Airship Wind ONE
(2) Commander Fleet Air Wings, U.S. Atlantic Fleet
(3) Commander Naval Air Force, U.S. Atlantic Fleet
(4) Commander in Chief, U.S. Atlantic Fleet

Subj: ASW effectiveness of the Navy, status and use of lighter-than-air (LTA) aircraft for improvement; personal observations, comments and recommendations.

This letter is not intended to be all-inclusive. It will, however, serve to point up some of the problems now being faced by those who are charged with responsibility for the LTA program. The most pressing of these are:

a. To determine if there is indeed such a program and if it will remain firm enough for timely planning.

b. A very real danger that the currently planned small number of airships operating from a single base is but a short step towards final folding of all LTA activities. Without sufficient reserves and alternates for flexibility, training for new blood, or a vigorous R&D program for improvement of this vehicle, death by atrophy appears almost inevitable.

c. A concern that the Navy is about to voluntarily surrender, in the airship, an undeveloped potential both in ASW and AEW which is uniquely American and solely that of the U.S. Navy.

d. The effective administration of a small portion of the Navy which has been severely demoralized by the actions and uncertainties already discussed.

The demoralizing factor mentioned above is direct and predictable. However, there is another and more elusive aspect of the morale problem. The unaccountably low esteem held for blimps by many naval officers (reflected in the actions already discussed) has created an atmosphere wherein one who "goes to bat" for airships is often under some suspicion as to his intelligence or his basic loyalty to the Navy. Questions regarding one's acumen may be shrugged off as perhaps being justified (since presumably no reasonable person would remain voluntarily associated with a dying program). However, doubts as to sincerity of motives are difficult to dismiss with equanimity. Such an atmosphere cannot fail to have its effect on morale at all levels in the organization.

This country has the only military airships in the world simply because the U.S. has the only adequate source of helium. The Navy has long had the unique responsibility for development and military use of the airship but this has not received general support nor has it been recognized as an opportunity. No responsible person will seriously contend that airships can (or

capability to compete successfully against the speed, mobility, versatility and general operational capabilities of the more modern anti-submarine and airborne early warning weapon systems. Accordingly, the Navy on 26 June 61 announced its decision to phase its lighter-than-air squadrons out of the inventory of Naval forces.

The office of the Secretary of Defense has reviewed the Navy's action in this matter and finds no reasonable basis for questioning the decision of the Navy. It appears to be a prudent decision, objectively reached after the fullest consideration of all factors bearing on the question.

We sincerely appreciate your interest in this matter and your concern with the development of effective ASW and AEW weapon systems.

Sincerely yours, TD Morris, assistant Secretary of Defense, installations and logistics.

On November 28, 1961, Hep Walker again wrote his childhood pal John F. Kennedy pleading that the Navy's airships in war reserve not be destroyed, but rather saved for possible use by NASA and the US Air Force. This time the answer came from Vice Adm. W. A. Schoech:

The Navy has provided NASA and the U.S. Air Force with certain technical and operational data for airships and has offered full cooperation in their endeavors in this field. You may be assured that the airships of the Navy's inventory will be offered to other governmental agencies prior to any other disposal action.

The president would want me to express his appreciation for your interest in this matter.

Sincerely yours, W.A. Schoech.

In a follow-up letter to the Vice Adm. on January 7, 1963, pointing out this was not in fact what actually happened, Hep wrote, (in part):

....obviously, anyone acquiring airships for operation could not use cannibalized or stripped ships and would require supporting equipment and the like. As a taxpayer, I should appreciate your taking steps to see that the whole airships and their supporting equipment are offered in your device to this effect would be appreciated. Sincerely yours, Hepburn Walker, Jr. Ω

Government officials were not just dismissing letters from concerned citizens, but all others, including senior officers with wide Navy experience. Here is a passionate plea from NAA's founder CAPT Henry Eppes:

should) compete with airplanes, helicopters, or surface ships within their own particular capabilities in ASW or AEW. However, there are many unsolved problems within these important fields wherein the unique capabilities of the airships can profitably supplement and enhance those of other types. These capabilities, largely unexploited, presently cannot be duplicated otherwise and if fully utilized can be of significant value to our ASW forces. The limitations, recognized and lived with by LTA personnel, are generally exaggerated or misunderstood by those who decline to use the airship for its positive assets. Moreover, these limitations, if examined objectively, will be found to be in different areas but of no more serious nature than those suffered by other types. Actually, this provides a fortunate overlap in capabilities that could well be exploited by the appropriate use of all types in solving the ASW problem.

The operations of ZW-1 during a period of more than two years have given indisputable proof of the value of the AEW airship. Yet the Navy has made no serious effort to use this capability for solving its own AEW problems. Current delivery of ZPG-3W type, with its greatly improved radar and CIC installation, will enhance the value of the airship in both the contiguous coverage mission and the fleet AEW role.

It is a matter of record, but little-known and largely unrecognized, that the airship has played an important role in the R&D phases of many of our operational ASW equipment. These include, among others; airborne radar, MAD, aircraft sonar (both dipping and towed), exhaust trail detector (sniffer), JEZEBEL, and infrared detector. The same characteristics which made the blimp so attractive a vehicle for prosecution of the projects should insure its continued usefulness in future R&D work. However, R&D projects aimed towards improvement of the vehicle itself have had such low priority and little support that virtually no changes have been made in airship design within the past 10 years.

At the moment, however, there is in progress a research project which has promise of providing a breakthrough in airship design which could be of great significance to the Navy. This is an investigation of boundary layer controls, being prosecuted under ONR contract by Dr. August Rasket, Mississippi State University, the results of which have already indicated the practicability of a relatively simple "wake recovery" system that could dramatically increase speed, range, and maneuverability of an airship. This project offers the potential of a marked increase in the Navy's ASW capability at a very cheap price. My purpose in mentioning it in connection with the current situation is to recommend most urgently and earnestly that this development be given the fullest R&D support, even if other phases of the program should suffer thereby.

In conclusion, the following recommendations are submitted:

- a. That ZP-3 be given full material and personnel support to perform the evaluation as directed by reference (c).
- b. That ZW-1 be moved from Lakehurst to a location dictated by the operational requirements of CINCNORAD and that present part-time coverage become full-time, with the addition of previously programmed airships and personnel.
- c. That the CNO convene a board which could completely and objectively examine the worth and future of LTA in the Navy, with emphasis on ASW and AEW but with a full examination of other fields. Its recommendations could form the basis for a definitive CNO policy on the subject.
- d. That R&D efforts in the LTA field be given full support, with specific attention given to the "wake recovery system" discussed in paragraph 12 above, prior to making any decision which would involve further reduction of the LTA program.
- e. That appropriate information concerning these decisions be given timely distribution so that adequate planning may be accomplished.

M. H. Eppes

(attachment)

ADVANTAGES OF AIRSHIPS USING NON-INFLAMMABLE HELIUM THAT JUSTIFY THEIR INCLUSION ON THE TEAM FOR PURPOSES OF: ASW: 1. Towed sonar. 2. Radar and Communication relay station for Tactical Action Command. 3. Excellent instrument flight ability in all weather conditions. 4. Capability for safe inflight contact with surface or water. 5. Excellent crew comfort facilities. 6. Accessibility to and inflight maintenance and repair facilities for engines and electronic equipment. 7. Adequate space for installation of latest ASW equipment available. 8. Long inflight endurance. 9. Low vibration and shock loads on installed equipment, contributing to longer service life with less maintenance. 10. Economical operating costs and low fuel consumption. 11. Only aircraft capable of simultaneously carrying and effectively using all of the ASW detecting and localization equipment, together with appropriate weapons including seeking missiles. 12. Can be refueled and replenished at sea from surface ships. 13. Unequaled visual observation platform.

For AEW In Addition To Foregoing

14. Accurate station keeping ability.
15. Adequate space for installation of latest AEW equipment available including equipment. APS-70 radar. (Only 40' rotating antenna in aircraft.)
16. Complete airborne CIC. Ω

Aldrin Art Donated to NNAM



Hill Goodspeed of NNAM's E.B. Library accepts Joanna Norris's donation of original art by her father, the late Bill Aldrin.

A few weeks ago, I happened to be at the right place at the right time to witness Mrs. Joanna Norris, the daughter of Ltjg William A. "Bill" Aldrin, a WW II airship pilot and an accomplished artist, donate a large folio of his magnificent, authentic airship art to the National Naval Aviation Museum. Mrs. Norris thoughtfully made this contribution to insure the safe preservation of her father's historical artistry. Mr. Hill Goodspeed, the NNAM's historian, was most generous in expressing the Museum's appreciation for this addition to its LTA collection. This folio and photos of the artist can be viewed on our web site <http://www.naval-airships.org/>. Click on "History," then "Personal History," then "Bill Aldrin." It is well worth viewing.

Some time ago our association donated a 15" by 18" most attractive metal plaque to the museum noting the actions of a Chief Petty Officer at the time of the *Hindenburg* disaster. The plaque is on display in the LTA section and I have admired it in the past but I had no idea just who created it. I got my answer at this presentation. Bill Aldrin, of course. Most of us remember the *Hindenburg's* tragic demise at NAS Lakehurst on 6 May 1937 with the loss of many lives. However, many more lives were saved by the action of our Navy ground-handling party. This crew, responding to the command, "Navy Men, Stand Fast!" by Aviation Chief Rigger

Fredrick J. "Bull" Tobin saved uncounted lives that day. The art of Bill Aldrin and the National Naval Aviation Museum will ensure that the heroic action of Navy men on that fateful day will not be forgotten. [See pg. 36]

Ltjg Aldrin entered the Navy flight program in late 1942 for airship training. He flew patrols out of Lakehurst, South Weymouth, Cuba and NAS Richmond. He left active duty in December 1945 and resumed his career as a commercial artist. He passed away in March of 1988. He was Vice President, Central, of our Association at his time of death. Ω

- Mort Eckhouse



(Top) Cadet Aldrin, and at his drawing board later in life. (Above) L to R, Joanna and Fred Norris, with Mort in the LTA exhibit. Joanna made additional scans for TNB so his art will be featured in NOON BALLOON from this issue (see pg. 36) onward. -Ed.



Goodyear donates historic blimp gondola to Smithsonian

By Jim Mackinnon, A.B.J. (Excerpt)

A six-person gondola first attached to a Goodyear [envelope] in 1934 and finally retired in 1986 trucked out on the back of a big flatbed from Goodyear Tire & Rubber Co.'s Wingfoot airship base in Portage County. Destination: The Smithsonian National Air and Space Museum's Udvar-Hazy Center in Chantilly, Va. The donated gondola will be placed near another historic Goodyear airship artifact, a lifeboat that is the sole remaining piece from the ill-fated 1911 *Akron* airship that the tire maker gave to the museum last year. (The museum is also home to the gondola of the Goodyear blimp *Pilgrim*.)

This particular gondola, also called a control car and given the designation C-49, played a role in pop culture from 1975 to 1986 when it was part of the Goodyear airship *Columbia* based in California. The *Columbia* had a starring role in the 1977 thriller "Black Sunday." The blimp provided aerial coverage for four Super Bowls and two World Series, Rose Bowl games and parades and the 1984 summer Olympic Games in Los Angeles. But the C-49 gondola is much more than a pop culture item, said Tom Crouch, senior curator of aeronautics at the museum. As blimp *Enterprise* it was pressed into Naval service in 1942 and then sold back to Goodyear in 1946. "They played an important role in aeronautical history," Crouch said. The gondola soon will be put in an area of the museum where it will be visible to the public, Crouch said. It might be at least a couple more years before the Smithsonian fully restores the gondola to how it looked at the end of its service in 1986... "I hope they all find a good home," said Tim Hopkins, chief mechanic and one of the Wingfoot hangar crew overseeing the placing of the C-49 on the flatbed truck... Ω

Smithsonian's National Postal Museum Announces New Exhibit "Fire & Ice: *Hindenburg* and *Titanic*"

The *Hindenburg* burned 75 years ago, and *Titanic* sank 100 years ago. The National Postal Museum raises visitors' awareness of the two giant ships' postal operations with an innovative new exhibit opening March 22. *Titanic* and *Hindenburg* served demands for rapid worldwide communication and transportation. Both operated as the world's largest mobile post offices, promising the fastest possible worldwide mail service. Each offered onboard gentility and opulence. Each met a tragic end. Most people do not realize the importance of mail contracts to finance their transatlantic journeys. *Hindenburg* still holds the record as the world's largest flying post office.



"I have researched zeppelin history and posts for decades, so it was exciting to uncover new details and artifacts for this exhibit," said [NAA member] Cheryl Ganz, museum curator for the *Hindenburg*-related aspects of the exhibit. "For example, a video interview with Frank Ward, a member of the ground crew at the moment of disaster, and the pocket possessions of Peter Belin, a passenger who jumped from *Hindenburg*, add new insights to the final moments."



Hindenburg Salvaged Serving Bowl, 1937

Hindenburg's logo, luxuriously etched into the silver, contrasts with the burnt edges, unexpectedly illustrating the triumph and tragedy of the zeppelin's brief time as North America's first regularly scheduled air service. Courtesy [NAA member] Henry Applegate. Ω



Are you attending the
2012 N.A.A. Reunion?

READY ROOM



20th–23rd June 2012 9th International Airship
Convention & Exhibition - Ashford, England
The Ashford International Hotel in Ashford. Ω

31 July – 2 August 2012 “At the Crossroads of
Practice and Policy: Commercial
Applications of Northern
Airships” Anchorage, Alaska.
The workshop will be organized
around four principal topics: 1.
Addressing state regulatory and
policy issues 2. Introduction of
cargo airship developers and vehicles
3. Understanding the environment
of northern operations 4. Funding
for airship development and
deployment. Ω



BLACK BLIMP

Benjamin L. Fish Jr., 78, passed
March 9, 2012. Capt. Fish was
a 1954 graduate of Rutgers
University. In 1955 he was sworn
into the U.S. Navy in Philadelphia
after winning his Naval Flight
Officers Wings. Captain Fish
enjoyed a distinguished career in
the Navy, retiring from active duty
in 1983. He is survived by his beloved wife of 50 years,
Nancy Fish (nee Corson), two sons, and daughter and
grandchildren.




Clarence C. (CC) Moore, 90, passed 15 NOV 2011.
CC (with the late Dick Widdicombe) were the last enlisted
graduates of the “Enlisted Men’s Rigid Airship Training
Course.” Born in Visalia, KY, CC joined the Navy in
1938. Following boot camp in Norfolk, VA, he served
aboard the USS *Leary* and later in Trinidad. At Lakehurst,
CC learned how to pilot free balloons and “rig” and fly
the G1, K-1, K-2 and the early “L”
ships up to the war. After retiring
from the Navy as CPO in 1959,
CC’s last LTA assignment was in
the rigger crew of the ZPG-3W.
CC was Trustee Emeritus for
Navy Lakehurst Historical Society
and past Vice President of the
Naval Airship Association. CC
is survived by his wife Catherine
of more than 66 years, a daughter and several grand and
great-grandchildren. Ω



Donald Garnett Potts, 87, passed 16 OCT 2011. Don
served during WWII as a U.S. Navy officer blimp pilot. He
attended pre-flight at St. Mary’s College in Moraga, CA,
and trained at Moffett Field. After being commissioned in
1943, he served in ZP-21, ZP-51 (Trinidad) and outlying
bases flying submarine patrol. Later he was transferred
to (HTA) VR 11. Following navigation instruction, he
served in the Pacific-Asian Theater
flying medical patient transport.
After WWII, Don served in the
Naval Air Reserve as a LTA pilot
flying out of Santa Ana, CA.
During the early 1950s while he
was in Guantanamo on a training
mission, Fidel Castro staged a
coup ousting Bautista, taking
control of Cuba. Following his
retirement, Don attended several
NAA reunions; the last one being at Moffett Field where
he was thrilled to ride on the world’s newest concept of an
airship (zeppelin) the *Eureka*. He brought along his flight
log from WWII to be autographed by the German pilot.
Don is survived by his wife, Mary (Lee) of 62 years, 2
children, 4 grandchildren and 9 great-grandchildren. Ω



◦ "NAVY MEN...STAND FAST!" ◦

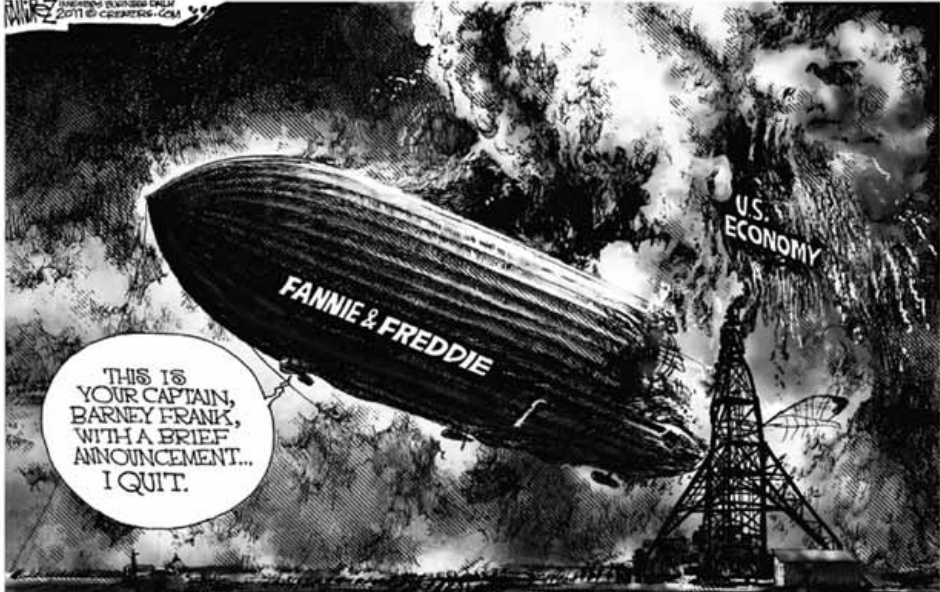


THIS PLAQUE HONORS A BRAVE PROFESSIONAL AIRMAN WHOSE LEADERSHIP IN THE BEST TRADITIONS OF THE U.S. NAVY SAVED UN-COUNTED LIVES AT LAKEHURST, N.J.

...“We’ve got to get those people out of there!”

AVIATION CHIEF RIGGER
Frederick J. “Bull” Tobin, USN
HINDENBURG DISASTER MAY 6, 1937

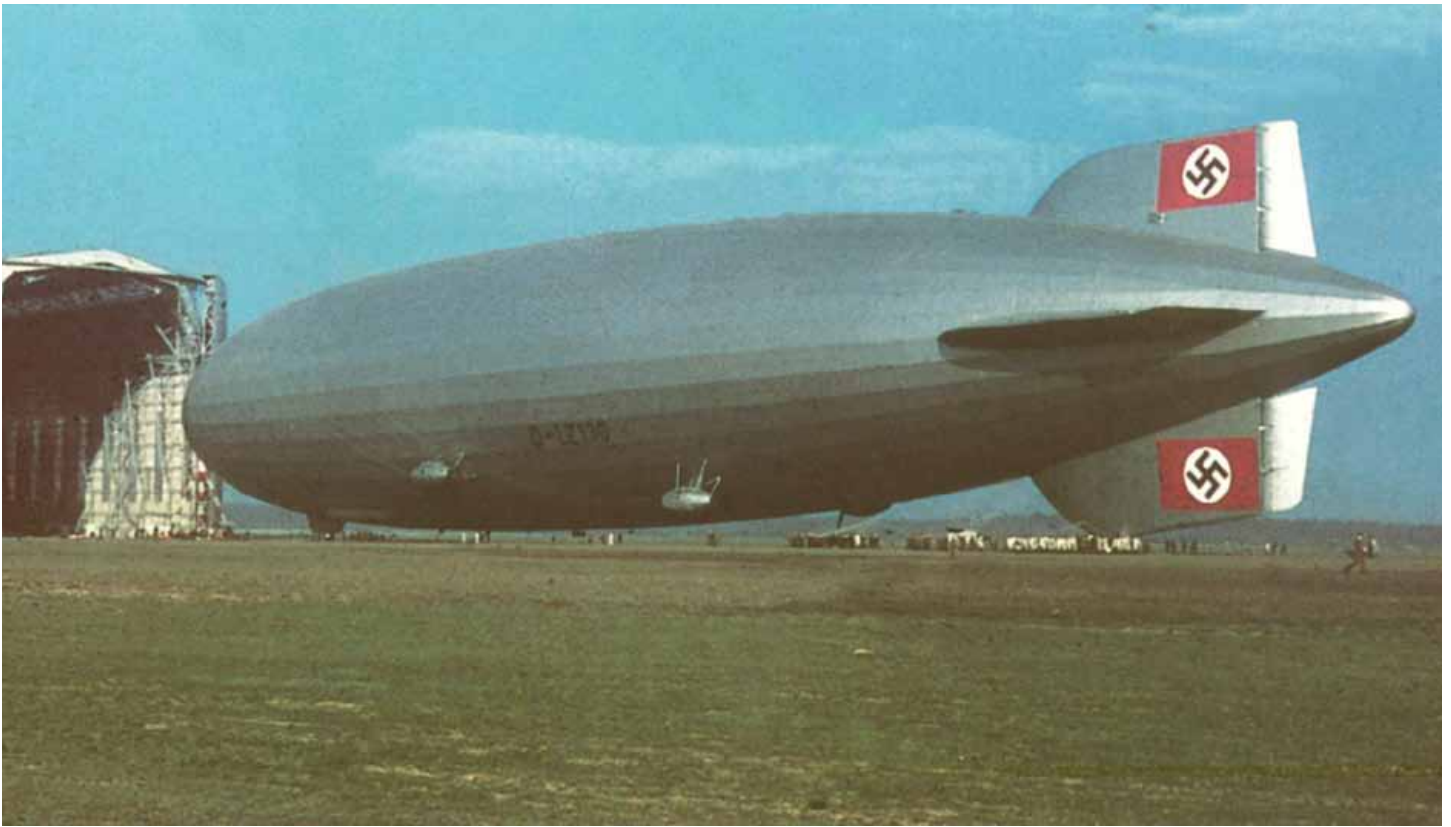
LIGHTER SIDE OF LTA



THIS IS YOUR CAPTAIN, BARNEY FRANK, WITH A BRIEF ANNOUNCEMENT... I QUIT.

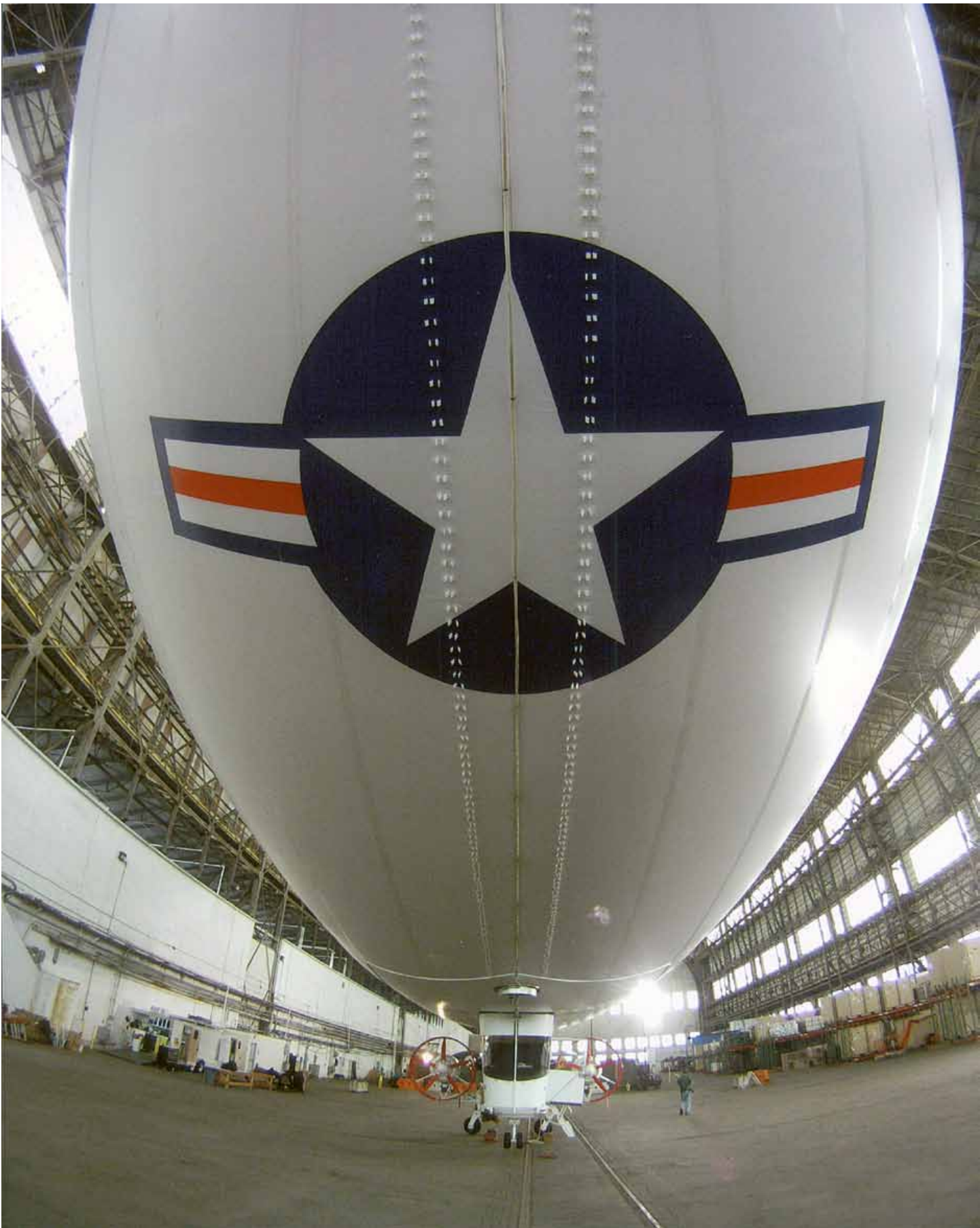
FANNIE & FREDDIE

U.S. ECONOMY



Above, LZ-130 *Graf Zeppelin* in real color; below, digital re-creation of LZ-129 for a German TV show.





Freshly painted U.S. NAVY MZ-3A in historic hangar #1 at Lakehurst.