

# THE NOON BALLOON



The Official Publication of THE NAVAL AIRSHIP ASSOCIATION, INC.

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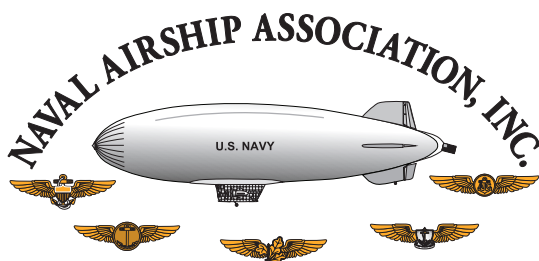
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On the Cover: 1962 all over again...without the outpouring of love from a thankful group of vets.



### THE NOON BALLOON

Newsletter of the NAA

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## EDITORIAL

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

The disheartening image of the MZ-3A being deflated for storage, first revealed to our readers last issue, is sad enough by itself. That there is so little interest in LTA that our Government teams cannot allocate resources to keep even a single research airship aloft seems inexplicable. Yet, as USNI's Naval Review issue of its "Proceedings" spins it, there is at least some, however unlikely, possibility MZ-3A could be re-erected someday.

What we have most certainly lost forever in this same quarter can never be replaced: the world's resident expert in LTA, Mr. Norman Mayer. Our longtime Technical Committee Chairman and former President, Norm was such a gentle, quiet and unassuming soul, an outsider would have not realized he was the "go-to" guy for all technical LTA matters. When German authorities were trying to sort out the mismanaged mess that Cargolifter had become, there was only one man to call - Norm Mayer. When our own Government expressed an interest in appointing an "LTA Czar" to oversee buoyant matters, I'd hoped they had the sense to utilize their own civilian expert living just outside the beltway. If called, Norm would have served and our nation would have benefited.



Norm and Margaret Mayer made visitors most welcome in their Alexandria home, even when an entire squad of members descended upon them. One quickly found Norm wasn't a storyteller - to learn of his vast experiences, you had to learn to ask the right

questions. A brand-new engineer hired by Goodyear when rigid airships were still a possibility, Norm's first job was designing a zippered covering that would allow access to the K-3's external suspension, something overlooked in what was (in 1937) thought to be another one-off prototype, the K-2. Moving to BuAer, he helped replace the retiring legend C. P. Burgess. For decades to come Norm played some role in most every LTA program the US Government conceived. Active in AA, AIAA, and of course NAA, Norm attended conferences and presented tech papers well into his 90s. In one such paper, presented in England with yours truly changing his viewgraphs (Norm had fallen from his bicycle, injuring his arm!), Norm revealed his airship design formula. A decade later, when I sought to design our "ZRS" movie's rigid airship, the USS *Long Island*, I gave Norm our parameters. Plugging them into his formula, he gave us the exact design dimensions so my drawings used to animate will show a rigid that could have actually been built and would work. In my last conversation with Norm, he asked me how I was coming with it. I hope we can dedicate our upcoming "Airships to the Arctic" conference to Norm - I will certainly be calling his name out in the movie's credits, he's already on the poster. (More on ZRS in the Winter TNB.)

We devote this issue to ASW, with original works by Prof. Don Layton, K-ship vet Charlie McDougal, and our stunning centerfold thanks to C&C Tech. By happenstance this quarter saw renewed emphasis on Brazil. An e-mail exchange revealed new information about a K's loss there. In a collection of materials donated to NAA that recently came to hand, we not only found Charlie's piece, but a photo scrapbook we hope to turn into a photo-rich page or two once we figure out who's it was and what the captions mean. We are eternally grateful that Charlie and other shipmates have set down original writing recounting their experiences in LTA, and we hope others will continue that tradition, even long after NOON BALLOON itself is history.

– Richard G. Van Treuren

## View From The Top: PRESIDENT'S MESSAGE

Our proposed international LTA conference for January 2016 with Aeronautical University is progressing as we are in the process of lining up speakers, co-sponsors, and exhibitors. More details on this will be forthcoming very shortly.

We have begun our planning for the May 2016 Reunion/Conference which will be held in Pensacola this time. Previous reunions held there were great successes and we look forward to continuing that tradition. I am sure our agenda will be packed with interesting activities (and free time for those desiring it), the Naval Aviation Museum visit will be interesting as usual especially since a new expansion added additional exhibits and, weather and schedule permitting, a Blue Angels practice demo will be a highlight of the event.

Organizationally we are still processing the late renewals as I write this. I hope we can at least maintain our current overall number of members as well as attract new ones. We have a lot to offer and the next few years look to be very exciting for the NAA as we have a number of activities planned and have been in contact with other similar mission veteran groups about some joint activities. More on this as things develop. As I wrote before, I am also very encouraged with the amount of renewals that included an extra donation. As a non-profit association we depend upon renewals and Small Stores sales for our income. Our biggest expenses are The Noon Balloon and the Reunion/Conference. Donations, large and small, help us maintain our low membership fee, publish the finest airship magazine in the world and supplement our Reunion/Conference expenses. We are most grateful for all of you who donate.

We are also embarking upon two new initiatives. One is to expand the webpage on past presidents. Currently we have only a list of their names and dates served. We are in the process of adding a short bio of each and a photograph so that especially new members can read their LTA and Navy history and put a face to the name. Each past president will be

contacted for approval of their bio and photo. Please help us by notifying us of the address of any next of kin for departed past presidents. Second, we have started the process to have an LTA Hall of Fame on the website. As the name indicates, we want to recognize those individuals that played a major role in establishing LTA. I am in the process of creating a screening committee to review member-submitted applications for approval by the Executive Council. We have created a nominating application and I have copies for anyone interested in nominating someone. We will post a notice with all the particulars and the application in the next Noon Balloon. The initial goal is to induct four to six people at the 2016 Reunion/Conference and two to four every year after that.

In the last issue we had an article from member John Kumke about his time in ZW-1. It was much appreciated and well received. I wish we could get every one of you to write a piece about your time in Navy LTA. It doesn't have to be book length or several pages. Any recollection of a particular flight experience, a particular base, or even a humorous story will be great. We need to capture these recollections. Sometimes a short story will cause someone else to join in and add to the story. Please contact our History Committee chair or Noon Balloon editor with any stories or photographs. Let's not have these stories lost to future generations, historians or researchers.

Small Stores: On behalf of the Executive Council we offer our sincerest thanks to Donna Forand for her tireless efforts, attitude and desire to help that contributed greatly to making Small Stores the success that it is. She stepped up at a turning point for Small Stores and put a lot of effort into making it a success. Her enthusiasm and efforts at the reunions promoting our signature products is greatly appreciated. Effective immediately, Airship International Press will assume responsibility for Small Stores as part of its present line of LTA books, calendars and videos. AIP is a division of Ron Smith Printing, our Noon Balloon publisher, and offers a seamless transition. We are also pleased to announce



that through the connection to Ron Smith Printing we will now accept Mastercard and Visa orders. Details, addresses and phone numbers are noted on the enclosed flyer.



Finally, with reference to the proposed Hall of Fame, Norman Mayer [above, in his study] passed away in March, just two months short of his 99th birthday. Norman was a past president, our Technical Chairman (the only one the NAA has had), a true giant in all things LTA, a respected and sought after international authority on LTA, and a true gentleman. Norman never failed to answer any of my questions, graciously provided guidance when I asked and was a major contributor to our Executive Council and the NAA. His contributions to The Noon Balloon were greatly anticipated and much appreciated. His full obituary appears later in this issue. He and Margaret were fixtures at our Reunions, and the last time I talked with him and Margaret, I told him that we expected them at our 2016 Reunion/Conference - since we would want to have a celebration of his 100 years. He is and will be missed.

As required by the By-Laws, I have established a nominating committee to select a slate of officers to be voted on at the next general meeting to be held at the 2016 Reunion/Conference. I have asked the following individuals and they have accepted:

Ross Wood - AZ	Ken Braun - CA
John Kumke - AZ	Mark Lutz -MN
A. Fred Woeber - TX	

– Fred Morin, President

## **TREASURER'S STRONGBOX**

This year has been a learning experience for me: The new software, dealing with Wild Apricot and managing the learning curve for the Association's books, while integrating all these aspects of the Treasurer's duties.



We have managed to do some more detailed inventory reports so we have a better idea of what we are spending, postage costs-real world, and a better understanding of other types of expenses that were not tracked as meticulously in previous years.

We are showing over \$12,000 in the checking account and over \$20,000 in savings. All the bills have been paid and we have a respectable inventory for Small Stores, thanks to Donna Forand's diligence. She has turned the Small Stores into a very nice shop full of logo wear, interesting DVDs and other nice-to-have items. Dave Smith will be taking over the Small Stores, at Donna's request. Changing to a bank that has offices nationwide has helped to make bookkeeping easier, and much more convenient, for Small Stores deposits.

Our Campaign to attract multiple-year renewals has been successful. Many members have decided that they would rather not be bothered by a barrage of letters asking for their renewal, and those who requested a DVD for their trouble, have been sent one of their choice.

We have also seen numerous donations to the Association which allows us to continue with our beautiful newsletter.

Up Ship!

– Deborah Van Treuren, Secretary/Treasurer

## PIGEON COTE

Member Marc Frattasio, following up on his article in our last issue, wanted to explain a few apparent incongruities in a photo and explain something fairly important that was edited out of the article: “An especially astute observer may have noted a spherical Hortonsphere lurking in the left-hand corner of the photo shown at the top of page 12 in the previous issue of the Noon Balloon and perhaps also questioned the date, April 1953, since NAS South Weymouth was closed to normal operations at that time. Here’s the story.

In April 1953, NAS South Weymouth was still in the process of being updated to serve as the home of the Naval Air Reserve in New England. By this time three new runways were nearing completion and one Second World War vintage blimp hangar, LTA Hangar Two, had been demolished to make way for them. The Hortonsphere shown in this photo had been built to serve demolished LTA Hangar Two, but had not yet been brought across the airfield to its new location, which was next to the Hortonsphere associated with LTA Hangar One. This photo was taken near the western end of LTA Hangar One looking westward across the airfield towards the site where LTA Hangar Two had been. In April 1953, several months before NAS South Weymouth was re-opened as a Naval Air Reserve Training Command base, the members of reserve blimp patrol squadron ZP-911, which was based at nearby NAS Squantum, Massachusetts, at that time as described in the previous issue, made arrangements to bring a borrowed blimp down from NAS Lakehurst, New Jersey, for a drill weekend in April 1953. The blimp arrived at South Weymouth on Saturday, spent the night on a Type 2 mobile mooring mast docked inside LTA Hangar One, and then went back to NAS Lakehurst early on Sunday. NAS South Weymouth was re-commissioned in December 1953 and ZP-911 moved there in January 1954.” Ω

Member Alvaro Mendoza continues to look for any veteran who had been stationed at the Soledad base or official records in hopes of gaining more information and photos. In May 1944, the base was

designated a naval auxiliary air facility and enlarged to care for patrol bombers and a blimp. It was thought that existing structures should be replaced by permanent ones, but that plan was abandoned and more temporary buildings were added to those already in use, 13 Quonset huts being obtained from the base at Salinas, which was being dismantled. New installations included a stick mooring mast and a mobile mast, a helium building with pipelines to the mooring circle, two concrete magazines, 22 Quonset huts, 29 frame huts with tile roofs, a mess hall, a dispensary, a refrigerator building, a ship’s service, a 5000-gallon water-storage tank, and a fire-protection tank and pump, as well as electrical equipment and all services. Further equipment was transferred in August from the blimp base at Mandinga, Panama. Up to the time expansion was completed, on October 15, 1944, facilities were fully used. The following month, patrol operations in the Atlantic were curtailed, and both landplane and blimp detachments were withdrawn. The base then continued on a maintenance status until its disestablishment in March 1945. Ω

Jeff Mondi passed the word that his father, Dominick C. Mondi, 78, passed 30 JAN 15. He was a veteran of the “US Atlantic Fleet Naval Air Force Airship Airborne Early Warning Squadron One,” stationed in Lakehurst, NJ. Ω



Friends of Ed. found this drink shaker in a St. Augustine, Florida, shop. “It’s made of heavy gage metal. Three pieces. Top(lid), middle(strainer), and bottom.” Ω



Matt Campbell sent along a photo of the late CDR Walt Ashe as a young officer, as well as a photo of the Health Informatics Lab that is named in his honor at the University of South Alabama. Ω



Al Robbins e-mailed, "There's a lot of development going on in electric propulsion for aircraft. Worth following in NOON BALLOON. AVWEB reported Thursday's Airbus announcement that it will build a new final assembly plant next year for its' E-Fan at Pau, in SW France. The E-Fan is a two-seat trainer with two shrouded propellers powered by battery-powered 30KW motors. It has been developed by Airbus subsidiary VoltAir. (Original VoltAir design utilized a single tail-mounted shroud installation with counter-rotating pusher props.) Not clear if they're using Siemen's motors, or if they use gear-boxes or direct drive. Haven't seen any statistics yet on reliability and maintainability of any of these new

high-powered motors. Electric propulsion would be uniquely advantageous for Airships. One or two Motor-generator sets could power multiple, light-weight thrusters (shrouded or not). Batteries - charged by the MG-set, ground-power, or by windmilling props driving the motors as generators - would greatly improve launch and recovery operations. Electric propulsion would also revolutionize low speed directional control, permit reducing size and weight of tail surfaces and reintroduce true lighter-than-air flight (vertical take-off and landing). P.S. Remember, no rigid airship ever accumulated enough flight hours, even under benign weather conditions, to prove claims of superiority over semi-rigid or non-rigid designs.

Paul Adams also e-mailed: "We are working on a 'Solar Assist' UAV right now. We have done a great deal of work on the use of photovoltaics (as part of a DOD contract) and the challenges it presents for LTA operations." Ω

Ken Deshaies e-mailed, "In response to the query Ref. Noon Balloon No. 78 - Summer 2008, Page 15: I also could not find any information on the tanker "Alpar" - checked several of my references here with no luck. It seems that the log of K-11 would have some amplifying info. From the photo, it appears there were Armed Guard aboard - I checked the book "Unsung Heroes" by Gleichauf for a relational spelling of the ships listed in his book - no luck there either. Looking at the photo again, I notice a large "S" on the aft stack - possibly the Socony-Vacuum Oil Co. Inc. - The closest ship name of this firm to the "Alpar" is the "ALTAIR", sunk in November 1943 off Delaware Bay after a collision with the "Bostonian". The "Altair" was rammed on her starboard side (see reversed photo attachment) and it is difficult to determine the damage inflicted.

Ed. responded, "Sadly, I suspect we might not be dealing with K-11 at all, since the black space to the right of "K-" in other placard photos has a number written in white and the 11 is there also (!) If we can believe "ZP-12" then K-11 is even less useful, since K-11 was at Lakehurst only briefly." Ω



*NOON BALLOON published the only then-known excerpts from WWII U-boat logbooks mentioning airships (#33 & #34). The issue did not explain how then-LT Gordon Vaeth, traveling to Europe under orders from VADM Rosendahl, happened to gain access to these records. How that culled list came to have been misplaced or inaccessible begs an explanation since it was not included in Vaeth's 1991 book published by USNI, Blimps and U-Boats. Happily, longtime ally CAPT Jerry Mason, USN (Ret), former S-3 pilot and U-boat researcher, recently e-mailed Ed.:*

“Richard, The story of how KTBs came to be in US/UK hands is fascinating and would make an exciting movie. In short: The KTBs are available for research today because Admiral Dönitz ordered the Kriegsmarine archives to be preserved and allowed them to be seized intact behind enemy lines by British and US units at Castle Tambach in Coburg, Germany, in April 1945. There were over 500 tons of documents including the complete operational logs, war diaries, technical reports and administrative minutes of all German navy business dating back all the way to 1870. The documents were taken to London where they were microfilmed by the US Navy Office of Naval Intelligence. Beginning in 1955 the originals were returned to Germany where they are held at the Bundesarchiv-Abt. Militärarchiv in Freiburg. The US Navy turned over its microfilm collection of Kriegsmarine records to the US National Archives where they are maintained today.”

Ed: “Before internet and before you did all this work, I was writing to the U-boat archive in Cuxhaven (and enclosing \$20 or so each time) to get a page from the few of which I knew details of a contact. That’s how I got the page from the U-593 for 25 MAY 42 which proved Kelbling did NOT see the airship first and attack anyway, rather spotting K-3 after firing torpedoes and looking back after their impact. Not that anyone listened to me about that.”

Capt. Mason was so kind as to share his ongoing research translating U-boat logbooks for possible Civil Air Patrol ASW actions in WWII.

Mason: “The CAP historian is looking through all of the KTBs for interactions with CAP aircraft.”

Ed: “No small task... only that one Skipper I am aware of allowed an airship to come close enough for him to read “USA Navy” (sic) on its side.... what a stroke of luck if one noted the prop-in-circle insignia on a fast moving airplane. It is barely visible in the

photo in my book page 222. My Dad was pretty sure he’d spotted a sub from his CAP Fairchild 24, dropped his bomb(s), and split; it’s possible, because he took a snapshot of a torpedoed ship off Melbourne. I mention him on my page 245.”

Mason: “Individual U-boat war diaries (not the B.D.U. KTB)... These contain many mentions of blimps although as you would imagine almost always from afar.... I have run across a number of incidents where blimps frustrated U-boats that were trying to maneuver ahead to attack.”

Ed: “This is in keeping with Admiral Doenitz’s postwar letter answering Gordon Vaeth’s inquiry, published in Gordon’s book by USNI.”

Mason: “It occurs to me that someone might want to look through the KTBs for sightings of blimps.”

Ed: “That would be me. Remembering the Germans have no word for “blimp” so that would be the same word in both languages. I found only two times “blimp” is used; once in your translated order 41, and as part of a transmission about a radio message intercept that repeats the word concerning a rescue. They may not have known what it was; Volker Von Shimmamacer of U-107 did not know what a “blimp” was when asked circa 1990. You see Luftshiff, Zeppelin, and, in one case, “Parseval” since that Captain probably had



candy dropped to him in grade school by the Trump “chocolate bomber” semi-rigid airship in Germany. I checked with our member Herman Van Dyk, who as a boy lived though the German occupation of his native Holland, concerning our discussion of the word we believe should be “Parseval” in the log of U-69/9th.”

Mason: “On the U-69 KTB do you mean where it says Pasewalk-Luftschiff on page 12 at 11 Sep 15.55? Pasewalk is a city in Germany; I thought perhaps airships were made there. If Pasewalk = Parseval (which I understand was a type of early German airship) that is a big typo.”(Con’t next page)

Ed: “Yes. Parseval predated WWI and made several models in WWI, but would have been known to thousands as the “candy bombers” of the 1920s and 30s and were still in use in the Nazi era (below).”

Mason: “... the U-107 KTB is ready for you to look at <http://uboatarchive.net/KTB107-10.htm>. It is clear that presence of the airship caused the shot to be taken at a long range and so missed.”



Ed: “In the U-107/K-34 case we were very proud we got the U-boat captain and the blimp pilot Jack Hely IV to write to one another before they both passed. We were going to bring CaptLt. Von Shimamarker to an NAA Reunion but his health forbid it, he told us. I had a German TV guy ready to interview him, but the captain died before he could.”

Mason: “I am working on the U-94 KTB now... On the page you will see two columns with dates. The first column had the dates that the boat departed and returned from patrol. In the next column are the dates that the boat was within the 100-nautical mile line... If you click on the flags on the right side of the page it takes you to a Google Earth Map (which you need the browser plugin to see) that shows the track of the boat inside the 120 and 60 nm lines.”

Ed: “Thanks for the U-94, it re-verifies what we’ve said, the K-6 made the first attack on a U-boat by air in American waters. 10th Fleet #255 is dated March 12th, which makes me suspect it was dated on their debrief or when the report was filed. As I said VADM Rosendahl’s research shows the boat did sustain some damage, stalling one motor, etc. and one can’t help but wonder if that hastened the decision to turn out of coastal waters after only two days. No one is left from that K-ship crew as far as I know; wish I could get them commendations anyway. No official interest has been shown.”

Ed. is working with CAPT Mason’s new research to annotate an enhanced spreadsheet from these U-boat logs that visited the coastal Americas and encountered airships, and it will be published in a future TNB. Ω

*As if our main history piece this issue, and Don Venton’s forthcoming book covering Brazilian operations weren’t enough, NAA was contacted by one Leandro Soares Miranda who wants to see if there is anything left of the K-36 and has asked for information. History Chair Mark Lutz provided background and responded.*

From the ZP-42 squadron history: “17 January 1944: K-36 enroute to Santa Cruz, Brazil, crashed in fog on Cabo Frio Island. Ensign H. E. JONES, USNR, Ensign R. W. WIDDICOMBE, USN, were injured. Ship was stricken as salvage was impossible.” K-36 was on a ferry flight. Ilha do Cabo Frio is about 100 miles from Rio de Janeiro; crew was looking for its lighthouse to get a bearing fix. Leandro e-mailed, “Hello Mr. Mark, The site of the K-36 fall on Ilha do Cabo Frio is hard to reach, and I know only one person who was at the scene, finding some metal structures. I never have been there, but I’m planning a foray into the site. The Lord would have the coordinates of the exact crash site since the area is formed by a dense forest and large slope. I live very close to the crash site. This place is today a city called Arraial do Cabo, not making more of the city of Cabo Frio. A curiosity: After the rescue, the fishermen who helped in the searches were authorized by the crew using the blimp Canvas as protective clothing for fishing, which has become a landmark for the local, being popularly called as “clothing allies” in reference to union formed by the Allies in WW2. Once again thank you for your invaluable help. I repeat that this work would never be at this level without your cooperation. I send a photo of the crash site. [below] Thanks, Leandro Miranda.” Ω



## **SHORE ESTABLISHMENTS**

### **LAKEHURST (Cover Story)**

Navy MZ3A Airship Buno #167811 was unceremoniously deflated and packed into shipping containers beginning on Monday 12 January 2015 in the North Bay (West End) of historic Hangar #1 at Joint Base McGuire-Dix-Lakehurst, and so ended the once-promising “re-birth” of U.S. Navy lighter-than-air activity which had begun with the airship’s first flight from Lakehurst in May 2006.

In a manner which was initially somewhat confusing to former/current professional LTA personnel alike (as well as those who have trouble keeping track of abbreviations) MZ3A had been conceived as a Commercial Off-The-Shelf (“COTS”) Lighter-Than-Air Vehicle (“LTAV”) “Airborne Flying Laboratory”(AFL) with which the Naval Air Systems Command (NAVAIR) could test various systems, electronic payloads, etc., for deployment on future purpose-built LTAVs for use in the Global War On Terror (GWOT).

Originally, there were those who believed that the Navy was going to re-invent its LTA program, but this proved to be only partially true. While various Navy personnel were assigned to participate and oversee and several actually became qualified LTAV pilots, it was abundantly clear that the Navy was not going to pay to train sailors to “pull ropes” and perform maintenance on Lycoming reciprocating aircraft engines; hence, most of the mission test, planning and execution activities were carried out by civilian contractor personnel from Integrated Systems Solutions, Inc. (ISSI) of California, MD, under the direction of Government Flight Representative (GFR) persons representing NAVAIR. Original “custodian” of the aircraft was Squadron VX-20, NAS Patuxent River, MD. From 2010 onward, the custodian was Squadron VXS-1.

A standard 170,000 cubic-foot A-170 type non-rigid airship built by American Blimp Corporation and flown in her as-delivered “all white” color scheme (with almost no discernible markings save for an American flag fluttering from the stern) the MZ3A flew her initial “test/evaluation” period from May 2006 thru May 2007. There followed over two frustrating years where the airship remained in Lakehurst Hangar #6, always amid the threat that she would be deflated and “stored.” It seemed that the “old traditional enemies” of Navy LTA (Money and Prejudice) had struck again!

During this time, a skeleton crew from ISSI kept “pressure watch,” performed regular maintenance, and did dozens of mockup/test installations for payloads/packages that never seemed to come to fruition. Finally in 2009, just as the ship was being prepared to carry out the sixth in a long list of “deflation orders” there came word that several projects for the MZ3A had been “green lighted.”



A whole new crew and pilots had to be recruited and trained-up amid one of the most brutal, snowy winters in recent history but on 22 February 2010 the MZ3A was undocked and test-moored for the first time in two-and-a-half years. Ongoing severe winter weather delayed test flights for over a week, the ship was back in the air on 2 March and departed for several months of test work at a base in the southwestern U.S. on 5 March. These tests concluded in June, the ship began making her way across the southern U.S. and the Gulf States, including a high-profile deployment in connection with the BP “Deepwater Horizon” oil spill in the Gulf of Mexico (during which the news media mistakenly reported that the Navy had “taken their 44-year-old MZ3A airship out of mothballs for this important assignment”). Still showing only “all white” markings, the airship settled into a routine of regular test flight operations up and down the Eastern Seaboard with stop-offs at her “home base” at Lakehurst for maintenance and systems installations every four to six months. “Paying clients” for the operation included a growing list of military, government and commercial scientific entities.

During the 2010-2014 period a regular pattern developed in which about twice a year the whole operation would go on “Red Alert” because word was coming down that “the money is running out” and



the ship would have to prepare for possible return to Lakehurst and inactivation. Nevertheless, these were very busy years for the MZ3A and a very satisfying event occurred (“better late than never”) in October 2011 when the airship was finally given “retro” 1930s-style decal/”U.S. Navy” markings in commemoration of the 100th Anniversary of Naval Aviation. (At this point, the media started describing her as “The Navy’s NEW MZ3A Airship.”) Operations continued, primarily in Florida in the winter months and some really interesting operations from temporary base facilities located at “offshore locations.” Indeed the crew by this time was exceptionally experienced, most with at least four years’ operational experience under their belts, while several former Goodyear pilots rounded out the contractor staff and it was not uncommon to have men with 20-30 years’ experience in the cockpit, all this contributing to an exceptionally safe and reliable operation. (An unintended “side benefit” occurred when flying test-ops in and around the Florida Straits where there was a \*noticeable\* drop-off in “suspicious” passage by small aircraft and watercraft, a tribute to the “deterrence factor” offered by the mere visible presence of an airship/aerostat in the area.)



On 3 May 2014, the MZ3A made a very special three-hour VIP flight with the Secretary of the Navy aboard; “SecNav’s” keen interest and eager questions were all the LTA proponents could have asked for; plans went ahead for an ambitious schedule of summer operations, with plans to return to Lakehurst “on or about” 1 October for annual maintenance. And then on Wednesday 28 May came a cryptic phone call to the Lakehurst office of ISSI Airship Operations (my cell phone) advising to have Hangar #1 and the Mat #1 mooring site ready to receive the airship “on or

about” Monday 2 June! My question was “Are we going to be coming out of the hangar again anytime soon?” The answer was, “We don’t know.”

What had happened? Well, the whole story is still coming through in bits and pieces. It appears that in the administrative “tug of war” over funds and “pecking order” at NAVAIR, the airship had become a genuine candidate for the chopping block. As for the government personnel that had boasted about being out “pounding the pavement” finding “paying clients” to support the airship and its operation, these reports turned out to be deceptive (if not outright dishonest). There was no “business lined up.”

A lot of what happened in the summer and fall of 2014 reminded me of the stories of late 1950s/early 1960s when certain factions of naval aviation, notably Admiral Robert B. Pirie (Deputy Chief of Naval Operations-Air) went out of their way to take work away from LTA in order to create a false environment in which LTA appeared as an expensive, unproductive drain on the resources of naval aviation, thus making an easier case for “killing” the program altogether. And while the MZ3A commenced regular hangar overhaul (engine maintenance, envelope washing/“soap and bubble” testing, etc.) the order came down within a few weeks that nothing was to be done with the airship outside of minimal “pressure watch” activity.

The “watch on/watch off” activity with the ISSI skeleton crew continued through Thanksgiving. The first week of December ISSI received word that their role watching the airship was over and they were instructed to remove all personnel. (Note: ISSI did not “walk away” from the project but was rather ordered to “stand down.” Who would watch the airship? As it turned out, nobody. Temperatures got extremely cold, the ballonnet “maxed out” and photos from late December in 20-degree cold show the envelope grossly distorted and misshapen.) Unable to do anything to take even the most elementary remedial measures, there was little those of us “on site” could do except stand and watch the Navy airship die a rather undignified death in the icy cold hangar. Information came the first full week of January that “a contractor” was coming in to do the deflation. It was one of the few “rumors” that actually turned out to be reliable. Dismantling/deflation commenced on Monday 12 January and was essentially complete by Friday. Five months later the ship’s “canned remains” still sit in the

hangar, as apparently nobody really cares much what happens to the ship once they succeeded in their goal of eliminating it.

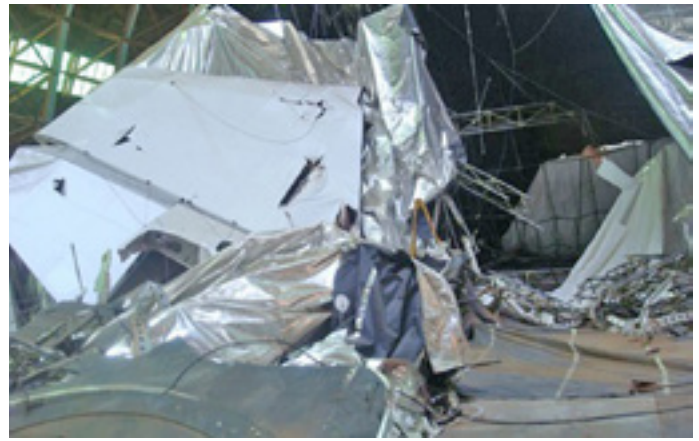


Having been associated with the MZ3A project on a personal and semi-professional basis since its inception I can personally attest that it \*was\* of real value as a research & development craft but my experience was that certain entities were wary of embracing the concept for fear of being “labeled” or “punished.” In a great many ways it was “history repeating itself.” It deserved a better fate, but then again so have many other noble undertakings. Suffice to say, in over 100 years of naval aviation I don’t think any single little 170,000 cubic foot airship ever shook up its corner of the Navy like MZ3A did! And harking back to the late Admiral Rosendahl’s remarks concerning the demise of the dirigible USS *Los Angeles* (scrapped while he was at sea aboard a cruiser in the Pacific in 1939 and powerless to intervene), “SHAME on the PERPETRATORS!”

At press time word has reached us that after six months “in mothballs” the MZ3A is slated for reinflation “on or about” 22 June 2015 for use on a government project lasting early into 2016. The reactivation should be especially interesting since the “mothballing” procedure was done largely by inexperienced personnel and included (apparently) use of a “carpet knife” on the envelope in order to speed the deflation process. Plans currently call for re-inflation in Lakehurst Hangar #1, flight testing in late June/early July and subsequent deployment. No other firm details are known. Keep an eye out for more news on “The Saga of the Navy Airship - Part 33 1/3” in the fall issue of *The Noon Balloon*.

– Rick Zitarosa NLHS

## SANTA ANA / TUSTIN



Damage to the Aeroscraft. Credit: Allan Ripp

### **Lawsuit Filed Against Navy for Destroyed Experimental Airship**

By Perry Chiaramonte FoxNews.com (excerpt)

The makers of a state-of-the-art airship have filed a \$65 million lawsuit against the U.S. Navy after the helium-filled dirigible was crushed when part of the roof of the hangar where it was stored collapsed on it. The suit claims that the Navy has refused to cover damages to the company’s namesake Aeroscraft, an experimental cargo airship capable of carrying 66 tons of cargo. Ω



**A section of a walkway on the top of the North Tustin blimp hangar appears to have collapsed, damaging a massive \$35 million dirigible inside and causing a helium leak on Monday, Oct. 7, 2013, in Tustin, Calif.**

## AKRON

The Crawford Auto and Aviation Collection of the Western Reserve Historical Society in Cleveland, Ohio, unveiled the gondola of the *Spirit of Goodyear* on February 25th of this year.

Goodyear donated the gondola (#4118) to the Western Reserve Historical Society after it completed 29 years of service as part of three different airships:



the *America* (1982–1992), the *Stars and Stripes* (1992–1999) and the *Spirit of Goodyear* (2000–2014). As part of the *Spirit of Goodyear* it earned the distinction of the “Longest Continuous Use for a Blimp” from the Guinness Book of World Records®.

During its 31-year history, the gondola appeared over three Super Bowls, three Baseball World Series, The Kentucky Derby, the Daytona 500, U.S. Open tennis and golf tournaments, NCAA football games, NCAA Final Four basketball games and countless NFL and MLB games. It logged over 41,000 hours of flight.



Photo by Alvaro Bellon.

In his remarks, Jerry Hissem (above), Goodyear Pilot-in-Charge, mentioned that after the last flight of the *Spirit of Goodyear*, which he piloted, the airship bucked the winds, as if it did not want to be moved into the hangar at the Pompano Beach Blimp Base (Florida) where it was to be dismantled.



Photo by Alvaro Bellon.

(Above) During the dedication ceremony, LTAS member Joan Reisig was extensively interviewed by the local media, as she had worked on the design of the *Spirit of Goodyear* as an employee of Goodyear’s Airship Engineering Department. Ω

On March 15th, Aaron Keirns, (right) author of *America’s Forgotten Airship Disaster: The Crash of the USS Shenandoah*, speaks to a gathering of about 75 people about the USS

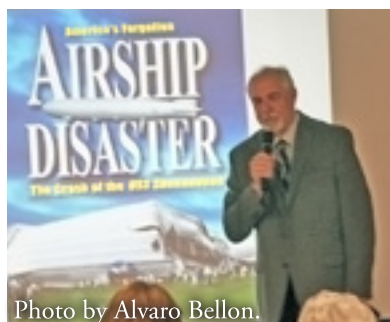


Photo by Alvaro Bellon.

*Shenandoah*. The talk was given at the Garst Museum in Greenville, Ohio, hometown of Lt. Cdr. Lansdowne. Mr. Keirns, author of *America’s Forgotten Airship Disaster: The Crash of the USS Shenandoah*, spoke about the events of the fateful day as well as the history of the airship.



Alvaro Bellon with some of the items in the display.

To complement the talk, The Lighter-Than-Air Society displayed a number of items from its collection pertaining to the airship and the crash, which occurred on September 3, 1925. The items displayed featured a section of a girder from the airship, samples of the fabric from the outer skin and goldbeater used to make the cells that held the helium. The display also included some publications from the era. The attendees were impressed by the exhibit and asked numerous questions. After the event at the museum, NAA and LTAS members David Smith, Eric Brothers and Alvaro Bellon stopped at the house where Lt. Cdr. Lansdowne was born and lived. The house, which is on the National Registry of Historic Places, is being restored to its original condition at the beginning of the 20th century.

The house in Greenville, Ohio, where Lt. Cdr. Zachary Lansdowne was born and lived. It is currently being restored by its current owner.



Photo by Alvaro Bellon.



# The Airship as an ASW Platform

By Prof. Donald Layton

## Introduction

Several attributes of lighter-than-air vehicles make them an ideal platform for conducting Anti-Submarine Warfare (ASW). The airship's long endurance permits it to stay on station during lengthy periods of search, localization and attack. The flight velocity, although a handicap in reaching remote areas expeditiously, is slow enough that an airship may stay on top of a slow moving submarine yet fast enough to keep up with the swiftest of undersea craft.

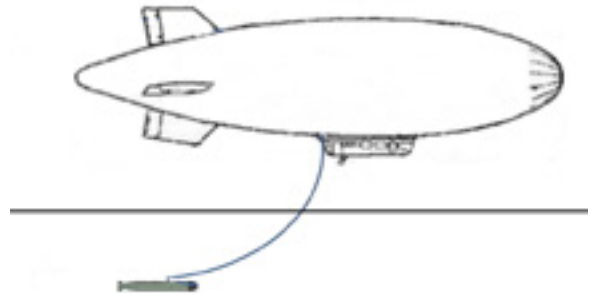
The location of devices that detect magnetic changes that occur due to the presence of a steel-hulled submarine is optimized on an airship by the size of the non-metallic portion of an airship, *i.e.*, the envelope. This permits the location of sensors at a distance from the airship's metal engines, thus permitting more sensitive detectors. And the cabins of most lighter-than-air vehicles are large enough to accommodate the necessary ASW electronics as well as the operators. Even non-electronic search is optimized by the 360-degree viewing available to the crew of an airship.

## Visual Detection

The initial entry of the airship into ASW occurred during World War I when several hundred lighter-than-air vehicles were constructed and employed, primarily in the English Channel and adjacent waters. Detection of submarines by these airships was limited to visual contact. In order to recharge their batteries, the early submarines were forced to surface to run their engines. And, even though these maneuvers were generally performed at night, there was a greater probability of detection from an airborne system.

Inasmuch as a dark object is almost impossible to be seen if it is completely under water, even in a calm sea state, the submarine remained essentially hidden from view once it was 15 to 20 feet below the surface.

However, to see where it is going and to search for and attack targets, the submarine must raise its periscope above the surface. Although the overall size



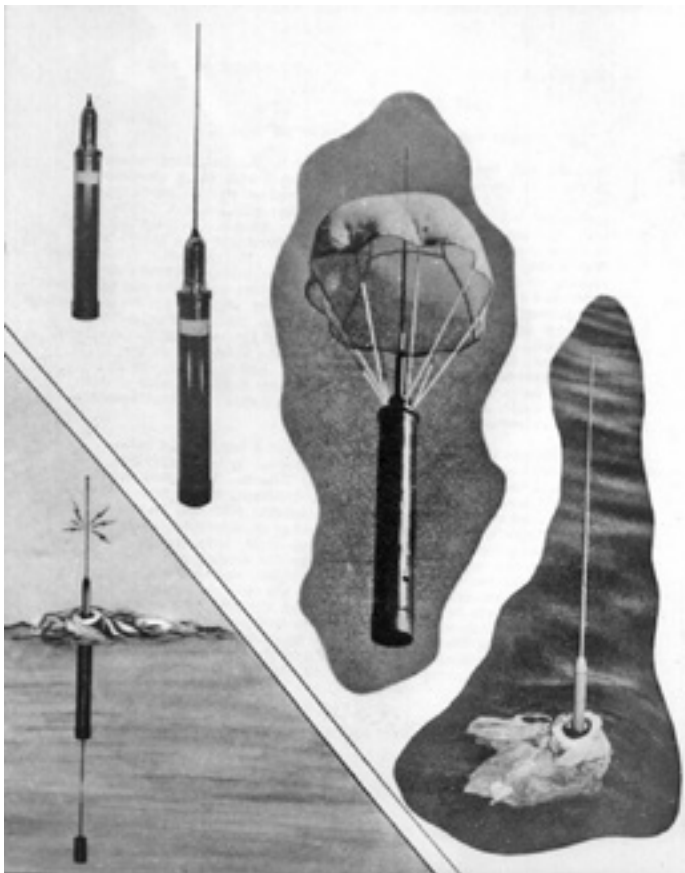
of a lens-type periscope has decreased greatly since these were first mounted on submarines, the presence of a periscope tube eight inches in diameter and as much as two feet above the surface moving through the water offers an opportunity for visual detection. The periscope will create a wake, called "feather," which is quite visible, and will also leave a remnant of its passage, called a "scar." The scar is a long streak of foam or bubbles left behind after the object passes. The feather may be just a few feet in length, but the scar may be 20 or 30 feet long. Either may be visible for up to 10 miles and are easily spotted in a low sea state. But when one considers the proportion of a visual scan that such a target offers, it is obvious that the probability of spotting a periscope, particularly in anything rougher than a calm sea is extremely small. The advent of electronic periscopes will mean that the exposed surface will become an order of magnitude smaller, thus reducing the probability of detection. The ratio between the time of greater vulnerability of a submarine to detection and the total operating time is known as the "indiscretion rate" and the low "indiscretion rate" of modern submarines means that optical detection of submarines from an airship is now likely to be less successful.

## Acoustic Detection

Even the quietest submarines introduce some sound into the surrounding water. If it isn't the propulsion engines, it may be pumps or electric motors or the dropping of a tool on the deck or even the electrical system. It is said that trained operators with sophisticated listening equipment can tell the difference between a United Kingdom submarine with a 50 Hertz electric system and a United States submarine with its 60 Hertz electrics. And inasmuch as an airborne ASW does not put sound into the ocean while searching for a submarine, sonic detection is an important facet in airborne search and detection.

Any technique that uses underwater sound propagation for search and/or detection is generally referred to as a Sonar (an acronym for Sound Navigation And Ranging). For an airship, monitoring the sound relayed to a submarine involves putting a sonic pick-up and transmitter into the water and the vicinity of the targeted vessel. This is accomplished by dropping a cylindrical device, called a Sonobuoy, into the water.

The operation of a Sonobuoy system sonar operation is affected by variations in sound speed. Due to the increased density of water, sound travels approximately four times faster in water than it does in air. The average speed of sound in seawater is slightly less than 4,400 feet per second. The speed of the sound is determined principally by the water's resistance to uniform compression, or bulk modulus. The bulk modulus is affected by dissolved impurities (usually salinity), temperature, and pressure. The variation due to changes in the density of the water is small.



#### Sonobuoys (SSQ)

A sonobuoy (from sonar and buoy) is an expendable sonar system that is dropped/ejected

from aircraft conducting anti-submarine warfare. The original standard size (A size) was approximately 5 inches in diameter and 36 inches long. When released from the aircraft, four small rotor blades unfold from one end of the canister allowing the sonobuoy to autorotate, thereby slowing its rate of descent. On hitting the water, the rotating blade assembly is jettisoned, dye marker tubes are broken and a red dye colors the water around the buoy. The hydrophone is released and submerges to the length of its cable. The FM antenna is deployed and seawater enters the battery compartment, activating the battery. The process from the time the sonobuoy hits the water until it is in full operation takes less than a minute. The sonobuoy relays acoustic information from its hydrophone via UHF/VHF radio to operators onboard the aircraft. Most buoys have a selectable operating life of one, three, or eight hours and selectable operating depth of 90 or 400 feet. The original sonobuoys had but six different frequencies but, as this number proved to be inadequate, the number was increased to 12. The buoys were identified by color names. Current sonobuoy systems may have over 30 different frequencies (identified by numbers). These frequencies are set during manufacture. Some analysis may be by electronic means vs human interpretation.

There are currently other sizes of specialized sonobuoys as well as marked reductions in size for conventional ASW usage. These include buoys that are only 12 inches long. Some of these systems offer buoys with almost 100 different frequencies.

#### Passive Sonobuoys

By their very nature, all sonobuoys are passive. That is to say that they can receive signals but they cannot transmit an underwater signal to locate a target. Despite this handicap, a passive sonobuoy has a tactical advantage in that the submarine target is unaware that it is being tracked and does not know that an aircraft is searching for it.

Low Frequency Analysis and Recording (LOFAR) sonobuoys are the standard A-size, expendable, non-repairable, calibrated sonobuoy, providing omnidirectional passive acoustic signature data to the monitoring unit(s). Tactical use of the LOFAR buoy involves dropping two or more buoys (a buoy 'patch') where there is suspected submarine activity. The buoys

location is marked with a dye slick or, preferably, with a smoke marker. The airborne operator listens to the transmitted sound to determine the relative distance between the buoys and the targets. Louder sounds – less distance.

If an optimum line can be drawn from comparing two buoys or a probable zone can be determined by examining the sound from three or more buoys, additional buoys may be dropped in order to pinpoint the location of the target. Having multiple buoys in a buoy patch and/or laying additional patches if tracking a submarine indicates the necessity for multiple sonobuoys with different frequencies. Directional Frequency Analysis and Ranging (DIFAR) buoys, combined omnidirectional hydrophones with compass information to provide target bearing. DIFAR series of passive sonobuoys have directional detection capabilities, and offer selectable depths (between 90, 200, 400, and 1,000 feet, depending on type) and selectable endurance (between 0.5, 1, 2, 4 or 8 hours). One of the big problems in the use of sonobuoys is knowing exactly where the buoy is. The addition of a Ground Positioning System (GPS) to a sonobuoy could alleviate that problem.

#### Active Sonobuoys

The development of low noise diesel-electric submarines that are too quiet for effective use of passive sonobuoys has necessitated an emphasis on inactive sonobuoys. An acoustic signal transmitted from an active sonobuoy and the reflected signal bounced back by the target and received by the active sonobuoy furnishes range and bearing information on a potential submarine target. Moreover, when two or more fixes are obtained, it is possible to establish the speed and course of the submarine. Active sonobuoys are typically deployed at deeper depths than passive buoys, and because of their power requirements, have typically shorter endurance.

The early active sonobuoys produced a free-running acoustic pulse every 10 seconds at one of six frequencies. It had a selectable depth, but a short life span, and provided only range information. It was replaced in due course by the Command Activated Sonobuoy System (CASS), which pinged on command (in four fixed frequencies) from the launch platform rather than pinging continuously.

In the late 1970s, the US Navy introduced the Directional Command Activated Sonobuoy System (DICASS) series of active sonobuoys, with directional capability and frequency modulated (FM) sonar sweeps.

#### Explosive Echo Ranging (AQA)

In order to obtain range information, a technique may be employed where small explosive charges are detonated near passive sonobuoys to create a broadband acoustic pulse that reflects off a nearby enemy submarine. By comparing the time when the buoy hears the explosion of the charge with the time when the buoy receives the echo from a target, the range of the target from the buoy can be obtained. This explosive echo ranging technique is called “Julie.” The disadvantage is that the submarine, upon hearing the explosive charge, knows that it’s being hunted locally.

#### Passive Detection and Identification (AQA)

Searching for the presence of a submarine and identifying the type from engine/screw noises is accomplished by a system called “Jezebel.” On the original versions, the recorded signals were plotted on a loop paper as a function of the observed frequency. The display was then “eye integrated” in an effort to determine the predominant frequencies. From this, a skilled operator could determine if there was a submarine in the search area and the type of submarine. Later versions had the frequency identification optically performed. The advantage to the Julie system is that one can obtain a quantitative range of the target from the sonobuoy.

#### Radar

Inasmuch as the radar cross section (RCS) of a submerged submarine is generally very small due to the size of its exposed periscope and mast, it cannot usually be detected by ordinary surface search radars. In addition, the interference from sea clutter (e.g. waves) near the target will generally obscure it. To be effective against a periscope or mast, a radar needs to have high resolution (both in range and bearing). Inverse synthetic aperture radar (ISAR) systems have proven very effective against submarine periscopes and masts.



### Radar Detection (ALQ)

The Radar Detection system primarily targets submarine radars. When a submarine radar signal is detected the system is switched to direction-finding mode and the received signals are characterized.

### Infra-red (IR) Detection (AAS)

Submarines are vulnerable to passive infra-red (IR) detection when they are snorkeling. Since the diesel exhaust of a snorkeling submarine is released close to the surface, because of the back pressure limitation, the exhaust gases give off a sufficiently strong IR signature as to be detectable. However, this is only useful if the submarine is snorkeling, which is only a few hours a day for diesel-electric submarines. Periscopes and masts are also susceptible to IR detection, though much less so than diesel exhaust. Bad weather and high humidity levels, which reduce the effective range of an IR sensor, limit the usefulness of IR sensors.

### Magnetic Anomaly Detection (MAD) (ASQ)

The MAD system consists of a highly sensitive magnetometer, which is designed to sense changes in the earth's magnetic field due to metallic objects in the vicinity. The system uses ionized noble gas to measure changes in the Earth's magnetic field due to the presence of a large amount of ferrous material such as is found in most submarines. While ionized, the atoms in the gas are aligned, but when they pass by a localized magnetic disturbance (a submarine), they change their alignment. This change in alignment is measurable, and can be recorded and displayed on a scrolling paper loop like an electrocardiogram (ECG) monitor or seismometer.

Detection by MAD is optimal if both the submarine and the aircraft are near the water surface. If this is the case, detection by MAD can provide enough information to the aircraft that the submarine may be tracked and attacked. This makes an airship, which can fly for a long time at a very low altitude, e.g., below 100 feet, a prime candidate for MAD.

Since the MAD detector is sensitive to the presence of any metallic object, the airship offers another positive due to the fact that the sensor can be located on the lower part of the airship's envelope, a considerable distance from the metal in the engines and the airship's car. With this remote location, the

sensitivity of the sensor may be increased. Some airships had such sensitive MAD equipment that the metal mooring cable that hangs down from the nose of the airship had to be de-magnetized to avoid interference.

### Diesel Exhaust Sniffers (ASR)

The diesel exhaust gas 'Sniffer' uses techniques similar to contemporary household smoke detectors to locate the exhaust plume residues from snorkeling diesel-electric submarines. A pickup probe on the aircraft samples the ambient air as the aircraft flies near a suspected submarine. The sample is electronically examined in order to detect minute air particles and contaminants from the operation of a submarine diesel engine. The search aircraft marks its position after each Sniffer detection and, after several detections and adjusting for the wind, aircrews could begin localizing the snorkeling diesel submarine.

The latest Sniffer system is based on a form of Laser Illuminated Detection And Ranging Radar (LIDAR) called Differential Absorption LIDAR (DIAL), in which the laser color is tuned to excite specific chemical species in the exhaust gas. A LIDAR-based design could sweep a circular footprint of hundreds of square miles around an aircraft in a matter of tens of seconds, generating a radar like image of all exhaust trails in reach.

One major defect with the Sniffer system is that as the aircraft makes its detection run it is also putting exhaust particles into the air and, as a result, each pass is more difficult than the one before. And, of course, the Sniffer does not work with nuclear or hydrogen-powered submarines.

### Towed Sonar (AQS)

A thermocline is a thin but distinct layer in the ocean in which temperature changes more rapidly with depth than it does in the layers above or below. The thermocline may be thought of as an invisible blanket which separates the upper mixed layer from the calm deep water below. Sound travels at different speeds in water based on the temperature, pressure and salinity of the water. Sound bends toward colder water - however, when sound reaches deeper water, pressure becomes the overriding variable and bends sound back toward the surface. Knowing where the thermal layers are lets submarines use the thermal layers

for tactical operations depending on the situation, allowing a boat to hide if necessary, or position itself at the best depth to detect sonic contacts. In order to operate an effective sonar that can be positioned between thermoclines, a towed sonar transducer was developed that provides azimuth or scanning presentation to surface ship sonar. The airship-towed sonar system consists of a torpedo-shaped body that houses the underwater electronics, a tow cable with multi-plexed instrumentation wires inside, a hoist in the airship that is used to launch and recover the sonar as well as maintaining the desired depth below the surface and the home-station electronics with the sonar controls and displays.

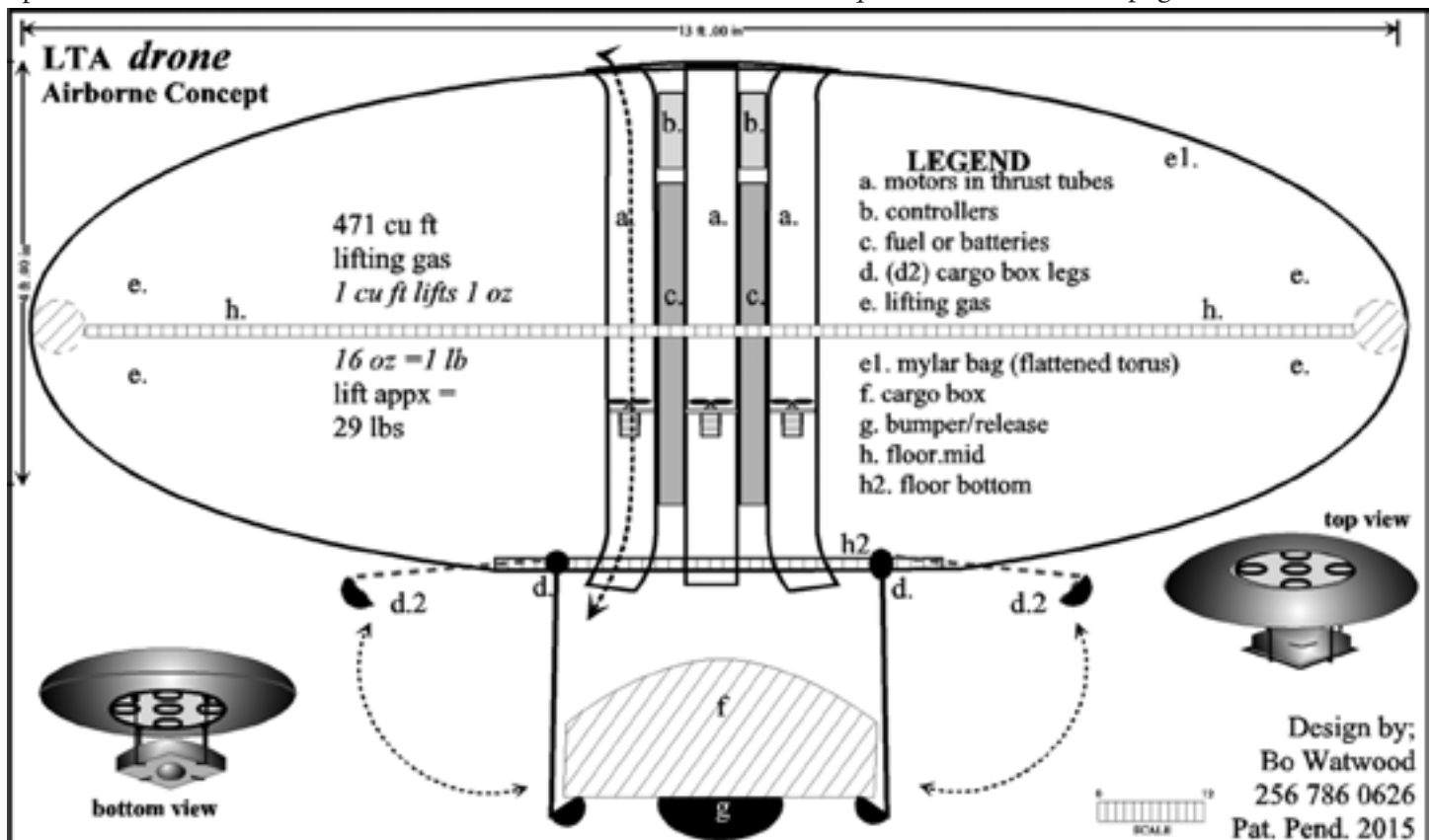
The airship-towed sonar is capable of operation in either the passive mode (azimuth reading and submarine propulsion sounds) or the active mode (azimuth plus range from echoing pings). The sonar may be towed to depths as deep as 1,000 feet. In addition to the towed sonar hardware, this system requires a sonar operator to monitor the displays and a winch operator to maintain the required depth of the transducer. Also an essential part of this system is a winch with fine controls over the paid out tow cable and a highly regulated source of electrical power.  $\Omega$

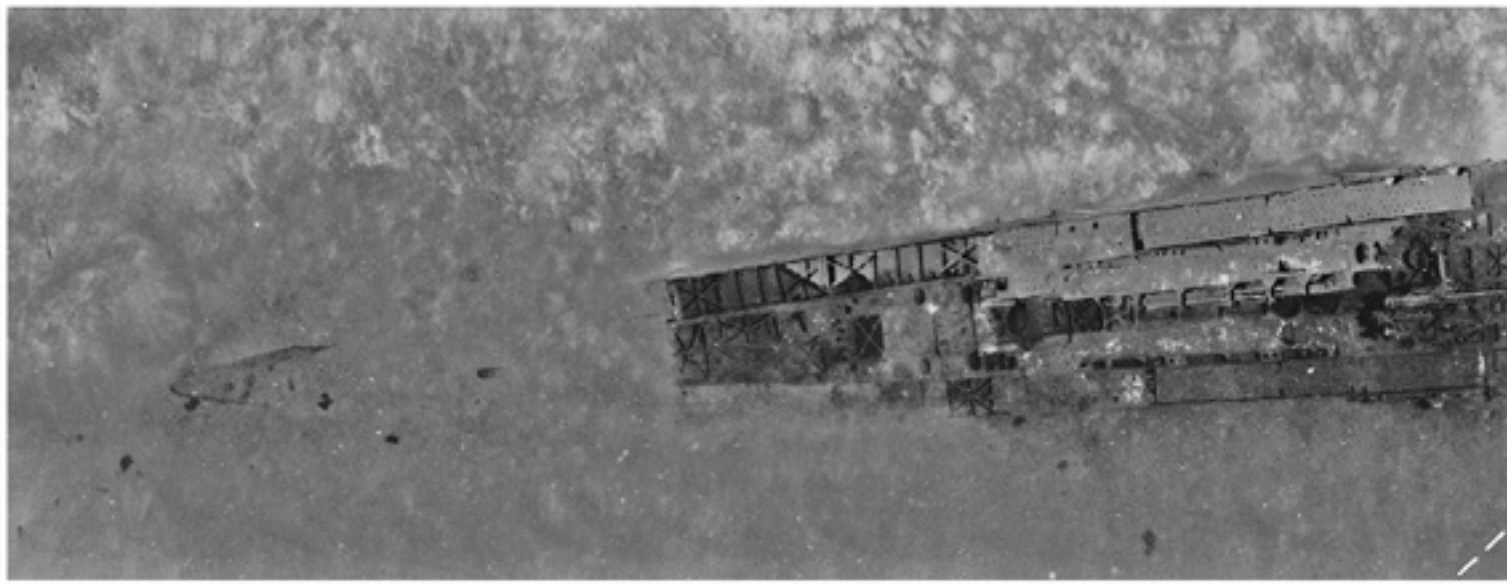
*Ed. will work with the team to add Prof. Layton's work in our current effort to translate, revise and update the German LTA operations and technology textbook.*

## SHORT LINES

Technology May Make Pilots Obsolete The New York Times (4/6, Markoff) reported that advances in artificial intelligence and other technology "are making human pilots less necessary." Government "agencies are experimenting with replacing the co-pilot" with a robot. The article noted that in written testimony submitted to the Senate in March, the Air Line Pilots Association International (ALPA) warned, "It is vitally important that the pressure to capitalize on the technology not lead to an incomplete safety analysis of the aircraft and operations."

UAVs Will Change Dynamics Of Future Wars The Wall Street Journal (3/18) Amy Zegart, Hoover Institution senior fellow, examined the potential impact of UAV technology on the future of international strategy. Zegart illustrated how UAV's low cost and high effectiveness would revolutionize the ability of non-state entities to both threaten and carry out violence, and concluded that the U.S. must invest more in UAV research to maintain superiority in the field.  $\Omega$  *Ed. notes Bo Watwood's latest design (below) might answer the call. Readers are encouraged to discuss the concept with Bo. (con't on page 28)*

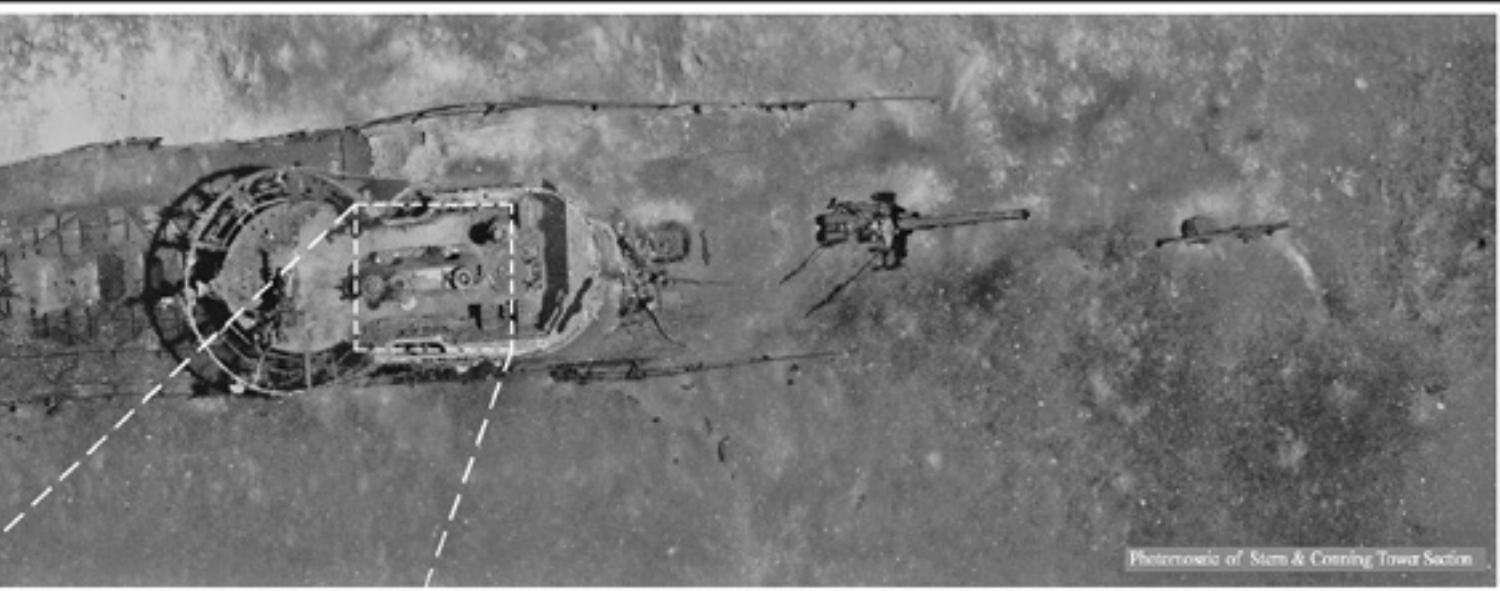




Close-up  
Conning

U-boat historian Clay Blair's page I-633 covers the U-166: "At 1:40 on the afternoon of August 1, pilot Henry C. White, flying at 1,500 feet, saw a U-boat on the surface. White dived immediately to attack, and at 250 feet he dropped a single Mark XVII depth charge, set to detonate at 25 feet. The Gulf Sea Frontier credited White with "probable damage" to a U-boat, but in fact White had sunk U-166 in about 120 feet of water with the loss of all hands... White was belatedly awarded the Distinguished Flying Cross." White's restored Grumman J4F-1 Wagon is displayed with honor at the National Museum of Naval Aviation. A footnote says "Although U-166 sank in shallow water, sport divers have not been able to find her." Indeed, U-166 isn't there. While surveying in March 2001, the Chance & Chance Technologies Corporation discovered the wreck of the U-166 using their Hugin-3000, an autonomous underwater sensor vehicle. The war grave was some 130 miles East from where the US Navy and Coast Guard was absolutely certain it laid.





Photomosaic of Stern & Conning Tower Section



Photomosaic of Bow Section



Photo of Conning Tower

## U-166

Photomosaic and Side Scan Sonar Images  
Collected with the *C-Surveyor™ III* AUV, 2009



Naval Patrol Craft 566 sank the *U-166* on July 30, 1942. The Type IX-C German U-boat lies in 1,500 meters of water in the Gulf of Mexico with the Bow section approximately 150 meters away from the Stern section. Archaeologists at C & C Technologies, Inc. identified the *U-166* in 2001 using data collected with the *C-Surveyor™* AUV.



Thanks to the kindness of the C & C Tech Corp., their engineer Mr. Robert Church, and compiler Daniel Warren, we present their image of the ultimate goal of ASW forces - the vanquished submarine. This composite image, a mosaic of close-ups in the depth's pitch-blackness, has to our knowledge never been published before. Well preserved at its remote depth, U-166 should remind us that the slippery nature of ASW should make final determinations subject to real-world revisions. It should also draw attention to the deadly business of ASW, while unpopular and probably career-limiting, should be taken seriously. Given the brave men lost on both sides in the great wars' sub and anti-sub struggles, refusing to correct the understandably flawed guesswork of ASW evaluators at the time, if not knowingly distorting the record of one group or technology over another is, in the Editor's view, unacceptable. Ω



## **C.H. McDougall and World War Two**

By Charles McDougall

I was a Junior at Caltech in December of 1941 when the Japanese startled the USA into WWII, and joined millions of others deciding to get into the fray somehow. In January of 1942, I opted to try for Naval Aviation, took the physical exam, and was sworn in as an Aviation Cadet (V5) USNR. Since the buildup of the war machine took some considerable time, I was told to go about my business until called to active duty at some future date. In February of 1942 it was time for me to register for the draft, so I reported to the Pasadena draft board. There a nice motherly lady told me I wasn't required to register, since I was already enlisted in the Navy. (At my release from active duty in 1945, my orders told me to report to the Draft Board at which I was registered on entering Naval service, so I never did have a draft card.)

In the summer of 1942, to get us into the act, the Navy sent about a dozen of us cadets to Portales, New Mexico, for Civilian Pilot Training at Eastern New Mexico College. The program was run by the football coach of the college. Room and board was provided by the college, which was off for the summer. Flight training was provided by two civilian pilots at a small airstrip just outside of town, with transportation to and from on a school bus. The town of Portales kindly adopted us all, invited us to their churches, and picnics, and gave us free tickets to their movie theater. For our recreation, the coach, since it was what he knew, treated us as a pre-season football practice team. The training was excellent; the CAA inspector who flew in to give us all our checkout flights passed us all, which was nice. Any who failed would have been sent direct to Navy boot camp.

In the fall of 1942 active duty orders came to attend Navy Preflight School at St. Mary's College in Moraga, California. I recall this duty as the most strenuous period of my life. Our first day began with a three-mile run up a hill and around the reservoir, just to give us an idea what was coming. Except for weekends, the days were a blur of physical training, obstacle courses, changes of uniform, navigation class, meteorology class, Naval customs class, close order drill, athletic competition, hand-to-hand combat, barracks inspection, and so on without respite. As winter approached I recall breaking through a thin layer of ice in the pool at dawn. After dinner the poor souls who couldn't swim had to go back to the pool and work with swimming instructors until they swam. Sunday church service was mandatory, and there was no liberty for the first month. At our first full dress inspection, conducted by 90-day-wonder Ensigns assigned to preflight duty as athletic instructors, drill instructors and dormitory police, one of the cadets in my company was called to task for wearing several ribbons, as follows:

OFFICER: "Cadet, what the hell are those? This is the Navy! Take off that Boy Scout stuff!"

CADET: "Sir, these are US Navy ribbons. This one is the Bronze Star. This one is the Unit Commendation Ribbon. This one is the Purple Heart. This is the Asia-Pacific Ribbon, etc."

OFFICER: "Oh."

The cadet had been a heroic petty officer on a carrier in the Battle of the Coral Sea, and had been rewarded with an appointment to the Aviation Cadet program, without the two years of college normally required. The officer assumed all cadets had come directly from civilian life, and he had never learned to identify ribbons. At graduation we were all in the best physical condition of our lives, swearing never again to perform any athletic function for fun again. Near the end of our spell at pre-flight we were asked for our choice of duty, with first choices going to the cadets with the better records at pre-flight. The lighter-than-air program provided a chance to train in California, and get a commission in the quickest possible time, so I made it my first choice, and was accepted.

I reported to Naval Air Station, Moffett Field in December 1942 for LTA Pilot Training. This duty seemed like a vacation after pre-flight school. At Moffett there were two fairly large blimps, of ancient vintage, on which we took area familiarization flights, and got a little real time navigation experience along with some airship lore from some old hands who had served on such airships as the *Akron* and *Macon*.



**Newly erected L-9 shares USS *Macon's* Hangar #1 with the old ex-Army TC-13. Note T-13's number is blotted-out. NARA/E. Brothers photo.**

The principal training was done on L-ships, much like the Goodyear blimps seen today. Our flight instructors were mostly new Ensigns, who had recently graduated from training themselves. It didn't occur to us to ask whether their duty at Moffett was a reward for excellent performance, or a punishment. I prefer to think it was a reward, since duty so near San Francisco had to be a plum of some sort. A typical training flight was composed of one instructor and three cadets, with the instructor demonstrating, and each cadet practicing various techniques with criticism from the instructor, and observation by the other cadets. In this type of blimp the pilot controlled the rudders with foot pedals, the elevators with a large vertical wheel, and the throttles for the two engines with his left hand. What makes a blimp lighter than air is a large bag filled with helium. To maintain the shape of the bag the helium is under pressure. As an airship gains, or loses altitude, or the bag heats up or cools down, the helium expands or contracts. To maintain proper pressure and trim (nose heavy, tail heavy, etc.) in the bag, the pilot also controlled the air

volume and pressure in two air compartments within the bag, one forward, and one aft. He did this by directing air driven by the propellers through valves which he controlled by toggles on the instrument panel.

In addition to airship control, we practiced bombing by steering the airship at an altitude of about 500 feet to a point at which we dropped small bombs loaded with aluminum powder, by hand, out the window, trying to hit a channel buoy in the Bay. Most of us became adept enough to get reasonably close, but one cadet was able to actually hit the buoy so often that he was excused from this drill on the grounds that he was causing too much damage to the buoy.

The cadets also provided the landing party for blimps returning to the base. The landing party need for the L-ships was only a few people, so it was usually safe to go to the movie. Occasionally, however, the movie had to be scoured for live bodies, since too many cadets had decided to skip the landing party routine. Another duty performed by the cadets was "Pressure Watch," patrolling the hangar at night. They made sure that the blimps, whose ballonets were attached air pumps, were maintained at proper pressure.

Since a blimp without power becomes a free balloon, we also practiced free balloon flights. This was a lot of fun. In the early morning we would assist in filling the bag of the balloon with hydrogen, balancing the increasing lift with sandbags, then hung on the passenger basket. When the balloon was deemed full enough, the instructor and as many cadets as could be accommodated boarded. As many sandbags as needed were removed, and off we went. Directional control was minimal, using differing wind at different elevations, and time of day. At Moffett, the morning winds were generally offshore, and the afternoon wind onshore, so the idea was to use the changing winds late in the day to get back to somewhere near Moffett.





A free-balloon flight is completely silent, except for sound from the ground. You hear dogs barking, and back yard conversations. People in cars, spotting the balloon, become entranced, and sometimes drive off the road while watching the balloon. Vertical control was accomplished by judicious release of sand to go up, or release of hydrogen (by opening a valve at the top of the balloon) to go down. Although there was a rate-of-climb indicator on board, the instructor would drop tiny pieces of paper to check whether we were going up or down. After an hour or two so of flight, a good landing spot would be picked out, the balloon would be landed with the help of the people in the chase vehicle, and the crew changed for the next flight segment. After the last flight of the day, the balloon would be deflated, carried to and placed on the chase vehicle for return to the base. Of course, the chase crew always hoped for landings near a road. When we were sufficiently checked out to go without an instructor we would try to go out over the ocean on the offshore breeze, and return on the onshore breeze. Places of interest that we landed were Stanford University, where we were of interest to the coeds, and the Winchester house, where we got a free tour. When we were off duty it was easy to hitch a ride to San Francisco, or San Jose, and back to the base. Both were fine liberty towns.



**Two K-type airships were on hand to commission Weeksville's steel hangar #1, 13 November 1942. NARA/ David Smith photo**

After the instructors thought we had had enough of them and them of us, in May 1943 we were commissioned Ensigns, and received our wings of gold as naval aviators, given a few days leave, and ordered to duty at various airship squadrons.

Pursuant to orders, I reported to ZP-14, an airship squadron based near Elizabeth City, NC. As a junior pilot, I took up residence in the BOQ. The normal routine for junior pilots was a three-day schedule. Day 1- half day training flight + half day ground school; Day 2 - Patrol or Convoy Mission; Day 3 - Off Duty. The blimps in operational squadrons were K-type airships, of which 134 were built by Goodyear. They were about 250 feet long, with about 450,000 cu ft of helium. They were powered by two 550 HP Pratt and Whitney engines, with maximum of about 80 MPH airspeed. they carried four depth charges, and were armed with a .50 caliber machine gun forward, and a BAR. While the Ks had rudder pedals, directional control was generally handled by an individual in the right hand pilot seat using a wheel similar to one in an automobile. This is because of the need to maintain strict adherence to compass headings on patrol, and better control at the low speeds of landing, and the start of takeoffs. As a Junior pilot, my jobs were principally navigation and steering (course maintenance). Training flights were almost the only opportunity Junior pilots had for practicing landings and takeoffs, since these procedures were generally the prerogative of Senior and Command pilots (airship commanders). Junior pilots flew with different senior pilots, in order to be evaluated by several people.

Many patrols were night patrols at very low altitudes - below 200 feet. We would trail our CW radio antenna to hit the water at below 50 feet, and get a spike on the dial to let us know when we were too low! Our MAD gear, detection of magnetic anomalies (such as submarines ) would work better there. This was a foolish procedure, since the chance of a actual contact was about one in 200,000,000,000, and the chance that anyone in the crew would notice the wiggle on our chart recorder was about one in 1,000. Furthermore, our radar had a very short range at such low altitudes. Far better to fly at 500 feet, with our great radar ready to pick up any sub surfaced to recharge batteries. Having picked up the sub on radar, the MAD might have been of some use in detecting an already spotted, and just submerged sub.

Convoy work involved predawn takeoffs to arrive at the convoy by dawn, and late night landings, having left the convoy at dark. Sixteen to eighteen-hour flights were common. We carried Fairchild Aerial Cameras which took great pictures. On convoy work we often asked to take pictures of the major naval vessels we were escorting, or which were escorting convoys themselves. We also took pictures of other blimps, stuff we found floating on the ocean (such as wreckage) floating mines (which we sank with machine gun fire), and an occasional life raft, or abandoned small boat. One of the more peculiar features of our operations related to carrier pigeons, which we often took with us on flights, with orders to release them at our farthest point from the base. The dubious idea behind this was to be able to send messages back, in case our radios failed, or we crashed, assuming that this happened before we had already released them. The enlisted men in charge of the pigeons had large bets on which bird would come back soonest, or from the longest distance. (Some crews would cook the birds and eat them.) Many just got lost and never returned. Our record was 365 miles - for a bird we released on a flight from Guantanamo to Miami.



In August, my girl Jean came back to NC. We were married and took up residence in town. Our home was one half of a small duplex. The other half was occupied by the base head doctor and his wife. Their civilian home was a farm near Tarboro, which was close enough for them to visit occasionally, and bring back produce to preserve. This operation was performed on the hottest days of the summer by the doctor's wife and a black mammy they would bring back from the farm for the work. All the cook stoves in this project were coal burning, and also served as water heaters, and the sole source of heat in cold weather. The summer was hot enough, even without

canning, and intolerable with canning. The coal available for these stoves was anthracite, an almost nonflammable substance, which required a hot wood fire to ignite the coal. When winter came we used up all the crating material our little furniture came in, and contemplated burning up some furniture, but were able to find some other tinder.

We had no car, and I can't remember how we did the usual errands. The Navy would send a car to town to pick up people who had to go to the base at night to sleep in the hangar prior to a pre-dawn takeoff. A few of the guys did have cars, and, together with the Navy shuttle service, got us to and from the base. Just about everything was rationed: meat, butter, shoes, sugar, tires, gas, etc. One of the few things that weren't rationed was seafood, so we had a refrigerator that was full mainly of Chesapeake Bay Bluepoints. We loved them, they were dirt cheap (\$1/bushel) and they provided a shell sidewalk for us over time.

In October, I was made a Senior Pilot. My crew was formed from rejects from other air crews, as were all new crews. My crew received the name of McDougall's Monsters. In a short time we were one of the better crews, which had the result of being assigned many of the squadron's more difficult missions. My new exalted status also gave me additional duties. These included checking out as landing signal officer, in charge of the crew involved in getting the blimps safely on the ground, attached the mobile mast, and into the hangar. In bases in the US, the typical crew was 40 or 50 men. At overseas bases the crew was about 20 men, and at small detachments we made do with as few as 6 on occasion). At major bases such as Elizabeth City, there were eight blimps. At most small detachment overseas, just one.

**Jim Strickler, my favorite co-pilot, off watch on a ferry flight.**



We enjoyed a few months of married life until February 1944, when myself and my crew were transferred to a squadron in Brazil. Jean, then pregnant with Barbara, took the train back to Pasadena. At an advanced anti-sub course at Key West en route to Brazil, I ran into a Caltech schoolmate who was executive officer on one of the training subs. He invited me along on one of the training missions, which I enjoyed a lot. I reciprocated by inviting him and his skipper to take a ride with us. As we were coming in to land after the training flight, I was ordered to abort the landing, and fly to the blimp base near Miami - Richmond - to get away from an anticipated hurricane. I tried in vain to be allowed to touch down and let my guests hop off. Off we flew to Miami, from which my somewhat disgruntled guests had to make their way somehow back to Key West. I had no such problem, just flying the blimp back the next day. At the conclusion of Key West School, my crew was assigned quarters in Miami, awaiting air transport to Brazil. Our only duty was to check each day to see if transport was available. Otherwise we were free to go to the beach, and otherwise goof off. A good two weeks. Finally we boarded a NATS (Naval Air Transport Service) DC-3.



**War consists mainly of waiting (at left, the bus into Bahia).**

In a series of daytime flights stopping overnight at San Juan, Georgetown, and Recife, we landed for the night at an Army Air Base near Forteleza. (NATS Squadron VR-7 operated between Miami and Rio. The families of the NATS pilots based in Miami sent their laundry to Rio for better, quicker, and cheaper service than they could get in Miami.) We were taken by Navy bus past thatched huts (illuminated by candles) to a naval air station from which operated two blimps and a squadron of Navy patrol planes.

At about 11 PM, I reported in to the duty officer, who took me by Jeep to the BOQ. He introduced me to my new roommate, who woke up from a sound sleep. I promptly fell asleep on my assigned bunk, and woke up in the morning to spot a huge snake lying on the overhead beams, head hanging down, apparently eyeing me. I said something that woke up Bob Morton, my roommate, who sized up the situation, and said "Oh, that's only George. He's a boa constrictor who keeps down the rats." When my crew was all settled, we took along an old timer for one familiarization flight. We resumed the routine of convoy and patrol, along with training flights primarily into the interior doing sightseeing. There were search missions looking for survivors of airplane crashes or ship sinking's. We also ferried a USO troupe once.

**That's me, on the right, with C. B. J. Cammara, whose father was the #1 or #2 man in the New Jersey Mafia!**



After a few months at Forteleza, I ferried a blimp to report to a base near Bahia (Salvador), a much larger city on a magnificent bay, with wonderful weather. Duty was more of the same, alternating between Bahia, and a detachment farther south (Caravellas) a small city I never saw. I spent my free time on the base, or at a fabulous beach nearby, which had great waves for body surfing and tiny tropical fish in little coves. There was no town or city near the beach, so the only swimmers were myself, and one or two other Californians. On the route between the base and the beach was a little thatched lean-to which sold fruit. One day when I was driving alone from the beach, I stopped, handed over the Brazilian equivalent of a dollar, whereupon the proprietor loaded everything in his shop onto the Jeep, stalks of bananas, loads of oranges, pineapples, coconuts and mangos. He pulled down his shutter, and headed home for the day.





**Aerologist Jack Haheim met a couple of lovely local ladies near Sugarloaf Mountain, Dec. 1944.**

A break in the usual routine involved ferrying a blimp to Rio de Janeiro for overhaul, which gave my crew a few days in Rio. A nice break. Myself and the other officers in my crew loaned officer uniforms to the enlisted crew members so they could go into the good clubs, hotels and restaurants which required jackets and ties. We didn't think much of this rule which allowed Army privates carte blanche, but kept out any petty officers below the rank of Chief.

**(Below) Liberty in Rio was unforgettable. This is the view from the famous "Christ of the Andes."**



In January of 1945 we ferried a blimp from Brazil to Miami for overhaul. I got a little leave and spent a few days with Jean in Pasadena. I flew back to Miami on NATS, and started ferrying a blimp back to Brazil. I got as far as San Juan where we got orders transferring my crew to NAS Richmond's ZP-21. So, back to Richmond we flew. We flew missions from Richmond, San Julian (Cuba), and Banana River. We also had some temporary duty back at Elizabeth City, with a new-to-me squadron, ZP-24. They had replaced my original operational squadron, ZP-14, which was then in the Mediterranean area. During this period the submarine menace in the South Atlantic was deemed over with, and the operations there began shutting down. Thinking that the war with Japan would go on long after the defeat of Germany, I had applied for heavier-than-air flight training. My orders to HTA training were received in August. After a little leave I reported to NAS Dallas, where Jean and Barbara joined me.

In 1945, after I was no longer in LTA, there were over 325 planes in the hangars back at Richmond, fleeing a hurricane. The hurricane caused the collapse of the hangars, and all the planes were wiped out by being crushed, or by the fire that ensued, completely destroying all three hangars. This was probably the biggest loss of Navy aircraft in a single day in history.



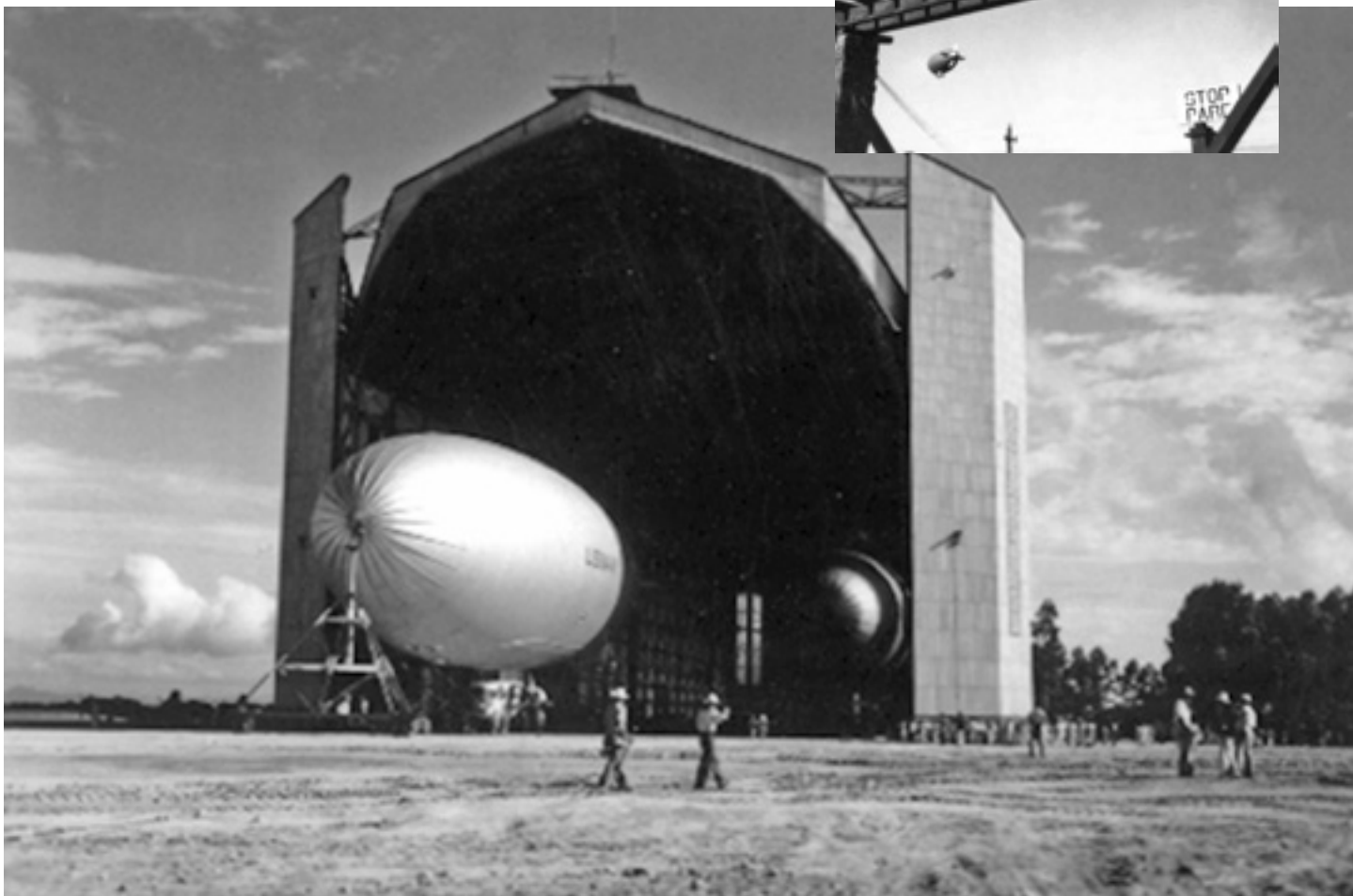
**NAS Richmond following the fire. Only one concrete tower remains there today. NARA / David Smith photo**

I finished primary HTA training in December and was released to inactive duty. When going through the process of demobilization in Houston, I felt a tap on my shoulder, and heard a voice saying “Come with me.” I looked and discovered a four-striper leading me to an office.

The Captain said, “The Navy wants to keep you. Here’s our proposal. Stay in the Navy and return

to CalTech. Change your major to Aeronautical Engineering. In three years you will have your professional degree, and you will be a Lieutenant Commander with flight pay, and will be assigned a research Facility near Washington D.C.” I said I had to check with my wife, Jean. I called her and told her of the Navy’s proposal. She thought about it for 30 seconds and said, “That sounds great for you. But, if you accept the offer, our marriage is over!” My decision was a no-brainer. We bought a little car, drove to Pasadena to resume civilian life, and I returned to Caltech in February. We were married for 57 years until Jean passed away. Ω

*Fellow veteran of Brazilian LTA ops. the late Don Venton, left an extensive memoir, now being published by his daughter. He was at Santa Cruz, where the former Zeppelin hangar’s base had been christened “Camp Mello” after a local air hero. Ω*



## The Historians' Letters (Part VII)

By Roy D. Schickedanz

The over-flight of the ex-Navy training L-Ship, presently owned and operated by a German commercial firm of Schwab, a mail ordering house, bobbing up and down in its literal fight across the American Army/Air Force kasern; the education of Roy D. Schickedanz had a personal reality of real in the narrative of lighter-than-air beginnings. Returning to Blackburn College, it was my good fortune the head librarian of the college, Mr. Robert L. Underbrink was also a member of the United States Naval Institute, had just published an article in its *Proceedings* on a downed Japanese Zero in Alaska during World War Two. On meeting with Bob, I was transferred from the kitchen to the library as head of the audiovisual department, with an office and staff instead of an intended closet. I received a letter, dated Jan. 18, 1968, from Dr. Douglas H. Robinson [below]

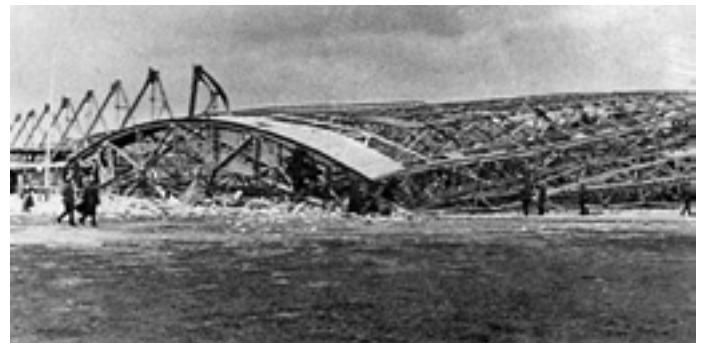


"Many thanks for your photos and the letter of Jan. 4. It brought back old times, for I have met most the people you mention, having pleasant memories of Klaus Pruss at the Kameradschaft celebration in Hamburg in 1962, and met General Stahl at another reunion in Hamburg in 1964. I agree that he is very well informed on the Army airships in WWI, and the best information in print of the Army airships in that war in a summary article that he and Steegmann wrote years ago for Neumann's Die deutschen Luftstreitkräfte im Weltkrieg, which was published in 1920. I am doubtful that anything more extensive will ever be

written on the lines of "The Zeppelin in Combat," though I wish it would be. For one thing, the material was destroyed that was comparable to what I drew on. The airship war diaries and correspondence at the Luftwaffe were burned in 1945 when Berlin was abandoned. Additionally, the Army airships do not present the romantic history of the naval craft; there was no unifying force, such as was provided for the Navy by Strasser with Scheer's backing, for another, there was not nearly the same amount of activity. The Army ships often lay for weeks in their sheds without flying, being unable to make raids and not having any capability of scouting over land. One measure of the difference is that only three Army crews were lost in combat (LZ 37, LZ 77, SL 11), whereas the Navy lost 20.

I haven't been to Friedrichshafen since 1937, and have not been much tempted to go recently. You may have discovered, or will discover, that there is a profound schism, with considerable hostility, between the Navy crowd residing in the North Sea area and the Luftschiffbau crowd around Friedrichshafen who have totally ignored the Navy contribution in all their writings and activities since WWI. My lot of course is thrown with the Navy people, who gave me a great deal of assistance; while I am in bad odor in Friedrichshafen, particularly with Herr von Schiller, since I have failed to endorse his conviction that his old C.O., Freiherr von Buttlar, was the greatest airship commander of the war. I have kidded German friends that I might someday get to Friedrichshafen wearing dark glasses and a Tyrolese hat and calling myself "Graf Dieter von Katzenellenbogen." Good for a laugh anyway.

The Wingfoot LTA Society did publish some years ago of the dynamiting of the Frankfurt hangars, [photo below] hence no repetitions for the review





of von Schiller's book. I did not know myself that the destruction of the ships was decided as early as February, 1940, until I read it in his book: Gives the lie to the Nazi era charge that the hangars had to be dynamited to clear the field for bomber aircraft participating in the invasion of France in May 1940. Would be interested in some Herr Weber's books, though I would wonder if they had anything that I do not know; I know, for instance, which ship types would have borne the numbers LZ115-119 at the end of the war, which he may not."

Over an Easter break instead of going home I stayed over at Mr. Underbrink's apartment (Bob needing to be away in Jacksonville, Illinois), planning to use the time to interview Howard Heinz, then mayor of Carlinville, Illinois, who I had learned flew blimps in World War Two in addition to reading Bob's manuscript to be titled DESTINATION CORREGIDOR with a West Point atlas. When the United States Naval Institute did publish it, some individual chapters were rearranged. His manuscript and book was an easy read, as Bob is very good writer. Later that summer of 1968 Bob dropped me a note:

"Though I have not written-you have been in thoughts... To give it to you flat out, it is going to be impossible for me to make to Washington this summer. Alas! And not because I do not want to go, it is simply that there is too much going on here with the new library and all for me to get away. I did have a marvelous vacation in Mexico and will give you the full details next time we get together.

The Naval Institute still have my book and no word as yet. I have written asking some decision so that I can place it in the hands of another published. Have completed my 3000-word article on the Japanese carrier *Shinano* and am asking the PROCEEDINGS if they are interest in it. In the event that you are able to go east, I am hoping that I can get you to do a wee bit of research for me in Washington. I will reciprocate somehow...

PS You are right-DREADNOUGHT is terrific..."

**-To be Continued- Ω**

## **SHORT LINES (continued from page 17)**

Rooney and Sherman Form Airship Caucus  
Congressmen Brad Sherman (D-CA) and Tom Rooney (R-FL) announced the creation of the Cargo Airship Caucus in the House of Representatives to encourage the development of these potentially revolutionary aircraft for military and civilian use. Airships currently under development in the United States have the potential to carry large cargo payloads over long distances, at a fraction of the cost of fixed-wing aircraft, and can reach some of the most remote locations inaccessible for maritime traffic. Moreover, cargo sizes of several hundred tons are possible with advanced airships currently under development, with travel at speeds many times that of ocean-going cargo. This could provide the military the capability to carry large cargos to the theaters in which they operate faster than via maritime shipping, while eliminating much of the risk of casualties and disruptions that accompany the need to truck cargo overland after arrival at the sea and air ports. "Modern cargo airships have nearly three times the fuel efficiency as air transport alternatives, and can land in very remote locations," said Congressman Brad Sherman. "They have enormous potential to enable economic development opportunities and accelerate export logistics, expand U.S. capabilities in disaster relief response, and drive greenhouse gas reductions in aviation."

"The recent advances in airship technology are exciting, and the Caucus will help illustrate the breadth of benefits enabled by cargo airships' efficient and infrastructure independent operations, including benefits to military operational tempo and mission flexibility, enhanced delivery capability, and operational cost savings," said Congressman Tom Rooney. The successful development of these aircraft will also have benefits for humanitarian efforts, as earthquakes and storms that create humanitarian catastrophes often devastate the very infrastructure, such as ports and airports, needed to deliver critical supplies, as was the case with the 2010 Haiti earthquake. Airships also have applications for energy projects that require delivery of large equipment, such as wind farms; often the most efficient wind

farm locations are on ridges far from any ground transportation facilities.

Congressmen Rooney and Sherman are beginning the process of recruiting additional members to join the Caucus and are planning the first meeting, which will introduce members to the recent advancements in airship development, in which American firms & workers are in the lead. **Ω**

New Honeycomb Membrane Could Reduce Cabin Noise The Daily Mail (UK) (4/28, Kitching) reported that North Carolina State University (NCSU) and MIT researchers have developed “an ultra-thin” honeycomb membrane that could “significantly” reduce the amount of noise in plane and helicopter interiors. Working to ensure the new insulation would not be too heavy, the article noted that the membrane should “only add an additional six per cent to the overall weight of the honeycomb panel in the fuselage.” NCSU’s Yun Jing said that when installed, the membrane could block “100 to 1,000 times more sound energy” than what is currently blocked. **Ω**

Navy Announces New Unmanned Weapons Systems Office Defense News (4/16, Myers) reports that Navy Secretary Ray Mabus told the Sea-Air-Space Exposition on Wednesday that the F-35C “should be, and almost certainly will be, the last manned strike fighter aircraft the Department of the Navy will ever buy or fly,” predicting unmanned aircraft and other autonomous systems will “be the new normal in ever-increasing areas.” The article notes that Mabus announced the formation of the new “N99 Navy staff office for unmanned weapons systems and a new position for deputy assistant secretary of the Navy for unmanned systems” on the same day that the Unmanned Combat Air System (UCAS) Demonstration program conducted “the first of three aerial refueling tests that mark the program’s concluding step.” Capt. Beau Duarte, Carrier Unmanned Aviation program manager, said that once those tests are finished, the project will be retired because UCAS has “little in common” with the follow-up Unmanned Carrier Launched Aerial Surveillance and Strike (UCLASS) program. **Ω**



**From left, Troy Bradley of Albuquerque, N.M., and Leonid Tiukhtyaev of Russia, before their liftoff in a gas balloon in Saga, Japan. Photograph courtesy of Two Eagles**

### **Record-Setting Balloonists Touch Down In Mexico After Pacific Crossing**

(compiled from internet reporting)

Balloon pilots Troy Bradley and Leonid Tiukhtyaev, dubbed the “Two Eagles,” have completed their nearly 7,000-mile journey across the Pacific from Japan to Mexico. The Associated Press reported that Bradley, of Albuquerque, N.M., and Tiukhtyaev, from Russia, landed in their helium-filled balloon off Baja California about 300 miles north of Cabo San Lucas, “greeted by a team of balloon enthusiasts who assisted with the landing. The pilots came in low and dropped thick trailing ropes into the ocean to help slow the balloon before setting down in a controlled water landing.” The trip shattered two long-standing records for ballooning, what the AP described as the “holy grail” of ballooning achievements — the distance record of 5,209 miles and the 137-hour duration record. The previous record was set in 1981 by Ben Abruzzo, Larry Newman, Ron Clark and Rock Aoki aboard Double Eagle V, which also launched from Japan. A recovery team in boats immediately launched from a fishing camp northwest of La Poza Grande—about 300 miles north of Cabo San Lucas—to greet Bradley and Tiukhtyaev. Richard Berry, the mayor of Albuquerque, the ballooning capital of the world, was on location in Baja to congratulate the pilots after their exhausting flight. **Ω**

Airbus A380 Having A “Mid-Life Crisis” From Lack Of Sales Bloomberg News (4/26, Rothman) reports that after operating for 10 years, the Airbus A380 is suffering “a mid-life crisis,” with no new airline customers in two years. The company hopes that through its efforts, customers may “re-discover the A380 as a work horse.” Despite focusing on the woes of the A380, the article notes that the Boeing 747-8 is faring “far worse.” Airbus has experienced at least “one modest success” in that each A380 is no longer produced at a loss for the company. Ω

New GE Ceramic Allows Lighter, Hotter Jet Engines The AP (5/15, Fahey) reports that three decades of work along “a tortured path of fluctuating research funding and disappointments” by General Electric researcher Krishan Luthra has produced a new “lightweight, strong” ceramic that can withstand extreme temperatures. It is being incorporated into “jet engines and promises to save billions of gallons of fuel” through reduced weight and by allowing higher operating temperatures. The GE engine using the new material, the LEAP, already has 8,000 orders worth \$100 billion, and it will be used on the Airbus 320neo and Boeing 737 MAX, with “the first test flight... expected to take off in the next several weeks.” GE predicts that, by 2020, with more components made with this material, “engine thrust could be increased by 25 percent and fuel consumption could improve by 10 percent.” Ω

Balloon Payload Records Atmospheric Infrasound For First Time In Decades LiveScience (5/4, Oskin) reports that “for the first time in 50 years,” an experiment has recorded “atmospheric infrasound” from the edge of space. The recording was made by a device developed by Daniel Bowman, a graduate student at the University of North Carolina at Chapel Hill, which flew aboard the High Altitude Student Platform (HASP) balloon last year. It is not clear what created the sounds, but researchers do plan to launch a similar payload this year during this year’s HASP balloon launch. According to the article, Bowman said that he hoped this work would “revive interest in atmospheric infrasound.” Ω

Search Systems Designing UAV To Float On Water, Search Below Popular Science (4/14, Atherton) reports that Search Systems’ Mariner 600 drone is being designed to be “able to fly in the sky and poke around

under water.” According to the article, the drone will float on the surface and have a camera that “looks underneath” the water. According to the article, this is notably different from the Navy’s “duck-like drone,” which is being designed. Ω



**WAL Commissioner Don Hartsell, WAL Director Larry Waks, HRH Sheikh Mohammed bin Hamad bin Mohammed Al Sharqi Crown Prince of Fujairah, H.E. Mr. Salem Al Zahmi**

His Royal Highness Sheikh Mohammed bin Hamad bin Mohammed Al Sharqi Crown Prince of Fujairah presided over the Government of Fajairah and the World Air League completing an airport agreement to host the World Sky Race. “Fujairah today has placed itself on the map and route of the World Sky Race by agreeing to be an important safety and logistics point for the airship teams as they race across the Middle East.” said Commissioner Hartsell. Ω

NASA Super Pressure Balloon Flight Terminated Over Australia The Register (UK) (4/28, Chirgwin) reports that NASA “has terminated the flight of its Super Pressure Balloon after one-third of its planned flight.” While the Wallops Flight Facility “is pleased that the balloon made a near-circumnavigation in its 32 days aloft, the mission was originally planned to last 100 days.” In an announcement, NASA said controllers “detected a leak developing in the balloon and for safety, issued flight termination commands” over Australia on Monday evening. *And a follow up:*

NASA Super Pressure Balloon Found In Remote Queensland. The Australian Broadcasting Corporation (5/6, Arthur) reports that cattle ranchers “in remote south-west Queensland” have found “parts of a NASA super pressure balloon,” whose flight was terminated after 32 days in the air after it sprung a leak. Ω



## JOINT AA AND DGLR 10<sup>TH</sup> INTERNATIONAL AIRSHIP CONVENTION

By Rob Knotts

Friedrichshafen, epicentre of Zeppelin airship technology past and present, hosted the Airship Association's 10<sup>th</sup> International Airship Convention from 17<sup>th</sup> to 18<sup>th</sup> April 2015. The joint convention partnered by the Airship Association and Deutsche Gesellschaft für Luft-und Raumfahrt (DGLR) was held in conjunction with Aero Friedrichshafen exhibition; the event was attended by delegates from 15 countries. One additional surprising but very welcome attendee came from California on a virtual basis via some sophisticated video linking equipment.

A reception in a hangar against the background of a Zeppelin NT 07 launched the convention. Thomas Brand, (Gesschaftsführer Zeppelin) welcomed the delegates.

A total of 21 papers were presented in the convention. Topics included variable buoyancy, solar-powered airships and issues faced by airship operations in icy conditions. Five presentations were made covering airship projects and research work carried out by students from the Indian Institute of Technology in Mumbai under the supervision of Professor Rajkumar S. Pant.

Logistics requirements to support isolated communities in Northern Canada more than adequately demonstrated the need and economic opportunities of using lighter-than-air vehicles in areas that are difficult to access. This was reinforced by a Russian presentation on the potential of the Augur Atlant rigid airship project.

The absence of believable airship performance and supporting cost effective data has possibly prevented business and military communities from confidently funding development of modern airships. This deficiency prompted a paper outlining the need to develop a set of world-class modeling and simulation tools to analyze the economic performance of any proposed airship concept.

Herr Robert Gritzbach, chief engineer at LT Zeppelin Luftschifftechnik, presented two papers on operational and technological issues associated with the Zeppelin NT07.

On the evening of the first day delegates had a most interesting tour of the Zeppelin Museum in Friedrichshafen followed by a dinner in the museum's hall under the mock up of the Hindenburg's passenger lounge. On the afternoon of the second day a model airship regatta attracted and delighted not only the convention delegates but many who attended the Aero Friedrichshafen exhibition.

Two plenary sessions were held. The first addressed the future needs of the Airship Association. The main messages received were a need to attract younger members, the use of multimedia to promote interest and an increased focus on the environmental benefits offered by airship operations. The second session addressed issues needed to assist the airship industry. Three main themes emerged. The first dealt with hydrogen as a buoyancy gas. Views were expressed that there is no long-term future for helium as a lifting gas and that the industry must return to hydrogen for economic and practical reasons. The second dealt with education. The airship world needs a new generation of aeronautical engineers - young people with enquiring minds who will take on problems that defeated their forebearers. A view expressed many times was the need to encourage students to build radio-controlled model airships, a move that would excite the minds of future engineers. The third theme addressed airship cost-of-ownership issues. Operating, maintenance and support costs over the lifetime of an airship will far exceed acquisition costs. The economic viability of airship operations needs designers to effectively address factors that contribute to minimizing cost of ownership throughout all stages of design and development and continuously through subsequent in-service operations.

The convention proved to be a great success and offered views of serious technology coupled with an element of fun. Thanks go to the President of the Airship Association, Dr. Bernd Sträter for his tireless work in making the event such a success, together with the team from DGLR who administered the event with such efficiency. Also thanks are extended to Airship Association council member Gregory Gottlieb for his outstanding chairmanship of the convention. **Ω**

## LEMV/ AIRLANDER Update



Hybrid Air Vehicles are pleased to have welcomed Sir Gerald Howarth, MP, who has officially started the Airlander 10 Engine Test Program. HAV were joined by Alistair Burt, MP, Sir Gerald Howarth, MP, and Dame Glynne Evans. Sir Gerald, who cut the ribbon to open the engine rig, and who from 2010 to 2012 served as the Minister for International Security Strategy at the MoD, remarked, “I am thrilled to see the UK Government working together with this successful UK SME, making the very most of work which has previously been done by the Company for the US Army.” HAV purchased the vehicle, disassembled and returned it to the UK and benefited from a ruling from the US State Department that wholly removed all US military export regulations.

An engine-run used one of the Airlander’s four 325 hp, 4-litre V8 direct injection, turbocharged diesel engines. In flight, two engines are mounted forward on the hull and two on the stern of the hull for cruise operation. All four are configured in ducts with blown vanes to allow vectored thrust for take-off/landing/ground handling operation.

The LOCATE (Low Carbon Aircraft Technology Experimentation) program has, in addition, supported key work in aerodynamics, automation and manufacturing technologies.

Hybrid Air Vehicles has been awarded €2.5 million of funding from the Smart, Green and Integrated Transport Societal Challenge. This aims to boost the competitiveness of the European transport industries and achieve a European transport system that is resource-efficient, climate-and-environmentally-friendly, safe and seamless for the benefit of all citizens, the economy and society.

The UK Government announced a £3.4 million Regional Growth Fund Grant (subject to due diligence) for HAV to help create the jobs that will enable the Airlander 10 to return to flight and enter full production. Both the Innovate UK LOCATE programme and the Regional Growth Fund grant will secure jobs, technology and export revenues for the UK.” It is for the prototyping and broad technological development of Airlander 50 that HAV secured £2.5m from Innovate UK alongside investment from a group of private investors.

The Airlander Civil Exploitation Project (ACEP) will undertake the work to develop a fully specified civil variant, an engaged regulator, approved regulations and significant risk reduction for commercial customers, thereby allowing orders to be made. It will develop a regulatory framework for certification of this vehicle type with the European Aviation Safety Agency (EASA) and migrate the technology from the military specification and certification it was originally designed under, to the agreed EASA civil standard.

Hybrid Air Vehicles has also been the recipient of a significant grant from the Regional Growth Fund, in one of 56 new awards announced in 12 February 2015.

Hybrid Air Vehicles raised over £2 million on Crowdcube, the world’s leading Equity Crowdfunding platform. It was the largest ever crowdfunding of any sort in the UK in the engineering or manufacturing or aerospace sector, and 3rd largest number of investors (860) ever on a Crowdcube pitch, despite having a higher minimum investment (£100) than other pitches (£10).

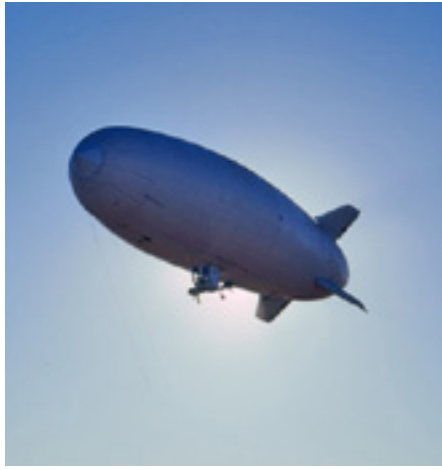
6 May 2015 marked the official start of the Hybrid Air Vehicles’ “Return To Flight” program. The keynote aspect is formally submitting an application for Type Certification to the chosen regulators, The European Aviation Safety Agency, EASA, which Hybrid Air Vehicles has now done. •HAV submit Type Certification application for Airlander 10 to the European Aviation regulators, EASA.

HAV will start announcing supply chain deals, securing other UK jobs and growth. The first one, with BOC to supply helium, was announced. Ω

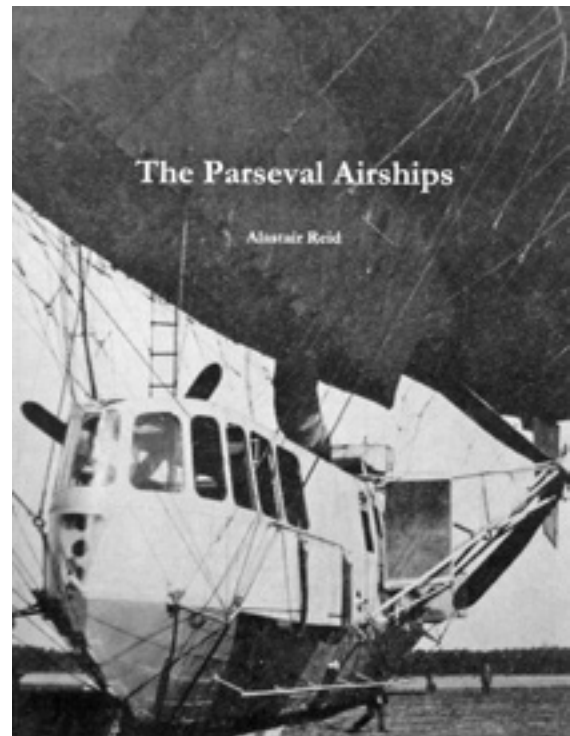
## Update

Worldwide Aeros Corp. announced that functionality testing has been successfully completed on a new landing gear design for the Aeros 40E airship now in production. Ground crews required for safe launch and recovery of conventional airships employing state-of-the-art technology present an operational drawback, which can be reduced through more precise static lift data for pilots. The new landing gear design enhances performance, safety, and operator empowerment. It introduces real-time static lift data for airship pilots during takeoff and improves dampening force control for smoother landings. The airship's flight management system actively controls the dampening property of the shock absorbers. "The 40E Weigh-off On Wheels (WoW) system is unique, and simple but powerful," explains Armen Amirian of Aeros.

Aeros also announced its Critical Design Review (CDR) for the company's latest airship has been successfully completed and production initiated on 40E Sky Dragon at the Aeros engineering and production headquarters in Montebello, CA. Fabrication and vehicle assembly was initiated following the CDR, with supporting structure for the vertical and horizontal stabilizers now taking shape on schedule, with expected vehicle completion later in 2015 following envelope and gondola fabrication. The 40E will enter service after Type Certification (TC) by the Federal Aviation Administration (FAA). The 40E builds on the performance strengths of the 40D while improving accommodation and incorporating operational enhancements. **Ω**



## MEDIA WATCH



### The Parseval Airships

By Alastair Reid

Reviewed by

C. P. Hall II

One year ago I reviewed "Schutte – Lanz Airship Design" aka "The Schutte–Lanz Construction Company 1909 – 1925" attributed to Professor Johann Schutte, translated from the German original, "Luftschiffbau Schutte – Lanz 1909 – 1925" by Alastair Reid. That was a modern translation of a finished work, originally published 90 years ago, which was very well done.

This time, Alastair Reid's eye is trained on the non-rigid and semi-rigid airships whose origins came from the fertile mind of Major August von Parseval, or more precisely, as is captioned under his photograph in full dress uniform, "Prof. Dr. ing.h.c., Dr. Phil.h.c. Major z.D. August von Parseval".

Unlike the previous effort, "The Parseval Airships" is not a straightforward translation of a whole text. In this case, Mr. Reid obtained access to and cooperation from three gentlemen with extensive collections of contemporary documentation of the Parseval airships; from which Reid has assembled an historical text. He begins with brief history of observation balloons for military use. He documents Major Parseval's entry into that aspect of lighter-than-aircraft and his progress from that beginning into the area of powered flight.



The first decade of Parseval's work with powered flight parallels that of the Zeppelin Company. As was the case for Zeppelin, Parseval was interested in military applications; however the military lacked the enthusiasm to keep his firm fully occupied. For that reason, as was the case with Zeppelin, Parseval turned to commercial flying in the decade before World War I. Unlike the case with Zeppelin and Schutte – Lanz, Parseval was allowed to build and to license for foreign firms and governments. These activities are covered, in considerable detail as related to British purchases; to a lesser degree where other nations were involved.

The text is basically organized one chapter for each airship in numerical order. As one ship often flew longer than it took to build the next one, the chronology is occasionally a bit deceptive. This does allow for recognition of the progress in development of the type and the eventual conversion to a semi-rigid design from the non-rigid origins in an attempt to keep up with performance demands in a hostile environment. There is also a chapter regarding airship-launched, glider-borne torpedoes which are often mentioned elsewhere but never, to my knowledge, examined in such detail as is to be found here.

The distaste for both Schutte – Lanz and Parseval craft by Fregattenkapitan Peter Strasser, as compared to Zeppelins, is cited. Lt. Col. Vincent C. Richmond's favorable comparison of PL.27 to LZ-120 Bodensee, is not. Their perspectives were quite different; however, the contrast is worth noting.

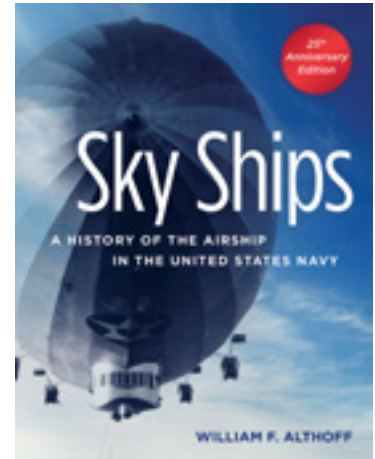
These two volumes by Alastair Reid will appear to be a match pair on your bookshelf. They are the same dimensions and are soft cover; both contain numerous photographs and illustrations. The text of "The Parseval Airships" is both readable and informative. In the Parseval volume there are cited news reports, press releases with technical details and anecdotal reports of flying experience which should pique the curiosity of those interested in LTA in general or these craft in particular. Both volumes are available through [www.lulu.com](http://www.lulu.com). Ω

Author Aaron Keirns gave a talk about his book, "America's Forgotten Airship Disaster, the Crash of the USS *Shenandoah*" at the Garst Museum in Greenville, Ohio. A book signing followed. Ω

The *Spirit of Goodyear* gondola was unveiled at the Crawford Auto Aviation Collection February 25, 2015.

The airship had received the Guinness World Record for the longest, continuously-operated airship ever, 2000-2014. In March 2014, *Spirit of Goodyear* was retired and disassembled at Goodyear's blimp base in Pompano Beach, Florida. The gondola (4118) saw service on three airships, logging more than 29 years of activity and thousands of hours in flight time. Ω

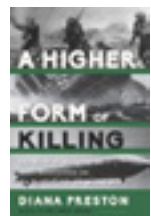
Our own William Altoff reports the updated 25th anniversary version of his SKY SHIPS will be offered in paperback in the Naval Institute Press Fall 2015 Catalog with a planned publication date of January 15, 2016. Ω



Orange County Register sought to mark the 70th anniversary of a Santa Ana airship loss, contacting the NAA for technical assistance. Many e-mails and attached photos later, the somewhat accurate piece appeared in the newspaper, (partial below, although the copy promised did not arrive). Ω



Ed. noted USNI's review of a book covering warfare's WWI escalations of gas, submarine launched torpedoes and aerial bombing. To illustrate LZ38's horrific mission which killed a child, the cover uses a royalty-free image of the *Graf Zeppelin* masted at Mines Field. While it's easy to imagine an art director saying "one blimp looks like another," oddly, when searching it on the internet, the book's cover image shows an altered or different Zep.(?) Ω



## **BLACK BLIMP**

Norman Jules Mayer, 98, passed 3 MAR 15. Born in Flushing, New York City, on May 14, 1916, he graduated from the Academy of Aeronautics in New York as an aeronautical engineer. He began his career at the Goodyear-



Zeppelin Corporation, in Akron, Ohio, working as a design, research and flight-test engineer in Naval patrol airships. In 1950, he became the expert in lighter-than-air at the U.S. Navy Bureau of Aeronautics in Washington, D.C. There, he was responsible for approving manufacturer's designs and establishing research programs for airships and search, warning, and logistics airplanes and helicopters.



In 1961, Norm transferred to NASA as a program manager studying concepts for space stations, lunar and planetary bases and orbiting telescopes. Norm sponsored pioneering research in composite materials development and applications. During

his career he wrote many technical papers and received the AIAA Student Scholastic Award and Outstanding Achievement, U.S. Navy Outstanding Performance, and NASA Group Achievement. Mayer retired from the Government in 1984 and continued as a consultant to various government and industrial organizations in South America and Africa. Considered the "Dean of Airship Engineering," his professional career in the airship industry spanned 65 years. He was an Associate Fellow of the AIAA, the Society of Naval Architects, LTA Society, NLHS, BFA, and the Airship Association in the U.K. He was president of NAA in 2005-6. Norm is survived by his wife Margaret, four daughters and grandchildren. **Ω**

Paul Platt, 80, passed 10 FEB 15. Paul had served in ZP-3. **Ω**



William F. "Bill" Woosnam, Jr., 85, passed 16 JAN 15. Bill graduated from the former Lansdale High School in 1949 and entered the US Navy, serving during the Korean War. He trained as an electrician for dirigibles, and was a Golden Gloves boxer

during this time. Bill is survived by his wife of 63 years, Elaine, children and grandchildren. **Ω**

Frank Mahne passed in June 2015. **Ω**

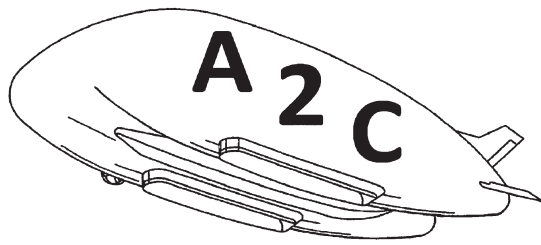
Binford F. Eubank, 92, passed 16 APR 15. He grew up in Mogadore, Ohio, and graduated from Springfield High School in 1941. After working for Goodyear LTA, he studied aeronautical engineering technology in California, and was a navigator in training in the USAAF when WWII ended.

Binford was a member of the Lighter-Than-Air Society in Akron and NAA. He is survived by two children, grandchildren & great grandchildren. **Ω**





## READY ROOM



NAVAL AIRSHIP ASSOCIATION, INC.



EMBRY-RIDDLE  
AERONAUTICAL UNIVERSITY

### “Airships to the Caribbean” Conference

Embry-Riddle Aeronautical University,

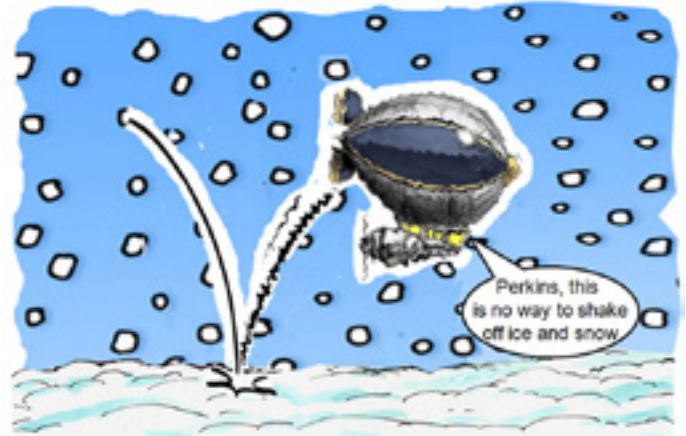
Daytona Beach, Florida, January 28-29, 2016

As we announced last issue, “Airships hold major promise for transport in many areas of the globe’s vast unexplored oceans, or impenetrable areas of rain forest or tundra, which are also without the road or rail infrastructure for robust, dependable coverage.” Progress has been slow but steady on this new joint venture of NAA and Embry-Riddle Aeronautical University. We have secured an agreement with ERAU to host the conference on 28-29 January, 2016. We have also gotten good interest from Lockheed-Martin, the Airship Association (UK), LTA interest from Brazil and several other organizations in participating. We envision a two-day conference with a variety of speakers, culminating in a final evening banquet. We have also corresponded with several airship companies about the availability of airships during the conference. Late January – early February is a busy time around the Daytona International Speedway and airships should be there for TV coverage. Finally, we are in contact with several hotels in the immediate vicinity of ERAU to be able to have a “headquarters” hotel for the conference and banquet. NAA members are encouraged to participate in order to make this conference a success. Please contact NAA Pres. Fred Morin at [FRMORIN@VERIZON.NET](mailto:FRMORIN@VERIZON.NET) or call him at 508-746-7679. Volunteers are needed. Ω

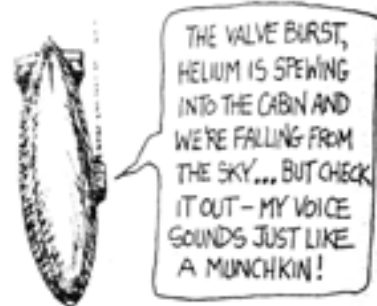


## LIGHTER SIDE

We could all learn a lot from crayons. Some are sharp, some are pretty and some are dull. Some have weird names and all are different colors, but they all have to live in the same box. ☺



Above cartoon kindly supplied by our AA colleagues - inspired by a discussion at their recent symposium. ☺



The recent patent award protects Aeros’ proprietary technology for buoyancy management and flight principle empowering the Aeroscraft’s VTOL capabilities at maximum payload without ballast requirements. Large capacity airships have long been a dream for cargo logistics flexibility, but impracticable, because if you off-loaded 100 tons your helium-filled aircraft will float away if not first loaded with 100 tons of ballast at your pre-determined destination. COSH will allow the Aeroscraft to operate as a lighter-than-air vehicle when flying, yet become heavier-than-air when needed to accommodate weight changes during payload removal, and to support ground operations. ☺





These images from reserve squadron ZP-911's days at South Wymouth and Squantum (below) were provided by Marc Frattasio.



Our friends at HAV hope to repeat this first rollout scene soon: Except instead of it being the LEMV at NASL it will be rechristened the Airlander 10 and be rolling out from Cardington, Bedfordshire.

