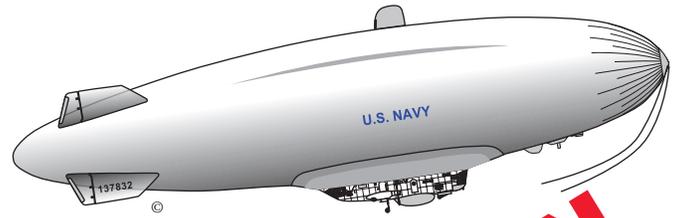
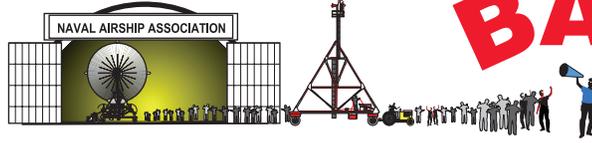


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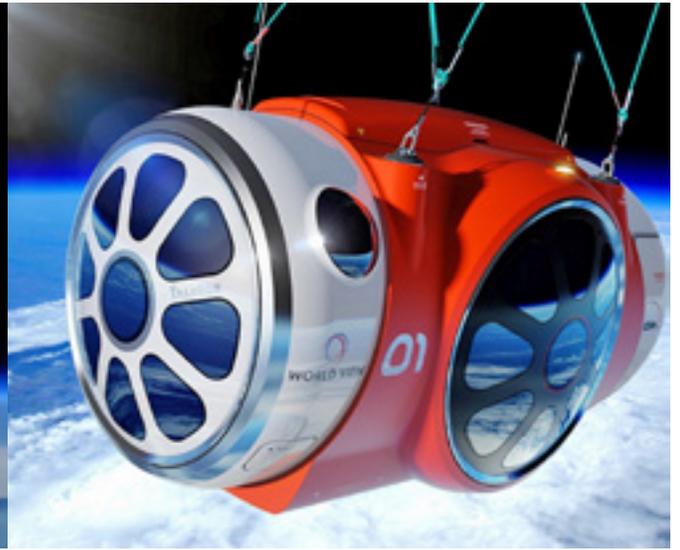
The Official Publication of THE NAVAL AIRSHIP ASSOCIATION, INC.

No. 104

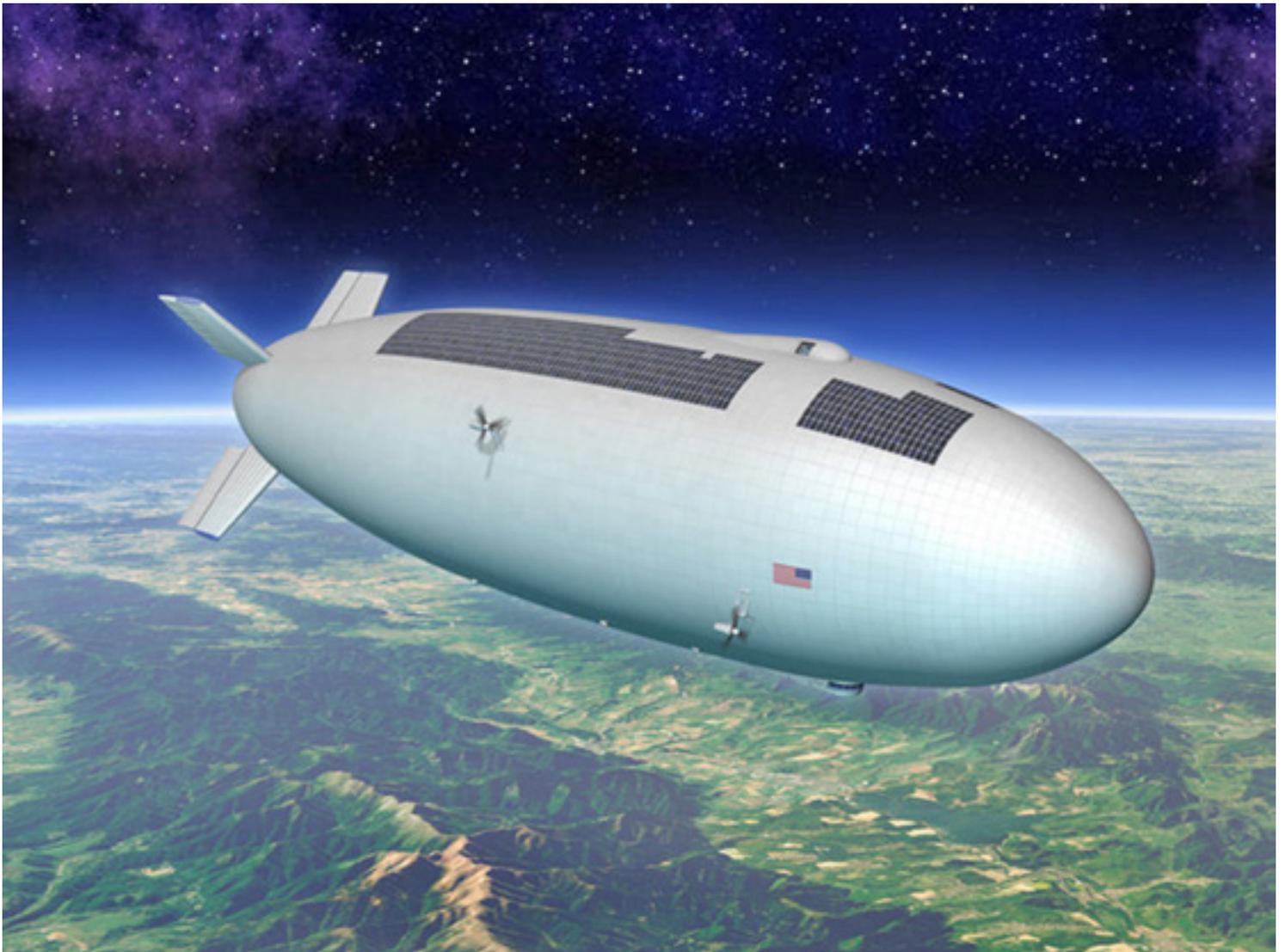
Winter 2014



B-SHIP SUB HUNTERS



(Above) The AP reported World View Enterprises “says it has successfully completed the first small-scale test flight of a high-altitude balloon and capsule being developed to let tourists float 20 miles above the earth.” According to CEO Jane Poynter, the system, which was launched from Roswell, New Mexico, “broke the world record for highest parafoil flight, lifting a payload to 120,000 feet.” The test involved a balloon about a third the size and a payload about a tenth the weight of what will be involved in manned flights. SPACE reported the company plans to be running two-hour “commercial flights by the end of 2016, with about 50 trips in its first year.” (Below) The NYTimes reported “sleek new airships” are now being designed that could one day conduct astronomical or Earth observations from the stratosphere. See “Short Lines” inside.



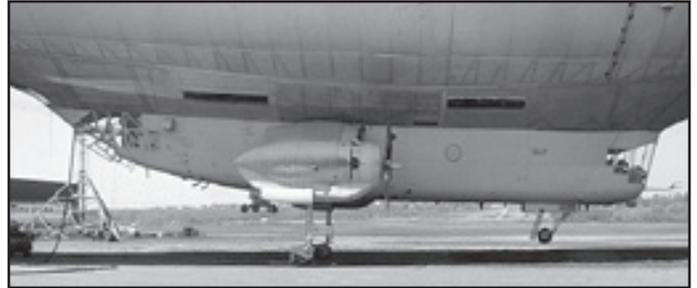
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ISSUE #104

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Be kinder than necessary, for everyone you meet is facing some kind of battle. ☺

On the Cover: B-Ship arrives at Naval Air Station Akron, also known as Wingfoot Lake, on a delivery flight from the White City amusement park balloon and airship hangar in Chicago, Illinois, where many Goodyear and Goodrich airships were erected and first flown during World War One. See cover story.



THE NOON BALLOON

Newsletter of the NAA

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

EDITORIAL

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

George Orwell stated, “**Journalism is printing what someone else does not want printed: everything else is public relations.**” A while back, when our friend, member Francisco Gonzalez Redondo, walked Debbie and me around Notting Hill and showed us Orwell’s former residence, I could only wonder how old George would view the dilemma we face trying to report the LTA news in these pages.

Shortly after the Frenchmen Robert perfected the fabric that could retain Charles’ newly produced hydrogen and make balloon flight possible, frightened peasants destroyed their creation. This and subsequent public reactions have made manufacturers reluctant to share bold breakthroughs with the great unwashed. Add to that the obvious need to protect developments least innovative investment results are simply copied and bested for unfair advantage. So, it’s most likely when we finally hear about something official in LTA it will be via the very carefully screened, de-odorized press release.

USNI’s annual review of Naval Aviation for 2014 includes a listing for Scientific Development Squadron VXS-1, with its inventory still showing the MZ-3A. A check of the Squadron’s website reveals their last mention of the Navy’s only airship noted its new paint job - which was in time for the 2011 celebration of 100 years of Naval Aviation. ISSI, the contractor operating the Navy’s only airship, offers a slightly newer video on its site. Public relations for sure, and dated at that. Obviously specific details about the inner workings of an experimental payload would be classified and we could not reveal even if they were leaked to us. But wouldn’t it be nice to have some idea of how the airship is doing, what flights it might be performing? All we have heard are rumors - layoffs, NCIS investigations, petty rivalries - which might qualify as Orwell’s journalism, but hardly new or meaningful even if we could verify what started the mill.

Current LTA developers are likewise wary of sharing developments for the aforementioned reasons. This gives the general impression there is no news in LTA other than the perpetual wait for the raising of funds. But what about LTA history?

Elsewhere in that same issue of USNI PROCEEDINGS, author Norman Polmar criticizes that the Navy Department’s secrecy efforts “in many cases border on the absurd.” He cites many cases were information long declassified by other countries and long since published - sometimes even available on the internet - is still classified by the US Government. Some of this involves long-gone nuclear weapons, including depth charges. (Polmar does not detail those that were actually carried on airships.) Polmar writes, “There are numerous other examples of the dated Navy Department policies regarding information that should no longer be classified. These practices are also in contrast to President Barack Obama’s statement shortly after his inauguration that his administration would stress openness and transparency.. The Navy’s leadership should make a clear and positive statement regarding declassification. The new head of the Naval History and Heritage Command should initiate the action. To do less would continue to short-change the public and indeed, the Navy itself of the valuable and important material found in the Navy’s history.”

Indeed, in this issue Roy Manstan delivers his blockbuster revelation of LTA ASW in WWI. Without an NAA-like organization to push for LTA ASW back in the 1920s and 30s, these promising developments stayed classified - until forgotten. The requirements for the K-2 airship written in 1935 did not include the simple towing of an underwater microphone. By the time of acceleration of K-ship production in 1942, there was still no practical way of detecting a submerged submarine from the air.

So again we ask, what possible good would come out of continuing to classify and withhold the investigating board’s minority opinion in our K-14 case? Why can’t the public access the photos associated with airship-involved 10th fleet action reports, which we were told were supposedly “lost” in the National Archives? It’s time for the Navy to come clean. Possible embarrassment to some long-dead senior commander certainly should not block purple heart awards, if not commendations or even DFCs.

– Richard G. Van Treuren

View From The Top: PRESIDENT'S MESSAGE

We had an Executive Council meeting on October 3 in Edgewater, Florida, the home of Richard and Debbie Van Treuren. High on our list of priorities were the changes to the By-Laws which were sent to everyone as an insert with Noon Balloon #102. These changes are meant to simplify the way we operate and make our organization more efficient and economical. It will not alter the way we conduct business nor in any way diminish input from our members. The changes were accepted as written and approval was voted. The website will be updated very soon to reflect the changes and a complete set of By-Laws will be a part of our Membership Directory which will be published around March once all new memberships and renewals have been completed.

Also discussed was planning for the next Reunion/Conference. We determined that Pensacola in the spring of 2016 was the logical venue in keeping with our plan to rotate the site around the country. The latest Noon Balloon, #103, has a short survey that we would appreciate everyone filling out and returning to us, either by mail or send your comments by email to me at FRMORIN@VERIZON.NET. It is very important that we get input from our members on their willingness to participate in these events and also on suggested venues. We are faced with a diminishing list of Navy Lighter-Than-Air locations to visit that have been an integral part of our Reunion/Conferences. Newport was chosen for the last Reunion/Conference due to the extensive mooring tests the Navy did with the rigid airship *Los Angeles* to the *Patoka* in Narragansett Bay, and the torpedo testing facility and Tucson for the last ZPG-3W gondola at Davis-Monthan. We would like to continue visiting Navy LTA sites that offer an interesting and significant event highlight.

The Treasurer's report was our next major topic of discussion. By now everyone should have received the notice in Noon Balloon #103 noting that effective immediately we had to raise the annual dues to \$30.00 for US members and \$40.00 for foreign members. We have not had a dues increase for about 5 years and as our membership numbers decrease our costs for printing and mailing The Noon Balloon and producing our

Reunion/Conferences increase. On the plus side, recent sales of Small Stores items have increased and held steady

over the last four months. This revenue had a lot to do with limiting our dues increase amount. Please keep up the good work. Typically our sales drop off during the summer months and particularly after a Reunion/Conference. This indicates that our products, especially the coffee mugs, challenge coins and new DVDs are being well received. Thank you all who have been purchasing our items and do not forget that NAA ball caps, NAA shirts, DVDs and coffee mugs make excellent gifts for the holidays.

Other items we discussed, and of no less significance, were that Mort Eckhouse has stepped up to help with our efforts at the National Naval Aviation Museum and Foundation as well as being our man-on-the-scene for a Reunion/Conference in Pensacola. Al Robbins has stepped down as History Committee chairman due to health concerns and Mark Lutz has graciously stepped up to fill this important position. Regarding ongoing activity, Anthony Atwood reported on the progress at the Military Museum & Memorial of South Florida located on the site of the former NAS Richmond. I had an opportunity to tour the site a few days after the executive committee meeting and was highly impressed with the work that has been done to date as well as the building plans and layout. I see a future Reunion/Conference being held there in a few years. The *Shenandoah* signage program is progressing nicely and installation is scheduled for the spring with a commemorative event planned by the local historical commission and Rayner family for the 90th anniversary of the crash in September of 2015. More details will be published here as they become available. The editor and publisher of The Noon Balloon were both acknowledged for the work they do in producing what I term as the best LTA magazine in the world. We not only cover current and historically significant events, but also future developments in LTA. Every member should be pleased with this effort. It is the face of the NAA.

Finally, we discussed the plans for an international LTA conference to be held in Florida, in 2016. Richard and I are still exploring involvement in a proposed LTA conference on future developments in commercial and military uses of LTA vehicles. We have also opened discussions with some other national and international LTA organizations and supporters about their involvement in such an endeavor.

We received a call during the meeting that Embry-Riddle Aeronautical University in Daytona, Florida, have agreed to work with us and supply the meeting site and we have tentatively approved January 28-29, 2016, as the dates in Daytona, Florida, on the ERAU campus. More details will be forthcoming on this. Every NAA member is invited to attend and this will not take the place of our next Reunion/Conference.

I think our meeting was very informative and productive and that the NAA is still in very good shape as we go forward. I would like to see many more new members and hope that everyone does their part in promoting our organization. The coming years will be very challenging ones for our organization. Our membership demographics are changing rapidly and we need to reach out to people with an interest in LTA, an interest in the future of LTA and a sincere interest in preserving the rich, understated history of LTA. We cannot let the history and contributions of those Navy LTA veterans, like you, disappear.

– Fred Morin, President

Minutes of the Executive Committee of the Naval Airship Association, Inc.



Back L; Peter Brouwer, David Smith, Ross Wood, Richard Van Treuren, Fred Morin. Front L; Debbie Van Treuren, Anthony Atwood Lorraine Madden, Betty Brouwer. Ross Wood photo.

The Committee met 2 OCT14 in Edgewater, Florida. The meeting began at 0900 with nine members present: President, Fred Morin; Vice President, Anthony Atwood; Secretary/Treasurer, Deborah Van Treuren; Membership Secretary, Peter Brouwer; Immediate Past President, Ross Wood; Newsletter Publisher, Dave Smith; Newsletter Editor, Richard Van Treuren; Members-at-large, Betty Brouwer and Lorraine Madden. The Minutes from the Meeting in Newport, Rhode Island, were read and approved by all present.

NEW BUSINESS: It was decided to update the shipping cost schedule for small stores that is closer to the actual expense of this service. Fred asked for an increase in Dues of \$5 for Regular Memberships to \$30 and \$40 for

Non-US Memberships. A motion was passed, seconded and carried. An incentive for a two-year membership renewal would be a DVD of the new Member's choice of any of the five DVDs we sell.

Deborah Van Treuren presented the Treasurer's Report. Motion was made to accept it, seconded and carried.

Reunion will go back to Pensacola in April of 2016. LTA sites are limited to Tillamook, Pensacola, Moffett Field, Tucson and Lakehurst. We should have a "member on the scene" whichever location we decide on. Wright Patterson in Ohio was also suggested. The suggestion was made to include a tick box to check off for the most preferred location for the reunion at renewal time. A motion was made to accept this proposal, it was seconded and carried.

Membership Retention Secretary, Pete Brouwer, asked for a job description of this newly created position. His duties will include recapturing lapsed memberships.

New Memberships in 3rd Fiscal Quarter will include the next year. The new dues structure will be changed on the website, Paypal, and on our application, as well as any other publications.

Al Robbins has relinquished the Chairmanship of the History Committee to Mark Lutz. Our website has some expired info that must be changed. We will consider Jerry Bess (suggestion of Pete Brouwer) or Charles Weithaus (suggestion of George Allen & Ross Wood) as a new council member if we expand the council. Donna "Small Stores" Forand, is doing a fantastic job with sales over \$3000 this year! NMNA: Mort Eckhouse has been trying to organize and reorganize LTA files at NMNA. He has also volunteered to help with the Reunion. Dave Smith asked the question: "Are we to be an advocacy group for LTA?" If so, we need to attract younger members, need a reason and a strategy for the conference with ERAU. We also need to find a place to archive photographs where they can be curated. San Diego Aerospace Museum has one of the best programs in the country for this work. It may be the best place to send our photos. The changes to the by-laws will be published; Fred agreed to retype them. A motion was made to accept the changes, seconded and so moved. All were in favor. Meeting concluded at 1515 hrs.

– Deborah Van Treuren, Secretary/Treasurer

PIGEON COTE

Werner G. Doehner, now possibly the last survivor of the LZ-129 accident (see page 17), wrote **Addison Bain**: “Dear Dr. Bain: I received a copy of your book “*Hindenburg, Exploring the Truth*” and read through it. All in all you did a terrific job on getting at the root of the cause of the accident. There is only one point on which I disagree: on pages 144-145 the description you give about how part of my family survived does not correspond to what really happened. The “story” appears to have been invented by someone who was not there. The truth is as follows:

When suddenly the “air” in the dining room of the airship was on fire, my mother Matilde Doehner and we three children were close to the windows. Mother immediately grabbed my brother Walter and threw him out of the window. Next she got hold of me and threw me out. Then she tried to get my sister Irene out, but did not have the strength to do it. At that point she herself jumped out. (The part of the “story” with sliding down a rope is not true, there were simply no ropes anyplace near.) Walter and myself got up from the ground, saw my mother and walked over to her. She recognized one of the stewards and asked him to get Irene out of the airship, which was already on the ground. We then walked over to a crew bus, the steward carrying Irene, and climbed into it. We were about 10 people who got into that bus, which then drove us over to the infirmary of the Air Station, which was already filled with people lying on mattresses on the floor. The four of us had to wait in a doctor’s room of the infirmary till late in the night, when the ambulance arrived which drove us over to the hospital in Point Pleasant. Irene died there that same night. We remained in the hospital for three months, till we were in conditions to make the trip back home to Mexico City. Later on, some more skin-grafting operations were made on us. It is to be noted that my mother suffered a fracture of the pelvis on landing in the sand, but managed to walk for a long time before she was immobilized in the hospital at Point Pleasant. It took ten weeks for the fracture to heal. The doctors could not explain how she was able to walk at all under those conditions, but she did.

I hope the above description gives you a better understanding of what really happened. Best regards,
Werner G. Doehner” Ω

Howard Madden e-mailed, “I enjoyed the 1946 class photo of 1946 LTA pilots and officers. [TNB 101, Spring 2014] I believe that a number of both the identified and unidentified officers are now deceased. I recognize a number of them by either their first and last names or last name as follows:



First row . . . Joe Davis, Bill Standard, Larry Buzwell, with Bill Holmes, John Wise, and McNoughton at the end of the row. The standing row includes Lane, sixth from the left, Ambrose next, Charley Hughes, and Howard Madden.

I am now 91 years of age and doing as well as many individuals my age. My spouse during my Lakehurst, Santa Ana and Weeksville days as a member of Squadron I was Bonnie Madden, now deceased. I have been married to Claudia Madden for 38 years and we are now retired in Escondido, California. Thank you for publishing this photo in your spring 2014 publication.

PS: All of us were very young when this 1946 class photo was taken. They were a great group of individuals. I transferred to the Supply Corps after they reduced the total number of LTA pilots to about 60 in the U.S.N. if my recall serves me correctly. I served until retirement on 12/31/62 then was able to take advantage of business opportunities for a complete second career. I am interested in any info you have about any other individuals in the picture and any larger picture you have in your files.” Ω

Fred Kroll sadly reported the loss of his mother, Ella Mae Kroll, 91, on the 4th of July. She was the wife of the late Fredrick Kroll who’d served with ZP-14. Ω

Arnold Nayler, past editor of our sister publication AIRSHIP, of the U.K.’s AA, e-mailed concerning dropping membership renewals, “Yes, it is a shame, but numbers are falling with LTA organizations all the time now. I still supply a couple of pages of airship material

every other month to AEROSTAT, the bi-monthly journal of the British Balloon and Airship Club (BBAC). There is still a good interest and active involvement in ballooning here in the UK and also in Europe, but BBAC membership has been tailing off for the last few years, yet numbers involved in balloon clubs is holding up OK with youngsters continuing to join. Ω

In an e-exchange with our Canadian Military members, Juergen Bock e-mailed, “allow me first to introduce myself as a member of the Technical Committee and former chairman of the LTA-Section of the German Aerospace Association DGLR. With respect to the Noon Balloon article on the compression of helium for the purpose of substantial buoyancy control, I am in a dilemma, because this subject was so often proposed by “inventors” and subsequently discarded by the TC for being highly unrealistic w.r.t. weight and energy requirements, which makes it difficult for me to quote relevant paper(s) off hand. Besides excess lift compensation during unloading can be more efficiently provided by the use of ballast water (like sea-going freighters) and/or roll-on/roll-off procedures etc. Furthermore, buoyancy control is a minor problem, if hydrogen gas is being used, which could, if necessary, be valved or - more economically - used a fuel gas.

For major air transportation in Northern Canada, however, the use of hybrid airships, which could be optionally operated as STOL and VTOL aircraft, has been proved to be the favored solution. These hybrids use additionally their inherent aerodynamic lift (“Lifting bodies”) and follow the rule-of-thumb: aerostatic lift = empty weight = aerodynamic lift = payload. In other words, The lifting gas compensates only the empty weight, which means that this layout represents a weightless carrier. The payload will then be carried by the aerodynamic lift, which would make a buoyancy control system such as proposed superfluous. STOL operation was already a routine operation of the US-Navy blimps

by using the aerodynamic lifting capability of the airship form, thus carrying an overload of fuel to extend the range of operation. A modern hybrid, however, would provide more aerodynamic lift for better efficiency.

In case a VTOL system for short-range operation at landing sites of limited space available, a different system should be preferred which appears more like a motorized balloon or spherical airship. Under these conditions a buoyancy control system based on a gas compression system is also highly impractical and could be substituted by strategic backcargo planning of some kind. On this side of the ocean, I am working with Prof. Uwe Apel of the Bremen University of Applied Sciences. Please feel free to contact me.” Ω



Jim 3rd from Left - Back Row

Charles McDougall sent along this photo, “This picture was taken at NAS Richmond, I believe.- I would love to hear from any of my old buddies. Charles McDougall 439 Woodley Pl Santa Rosa, CA 95409, 707-538-8926. In this picture-.Standing L to R -?? Dunlap(rigger); Pilot Jim Strickler, Command Pilot(me) Charles McDougall. Pilot Forrest Carlstead, Pilot Paul Hawley, Crew Chief Robert Baradel. [See Black Blimp] Kneeling L to R: Radioman John Astor Wilde, Mech ?? Laniewski, Mech, O.E. Vernia, Radioman ,?? Edinger. Jim Strickler is deceased. I am still in touch with Paul Hawley. Ω

SHORE ESTABLISHMENTS

Akron

The Lighter-Than-Air Society's 62nd annual banquet is held Saturday, Nov. 15, 2014, at the Greek Community Center, Church of the Annunciation, 132 S. Union St., Akron, Ohio 44301. The guest speaker is Michael Dougherty, assistant chief pilot for the new Goodyear airship "*Wingfoot One*." Dougherty, an Akron native, earned a degree in Aeronautics and Flight Technology from Kent State University in 2003. His professional aviation career began in 2004 as a regional jet pilot flying passengers for Continental Express Airlines. In March 2007, he accepted a position as a pilot in training with the blimp "*Spirit of Goodyear*." By December of that year, he had satisfied the FAA requirements and earned his lighter-than-air rating. In 2011, after an 18 month process, "Doc" became a Designated Pilot Examiner, a title held by only a few others, all in the FAA. In this role he can check pilots for proficiency and perform flight certifications, allowing pilots to fly airships in the United States. A full report will be given in the spring *Noon Balloon*. Ω

Tillamook

As far as the Museum is concerned, we lost about half our collection this past year when collector Jack Erickson pulled his aircraft and built a new hangar/museum in central Oregon (Madras). But, we still have half our collection and I am putting in requests for additional aircraft and am working to build back up the collection. Jack Erickson still holds the lease on the hangar until January 2016, when the hangar will revert to control of the Port of Tillamook Bay. While they have not said so, it appears that they wish to keep it as a museum, and I certainly hope they do! If they do, I would gladly work for them and continue to collect and share the history of NAS Tillamook. It's very important to keep this history alive. As Shakespeare said, "The past is prologue."

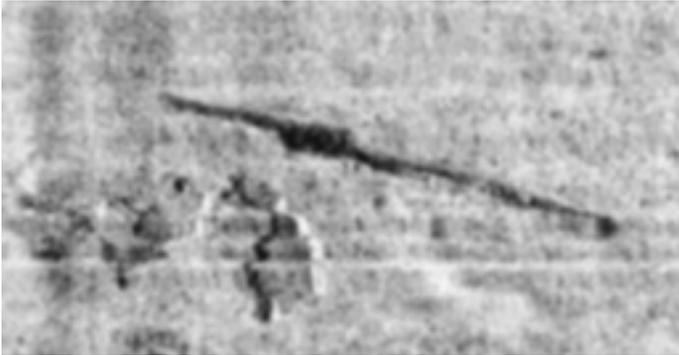
– **Christian Gurling**

Santa Ana/Tustin

The damaged roof has been shored with cabling supported by towers - see photo below. Aeros has begun disassembly of the Dragon Dream inside. Ω



Christian Gurling of the Tillamook Air Museum offered new materials and discussion in the Cape Lookout submarine case, following another published attempt to reach it (page 8) and the team releasing what they say is a sonar image (below).



Christian wrote, "I don't know if you have seen this documentation (statements) made in regards to the supposed incident at Cape Lookout (with the K-33 and K-39 involved) but thought I'd pass this along. These were donated just recently by Al Bailey's family on his behalf; he was stationed at NAS Tillamook... These are photos taken of the "Battle" from L. Ron Hubbard's report. These were photo copies, (below) but thought they would be of interest to you two nonetheless..."



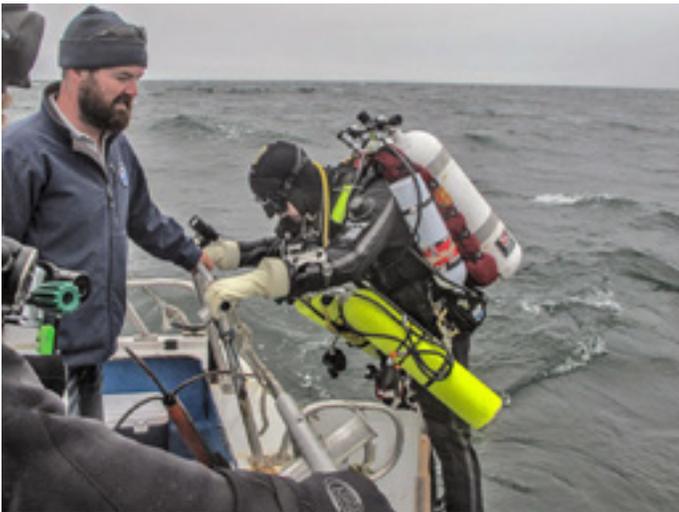
I'm just surprised that if indeed there was a submarine, the corpus dilecti is noticeably absent. This despite there being bodies and blood in the water, an oil slick, and parts of the sub washing ashore (according to reports, testimony etc.)... Documentation regarding the "battle" are all classified as "Secret." If Vice Admiral Fletcher felt there was validity to this case, might not these documents have been classified as "Top Secret" instead?" Ω *discussion continues* →

Ed responded, "Doubtful, since all ASW actions were supposed to be assigned a case number by the 10th fleet and classified 'Secret' (which they remained until 1998!). As you see from my book's chart on page 422, #4654 was a ZP-33 action, but we have no number for the report that should have been filed for the ZP-33 action with Hubbard's PC-boat just after that. I have not seen the corresponding 10th fleet report for Hubbard, if one made it. It would not have been coded "36," meaning would not have been picked out in a card sort for airship-related actions.

The article repeats the story that "the [PC boat] crew dropped 12 depth charges at 200 and 300 feet, and received a message from a blimp above that at least one charge had made a direct hit and the sub had sunk." The technology that might have given a blimp crew such information had not been invented, and it's doubtful they could see down 200 feet let alone 300. (The claim is ridiculous, and it's part of the problem with ASW assessment - and why I devoted an entire chapter to perception.) Later in the war HTA units (not LTA of course) were given sonobouys, and then recording equipment. There is a sound recording of a homing torpedo hit and the subsequent sinking of a Japanese submarine, some say you can hear a gunshot (suicide?) and bulkheads collapsing.

Locals are likely to get excited by war hysteria, but men in the squadron would have been told not to talk about it. Remember in addition to **Walter Ashe** there would have been 7-9 others on board each blimp, all de-briefed after any reported attack. I hope the divers keep it up, because the one oddity about this case is the unlikelihood of both PC boat sonar and airship MAD respectively being fooled by the same supposed phantom moving return. Just like the amateur divers who explored the "U-who" and were told it *could not* be the sub *positively known* to have been sunk 1000 miles away, the ocean bottom reluctantly serves up some revisions occasionally.

The resources needed to prove the K-33's portion of the victory, if any, won't be available, but the official record would likely not change regardless. We have them dead to rights on the K-34 vs. U-107 case. The Navy Historian's Office blew us off re: awarding the command pilot the DFC and the crew commendations, ala K-74, if 20 years later. And let's not get started on the K-14 case." Ω



Oregon Coast Project divers were unable to find a missing WWII sub after strong currents dragged their boat anchor away from the search site. (Micah Reese Underwater Photography)

Searchers “closer than ever” to WWII sub off Oregon coast chased by L. Ron Hubbard (excerpt) By L. Tobias

A team of divers attempting to locate what they believe is a submarine that sank during a WWII battle off the Oregon coast was stopped short this week. Rough seas prevented divers from reaching the site on Sunday and Monday, but not before they saw more clues convincing them the structure caught on sonar is the submarine they seek. “We are closer than ever,” said Kathleen Wallis, leader of the Oregon Coast Project. “We have coordinates from last year. We ran those same numbers this time and the captain of our new boat, a big catamaran, immediately came up with the structure on the fish finder sonar. It’s sitting in the sand upright. We don’t know what it is for sure, but we think we know.”

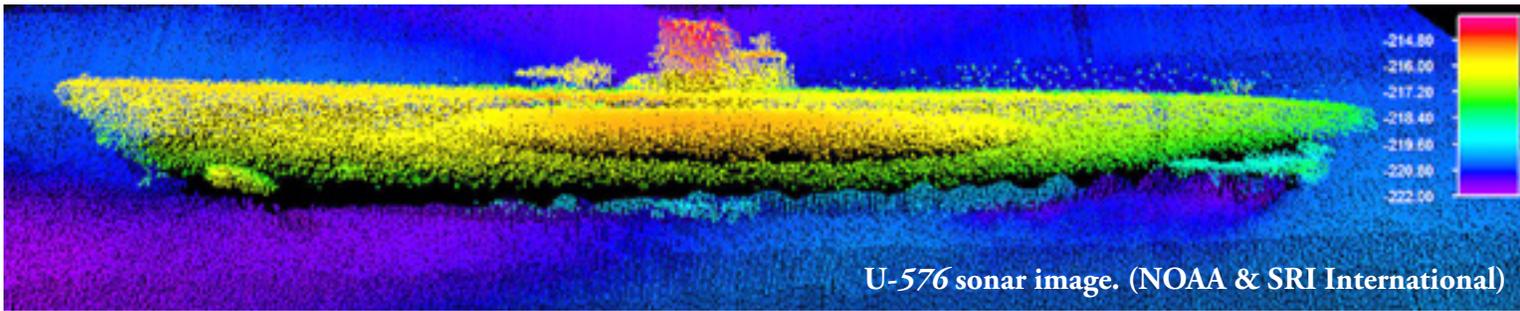
The story began on the night of May 19, 1943, when a U.S. patrol boat put out a call to sub chaser SC-536 that it had made contact with an enemy submarine but was out of depth charges. The patrol boat was under command of L. Ron Hubbard, founder of the Church of Scientology. Acting under the guidance of two Navy blimps, the SC-536 motored out from Astoria to join the chase. On board was Robert Wood, now 95 and living in Tennessee. At sea, somewhere between Cape Meares and Cape Lookout, the crew dropped 12 depth charges at 200 and 300 feet, and received a message from a blimp above that at least one charge had made a direct hit and the sub had sunk.

“We felt mighty honored that we had done that because that was our job, try to find Japanese subs and sink them,” Wood said in an earlier interview with The Oregonian. “We were a happy bunch of sailors.” But for reasons no one can explain, the Navy later denied the event had ever happened. Still, the story lived on, told by Wood and others on the sub chaser who saw the oil slick and blood in the water and by locals who reported finding material from the wreck that washed ashore. Fishermen have long reported gear getting snagged on some unknown object in the same area.

Wallis learned of the sub story in New Mexico, where she is a school teacher. A reporter told her the tale and Wallis quickly decided it was one that needed to be shared and proven, if possible. “It’s an important story,” Wallis said. So she began raising funds, rallying divers and finding boats. She’s since come to the Oregon coast 18 times by her count. In recent trips, Wallis and the team came up with the hard evidence that suggests they are truly onto something. They know now, thanks to hydrographic software, that the structure measures 190 to 200 feet in length, 15 feet wide and stands 15 to 18 feet from the ocean floor. They also have an image of the structure taken by side scan sonar.

On this week’s dive, divers saw two octopus and a large school of fish near the vicinity of the vessel. “When we see that many fish, we know they are on their way to somewhere, a reef, rocks ... but usually you don’t see that many unless there is a structure. Fish like to be in the shallows where they can hide,” Wallis said. Octopus also generally live in the rocks, the reef or a structure, Wallis said. But divers this past week failed to reach the structure after strong currents dragged their boat anchor away from the site.

If they do find the sub from that May 1943 battle, Wallis’ work will have just begun. “If this is a foreign vessel, there is going to be a country of origin and family members involved,” she said. “If it is a war wreck, and we know it could be something else, there is going to be the possibility of men on board who have families who never knew what happened. If we have what we think we have, part of the goal would be to offer some closure to the families of the men who were lost.” Ω



U-576 sonar image. (NOAA & SRI International)

NOAA Team Discovers Two Vessels From WWII Convoy Battle Off North Carolina

A team of researchers led by NOAA's Office of National Marine Sanctuaries discovered the German U-boat 576 and the freighter *Bluefields* approximately 30 miles off the coast of North Carolina. Lost for more than 70 years, *Bluefields* and U-576 were lost within minutes and now rest on the seabed less than 240 yards apart.

On July 15, 1942, Convoy KS-520, a group of 19 merchant ships escorted by the U.S. Navy and Coast Guard, was en route to Key West, Florida, from Norfolk, Virginia, to deliver cargo to aid the war effort when it was attacked off Cape Hatteras. The U-576 sank the Nicaraguan flagged freighter *Bluefields* and severely damaged two other ships. In response, U.S. Navy Kingfisher aircraft, which provided the convoy's air cover, bombed U-576 while the merchant ship *Unicoi* attacked it with its deck gun.

"Most people associate the Battle of the Atlantic with the cold, icy waters of the North Atlantic," said David Alberg, superintendent of NOAA's Monitor National Marine Sanctuary. "But few people realize how close the war actually came to America's shores. As we learn more about the underwater battlefield, *Bluefields* and U-576 will provide additional insight into a relatively little-known chapter in American history."

The discovery of U-576 and *Bluefields* is a result of a 2008 partnership between NOAA and the Bureau of Ocean Energy Management (BOEM) to survey and document vessels lost during WWII off the North Carolina coast. Earlier this year, in coordination with Monitor National Marine Sanctuary, NOAA Ship Okeanos Explorer conducted an initial survey based on archival research. In August, archaeologists aboard NOAA research vessel SRVX Sand Tiger located and confirmed the ships' identities.

"This discovery highlights the importance of federal agencies working together to identify and protect these

unique submerged archaeological resources that are of local and international importance," said William Hoffman, a BOEM archaeologist.

The newly identified wrecks are protected under international law. Although *Bluefields* did not suffer any casualties during the sinking, the wreck site is a war grave for the crew of U-576.

"In legal succession to the former German Reich, the Federal Republic of Germany, as a rule, sees itself as the owner of formally Reich-owned military assets, such as ship or aircraft wreckages," said the German Foreign Office in a statement. "The Federal Republic of Germany is not interested in a recovery of the remnants of the U-576 and will not participate in any such project."



USCGC *Icarus* (WPC-110) arrives at Charleston Navy Yard on May 10, 1942, to deliver prisoners from U-352. (NOAA website)

Ed. notes we have found no evidence ZP-14 was involved with KS-520 escort; in July 1942 there were probably but two K-ships in NC. The WPC-110 was still on duty off NC on April 18, 1945, when we believe it was ordered to fall back as K-72 launched a homing torpedo against a sonobouy sound contact. Though a U-boat wreck was accidentally found off Norfolk in 1968's search for the SS-589, right where K-72's James Hughes said they launched the 'Fido,' the Navy ignores the combat and there has been no other interest in that U-boat or how it got there. Ω

AEROS 40D

Airship Dedication Reminds Worldwide Aeros Chief of Deferred Dream By Melody Petersen, LA Times



Employees of Worldwide Aeros Corp. watch the dedication of the Aeros 40D Sky Dragon airship in a World War II-era blimp hangar in Tustin. (Photo Don Bartletti, Los Angeles Times)

A small crowd, including a priest and five members of Congress, gathered in a giant hangar in Tustin this week to christen Igor Pasternak's latest airship. As the white helium-filled craft floated just above the hangar's floor, the gathering of VIPs congratulated Pasternak on selling the flying machine to a Mexican company. But the crowd seemed keenly aware that this wasn't the airship — the one that Pasternak, a Ukrainian immigrant and the chief executive of Worldwide Aeros Corp., had devoted himself to for decades. That ship, or what is left of it, sat in pieces nearby in another hangar on Tustin's former military base. One year ago, a 20-by-20 foot section of the ceiling of that World War II-era hangar let go, falling 17 stories and severely damaging the zeppelin-like craft that Pasternak was building. The experimental ship, named the Aeroscraft, was planned as a gigantic air freighter that could carry heavy cargo to the remotest parts of the world.

"It was more than disappointing," Pasternak said of the Oct. 7, 2013, accident as the crowd began to disperse after drinking sparkling apple cider beneath the company's most recently constructed craft, the Aeros 40D Sky Dragon, which resembles a smaller version of the Goodyear blimp. "You become delusional." The newly dedicated craft is what Pasternak calls "a side project of the dream" — which he has not given up. In fact, he says, he plans to build not just a bigger model of the experimental air freighter, which was nearly the size of a football field, but an entire fleet. At the ceremony, speakers focused mostly on the company's more modest product line: the blimp-like craft that it is selling for advertising, tourism or to be equipped with cameras and other equipment for surveillance.

Representatives from the Mexican consulate attended the event to celebrate the sale of the Aeros 40D to Grupo Toyon, a company that plans to use it to monitor oil pipelines. Worldwide Aeros earlier sold a similar airship to the government of Thailand, where the military has used it for surveillance, company spokeswoman Sarah Hollins said. But Pasternak has long had a grander vision. Trained as a civil engineer, he emigrated to the U.S. in 1993, determined to start a company that would one day build cargo-hauling airships. In 2005, he got a break when he won a \$3-million contract from the Pentagon to design a craft that could carry tons of supplies and heavy equipment to isolated battlefields.

He later received an additional \$50 million from the government to build and test the experimental air freighter, allowing him to grow the company to more than 100 employees. That now battered ship, ruined by the fallen roof, is being dismantled, his staff said. Employees recently determined that it was not repairable. To continue the project, Worldwide Aeros is seeking money from private investors to build a fleet of 24 Aeroscrafts. Pasternak said he plans to lease the ships to companies, governments, militaries and other customers around the world that need to carry as much as 250 tons of cargo to places where there are no trains and jumbo jets can't land.

"Yes, we need money," he said, when asked how he would pay for the production of the fleet. "It's only in the comic books that you don't need money to change the world." Ω



Father Alfred Baca splashes holy water to bless the Aeros 40D Sky Dragon airship during a dedication ceremony in a World War II-era blimp hangar in Tustin. Built by Worldwide Aeros Corp., the craft has been sold to a Mexican company.

(Photo Don Bartletti, Los Angeles Times)

LEMV UPDATE



Selex ES And HAV To Team Up For Mod Airship Testing
By: Beth Stevenson Flightglobal.com

Selex ES is to team up with Hybrid Air Vehicles (HAV) to develop a sensor package for UK Ministry of Defence testing onboard the latter's Airlander 10 hybrid airship. Addressing the Commercial UAV show in London on 21 October, Mike Rickett, senior vice-president of air systems UK at Selex ES, said a UK industry team consisting of Selex, Qinetiq and HAV will carry out demonstrations for the MoD, which will include testing a package developed by Selex likely to include a radar and electro-optical/infrared sensor.

"This is a very large platform to be able to mount our sensors on," Rickett says. "We're now at the point where we're working on this MoD programme... but the MoD is not quite sure of what it wants. It is therefore asking us to put together a package of sensors." One sensor type suitable for the large 10 ton payload bay would be a hyperspectral imager. "The ones that work really well are quite large," Rickett adds.

The Italian division of Selex has developed a spaceborne hyperspectral sensor, which Rickett says could be adapted to be integrated on a platform the size of the Airlander. "I'd like to expand this quite a lot," Rickett says. "It is a bit of a challenge in one respect for us because you're usually given a small surface to put a payload. This is new territory because we can do a lot more with this big space."

Speaking to Flightglobal in August, HAV said three months of trials with the MoD were to take place following the first UK-based flight of the Airlander – an event due to take place around May 2015.

The Airlander was developed for the US Army's long-endurance multi-intelligence vehicle (LEMV) programme under an effort headed up by Northrop

Grumman, during which it carried out its maiden flight. The programme was subsequently cancelled and the airframe repurchased by HAV and returned to the UK.

Rickett says Selex had been involved in talks with HAV prior to the LEMV award, but was not involved in the US Army effort. Conversations were restarted once the platform returned and ownership was back with HAV. "When it arrived back this side of the pond, we started talking seriously," he says.

Selex is planning past the MoD's forthcoming round of testing on the Airlander, and envisions the aircraft being used as a "mothership" to launch other unmanned air vehicles from, including the company's own Falco platform. A catapult launcher has already been developed for the Falco that could be adapted to suit this requirement. Ω



Arnold Nayler, past editor of our sister publication AIRSHIP, of the U.K.'s AA, e-mailed, "I did manage to get to London to hear the HAV lecture last night. It was well presented and lots of questions afterwards. However those of us in the know about airships and having a general overall knowledge of what was going on at HAV and Cardington disappointingly learnt little new. Airlander 1, the development as a civil version of what was LEMV, is progressing well. HAV now have 35 staff and, at last, some UK Govt funding for research. Three universities are involved now. LEMV's envelope has been inspected and is OK. No military involvement either - entirely a civil hybrid airship. They again say maiden flight of this civil version will be by mid- 2015 and certainly the first of 200 hours of planned test flights will take place at Cardington." Ω

more info at

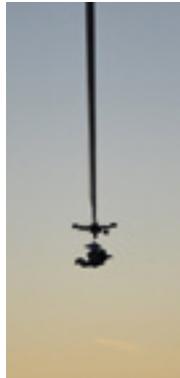
<http://aerosociety.com/news/Podcast/2428/An-Overview-of-Hybrid-Aircraft-and-the-Airlander>

One plan has it flying to Canada. -Ed.

Alan Eustace Jumps From Stratosphere, Breaking Felix Baumgartner's World Record. By John Markoff

Alan Eustace on his ascent to near the top of the stratosphere on Friday [Oct 24, 2014]. Photo: J. Martin Harris Photos/PSDC

Alan Eustace, 57, a senior vice president of Google, parachuted from a balloon near the top of the stratosphere, falling faster than the speed of sound and breaking the world altitude record set just two years ago. At dawn he was lifted from an abandoned runway at the airport here by a balloon filled with 35,000 cubic feet of helium. For a little over two hours, the balloon ascended at speeds up to 1,600 feet per minute to an altitude of 135,890 feet, the final number being submitted to the World Air Sports Federation. The previous altitude record was set by Austrian daredevil Felix Baumgartner, who jumped from 128,100 feet on Oct. 14, 2012.



Eustace dangled underneath in a specially designed spacesuit with an elaborate life-support system, then cut himself loose from the balloon with the aid of a small explosive device and plummeted toward the earth at speeds that peaked at 822 miles per hour, setting off a small sonic boom heard by observers on the ground. His technical team had designed a carbon-fiber attachment that kept him from becoming entangled in the main parachute before it opened. About four-and-a-half minutes into his flight, he opened the main parachute and glided to a landing 70 miles from the launch site.

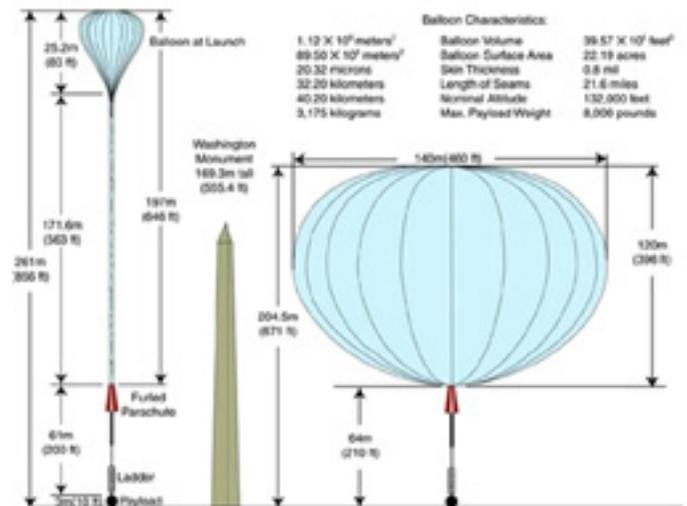
Eustace was carried aloft without the aid of the sophisticated capsule used by Mr. Baumgartner or millions of dollars in sponsorship money. Instead, Mr. Eustace planned his jump in secrecy, working for almost three years with a small group of technologists skilled in spacesuit design, life-support systems, and parachute and balloon technology. He carried modest GoPro cameras aloft, connected to his ground-control center by an off-the-shelf radio.

A veteran aircraft pilot and parachutist, Eustace worked as a computer hardware designer at Digital Equipment Corporation for 15 years before moving to Google in 2002. Ω

Balloon Observation Platform for Planetary Science (BOPPS) launched from Fort Sumner, New Mexico.

BOPPS is a stabilized pointing platform mounting an 80-cm telescope on a gondola capable of operating at 110,000 to 140,000 feet, above most of the atmosphere's water and carbon dioxide. Because it is at such a high altitude, BOPPS can see wavelengths of light which are blocked by the atmosphere from reaching the ground. BOPPS is designed to measure water and carbon dioxide from comets at infrared wavelengths in the 2.5 to 5 micron range, which cannot be seen from the ground because of atmospheric absorption.

The primary science objectives of the BOPPS mission are to measure CO₂ and H₂O emissions from the Oort Cloud Comets C/2013A1 Siding Spring and C/2012K1 PanSTARRS. These emissions tell us about the CO₂ and H₂O ices trapped in the nuclei of the comets. These are primordial ices preserved since the formation of the solar system, since the comets have been stored at enormous distances from the Sun, at low temperatures in the Oort Cloud, over nearly the entire age of the Solar System.



At the surface of the Earth, the balloon will be taller than the Washington Monument. Once it has reached its goal altitude – for this mission around 120,000 feet – the balloon will expand to a size larger than a football field.

The primary objective of this experiment, observing in the near ultraviolet and the visible wavelength ranges, is to demonstrate image pointing stability better than an arc second. Ω

The New Inflatable Chinese Drone: Battlefield Balloons?
By Jeffrey Lin and P.W. Singer



Shown here is a fully inflatable UAV, designed as a flying wing. The electric motor is mounted on the center rear, the actuators for the wing flaps on the side can also be seen. Both photos: Chen Haifung, China News Agency

While Chinese industry is often accused of copy-cattening and IP theft, its robotics research has often showed great originality. Case in point, at the Tianjin International UAV Exhibit, a Chinese manufacturer debuted an inflatable UAV. It is designed for low speed, low altitude roles, such as conducting aerial survey, remote sensing and reconnaissance. Powered by an electric motor, its innovative design also includes two separately inflated horizontal aerilons to enhance maneuverability. Filling it with lighter than air gas would increase its payload and range.



The Chinese displayed multiple inflatable UAVs at last month's Tianjin UAV Expo. The grey one is larger than its yellow brethren, it also has stronger, reinforced landing gear.

The use of lighter-than-air vehicles has a long history in war, from the German's manned Zeppelins of World War I to the US military's more recent use in

Afghanistan of "aerostats" (balloons fixed to the ground) to position surveillance and communications gear above bases. Making such systems unmanned and mobile via an inflatable UAV would provide easier storage, lighter weight and portability compared to conventional drones. Militarily speaking, the smaller footprint of an inflatable UAV means that it would enable smaller groups of soldiers (at the squad and platoon levels) to carry higher and further flying UAVs than they normally could. If the inflatable airframe of the UAV was made out of radar absorbing material, it could also have low observable and stealth characteristics.

Of course, inflatable UAVs do have their drawbacks; they would take a lot longer launch due to the time needed to inflate itself and may be less maneuverable, and certainly slower than most systems. Even more, any power failures in the engine or communications would turn an inflatable UAV into the world's first wild drone, flying freely away on the winds. Ω

Unmanned balloon to watch over Ohio prison as part of test. By Jeremy Pelzer, NE OH Media Group



Border Patrol agents in Penitas, Texas, stand by an aerostat used to look for smugglers and illegal crossings from Mexico. Ohio corrections officials said Wednesday they will conduct an aerostat test sometime during the next week to see how useful the tethered helium balloons would be in monitoring state prisons. (AP Photo/The Monitor, Gabe Hernandez)

Ohio will be the first state in the nation to experiment with the use of unmanned balloons equipped with surveillance equipment to patrol prisons, state corrections officials announced. Ω

SHORT LINES



On Friday, 10 OCT 14, activists from South Korea launched balloons which had been carrying tens of thousands of leaflets denouncing the dictatorship in Pyongyang, according to South Korea's Yonhap news agency. "There was an exchange of fire," an official at the Joint Chiefs of Staff office confirmed. While the Korean War ended over half a century ago, the countries technically remain at war because they signed an armistice, not a peace treaty. Ω

NTSB Releases Preliminary Report On Deadly Hot Air Balloon Crash. The AP (5/20) reported that the NTSB said in the preliminary report on the deadly hot air balloon crash in Virginia earlier this month that pilot Daniel T. Kirk "attempted to gain altitude before the balloon hit power lines and caught fire." According to the article, veteran balloon pilot Troy Bradley said Kirk "was likely attempting an evasive action after seeing the power lines." The article added that Peter Knudson, an NTSB spokesman, said the preliminary report is "intended as a factual summary of what happened." Knudson is quoted as saying in an interview, "Making sense of all that and the reasons why things were done, that's actually the next part of the investigation." Ω

Boeing, United Technologies Now Stockpiling Titanium. The Wall Street Journal (8/7, Ostrower, Pasztor, Subscription Publication) reported that in order to prepare in case supplies from Russia are disrupted because of the tensions between the U.S. and Russia over Ukraine, Boeing and United Technologies Corp. are stockpiling titanium from their Russian supplier, VSMPO-Avisma Corp. This material is necessary for building jetliners. The article noted that while Airbus also gets its titanium supplies from the same company, it has not taken the same measure. Ω

What about Russian helium? - Ed.

Russian Helicopter Crashes Into Lake. AFP (6/1) reported that a Russian helicopter "carrying top regional officials and businessmen" crashed into a lake on Saturday. Sixteen of the 19 on board are still missing. The article noted that crashes like this one are common occurrences, oftentimes because of "aging aircraft and poor maintenance." Ω

Two Hurt In Fiery Balloon Mishap In Massachusetts Released From Hospital. ABC World News (7/21) broadcast on Saturday's crash of a hot-air balloon into powerlines in a Clinton, Massachusetts, neighborhood, causing burns to "five of six passengers," two of whom were released from the hospital Monday. The broadcast aired extensive amateur video of the crash and the electric-line explosions it wrought before crash-landing in the back yard of resident Dennis MacDonald, who recalled helping the wounded with towels and ice. Ω

Takeoff Accidents Among Most Common Type In Aviation. Bloomberg News (6/2, Levin) reported that experts say that the recent crash of a Gulfstream IV jet in Massachusetts during takeoff is "among the most common type" in aviation, no matter if it involves business jets or commercial airliners. According to the article, Thomas Haueter, the former head of the NTSB's Aviation Accident Division, noted that safety improvements have almost "wiped out certain types of accidents," such as mid-air collisions. Ω

Australia Decides To Purchase P-8A Poseidon Aircraft. The Wall Street Journal (2/21, Taylor) reports that Australia has decided to purchase Boeing P-8A Poseidon maritime patrol aircraft now under development. Australian Prime Minister Tony Abbot said, "We think that this is going to be a very important part of Australia's defenses for decades to come." According to the article, the country denied that this purchase had anything to do with China, even though its navy is growing in the region and traveling farther from the country's shores. As for the Poseidon's development issues, Abbott said he was told they were resolved. Ω

K-Max UAV Crash Said To Be Due To Unexpected Tailwind. In an article titled “Why pilots couldn’t stop a Marine Corps drone helicopter from crashing” on its “Checkpoint” blog, the Washington Post (8/7, Lamothe) reported that on the evening of June 5, 2013, an unmanned, 51-foot-long K-Max military helicopter crashed on its destination landing pad in the Helmand province of Afghanistan. On an otherwise routine food-transportation mission, the Post reported that the Marine lieutenant commanding the mission and the Lockheed Martin contractors operating the UAV were unable to successfully implement a “weathervane” maneuver after encountering unexpected tailwinds that caused the 2,000-pound load attached via cargo net to oscillate uncontrollably, leading to the crash Ω

NASA May Issue Centennial Challenge To Develop Stratospheric Airship. The New York Times (8/25, Krisch, Subscription Publication) reported on how “sleek new airships” are now being designed that could one day conduct astronomical or Earth observations from the stratosphere. According to the article, while airships are sometimes considered “dusty relics of aviation history,” an upcoming NASA contest could bring “new life — and funding — into the idea.” Sarah Miller, an astrophysicist at the University of California, Irvine, is especially enamored with the idea because of the research potential. She worked with a team to develop “a lengthy analysis at the Keck Institute for Space Studies” that found that using airships could be much cheaper than using a satellite. Jason Rhodes of the Jet Propulsion Laboratory, who also worked on the study, is now working on developing a Centennial Challenge that could start “the race for a science-worthy stratospheric airship” if accepted. Ω

Masdar: Solar-Powered UAV Will Take Off, Land In Abu Dhabi On Round-The-World Flight. The AP (9/25, Schreck) reported that Masdar, United Arab Emirates’ government-backed renewable energy company, announced Thursday that the Swiss-made, solar-powered UAV, Solar Impulse 2, “will start and attempt to finish its round-the-world flight from the UAE capital of Abu Dhabi.” The project will begin in January and will undergo two months of training and testing before launch. The announcement “is likely to bolster the wealthy emirate’s efforts to position itself as a champion of renewable energy.” Ω

UAVs May Help Cloud-Seeding Process. The National Journal (10/7, Resnick, Subscription Publication) reported on cloud-seeding, a process that coaxes water in clouds to form the ice crystals required for snow. The seeding devices burn silver iodide, an inert chemical, “into a fine mist that gets tossed up into the air,” which helps cause precipitation. The Desert Research Institute (DRI) operates several cloud-seeders in California and concluded the “process increases the precipitation output of a cloud by around 10 percent—though there is a lot of variability” and debate over its effectiveness. The DRI is also testing plans for a cloud-seeding UAV program “with the goal of delivering the most effective dose of silver iodide to the clouds with the greatest precipitation potential, wherever they may be.” Ω

Raytheon Completes JLENS Software Testing Ahead Of Deployment Over Washington. Flightglobal (10/13, Stevenson) reported that Raytheon has just completed software integration testing of the joint land attack cruise missile defense elevated netted sensor’s (JLENS) command and control (C2) systems. The system is part of “the U.S. Army’s new aerostat-based radar system,” which will be deployed over Washington, D.C., later this year. During the test, Raytheon simulated “an array of potential objects that the radar may pick up” under “the most complex environment the system is likely to encounter” to see how well it could then transmit the information to NORAD. Ω

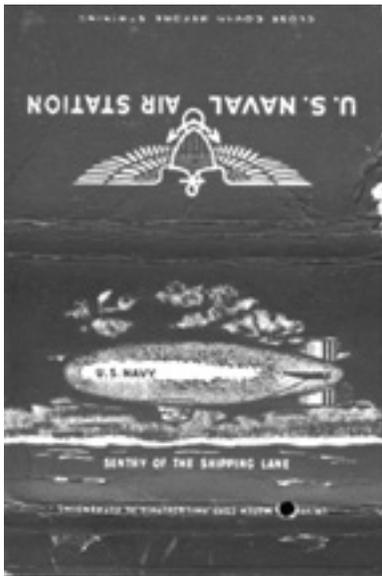


Member **Curt Westergard** reports he’s been working on aerostat tether markers that contribute to net lift, have little drag, give good radar signature and are water resistant. The UAS world’s “see and avoid” mandate is the driver for this research. Ω

HISTORY

All NAA members are asked to please welcome oncoming History Committee Chairman Mr. **Mark Lutz**. Mark relieves outgoing Chair Al Robbins, who will work with Mark during the transition. You can contact Mark at microbio@bitstream.net. Ω

The U.S. Navy has nominated Ewa Mooring Mast Field to the National Register. Ewa Mooring Mast Field, one of the very earliest aviation fields in Hawaii, was constructed in 1925 as a then high-technology US Navy airship port with a state-of-the-art 100 foot high steel tower and circular railway. Ω



For our matchless members, a trip back to when smoking was cool. Close Cover Before Striking, Loose Lips Sink Ships. Ω

Zeppelin Milestones

These past few quarters marked several milestones for those great rigid airships, the Zeppelins.



One of the most successful passenger Zeps before WWI, the “Victoria Luise” began operations 100 years ago. At least one American rode as a passenger; LCDR Jerome Hunsacker, USN, was gathering information for a report on the state of European aeronautics.



This is the 85th anniversary of the *Graf Zeppelin* (LZ-127) round-the-world flight. Several Americans, including LCDR C.E. Rosendahl, were aboard. Here *Graf* is at Opa-Lock, Florida, during a later flight.



Werner Franz, cabin boy on the *Hindenburg*, passed at 92. Mr. Franz was born in Frankfurt on May 22, 1922. (John Provan photo) Thought to be the last surviving crewman from the LZ-129, Franz suffered no injuries in the infamous 1937 New Jersey crash. (See “Pigeon Cote”) Ω

The Order of the Tail Wheel
by George B Stadter, LTA Class 1-48

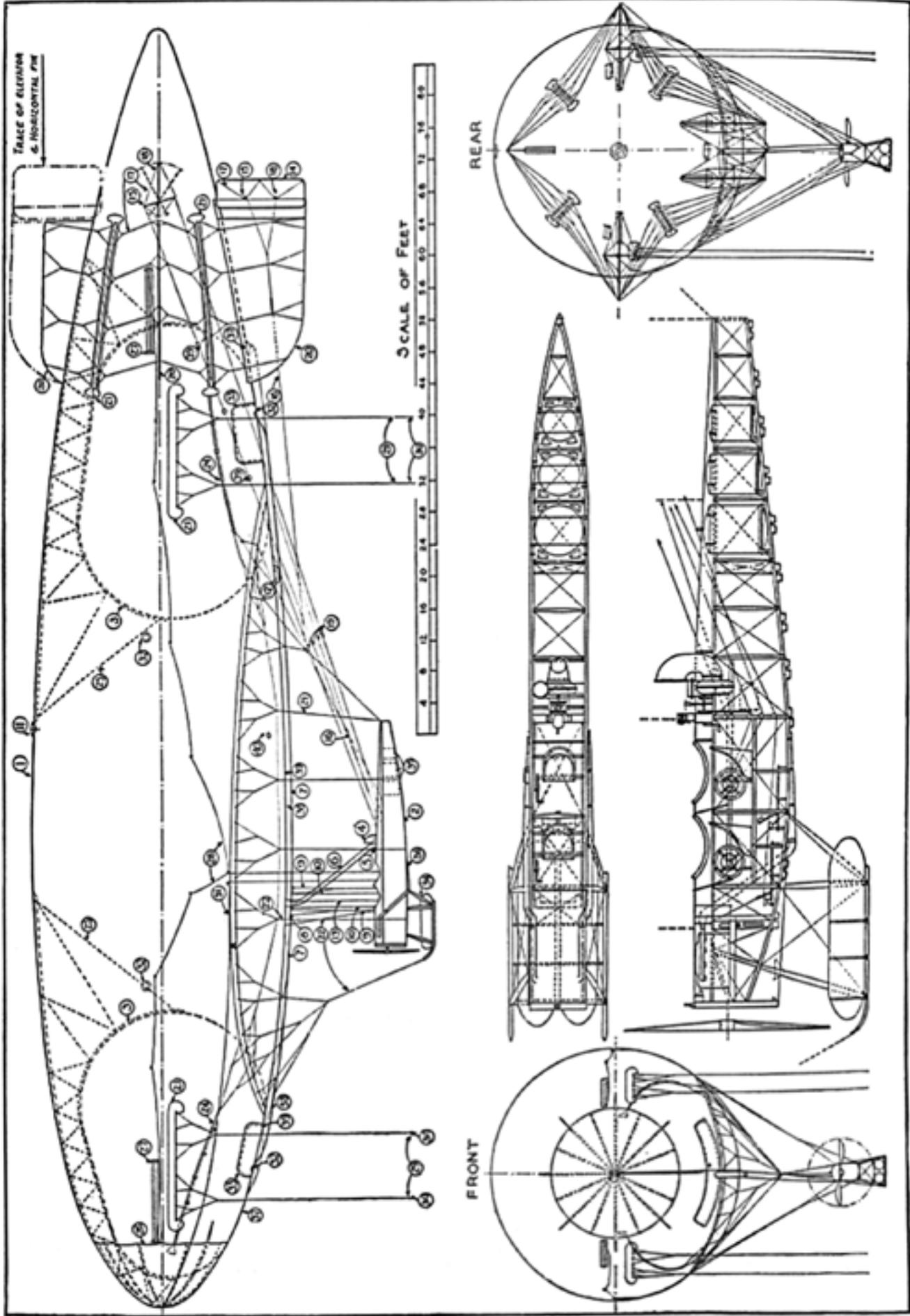


In 1948, at Lakehurst while in flight training, I was called to the Director's office. Max Holzrichter was the Director of Flight Training. He told me that the day before I had brought back an airship without a tail wheel and that I had to recover it. The flight he was talking about was my K-Ship solo flight. I had been practicing landings at the Blind Landing Mat and one had been long and I had to pull it up to clear the trees. I did not think I had hit the lower fin. Four classmates living at the BOQ offered to help me find the tail wheel. That Saturday Bob Junghans, Jerry Kasner, Red Layton, John Odell, and I headed out to the Mat. Being in a car, down in the pine trees with all those intersecting sandy roads, made it somewhat difficult to find our way. When we reached the Mat we formed a line abreast and marched across. Sure enough about two thirds of the way we found the rut in the sand and the tail wheel, which I returned to the Director.

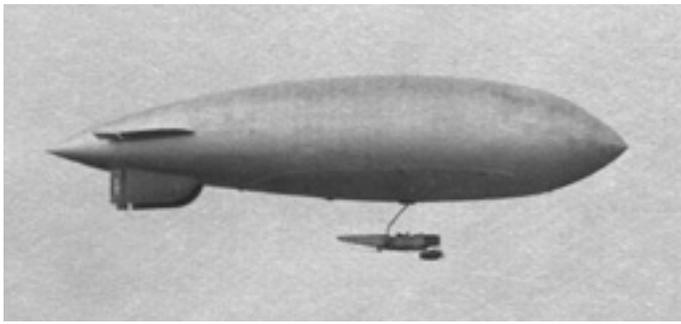
About two weeks later at a BOQ party I was called up and presented with the Order of the Tail Wheel with one Star (see photo at left). I believe Red Layton designed the medal and as far as I know it has never been awarded again. Ω



Asked to comment, "Red" Layton e-mailed, "Three comments about this article: 1. I never heard of these people. These are obviously false names. 2. I was never associated with this group in any hi-jinks in 1948 or however long the Statute of Limitations still applies. 3. As the five bachelor members of the 10 students in LTA Class 1-48, our piloting expertise was so great that there was no possibility of someone knocking off a tail wheel. Other than that – this is a true story." Ω



COVER STORY



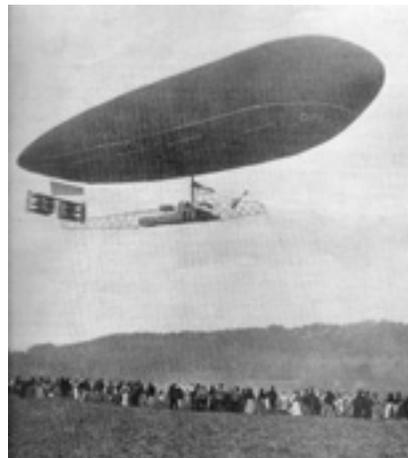
Hunting the Hunters: ASW Technology During World War I By Roy Manstan

“As few things are impossible, the submarine may be developed to a state of efficiency and reliability that will cause a revolution in the composition of fleets.” When the Chief Engineer of the Navy Rear Admiral George W. Melville penned these words in 1902, technology was about to define *all* of the elements of modern warfare – not just submarines.

The internal combustion engine and the development of electric motors and heavy duty batteries enabled 20th century visionary inventors and engineers to create machines, the likes of which had only appeared in 19th century imaginations. Jules Verne’s *Twenty Thousand Leagues Under The Sea* was an instant success among readers who were fascinated by his fictional Captain Nemo and the *Nautilus*. Fiction became reality in 1900 when John P. Holland’s submarine was commissioned USS *Holland* to become our Navy’s first operational submarine. Rear Admiral Melville understood the implications, and the future: “It is because the capabilities of the engineer are increasing that further advance will be made in the development of the submarine.” Naval engineers, however, had been adapting steam power and the screw propeller for decades, most notably with the emergence of the ironclads USS *Monitor* and CSS *Virginia* off Hampton Roads, Virginia, on March 8, 1862. The Age of Sail was rapidly coming to a close, and soon battleships and dreadnaughts would dominate naval strategic and tactical calculations. The submarine, however, would soon change the equation.

¹ [Melville, “The Submarine Boat: Its value as a Weapon of Naval Warfare,” in *The Annual Report of the Smithsonian Institution for the Year Ending June 30, 1901*, Government Printing Office, 1902.]

Rear Admiral Melville had warned that “the naval battles of the future will be won by the nation which has made preparation for a conflict.” Only a dozen years later, in the summer of 1914, Melville’s “future” had arrived. Germany had prepared – the rest of Europe had not. As countries rapidly took sides and declared war on each other, and the onslaught across the continent escalated, German submarines – their “Unterseeboote” (U-boat) – silently patrolled the North Sea and soon invaded the Atlantic. On September 22, 1914, *U-9* attacked and sank the three British armored cruisers *Aboukir*, *Cressy*, and *Hogue*. The U-boat had demonstrated its effectiveness to the allies, as well as to a somewhat skeptical German admiralty, and its role would expand into the open ocean. When Germany declared the waters around Britain and Ireland a war zone, merchant shipping became an easy target for these stealthy predators. On May 7, 1915, the Cunard Line’s *Lusitania* fell victim to their policy of unrestricted submarine warfare, with the loss of 1200, including 128 Americans.



The French airship *Clemant-Bayard II* (shown during military maneuvers in 1910) was referred to in *Scientific American Magazine* as an example of the “aerial dreadnaughts” also being developed by Germany and Italy.

(*Scientific American*, Oct. 8, 1910)

The first few years of the 20th century also saw Henry Ford build factories to provide the public with a “horseless carriage” that could be mass produced, while an earthbound population watched the Wright brothers demonstrate motorized flight. These and many other turn-of-the-century inventions, designed for the public good and developed with corporate support, were not ignored by military strategists who immediately embraced these technologies. A mechanized army could move quickly across battlefields, relegating cavalry and horse drawn artillery to the history books, while both HTA and LTA opened the skies over the battlefields to an entirely new form of warfare.

The potential of aerial bombardment by these “dreadnaughts” had been demonstrated by the Italians in 1911, during a bombing raid over Tripoli. (Wikipedia photo)



In 1914, the sentiment among most Americans was that this was a European war. Woodrow Wilson had been elected president in 1913, and again four years later, on a promise of neutrality. Attitudes had been changing, stimulated by events in 1915, such as the sinking of the *Lusitania* and other presumed neutral ships that carried American citizens. Wilson undoubtedly understood that America would be drawn into the war, and quietly began to make preparations.

The introduction of so many new technologies onto the battlefields was of concern to the National Academy of Sciences, who feared that we were unprepared to provide an effective response. Their argument to President Wilson was that it would require science to understand these technologies and that science would be needed to find and implement solutions. Stalemates on the Western Front had proven that the brute force tactics of previous generations were no longer going to win the struggle. The Academy was particularly concerned with how effective the U-boat had become, and convinced Wilson that a National Research Council staffed by academic scientists be assembled to study all of the new technologies, but in particular to focus on what was referred to as “the submarine problem.”

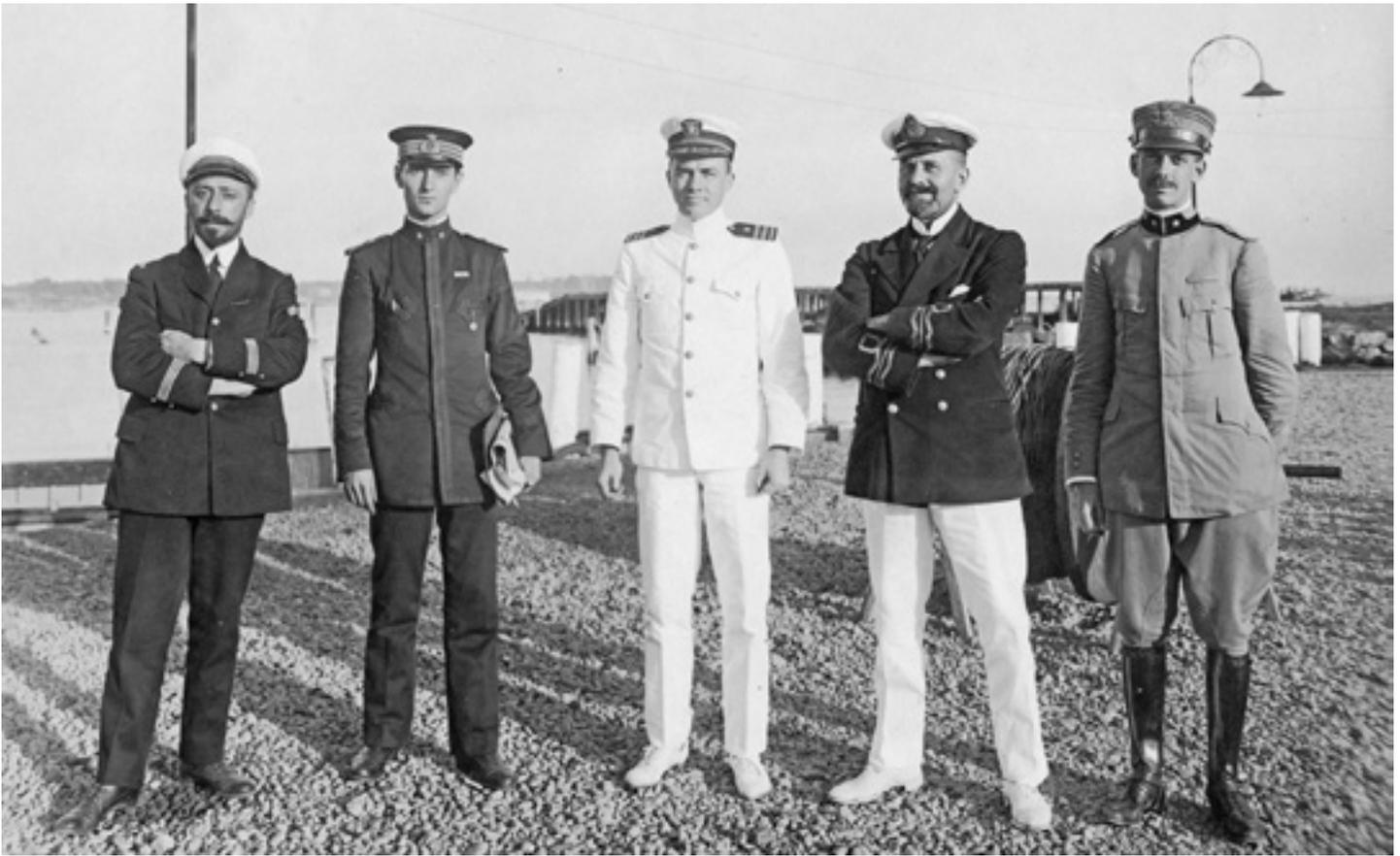
In May, 1917, the National Research Council created a Special Board on Antisubmarine Devices, only a month after America entered the war. Scientific representatives from Britain and France braved an Atlantic crossing to plead their case before the NRC and the Special Board for a concentrated antisubmarine effort. U-boat tactics were based on stealth and surprise, and their unrestricted campaign against merchant ships had reduced British food and fuel reserves to critical levels. These predators remained submerged during the hunt, surfacing only if the captain decided to attack with the deck gun rather than using one of a limited supply of torpedoes. The

sub would surface at night to recharge its batteries, a safe operation before the development of radar. All submarines, however, shared a critical vulnerability – they were very noisy. Detecting their distinct sounds became the focus of the scientists and engineers assigned the task of removing the stealth that U-boats depended on, and the Special Board on Antisubmarine Devices would drive the effort.

The government-owned property around Fort Trumbull near the mouth of the Thames River at New London, Connecticut, was selected as the site for the Naval Experimental Station. This was already the home of the U.S. Coast Guard, and there was plenty of room for the scientific staff and active duty military support. Additional support would come from the naval base of the Atlantic Submarine Flotilla, which had been established in 1915, only a few miles upriver in Groton. During nearly two years of operation, the Station would be assigned several SC-class submarine chasers. Marine railways at the Station enabled staff to install and quickly evaluate multiple shipboard systems on the sub chasers. Two SP-class patrol vessels, primarily privately owned steam yachts converted to naval use during the war, also participated in the experimental work.

While the scientists and engineers developed their ideas along the New London shoreline, visionary inventors from industry, including Thomas Edison, had been invited by the Secretary of the Navy to put their minds to work at a facility in Nahant, Massachusetts, just north of Boston. The Nahant and New London stations would work hand in hand throughout the war, with their efforts coordinated by the Special Board on Antisubmarine Devices. Many of the devices created at Nahant would be delivered to New London for critical testing.

The relatively calm water of Long Island Sound was ideal for evaluating detection devices. Submarines were sent from their base in Groton to simulate the acoustic sounds of a U-boat, providing a realistic detection target. Aerial support was available from the naval air station at Montauk, New York, at the eastern end of Long Island. Three Curtiss HS-2 flying boats and one R-6 seaplane were assigned to New London, and at least one B-class airship also participated in the experimental work.



**(l-r) Unidentified French Naval LT
LT Abetti, Italian Navy
CDR McDowell, US Navy
LCDR Houghton, British Naval Res.
Unidentified Italian 1st Lieutenant**

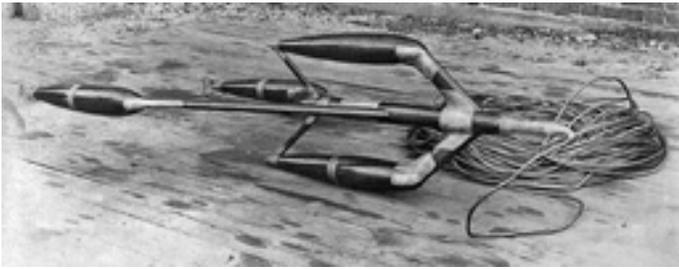


Although many of the listening devices were tested on surface craft as well as aircraft, this article will describe those which were adapted for both HTA and LTA applications. Any HTA aircraft that landed on the open ocean could only deploy their listening devices in calm water, and ran the risk of being unable to restart their engines. Although airships were outfitted with pontoons to allow at sea landings, they could readily hover above the water when listening for submarines in rough seas.

The activities at the Station involved participants from our three major allies, Britain, France and Italy, all sharing a vital interest in submarine detection. U.S. military and civilian representatives were sent to each of these countries to pursue the antisubmarine warfare efforts, and these countries, in turn, sent their representatives to New London.

The Italian army lieutenant was a member of the Battaglione Specialisti del Genio, which in 1910 was organized into four specialties; one of these was airship operations. His cap device (at left) includes the standard exploding grenade, which is crossed by an airship. This battalion participated in the Italo-Turkish war, 1911-1912, and conducted the aerial bombing shown in the photograph. Now, this battalion would be in the skies over the Mediterranean in submarine search and destroy missions.

Critical to submarine detection was the development of the hydrophone, a waterproof microphone that could convert underwater sounds into electrical signals. Using telephone circuitry, these electrical signals were made audible for listeners on ships or aircraft. The German navy also took advantage of what Charles Domville-Fife described in his book *Submarine Warfare of Today* (1920) as “a wonderful little instrument,” and installed hydrophones on nearly all of their submarines. Domville-Fife, who commanded a British hydrophone flotilla, described his experiences: “The U-boats were as well able to receive timely warning of an approaching surface ship as the surface ship was of the presence of the submarine. A game of hide and seek [was] played between a hunting vessel and a hunted submarine.”

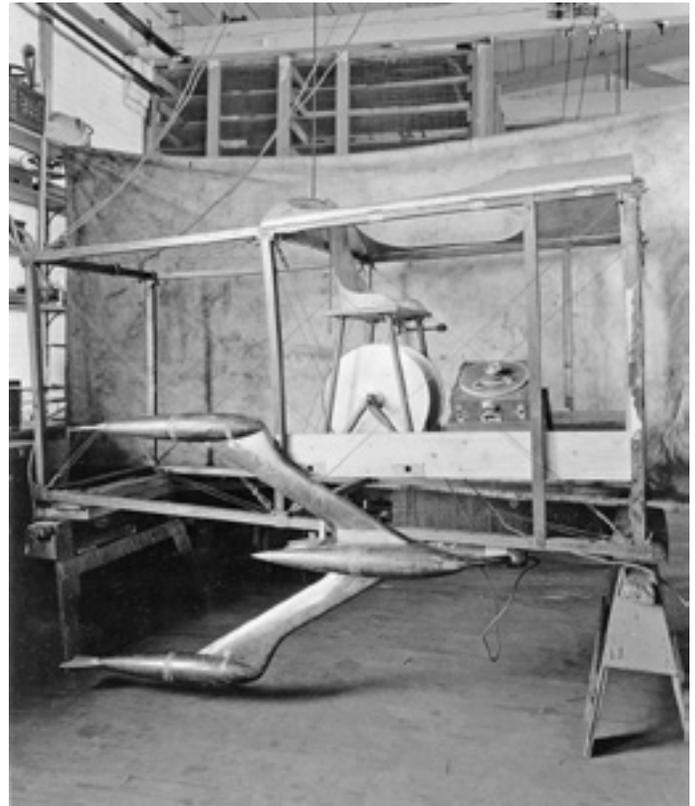


There are four streamlined shapes on this OV device (above); the upper was for buoyancy, each of the other three contained a hydrophone. (Unless otherwise noted, photos are from the Harvey Hayes family archive, courtesy Bernie Cole.)

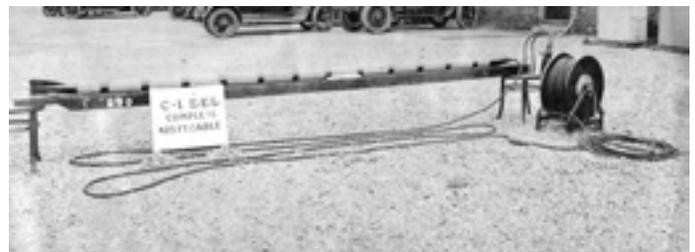
A single hydrophone is omni-directional, making it impossible to determine the bearing and range to a target submarine. An approximation of bearing, however, could be determined by installing multiple hydrophones in various arrangements on a single device. Deploying these devices at different locations would then provide multiple bearings; plotting where they crossed would show the target's location. One of these was referred to as an "OV tube" listening device, where three hydrophones were located in a triangular arrangement in a streamlined tow-body. The listener would connect to one pair of these hydrophones at a time, the output of each of the hydrophones in the pair going to each of the listener's ears. The pair with the greatest signal in both ears was an indication of target bearing. Several designs were tested with surface craft and aircraft to determine the best towing characteristics – those shown here were adapted specifically for airship use. Similar three-hydrophone units were designed to be rigidly mounted on submarines. Others were mounted on a framework and set on the bottom near harbor entrances, with the listeners stationed on shore.

Another very successful listening device designed for both surface craft and aircraft was the "Electric Eel" which contained 12 in-line hydrophones, the signals from 6 being received by each of the listener's ears. The combined signal strength made this design particularly effective.

An OV device (top right) is shown alongside an airframe mockup c. 1918. This particular unit is in the possession of the Naval Undersea Warfare Center, and as far as we can tell, is the only surviving WW I listening device.



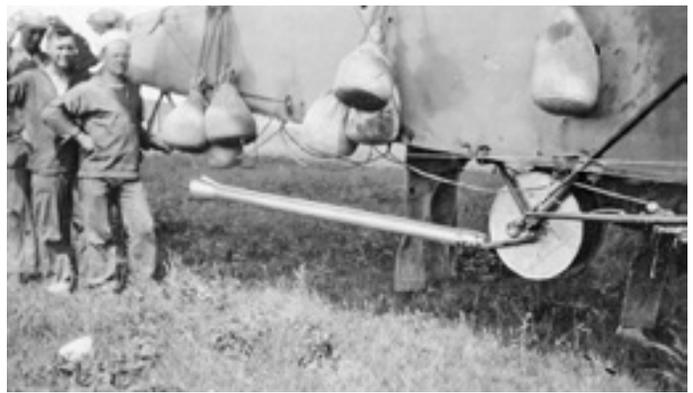
By mid 1918, the destroyer USS *Jouett* (DD-41) had arrived at the Experimental Station. *Jouett* was used for extensive testing of these in-line arrays, including towing two arrays in parallel to obtain even better target detection and localization than possible from a single array. The concept of in-line towed arrays continues to be used in today's 21st century sonar systems.



A variety of these "eels" (above) were tested in tow behind the Curtiss HS-2 Flying Boats and on a B-class airship. The B-ship photo on the next page shows one of these in a tray mounted diagonally along the port side of the airship fuselage. The ink caption indicates that this was "Dirigible No.237," (see photo top of page 24) one of 16 Navy airships (A-235 to A-250) produced during the war for pilot training, coastal patrol, and experimental work. Another eel deployment system included a long tube and cable reel mounted beneath the fuselage.



B-class airships became a familiar sight over Long Island Sound during these experiments. But by the spring of 1918, U-boats had brought submarine warfare to America's coast. In addition to sinking many merchant ships, U-boats set mine fields along principal shipping routes. The goal to disrupt the movement of troops and supplies to Europe was largely unsuccessful, although the armored cruiser USS *San Diego* struck a mine and sank south of Long Island, New York, in July, 1918. The U-boat activity that ranged from Newfoundland to Cape Hatteras throughout the summer and fall brought out sub chasers, patrol ships, and destroyers supported by HTA and LTA from naval air stations along the U.S. coast. By the end of October, within two weeks of Armistice, the last U-boat was on its way back across the Atlantic.



In April 1919, Harvey Hayes, senior scientist at the Experimental Station (in the photo below, front row, far right), made this observation: "The U-boat was never safe after the perfection of the submarine detector." Throughout their development, these listening devices had been installed on a wide variety of surface craft and submarines, as well as naval aircraft including flying boats and airships. At the height of its activity, the Experimental Station consisted of thirty scientists and engineers from many academic institutions supported by 700 active duty military personnel.

In the *History of the Bureau of Engineering, Navy Department, During the World War* (1922), the Navy concluded that while it was not possible to determine any accurate number of submarines sunk as a direct result of the use of these devices by surface craft and aircraft, their value was in "recognizing the presence of



the submarine and giving the bearings which allowed a successful pursuit to the spot, where torpedoes or depth bombs could effect a sinking.”

The author of the *History of the Bureau* did not mention the use of these devices by airships in war zones except during experimental trials, but he recognized their potential. “On account of its ability to stay practically stationary in the air, the dirigible can utilize a form of listening device which can be lowered from the craft and towed under water.”

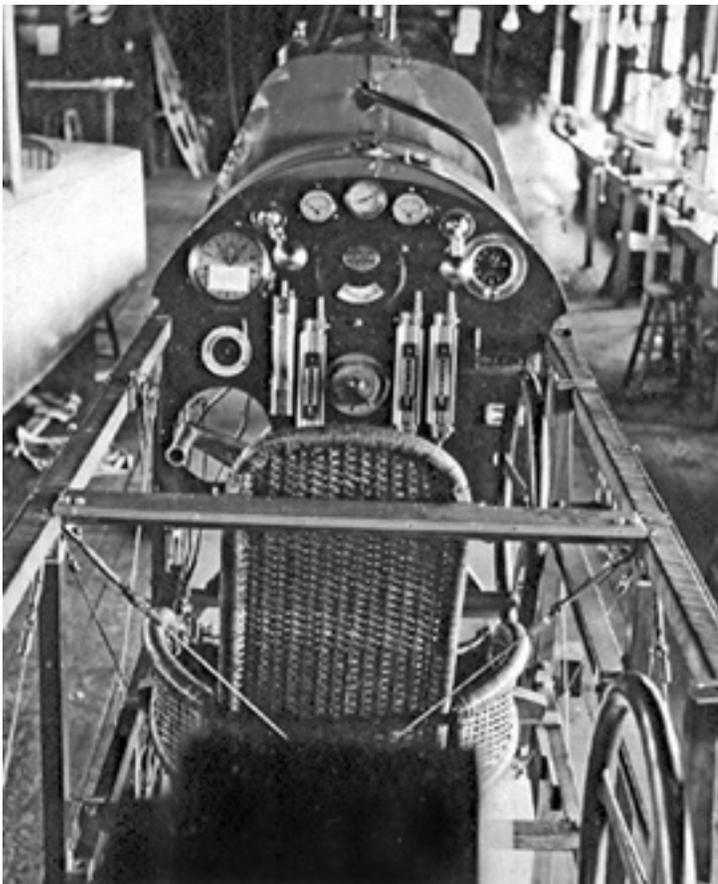
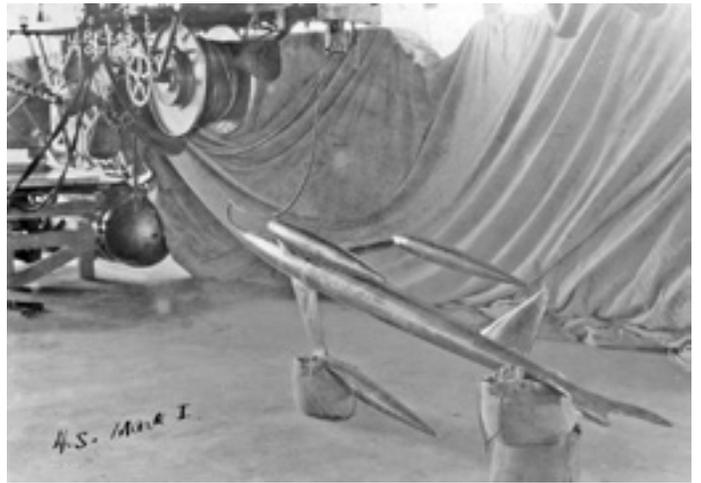
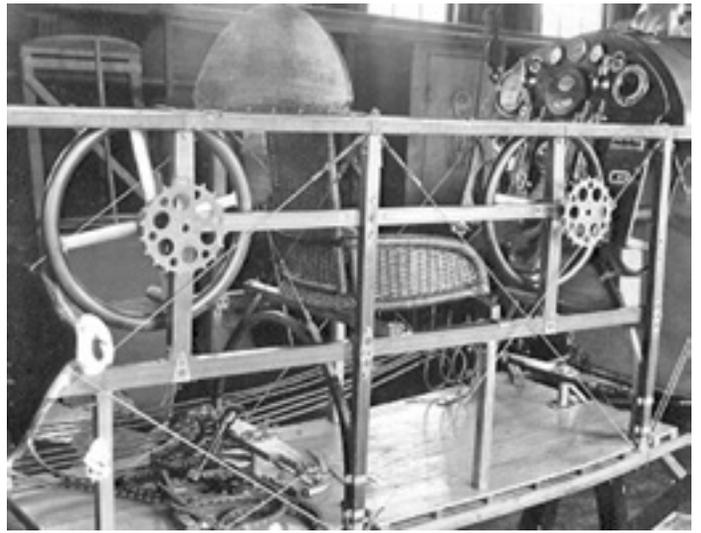
While listening devices designed for aircraft were not a significant factor, the airship did play a critical role in the antisubmarine campaign, patrolling above contested

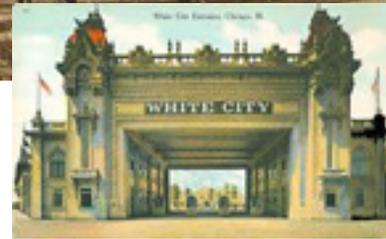
waters of both Europe and America throughout the War to End All Wars. They could stay aloft for many hours, even days, accompanying convoys and watching over critical waterways. Although armed with marginally effective antisubmarine bombs, airships could hover above a specific location and direct surface craft to the target, as described in the *History of the Bureau*: “It would usually be necessary to have cooperation between aircraft and surface craft maintained by means of radio communication so that the surface craft may be called in to assist in destroying a submarine...” The 1919 edition of Jane’s *All the World’s Aircraft* was specific: “No German Submarine Commander had much liking for the airships which dogged his path through European waters.” Ω



The first “scout dirigible,” designated “DN” then model “B,” consisted of a lengthened Curtiss aeroplane fuselage suspended under hydrogen-filled envelopes made by Goodrich, Goodyear, and Connecticut Aircraft. The first ships were erected in a Chicago hangar home to early “rubber cow” showmen and airship ride operators. A series of airship bases, each equipped with a standard steel hangar and hydrogen generator, were constructed at strategic locations on the American coasts. As B-ships were delivered late in 1917 and early 1918, their patrols established duration records for safe operations envied by early seaplanes. Two B-ships and crews were thought lost in separate submarine hunts. Stranded but adrift on the water, both were recovered by passing ships. Experiments showed that the small airship could launch a torpedo as B-15 dropped one and valved off a matching amount of hydrogen lift. A “stretch” modification was introduced, allowing another crewman and more fuel to be carried. During 13,600 hours of coast patrol covering 400,000 square miles, there were no major accidents or fatalities. Only one of the 18 B-types could claim sighting any of the five German U-boats that attacked shipping along the American seaboard. - *NAA Fact Sheet #1 text, USN / NARA photo via Eric Brothers*

“B” Ship Photo Album





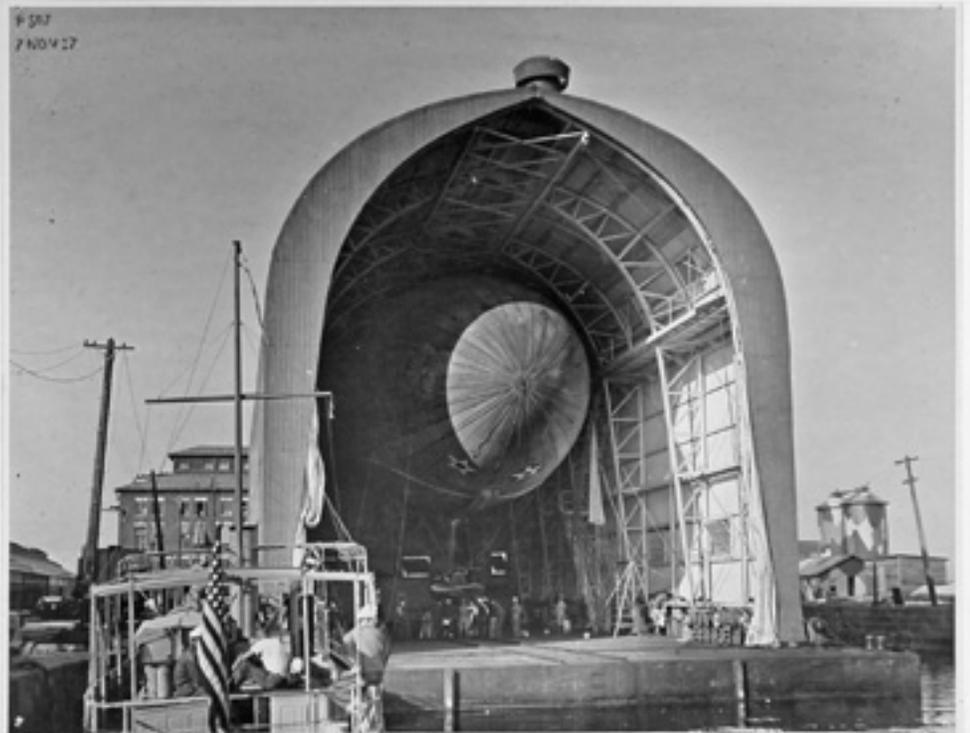
As merchantmen were equipped with guns to run war supplies to Britain, during February and March 1917, submarines targeted and sunk several American ships with the lost of seamen and civilians. A contract for 16 scout dirigibles was split between three contractors on the 19th of March. The only building in the Midwest sized and equipped to fill an airship, the wood-frame balloon & “rubber cow” house at the Chicago-area fair park was purchased by B.F. Goodrich. Its floor was channeled to accommodate the Curtiss-built fuselage/ car, and the first airship flew about the park on the 24th of May, 1917. -Ed.

A ferry flight reaching Mogadore, Ohio, on the 29th set a flight distance/endurance record. Goodrich employed airship showman Roy Knabenshue, who test piloted their first ships. Some weeks later the second ship left White City for Akron, where the Goodyear Tire & Rubber Company was rapidly finishing its new hangar and facility. James Shock wrote, “LCDR Frank M. McCrary and LT Lewis H. Maxfield were the first Navy officers trained in balloons by [Goodyear’s] Ralph Upson and Ralph Preston. Thomas A. Baldwin also worked with Goodyear on the erection of their airships.”



NUMBER ✓ P-P 507 DATE 7 Nov 17
 TAKEN AT Pensacola Florida
 SUBJECT: Hangar, Dirigible
 Floating.
 DN 3 inside.

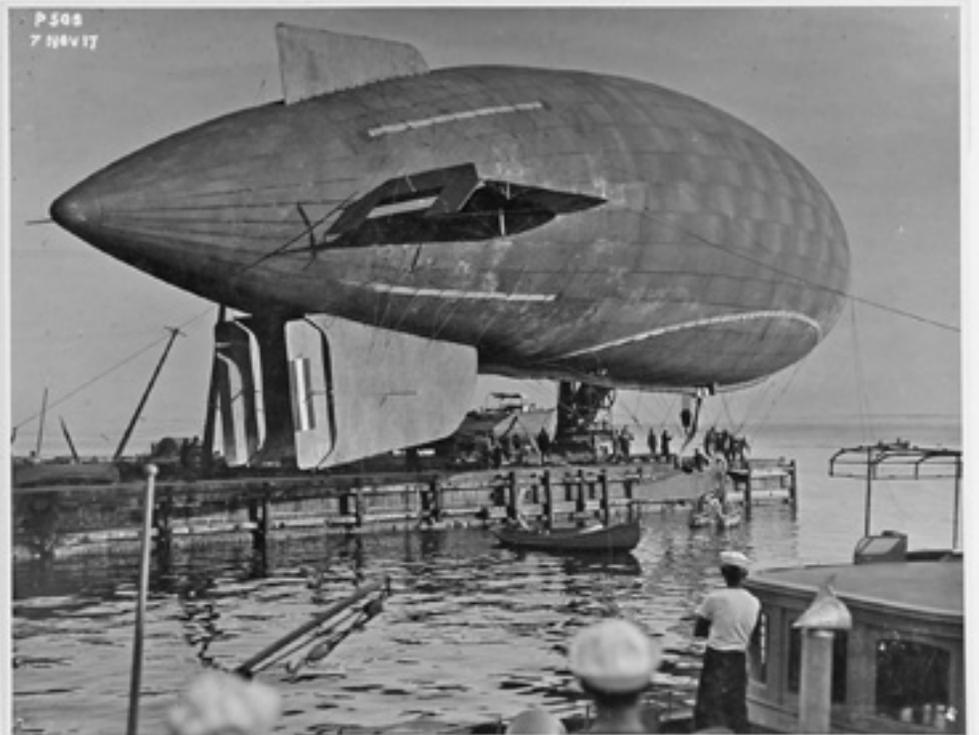
80-CF-4121-55



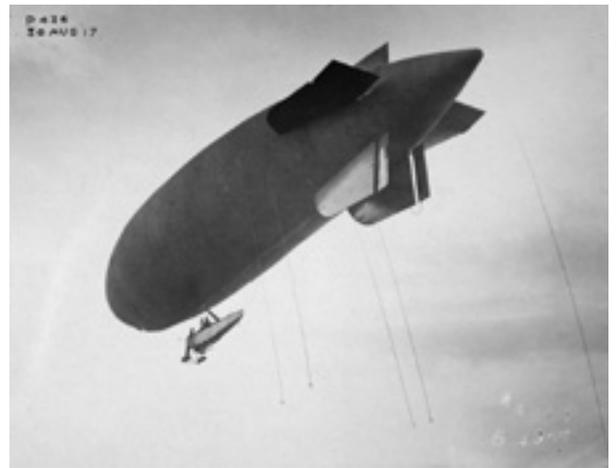
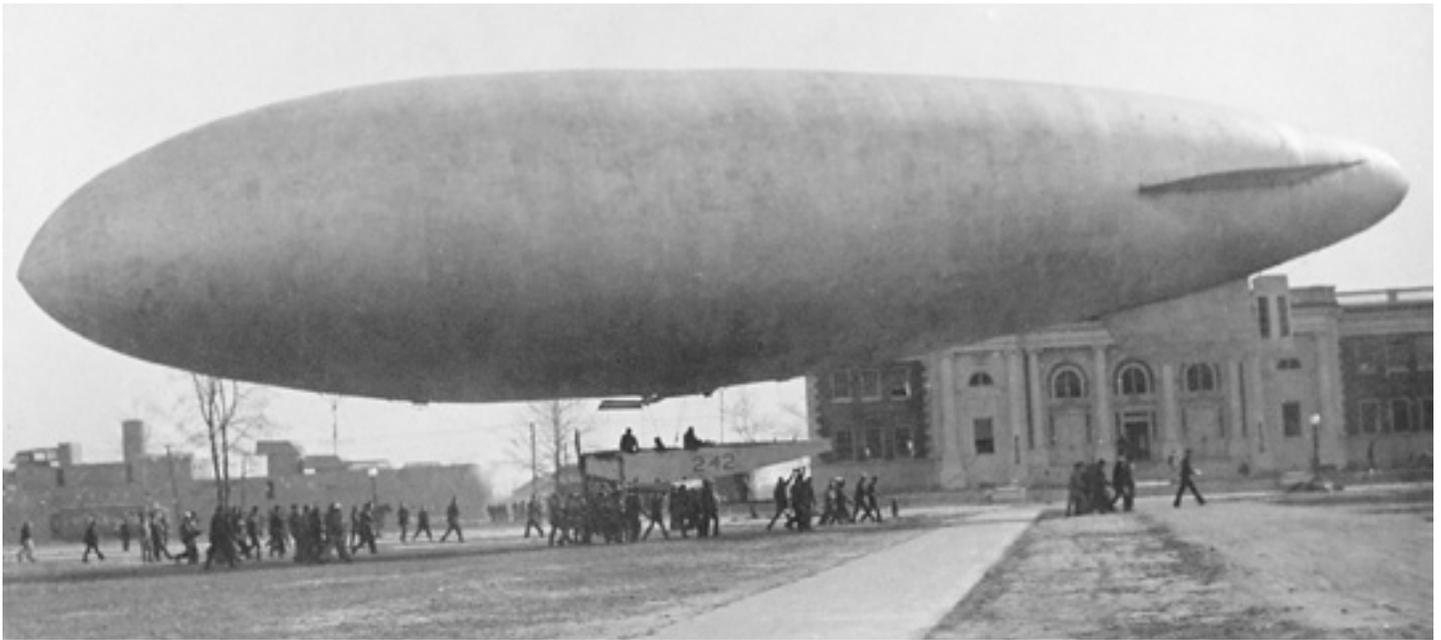
Records are spotty and disagree, but apparently the first production scout dirigible reached Pensacola in August, 1917. Photos in the National Archives (here) show its designation to be "DN-3." DN-1 had proved unsuccessful, but was retroactively redesignated "A-1" when the new ships became the "B" series. Other photos show this airship lost one of its tails in an argument with one telegraph pole similar to those seen near the floating hangar. It was returned to the hangar for repairs. America declared war on the Austro-Hungarian Empire in December, 1917. James Shock also wrote, " Although wartime service was minimal, at least one airship from Chatham was known to have sighted a German U-boat. It notified

NUMBER ✓ P-P 508 DATE 7 Nov 17
 TAKEN AT Pensacola Florida
 SUBJECT: Dirigible DN 3 out
 side of hangar.

80-CF-4121-51



seaplanes that attempted an attack using tools aboard, as there were no bombs. One B-type airship was in service for fifteen months with its original envelope. Another airship kept a single inflation charge for nine months during which it logged 743 hours of flight time. The airships flew 13,600 hours or approximately 400,000 miles without a fatality. As the B-type was really produced too late in the war to see direct service, they did train pilots for service against the enemy in French airships. Training was also conducted in England using British airships. Records indicate approximately 170 airship pilots were trained during the war."



Since the mandatory use of helium would have made even the largest “stretched”, later B-ships impractical, damages were not repaired and the ships were gradually discarded. -Ed.

Photos on these pages kindly supplied by David Smith, Eric Brothers, and Ed. from their NARA visits. Others provided by Fred Morin, Ray Manstan, the Hayes Archives via Bernie Cole, and the Sturtevant website, sturtevantfan.com.

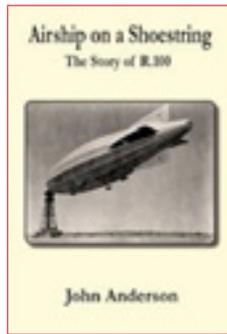
MEDIA WATCH

The Story of R.100

By John Anderson

A Bright Pen Book (2013)

Reviewed by **C.P. Hall II**



There is a great deal to like about this little (223 numbered pages, 6"x 9") book about the R.100. John Anderson writes a fresh version of the R.100 story as he has found several sources previously untapped. He had access to the Cambridge University Library where the Vickers and Airship Guarantee Co. Ltd. (AG Co.) archives are located. He found the progress reports, from the Aircraft Inspection Department's (AID) inspector, to the Air Ministry. Anderson is described as "... a devotee of the novelist Nevil Shute and in 2011, his biography of Shute was published by Paper Tiger." He acknowledges Heather Mayfield, Nevil Shute Norway's daughter, who made available Shute's complete diary of R.100's Canadian flight.

The reader familiar with the history of R.100 will find fresh information to ponder in this little volume. The reader new to the subject will find an informative and entertaining read. There were several aspects of this story that I found curiously eye-opening yet not quite always satisfying. One of the more positive aspects included his delving into early AG Co. actions pre-dating the 1924 Labour Airship Program.

Although there have been several illustrations, generally taken from newspapers, of R.100's passenger accommodation published in the several books about R.100, none have been complete and few offer any insight into the layout of the lower deck. Herein you will find a floor plan of each deck detailed to the point of noting which passenger cabins were two-berth and which were four. Regrettably dimensions are not noted but this is superior to anything previously published.

There are 10 numbered chapters with photographs at the end of each chapter. My rough estimate is that the knowledgeable reader will have seen about 80% of the photos published previously. The quality of reproduction is less than the best. There are interesting examples in the remaining 20%. The upper photo on page 66 is the best that I have seen of the "corridor" aft of the passenger compartment. At first glance, it appears to extend all

the way up to the centerline girder. On second glance one notices the corridor height, in the distance, near the passenger compartment, and recognizes the distortion of nearby objects by a wide angle lens.

The book is focused upon R.100. There is very little biographical content regarding the principals involved. The notable exception is John Anderson's recognition of Major Phillip I. Teed. Previously Teed is dismissed as a technician and Wallis follower. As a rule, no one criticizes Wallis; no one praises Teed. "Major" Teed was a naval officer, a lawyer, a practical chemist and an engineer. His name is conspicuous by its absence from AG Co. patents. A practical man of many accomplishments, he departed AG Co. with Wallis for Vickers Aviation where both worked until retirement. He was the only former AG Co. employee with a role in the R.101 inquiry though several others felt that they should have been asked!

As previously stated, Anderson is surprisingly uncritical of Barnes Wallis. Wallis told Morpurgo that he squelched the idea of a Design Committee. Anderson discovers that the committee was not initially squelched but reveals nothing of what transpired therein. Anderson also notes Wallis's issue of rivet heads in, or out, in his tube fabricating machine. The Wallis version of this disagreement with Burney does not make chronological sense, but Anderson either does not notice, or ignores the details.

Anderson is a Nevil Shute Norway biographer. With permission, Anderson's "Ch. 8, To Canada and Back", is primarily Norway's personal log. While Norway's less edited comments are of interest, I believe that citing observations by Meager and Johnston would have made for a more rounded chapter. Even Norway edited his own log book for SLIDE RULE.

Anderson relates that, following the Canadian flight, R.100's Captain, Ralph Booth, corresponded with N.S. Norway regarding RAW proposals for modifying R.100. Lengthening the ship, changing the outer cover, and reconfiguring the passenger accommodation, are mentioned with some imperfect degree of insight. Norway's visit to Cardington, where he is shown a piece of R.101's outer cover, is cited sans critical consideration and review.

In several instances, Anderson offers a better understanding and explanation of the component parts

of R.100 than have previous authors. That said, he fails to reveal an understanding of the uniqueness of the overall design. There is little notice and no explanation as to why an airship anticipated to weigh 75 tons in 1924, specified to weigh no more than 90 tons in 1924, cited as weighing 86 tons in 1928, cited as weighing 92 tons in 1929, actually (per Anderson) weighed 103.92 tons as a final tare weight (Appendix 1).

AIRSHIP ON A SHOESTRING is a very readable book. If you are already interested in R.100, you will find a trove of more 'new' information than I have had space to mention. If you know nothing of R.100, you are in serious danger of being hooked. You will find yourself surfing websites, browsing old book stores, and requesting inter-library loans of obscure titles. At that point, you will be fascinated all over again as you discover the occasional mis-statement, and realize that "Appendix 2 The cost of R100", calls the premise of this book's title into question. Ω

Al Robbins e-mailed, "I've just about finished [reading] the NADU book. Unfortunately only a couple of chapters apply to lighter-than-air; but it brought back many memories and I learned a lot. I'm having trouble with his timeline - I reported to NADU in March 56, VP-16 had just returned from our tour as the NATO patrol squadron at NAS Port Lyautey, I'd been selected for promotion to AT-2. I was flying as regular crewmember on 03, and maintaining the APS-20 B/E bench at the FASRON. Just bought a red MGTF-1500 and was looking forward to ending my Navy tour in VP-16 at NAS Jacksonville.

We didn't have an LTA department while I was in NADU; initially I set-up the APS-20B shop, maintained the Unit's 20B's and flew as a console operator on one of the Connies. NADU sent me to the first Navy class on the APS-45 at Keesler AFB soon after I completed setting up our APS-20B shop.

I got reassigned to the SNOWBIRD after my Connie crashed. I assisted in installing, and subsequently operating the AN/APS-70(XN-1), built by Hazeltine, in the SNOWBIRD. The Hazeltine APS-70 used a unique rigid coax (5 in. O.D. copper pipe) pressurized from a large bottle of Sulfur Hexafluoride gas, which was allowed to leak out of each of the dipole antennas in the array. As part of the preflight I had to climb down into the radome and verify that the gas was actually flowing from every dipole. With care the gas was supposed to

be sufficient for up to 10 hours of operation, we never got it to work that long. My receiver was at Lincoln Lab, being repaired, when we took our turn on station during the bad weather trials. Don't know anything about the GE version (presumably XN-2), which apparently won the competition. Don't believe that NADU had one, at least at that time.

We removed the radar, and nearly all the project systems, including the TV and cameras from the envelope, in preparation for the record flight. Left the Collins SSB radio, and a British TACAN in. Never heard anything about the phony cover story. NADU was very much about setting records, and this flight was planned as a record breaker. The crew all believed that this was CDR Hunt's brainchild; as you know he was released from active duty, allowed to retire, soon after the flight. I wasn't involved, or even aware that some other radar was installed prior to the flight. There was no call for volunteers, most of the enlisted crew was our regular SNOWBIRD crew. We thought that Max was selected because he was a local boy, and it would be great PR.

They landed on my birthday. I'd already been selected for promotion to AT-1 with orders to report to Prep School as part of year group 2 of the NEASP (Navy Enlisted Advanced School Program). Still hadn't decided whether to re-enlist in September. Several men had been sent to AKRON to learn how to operate the new ground-handling mules and they were preparing to drive them back on the Interstate about the time I was detached that spring to report to NTC Bainbridge (Prep School). I never saw one of the mules until I reported to ZP-1 (formerly ZW-1) four years later.

Most confusing, the book doesn't distinguish between the APS-20A (a mechanical sweep PPI display) radar, and the APS-20B/E radar, also built by GE but otherwise related only by operating frequency. The Connie's were also outfitted with the APS-45 height finder radar, built by Philco.

Despite its blemishes, and its enormous size, the book is a remarkable achievement. Any historian or technologist interested in complex systems, digital computers, digital communications, airborne warning and control, airways management, or test and evaluation, can learn a lot from the other chapters describing Project Lincoln and the SAGE system, the highest priority, most expensive (and effective) military program of the post-war period."

Al also advised, "I'd highly recommend getting a copy of John C. Yaney's book NADU The Forgotten Naval Air Development unit of NAS South Weymouth. It only dedicates a small section to LTA, but NADU organized and performed both of the Navy's Arctic missions. The first sections, regarding the first tri-service program, development of digital computers, creation of the radars, communications systems and bits and pieces required for the world's first semi-automated air early warning and control system. The various NADU aircraft had a number of devices (black boxes) developed by the people at Lincoln Labs, and commercial items which magically appeared and were installed in our large aircraft. Some we actually used, like the Collins Single Sideband Radio, and the weather chart machine. The civilian project engineer had told me that one system was used to measure the Northern Lights, and that all I had to do was to flip the ON switch at my station and leave it on for the entire flight. (I'd always thought he was brushing me off. I'm no longer sure.)

I had the misfortune to drop the antenna (I called it the Christmas Tree because it contained so many little dipoles) which I was removing from the SNOW BIRD as we prepared it for the two week flight. It fell twenty feet to the hangar deck. I climbed down the old German Ladder, gathered up the pieces and took them in to my Division Officer, and asked him what to do next. He responded, "We'll have to tell Lincoln Labs, I don't think they ever made another one."

We received four draftees, all undesignated seamen while I was there. One was a lawyer, a licensed member of the bar in Massachusetts, Connecticut, and New Hampshire. He was assigned as a Yeoman, assisting a pilot who was NADU's Legal Assistance Referral Officer. Another was an engineer, who had been assigned at Lincoln Labs when he was drafted. He was assigned to the Avionics Division, working directly for our Warrant Officer on the SKYKNIGHT's radar program. Don't remember the other two; perhaps Max might. I believe that Max was the only technician that was ejection seat qualified and was assigned as the operator on the SKYKNIGHT. Max was already married and living off-base when I reported. I came out of a P2V squadron, so naturally was assigned to support the WV-2 and ZPG projects. We were in the same duty section, and all enlisted duty section members had to sleep in our Duty Barracks, an old building half a block closer to the hangar. I didn't get to visit MITRE or the Project

Lincoln facilities at Hanscom until nearly 15 years later, when I was at NAVPRO Westinghouse." Ω

The Executive Committee. voted to throw in a free CD or DVD, from our Small Stores offerings, to members who renew for two years. Ed. thought it necessary to tell the story of how one of the DVDs offered, "The Blimp Goes To War... Again," came to be one of the selections. Late last year, when member **John Geoghegan** offered to transcribe Ed.'s interview tapes with men from the *Macon's* days. (John recently published "Mystery Of The Ghost Blimp" in *Aviation History* Nov 2014, Vol. 25 Issue 2, in which he re-visited the L-8 mystery.) Ed. wrote John a cover letter that told the long story: "I was thrilled by the story of the *Akron/Macon* after reading Dr. Richard K. Smith's book shortly after joining the Navy in 1969. Nothing meaningful happened with that fandom until Leroy Simpler, *Macon* hook-on pilot, at the 1980 LTA Reunion of what became the NAA, showed the group a silent 16mm film of HTA ops on the airship. (This short film edit, the only images of the detached-wheel F9C-2 ops, is in several archives, and has come to have the title "USS *Macon* Aircraft" in some of the archives, such as the Rosendahl collection at UTD.) I latched on to Simpler for the remainder of the reunion and hounded him with questions, but had not brought along a camera or apparatus to record anything. At that gathering I also met Frank Buckley, who told me of film footage available for copying at NARA. I wrote them immediately and I purchased everything they told me they had. I spliced the film together on a 400-ft reel. Playing a cassette of music alongside the clattering projector, I would inflict it on visitors. Building a house and working the Space Shuttle prevented any further pursuit other than the occasional discussion in NOON BALLOON or BUOYANT FLIGHT.

The 1989 NAA Reunion at Jacksonville shocked me into realizing the rigid's men were passing fast and I'd better do something, since there seemed to be little other interest in my favorite subject. When it became possible to edit on VHS video tapes, I worked every bit of overtime I could get and invested in a three-VCR setup with video mixer. Two very busy and intense years later, we premiered "The Flying Aircraft Carriers" VHS at the 1991 Reunion at Pensacola. To former rigids men, **John Lust** and **Clyde Pagent**, were in the audience. I immediately rushed a copy to '**Min**' **Miller**, then the last of the hook-on pilots, who thanked me, and wrote he thought "it was quite a piece of work." (Dr. Richard

Smith was positive in phone calls, eventually asking if I'd broke even on the project. I wish!

Beginning first as an NAA project, and shortly thereafter continuing without that blessing, we constructed a plan to make a five chapter series to cover the entire history, not just the ZRS. We continued to gather material to add to that already on hand. The cassette interviews came along in there. First, I initiated correspondence with former ZW-1 member **Robert Barnett**, who lived in Texas, not far from *Akron/Macon* HTA CPO **William Cody**. I sent Cody a VHS of "The Flying Aircraft Carriers" and asked him to watch it. I then sent Barnett a cassette unit and asked him to record a conversation with Cody, hopefully discussing his ZRS experiences after watching the tape. They did so on April 16, 1993, Barnett noting that LCDR Cody was then 93 years old. Unhappily the quality of that recording is very poor, with only the occasional word being audible. I remember being so disappointed I immediately wrote down some questions, read them into another cassette, mailed it and the cassette player to Barnett and asked him to play one question at a time and then record Cody's responses. Happily, over the two-day sessions, Barnett's voice and Cody's responses the second time are clear, with only the pre-recorded questions being somewhat muddled. I was able to digitize the two-cassette session onto CD for you.

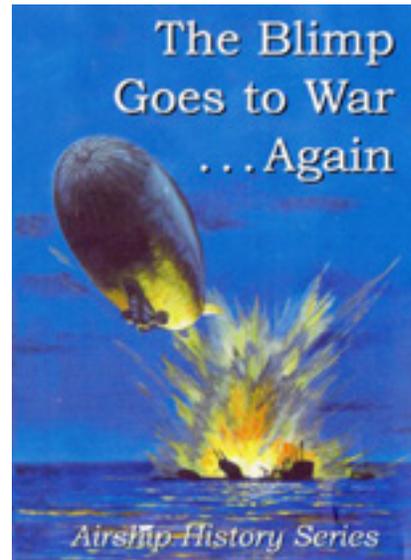
Years later, after both those men had passed, there had been an earthquake in California that damaged the road we Space Shuttle technicians usually took from LAX to Palmdale/Edwards AFB. So, Lockheed started flying us into Ontario. Since it was but an hour out of the way to Hemet, California, I dropped in to see William Clarke, who'd been at the rudder wheel of *Macon* on its last day. This became my routine with every deployment, usually arriving in time to take Clarke and his wife to dinner and just listening to their conversations. Thankfully once, 18 APR 98, I took a cassette recorder along to their Hemet home. That recording begins after I had asked him about the first aircraft he remembered seeing, and you also occasionally hear the voice of my carpooler, Don Graves, and Mrs. Clarke.

With sponsors Jimmy Johnson and Hepburn Walker, Jr. each matching the next \$5,000 I scraped together, I invested in an entirely new video editing suite and put everything I'd learned into making the Airship Video

History Series. We purchased copies of every scrap of film we could beg, borrow or trade for, the majority of which was revealed by intense (and pricey) research trips to the National Archives in DC and later in College Park, MD. We paid handsomely to license some great background music to go with ZP-42 vet **Joe Lundy's** narration, and commissioned a cover painting from artist **Cortney Skinner**.

Happily, both sponsors attended the Akron NAA Reunion where we premiered "The Blimp Goes To War Again." Both Johnson and Walker happy with the results, which was obviously very important to me. Only one of the earlier critics even watched it, to my knowledge, and there was only one sour grape comment. Years later when converted to DVD we could give it chapter access for easier review. We got a duplication house to make basic copies - no color printing, no box, menu, etc. so the NAA could afford to offer them through small stores, and now as a premium for two-year re-up.

Since I had already done the VHS prototype, "The Flying Carriers" was finished shortly thereafter. (Our



earlier critics fell silent; as a matter of fact, I don't believe any of them even watched that one or any of the later segments!) It took so long to make the other chapters these most generous sponsors, all three former enlisted folks, had passed away before we were ready for NAA

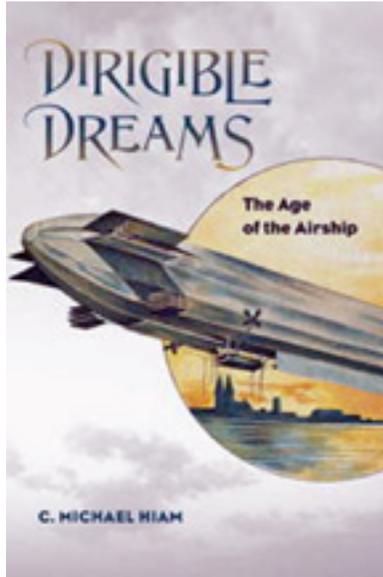
Pres. **George Allen** narrating "Airships Fight A Cold War." Before we finished the fifth episode, video had gone digital: the last effort, "The Early Days," [which contains all known footage of the "B" ships covered earlier in this issue] was actually created on yet another new edit suite, this time computer-based, to go directly on DVD.

So, I have mailed you the cassette-to-CD and VHS-to-DVD interview discs so you can proceed with your transcribing. Best of luck with your new *Macon* work, /S/ Ed." Ω

Modern dirigibles: The future of flight we never got.

By Kevin Hartnett, Boston Globe

In the realm of ill-fated innovations, dirigibles loom large. They were grand in size, floating mightily over cities and across oceans in the early 20th century, and also grand of vision—like a whole ocean liner aloft. Yet like many grand visions, they ended in disaster—or at least in a handful of flaming catastrophes—and now we think of airships as equal parts fantasy and folly. But innovations don't always die for the reasons you think. Author C. Michael Hiam of Newton has spent years researching the fate of rigid airships, and argues they could easily have survived through the 20th century. His new book, “Dirigible Dreams,” chronicles the brief, spectacular rise and fall of dirigibles, or zeppelins, as they were also known, and suggests that while airships would never have been able to compete with airplanes, they might still be around today, but for a twist of history.



By the numbers, the history of airships is concise: From 1900 to 1940, there were 100-200 of them built, mostly in Germany, the United States, and England, but also in Italy. They were rigid structures made from aluminum girders and covered in canvas. Inside, they had individual cells that held the lifting gas, which initially and tragically, was flammable hydrogen. The early airships carried passengers and cargo in a suspended gondola, but later airships grew much ritzier, with accommodations, smoking rooms, balconies, and grand staircases that extended up inside their elongated bodies. They flew low, a few thousand feet above the ground, and their top speed was less than 100 miles per hour.

That made them far faster than traveling by sea or land, and at a time when airplanes were still puddle-jumping, dirigibles could cover huge distances. In 1929 the German-made *Graf Zeppelin* went around the world in just four hops: Lakehurst, New Jersey to

Friedrichshafen, Germany to Tokyo to Los Angeles and back to New Jersey.

Airships were capable of great feats, but they also crashed a lot: In 1930, the British dirigible R101 crashed and burned in France, ending that country's airship program, and in 1933 the premier American airship, the USS Akron, crashed in the waters off New Jersey and brought our airship days to a close, too. And, of course, there's the Hindenburg. In 1937 the now-infamous German airship successfully completed a transatlantic flight from Frankfurt, Germany to Lakehurst, New Jersey, then caught fire in a storm as it was trying to dock, as horrified onlookers watched. (Miraculously, most passengers survived its plunge to earth.) The *Hindenburg* crash dramatized a central flaw in airships: when mixed with oxygen, their hydrogen gas, says Hiam, “[had] the explosive potential of dynamite.”

We think of the *Hindenburg* disaster as the end of airships, but at the time it was seen differently: the Germans took it as a call to innovate. The result was a new design for airships that used helium, which is less buoyant than hydrogen, but completely inert and non-flammable - an idea “that would have ushered in a whole new era of airships,” Hiam says.

Enter the twist of history: At the time (and still, today), the United States owned most of the world's helium. The two countries struck a deal, one that would have led to “German-made airships filled with this nice safe America gas.” But when Nazi Germany annexed Austria in 1938, the United States cancelled the helium agreement. By the time the war ended, the superiority of airplanes had become clear, and there wasn't much interest in rebooting the damaged airship industry.

Without the war to interrupt its development, Hiam is confident things would have played out differently for the dirigible. “German airships would have evolved to meet the changing demand, and would have maintained a niche separate to the airplane,” Hiam says. You wouldn't have flown on an airship when you needed to get somewhere in a hurry, but speed isn't the only thing we look for in travel. It's a striking thought to imagine dirigibles surviving well into the “Mad Men” era, maybe much longer, offering generations of Americans their own chance to float slowly over the Rockies, or the Atlantic, or just enjoy a leisurely cocktail party in the sky. Ω

Ed. notes that review repeats just about every misconception we constantly have to deal with, but we will try to review the new book ourselves in the Spring TNB.



New York Times also reviewed the “Dirigible Dreams” book (above), adding airship comments as well. Ω

AIAA’s Vol. II Fundamentals of Aircraft and Airship Design by L. M. Nicolai and G. E. Carichner
Reviewed by Kate Carter, BEng, CEng, MRAeS, Chief Engineer, Lindstrand Technologies Ltd in the “Aeronautical Journal” (Royal Aeronautical Society)

Volume Two focuses on airship design. It claims to contain everything needed to perform the conceptual design of an airship and that the reader should not have to go outside the text for additional information. It is aimed at upper-level undergraduate and graduate students, and practicing engineers. The book is in two parts, the first part, approximately half of the book, detailing airship design and the second containing nine air vehicle case studies.

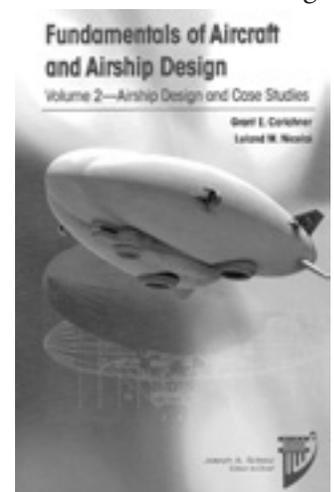
The book starts with a brief history of the airship and its design considerations before moving into more detailed design aspects with chapters covering aerostatics, aerodynamics, performance, propulsion, preliminary weight estimates, initial tail sizing, structures and materials, subsystems and weights and stability and control. There are then three chapters aimed at bringing this information together: one on conventional airships, one on hybrid airships and one, that seems out of place given the topic, on balloon design. The case studies cover aircraft from non-powered through to hyper-sonic and both military and civilian. However, there is only one airship case study and that is on hybrid aircraft technology.

The book is very good at explaining the differences between conventional aircraft and airship design and is therefore a good starting point for the aircraft engineer looking to branch out into airships. Disappointingly the formulae in the book are limited to English/USCS rather than Metric SI units and some chapters flick between

discussions on hybrid and conventional airships with high altitude airships also thrown into the mix. Therefore, at times, there is considerable scope for error and confusion, especially given the target audience. It would also benefit from an abbreviation and notation section.

The book is heavily biased towards hybrid air vehicles, so much so that the benefits of conventional airships, such as comparatively low cost, short timescale, uncomplicated design, long endurance and range, are almost completely ignored. It is almost entirely focused on the airship as a vehicle for transporting heavy loads from A to B and fails to really address the design considerations for other potential uses such as ISR and telecoms where smaller conventional airships can offer a viable and potentially much better alternative. Consequently, this book runs the risk of turning potential interest in airships away by suggesting that the only real future for airships is the hybrid air vehicle a promising but currently unproven technology that is out of reach of most potential customers.

Those more experienced at airship design will also find some of the chapters contain overly long descriptions of some elements while other details and design considerations are missed out. The case studies, while a well written and interesting addition with good learning points, don't fit well with this volume and would have been better placed at the end of volume one. This would also have enabled valuable airship case studies to be included allowing readers to learn from the mistakes and triumphs of the past.



Despite the criticisms, overall this is a valiant effort to bring together every aspect of conceptual airship design. It takes the reader through the design process in logical and clearly laid out steps using plenty of examples to consolidate learning. A reference section at the end of each chapter provides ample further reading for those interested in taking their knowledge further. This volume is certainly a worthwhile addition to any aspiring airship designer's library. Ω

BLACK BLIMP

John H. Robson, 83, passed on May 28, 2014. Born May 9, 1931, in New Jersey, John graduated from Roberts Wesleyan College in 1953. Entering The United States Navy, John was assigned to ZP-1 in Weeksville, North Carolina, for two years.



He retired from the Reserves as a Captain in 1983. John is survived by his wife of 58 years, Esther; three sons, and two daughters. Ω



Robert Joseph Baradel, 92, passed September 7, 2014. At the completion of his schooling in Brooklyn, he became a student at Duke University. Following the attack on Pearl Harbor, he enlisted in the United States Navy. For four years he served as crew chief of the Hedron Blimp Airship

Squadrons 41 and 42. He was honorably discharged and returned to Duke University from which he graduated in 1948. He retired from Rheem Mfg. Co. in 1985 after more than 27 years with the container division. Bob is survived by a niece and two nephews. Ω



Larry Gallagher, 79, passed on October 20, 2014. Ω

Wayne Keith Culbertson, 95, passed on September 24, 2014. Ω

Larry John M. Warden, 91, retired Navy Lieutenant, passed on May 4, 2014. Ω

LIGHTER SIDE

Since the snows came, all the wife has done is look through the window.

If it gets any worse, I'll have to let her in. ☺

British WWII Researcher Returns To Myanmar To Search For Spitfires. BBC News reported that British researcher David Cundall has initiated another mission in Myanmar to search for Spitfire aircraft that may have been buried there at the end of World War II. The article noted that Cundall's search for the aircraft has persisted on and off for over 17 years and that previous excavations were abandoned due to unsuccessful findings. One historian added skepticism to Cundall's theory, wondering, "Why were they buried when they were still worth a lot of money? They were still operational aircraft, so why would a country bury them?" Ed.'s research uncovers the REAL

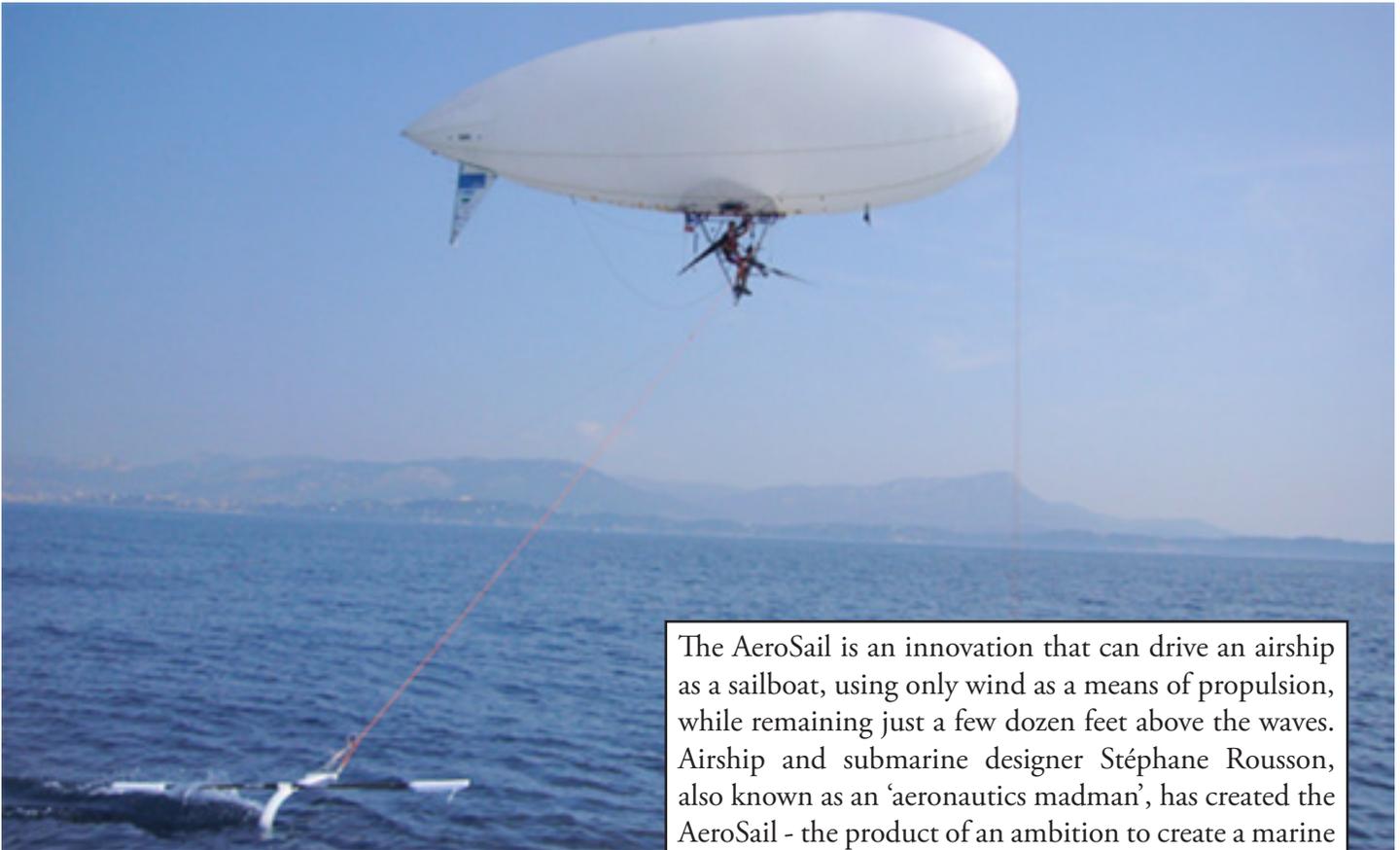


reason for that expedition: During WWII, the Heneger and Constable brewery donated free beer to the troops. After D-Day, there was no room in the logistics chain for such luxuries as beer. It was discovered that the Spitfire Mk IX pylons could be modified to carry beer kegs. The Spitfire had very little ground clearance with the larger beer kegs. Whether the kegs could be jettisoned in case of emergency is unknown. If the Spitfire flew high enough, the cold air at altitude would even refresh the beer, making it ready for consumption upon arrival. These Spitfires were often sent back to Great Britain for maintenance or liaison duties. They would then return to Normandy with full beer kegs fitted under the wings. Pilots hated the beer runs as every man on the squadron would be watching upon arrival. Anyone who made a rough landing and dropped the tanks would be the most hated man on the squadron for an entire week. The British Revenue of Ministry and Excise



stepped in, notifying the brewery that they were in violation of the law by exporting beer without paying the relevant taxes. Various squadrons found different ways to refurbish their stocks,

most often done with the unofficial approval of higher echelons. A variation was a long-range fuel tank modified to carry beer instead of fuel. The modification even received the official designation Mod. XXX. ☺



The AeroSail is an innovation that can drive an airship as a sailboat, using only wind as a means of propulsion, while remaining just a few dozen feet above the waves. Airship and submarine designer Stéphane Rousson, also known as an 'aeronautics madman', has created the AeroSail - the product of an ambition to create a marine vehicle that is innovative, clean, quiet and efficient thanks to a new technology path.

In the second week of December 2014, ISSI who was the contract operator for the MZ-3A airship for the U.S. Navy shown below, announced it was ceasing operations of the airship and left it unattended (no pressure watch) in Hangar #1 at Lakehurst. Stay tuned for future disposition.



Aeros 40D dedication, see story on page 11.

