THE NOON BALLOON

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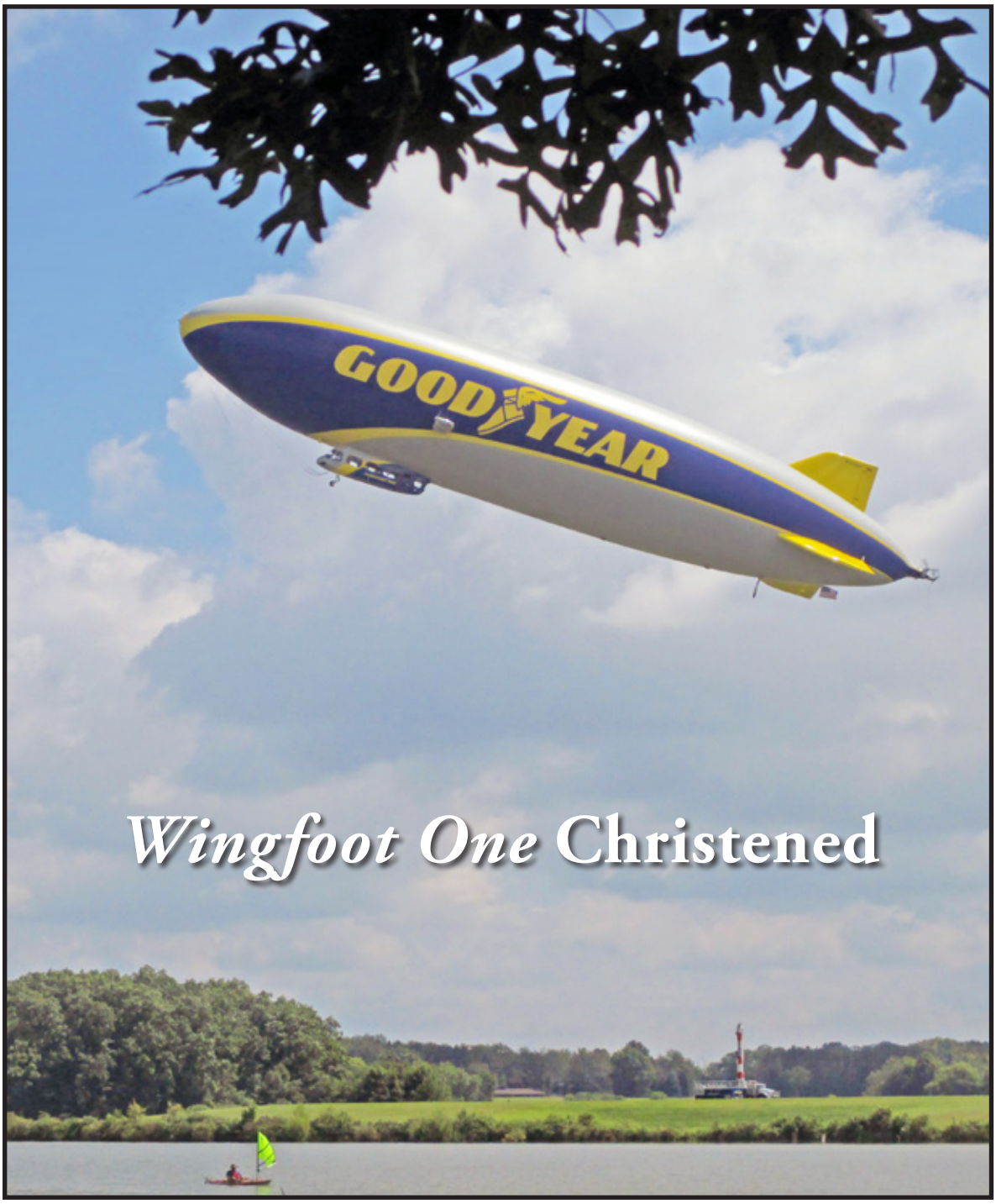

Wingfoot One Christened

(Eric Brothers Photo)

Goodyear CEO Richard Kramer looks on as Good Morning America's host Robin Roberts breaks a bottle of champagne on the car of *Wingfoot One*. (Goodyear Photo)

A crowd of 2000 invited guests and the public gather around the Goodyear NT 07-101 to watch the ceremony prior to the christening of the *Wingfoot One* at Wingfoot Lake on Saturday August 23, 2014. (Alvaro Bellon Photo)

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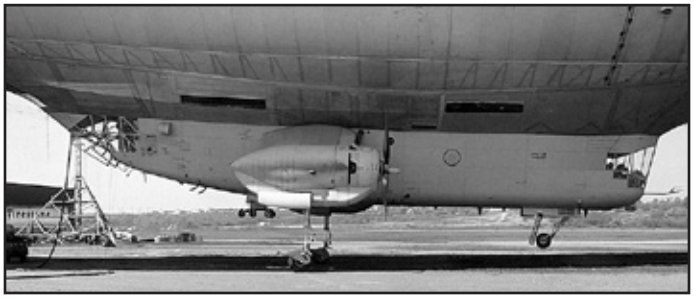
ISSUE #103 FALL 2014

"When everything seems to be going against you, remember that an airplane takes off AGAINST the wind, not WITH it!" ☺

On the Cover: First christening of a Goodyear-Zeppelin airship since 1933. (Eric Brothers Photo)



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EDITORIAL

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Shortly after I was aware we had a new member named **Hal Pelta**, I began to receive a series of e-mails and post office packages in which Hal proposed an "Airships to the Atlantic" conference similar to the symposiums held for the Arctic and Alaska in recent years. Hal, seen here in his Coast Guard Reserve days, wrote and continuously updated his proposal to involve learning institutions and agencies which could have lent a hand in the effort. The goal, to bring potential airship users and airship technologists together in sunny Florida during a harsh winter up north, seems logical. Sadly, Hal Pelta passed away last May (see Black Blimp) without ever seeing concrete steps worthy of the mega-effort expended on the concept.

I first called attention to Hal's concept needing a ally on this page in last winter's issue, lamenting the fact I was not qualified or equipped to be Hal's successor. (As readers know, I have undertaken an effort to produce a major motion picture starring the airplane-carrying rigid airship that could have been part of the early WWII effort in the Pacific.) Now into my third year of building a carbon-fiber kit airplane to play the role of the airship's fighter, I nonetheless put out some feelers to Jack Hunt's legacy school in nearby Daytona Beach, Embry-Riddle Aeronautical University. (Hunt's namesake library there keeps NOON BALLOON on file for students.) While we hope for a development there, if one of our members steps forward to take charge of this project, Hal's dream of promoting airship employment in the South won't die with him. He had selected the material for his last "Practical Airship" column in this issue, but we will continue to draw from the excellent stock of LTA-related material he sent in during his tragically short activist membership.

We apologize for Summer TNB's late arrival, a perfect storm of Reunion at deadline and launching the first new G-Z airship since 1933. Add to that the always-variable mail delivery of the winter issue thrown askew over the holidays, and it must appear we have little regard for deadlines. Yet most will agree the intense effort by our publisher to add a special section was worth the wait. Rest assured your volunteer team struggles to put out a quality magazine on a fixed schedule and will continue to do so as long as our membership supports this vital if somewhat traditional paper medium.

Of course the magazine is only as good as what is between the covers, so let's continue to have members submit these excellent articles so as to keep the quality mix of experience and new ideas. Even as just a reader, you can help with your feedback... if you like an article, let the author know. When someone is looking for information or asking for a "reality check" on a concept, let your voice be heard.

Several members attended the annual Oshkosh Air Venture this past July, though unlike previous years, no airship was in attendance. The Experimental Aircraft Association (EAA) has a very nice museum and facility there, and although its primary focus is obviously not

LTA, it nonetheless displays a few authentic artifacts. I was pleasantly surprised to see a window from the Italian record-breaker *Norge* recovered from her disassembly point in Teller, Alaska, where she'd landed after crossing the top of the world back in 1926. Nearly 90 years later, we are still waiting for the buoyant solution to be applied to the Arctic problem. So, it's fitting we run Hal Pelta's first posthumous column devoted to that subject. Enjoy.

– Richard G. Van Treuren

View From The Top: PRESIDENT'S MESSAGE

Since the Newport Reunion/Conference it has been a nice summer with delightful weather, at least here in the Boston area. We have an Executive Council meeting scheduled for October 3 at the Edgewater, Florida, home of Richard and Debbie Van Treuren. High on our list of priorities are 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.

Also to be discussed is planning for the next Reunion Conference. As the title notes, we want to have more member-involved activities, including presentations (like Roy Manstan's well-received presentation on the development of the B-type dirigible's towed underwater array for ASW), round table discussions on LTA developments and history, reports from the field (like those presented by Bill Wissel and Anthony Atwood at Newport) and similar activities of interest to our members and LTA enthusiasts. We receive ads for a variety of venues wanting to host our Reunion/ Conference. It is becoming difficult to find convenient locations that are also important to Navy LTA history and where any trace of that history still exists. At the Executive Council meeting we will be discussing possible locations for the next Reunion/Conference. We try to alternate between roughly east and west venues to make the event convenient to our members. We welcome any member suggestions on selecting a location.

As I mentioned in the previous edition, Richard and I are still exploring involvement in a proposed LTA conference to be held in FL in early 2016. We are in preliminary discussions with a leading aeronautical university about hosting an international 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 will keep you informed as this develops.

In conclusion and to repeat myself, I, as well as the entire Executive Council, believe we have a rich and productive future. Not only do we serve you, but ask you to join with us in any way you can to promote the Naval Airship Association. It's your organization, get involved. We are always looking for new people to help us grow our organization. We welcome any volunteers; ideas; contributions of memorabilia, photos, oral histories, money, etc. We are not asking for a lot of your time. Computers are a great way to communicate and contribute articles, history and photos. I hear from people all the time about The Noon Balloon and what a high-quality and valuable publication it is. Make a contribution of a story or photo, large or small, share your history. It helps attract new members and expose others to our rich heritage. It may also connect you to long lost shipmates or people with similar stories. David and Richard do outstanding work in preparing and printing our magazine. It is truly world-class. No other organization can come close.

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 can not let the history and contributions of those Navy LTA veterans, like you, disappear.

– Fred Morin, President

TREASURER'S STRONGBOX

Welcome to all our new members and long time members! As you know, we have a change in the officer roster. I hope I can live up to my predecessor's excellent job.

We have changed a few things to make the office a little more accommodating:

Setting up a new bank account that allows long distance banking with a nationwide network. This will make it easier for our Small Stores Manager to deposit funds when they come in rather than shipping checks here, there, and everywhere. So far this change has made it very convenient for Donna Forand, our Small Stores Manager, to carry out her duties.

We have also changed the signatories on our accounts so that our current President can sign checks when the need arises. This allows some oversight and a second signatory. We have been limping along with a very past president as the second signatory. This was against our by-laws and has been corrected.

I have also reset our Paypal Account. It has a generic address that will allow a seamless transition to the next treasurer, in the future. We can accept memberships through the website and at some point in the future I would like to add a shopping cart for Small Stores to the website. This is a long way off, but it's doable.

The fourth item that has been instituted is additional bookkeeping software that allows us to track Small Stores-inventory in and inventory out, a truer cost picture so we know where funds are coming in and where we spend our cash. So far, this improvement has been met with approval.

As the new systems are used to track things, I am learning more about the capabilities available through the software. We now have a cleaner picture of our balance sheet.

– Deborah Van Treuren Secretary/Treasurer

PIGEON COTE

In response to a Canadian military request for review of a LTA program concept, **Al Robbins** wrote, "We're discussing developing an industry, which could be a true game-changer, but tooling up to produce a few airships, depending on long-range government funding is beyond difficult. It will be resisted at every turn... Keep aviators as far from the program as possible. Any indication of support for LTA has been a career-killer for military airmen (in peace and in war) since the USS *Macon* went down at sea. Same with regulators - which didn't exist yet when rigid airships were still flying. Regulators must be identified and educated; they must be taught the difference between airplanes and airships... Start small. We went from Breadboard, to Brass Board, to Pre-production, to Limited Production, to Full production. I'd recommend starting with a (used) Commercial airship. Unfortunately you're going to need pilots. I'd recommend a recently graduated test pilot, a helicopter specialist - primarily because he is familiar with flying low and slow and has a modicum of wind-sense. Missing ingredients - pure VTOL capability, either land on water or cushions (bags)... Eliminate helium dependency (The USS *Los Angeles* made one trip across the Atlantic. After the hydrogen was replaced by helium it couldn't have flown back, even with a favorable tail-wind.)... Use gaseous fuel, preferably methane (natural gas) Cheap, readily available, doesn't freeze and doesn't surge. At sea-level ambient a thousand cubic feet of natural gas is the energy equivalent of eight gallons of gasoline, plus providing nearly 30 pounds of lift. A 10,000 foot bag inside an A60+ would permit removing multiple tanks and 80 gallons of gasoline from the gondola. Perhaps one of your energy companies would be interested in funding a project to develop a new engine installation for an airship. Consider a joint venture. (Preferably include at least one of the First Nations, a province and a manufacturer.) Although the Navy's primary airship mission was maritime patrol and anti-submarine warfare, we weren't permitted to participate in developing the large active and directional sonobuoys... Develop a broad spectrum of supporters (academia, manufacturers, other government agencies, the First Nations, Insurance Agents, at least one maritime operator, NATO Allies, etc.)... **Ω**

James Sparvero wrote **Fred Morin**, "I am the nephew of Walter P. Ozesky, who was killed in the crash of the K-14 on July 2nd 1944. I was born in 1950 so I never had the pleasure of knowing my uncle Walter. My family never really talked about his death when I was a young boy, I suppose it was just to difficult to cope with him being killed. So the details were never known to me.

The town where Walter Ozesky came from has a banner program honoring the local veterans. It shows their picture, the branch of service they served in and they hang on the utility poles on the major roads throughout the community. It is a great sight to see all the men and women who proudly served being honored this way. So I wanted to honor my uncle Walter with a banner which prompted my research on how he died in WW2. That is how I came upon the Naval Airship Association's newsletter No. 74 summer of 2007. On page 27 "What Happened To The K-14" there is a picture of my uncle Walter from the National Archives. I felt so gratified in seeing him and reading what happened to those brave men of the K-14. I don't think his family ever knew this story. My mother, Walter's sister, never mentioned it and I believe she would have talked about this at some point in my life.

I just wanted to thank you and everyone who have tried to correct the K-14 score in WW2. Should the cause of the loss of the K-14 ever be determined to be enemy action, the members of the crew would be eligible to be posthumously awarded Purple Hearts for having been wounded or killed in combat. Thank You again for helping me find the truth of my Uncle Walter's death. And if anything should change please let me know..." **Ω**

Don Kaiser e-mailed **Fred Morin**, "After I saw this interesting story [attached newspaper], I realized that making your case about what really happened with the K-14 up there in Maine might hinge, at least in part, on demonstrating that the Navy had a history of misrepresenting the facts in their 'official' reports about airship losses. The loss of the K-111 seems to be one good example. I'm sure there were others. Keeping an accurate scorecard on the Navy's lies would certainly lend credence to the possibility that their official report about the K-14 was also wrong. Unfortunately, we may never know the real truth about K-14 if the survivors (are there any still living?) won't talk like the last K-111 survivor apparently did. Bill Chambers contacted me through my ZP-33 website and provided some nice photos from his dad Robert Chambers, a flight engineer who was replaced by two unlucky crewmen on the fatal flights of K-111 and K-51. **Ω**

Al Robbins added, "That's why Navy Regulations (before the Uniform Code of Military Justice) were known as "Rocks and Shoals"; Guilty until proven innocent. Curious because in this case the pilots did not survive the night. According to Navy lore, an accident is always the pilot's fault, unless: a. He survives, and b. He's able to prove that he was not the cause of the accident. **Ω**

MYSTERIOUS ISLAND

Catalina's facts, folklore and fibs

This week: The Wreck of K-111

From: The Catalina Islander, August 5, 2011

BY JIM WATSON

From the dusty, formerly Top Secret files of Catalina's "wartime mysteries" comes one of the more tragic events to occur on the Island, along with the mystery that still surrounds it.

As is often the case with military operations gone wrong, official versions can curiously differ from the eyewitness accounts of those who found themselves unfortunate participants.

Such was the case with the wreck of U.S. Navy airship K-111 in 1944; an event which claimed the lives of seven Navy airmen and remains to this day the worst aviation disaster in Catalina's history.

For most Islander's living on the Island during the Second World War, the war years were at once both dark and yet at the same time filled with a spirit of camaraderie and shared sacrifice.

Within weeks of the attack on Pearl Harbor, tourism to the Island was cut off completely, leaving most residents to fend for themselves and to quite literally live off the land.

Others, including those who joined

The original memorial wallet for the crew members of U.S. Navy airship K-111, which crashed into the hills above Avalon in October of 1944 killing a total of seven crewmen. An interview in the 1990s with one of the survivors tells a different story of the crash than the official Navy version. Photo courtesy Catalina Island Museum

This week: The Wreck of K-111

the military, simply had to leave their island home and hope they could return one day when the lights went on again all over the world.

Japanese submarines patrolled the waters around the Island and had some success in sinking or disabling a number of U.S. merchant ships in the area. With most of the U.S. fighter planes needed in the battle arenas of Europe and the Pacific, the Navy had employed the use of dirigible airships, or blimps, to unceasingly patrol the waters of the west coast as far south as Scammon's Lagoon in Baja California.

Jim Watson
Columnist

On the evening of Oct. 17, 1944, airship K-111 was on routine patrol in search of enemy submarines. Due to a navigation error, the blimp found itself passing directly over a blacked-out Avalon at an altitude of under 1,500 feet.

According to the official Navy version, the navigation problem was further aggravated by foggy conditions. The result was the airship's collision with the ground near East Peak and its "immediate explosion," according to the Navy.

But in the early 1990s, then-Catalina Island Museum curator Patricia Moore conducted an interview with the last survivor of the crash, Machinists Mate Ernst Jarke of Nebraska. Jarke had made it a point to make one last pilgrimage to the Island to pay his respects to his fallen shipmates before he himself passed on.

In the interview, which survives on cassette tape in the museum's oral history collection, Jarke recalls that the night was a clear, starry one—not the foggy one in the official Navy report.

Also, according to Jarke, the ship did not explode on impact. In fact, the airship came to a slow, screeching halt after first brushing through the trees. The collision was enough to tear off the ship's port engine, but did not cause an immediate explosion as the Navy report asserts.

After the first scrape, the crew jumped safely from the ship's gondola and all reconnoitered at the top of the hill where the disabled ship lay. It was only when they were all milling about the wreck that the fuel tanks exploded. In other words, contrary to the official Navy version, they had all survived the crash, but had the made the fatal mistake of sticking around too long.

Jarke and his shipmates all fled for their lives. Some were killed instantly, including Captain Thomas Ralston who was incinerated before Jarke's eyes.

Although engulfed in flames himself, Jarke managed to escape by running along a goat trail. A number of merchant marines from Avalon raced to the scene and loaded the survivors—including Jarke—into pick-up trucks to be taken to the infirmary in Avalon.

Jarke spent the next eight months in the Avalon infirmary recovering from his burns, but by the end of the war he was back flying in the airship service.

He passed away in 2003 at the age of 86—the last survivor of one of Catalina's most tragic episodes.

Photos from Bill Chambers

Ed. wrote VADM Walter Carter, "Wanted to thank you again for speaking to our NAA group [at Reunion], the depth of your airship history research thrilling the assembly. Our artist **Cortney Skinner**, longtime friend of LTA who we hired for the video and book covers, was also tickled to hear his pieces were displayed.

I am enclosing a copy of my book "Airship vs. Submarines" which will help wrap up some of the details of actions you mentioned, as well as others. We hoped to illuminate the surprisingly parallel evolution of the twin technologies. Sadly, even after ten years' research for the book, we are unable to conclude the K-14 case, since our request to de-classify the board's minority opinion have been refused. Only yesterday we heard from a K-14 crewman's nephew thanking us for trying, but the effort sure could use some help retrieving files that should have been public decades ago.

We had a wonderful time in Newport. Mr. John Kennedy's tour of the museum was highlighted by our discovery of an displayed image we'd long sought, and will be useful to our member William Althoff's upcoming post-war LTA study for the Naval Institute.

Somehow we forgot to supply you with a few issues of NOON BALLOON, so a recent sampling is enclosed. If the Library would like to have a complete set, or if there is anything Navy Airships or LTA in which we may be of assistance, please don't hesitate to call on NAA. Sincerely, ..." **Ω**

Pictures (including above, possibly made from slides) were presented for identification, especially with regard to the tail numbering system. Member **Tom Cuthbert** (ZP-2 1950-1953) responded: "I do think those three pictures were taken at Gitmo. The most informative picture shows the ship in the channel. I attach a picture taken of the entire Gitmo base from a distance (maybe from NE). The ocean (Eastern) end of the runway is at the far left, where the guest's picture shows the moored blimp with buildings in the near background. Looking at the mountain in the background of the ship in the channel, it does seem to match the mountain in the lower middle of my attached photo. With no disrespect, I clearly remember those buildings by the blimp mooring site - they were the enlisted mens club, and while on night watch at the moored blimp there was always a big ruckus heard from there!

As far as my LTA service in 1950-1956, the airship lower tail fin numbers usually indicated which squadron/org operated the blimp. For example, ZW was Airship Squadron 1, ZL (phonetic Zebra Love then) was Airship Squadron 2, ZX was The Key West Development Group, and ZT was the Airship training Unit, NZTU. Each Squadron airship had an added number also on the tail unique to each Airship. For instance, I flew ZT-4 home to Momma from Glynco NAF in Brunswick, Georgia, to Chattanooga. I have a picture of ZP2 mascot Blackdog leading the ZL-4 airship on takeoff at Lakehurst.

My LTA logbook only shows particular airships as K-45, for example. I do have a picture of a K-ship flying in Lakehurst in 1950 with K-58 on the lower tail fin, so there were exceptions. My recollections may not be the final word on this subject. **Ω**

The Noble Co. (Ohio) Historical Society contacted member **Eric Brothers** trying to verify if a 3 x 4 ft signal flag it is being offered came from the ZR-1 *Shenandoah* (or maybe from the surface ship of the same name?). It is the flag for "I" (yellow, w/black circle). **Rick Zitarosa** responded, "They used hand signals and blinker light, but only occasionally flew something like an Admirals pennant. Outside of that the *might* have carried a RED CROSS pennant (to signal the need for a Medic on landing) but not the full contents of a "flag bag." Like the "USS *SHENANDOAH*" ashtray that Doug and Theresa had, I am firmly convinced that this was from one of the "surface ships" or is "aftermarket". (Smoking was forbidden on USN rigid airships until a special area was designated on the *LOS ANGELES* around 1931. Lansdowne was a chain smoker and he apparently "snuck a smoke" in-flight on the *SHENANDOAH* and it is known that the engine cars were an "unofficial" place to do so, as well as the propane-fired galley compartment)." **Ω**

In reply to invitation to comment regarding *Sackgasse am Himmel* translated as "(Helium Does Not Solve the Problem)"(?) by H. G. Knausel in TNB #101, **CP Hall** wrote, "I am familiar with Mr. Knausel's "ZEPPELIN AND THE UNITED STATES OF AMERICA" and have even had occasion to cite it on a related topic. As that work was published in 1976, I wonder how old the quotation in question is actually? Regardless, I must disagree with several points made in this essay.

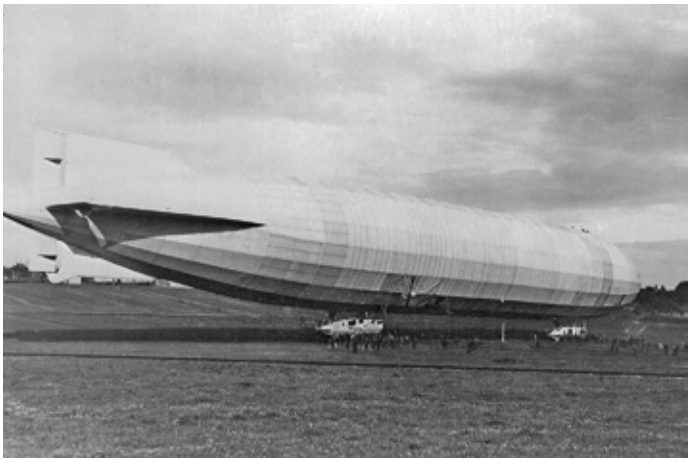
The comparison of post-WW1 rigid airships is a project that defies the most detail-oriented examiner. It is not just that the Germans cite kilograms and tons (metric ton = 1000 kg. or 2200 lbs), while the British cite tons (long ton = 2240 lbs.), while the Americans cite lbs. and tons (short ton = 2000lbs.). Nor is it that the Germans measure fuel in liters or tons while the Americans cite real gallons and the British measure in "tons" or Imperial gallons. The problem is that every country's rigid airships are designed for a unique task with a unique set of related specifications related to mission, strength, gas capacity, engines, and fuel. How does one compare LZ-127 *Graf Zeppelin* to *Hindenburg* to *Macon* when the *Graf* was designed to make ambiguous lengthy demonstration flights with minimal passengers while *Hindenburg* was specifically designed to carry 50 [then 70 in 1937] passengers over specific route, while *Macon* was a naval scout and range was the primary criteria?

A comparison of hydrogen-filled R101 and helium-filled *Macon* is the most viable for though they had different designed missions, both had several design similarities and suffered from comparable strength-of-design criteria. Both suffered from demands for greater strength as a result of previous crashes; R38 and ZR-1 *Shenandoah*. There was no "dematerialization" in order to carry payloads. Both had similar bow mooring gear, traditional Zeppelin transverse rings at the bow, and deep, unbraced transverse rings from forward to the aft end of the fin structures. Both pioneered unique girder design as compared to previous Zeppelins. R101 was rather specifically tasked to carry 100 passengers 2500 miles with rather minimal fuel reserves. *Macon* was a naval scout designed to fly at high cruising speed over a total, unrefueled distance of 10,000+ miles. *Macon* was sized with the consideration that it would take a 6,000,000 cubic foot helium ship to equal the performance of a 5,000,000 cubic foot hydrogen ship. Traditional performance comparisons of the usual variety seem un- productive; however, nontraditional comparisons may prove fruitful. R101 was designed with deep rings, no intermediate frames, a small number of strong longitudinals and no keel. Reefing girders, ersatz intermediate longitudinals, were employed in the finished design. *Macon* was designed with deep rings, intermediate frames, three keels, and numerous, light weight longitudinals. R101 is regularly damned for its heavy ("overweight") engine installation while *Macon* is not, even though *Macon's* engine installation was heavier! R.101 has five main engines suspended from deep transverse frames which could contribute to needs for dynamic lift as atmospheric changes occurred while in flight. Its capacity for departure was based upon static lift of contained hydrogen when released from a high mooring mast. SOP was to release when within one ton plus or minus of equilibrium, releasing one ton of ballast to guarantee clearing the mast.

Macon's eight engines were mounted internally at the junction points of main frames and keels. Using a mobile mooring mast and stern beam, *Macon* could be readied for takeoff several tons (say, four tons) 'heavy'. *Macon's* propellers could be swiveled to provide vertical thrust which augmented static lift of its helium. Once in the air, *Macon's* propellers would be swiveled to provide forward motion creating dynamic lift. Brought up to speed, it created enough dynamic lift to take onboard four aircraft weighing another six tons.

Either per cubic foot or cubic meter, helium lifts less than hydrogen, but the question is never as simple as which one is lighter and which one can be ignited? What design and operational changes can be undertaken with helium but seem imprudent when operating with hydrogen becomes the question. Finally, it should be noted that depression era, peace-time restraints affected both operational programs. *Macon* has an actual gas capacity of 6,850,000 cubic feet but was only filled to 6,500,000 cubic feet so that it could rise to operating altitude without valving expensive helium. In time of war, with helium available and operating funds unlimited, maximum lift off load would be on board when necessary and minimal loss of helium accepted as unimportant." **Ω**

Member **Lou Fry** called wondering how many crewmen are left from the K-118 (possibly ZP2K-118) and what was the final disposition of the airship following its running out of fuel short of Glynco. Lou sent along the accident's newspaper report commending the crew. Can anyone help Lou? **Ω**



Roy Schickedanz sent along a photo of the SL-11, (top) subject of his first installment (Historian's Letters) and a tour plan of Germany for the H2-lifted ex-L-19 advertizing airship back in the 1960s, discussed in his segment last issue. **Ω**

Dr. Giles Camplin, Editor of DIRIGIBLE, notified us that "I received a phone call from Baroness Angela Smith of Basildon, who, it turns out, at the behest of her husband - a long time AHT member and R101 admirer - has been quietly campaigning for the installation of a commemorative plaque to be placed in Westminster Hall at the Houses of Parliament for the R101 victims. As you will see from the following message permission for this plaque has now been officially granted. The AHT are keen to support this event and details such as dates etc are under now discussion." **Ω**

Noting Ed.'s piece in FOUNDATION about Houma, **"Red" Layton** e-mailed, "Very nice piece. A Houma story (told to me by Max Cawley) – After WWII when Houma had been closed and was in a care-taker status, an Atlantic coastal hurricane forced the evacuation of several airships to Houma. A ground-handling crew was flown over to land the airships and put them in the hangar. The hangar had settled and the doors would not close by the electric motors, so the Officer-in-Charge of the fly-away, Max Cawley, obtained a couple extra tractors plus the one that towed the mooring mast and managed to close the doors. When all was secured, Max telephoned the Wing Commander back at NAS Richmond. Before Max had a chance to report that the mission had been accomplished, the Wing Commander told him "I forgot to tell you not to close the doors because they will probably get stuck and we will not be able to get the airships out of the hangar." Needless to say, this changed what Max was about to say. Final note, they did get the doors open and the airships returned to their base. Max was my CO at ZX-11 in Key West." **Ω**

Michael Pocock, who had been of assistance in the past with our LTA causality list, e-mailed Ed.: "Some time ago you sent me a list of WWII losses with the names of the men killed. On your list you have K-53 listed, but did not have the name of the man killed. For your records, his name was:

Tallman, George L. Coxswain (USNR)

The pilot, Lt (j.g.) Elbert L. Randel and eight others survived, picked up July 9 by USS *Unimak*. I found it by accident while looking for reports about a blimp which picked up survivors from *Esso Harrisburg.*" *Ed asks, "Can anyone help us with the details of this blimp rescue mentioned? It is not in the literature".* **Ω**

Al Robbins paused in his many technical discussions to share a photo of his son, LT Scott Alan Robbins, with his lovely wife Valerie, during a recent change of command ceremony at the Navy Armory on White River. Al says, "I swore my son

in as a Doctor in the Reserves three years ago. They met after I swore him in, they married a few months before he deployed to Afghanistan. He earned most of his medals during a year tour in Afghanistan. He can't use my faded LT shoulder board, but is wearing my old cap device and he borrowed my sword for the ceremony (Luckily we're about the same height), and brought it back clean. I'd warned him that as Junior Officer present, that they'd use his sword to cut the cake." Al went on, "We've lost a large number of our World War II shipmates, as well as many of those that joined LTA after the war, since our last reunion. I'd like to extend a plea to the members to assist in identifying those few remaining that actually operated and supported the Navy blimp efforts during the 40s and 50s. We've added a number of personal reports, to the website. We've finally gotten one describing the problems of removing and replacing an engine in the ZPG-2. Haven't yet seen one from a Top-man, any one of those brave individuals that stood at the top of the mast and actually completed the connection between ship and mast. Does anyone have a lead?

Now that we actually have a massive data storage complex, in the Internet, it would behoove us to gather and retain as much living history as possible regarding this small segment of Navy history. Let's establish an outreach program, while we still have shipmates to reach. For info, virtually all production blimps and rigid airships, were assumed to be cylindrical: Blimps with a length to beam ratio between 3 and 5; Rigid airships with a L/B ratio between 6 and 8. I've attached a graph to assist in visualizing the frontal area of real military airships. It's worth noting that existing commercial airships do not approach dimensions (volume, height, length, or cross-sectional area) of even the WWII era K-ship. We virtually ignored the Italian's semi-rigids. If you can only afford to build one ship a year, you need to keep your only supplier in business.

I was the youngest officer in lighter-than-air when the Navy decommissioned the last remaining squadrons. I'm an old man now, and extremely pessimistic regarding the future of Military LTA, partially because we have learned the wrong lessons, and have accepted the terms and conditions imposed by the far more influential heavier-than-air community. **Ω**

Mark Lutz e-mailed, "Found this: http://www.vintagewings.ca/VintageNews/Stories/tabid/116/articleType/ArticleView/articleId/33/language/en-CA/Magnificent-Moments.aspx

This source has many photos of airplane crash landings on the Canadian Aircraft Carrier HMCS *Magnificent*. The 1952 Canadian Carrier Aircraft (propeller driven) was the British Hawker Sea Fury. Of 75 in the Royal Canadian Navy, 24 were destroyed in "crashes, ditchings, and fires," while many more were damaged and repaired. It includes photos taken by Commander E.A. Fallen of a K-ship landing on *Magnificent* in the Caribbean in 1952. Lots of interest in the K-ship from the Canadian crew. **Ω**

Can anyone help with details of this mission, which is not covered in the literature? - Ed.

NAA Past President **John Fahey** wrote current Pres. **Fred Morin**, "To improve NAA membership, I can offer just a few suggestions based on my NAA presidency about almost 20 years ago. I added a large number of NAA members living in Virginia Beach and Tidewater area of Virginia through several initiatives which at the time I recommended to NAA members living in other areas.

1. The new Virginia members were attracted by viewing on national TV affiliate stations and Cox cable. The NAA made video on Navy rigid airships.
2. Some were able to take advantage of the arrangement to have a ride in an airship as a result of the arrangement I had with The Lighthouse Group which allowed any NAA member to ride on a brief flight when a Lighthouse airship visited a city. Norfolk, Virginia, was visited several times during this period.
3. I wrote several featured articles on Navy airships and airship history in the local newspapers.
4. I gave lectures on Navy airships to civic organizations and often promoted NAA membership. Many joined and kept their membership with added interest provided by The Noon Balloon.

Holding a reunion in an area closely associated with airship history was important. I tried, but failed to convince my board to accept Virginia Beach which is located only a short distance from Weeksville, NC, home to a lighter-than-air activity at that time. The board selected Akron which didn't disappoint me because we joined The Lighter-than-Air Society in a joint reunion. Before I had joined NAA, I was a member of the Society, wrote articles for its publication, and did considerable research for its editor, Dr. Topping, translating Russian language letters and documents sent to him from airship scientists in the Soviet Union. I even travelled to the Soviet Union and personally contacted the top lighter-than-air Russian experts for him.

At the Akron reunion I distributed over 75 tapes of the rigid airship videos at no cost to NAA members who assured me that they would show them on local TV and in schools in their cities or counties. The rigid program was sponsored financially in part by some new Virginia Beach NAA members who never earlier had any contact with us or airships.

Also an arrangement was made for the appearance of a Lighthouse Group airship at the reunion to gives rides to the members. About 40 to 50 or so NAA members won rides by a raffle. I was lucky to win two rides which I gave to a former Lakehurst aviation fellow cadet who was with his daughter and were disappointed at not winning a ride.

There is still an opportunity for NAA to have a video made on non-rigid airships and another on balloons. Two 1995-1997 board members agreed to make the videos on these two subjects, but failed to do so. I wanted to make my video on non-rigids, but was outvoted and assigned rigids. Balloons also would be fascinating with ADM Settle's feats and others. I checked Who's Who in Ballooning and found Gordon Vaeth, Settle, and me covered because of our Navy experiences and I'm sure there must be other NAA members in the publication. **Ω**

Ed. notes John and other members will be delighted to learn NAA Small Stores now offers a variety of DVDs on Navy LTA, thanks to the efforts of Past president Herm Spahr, Publisher Dave Smith, and other current officers to produce them. Ed. even made a no-frills version of "The Blimp Goes To War... Again" a Small Stores item. You can support NAA and LTA both by purchasing a few and passing them around to local libraries and schools.

Tom Doll sent along photos of Bill Reily (See Black Blimp; Bill is seen there in 1969 as the Leading Chief of the Naval Reserve Intelligence Division 11-1 in Los Angeles, CA), writing "Bill was a dear close friend of mine from over 50 years ago and I appreciate your mentioning him in your publication. Could you send me a copy of your publication when the time comes? Another photo of Bill in the rear seat of a Vought O3U-1 over the Grand Canyon and at NAS Norfolk, VA, in 1935." **Ω**

Nancy Sheppard e-mailed NAA officers, "I am a historian of Hampton Roads, VA. For the past two years, I have been researching for a book that I intend to write about the Army Air Corps' dirigible, *ROMA* (Usuelli T-34), which crashed in Norfolk, VA on 21 February 1922, killing 34 of the 45 men on board. With my book, my intentions are to bring back to light this forgotten tragedy and to honor the men who were on board the ship. I understand that your organization specializes in Naval vessels. I have a soft spot in my heart for Naval history as my dad is retired from the U.S. Navy and my husband is currently serving active duty, also in the U.S. Navy. There are some pieces of naval history involved with the Roma and I currently have a request in with the Naval Heritage Command.

While scouring Google, I came across your Spring 2010 newsletter in which Col. Walter Jay Reed, Jr. was interviewed regarding his father, BRIG GEN Walter J. Reed, Sr., who was a survivor of the Roma disaster (when he was the rank of Captain). After the disaster, BRIG GEN Reed went on to advise on the construction of Naval lighter-than-air vessels in at Lakehurst (NJ).

I know I'm asking a lot, but I was wondering if you might have any contact information for Col. Walter Reed, Jr. He would be about 82 years old now. I also would like to know if you have any information regarding the Roma, the Navy's inquiry into the disaster (as I've read that there was one as the disaster threatened the Navy's lighter-than-air program and, successfully, the usage of hydrogen), the men that were on board (I've added a manifest below) and just a generalized history of the lighter-than-air program for the military. Also, if you have contact information for any person or organization that you think might be able to aid in my research, I would be incredibly appreciative. Thank you so much for your time and I look forward to hearing from you soon!

DEAD

MJR John G. Thornell
MJR Walter Bautemeier
CAPT Dale L. Mabry
CAPT Frederick H. Durrschmidt
CAPT George D. Watts
CAPT Allan P. McFarland
LT John P. Hall
LT Wallace C. Cummings
LT William E. Riley
LT Clifford E. Smythe
LT Ambrose Victor Clinton
LT Harold K. Hine
SGT Roger C. McNally
SGT James Murray
SGT Homer Gorby
SGT Lee M. Harris
SGT Louis Hilliard
SGT Marion Jethro Beall
SGT Edward M. Schumaker
SGT James M. Holmes
SGT William J. Ryan
SGT Virgil Hoffman
SGT Thomas A. Yarborough
CPL Gus Kingston
PVT Marion Hill
PVT Theron M. Blakely
PVT John E. Thompson
Walter W. Stryker (Civilian, McCook Air Field)
Robert J. Hanson (Civilian, McCook Air Field)
William O'Loughlin (Civilian, McCook Air Field)
Cressie R. Merriman (Civilian, McCook Air Field)
Charles Schullenberger (Civilian, McCook Air Field)

SURVIVORS

CAPT Walter Jay Reed
MJR John D. Reardon
LT Clarence A. Welch
LT Byron T. Burt
SGT Harry Chapman
SGT Joseph M. Biedenbach
SGT Alberto Flores
SGT Vernon Peek
Walter McNair (Civilian, Bureau of Standards)
Charles W. Dworack (Civilian, McCook Air Field)
Roy Hurley (Civilian, McCook Air Field)

Nancy was invited to join NAA as **Al Robbins** offered, "See James Shock's U.S. ARMY AIRSHIPS 1908-1942, ISBN 0-9639743-9-4. I think you'll want to get a copy of your own. The book only devotes a few pages to the Army's two semi-rigid Airships (Chapter 6, pp 65-80). But it covers the Army's involvement with lighter-than-air from its re-awakened interest after WW I, until 1936 when it turned over its last assets to the Navy. The book includes several important items, particularly short descriptions of every airship, with photos, known to have been used by the Army, information on the various Army research, training, and operational sites, capsule biographies on every Army officer qualified in LTA, plus several extensive Appendices and a Bibliography with Reference Sources listed for each Chapter." *No response from her to date - Ed.* **Ω**

The Grounding of the 5-K Airship BuNo 137487

By Lynwood May

The following description is accurate to the best of my recollection. On February 16, 1959, I was expecting a 0700 take off [from Glynco] for Lakehurst, New Jersey. Upon arrival to the ZS2G-1 ["5K"] airship, I was told that there were some maintenance problems and that we would be delayed. Luther Ahrents was the aircraft commander, Bert Cather and I were the two pilots. The crew members were Leon Moore, Rigger, Roy Lyons, Radio operator, Frank Day, Engineer, and Anderson Howard, sonar operator. I had never flown with this crew before, and a couple others had not either. This airship had been one of the first from our squadron (ZP-2) scheduled to be dismantled at Lakehurst. It had many maintenance problems but by 1800 it was declared airworthy.

I made the take off and soon discovered that the auto pilot would not maintain the set altitude. The servo system was working properly and by manually adjusting this dial I could maintain our preferred altitude. After four hours of constantly adjusting the attitude of the

ship to maintain an altitude of about 1,250 feet I was relieved at the controls by Bert, and I took a nap.

I awakened after about three hours and was trying to get oriented by opening the curtain to the pilot's compartment and looking out. At that moment Day, who was in the right seat asked me what altitude I had been flying on my watch. I told him 1,250 feet and I looked at the altimeter which read 200 feet.

It was at that instant that we impacted the tree tops. Our flight path is visible in the photo (left).

I ducked to my right behind the bulkhead and tried to draw my sheath knife for fear of being trapped by the fabric of the envelope. When I did that I was aware that my left thumb nail was gone and that my wrist was exposed to the fire that ensued from the ruptured fuel tanks. Our engines exhaust or our radar ignited the fuel on impact with the trees.

The next thing that I remember was being unable to stand and I had a lot of pain in my lower back. I heard voices and responded to them. Leon called to me from a large piece of fabric that didn't burn, (the ballonet), which he had crawled onto. I joined him and Roy also joined us. We were able to get up out of the swamp. Soon we heard an engine and voices. Mr. Swanner had brought some of his tobacco farm employees on a trailer behind his tractor to the site. I told them to take Leon and Roy first because I feared that I had serious back injuries. The crew fashioned a litter and carried me to the trailer. Mrs. Swanner heard us fly over her house and saw the fire. She summoned her husband to investigate and called the local airport manager and he

in turn called his wife who was a nurse at the Beaufort County Hospital. I was transferred from the trailer to an ambulance and then to the emergency room at the hospital where Dr. W.C. Piver was waiting for us. The three of us had burns over 25% of our bodies. Leon had compound fractures of his leg and I had a fractured ankle and severe back pain. We were airlifted to Portsmouth Naval Hospital on February 20, 1959. I had no contact with Moore or Lyons until I joined The Naval Airship Association. Leon saw my name and address and contacted me immediately. We had our first face to face meeting at Eureka Springs, Arkansas. I have yet to make contact with Lyons. **Ω**

Ed. notes that nothing has been published covering the 5K as a towed sonar platform. Recently, a 1996 letter from one G.L. Calehuff *was shared:*

TO: Bruce H. Carmichael, Capistrano Beach CA
l thoroughly enjoyed your article in the August Sport Aviation. Published work on low drag bodies is sometimes hard to come by and too many of us still rely on the classic Aerodynamic Drag by Hoemer. l believe that we have crossed paths in the past, especially with your towed sonar reference and the note that you were part of the Goodyear Aircraft organization. I was part of the Ordnance Research Laboratory at Penn State in the early 1950s where l conducted work on underwater ordnance in the laboratory's 48" Garold Thomas Water Tunnel. I was an Associate Professor o Engineering Research and rely boss at the time was Jim Robertson and later George Wislicenus. Prior to this experience l had received degrees in Aeronautical Engineering and Engineering Mechanics from the Pennsylvania State University.

One of our projects was Blimp Towed Sonar in cooperation with Goodyear Aircraft. The sonar gear worked fine until mated with the towing cable which created enormous noise levels at blimp cruising speeds. Part of the noise originated with cavitation near the surface; however, the major noise source was simple Kaman Vortex induced vibration of the tow cable similar to transmission line galloping_ The U. S. Navy's quick fix involved a stainless steel sleeve mated with a hard rubber afterbody slipped over the cable. The fix was worse than the solution as it was fundamentally unstable with the center of pressure forward of the center of gravity for the system. This is when they came to the water tunnel group at Penn State. Between Goodyear and ourselves we came up with a fiberglass reinforced train body containing the signal wiring stabilized by a trailing after body. The system worked fine, it was extremely stable although extremely stiff. We estimated that a 25 foot diameter reel would be required to wind up the cable. (My suggestion, to slow roll the blimp and wind it on the envelope, was not enthusiastically received.) Goodyear came through with a thinner, more flexible construction and the cable assembly could be accommodated on a 10 or 12 foot reel carried inside the car. l didn't mention the number of false starts and failures involved In the program. There were many. Also worthy of mention was the Navy habit of insisting on lab trials in the water tunnel during pleasant weather conditions, followed by sea trials during the cold fall and winter months. I thought I had frozen off my nether parts during this period. The Navy tried to make it up to us by giving some of us time flying either the rudder or elevators on the blimp. While many of us lay claim to power or sailplane experience, I can top most with my blimp time. It was unique, especially when trying to anticipate movement of the big bag.

We achieved success in time for the Navy to retire blimps in favor of helicopters and dunked or throwaway sonar bodies. I still have a soft spot for blimps and powered lighter-than-air. Hot air balloons leave me cold. Certainly of the highlights of this period were the associations with the Goodyear group. They were all real gentlemen and a pleasure to work with. The name of one in particular escapes me ... It may have been "Don"... anyhow he was an antique collector and had a vast repertoire of poems in the Robert Service tradition. I left the university when my family was growing and my wages were not, due to a clash between the President of Penn State and the state legislature. The paper industry accounted for the next 40 years of my professional experience mainly in assignments where my fluid mechanics experience could be usefully applied. Following retirement in 1990, I recycled as a consultant doing exactly what I was doing pre-retirement except for a harder taskmaster, myself.

Regards, Girard Calehuff **Ω**

Hybrid Air Vehicles To Launch Flight Test Campaign For Airlander 10 In 2015

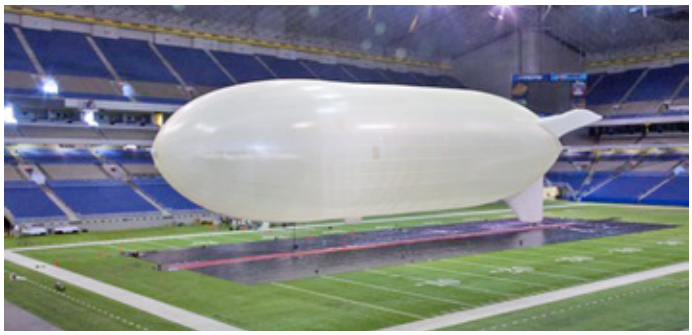
Beth Stevenson of Flightglobal quotes HAV saying it is two years away from the first type certification for the Airlander 10. The company was originally due to fly the aircraft from its base in Bedfordshire in December this year, but encountered a delay in raising the required £5 million ($8.4 million). The equity round was due to be finalized on 15 August. The company admits the pressure to raise equity has been "very eye-opening," after having to push back closing the equity round from its originally slated date in March this year.

The airship was originally developed for the US Army's Long Endurance Multi-intelligence Vehicle (LEMV) program, which was cancelled in 2013. The company bought back the vehicle from the army in October 2013 for $301,000. One consequence of converting a military-developed aircraft into a system that could be commercially developed was that the project fell under US International Traffic in Arms Regulations restrictions. These have now been lifted, HAV says, so developments that arise from the Airlander 10 can now be fed into the Airlander 50 – a larger variant of the current model planned for development. Previously, the two projects were made distinct so the Airlander 50 was not hindered by the restrictions applied to the 10. HAV says Airlander 50 will be a heavy-lift hybrid airship, and is on track to be rolled out in 2018-2019. The aircraft currently in its hangar will remain as a demonstrator, but the second aircraft will be commercially viable.

At press time the online newsletter *Cardington Chronicles* reports the LEMV/Airlander envelope has now been "deflated for inspection." **Ω**

NASA May Issue Centennial Challenge To Develop Stratospheric Airship J.A. Krisch NY Times (excerpt)

High-altitude airships are still in their relative infancy. None has ever flown at 65,000 feet for longer than eight hours. But a recent study from the Keck Institute for Space Studies at Caltech suggests that a more capable airship may not be far-off. And NASA is expected to sponsor a contest to build better airships, breathing new life — and funding — into the idea. "Stratospheric airships could give us spacelike conditions from a spacelike platform, but without the spacelike costs," said Sarah Miller, an astrophysicist at the University of California, Irvine.



The Hi-Sentinel airship being tested in the Alamodome in San Antonio. When it was first successfully tested, in 2005, military interest was high, but it waned after the end of the Iraq war. (SW Research Institute)

To get a better idea of how stratospheric airships might fit into scientific research, Dr. Miller and colleagues prepared a lengthy analysis at the Keck Institute for Space Studies. The paper, published in February, found that conventional space satellites could cost up to 100 times as much as low-altitude, nonstratospheric airships. (There have been too few stratospheric airships to analyze their cost.)

As part of the study, Dr. Miller and her colleagues asked other researchers whether they thought they might benefit from access to a stratospheric airship. To their surprise, they found that climate scientists were just as interested as cosmologists were in developing a low-cost, reusable platform for their research. "Really, there are two very broad scientific applications of stratospheric airships," said Jason Rhodes, an astrophysicist at NASA's Jet Propulsion Laboratory and a co-author of the study. "You can look up and do astronomy, or you can look down and do earth science." **Ω**

SHORT LINES

Environmental Groups To Sue EPA Over Lack Of Action On Aircraft Emissions. The Hill (8/5, Cama) reported that the environmental groups Earthjustice, the Center for Biological Diversity, and Friends of the Earth said Tuesday they plan to file a federal lawsuit against the EPA for "its failure to take action to curb carbon dioxide emissions from aircraft." The coalition said "that a judge ruled in 2010 that the EPA must publish an 'endangerment finding' to declare that carbon from aircraft is dangerous but the agency has yet to do so." They noted that "aviation accounts for about 11 percent of greenhouse gas-causing carbon emissions in the United States, and its emissions grow each year." **Ω**

Some Analysts Expect Airbus, At Best, To Break Even On A380. The New York Times (8/9, Mouawad) reported that while passengers "love" flying on an Airbus A380, Airbus has "struggled" to get airlines to buy the plane "for a number of reasons, some merely cyclical." According to the article, analysts at best expect the company to break even on the plane mainly because passengers "would rather take direct flights on smaller airplanes." The article noted that airlines in the U.S. are especially dubious about the plane, fearing that the A380 would eliminate all the profitability gains they have made in recent years by reintroducing capacity that was cut. *and...* Airbus Warns Airlines On A380 Wing Spar Fatigue. Reuters (3/6, Hepher) reported that Airbus has called for more frequent inspections of the A380's wings following discovery of higher-than-anticipated metal fatigue during a mock-up. **Ω** *and..* Boeing 747 May Have Limited Prospects Past Air Force One Sale. Bloomberg News (6/3, Johnsson, Rothman) reported that currently the "strongest sales prospect" for Boeing's 747-8 is the one to supply the Air Force One fleet. The future of the plane appears "grim" as so far this year there has only been one order, and the production line is only producing 1.5 planes per month. Part of the problem, according to the article, is that the company "outdid itself" with making the 777-9X, able to carry "a jumbo's haul of 407 passengers," as well as a "glut" of other 747 models still on the market. Aviation consultant Robert Mann said that the Air Force One contract, should Boeing win it, could very well be the "swan song" for the program. **Ω**

Engineers Prepare To Subject Composite Tank To Pressure Under Super-Cold Temperatures. The Huntsville (AL) Times (6/2, Roop) "Breaking" blog reported that Marshall Space Flight Center engineers are preparing to subject "one of the largest composite rocket fuel tanks ever built" to compression tests "at super-cold temperatures" later this summer. If the tests are successful, new tanks could be built at "a 25 percent cost savings over today's best metal tanks." The tanks would also be 30% lighter... *and they did:*
Composite Tank Successfully Tested At Launch Pressures. The Huntsville (AL) Times (8/26, Roop) reported that engineers at the Marshall Space Flight Center successfully tested a new composite rocket fuel tank at launch pressures. The lighter material could lead to rocket tanks one day that are lighter "by 30 percent" and cost 25% less than current tanks, which also would reduce the amount of fuel needed for launches... This is the type of technology that can improve competitiveness for the entire U.S. launch industry, not to mention other industries that want to replace heavy metal components with lightweight composites." **Ω**

2015 Hyundai Tucson Fuel Cell: Hydrogen-Powered Motoring for $499 a Month, fuel included. Hyundai America CEO John Krafcik thinks that the cost of recharging electric cars at home is only going to go up as more households adopt the technology. Enter the hydrogen-powered 2015 Hyundai Tucson Fuel Cell.

Hyundai sells the ix35 Fuel Cell in Europe. The Tucson-badged model uses the same in-house-developed fuel-cell stack, lithium-polymer battery, and hydrogen tank capable of carrying 12.3 pounds of the gas as does its Euro-market counterpart. It also delivers the same 134 horsepower and 221 lb-ft of torque by means of the same electric motor. The Tucson Fuel Cell's hydrogen tank and lithium-polymer battery gobble underbody space, so there is less room for passengers and cargo when compared to standard U.S.-spec Tucsons. Tucson will be capable of traveling up to 300 miles between fills, a process that the brand assures us will take less than 10 minutes—once you've found a hydrogen filling station. (There are currently just eight filling stations in metro Los Angeles.) **Ω**

SHORE ESTABLISHMENTS
SANTA ANA-TUSTIN

Grading equipment and bulldozers continue to invade the footprint of the original base as residential and merchant development approach ever closer to the hangars. The "Tustin District" Shopping Center is now within a few hundred yards of the South Hangar. As with most property in rapidly growing Orange County, the land surrounding the blimp hangars at former NAS Tustin has become a sought-after prize. But it now appears that both hangars will be preserved. Although the city of Tustin is currently leasing both hangars from the U.S. Navy, the Navy still maintains jurisdiction over both massive structures.

In late 2013, a portion of roof of the North Hangar collapsed, damaging the World Wide Aeros airship project inside. The Navy has contracted with Kellogg Brown & Root Services to stabilize the roof structure of the hangar by building two free-standing 180 foot tall towers on either side of the hangar. Cables run from these towers to the hangar to support the roof in the damaged area. This project has been completed. The Orange County Parks has future plans for a regional park in the northern part of the former base which includes the North Hangar.

The South Hangar, which will most likely be transferred to the City of Tustin, will undergo a $369,000 structural analysis to determine its stability. Both hangars have been suffering from "deferred maintenance" since the early 1990s.

MOFFETT FIELD

The General Accounting Services has awarded the lease of former NAS Moffett Field to Planetary Ventures LLC. (Planetary Ventures is a wholly-owned subsidiary of Google.) The lease will include all three historic hangars from the LTA base. Planetary Ventures plans to re-skin Hangar 1. They also intend to restore Hangars 2 and 3. One of the challenges in the super-fund clean-up project, is the spread of the toxic plume. Core samples are currently being drilled and monitored to track the spread of the toxic plumes under the hangar concrete slab foundations.

Half of the south door of Hangar 3 is broken. It is currently stuck in the open position after having overrun the doorstop. One of Google's proposed uses of these hangars is for **Project Loon**. Project Loon intends to use a global network of high-altitude balloons to extend internet access to rural and remote areas who have no access. This would mean the return of LTA to the hangars.

– William Wissel

RICHMOND

Miami Military Museum

The primer and paint went on, the front entrance walkway, sod, and sprinkler system went in, and twenty designer trees were planted, essentially completing the exterior (above). On August 7th, United States Senator Marco Rubio hosted a Veterans Outreach at our institution. Forty federal, state, and local agencies offered services from bus passes to scholarships; over 300 veterans participated. The event will recur. Also, this semester begins our first paid internship, awarded to graduating FIU history senior Vanessa M. Cambrelen. Upon completion of the internship in December, the student-intern will be awarded our Certificate of Completion, with their accomplishments noted.

– Anthony Atwood

HOUMA

We dedicated the new building (next to the old one, seen above) on July 4th with a ceremony including some very appropriate remarks from our Lt. Gov. Jay Dardenne. We now have plenty of display room! If any veterans or LTA members have artifacts, pictures, or any other displays, we can now show them.

– C.J. Christ,
Regional Military
Museum

AKRON

The end of August has been a very busy time in Akron. Much progress has been made on the joint NAA and LTAS project to renew signage at the Shenandoah crash sites. Approval has been obtained from the Ohio Department of Transportation to place a new, larger sign at site 2, which is adjacent to the south-bound lane of Interstate 77 in Noble County. The project also includes a new sign at crash site 3, near Sharon, where the bow section of the airship floated to earth.

On August 22, a group representing the NAA and LTAS drove to Ava and met with Theresa Rayner to share developments with the signs and to learn about plans for a 90th anniversary commemoration of the loss of the Shenandoah in September 2015. The group, which included Eric Brothers, Bob Hunter, David Smith, and David and Janet Wertz, next visited the Historic Noble County Jail and Museum in Caldwell, the county seat. There, they met with Judy McMullen, President, and Joy M. Flood, Manager, of the Noble County Historical Society, and were given a tour of the restored 1882 jail and sheriff's residence that displays a variety of local history artifacts. One of the former jail cells has been converted into a Shenandoah exhibit area that features period photographs, pieces of airship structure, and even blankets recovered from the airship. At the conclusion of the meeting, the Noble County Historical Society officers pledged their cooperation for the new sign installation at site 3, which they help to maintain. Plans are for the new signs to be erected in time for the 90th anniversary commemoration.

Also, the same week, we were visited by Jens Schenkenberger, Vice-Chairman of the Association for Zeppelin Airship Aviation Zeppelinheim, the organization that runs the Zeppelin Museum near Frankfurt, Germany. During his visit we discussed the possibility of collaborating in special exhibits our two organizations may develop in the future as well as with material for publication in each organizations news magazines.

August 23 was the christening and ceremonial first flight of Goodyear's new airship, Wingfoot One, a Zeppelin NT built to include Goodyear specifications. The new airship was christened by Robin Roberts, co-anchor of ABC's "Good Morning America" show. She talked about her ties to Akron, including the fact that her great-grandfather moved his family to Akron when he was recruited by Goodyear. During his remarks, Goodyear CEO Richard Kramer talked about the company's lighter-than-air heritage. He mentioned several special guests present, including local dignitaries, Zeppelin's CEO Thomas Brandt, Friedrichshafen's Mayor Andreas Brand who is also President of the Zeppelin Foundation, and NAA's own Walter Bjerre, who flew Navy blimps during World War II and then joined Goodyear to fly their blimps and train new pilots.

This event is covered extensively in this issue of TNB.

– Alvaro Bellon, Eric Brothers

Full photo story follows pgs. 18-19.

A picture-perfect day greeted the 2,000 company guests and Akron-area airship fans for the christening of the new Goodyear "Blimp" *Wingfoot One*. (AIP Photo)

Goodyear provided a carnival-like atmosphere for the public and guests on the north side of its airship base near the water's edge. (AIP Photo)

The Jackson High School band of Massillon, Ohio, provided music for the christening ceremony. (Alvaro Bellon Photo)

US Navy color guard presented the colors for the presentation for the National Anthem. (AIP Photo)

Future pilot Joel Shellhorn, 4, of Canel Fulton, gets a lift on his father's shoulder to get a better view of the christening ceremony. (Akron Beacon Journal Photo.)

A thousand Akron-area airship fans crowded the freshly renovated and updated Wingfoot Lake airship hangar for the *Wingfoot One* christening. The ceremony was also live-streamed world-wide on the Goodyear Blimp web page. (AIP Photo)

Historic label attached to the champagne bottle used to christen *Wingfoot One*. (Goodyear Photo)

NAA member and former US Navy and Goodyear pilot Walter Bjerre was publically introduced by Goodyear's CEO Robert Cramer during the christening ceremony. His family including his granddaughter Lisa Oliver, as seen above, accompanied Walter to the christening. (AIP Photo)

Noon Balloon publisher David Smith (right) discussing historical significance of the day with Zeppelin President Tomas Brandt (left) following the *Wingfoot One* christening. (AIP Photo)

Wingfoot One as it is prepared to be towed by the new mast truck for its christening day flight. (Alvaro Bellon Photo)

"Up Ship" for christening first flight of the day while the assembled crowd watches from the edge of the mooring circle. (Alvaro Bellon Photo)

The FAA required *Wingfoot One*, a Zeppelin model type LZ N07-101, to undergo a complete certification as they considered it a new type of airship. All current and previous built Zeppelin's are model type LZ N07-100s. On August 28, 5 days after Goodyear christened the airship, the FAA approved the national registration number of N1A. Goodyear affixed the N1A registration number to the upper & lower stabilizer-rudders, replacing the German registration of D-LZGY & tri color flag. (AIP Photo)

On September 12, 2014, the *Wingfoot One* made its first appearance at a sporting event when it flew over the Jackson High School football game in Massillon, Ohio to show appreciation for that school sending its band to provide music for the airship's christening.

THE PRACTICAL AIRSHIP

Here's another cogent, compelling reason to develop airships as a viable method of transportation in the Arctic: Companies are eyeing metallic elements used in magnets, batteries, hybrid cars. Soaring world demand for rare earths is spurring expanded exploration in Nunavut and Nunavik, Canada. Surveys show that Forum Uranium's Nutaaq property appears to be rich in rare earth minerals (REM's), which are sought after by industry for use in cars, batteries, and other products.

The presence of rare earths in Nunavut and Nunavik is beginning to draw the attention of mineral exploration companies that see a chance to satisfy the world's hunger for these metallic elements required in everything from cellphones to electric cars. Forum Uranium Corp. announced that it is mobilizing a field crew to its Nutaaq rare earth property, 13 kilometers southeast of the Kiggavik uranium property near Baker Lake, because survey results show promising rare earth deposits there.

The rare earth deposits on Forum's Nutaaq property lie close to the surface, so they could be mined using low cost bulk extraction methods, the company said in a recent news release. Azimut Exploration Inc. reported "excellent results" from its search for rare earths on its Diana property, 40 kilometers northwest of Kuujjuaq. The names of the 17 rare earths, metallic elements, like yttrium, erbium, terbium and dysprosium, which these companies are after, are unfamiliar to most Americans not actively involved in advanced technology development and manufacture. But rare earths, also called REE's or rare earth elements, are commonly used in flat-screen televisions, laptops, iPod earbuds and digital cameras. So-called "heavy" rare earth metals are used to produce heat-resistant magnets found in wind turbines, computer hard drives, rechargeable batteries, and electric motors, and therefore are particularly in demand by industry.

Overall, about 30 percent of the world's consumption of rare earth elements is related to automobiles, a figure that could grow as more consumers shift to hybrid vehicles, which typically contain more than 27 kilograms of rare-earth product.

China now produces most of the world's rare earth supply. But in recent years the Chinese government has imposed tariffs and export restrictions on rare earth buyers. So mining companies have been scouting for new sources of rare earths in Australia, the United States, Brazil, South Africa, and Greenland. Greenland has become of particular interest recently, as a large deposit of REE's was discovered in Kvanefjeld in near Narsaq.

Greenland Minerals & Energy states that Kvanefjeld has the potential to meet the world's rapidly growing demand for rare earths, and in doing so, can become a major contributor to the Greenland economy for decades to come. Kvanefjeld can be the foundation for a truly world class mining district and can be developed in a responsible, environmentally-conscious manner, to become one of the world's premier sources of Rare Earth Elements. The company's slogan is "Specialty Metals for a Greener World." If Forum's Nutaaq property ever goes into production, Nunavut Tunngavik Inc. (NTI) stands to earn substantial income, as it will receive a two per cent smelter royalty from Nutaaq.

Nunavut is the largest and newest federal territory of Canada; it was officially separated from the Northwest Territories on April 1, 1999. The creation of Nunavut --- meaning "our land" in Inuktitut --- resulted in the first major change to Canada's map since the incorporation of Newfoundland as a new province in 1949. Nunavut comprises a major portion of Northern Canada, and most of the Canadian Arctic Archipelago, making it the fifth-largest country subdivision in the world. Nunavik comprises the northern third of the province of Quebec, Canada. Covering a land area of over 171,000 square miles north of the 55th parallel, it is the homeland of the Inuit (designator changed from "Eskimo" decades ago) of Quebec. Almost all of the 11,627 inhabitants (according to the latest census of the region) of whom 90% are Inuit, live in 14 northern villages on the coast of Nunavik and in reserved land of the Cree Native Americans.

AIRSHIPS -- possibly the only viable transportation available on those frozen tundras. **Ω**

– Harold N. Pelta

Commitment to Sustainability

By **Barry E. Prentice**, PhD
President, Buoyant Aircraft Systems International

The transportation sector is responsible for approximately 25 percent of all Greenhouse Gas (GHG) emissions. Although strenuous efforts have been to reduce fuel consumption and GHG emission, other sectors of the economy find it easier than transport to reduce the use of carbon fuels, for example by increasing building insulation. Transportation in general has a problem because vehicles are limited in size by engineering and infrastructure. The larger the fuel tank, the less space remains to carry cargo or passengers. The only economic fuel alternatives are portable high energy density energy sources, like kerosene and gasoline. With economic growth, the share of GHG emissions created by transportation is likely to rise.

As the world economy expands, the absolute growth of transportation-related GHG emissions can be expected to increase, even with technological advance. The current consumption of fuel by the global airlines is about five million barrels per day. In a recent article, Grote, Williams and Preston[1] reach a gloomy conclusion about the future of aviation's contribution to climate change. "If all mitigation-measures [for air travel] are successfully implemented, it is still likely that traffic growth-rates will continue to out-pace emissions reduction-rates." Only a dramatic change in technology, like the use of airships can reduce the carbon emissions of air traffic.

Airships have yet to be embraced as a solution to increasing air transport pollution, but the argument is easily made technically. First, airships consume less fuel because of their inherent buoyancy. Second, they have the capacity to utilize alternative fuels, in particular hydrogen, which other modes cannot economically store. Eventually, they may even feature lightweight solar collectors. The potential for a zero-GHG emissions airship is an attractive option that deserves support as means of mitigating climate change.

Efforts to change current air travel behavior are unlikely to be effective without very significant ticket price increases. Time is money, and business travelers

are willing to pay for the benefits of jet travel. Whether leisure travel can be attracted to airships remains to be seen, but air cargo is clearly a contestable market. Few products need to travel at 500 miles per hour, notwithstanding a liver transplant or other emergency. Replacing cargo jets with a less polluting means of airship transport could go a long way towards reducing the GHG burden imposed on the world's environment.

Many airship designs are proposed, but it seems inevitable that airships will be powered by hydrogen gas. They are large enough to accommodate large fuel tanks and the spent fuel provides an automatic source of ballast – water. A 75-year-old ban remains on the use of hydrogen as a lifting gas, but it is only a matter of time before a safe system for the containment of hydrogen can be proven. Technology has advanced incredibly since this regulation was last reviewed.

Buoyant Aircraft Systems International (BASI) is committed to sustainable technology. It is our goal to work with hydrogen as a fuel and as a lifting gas. As part of this effort, we have installed a solar panel array at our airdock. We believe that we are very first hangar located at an airport in North America that is operating completely off the electrical grid.

[1] Matt Grote, Ian Williams, John Preston. **Direct carbon dioxide emissions from civil aircraft**. *Atmospheric Environment*, 2014; 95: 214
DOI: 10.1016/j.atmosenv.2014.06.042

The use of solar power in the northern latitudes is more difficult than farther south because during the winter months, the strength of the sun and the length of days greatly reduce the ability to use much power between December and February. In the summertime, however, the production of solar power in the North is much in excess of our needs. BASI is examining the potential to store excess summer power as hydrogen for winter use – much like farmers "make hay in the summertime" to get them through the winter. We are searching for an appropriate hydrolyser to make hydrogen on site and a storage/fuel cell system.

If a solar-hydrogen system can work at Winnipeg, it should also be effective farther north where communities are dependent on diesel generators. Canada has 129 remote communities that use diesel to produce electricity. If they could replace diesel fuel with solar power, they could also produce and store hydrogen as fuel and for future use.

The production of hydrogen by solar panels for mobile fuel use could be very desirable in the North. Fuel is scarce and expensive in the remote areas. Most airplanes that serve the North have to carry enough fuel for the round trip. This so-called "tankering of fuel", reduces aircraft range because they must complete their roundtrip on a single tank of fuel. The extra weight also reduces the number of passengers or amount of freight that can be carried. The use of solar panels to make hydrogen as a fuel for airships would allow every port of call in the North to be an energy exporter, rather than an energy importer.

This solar panel, cold weather research project is only one small step towards solving the global problem of climate change, and the need to deliver goods to remote locations, but it is a start. It is our contention that zero-carbon emission airships are on the right side of history. One day, we are confident, everyone will agree.

more information:
www.buoyantaircraft.com

Ω

The Flying Saucer – Concept of an Economical, Ecological and Operational Arial Carrier

By **Juergen K. Bock**, Ganderkesee

1. Introduction

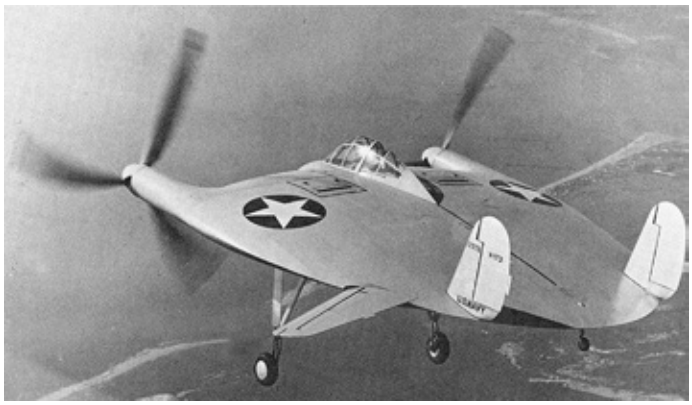
Already the ancient Greeks recognized the disk being an efficient projectile which improved the throwing range in comparison with an equivalent ball by virtue of its particular shape, a shape which may be described as a flattened ellipsoid of rotation or – aerodynamically – a lifting body with a lift/drag ratio in the order of ten. For this reason the disk became also a popular piece of sports equipment. The ideal discus, however, succeeds only if you put the projectile into rotation about its main axis by means of an additional impulse during launch in order to obtain an effective gyroscopic stabilization of the flight path due to its symmetry of rotation. One should be reminded at this place whenever a lenticular shape is considered as a potential configuration for an airship, that the aerodynamic lift plays always a major role during flight in one respect or the other!

Thermoplane – Russian Project of 1990s

2. State of the Art

There have several attempts been made in the past without a major breakthrough. The largest model was probably the Russian-built "Thermoplane" which was obviously designed as a predominantly aerostatic supported aircraft, the lift controlled by means of the temperature of the lifting gas. Additional dynamic lift as well as propulsion was provided by a rigidly connected helicopter unit. The flattened shape was among others probably chosen to fit available hangars. From the point of view of flight mechanics, there was probably a considerable instability about the pitch axis, requiring extra stabilizer surfaces.

The aerodynamic instability about the pitch axis constitutes the major problem, as already identified in connection with the discus technique; because without gyroscopic stabilization there is no trajectory possible! It is also not explained, why the remarkable aerodynamic lifting potential of the Thermoplane configuration was not considered. In the field of heavier-than-air development, however, the circular wing plan view had aroused the interest of aircraft designers, because those wings are stall-free even at high angles of attack. In the 1930s Charles Zimmerman designed such an aircraft which provided at that time high airspeed, but could take off and land at extreme low speed. For these properties, this "Flying Pancake" was ideally suited for aircraft carriers.



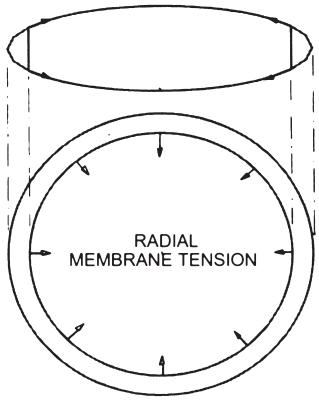
The "Flying Pancake" by Ch. Zimmerman,
Prototype Vought V-173 (1942)

One may recognize the approximate circular plan view of this flying wing design, but suspects also the difficulties concerning the required location of the center of gravity in order to provide the necessary flight mechanical stability. This development was terminated on account of the rapid development of jet combat planes.

3. System Concept

3.1 Aspects of Light Construction Technology for a Flattened Ellipsoid of Rotation

A sectional view through a flattened ellipsoid of rotation can be simplified by means of two characteristic radii; *i.e.* the large all covering radius of the cupola and its counterpart of the lower half and, additionally, the smaller radius of the peripheral ring structure which, in combination with an inner wall, gives that ring a remarkable stiffness against torsion. This ring structure contains most of the subsystems, while the inner space contains mainly the lifting gas, the ballonets and the cargo provisions. By means of a moderate interior pressure, the over-all structure obtains a considerable stiffness due to the membrane tension. This explains in short the structural concept of a lenticular airship on account its axial symmetry.



Axial Symmetric Annular Structure to Counteract the Tensions of the Cupola and Bottom Membranes

Based on the definition of the flight orientation, all essential elements will be installed accordingly, *e.g.* the stern propulsion units which are rigidly attached to the torsion-stiff ring structure while the cockpit with all required control and monitoring units will be installed in the bow section of the ring. The remaining subsystems are, equally balanced according to their mass properties, located within the ring.

3.2 Lifting Gas Hydrogen and Ballonet Filling With Inert Exhaust Gas

As a rule only as much hydrogen will be inflated until it is balanced with the empty weight of the airship; *i.e.* we create virtually a weightless carrier system according to the onset: Aerostatic Lift = dead weight! The remaining volume of the interior will essentially filled with the cargo provisions and the ballonets which – during flight operation – will be permanently flushed with dried and purified exhaust gases. Due to the minimum residual oxygen in the exhaust gas, no combustible or explosive gas mixture will be possible, even in the case minor quantities of hydrogen may penetrate the ballonet hull on account of poreosity. The degree of inflation, *i.e.* the ratio of lifting gas/total available volume is a function of the third power the linear dimension of the airship. For instance, a disk of 50m diameter requires about 100% inflation with lifting gas; in other words, one could operate this craft only near the ground due to the barometric expansion. At a linear dimension of about 100m, however, the degree of inflation amounts to merely 55% corresponding to a pressure height of more than 5,000m, a safe altitude for most weather conditions.

Assuming the concept of a "weightless carrier system," the useful load will be carried by the aerodynamic lift of the disk and will require an airspeed of about 150 km/h at an altitude of approximately 5,000m in agreement with the data of efficient airships. One may postulate the quadruple equation: Empty Weight = Aerostatic Lift = Useful Load = Aerodynamic Lift which constitutes a fundamental rule for a hybrid airship. This complies with the rule-of-thumb for carrier planes that the useful load shall be about 50 percent of take-off weight (= empty weight plus useful load).

3.3 Additional Hydrogen Gas as Fuel and Consequences Regarding the Operational Scenario

If we consider the quadruple equation in the foregoing paragraph in a generalized form, we obtain the relation Empty Weight + Useful Load = Aerostatic + Aerodynamic Lift, thus offering subsequent variations of the operational scenarios:

(a) By inflating the airship with additional hydrogen gas, the aerostatic lift will rise, the degree of inflation will increase, but the flight ceiling will be diminished. The positive aspect: the propulsion energy required is reduced. At the same time, the ground pressure of the landing gear will be reduced and – consequently – the take-off and landing velocity.

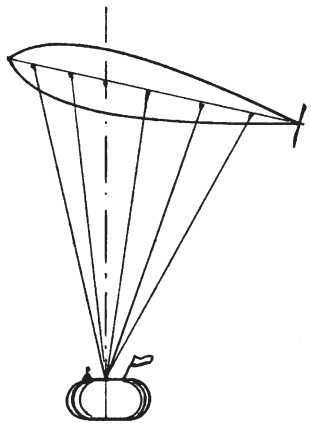
(b) The additional hydrogen gas can also be used as a fuel, thus increasing the flight ceiling again and producing CO2-free exhaust gas which is ecologically desirable.

(c) Finally, at a high degree of inflation and corresponding payload, it is possible to reduce the take-off speed to zero; in other words, the airship performs a vertical balloon launch! The pressure height, however, will be reduced to near zero level until sufficient hydrogen fuel gas has been consumed to gain altitude. The upshot is that a hybrid airship can for an extended period of time be exclusively flown with ecologically desirable and low-priced gaseous hydrogen, whereas the missions can be adapted to the individual take-off and landing conditions. Except for the excellent properties for the use as short-range aircraft, it is for long-range missions suited, as well. With an initial degree of inflation of 90 percent, the ascent phase can be fuelled exclusively with hydrogen. The flight ceiling can be gradually increased due to the hydrogen consumption, until the maximum altitude of more than 5,000m is reached at a distance of 2,000-3,000km. From there-on low-carbon liquefied natural gas or methane will be used for the remaining flight route.

3.4 Realization of Flight Stability Requirements

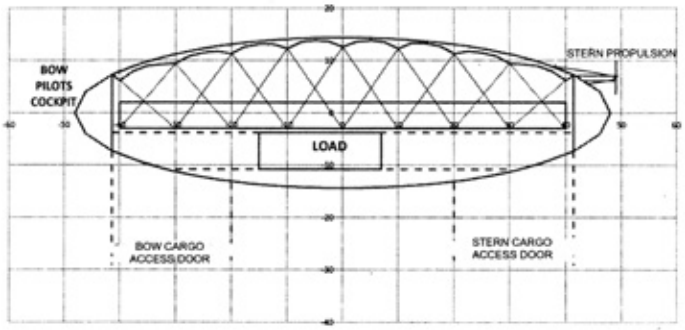
As already mentioned in connection with the classical discus, the stability of the attitude to gain an effective aerodynamic lift is a condition sine qua non, as can be observed in the case of the gyroscopic effect by means of the rotating discus. However, it is quite unrealistic to apply this method in the case of a lenticular airship. Considering a flattened ellipsoid as a circular wing, the aerodynamic center lies about a sixth of the circle's diameter in front of the geometric center of the ellipsoid. Consequently, a strong pitching moment will not allow a stable flight pattern. In the case of a hybrid airship, the empty weight will be completely compensated by the aerostatic lift, virtually a "weightless carrier system". The magnitude of aerodynamic lift will thus only determined by the useful load which equals about the empty weight of the craft.

A practical solution to cope with the instable location of the aerodynamic center at the end of the 18th century and the beginning of the 20th century would have been to suspend the load in a gondola at a proper distance from the hull. In case of an aerodynamically induced pitching moment, the relative position will be shifted forward below the aerodynamic center and generating a stabilizing counter-movement. The state of equilibrium of the flight system is thus obtained and the full aerodynamic lift would be effective in case of a discus.



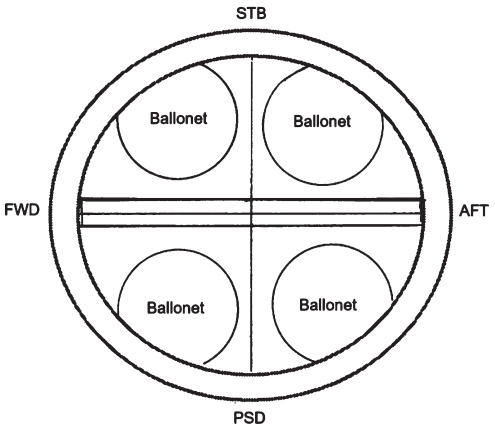
This simple and obvious approach is in reality rather impractical for ground handling and especially due to the drag of the multitude of suspension cables and the drag of external bulky gondola. It is therefore necessary to locate the gondola within the "aerodynamically clean" lenticular hull. Besides it is required to shift the gondola within wide limits alongside, according to the actual

positions of the aerodynamic center. This will be done by guide rails on a longitudinal beam and cables which allow a precise positioning of the gondola at the desired trim location. This suspension beam, running almost from bow to stern, enables also loading and unloading through the fore and aft cargo doors at the lower surface of the hull (see below). The advantage of interior cargo suspension is obvious, since the conventional heavy cargo floor can be avoided.



3. 5 Trim, Control and Damping

Elevator control and trim about the pitch axis will be performed by means of the previously described "Lilienthal"-control. Yaw control may be simply performed by asymmetric thrust of the propulsion units. For roll and pitch damping, classical ballonets are



provided where the usual tandem configuration will be completed by a pair of right/left located ballonets for trim and damping.

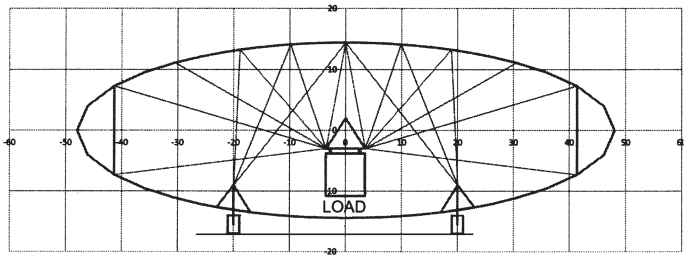
Schematic Configuration of Ballonets for
Pitch and Roll Trim and Damping

The controlled inflation of the lateral ballonets substitutes in effect the ailerons, due to the lateral shift of the center of aerostatic lift. An induced banking will cause a yaw due to the eccentric location of the c.g. location of the gondola. The effect is similar as with a combined bank-and-yaw control.

The situation changes in the case of gusts; in this case we have to deal with transient effects relative to the mass *c.g.*, while the preceding effects referred to the static balance of forces (weight and lift). Due to the internal slosh damping, the airship reacts like a raw egg when somebody wants to put it into rotation.

3.6 Aspects Concerning the Distribution of Concentrated Loads

The development of non-rigid airships (blimps) as well as rigid airships offers numerous examples of how concentrated loads may be distributed by cables over extended areas. Diagram below demonstrates the suspension of a longitudinal beam in the xz-plane.



This cross Section showing the suspension of the longitudinal beam and distribution of the forces from the landing gear. The suspension cable system guarantees the lateral positioning of the longitudinal beam and the payload gondola. The transfer of the cable forces into the hull membrane will be performed via catenaries, as being done in conventional blimps.

The multiple-tandem landing gears are mounted on two parallel longitudinal arched beams at the bottom shell. Due to a moderate internal pressure, the interconnected cables are thus under tension which will be reduced during the landing shock and only indirectly transferred to the gondola.

3.7 Fire Prevention

Fire prevention methods are based on avoidance of ignitable hydrogen/air mixtures. The following paragraphs describe the main precautions.

3.7.1 Lightning

In this case the existing aeronautical provisions apply concerning the equalization of electrical potentials of all metallic construction materials on board. Furthermore

is the generation of electrostatic electricity – *e.g.* due to friction – to be avoided by selection of materials.

3.7.2 Hull Selection

The hull material must provide a high degree of impermeability for hydrogen which will not deteriorate due to stress and ageing beyond a preset limit. Spurious gaseous hydrogen will volatize into the ambient air rather quickly, thus generating no ignitable gas/air mixture. The hull shall be fireproofed and not ignitable in case of impacting sparks (a metallic membrane should be preferred under this aspect).

3.7.3 Ballonets

The ballonets will be inflated during operation with purified exhaust gases containing only residual oxygen; thus avoiding ignitable gas mixtures in case of accidental hydrogen invasion. Since permeability and porosity, respectively, increase due to ageing, all ballonets must be equipped by adequate gas sensors. (Same applies for potential gas cells.) All textiles must be provide ample electrical conductivity to avoid voltage differentials.

3.7.4 Textile Separation Walls – Double Wall Insulation

Cockpit and in normal operation accessible spaces must be separated from the hydrogen volume by means of double wall insulation. Same applies for the textile tunnel for the gondola track, extending over the entire length from the bow towards the aft loading doors. All double wall isolation walls will be preferred inflated with inert (purified exhaust) gases. At critical locations there are H2 sensors to be installed.

4.0 Summary

It can be shown that a hydrogen-operated hybrid airship in the form of a flattened rotation-symmetric ellipsoid represents a multi-purpose "Air Barge" for heavy cargo with a minimum possible impact of disadvantageous exhaust gases. The external configuration is extraordinary plain and – due the internal "Lilienthal" control - lacks all additional external control and stabilizing surfaces with their stress concentration points. The use of pressureless hydrogen gas as a fuel gas must be emphasized. **Ω**

MEDIA WATCH

Hindenburg: Exploring the Truth

By **Addison Bain**, Ph.D. Blue Note Books, Florida

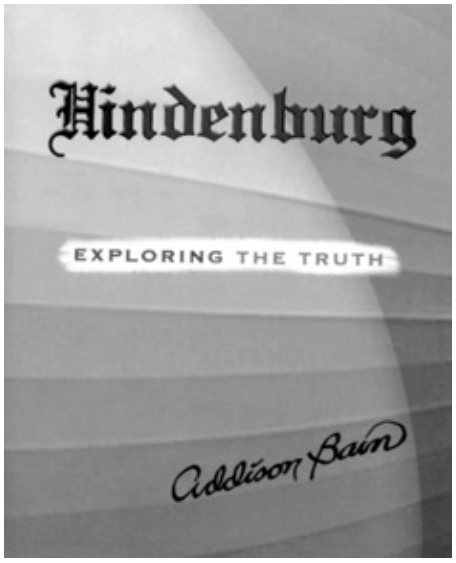
Review by **C.P. Hall**

As is the case with everyone interested in Lighter-Than-Air, and a lot of folks not so interested; we share a passing knowledge of the disaster which befell the *Hindenburg* on May 6, 1937. My own knowledge dates back to a gift copy of SHIPS IN THE SKY by John Toland in the 1950s. The story has always been that some folks think sabotage while others believe in a "combination of circumstances" or an "Act of God."

In 2007, shortly after I joined the N.A.A., it came to pass that I wrote a review of the Discovery Channel program, "Mythbusters" which was published in TNB #74, summer of 2007 and was reprinted in "Dirigible," Journal of The AHT. This was my first exposure to the theories of Addison Bain. In retrospect, I offer the judgment that Addison Bain had a tendency toward hyperbole which was, occasionally, either taken literally, or mis-quoted by more than just the gentlemen producing a script for the Discovery Channel.

Fast-forward seven years and I have lost count of the number of TV programs - both attempted fact and deliberate fiction - which I have reviewed regarding the *Hindenburg*. Addison Bain has been mentioned, cited, or mis-quoted in several of these. In addition, there has been much correspondence exchanged on such topics as static electricity, St. Elmo's fire, and the characteristics of hydrogen. I have become incredibly familiar with the Hindenburg and related topics. For that reason, it is gratifying that I am asked now to review Addison Bain's new book!

Dr. Bain opens with the following observation, "There are many theories regarding the *Hindenburg* accident. A 'theory' however is a hypothetical set of ideas. The proposition of a 'theory' concerning the demise of the *Hindenburg* cannot be justified because there is overwhelming evidence which proves what happened." On the following page, he records a single-spaced column of *Hindenburg*-related topics over one half page in length – several of which originated with him, or mis-quotations of his comments – which he promises to address.



The book is divided into several parts. Suffice to say that this is a very complex topic. Dr. Bain offers a chronology of his research as well as his findings which makes for an interesting and informative read. The downside is that you do not always come across evidence in the most logical order when it comes to clarification. There are numerous drawings and photographs. Many are positive additions to the thesis. Since it often helps to put a face with a name, even the numerous Author with who-shot-John photos add value. Some may question the rare, but significant, examples of photo "coloration."

Evaluation: Simply stated, this is the most comprehensive, detailed, accurate book, that I have ever read regarding the *Hindenburg* disaster. I cannot remember reading any book about this, or any similar, topic that, while reading, I found myself saying such things as, "This is correct", "that makes perfect sense", and "this is the logical conclusion." If you have any interest in what happened to the *Hindenburg*; if you want to know what is wrong with earlier explanations, this is the King James Version by which all previous and future explanations will be judged. This book is the must have for those who are interested!

Observations, Criticisms, Diversions, and Misc: (Title a parody of Bain's Ch. 12 title) Dr. Bain states his methodology to be "connecting the dots." To this I would add the method attributed to Sherlock Holmes, "If one eliminates all other explanations, then the remaining one is correct no matter how implausible." His solution is not implausible. His analysis is that comprehensive!

By the point in the narrative at which Dr. Bain reaches the moment of ignition, the reader is fully aware of the variables of both design and circumstance that make disaster possible. Dr. Bain's catalyst is the reversal of engine #1. It is stopped, restarted, and revved resulting in a backfire and discharge exhaust plume of "negatively charged carbon particulate is speculated." Some readers will declare this a "theory"; the formulation which Dr. Bain rejected in that opening statement. As for me, I could use a little more detail regarding how this results into an electrical discharge aft of the fins? Regardless, that is where the fire starts and the hard, structural evidence indicates "hydrogen begins role in the fire fuel equation."

As I previously observed elsewhere, if you watch the newsreels of *Hindenburg*'s destruction, the word, H I N D E N B U R G, over the control car is consumed by fire, one letter at a time, just as predicted in statements regarding burning, doped fabric until the second letter "N" burns. At that point, along the line of a main transverse ring, the fire halts for several seconds before the entire panel dissolves in flame. Although he does not address my question directly; I believe that the answer, as to why this happened, is found on page 121.

Dr. Bain firmly believes that hydrogen has potential as a clean combustible fuel in the future. He also believes that the *Hindenburg* disaster poisoned the well of public consideration of hydrogen being used as fuel on any large scale. This motivates the Dr. to resolve the issues raised and perpetuated by misunderstanding and fiction regarding this pivotal historical event. "Chapter 12, Claims, Critics, Lies and Hoaxes", addresses these misunderstandings and fictions as found in modern media and literature. My previous reviews are quoted three times, not including "Mythbusters". With that disclosed …

Hindenburg – Exploring the Truth is soft bound, 8" X 10", 250 pages with numerous photos and illustrations, price $39.95 plus S&H. I enthusiastically recommend this book as the most comprehensive accumulation of fact and data regarding the circumstances surrounding the destruction of the *Hindenburg*. **Ω**

NAA Member **John Geognegan** penned the article "Row, Row, Row Your Airship" for the July AIR & SPACE, in which he discusses some lesser-known details of early American aeronauts efforts at human-powered dirigible balloons. **Ω**

Author William Hallstead III, whose book RAGING SKIES was reviewed by our own **CP Hall** last issue, wrote a thank you note closing with, "My best to all Naval LTA vets from this USAAF HTA guy." **Ω**

Tom Singfield (rt.) had gotten some small help from our team in gathering LTA facts for that portion of his new book, "Wings over Bermuda" and went on to uncover much more on his own. He writes, "There is probably more LTA stuff in the book than you realize! Airship "*America*" gets a page because it tried to divert to Bermuda in 1910. *Los Angeles* (and USS *Patoka*) gets a photo and several mentions. British Airways hot air balloon 1979 tethered flights. Teddy Tucker's gas balloon used for wreck spotting in 1961. USN K-type airships visited and had accidents/ incidents from 1945 onwards. USN ZPG-2W airship photo and story 1957. There is a sub chapter called US Navy Airships 1954-61 (three photos). Anyone interested in a copy can contact me at my email address:

tom@singfield.freeserve.co.uk

A member of Ed's EAA Chapter (866, the "Smilin' Jack Chapter), Pete Burris-Meyer, passed along issue #41/4 of "The Hook," magazine of the Tailhook Ass'n. In it, an article entitled "Blimps At The Boat" {with no author credit given) statement in the last paragraph seems typical: "We can laugh at the Blimp squadrons with their gas bags (aerobatics include "Bag-overs" and instrument training is practiced "under the bag") but only one ship was sunk in all of the hundreds of convoys escorted by blimps."

The HTA bias and the popular if impossible "bag-over" rollover tale aside, the more serious charge of one merchantman lost is sad indeed. Ed.'s later research showed this misnomer to be incorrect, but there seems to be no way to correct this error in whatever passes for the official record. The one-ship loss episode likely had its origins with our own beloved Gordon Vaeth, who had every reason to believe the SS *Persehone* had been torpedoed in spite of the K-ship presence, since the photo of the vessel, with its stern settled on the shallow bottom (but not sunk), was taken from the blimp. A later photo (with another blimp in the photo) taken from another airship would seem to nail the coffin shut: the U-boater seems to have been bold enough to shoot anyway. But it is not so. Ed. obtained the U-boat's log, which showed its captain spotted the target as a single ship, with no convoy or escort. Only after firing torpedoes, turning to escape and chancing a look back, did the captain note the airship coming to the aid of the freighter. He did not first see the airship and decide to attack anyway. With such poor coordination in those early 1942 days, no airship had actually been assigned in escort.

With this in mind, we summarize what else the magazine article included: "A Bureau of Personnel letter of 15 MAY 1950 spelled out the official policy of the cross-training programs. Henceforth, only heavier-than-air (HTA) qualified pilots would attend lighter-than-air (LTA) training, and that all LTA pilots, Commander and below, had to become HTA qualified. Prior to this, LTA flight training had taken eight months or more. Under the new program, HTA pilots went through a three-month flight program and were sent to a fleet Blimp Squadron (ZP) for another three months of operational training, followed by two years of LTA duty. Under the short program, students went to ground school three days a weeks and flew the other two days. Ground school emphasized subjects that pertained to LTA flying such as aerostatics, airship structure, ground handling and navigation. Free ballooning was still part of the syllabus, but limited to one or two flights per student. One of the most difficult parts of LTA training for HTA pilots was making the landing approaches slow enough. Approaches were made at 23 mph, and LTA pilots initially had the feeling of stalling out at this speed. ZP pilots in the early '50s had to become carrier qualified. In 1952, ZP-4 at Weeksville developed the unique training technique of placing a landing signal officer on the back of a moving truck during blimp field carrier landing practice to simulate the relative movement-landing. Optimum wind over the deck for blimp carrier qualification was 25 knots, with the airship coming in 30-32 knots at an approach altitude above the carrier round-down of four to six feet above the airship's short handling-line length." **Ω**

Al Robbins *offered additional thoughts and memories regarding John Yaney's* "NADU: The Forgotten Naval Air Development Unit of NAS South Weymouth." Unfortunately for us helium-heads, only a couple of chapters apply to lighter-than-air, with much of one devoted to a description of Hangar One, and the peculiar facilities and support equipment required to operate and maintain "large" airships. The author virtually ignores the obvious conclusion that airships were (and still could be) the most effective airborne platform for any research or developmental program that doesn't require high-speed and/or high altitude flight.

I've had great difficulty in trying to reconcile the time-lines of the book, with my memories of service in NADU between March of 1956 and May of 1957. I was transferred to NADU, arriving in 60-degree weather, the day before the first of three March blizzards in 1956. Some inconsistencies are innocuous, for example I don't remember anyone ever referring to any of our aircraft by its "official" name, or by "Planner;" it was the P2, S2, or Connie. The Snowbird was the "*Snowbird*", the other ZPG-2s were blimps. *[See inside back cover]*

Red Hedman and I were sent to Keesler AFB to learn to operate and maintain the Philco APS-45 (the height finding radar in our new Connies). Most of the other students in our all-Navy class were en route to the new WV- squadrons standing up at NAS Patuxent River. After completing the course in June. I flew as radar tech and operator on one of our two Connies, including a couple of flights to Argentia. My Connie landed upside-down later that summer; not the previous year as stated in the book. I was reassigned to LTA after the Connie was lost, and sent TDY to O&R Lakehurst to assist in installing and to learn to operate the AN/APS-70 (XN-1), Hazeltine's entry in the Low Frequency competition. It was a massive beast. Instead of a wave-guide, it had a five-inch coax; Sections of copper pipe, with a solid inner conductor running from the transmitter, through the rotary joint to an array of dipoles down in the radome. The whole assembly was charged from a large bottle of Sulfur-Hexafloride, which supposedly would be adequate for 10 or more hours of operation. As part of the preflight, I had to pressurize the coax, then climb down into the radome and feel each of the dipole antennas to ensure that enough gas was leaking out. Scary operation balancing on that rubber trampoline while we were moored out. The transmitter and magnetron were so huge that they'd built a two-step wooden platform over it. We called it the "stile"; and anyone passing through the radar compartment had to clamber across it. (Our receiver had crapped out and the boys from Lincoln Labs had taken it back to get it fixed. My second and I still had to make the barrier flight, even though we didn't have a functioning radar. (I still had to operate the topside Television camera, and support a few of the Laboratories other systems, as well.)

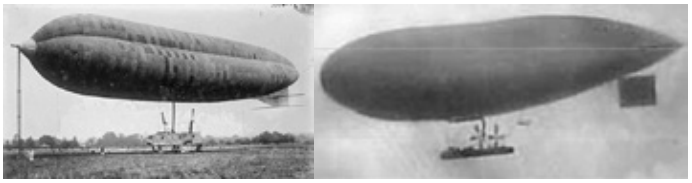
We removed the APS-70, the TV and envelope cameras, and all of the Laboratories experimental systems in preparation for the record attempt. I checked Chief Steffen out on how to tune the commercial SSB radio. I think we also left our British LORAN receiver on board. (We had to stuff a piece of cardboard, part of a matchbook, to keep its worn-out connectors from vibrating loose.) Don't know if our "volunteer" navigators ever used it. In the book Max mentions using a radar – don't know what type or who installed it. Neither the APS-20 or the APS-70 would have ever seen anything within two miles.

One of the sea stories, page 439, concerns a Very-Pistol incident. I think this is more likely something that happened during my indoctrination pressure watch. It was still daylight, my "instructor", "Dizzy" Dahlzell, had entered first, and I had just entered the Electrician's compartment from the platform over the radome. "Dizzy" was standing in the doorway leading to the pilots compartment, about 20 feet forward. He gestured and said something like "Don't ever play with these things" and then it felt somebody hit me in the neck with a baseball bat. I'm sort of staggering and a little burning tennis ball is ricocheting around the compartment. I manage to kick it out the door onto the hangar deck and all hell breaks loose. I remember getting out of the ship and then arguing with a chief who insisted he was going to take me to the hospital in his convertible. Later I found out that it was our Skipper. I spent the next week as the only patient in our little hospital, getting a shot of some ice-cold drug every few hours to counteract phosphorous poisoning. My neck and jaw were badly swollen and I lost a little weight on a liquid diet. I never saw "Dizzy" again after that day. **Ω**

United Kingdom N.R. Airships in World War I

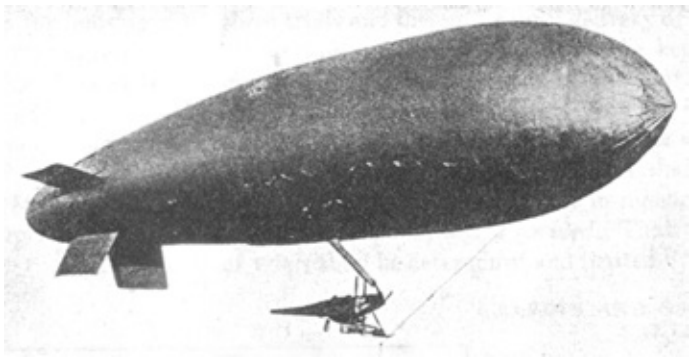
By Donald. M. Layton, Dr. Sc.

If one wanted to postulate a Case Study about the development of a system that was created to meet an urgent need with the system being conceived, constructed and operated in an expeditious and efficient manner, one would need look no further than the history of the United Kingdom's Sea Scout airships. German submarines were raiding almost at will along the English coast, in addition to transiting the English Channel to reach targets in the Atlantic Ocean. There were an insufficient number of United Kingdom surface ships to protect even a small portion of the shipping, and the lead time and expense that would have been involved in an increase in the size of the anti-submarine warfare surface fleet made this a no-option. Although airplanes were continually improving in their reconnaissance and bombing skills, they lacked the endurance to stay with a moving ship or convoy. Their speed, which was a positive factor in getting on site from their land bases, was a severe deterrent once they were on-station due to the fact that they could not stay with the slow merchantmen. A solution of the problem was to use airships, but even though the United Kingdom stood foremost in the field of non-rigid, pressure airships, the Royal Navy Air Service entered the war with but seven non-rigid airships, none of which was suitable for anti-submarine patrols.



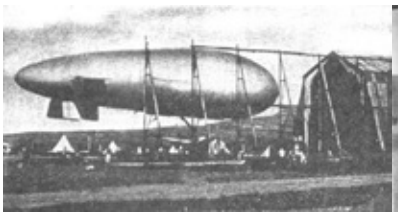
Two of these airships had been purchased from Astra-Torres of France and modified by the United Kingdom (above, left), four airships had been obtained from Parseval of Germany (above, right).

The seventh had been built by Willows & Company of the United Kingdom (right). The smallest of these was the Willows that had a gas capacity of but 20,000 cubic feet. When one considers that the gross lift of pure hydrogen is approximately sixty five pounds per one thousand cubic feet, this airship had a gross lift of 1,300 pounds and that lift had to support the envelope, controls, car, engine, fuel, rigging and pilot. A solution to the problem was found in the design and manufacture of the Sea Scout (below), a small, hydrogen-filled airship.



If one were to draw an analogy with a World War II system development, it would be with the design and construction of the Liberty Ship merchantmen. The SS envelope was copied from the already tested Willows airship. Rather than take the time to design and fabricate a control car, it was decided to use a B.E.2c aircraft fuselage, minus the wings and control surfaces. The landing gear was also omitted and was replaced by a skid. This car could hold two people – the pilot and an observer/gunner. The enlarged envelope of 60,000 cubic feet was small enough to be readily manufactured, yet large enough to carry the car, the crew, a single engine and enough fuel for an eight hour flight. The maximum speed was forty eight miles per hour which permitted the airship to move with some rapidity between sites, but a most important facet of the speed was that the Sea Scout could fly slowly enough to stay with the merchant ships. A great deal of thought was put into the design of the Sea Scout airships. A team headed by Wing Commander T. R. Cave-Browne-Cave, an engineering officer, and Wing Commander Neville F. Usbourne, a pilot with experience patrolling the Dover area with Astra airships, was determined to develop an airship with all of the requisite qualities for submarine hunting but with simplicity in design, construction and operation. Rather than having swiveling propellers, which added a degree of maneuverability, it was decided to have a standard engine and propeller which could be produced with less delay and could be operated and maintained with far less effort. A blower tube was added that used the dynamic pressure head from the propeller stream to

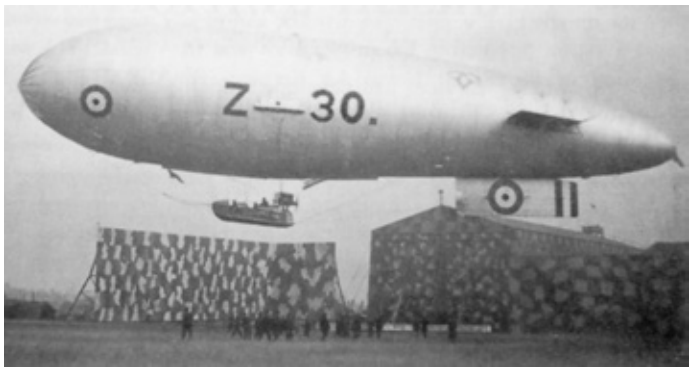
pressurize the ballonets in order to maintain a pressure greater than the air pressure on the nose at maximum speed. Bow reinforcements (battens) were also used to assist in preventing the nose from 'oil canning' in forward flight. Later versions of the Sea Scout used Maurice Farman and Armstrong (FK) fuselages (below) instead of that of the B.E.2c.



The use of a modified airplane fuselage as the control car simplified the manufacturing process, but there was still the problem of obtaining a sufficient number of envelopes to develop the desired fleet. The United Kingdom's other airships had their envelopes manufactured at the Royal Aircraft Factory, but the amount of airplane construction at this facility rendered them incapable of producing the quantity of envelopes that were required, and as a result, companies that had experience in making water-proof garments were trained in the intricacies of envelope manufacture. Sixty Sea Scout airships were built. The Air Service did not wait until they had it perfect; instead, they acted to obtain a system that could be fielded ("aired"?) in a minimum time with a minimum expenditure of resources.

And even as the Sea Scout was being designed and entering into production, work was underway for an improved version. After several Sea Scouts were built and were in use, operational experience indicated that a specifically designed car would be an advantage and such a car was designed with a pusher propeller. The car was designed to float like a boat and water landings were not an infrequent occurrence. The engine was a 75hp Rolls-Royce and a maximum speed of 56 miles per hour could be attained. Seventy-one of these 70,500 cubic feet airships, designated as Sea Scout Zero (SSZ, above right), were built. This model had a crew of three and had flight duration of 12 hours at a velocity of 48 mph.

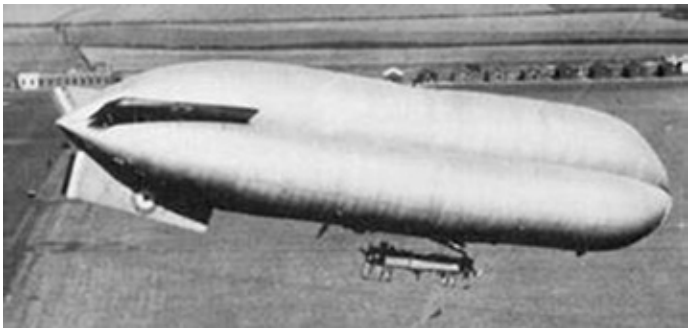
The Sea Scout airships were sometimes towed from the coast to their operating area by naval vessels in order to save fuel and increase the operating range. New bases were literally cut out of forested plains and the hangars, when built, were just large enough to hold one airship, and were constructed out of wood. These small "basettes" contained just enough facilities for routine maintenance and very minor repair. In South-East England alone,



there were 81 of these small air bases. For more difficult tasks, the airships were flown to a larger base. One of the advantages of a non-rigid airship was that it could be deflated, then stored or moved. This was also a positive factor in recovering (and re-using) airships that had been involved in an accident.

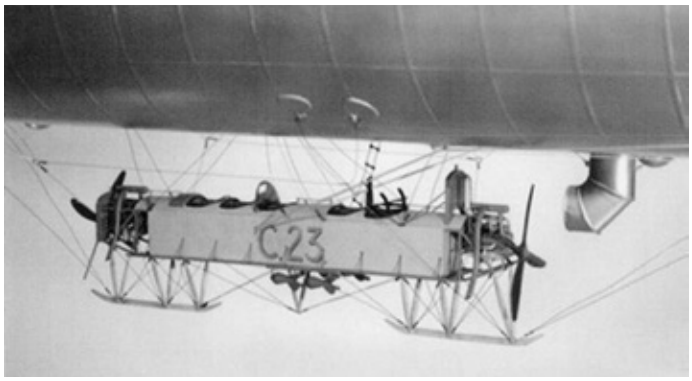
Later, larger versions of the Sea Scout were launched. These 100,000 cubic feet airships had twin Rolls Royce engines. Fourteen Sea Scout Twin (SST, below) airships were produced, three of which were purchased by the US Navy.

The SST used a 100,000 cubic feet envelope, larger than any of the other SS class types, and was equipped with a streamlined and waterproofed car that could accommodate a crew of five. Two 100hp Sunbeam or 75hp Rolls-Royce Hawk engines were each mounted on a gantry either side of the car, and drove 9-foot-diameter four-bladed propellers in a pusher configuration. At 57 mph, the SSTs had a greater top speed than all other SS class types, had the highest useful lift, and could stay airborne for up to two days. They were also cheaper to produce and easier to handle than the later C-Star class airships. Experiments involving SSTs were carried out at the end of the war; one notable example being SSE.3 (SS Experimental) that had an envelope design known as shape "U.271", the shape from which the hulls of both the R.100 and R.101 rigid airships were derived. The progression from Sea Scout, to Sea Scout Zero, to Sea Scout Twin, to Coastal, to Coastal Star and, finally, to the North Sea class insured that lessons learned were applied and that advantage was taken in improvements in the fast-changing world of lighter-than-air vehicles.



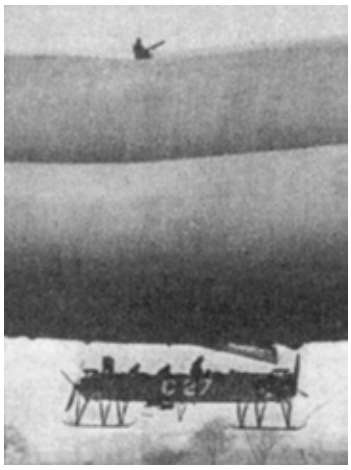
The next progression was an even larger, 170,000 cubic foot, twin engine Coastal class airship with a crew of four. The Coastal (above) had flight duration of 11 hours at 42 miles per hour. At cruise speed, 31 1/2 mph, the endurance was nearly 16 hours.

The envelope had a tri-lobe shape in which the two lower lobes were situated side-by-side, and the third was positioned centrally above them. On all previous classes, patches glued and sewn to the envelope were used to attach the cables that supported the gondola as well as the ground handling lines. The SS cars had to be suspended at a considerable distance below the envelope. On the Coastal airships, the principal load-bearing cables were attached inside the lower lobes of the envelope. This permitted the car to be slung closer to the bottom of the envelope, thereby reducing the overall height of the airship. The use of internal suspension cables on the Coastal class airships was a first for the United Kingdom. Ten main internally mounted suspensions were incorporated in the Coastal envelope, of which seven supported the weight of the gondola, and the remaining three took the guys that allowed the 196-foot-long airships to be handled on the ground. Four ballonets, two in each of the two lower lobes, were used to maintain the envelope's shape and pressure. These were kept inflated by a metal air scoop mounted in the slipstream of the forward propeller on earlier production models and at the rear on later versions. Three tailfins were used. The two upper ones were mounted in a shallow V-tail configuration carrying the elevators, while the single vertical fin below the envelope incorporated a rudder.



The first Coastal Class (C-Class) airship was made using the envelope from an earlier Astra-Torres airship and a gondola built using the front-sections of two Avro seaplane fuselages joined back-to-back to provide one pusher and one tractor propeller. No landing gear was fitted, apart from two wooden skids at either end of the gondola. These also served as a protection for the propellers. A 1.5 horsepower ABC engine was mounted in the gondola of the Coastal airships. This drove a dynamo to power the radio and, if needed, an auxiliary ballonet blower. This was the first use of an auxiliary blower for the ballonets.

The armament for the Coastal airships usually consisted of two machine guns mounted on the gondola and a third gun on the top of the envelope to assist in defense against attacking aircraft. The top gun mount was reached by climbing up a rope or wooden ladder inside a tube running up inside the hydrogen-filled envelope (right).



The United Kingdom airships had to rely on visual sightings of German submarines inasmuch as no equipment (such as MAD or sonar) existed. It was sometimes possible to make out the wake of a submerged submarine's periscope poking above the surface, or even the faint outline of the submarine itself it was running just below the surface. The more reliable method was to search for a light oil slick on the surface that came from external devices on the submarine. The airship crew would follow this trail until they reached the end of the slick, where it could be assumed the U-Boat was. When a submarine attacked a surface ship, the release of air from the firing of the torpedo and wake of the torpedo would betray the submarine's position.

It is ironic that although synchronization between the airships and the surface ships was high, in the early part of the war, coordination between airship crews was almost non-existent. At most of the airship bases, two or three airships operated almost independently of the airships at other bases. There was minimal management of operating assignments and practically no sharing of lessons learned. It was not until the latter half of the war that Wing staffs were developed and the airships began to operate as one organization.

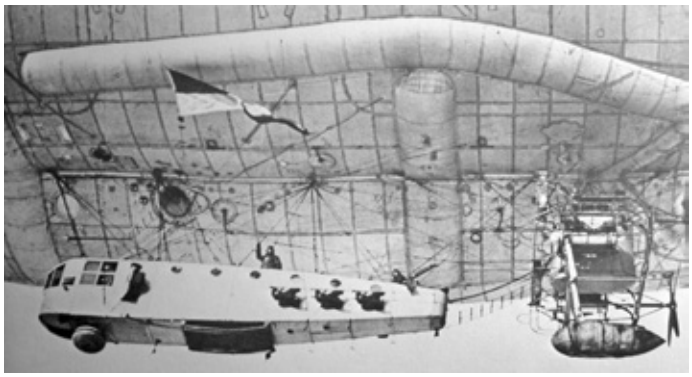
In April 1917, the United Kingdom started using the convoy system, where all ships entering the danger zones were collected at appointed rendezvous points and escorted by destroyers and patrol boats. The airship was singularly suitable to assist in these operations. With the ability to reduce speed to whatever was required, the airship could maintain a position ahead or abeam of the convoy, as necessary, and from its altitude was able to maintain a lookout for a far greater distance than was possible from the bridge of a destroyer. The airship could also sweep the surface ahead of the convoy for mines and warn the surface ships by radio or Aldis lamp of the presence of submarines or mines. Thanks to the number and location of airship base stations, it was possible for a convoy to be escorted through the entire Channel. The main shipping routes on the East Coast and the Irish Sea were also under constant observation. The Mail steamers between England and Ireland and transports between England and France were always escorted whenever flying conditions permitted.

The C-9 airship had one confirmed and three probable "kills" during its long career. She entered service in June 1916 and was struck off on 14 September 1918, after completing 3,720 hours of flying, covering 68,200 miles. It was claimed that in her 805 days of service she had never missed an assigned patrol. In July 1917 C-24 set a new world record for airborne endurance when she mounted a patrol that lasted for 24 hours, 15 minutes.

In 1918, an improvement in the Coastal class was launched with the Coastal Star (C*) that had a volume of 210,000 cubic feet and with two engines – a 260 horsepower Fiat and a 110 horsepower Berliet-Ford. The C* (photo, opening this article) had a three-lobed envelope, like the Astra-Torres designs. Four ballonets were fitted with two in each of the two lower lobes. These were kept inflated by a metal air scoop mounted in the slipstream of the forward propeller on earlier models. However, this location interfered with the vision field of the pilot, so the air scoop was relocated to a position aft of the rear engine propeller on later versions. Three tailfins were used. The two upper ones, carrying the elevators, were mounted in a shallow Vee configuration while the single vertical fin below the envelope incorporated the rudder. Both the Coastal and the C* airships were built by the Royal Aircraft Factory under the authority of the British Admiralty.

Late in the War, a class of larger airships were designed and built for North Sea operations where travel distances between the base and the operating area was greater. In addition, it was desired to increase the size of the bombs that were carried from 65 pounds and 110 pounds to at least 230 pounds. The North Sea (NS) airships were almost twice the size of the Coastal and C* airships and carried a crew of ten. The increase in volume provided disposable lift that was more than six times more than the Sea Scout. Like the Coastal and C*, the NS had a three-lobed envelope and internal suspensions. Because of their increased size, the North Sea airships could carry extra fuel which permitted flights of a longer duration, *e.g.*, 24 hours at a speed of up to 60 knots. The larger size also provided space for a relief crew on the long endurance flights.

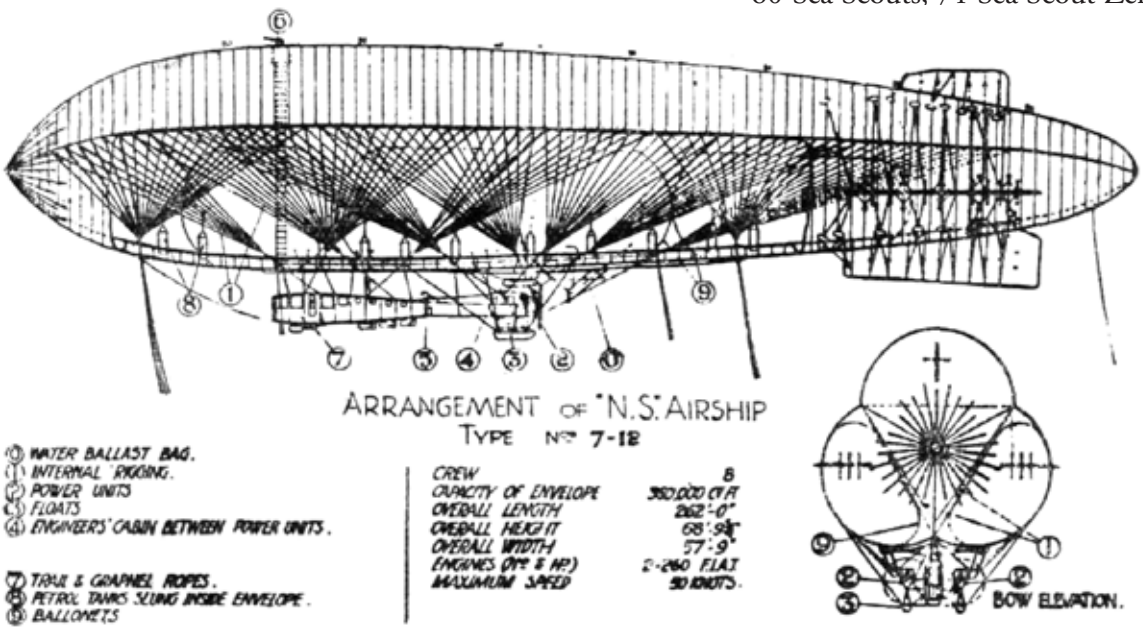
The operation of a North Sea airship was similar to that of a surface ship. The crew consisted of a Captain and a second pilot, a coxswain and a second coxswain, two engineers, two wireless operators and two air gunners. The Captain was in charge of the airship and the second pilot maintained the height of the airship with the elevator wheel, controlled the gas pressure inside the envelope and did the navigation. The coxswain was in charge of the enlisted crew and the rigging of the airship. The first or second coxswain steered the airship with the rudder wheel. The engineers manipulated the engines to obtain the number of revolutions ordered by the Captain on the engine room telegraph. The two 250 HP Rolls-Royce engines on the North Sea airships provided an increase in reliability over the engines on the smaller craft. Historically, the engines on all of the airships were prone to failure, regardless of the type used. This was mainly due to the extended duration of



the patrols, which could reach 20 hours in length. The engines were run at virtually full speed all this time, leading to many units simply wearing out, and RNAS station maintenance crews became skilled at rapidly overhauling the engines.

For escort duties involving long flying hours, the Coastal and C* types were particularly suitable and, at a later date, the North Sea airships could accompany a convoy for the entire length of Scotland.

The airships constructed during the war includes 60 Sea Scouts, 71 Sea Scout Zeros, 14 Sea Scout Twins, 35 Coastals, 10 Coastal Stars and 14 North Seas for a total of 204 airships. As an offer of proof that the United Kingdom airship program was successful, no convoy escorted by a United Kingdom airship was attacked by a German submarine. **Ω**



The Historians' Letters (Part V)

By Roy D. Schickedanz

Lakehurst August 1929

Dear Mrs. Buckley,

Many thanks for your kind telegram and invitation! I am sorry we will leave tomorrow for Friedrichshafen, so I cannot come to Philadelphia. Our office will send you and your daughter two little winkies, which made the trip on board our ship around the world. The next time we will be here, I hope to have a little more time also for coming over to Philadelphia.

We have had an excellent trip, nobody did believe, that it was possible to make it in such a short time, now naturally everybody would like to finish the trip as soon as possible. Please tell my best to Mr. Buckley and your children!

Yours truly, Kapitan Hans von Schiller

Hans von Schiller, who commanded the airship GRAF ZEPPELIN at the time the HINDENBURG burned at Lakehurst, and for numerous trans-Atlantic flights before that, died at age 85 on December 6 near his home at Tubingen, Germany. In September, my wife and I visited him and Mrs. von Schiller at Tubingen. It was the first time I had seen them in 40 years. I asked some questions, but it was more rewarding to listen. The questions asked were answered fully, courteously, and straight and level. His fetish for accuracy, and integrity, are known to many, including those who have a copy of his 1967 book, painstakingly corrected in pen and ink. Immediately following WWII, he was sent for by Dr. Konrad Adenauer, then an official in Cologne under British occupation forces—before the formation of the Bonn government. Adenauer told von Schiller that he wanted him to remain in the area where he could be contacted, and to go out in the countryside to see if there was something he would like to do, and to come back and tell him about it.

Walking along the ridges of the hills overlooking the Rhine, the masts, bows, and sterns of sunken ships and barges were very evident. He thought of his early Navy training as a diver, and of the numerous divers who had worked for him during War II command of air/sea rescue operations in northern Germany and Norway. He went back to Dr. Adenauer, saying, "I would like to try my hand at clearing the Rhine channel." He was told to proceed. He assembled a team including 79 divers, and in three years they cleared some 1,500 wrecks from the bottom of the Rhine. "And the men had jobs," he said.

Telling me this, he remarked. "So many people come to see me and ask about my experience with the zeppelins. I wish someone would ask me about the clearing of the Rhine. I am more proud of that than anything I did with airships." Of his air/sea rescue command, he said, "It was a good job—saving people instead of killing them."

There followed several years as Port Director of the Port of Cologne, from which he retired in 1956, with an appropriate ceremony at which he was "toasted" a bit and received a commemorative medal now displayed with numerous others in his trophy case.

A long life, well and fully lived, has ended, leaving behind memories of a strong and modest character, a sense of humor, and a long list of achievements. Truly a multi-dimensional man.

He is survived by his wife, Ellen, their daughter, Elizabeth, their son, Caspar, and several grandchildren.

/S/ Franklin D. Buckley Captain, USN (ret)
3225 Nottingham Rd,
Ocean Springs, MS 39564

-To be Continued- **Ω**

BLACK BLIMP

Robert J. 'Bob' Clancey, 91, passed July 6th, 2014. Bob spent most of his younger years in Detroit, Michigan. He was accepted into the USNA in September of 1941. Commissioned an Ensign spring of 1944, Bob reported to USS *Ingraham*. His ship was at the invasion of Okinawa in May '45 where it was attacked by Kamikaze aircraft and severely damaged. Bob married Carol Eberhardt in Detroit in 1946. He received his wings in both LTA at Lakehurst, NJ, and also fixed wing at Pensacola, FL. Starting in sub patrol blimps in the 50's at various naval stations on both coasts. After his retirement in 1970 he worked for the University of Wisconsin for 15 years as a director. Bob is survived by four sons, grand- and great-grandchildren. **Ω**

Harold N. Pelta passed May 21, 2014. Hal graduated from Rutgers University with honors in the Natural Sciences. He received a commission in the USAF, reaching the rank of Captain, then re-entered military service as a Petty Officer in the US Coast Guard Reserve. Hal served for many years on the Advisory Council (Board) of the American Littoral Society. Hal is survived by his wife, Helen. **Ω**

William A. Reily, Jr., 98, passed April 27, 2014. Enlisted in 1934 becoming an aviation ordnanceman with the HTA unit of USS *Oklahoma* (BB-37), later served with PBY-1s and -3s, and as a Yeoman on DDs in the Pacific theatre. Bill authored the definitive "Enlisted Naval Aviation Pilots, USN, USMC and USCG, 1916-1981." He served as President and a frequent contributor to the American Aviation Historical Society, and moderated many forums on NavAir history for AIAA, etc. **Ω**

LIGHTER SIDE

"There I was, at 50 feet in our Blimp Fighter melee!" Art by **Luther E. Franklin**.

An Englishman has started his own business in Afghanistan. He is making land mines that look like prayer mats. It's doing well.

Prophets are going through the roof! ☺

Did you hear about the fat, alcoholic transvestite? All he wanted to do was eat, drink and be Mary. ☺

Wife gets naked and asks hubby, "What turns you on more, my pretty face or my sexy body"? Hubby looks her up and down and replies, "Your sense of humor!" ☺

Lynwood May sent along photos of a ZS2G-1 (sometimes called “5K” recalling its original designation ZP5K) light and tight on the mobile mast. Its ultimate successor, the ZPG-2, is seen at the distant mooring circle. Another ZPG-2 is seen (below) after a hard landing in Cuba.

See Lynwood May's article on the ZS2G-1 (5K) on page 12.