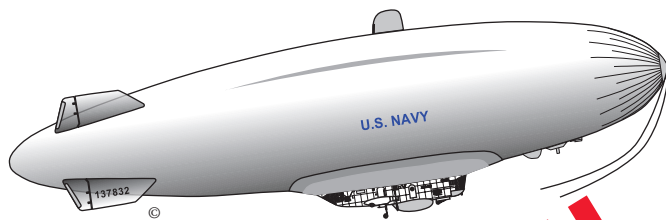
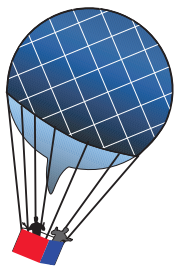
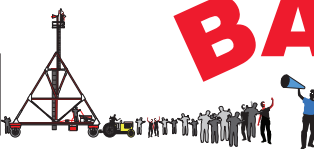


THE

NOON



BALLOON



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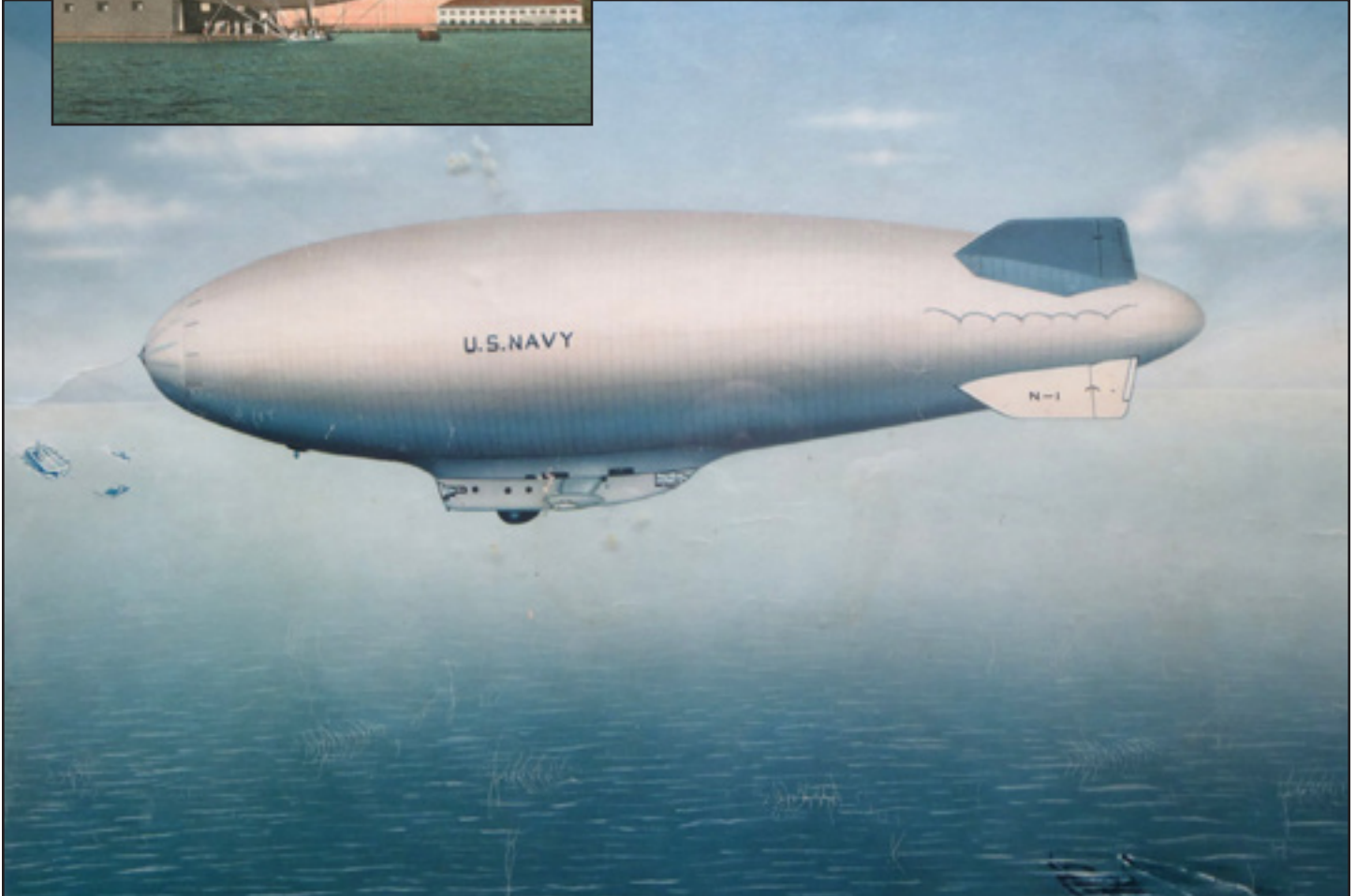
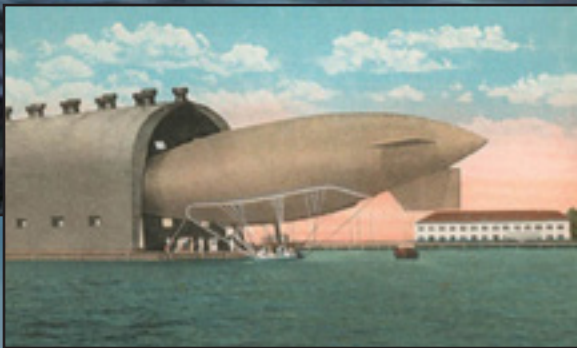
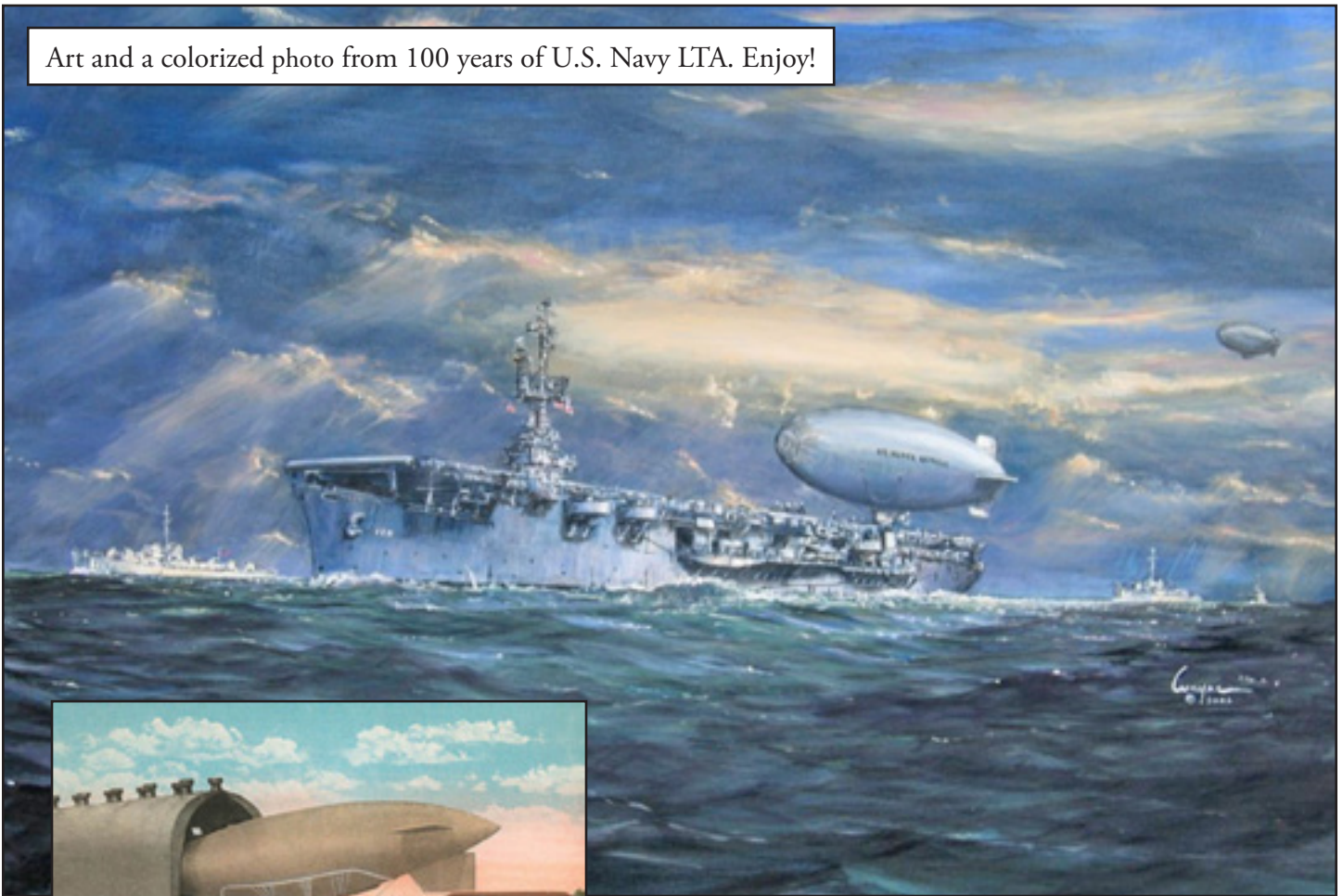
No. 114

Summer 2017



BRAZIL EMERGES

Art and a colorized photo from 100 years of U.S. Navy LTA. Enjoy!



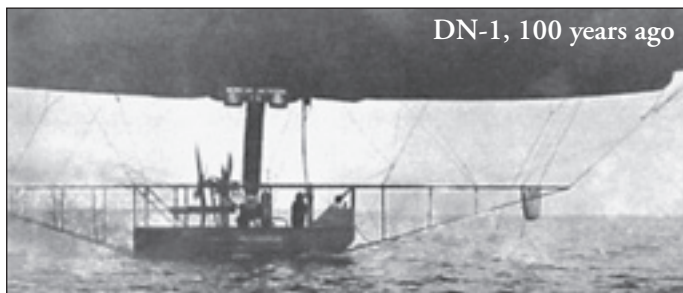
THE NOON BALLOON

Official Publication of the Naval Airship Association, Inc.

ISSUE #114

SUMMER 2017

Editorial	2
President's Message	3
Treasurer's Strongbox	4
Pigeon Cote	4
Shore Establishments	7
Cover Story	12
Short Lines	15
History Section	17
Media Watch	28
Ready Room	31
Black Blimp	31
Lighter Side	32



DN-1, 100 years ago

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Your fences need to be horse-high and pig-tight. ☺

On the Cover: ADB-3-X01 about to emerge from its hangar for the first time, June 2017.



THE NOON BALLOON

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EDITORIAL

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

Lots of LTA anniversaries around and about this quarter's period, and hard as it is to believe, this issue begins the 12th year your "new" team of Editor and Publisher have been creating and delivering the magazine.

Ed. is a dual member of NAA and the AIAA LTA Technical Committee, and was wrapping up this issue while participating in the AITO at Denver. I served as a session chair, riding herd on presenters (all students). Our friends in Brazil had a last minute schedule conflict, but trusted me to present for them – which I offered to do in exchange for rights to publish the AdB story in this issue. Enjoy this exciting new development.

I also made a presentation on the ZRCV, quite applicable to the current renewed interest in Flying Carriers – in modern times, drone swarms and RPVs. A later panel discussion on the subject began with my playing Act 3 of my DVD, "The Flying Carriers" as a 12-minute orientation to show the audience what the state-of-the-art was in 1935. I was very happy to provide this "reality check," which is just the sort of thing NAA was created for, and why we want to continue to serve.

Our AIAA LTA Tech Committee assembled for a working dinner (augmented with other members participating by phone con) as Chairman Mike Conners made twin AIAA LTA lifetime achievement awards.



In this photo, Mike (at left) presents the inscribed crystal vase to longtime member and tireless LTA advocate Ron Hochstetler.

Mike noted most all the heads present were somewhat grey, a common problem amid our two organizations. Suggestions to attract new members, which included NAA and AIAA working together in some new way, were and continue to be solicited. Ed. passed out NAA recruiting brochures and back issues of *Noon Balloon* to many attendees. Although I cannot say every member of the TC

considered NAA membership worthy of the dues, we did attract a few other attendees – including some from other disciplines – to give us a try. Welcome aboard, new NAA members!

Of course I also continued to push the idea of translating the German LTA textbook we've been struggling with for years. I'd taken a bound work-in-progress copy to Denver and showed it around. Everyone welcomed the idea and agreed it needed to be done, no one yet had specific plans on how we were to "bell the cat." Our late Professor Layton (see Black Blimp) even proposed starting over if we could not find the volunteer translators, should you know of anyone.

This issue continues our 100th anniversary celebration of USN LTA with Roy Mise's in-depth article on the Navy's one and only floating hangar. Next issue we'll cover the Navy's first airshipmen shipped to France. For that, we have received some priceless help from a French town (see "Pigeon Cote") via her activist Mayor.

On a personal note, I certainly hope that by the time you are reading this, we have finally taken to the skies in our Silence Twister kitplane, built to play the role of the airship's protective fighter plane. A month was consumed trying to comply with the FAA inspection and flight readiness certificate process, and we confess we had no idea it would be quite so complex. We're going to be at Oshkosh Airventure for certain, even though we might have to get there by trailer.



This incredible image from his cockpit was taken by our airplane colleague Andy, who flew his newly completed fixed-gear Twister all the way from home base in England to Friedrichshafen for the airshow. Note the Zep NT passing over the runway as other airplanes hold short of the runway. At press time, Andy is planning to fly to Oshkosh (via Ireland, Iceland, Greenland, Newfoundland)! So we hope to meet there and properly thank Andy for all his help in completing our airplane.

– R G Van Treuren

VIEW FROM THE TOP – PRESIDENT’S MESSAGE

Fred Morin, PO Box 136, Norwell, MA 02061, frmorin@verizon.net

In the last issue of *The Noon Balloon* we included a survey card about the 2018 Reunion as we are trying to determine how many members intend to come to the Reunion. As I write this (at the end of May), we have had a very good response. If you still have an inquiry card and haven't returned it yet, please do so. It is only a survey and does not commit you to any action. As I wrote in my letter, we need to determine an anticipated attendance so we can accurately predict our expenses, prepare an entertaining and informative Reunion and determine if there is sufficient interest from the membership to continue planning Reunions. If attendance continues to decrease, we may have to cancel future Reunions as our expenses increase and we do not have the membership dues to cover those expenses and reduced attendance puts us at a disadvantage in negotiating pricing for hotels, admission fees at attractions, as well as banquet facilities and food costs.

Meanwhile, we are looking for someone to take on the responsibility of processing and shipping orders for Small Stores products. Postage and shipping package expenses will be reimbursed. Person needs to take orders over the phone, deposit checks, and ship merchandise promptly. A small amount of inventory will be provided and replenished as merchandise is sold. All we ask is for prompt reporting of sales, directed to the NAA Treasurer.

We have also begun a general belt-tightening beginning with our general expenses and *The Noon Balloon*. Over the past few years, our page count has increased and the printing and postage costs have also increased proportionately. The new issues will continue to provide world-class coverage of all things LTA, solid historic coverage of Navy LTA from our members, and a good assortment of technical articles of interest. The goal is still to publish the best LTA magazine at a reasonable cost, not to just fill pages.

Please recall that in my last messages I reported on discussions we had with the publisher of the Cardington Chronicles to work towards a single, international airship magazine rather than having several, all covering the same news and stories. It was an interesting concept and could have proven economically sound in a number of ways and possibly exposed the NAA to a larger audience of potential members. We also had discussions with another airship organization to join in on the concept. Unfortunately, the mechanics of such a project were beyond a reasonable and economical solution and the project has been shelved for possible future consideration as memberships in similar organizations continue to decline.



FDR aboard French AT ship, 1918

As I reported earlier, my idea for an LTA Hall of Fame has passed an historic milestone in its passage to fruition. The delays in getting into full scale to date fall squarely under my responsibility.

We have some details concerning the screening process and organization of the Hall to resolve and those should be resolved very soon. I am still targeting the 2018 Reunion as our first inaugural installation date. Please think of potential candidates and we will have a nominating form available for you to submit very soon.

Finally, as required by our By-Laws, I have appointed a Nominating Committee to determine and present a slate of officers to be voted on at the 2018 Reunion. They are:

Ross Wood – Arizona & Idaho
John Kumke – Arizona
Ken Braun – California
Alvaro Bellon – Ohio
Fred Woeber – Texas

I have tried to get a good geographic coverage. Their mission is to present a slate of officers to serve from the 2018 Reunion until the next Reunion. After three terms, I am not standing for reelection, so at least a new president must be nominated. It has been a distinct pleasure to lead the NAA as well as to meet and work with some very talented people, but it is time for some new ideas as we move forward. And move forward we will!

Thank you for your continued support of the Naval Airship Association and I hope to see many of you at the next reunion.

– **Frederick R. Morin**

Results of the survey returns at press time: 36 intend to come, 9 will not or can not due to illness, etc., 11 have no interest.

TREASURER'S STRONGBOX

This has been an interesting five months. Dues were due Jan 1, and in spite of natural attrition, we are showing paid memberships of 356 US and Foreign. We have also had some donations. No information is available from Small Stores at this time. The dues and donations have been sufficient to cover the expenses of the Spring Issue of the *Noon Balloon*, postage and other expenses incidental to running the organization. Current balances are as follows:

Checking: \$8,553.32; Savings: \$18,843.79 for a total of \$27,397.11 in cash and several hundred dollars in inventory for Small Stores.

All bills have been paid to date.

– Deborah Van Treuren

PIGEON COTE

C.P. Hall e-mailed, "Regarding the photo in TNB #108, Page 19, I believe that I can now confirm that the civilian in the darkest suit coat, next to RADM Rosendahl, is Russell De Young, then VP in charge of production at Goodyear Aircraft; post-war President of Goodyear Tire & Rubber Company. (He is facing the camera, center photograph - Rosendahl, in uniform, is facing the camera, Arnstein's bald head is not facing the camera, De Young is between them beneath the model's tail fin) In the book, "GOODYEAR AIRCRAFT" by Hugh Allen (1947), there is brief bio data on page 25 and a photo on page 21...It is also interesting that there are two drawings of a proposed airship on the wall (the two highest ones); one of them has bow fins and elevators, the other does not. If this ZRCV does not have swiveling propellers for vertical thrust, then bow fins and elevators would seem to be useful in an "heavy" takeoff scenario (compared to tail dragging exercise by *Graf Zeppelin* when it departed California?" Ω

Herm Spahr sent along an obit clipping covering the passing of James N. Voges, 78, who had served in ZP-3 at NASL, and during a 4 year Navy enlistment evidently also was "captured by Cuban renegades and held for 30 days." Ω

The appearance of this cap on e-bay found George Diemer e-mailing, "The reason I thought this might be significant is the inscription "Precious Princess."

Is it possible that was the nickname of their blimp? Cortney Skinner has also seen this cap on eBay, and his opinion is that it is a civilian cap that the Navy bought sort of unofficially, the way they did with



some chambray shirts and coveralls. He says the cap construction is different from the official Navy cap, the N-3 herringbone twill. He has done a lot of research on uniforms." Mark Lutz added, "I find the following (on the cap's visor) interesting: Memphis, Athens Pre, Lakehurst, Moffett, Lakehurst, Glynco. I wonder if all the pilots went to school together, and served in all these locations together? Or maybe they all had the same training, and then went to 3 different bases?" Ω

Marc Frattasio (see "Project Mercury," page 25) e-mailed, "Regarding the radar-equipped M-Ship or "ZP2W-3" pictured on page 5 of the most recent issue of *Noon Balloon*. On page 297 of the late John Yaney's book about NADU, "NADU: The Forgotten Naval Air Development Unit of NAS South Weymouth", he stated that M-Ship M-3, BuNo 48241, was fitted with a powerful search radar antenna housed in a radome under the control car to flight test an airborne Combat Information Center. Perhaps the photo in the *Noon Balloon* shows the M-3 in this configuration? Judging by the appearance of the radome, it looks like the blimp was equipped with an AN/APS-20 radar, which was used both for surface search and airborne early warning purposes during the 1950s. John Yaney thought that the M-3 was assigned to NADU because of the experimental radar installation, which he speculated might have been used to help train radar operators and technicians before the first WV-2 was delivered to the command. However, the M-2 BuNo 48240 was actually the M-Ship assigned to NADU and a borrowed PB-1W was used to train the command's radar operators and technicians. Ω

Luther Franklin e-mailed History Chair Mark Lutz, "When ZP-4 was decommissioned, I was transferred to NADEVU, South Weymouth to finish my final four months of active duty. As a Junior Officer, I was normally assigned to navigate during the Super-Constellation flights used to test MIT's forthcoming navigation hardware. I was called out to navigate a flight in the wee hours of September 27, 1959. I was told nothing about the flight. The news next morning mentioned that Khrushchev complained that his aircraft had been shadowed as it left the coast on his way home from visiting the USA. I wonder if any of the other Naval Airship Association members may have been involved or remember that incident?" Ω

One Richard Leonard e-mailed, "I've pretty much been focused over the last five years or so on collecting the names of WWII era naval aviators...I got off on NAPs a couple of years ago... I discovered all these gents who were noted as Qual-LTA. I've even found some who were commissioned pretty early on in the war and were, indeed, noted in the officers' registers as LTA aviator qualified. That led to my wondering as to what exactly the QLTA meant in terms of a designation, especially since the first NAPs to complete the established LTA aviators course at NAS Lakehurst graduated in May 1943 . . . or at least so says the NAS Lakehurst war diary for May 1943. On 1 May 1943, designated as Naval Aviators – Airship, there were 52 Aviation Cadets commissioned as Ensigns, 13 officers already holding commissions, and 13 enlisted men designated as NAPs."

The war diary specifically says "The largest class to undergo training at Lakehurst received designations as Naval Aviators (Airship). In addition to being the largest class, it was also the first in which enlisted personnel were designated as Aviation Pilots."

If anyone has copies of WWII era squadron rosters, officer or enlisted, lying around, I would be grateful to be able to add them to my trove of basic documents. rleonard_74b@verizon.net Ω

Following some discussion on the book reviews and their subjects, Alastair Reid e-mailed, "On the subject of the bare top [Zeppelin] surface, Ludwig Durr has this to say: "On the LZ 1, the gas could escape along the space between the cells and the outer cover to the upper part of the airship and from there through apertures at the side and top to atmosphere (Ill. 87)." Since porous fabric was used on later airships for the outer cover, these slit-vents became unnecessary. The gas was able to escape through

the cover, and in so doing, was well diluted with large amounts of air leaving no inflammable mixture outside the airship. This was an important factor in complying with a specification of the military authorities that the machine guns on top of the airship should be free to fire at all times, a specification which was to influence the matter of ventilation for a long time. So, the bare patch was kept bare to allow the hydrogen to escape." Ω

George Allen e-mailed, "I see the obit on Bob Keiser. That makes me the last survivor of the ZPG-3W BIS Team. Ross, how many ZW-1 pilots qualified?" Ross Wood answered, "Regarding the 3W Command pilots, the only two that I know of are myself and Dennis "D.B." Lee. Dennis now lives in Tampa, FL. I still communicate with him. For whatever reason, he refuses to join the NAA. I send him an occasional "Noon Balloon". Jim Yarnell & Fred Woeber were ZW-1 pilots - still with us, although I'm not sure about Yarnell, but neither one got signed off as a PAC in the 3W. All the best, Ross" Ω

John Mellburg e-mailed Ed., "Sure enjoyed your recent FOUNDATION fine article regarding the USN and *Hindenburg*. It's a shame that P.W. Litchfield wouldn't consider getting together with the Ralph Upson group to merge the two technologies. I worked for Airships International, Inc., Dr. Earl R. Kiernan, for over 20 years during and after the time that Vladimir Pavlecka was alive, working closely with him, illustrating his many concepts of metalclad airships when Airship International was affiliated with the then McDonnell Douglas Aircraft Corporation.



When Pavy passed, Irv Culver (formerly of the Skunk Works under Kelly Johnson), came on board the A.I. Team to fill in for him. The MC-8 was his evolution of a Pavlecka design that was in the works when he

passed. I include some images of the MC-7, MC-8, MC-100 and larger evolutions of the metalclad concept, which developed from the ZMC-2. BTW, Pavlecka and company considered the ZMC-2 and all their subsequent designs to be Rigid Airships, having internal main frame rings, external longitudinal stringers which were attached over the metal-clad skin. Initially, the skin was attached by a mechanical “stapling” process invented and patented by the ZMC-2 Team. The later designs of Pavy were intended to be laser welded to main ring structures, as the illustrations I sent you will reveal. All this work came to an end with the passing of Dr. Kiernan about 5+ years ago... Ω *Ed. encouraged John to write up his experiences with the AI men for a future issue.*

HAV's return to flight testing (see Cardington) generated quite a bit of e-mail comments by members. However, the story that Google Glass' Sergey Brin is building an airship (See “Moffett Field”) generated many e-mails, beginning with our Technical Chair Jurgen Bock: “Thanks for finding somebody who wants to build a big airship to pick up cargo from any point of the earth and transport it anywhere in a non-stop mission. I think we should introduce him to Carl von Gablenz and his aborted CargoLifter project ‘that only failed, because the bad, bad, very bad Government did not furnish him with the necessary funds and the share holders were so mean at the end.’ ... The key lessons to be learned from Zeppelin are, aside of detail engineering and meteorology; minimum practical size, rigid construction, use of gaseous fuel, selection of materials, system engineering, operations.” Ω

Mayor Roch Cheraud of Saint-Viaud, France, contacted NAA concerning his plans for a 100 year celebration / remembrance of NAS Paimboeuf to be held on 25 June 2017. He wanted to know where photos of Paimboeuf, which appeared in *The Noon Balloon*, had come from, and whether we know the currently living relatives of any of the men whose photos he attached. Several NAA officers took up the challenge, asking members to help. Janet Estes researched names of men we knew of who'd served there, locating possible descendants in case the Mayor wanted to invite them to the celebration. Mark Lutz also located information, and we will incorporate all this into a *Noon Balloon* article, possibly for Fall. At press time, Mayor Cheraud had kindly just sent a package to Ed. containing the impressive program, which contained many of the photos the team provided. It will also feature in the future article. Ω

G. T. Whittle passed last May (See Black Blimp). Bill Walker noted G.T.'s father, George Valentine Whittle, a

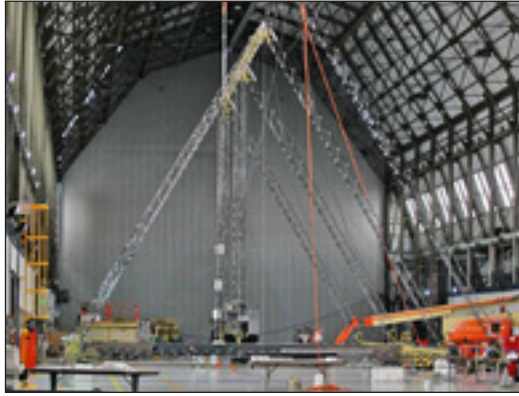
career naval officer, “held 52 patents, including the first inflatable life raft and the Mae West life jacket designed for airships.” In 1937, G.T. at age 10, was on the field with his parents and friends to watch the landing and experienced the LZ-129 crash first hand. His mother immediately went to the infirmary to assist with the burn victims. She then used her lipstick to put a “M” on the foreheads of the patients who had been given morphine. Several years ago, Gloria and George were guests of the Zeppelin family in Friedrichshafen to visit the Airship Museum and tour the replica *Hindenburg*. Ω



Our overworked and underpaid member at NMNA, Steve Kozlovski, continues bi-weekly scans of LTA photos for us to i.d. and share. He reminds us NMNA is still missing patches from ZP-4 and ZP-15, should anyone have saved one. One of the photos sent for i.d. clearly was of the Lebuday-style airship created for the movie “Chitty Chitty Bang Bang.” Ed.'s colleague DIRIGBLE editor Dr. Giles Camplin, who was on that crew, offered this caption: “Wow. That brings back some memories. Trying to work out which flight op it would have been. Must be an early one. Suspect it could be the first trials outdoors. Definitely at Turville, or Henley on Thames, Bucks. Looks like the landing end of the Holloway Lane Field. That is our crew caravan and toilet on the right hand frame edge. Dick van Dyke's windmill is to the left, atop the wooded hill in the background. If it is where and when I think it is, then I am in the engineer's seat behind Malcolm Brighton. Pilot is definitely him. We only made one flight from here and went on to crash in a pine tree plantation in the next valley as we couldn't get the damn thing to descend under control. Every time you put power on, it climbed! Also, if it is preparing for the first flight, then it is full of a mix of mostly helium topped up with hydrogen. The film co paid for a tanker full from Texas, but we used all that and topped with H2 from Cardington in the dead of night. The insurance co would have had kittens if they knew! Anyway I claim that my first airship flight was with hydrelum!” Ω

SHORE ESTABLISHMENTS

AKRON



Assembled longerons are stored vertically, awaiting final assembly when the new envelope is available

Goodyear has started assembly of its third Zeppelin NT. At present, in the main hangar area, the aluminum and carbon fiber longerons that will make up the interior structure of the new airship are being built. In the back workshop, the wiring channels are being prepared for incorporation in the longerons. While this work is being done, *Wingfoot Two* can be squeezed into the hangar.

The California crew is at the Wingfoot Lake hangar undergoing training on the airship which will be stationed in Carson, California. It is expected to leave for its new home in the fall of this year, once the inflatable hangar being built there is ready for use.



A Goodyear mechanic works on building the wiring channels that will be incorporated in the longerons when the new airship is assembled. (Photos courtesy of the Akron Beacon Journal)

During the summer, assembly of the new airship will be halted, for about two months, and will be resumed once *Wingfoot Two* has departed for its new home, making room in the hangar for the assembly of the third airship. It is expected that the new airship will enter service in the spring of 2018. Although no name has been announced for the new airship, all bets seem to be on *Wingfoot Three*.

– **Alvaro Bellon**

At press time there has been no additional information released by Goodyear or Lindstrand Technologies Ltd on the California hangar announced last issue.

GLYNCO

Patty Mallicote e-mailed, “I am a volunteer with the Coastal Georgia Historical Society and we are restoring the historic East Beach Coast Guard Station on St. Simons Island. We are also interested in the nearby Naval Air Station and, that brings me to you, the blimps in operation at that time. In doing the restoration, we plan to create displays about the history of the station, including the period it was held by the Navy. We are interested in any historical items, artifacts, news articles, photographs, plans, drawings, anecdotal information, etc., that relate to the blimps. We are in the planning phase and we are trying to determine what is available. Do you have photos of the exact blimps that were flown from NAS Glynco?”

Ed. and History Chair Mark Lutz responded and provided Patty with photos, information and articles. We asked her to check on the remains of the crashed K airship (we believe to be a 4K) once visible from the air. At press time, Patty responded, “Our Curator spoke with a helicopter pilot who has recently flown over the area where “Ol Swampy” is located. He said that he could still see the cabin laying on its side. We are looking at trying to get in there to see if it can be retrieved – or at least a part of it. Ω

LAKEHURST

Ceremony marks 80th anniversary of *Hindenburg* disaster (Bob D’Angelo, Cox Media) For the first time in five years, the public had access to the site where the *Hindenburg* crashed, NJ.com reported. Observers got a one-hour window beginning at 5:30 p.m. to visit the site, Carl Jablonski, president of the Navy Lakehurst Historical Society, told NJ.com. A ceremony honoring those who died as a result of the crash started at 6:30 p.m. The featured speaker at the event was Horst Schirmer, who flew on the *Hindenburg* when he was 5 years old. Schirmer’s father, Max, designed the aeronautics for the airship. Schirmer, now 85, rode in the 805-foot-long zeppelin during test flights in Germany a year before the Lakehurst disaster. Col. Thaden, the commander of Joint Base McGuire-Dix-Lakehurst, and Jablonski offered remarks at the ceremony. The ceremony included a reading of the names of all 36 people who died — 13 passengers, 22 crew members, and one ground worker — and wreaths were presented in honor of the fallen troops in Iraq and Afghanistan. Werner Doehner, 88, the last survivor from the ill-fated flight, was 8 years old when he and his parents, brother and sister boarded the *Hindenburg* on their way home from a vacation in Germany. Ω

FRIEDRICHSHAFEN



Celebrations of the 100th anniversary of Count Zeppelin's death in 1917 were muted. A Zeppelin NT flew over the grave coming down to a height of 50 metres over the 70-strong crowd. Albrecht, Count Zeppelin's great-grandson, gave a speech that not only celebrated the triumphs of his great-grandfather's invention, but recognized and regretted the human cost in its development and from its use as a weapon in WWI, with significant loss of life caused to both sides.



Oberbürgermeister Andreas Brand and a crowd of about 70 people marked the 100th anniversary

He also asked forgiveness for the use of forced labor in Zeppelin subsidiary companies during WWII, and sought a return of control of the Zeppelin Stiftung (fund) from the town to the family once more. The Zeppelin NT carried 1,400 first-day covers which will be sold to benefit the Pestalozzi Children's Charity.

http://m.schwaebische.de/region_artikel,-Zeppelin-Urenkel-bittet-um-Vergebung-fuer-den-Grossvater-arid,10628025_toid,310_type,amp.html

– Alastair Reid

NEAM

The R-100 was a focal point of New England Air Museum Lighter-Than-Air exhibit. There are a lot of capital improvements going on at NEAM now, but at some point the R-100 display will move across the hangar to the area where the K-28 blimp car restoration sits. The Director has said that he would like the display to return to something more like the original department store style, with new objects or graphics reflecting the excitement the R-100 generated in Montreal, and the commercial frenzy that went along with it. That is the main reason we hope to find some information about how Eaton's set up that display window.

The NEAM acquired the 10-foot model of the R-100, along with a 3-foot model of the mooring tower, from a collector of aviation toys and models sometime before 1993. It turned out that the model had been used in a window display in Eaton's Department Store in Montreal. Around 2005, the R-100 display was augmented at NEAM with a representation of the St. Hubert airport grounds, featuring a little hangar, small airplanes, and miniature cars and people. NEAM volunteers wired up electric motors to turn the dirigible's propellers, and these could be activated by visitors, by way of a push-button outside the case.



Regarding the New England Air Museum's model, we will leave the dirigible as is, with R-100 and G-FAAV as they are currently painted on the sides. The new Museum Director, who has two years on the job, remarked to us on his first evaluation of the R-100 display, that the model seemed more toy-like than a lot of the other aviation models in the Museum. When we dug into the history of the model a bit, that made more sense. As a department store window display, it would likely be a little crude and out-of-scale, particularly if the engine pods had to contain working motors to impress the customers.

– George Diemer

MOFFETT FIELD

Ed. asked NAA VP Bill Wissel to try and confirm or deny media reports of a new airship effort in the doorless timber hangar. Bill answered, "I will give it a try, but it is all very tight-lipped. There is a sort of temporary "tent" like thing inside the hangar at the southwest corner. Nobody really knows what's going on in there, at least nobody on the museum side of the fence.

The MFHS museum has been closed for over a month. Contamination levels have been detected inside the museum building. There have been proposals for improved or increased ventilation. Funny you can "resolve" an environmental contamination issue by blowing it out the windows. But so far, I have not heard of a solution." Ed. has prepared this compilation of the media reporting under the general title:

Google Co-Founder Plans To Build \$100M-Plus Blimp

The Guardian, USA Today, ABC News and other outlets repeated a Bloomberg News story that Google co-founder Sergey Brin is planning to build a \$100 million-plus blimp that would be used for personal travel, "humanitarian missions, getting supplies, food and other necessities to hard-to-reach areas around the globe." Brin wants the gargantuan airship, funded personally by the billionaire, to be able to deliver supplies and food on humanitarian missions to remote locations. However, it will also serve as a luxurious intercontinental "air yacht" for Brin's friends and family.

Brin, the Google co-founder, has secretly been building a massive airship inside of Hangar 2 at the NASA Ames Research Center, according to four people with knowledge of the project. The sources revealed details of the airship on the condition of anonymity, citing confidentiality agreements. Brin has revealed nothing of his airship ambitions and is building the airship in a giant hangar on the NASA airfield far from the eyes of the public. It's unclear whether the craft, which looks like a zeppelin, is a hobby or something Brin hopes to turn into a business. The people familiar with the project said Brin has long been fascinated by airships. His interest in the crafts started when Brin would visit Ames, which is located next to Google parent Alphabet Inc.'s headquarters in Mountain View, California. Google has long flown its corporate jets out of the NASA Ames airfield, home to the USS *Macon's* iconic hangars. Alex Hall, who operated a business called Airship Ventures offering tourist rides in a modern 75-meter-long Zeppelin out of Ames, remembers Brin's

enthusiasm for lighter-than-air travel. "We had a lot of interactions with Sergey over the years," he said. "He is definitely somebody that has a passion for this type of transportation....If you want to travel in style like the airships of old then you need something large," Hall said. In November 2014, Google-controlled Planetary Ventures signed a \$1.1bn, 60-year lease for more than 1,000 acres of the Moffett Field airbase at Ames, including its three large airship hangars. Planetary Ventures in return gets the space and privacy it needed to carry out its own aeronautical development.

In 2014, Brin got in touch with Alan Weston, an aerospace engineer who had been a program director at NASA. Born to Australian parents, Weston spent some of his youth in Turkey and then ended up at the University of Oxford. Following his stint at the Air Force, Weston joined NASA and worked on a wide number of projects, including the development of a low-cost lunar lander. Weston briefly listed his employer on LinkedIn as LTARE. This is an abbreviation for LTA Research and Exploration. The company, founded in 2014, is controlled by Brin's private family business. In its latest filing with Californian authorities, LTA listed as its manager Clock LLC, a company that held patents for Alphabet's airborne wind power firm Makani Power. "New airship technologies have the promise to reduce the cost of moving things per ton-mile by up to an order of magnitude," Weston said in an interview. "A larger airship can reduce costs a lot more than a smaller ship, but there's design of a class of vehicles that can lift up to 500 tons that could be actually more fuel-efficient than even a truck."

Brin asked Weston to research airship technology that could fulfill his twin dreams of luxury travel and aid relief, but at much higher speeds than the airships of old. "Weston canvassed the world looking for who had the best ideas and technology," one source said. "He even went to Germany and talked to the people at Zeppelin ... but he found Igor had the best ideas." The Guardian stated that the blimp would "use internal bladders to control its lightweight body [a Pasternak trademark]. The partnership with Pasternak did not continue, and Weston continues to develop his own airship designs.

In 2015, Brin asked Weston to build a one-tenth scale model of a variable buoyancy airship to test its air worthiness, one source said. "It's going to be massive on a grand scale," said one, adding that the airship is likely to be nearly 200 meters long (656 ft). **Ω**

CARDINGTON (Back Cover Story)



The *AIRLANDER 10* made her fourth flight on May 10th, some nine months after the hard landing incident that resulted in damage to the gondola and an interruption to flight testing. The origins of the hard landing can be traced to the end of hybrid airship's second flight on August 24, 2016. After a successful test-flight, the aircraft was waiting on the ground ready to be moored to the mobile mast. However, the winch on the mast connected to aircraft via the pull-in line refused to start. Rather than hold the vehicle on the ground while the issue was resolved (keeping in mind the crew are still developing ground handling procedures), the pull-in line was coiled and stowed inside a gondola door and the pilots took off again. While waiting near the airfield the pull-line fell out. Once the winch was operational and the ship cleared for landing, the hybrid airship made a high, slow approach to prevent the dangling pull-in line fowling anything on the ground. As it came to a standstill just short of the landing area and still some 200 ft above the ground, it nosed over and began to descend too quickly for the pilots to take corrective action. As a result, the vehicle impacted nose down, crushing the front of the gondola. Luckily the envelope was not punctured and the aircraft's systems were still fully functional so hull pressure could be maintained. The crew exited the gondola without injury and the aircraft was secured to the mast and returned to the hangar during the calm of the night.

The performance of the aircraft during all three flights made in 2016 was analyzed in detail allowing the training programs for both normal and emergency procedures to be enhanced. These changes will not only improve safety, but efficiency as well. Lessons learned from the heavy landing have been incorporated into the design of the vehicle, changes to operational procedures and improvements to ground equipment.

The most obvious physical change to the aircraft is the addition of the Auxiliary Landing System (ALS)

which consists of two airbags, in the form of truncated cones, located on each side of the gondola. Extending below the level of the gondola floor they are inflated prior to landing and are intended to prevent any damage in the event of another hard or nose down landing. The ALS uses air from the ballonet system and takes about 12 seconds to inflate. They will be used as standard for the foreseeable future. A less obvious change is the damage to the gondola, limited to the pilot's station, has been rebuilt using sheet metal and not the original composite material. This was done in part to improve electrical connectivity of the gondola structure. A new mast truck equipped with tracks (in place of wheels) will allow better maneuverability over the uneven airfield terrain, and there is now a back-up for the mast winch that can be used to pull the ship in.

AIRLANDER 10 was brought out of the hangar at dusk on April 7th and moved to the specially installed mooring circle to the east of the sheds. The reappearance of the aircraft once again caused a significant amount of interest with many people travelling considerable distances to get a look at the aircraft from several vantage points around the airfield. It also received wide coverage in the media.



Final testing was completed with the hybrid airship moored to the mast while waiting final approval from both the UK Civil Aviation Authority (CAA) and the European Aviation Safety Agency (EASA) to resume flight testing. Included in the flight approvals were the following operational criteria: 40kts max airspeed, 4000ft maximum altitude, 3 hours maximum flight duration, 15 nm maximum distance from the airfield, Visual Meteorological Conditions (VMC - 3,000 ft cloud base etc), and 5km visibility.

The *AIRLANDER* was taken off its mooring mast at 17:20 local on May 10th and took off at 17:28. As for all UK flights so far onboard were Chief Pilot David Burns and Experimental Test Pilot Simon Davies. The flight lasted for a total of 180 minutes before landing

at 20:15 and was secured safely on the mast at 20:20. The weather was relatively calm (especially for England) with winds being below 10 knots and mostly steady in direction. They were forecast to fall to near calm at the time of landing.

Three main objectives were set for the flight. First, the successful completion of a full flight; take-off, cruise and landing. Second, establish the basic handling characteristics of the aircraft within the current flight envelope and including the new ALS. Third, to collect data for post flight analysis. All three goals were successfully achieved. It was possible to follow almost the entire flight live, or nearly live, via video posted by spectators to several social media sites, quite an achievement given the duration of the flight. The ground tack of the airship could also be followed with about a five-minute delay via a 'flight tracker' website. (The author was watching the various video feeds from just outside Boston, USA.)



The *AIRLANDER* appeared to be operating at a positive static weight that kept the ship safely on the ground after the mobile mast had disconnected, but still allowed a spritely take-off. As power was applied, the bow rose first reaching quite a steep angle, estimated to be about 25°, before the stern became airborne. This brought the horizontal fins close to the ground but they did not strike. The ground run was negligible.

Following take-off, a shallow climb was initiated and the interaction of the control surfaces and steering vanes behind all four engines could be clearly observed. A nose-up static trim was evident for a period which was corrected, presumably using the ballonets, early in the flight. Much of the flight was conducted to the northeast of Cardington, staying within 15 miles and mostly over open countryside. The ship made multiple turns, climbs and descents to test basic handling qualities. With the airspeed limited to 40 knots, the control surfaces reportedly provided excellent aircraft

control. The steering vanes were tested for low speed handling, especially for climbs and descents and again gave good control once the response lag time, due to the size and mass of the aircraft, had been accounted for.



The pilots reported that noise and vibration levels in the gondola were very low with the engines being inaudible. The most obvious noise was generated by the flapping covers for the ALS which was deployed for much of the second half of the flight to give it a good 'work out'.

Towards the end of the flight the aircraft returned to the vicinity of Cardington and at a height of 3000 ft, made several simulated landings, bringing the aircraft to a full stop in mid-air.

A long, shallow practice approach was made to the airfield from the south-west at a fair speed. The ship had a noticeable sideways drift and was turning into wind using control surfaces and the steering vanes on the rear engines as power was applied to initiate the climb-out.

The second approach was very similar to the first with the ship making a low, shallow approach at what looked to be about 20 knots. The interaction of the control surfaces was once again obvious. The rear starboard skid just touched down first after which the ship leveled out and came to a stop very quickly.

A small amount of movement was evident as the ship sat on the ground after landing. The mobile, stub, mast was driven into position and the ship secured without difficulty before being taken back to the moor circle.

The flight test program is separated in three phases, each dictated by the number of hours flown and gathering the necessary data. With each new phase the operating limitations are expanded. Only a handful of flights are expected to be needed to complete the first phase of the program, after which the aircraft will be permitted to travel further away from Cardington, and fly for longer. Hopefully the notoriously fickle British weather will cooperate!

– Paul Adams

At press time... AIRLANDER was aloft for another test flight the evening of June 13th.

COVER STORY: Brazil Emerges

Fabricio De Avellar, *Coordenador Comercial*

Exclusive to *The Noon Balloon*



Only hinted at in previous issues, now Airship do Brasil has released to our readers complete details of their new independent effort to establish an LTA industry in Brazil, they're building a small training airship, and their goal of building a ZPG-3W-sized airship for cargo. –Ed.

“The interest of large companies, national and international, has driven the design of airships in Brazil, enabling them to become an essential part of not only logistics and transport system, but also the socio-economic and defense infrastructure. Taking into account the infrastructure of developing countries, as Brazil, the airship and other lighter than air platform present themselves as an excellent solution to logistical issues caused by deficiencies in roads and road terminals in general (roads, railways, ports and airports among others).”

“The advantage of developing an airship in a market such as Brazil's is that we have a lot of room for growth and data generation, so in a sense we can affiliate our companies with various study institutes around the country, some of which have developed an interest in working with us (Santa Catarina Federal University) to develop innovations in our logistical network and open new areas of technology with open innovation.”

In addition to a complex of buildings containing everything from labs, workshops and a clean room, ADB worked with hangar construction companies to build a new structure that is cheaper to produce and build overall. The metal framework covered in reinforced canvas/tarp that makes it a simple yet effective and fast construction. It has 18 meters (59.1 ft) of free span space, 20m (65.6ft) height and 60m (196.85 ft) of length.

Lindstrand Technologies Ltd. was awarded the contract for the 3-X01 envelope, of traditional design polyester fabric coated with polyurethane. Vertical

patches / longitudinal gores facilitated construction and delivered a lightweight and secure fabric envelope. It took four months of work to be fabricated, and after extensive testing in Sao Carlos, the fabric proved itself to be structurally sound.

Fin structures are in inverted Y format making take off easy with great heaviness, which allows the airship to haul heavier payloads. This first airship will use conventional control yokes assisted by three hydraulic actuators, making movements gentler and subtler for a more pleasurable flight experience. Future production models will feature more modern fly by wire systems. The carbon-fiber and fiberglass car mounts the single Lycoming six-cylinder engine in pusher configuration.

Short term plans include using the proof of concept as a platform for marketing (buoyant banner), crop dusting experimentation, electrical transmission line inspection and security.



(Internet report) On March 31, ADB christened the first airship built in Latin America. The ceremony followed the Nordic-medieval traditions of boat baptism that were adapted for the airship during its golden age in the early twentieth century. Along with the breaking of champagne on the mast, there was an ecumenical service in the morning with the presence of ADB employees. The event, considered a great success, closed the month of March and began the next step for the experimental ADB-3-X01, which will make its flight tests in the coming months. Ω

AIAA 23rd LTA Technology Conference

The 23rd LTA Technology Conference occupied two days of the week-long AIAA AITO at the Sheraton Denver Downtown Hotel, June 5-9, 2017. LTA shared the Savoy and Vail rooms with the Scientific Balloon and Decelerator Systems presentations.

Ed. acted as session chair for 255-LTA-03, LTA Engineering & Design, which included the following paper/presentations whose reference numbers all begin with AIAA-2017- :

3992: Several Concerns of Advanced Airships for Thrust Vectoring Application on Dynamic Study, by X. Zhang, H. Liang, and X. Guo of Beihang Univ. Beijing. The very math-intensive study was presented by Xiayang Zhang, who'd traveled from China.

3993: Development of Flight Mode Algorithms for Tethered Airships, by S. Stevanovic; J.S. Santos; K. Kondak; L.C. Goes; and R.S. Pant. This graphic-rich program was presented by Jonatas Santos, who'd arrived from Brazil.

3994: Design and Fabrication of a Winch for Aerostat, by H. Shah; B. Katare; V. Rane; U. Chawda; B. Sonawane; R.S. Pant. The presentation was loaded with photos of the students' hand-built winch and a video of it pulling in a test concrete block.

3996: Design and Development of an Indoor Autonomous Airship, by M. Biju; R.S. Pant. Both this excellent paper and 3994 were presented By Nimesh Singhal, who'd come in from TUM Asia in Singapore.

3995: An Elevated Balloon-Kite Hybrid Platform for Surveillance, by C.R. Dusane; A.V. Wani; R.S. Pant; D. Chakraborty; B. Chakravarthy. This presentation, which illustrated the team's construction and test results, was given by Sushilkumar Kerimani, who had traveled from India. The hybrid, tethered craft went through several full-scale design evolutions.

That afternoon, the concurrent "Demand for Unmanned" sessions otherwise dominated by the majority HTA attendees, turned attention to the "UAS Carrier Airship" panel discussion. Moderator (and LTA TC supporter) Ron Hochstetler of SAIC asked Ed. to play Act Three of his DVD, *"The Flying Carriers,"* which gave the assembly a "reality check," where the state of the flying carrier art had reached in 1935.

The large assembly then listened to a presentation by Michael O'Neal, Director, Modeling & Simulation of MARCORSYSCOM, who called for solutions to vexing, deadly battlefield resupply problems. Following was

Professor Oleg A. Yakimenko of the USN Postgraduate School, who showed the extensive research conducted with UAVs by the school. The Q & A session followed.

Thursday's 303 LTA-04 Session, Airship Development, was chaired by Charles Lambert, and included the following paper/presentations:

4133: ZRCV: The Giant That Almost Was, authored by and presented by Ed.

4134: Lighter-Than-Air (LTA) 'Aircraft Carriers' of Persistent, Cheap Micro-Weaponized UAV Swarms for Fleet BMD Overwatch, EW, and Wide-Area ASW/ Surveillance, by J. Bosma. This innovative plan of using micro-UAVs in large numbers from an airship base was given by Ron Hochstetler.

4135: Application of Large UAV Test Principles to LTA Platforms, by M.L. McDaniel. Michael's candid presentation brought experience of real-world UAV testing to would-be LTA UAV builders.

4136: Reconfigurable Cellular Composite Structures for Lighter than Air Vehicles by Grace M. Copplesstone and K. Cheung. Grace, the only female presenter, left the audience aghast with her presentation of developments in their "digital cellular" structure research, with its profound implications for LTA hulls.



From MIT's "Center for Bits and Atoms," left to right: Octahedron unit cell (one brought for show-and-tell was about 1.5 inches on a side); fashioned into a structural ring; then assembled into a complete hull. Nothing remotely like this common-element, reconfigurable material has been used as an airship hull.

The scheduled Airship do Brasil oral presentation was to be the last of the session. "A case study as of Latin America's newest LTA company by M.A. De Felippes." Since the show's creator was unable to attend due to a last minute conflict, the power point was e-mailed to Ed. who gave it a shot. Attendees were eager to see and hear what progress had been made by the company whose had just christened and rolled out their first ship. (See "Cover Story.") Attendees left the conference with a renewed optimism that the best LTA has to offer is yet to come! Ω



Live Stratospheric Balloon-Cam view of Solar Eclipse Shadow Monday 21 August 2017

From an interview with Minnesota NASA Space Grant Consortium Assoc. Director James Flaten by Mark Lutz

While the total eclipse at any location on the ground will last roughly just 2 minutes, it will take 1 hour 30 minutes for the shadow of the moon to sweep across the US from Oregon to South Carolina. You will be able to watch this moon shadow live over its entire path courtesy of a fleet of Stratospheric Balloons with downward pointing cameras launched by University Students in NASA's Space Grant Consortium. Each balloon will see the shadow coming from about 200 miles away. That shadow is really going to move – I think something like 2,000 miles per hour. Here is the website for the live balloon-cam coverage on Monday 21 August 2017:
<https://stream.live/eclipse>

The website is already showing footage from a previous test balloon launch. As of December, 2016, 35 balloon teams have signed up to participate. They will be spread out along the path, and time their launches. (If you want to see the total Eclipse in person, you have to be in the narrow band shown on the map, and the weather has to cooperate)

Live balloon-cam eclipse shadow display times:

Eastern Daylight Savings time: 1:15 PM to 2:45 PM
 Central Daylight Savings time 12:15 PM to 1:45PM
 Mountain Daylight Savings 11:15 AM to 12:45 PM
 Pacific Daylight Savings time 10:15 AM to 11:45 AM
 Universal Time 17:15 to 18:45

Viewing the Eclipse itself with the balloon cameras is not technically feasible – the camera pointing and stabilization equipment required, given a moving and turning balloon, is well beyond the available budget.

(Photo above right) Six Minnesota students inflate two weather balloons to test eclipse observation cameras and transmitters in the summer of 2016. The instrument payloads are seen on the grass to the left and right of the kneeling student in the foreground. One of the three helium inflation cylinders is just left of his head.

The other two 200-cu-ft helium cylinders, laying on their sides, hold down the left and right corners of the tarp. The students are wearing nitrile gloves to avoid getting skin oil on the balloon, which might result in premature bursting. The gloves also protect the balloon from fingernails. The Minnesota eclipse camera launch will be along the eclipse path – not in Minnesota. They will launch at least two balloons, so there is at least one backup.



The balloons used are 1,200 gram latex weather balloons. 1,200 grams is what the empty balloons weigh. These are inflated with 300 cu ft of Helium, and, at the ground, are about 7 feet in diameter. Carrying their instrument payloads, they rise about 1,000 feet per minute, expanding as they get higher and higher. At about 90,000 feet, they might have expanded to as much as 30 feet in diameter. At that diameter, they've reached the stretch and strength capability of the latex rubber, and they burst. A parachute opens and conveys the instrument payloads to earth. The balloon team follows the descending package via its radio signal giving its GPS location, and retrieves it – the balloon is chased a bit like US Navy LTA training balloons were chased. The total payload weight is limited to 12 pounds by FAA rules, and must be split into sections weighing no more than 6 pounds each. 120,000 feet can be reached by using larger balloons. More weight can be carried, but the FAA rules get much more cumbersome, so Director Flaten's teams stay under 12 lbs.

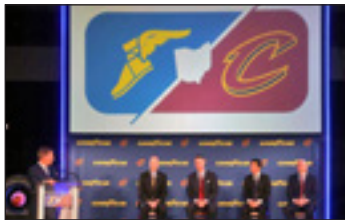
Director Flaten's Minnesota group launches roughly 20 balloons per year, often from a location just North of the Minneapolis-Saint Paul Metropolitan area (well away from the main airport). The balloons have various tasks. Thus, current-day NASA introduction to space for students, is via stratospheric LTA technology! Visitors are welcome to observe the balloon launches by the Minnesota group.

There are something like a dozen colleges involved in the Minnesota NASA Space Grant Consortium. The University of St Catherine, in St Paul, MN, studies the thermal wake below the balloons. Balloons warm up in sunlight (balloon super heat) and transfer some of this heat to the air around them, making the wake air immediately below the balloon a little warmer than the surrounding air. St Catherine's has considerable statistical data on this effect from many balloon launches. Ω

SHORT LINES

NSA Blimp Spied in the United States (Ryan Gallagher) Back in 2004, a division of the NSA called the National Tactical Integration Office fitted a 62-foot diameter airship called the Hover Hammer with an eavesdropping device, according to a classified document published by The Intercept. The agency launched the three-engine airship at an airfield near Solomons Island, Maryland. And from there, the blimp was able to vacuum up “international shipping data emanating from the Long Island, New York area,” the document says. The spy equipment on the airship was called Digital Receiver Technology — a proprietary system manufactured by a Maryland-based company of the same name — which can intercept wireless communications, including cellphone calls. With the exception of a few military websites that refer to the Hover Hammer as an “antenna mounting platform,” there is little information in the public domain about it... The agency added in the document that it planned to conduct more tests with the Hover Hammer, and said it wanted to develop a larger version of the blimp that would be capable of flying at altitudes of 68,000 feet for up to six months at a time. “More experiments, including the use of onboard imagery sensors, are being conducted.” Ω

A logo announcing a new partnership between the Cleveland Cavaliers and Goodyear looms over last week's news conference announcing the deal, in which the defending NBA champions will wear the tire giant's winged-foot logo on the fronts of their jerseys starting next season. (Joshua Gunter, cleveland.com) Ω



One Of Last Operational Boeing 747-200s Takes Final Flight USA Today (4/21) reported that cargo carrier Kalitta Air was scheduled to retire “one of the last airworthy” Boeing 747-200 jetliners Friday. The Boeing Company built the 747-200 between 1971 and the early 1990s before switching production to the 747-400. The particular jet retired Friday was delivered in 1987 as a passenger jetliner before being converted to a freighter in 2000 and acquired by Kalitta in 2010. The plane's pilot explained that the 747-200 features much less automation than newer models, requiring a flight engineer — a position also disappearing with the retirement of older models. Ω

Ballard's Protonex Subsidiary Powers Successful ScanEagle UAV Test Flights In a May 9 release from Ballard's subsidiary, Protonex, it has successfully powered test flights of an Insitu ScanEagle unmanned aerial vehicle (UAV) with the company's PEM (proton exchange membrane) fuel cell propulsion system. “These test flights have successfully demonstrated the integration and operation of our fuel cell propulsion system as well as the high-pressure hydrogen fuel tank,” said Paul Osenar, president of Protonex. “The tests also documented acoustic footprint reduction that will enable mission routes that take the ScanEagle closer to its targets. In addition, test flights confirm that our fuel cell propulsion system offers power during flight that can be used to support greater payload diversity. Advantages of the Protonex fuel cell propulsion modules over traditional internal combustion engine propulsion systems include: significant improvement in the expected mean time between failures; silent operation; 100 percent throttle flexibility, including midair start-stop capability; and use of existing JP8 fuel in ground refueling systems. The ScanEagle is operated in conjunction with Insitu's Mark4 Launcher, a low-maintenance, runway-independent platform along with its SkyHook recovery system. Ω

Enlisted Airmen Complete RPA Training Inside Defense (5/8) reports that the first three enlisted US Air Force airmen to train as remotely piloted aircraft (RPA) operators graduated from their program on May 5 and will now begin RQ-4 Global Hawk qualifications. The three are the first enlisted airmen trained as pilots since World War II, though the service expects that 70 percent of Global Hawk pilots will be enlisted airmen by 2020. Ω

General Calls For USAF To Restore Sidelined C-5s Roll Call (4/13) reported that Gen. Carlton Everhart, Commander of the Air Mobility Command argues that the US Air Force still needs eight C-5 Galaxy transport planes that the service grounded in 2015 to save approximately \$60 million per year in operating costs. The service placed the eight C-5s — with a combined worth of more than \$2 billion — in “backup aircraft inventory” status, while four more are kept in reserve. The Air Force currently operates 56 of the aircraft, compared to 112 prior to fiscal 2011. Everhart said that he needs the eight planes back for operations and to reduce the wear and tear on the rest of the fleet. Ω

Aerojet Rocketdyne Successfully Tests 3D-Printed Engine UPI (5/17) reports that Aerojet Rocketdyne announced that it successfully tested its 3-D printed Bantam engine in a series of 17 experiments. The engine “is a liquid oxygen/kerosene, regenerative cooled, liquid rocket thrust chamber assembly design,” built of nickel-based superalloy and has a potential 200,000 pounds of thrust, although it is currently being tested up to only 30,000 pounds of thrust. The development was funded by DARPA. Ω

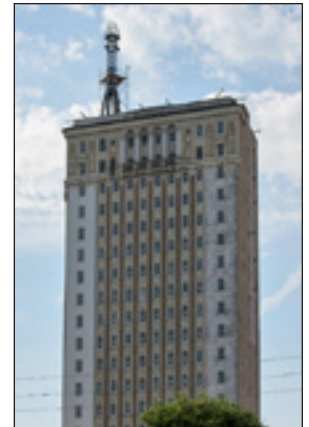
Researchers Claim to Have Found a Cheaper Way to Make Hydrogen (Stephen Edelstein) Physicists at the University of Houston claim to have discovered a new way to produce hydrogen that’s both cheaper and more efficient than current processes. It uses an inexpensive nickel catalyst (vs. current rare earths) to split water into hydrogen and oxygen. In addition to being cheaper, the new catalyst is also more durable. Ω

Aeros Launches Trial With Navy Over \$65M Bashed Blimp Aeros Aeronautical Systems kicked off a bench trial over how much the U.S. Navy owes for negligence after a \$65 million experimental blimp was destroyed when a [Tustin] military hangar collapsed, arguing it’s owed the full cost of replacement, while government attorneys countered that the “demonstrator” airship had no market value. The litigation is grounded in a suit Aeros Aeronautical Systems Corp. filed in 2015 alleging that the U.S. Navy neglected for years to make critical repairs to a hangar roof that collapsed on its airship prototype. Aeros is represented by James J. Gallagher and Brian Cruz of Pillsbury Winthrop Shaw Pittman LLP. The government is represented by Thomas K. Buck, Christopher R. Benson, Theodore William Atkinson and Jocelyn Krieger of the U.S. Department of Justice. Aeros was already handed a partial win in the case in June, when the court granted the contractor summary judgment on negligence and premises liability claims. The Navy is claiming the contractor didn’t do enough to mitigate the potential for destruction in the days before the collapse. During opening statements, Gallagher also screened for the court a few minutes of a TV program on Aeros and its airship, which suggested the blimp “could be the revolutionary cargo airship of the 21st century.” The government plans to call witnesses that will testify that the final product envisioned by Aeros could not be created. The case number is 2:15-cv-01712, in the U.S. District Court for the Central District of California. Ω

Startup Aims To Have Cargo UAVs The Size Of Boeing 777s Flying By 2020 The Daily Mail (3/28) reports that startup Natilus plans to test a prototype cargo UAV model this summer that “will be capable of carrying up to 700 pounds of cargo,” but the company ultimately “plans to launch a full scale version in 2020” that will be capable of carrying up to 200,000 pounds. According to the Daily Mail, the UAVs “are designed to take off and land on water, to avoid the need to fly over populated areas,” would “fly at an altitude of approximately 20,000 feet,” and are designed to “unload their cargo in docks rather than airports.” Ω

New life for the Thomas Jefferson Hotel (Bethany Adams) When the Thomas Jefferson Hotel opened in 1929, it opened against the backdrop of a vibrant and promising city. But as Birmingham’s luck seemed to run out, so did the building’s. After a string of ownership changes, renovations and fires, the building closed its doors in 1983. After its abandonment, the former hotel sat vacant on Second Avenue North with only remnants to offer any hint of what it once was. One of those remnants was what was left of a rooftop tower.

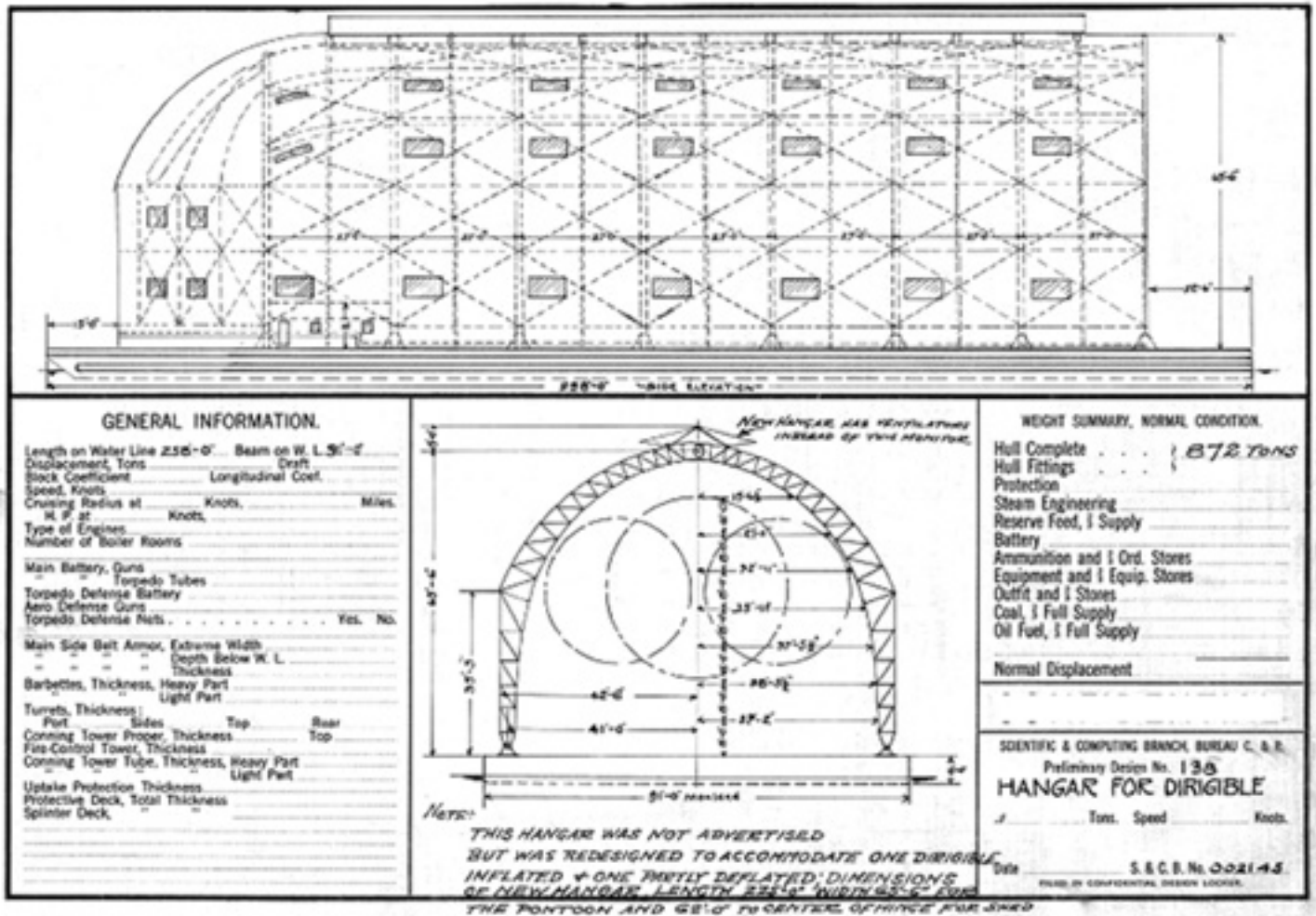
The Thomas Jefferson Tower replaced its unique dirigible tower to restore it to its original condition in downtown Birmingham. Photo by Julianna Hunter. Now, the building is getting another chance to be a part of Birmingham’s history. As overseen by Stewart Perry Construction, the former hotel is being transformed



into an apartment building that will fuse its former glory with features designed for the future. Complete with a restaurant, an event venue and retail space, the new Thomas Jefferson Tower is on its way to a second chance. Partially destroyed in the 1950s, the tower mounted on the building’s roof is widely regarded as one of the last rooftop zeppelin mooring masts in the world. A roughly 3000-pound replica of the top half of the structure was lifted by helicopter into place on top of the building. Historical records are unclear as to its intended function, but many are convinced that the structure was at one point meant for dirigible dockings. “In 1927, they were very optimistic about the use of zeppelins and dirigibles with intercontinental travel.” For more information, visit TJTower.com. Ω

The U.S. Navy's First, and Only, Floating Hangar

By Roy Mize



As the European war loomed in 1913, the U. S. War Department decided that America needed a dirigible fleet. The Secretary of the Navy's 1914 congressional budget request, for the 1915 fiscal year, asked Congress for a small "schoolship," to be used to train dirigible pilots. He also requested money for a one-of-a-kind floating hangar to house the new aerial machine and a hydrogen gas generation plant to fill its gasbag. Both would be based at a planned aviation training school at the Pensacola Naval Yard.

By 1914, aware of the European dirigible progress, and alarmed at the disadvantage of U. S. aviation, American observers traveled to Europe to see for themselves. One of them was Captain Thomas Scott Baldwin. He traveled to Europe in 1914 to obtain a small non-rigid dirigible to be used as a model by the Connecticut Aircraft Company for the new Navy schoolship. Baldwin visited several European aviation manufacturers as well as military flying fields in England, Germany, and France. Aeronautics Magazine quoted Baldwin, "demand for big dirigibles was so strong among

the European military powers that he found only one for sale." These European reports became the impetus for the U.S. Navy's request for a fleet of small semi-rigid airships that would begin with a small training dirigible to teach Navy personnel how to pilot an airship. They in turn would teach others using more training airships yet to be ordered.

The schoolship needed a home, as did the training school itself. The old Pensacola Naval Yard became the site of the Navy's first official aeronautical station, specifically organized to provide training in both airship and aeroplane operations. Naval planners considered Pensacola an ideal location. Situated on the Gulf of Mexico, good weather allowed year-round operations. Large areas of level ground, adjacent to the marine support facilities, provided space to build airship hangars on land.

The Wet Basin, a boat slip once used to build and maintain wooden ships, could berth the new floating hangar. It measured 560 feet long and 130 feet wide, and the extra width allowed more than one vessel to

be moored inside. Its location made it an ideal place, adjacent to the Navy Yard machine and construction shops that could fabricate or repair almost anything. In addition, the Yard's motorboat group would provide mission support. A level area on the starboard side provided a place for the hydrogen-generating plant.

The Navy received Congressional approval in the fall of 1914. The Navy Bureau of Construction and Repair, Scientific and Computing Branch, prepared hangar bid specifications and in March 1915 the Bureau of Supplies and Accounts issued a bid request:

Bids will be received by the Bureau of Supplies and Accounts, Navy Dept., Washington, D.C., until 10 a.m., June 15, for erecting floating hangar at the Navy Yard, Pensacola. Applications for proposal should designate Schedule 8331. Blank proposals on application to Navy Pay Office, Pensacola, or to the Bureau. Samuel McGowan, Paym. Gen., U.S.N. Washington.

On June 1, 1915, the Connecticut Aircraft Company of New Haven, Connecticut, had won the right to build the Navy's first airship. On June 15, 1915, the Navy Bureau of Construction and Repair evaluated the bids and awarded a contract to the American Bridge Company, Marine Division, to build the U. S. Navy's first floating hangar. The two awards allowed the Navy to set in motion its plans for a lighter-than-air training school.

Per specifications, the American Bridge Company, Marine Division, fabricated the hangar barge at their Ohio River shipyard near Ambridge, Pennsylvania. Once assembly had been completed, Navy and contractor personnel reviewed manufacturing records and the completed hangar barge, and then gave preliminary receipt approval and authorization for shipment to Pensacola. After Consent-to-Ship had been received, workers disassembled the hood, or superstructure, into its component parts, crated them, and secured the boxes to the barge deck. A towboat attached lines to the barge and after mooring lines were dropped, Hangar Barge Number One started its journey to Pensacola.

The tow took the barge over 1,600 miles before it reached the Wet Berth at the Naval Air Station. Once the consist reached the entrance to Pensacola Bay, NAS support ships joined them to help move Hangar Barge Number One across Pensacola Bay and into its new berth. Staging areas had been set up on both sides of the berth. Work crews removed the crates that contained the superstructure assemblies and exterior panels and placed them on the granite wharf in preplanned areas. Crates were opened and each item laid out so that it could be checked against the manifest. The rear of the hangar had been designed as a maintenance and repair facility.



After a final Naval inspection, the work crew uncrated and installed previously ordered maintenance and repair equipment and ensured that the tools were ready for use. After the American Bridge Company crew verified that all parts were present, the crew began reassembly of the hood, and the hangar superstructure. Once started, the workmen completed their task in only a few weeks.

On December 16, 1915, a U.S. Navy Bureau of Construction and Repair review panel examined the assembled hangar, including the work area, and accepted the five story high floating hangar, Hangar Barge Number One, as ready for use. The school ship hangar never received a hull number and never officially received a name. Naval correspondence listed it as an "Unclassified District Craft" and described it as simply Hangar Barge Number One. *Aerial Age* Weekly Magazine described it as follows: "The hangar is of steel, 60 by 140 feet(sic), and it draws eighteen inches of water. The hull, six feet deep, is divided into eight watertight compartments. The steel frame is as massive as the girders of a railroad bridge. The hood, or superstructure, is so designed that it can be taken down and packed on the deck."

In March 1916, Captain Mark L. Bristol (right), who headed the Office of Aeronautics, reported to the Secretary of the Navy that the hydrogen-generating plant necessary to support airship operations had been



completed. When the U.S. Navy's first dirigible (the DN-1) arrived in December 1916, the schoolship marked the beginning of lighter- than-air flight at Pensacola.

The DN-1 had started its journey in Boston, Massachusetts, and traveled nearly 1,600 miles before it reached the eight-mile long Louisville and Nashville Railroad spur that fed the Pensacola Navy Yard. Congress had granted the easement across Navy property in 1871 to a predecessor railroad, the Pensacola and Fort Barrancas Railroad.



*Aerial View – Hangar Barge in Wet Basin
(Bow End towards Bay)*

Two factors affected reassembly and test of the hangar barge and the DN-1 after their arrival: the weather, and because of a disease epidemic, a lack of skilled workmen in Pensacola. Workmen were needed to unload the freight cars, set up the crates in the staging area, and then help to reassemble the hangar and the DN-1 and its component parts. Just as with the hangar, DN-1 materials had to be uncrated and checked against the manifest before assembly could begin. After the check, everything had to be transferred into the rear work area of the hangar barge.

No DN-1 assembly records survive, but a logical sequence of events can be surmised. First the deflated gasbag and its two ballonets had to be unboxed, spread out and hung from lines attached from the roof. Next, an inflation test determined if there were any leaks. The inspection found nothing measurable, at least none were reported. However, since this check was made inside the hangar, expansion because of the sun's heat did not occur. Also, the test was made without the load of crew and systems.

With the gasbag out of the way, work continued on the boat-like gondola and the mate of the gondola

platform with the two engines, the propellers, and the drive system. The maintenance crew made a final bench test of the engines before completing the airship's propulsion system assembly - engines, propeller, controls, and the gearbox. (One of the DN-1 specifications required that it must be able to operate from the ocean's surface. A boat-building company in Massachusetts had constructed the watertight gondola, more a rectangular box than a boat.) Then they slid the completed gondola under the gasbag and attached it to the support lines. The DN-1 now floated as a complete, ready-to-operate dirigible in her hangar home.

Weather also affected the DN-1 assembly effort in the hangar. In late spring, a hurricane hit the Alabama/Mississippi coast with gale force winds that stretched out from its center and across Pensacola. The wind pushed against the hangar barge and snapped mooring lines that held it secure in the Wet Basin. The hangar barge, with the DN-1 inside, took a ride several miles across the bay and east of Pensacola. It came to rest at the edge of a swamp, held in place by mangrove trees. Towed back to the Wet Basin and re-secured, both the hangar and the airship were checked for damage. The inspectors found nothing significant.

C.A. Smythe, General Manager of the Connecticut Aircraft Company, directed final assembly of the airship. Everything was completed by the end of the second week in April 1917. Smythe and Hans O. Stigel, "mechanician," performed pre-flight checkouts; motor run-ups, gasbag inflation checks (a problem), and control assembly operation.

They didn't rush their checks, even as the Navy urged them on because of world events that now made the need for an American dirigible even more important. On April 2, 1917, President Woodrow Wilson asked the U.S. Congress for a declaration of war against the

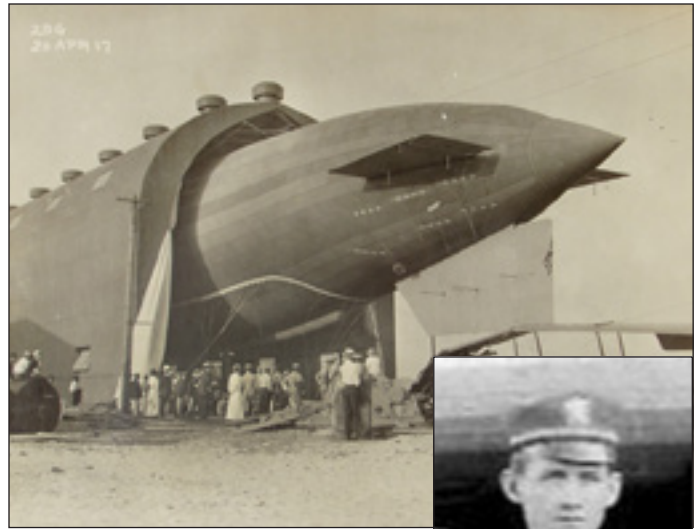




Central Powers. One week after the Declaration of War, the DN-1 began its first unofficial tests. Observers noted the airship's bright color as it exited the hangar barge. Captain Baldwin explained the color, "...a coat of bright orange varnish...found to repel the blue and violet actinic rays of the sun, which burn up the inner coating of rubber."

On her first test day, as the DN-1 exited the hangar barge, it immediately began to lose lift and started to sink down into the ocean. She was too heavy and her gasbag leaked. Towed back to the floating hangar, the support crew secured the airship using lines attached to the hangar roof. Workers repaired the gasbag leaks and lightened the load by removing one of her two Sturtevant engines. Engineers also modified the drive system and replaced the gearbox with a chain and sprocket assembly so that the twin propellers could be driven by one engine.

Tests resumed on April 20, 1917. Motor skiffs pulled the DN-1 out of the hangar using the towlines attached to the gondola. Sailors on board the support boats released the lines and the airship floated freely,



its gondola resting on the water. Smythe worked the airship controls, and Stagel stood backup, as did Lt. Commander Frank McCrary, (right) who had trained in Connecticut to operate the DN-1. Three crewmen were also on board. Smythe started the engine, adjusted the control planes, and opened the gas valves. He pointed the airship's nose upward until the airship reached the desired altitude. He leveled the DN-1 and started the endurance and speed tests.

At first, tests seemed to demonstrate everything that the Navy desired, even if the delivery had occurred almost two years later than the specified contract date. Despite the glowing review, results were a disaster. The dirigible operator released enough hydrogen gas to allow the DN-1 to descend low enough so that the crew of a powered skiff could capture the towline hanging from the bow of the airship and bring her back to her hangar.

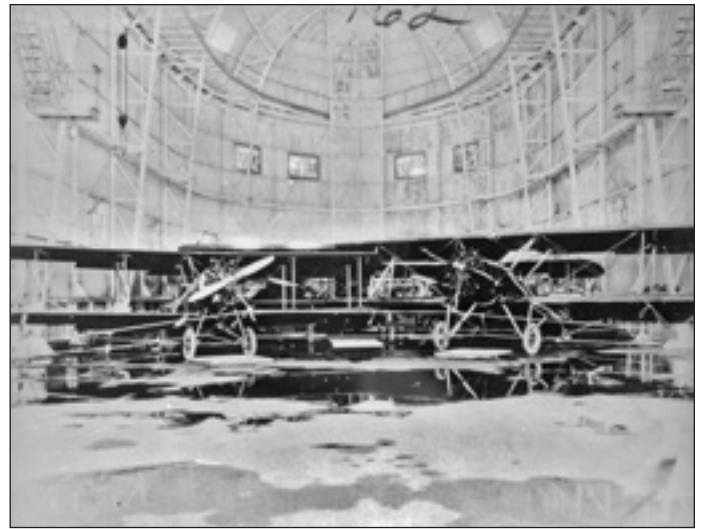
Repairs were made and new tests began on April 27, 1917. When the crew of the motorized skiff tried to tow her across the water and back to the floating hangar, the gondola received serious damage. After



an inspection and an accident review board, the final report recommended that the DN-1 not be repaired.

Dirigible DN-1 and its floating hangar were considered failures. But the airship did fly; it did meet specifications for most of its final official test flight, and the hangar met its purpose.

Hangar Barge Number One remained in the Wet Basin after the tests. Photos on the previous page show the Navy attempted additional floating hangar experiments with a new B-class airship, in captions labeled “DN-3” but probably the first of the Connecticut-built B-ships. However, the tests revealed that the hangar barge had a draft problem that tended to suck an airship into the interior, affecting a controlled entry. The tests



also disclosed another problem, that of handling the volatile hydrogen gas out on the bay; one that would be magnified if the hangar should ever be used on the ocean. An operations review board recommended that the hangar barge be moved onshore adjacent to the newly constructed standard airship land hangar.

No records still exist, but its probable that either of two methods could have been used. Since the hangar had a large pontoon float understructure, and the shoreside near its final location was mostly a level sandy beach, tractors with lines attached to the tow points on the barge could have dragged it onto land using the pontoons as skids. A variant on the drag method would have been to lay down boards or log rollers on top of the sand, and then drag the barge onshore. Whatever the method used, a Navy construction crew completed the move by the end of July 1918. The hangar shell sat on a new foundation, with its pontoon barge floating nearby, as it was given a wartime camo paint scheme similar to other NASP buildings - so as to confuse the enemy.

Official records state that the U. S. Navy sold Hangar Barge No. 1 on Jan. 20, 1921. However, photographs show it was equipped with a new end cap and small

doors, and continued to be used - for airplane storage. Naval History and Heritage Command and NMNA library archives have photos that show extensive storm damage from a hurricane on September 20, 1926, likely still stuffed with the airplanes seen therein.



Whatever the actual date of sale, it made little difference in the fate of the U. S. Navy's original airship hangar. Unsatisfactory for either airships or aeroplanes, Navy's first and only floating hangar was decommissioned and scrapped. Ω

Naval Airships And The Korean War

by Commander John A. Fahey, USN (Ret.)



USN/NARA photo 476438 of 28 APR 50 reads: "Airship landing on deck of USS Mindoro (CVE-120) during carrier landing and takeoff qualifications."

It was a Sunday on June 25, 1950, when the Commander of Fleet Airship Wings, Commander Herbert Graves (also Commander Officer, Airship Wing ONE) summoned all pilots of the squadron to announce that a war with North Korea had been declared. There was a special airship event to be conducted by our squadron on orders from Washington. He continued, "Tomorrow Admiral Forrest Sherman, Chief of Naval Operations, and Admiral William Fechteler, Commander-in-Chief of the Atlantic Fleet, will be aboard the USS *Midway* (CV 41) to observe a landing, take off, and a demonstration of airship antisubmarine tactics."

As I listened, all my thoughts were with my wife who was expecting at any moment the birth of our second child. I heard Commander Graves add that Rear Admiral Robert F. Hickey, Commander Fleet Air Wings Atlantic, would arrive at our Naval Air Facility, Weeksville, North Carolina, the next day and join the flight to observe first hand in the air aboard the airship ZP2K-80, newly refined antisubmarine tactics. With amusement, I wondered who will be the lucky pilot to fly this momentous event with three Navy Admirals watching every moment.

His next words shocked me. "John Fahey will be the pilot." "No way," I thought. The squadron operations officer had told me that because of Barbara's condition, I had filled my monthly quota of June flights with the

long 14.8 flight on the 21st of June. We lived far from both the base and the hospital in Elizabeth City. A year earlier, I completed five semesters at Brown University followed by almost a year as a Russian language student at the Navy Language School in Washington D.C. where I was qualified as an interpreter and translator of the Russian language. After graduation, I was slated for a Navy assignment using the Russian language, but instead was sent to Airship Squadron One.

During World War II, I flew 140 airship flights (1,371.1 hours), 92 combat flights patrolling the shipping lanes and escorting merchant ships in Western Atlantic waters infested with German U-boats. (Over 89,000 merchant vessels were escorted by Navy airships during the war without the loss or damage to a single merchant ship.) With the severe reduction of World War II Naval Reserve airship pilots after the war, there was a scarcity of qualified pilots. Based on my World War II experience and performance flying airships in antisubmarine patrols, merchant ship escorts, and the new Navy plan to include Navy airships in Hunter-Killer Groups operating from CVE aircraft carriers, the Navy determined that I was urgently needed back in airship operations.

Between World War II and the Korean War, I had maintained my flight proficiency with four hours of flight time per month and retained my qualification as an Airship Pilot. I reported to Airship Squadron One in the summer of 1949 and on August 22 qualified in daytime aircraft carrier landings.



USN photo NARA ref no. 476445 dated 28 APR 50 caption reads: "Airship refueling from USS Mindoro (CVE-120) at sea." This came to be referred to as the "hose method" and was eventually performed directly from fleet oilers, no need of a flattop.

According to my flight log, on January 11, 1950, I made the first inflight refueling from a carrier, USS *Mindoro* to an airship, ZP2K-93. One landing and takeoff was observed by CNO Admiral Forrest Sherman who was aboard the carrier. During July and August before qualifying, I practiced carrier landings aboard that CVE whose Commanding Officer in those months was Captain (later CNO) George W. Anderson. On February 6, 1950, I was the only pilot in Airship Squadron One to qualify in nighttime carrier landings. I was well prepared to provide this instructive airship flight. The three admirals apparently on the first and second days of the Korean War had deep concern of a possible Soviet submarine threat to ships in the Atlantic shipping lanes. They had vivid memories of the total lack of readiness for the German U-boat attacks in the first year of World War II before Navy airships came on line to defeat the enemy in the Battle of the Atlantic. CNO desired to be prepared for any Soviet action at the very onset of the Korean War with Hunter-Killer CVEs and Naval airships.

We took off in airship ZP2K-80 from NAF Weeksville as soon as Rear Admiral Robert Hickey arrived. Admiral Hickey, like CNO Sherman, was a fixed-wing Navy pilot who never had flown in an airship. Both were decorated heroes of action in World War II, Sherman having been awarded the Navy Cross. Admiral Hickey similar to the only other two admirals I had met, Vice Admirals Charles E. Rosendahl and Thomas G. W. "Tex" Settle, asked lots of questions and said little in return. He probed about the upcoming carrier landing which I told him would be much easier to do on the USS *Midway* than in rough weather to the CVE's. He seemed particularly interested in how and why I became a Naval Aviator (Airship) rather than a fixed-wing pilot. Although I had a number of reasons, I confined my answers to the attraction and capability of airships which I found to be amazingly versatile and reliable in flight.

With USS *Midway* headed into the wind, I had copilot Herman Spahr on the rudder and I sat at the elevator control with access to the throttles. I instructed Lt (jg) Spahr to steer close to the carrier's island because after takeoff I was going to stay low before departure to give Admirals Sherman and Fechteler a close view of the 2K-80 as it passed the carrier island. In addition, it was always good practice to avoid climbing too early when leaving the flight deck. As a Landing Signal Officer, I had noticed that many pilots placed the airship's tail

extremely low without adding sufficient power causing the airship not to rise, but actually descend. (After I left Airship Squadron One a year later, one airship carrier takeoff from a CVE resulted in a tail wire for attaching handling lines to be caught on one of the carrier's protrusions causing the airship's envelope to tear and deflate. The airship sunk in the ocean within two minutes.) None of this of course was conveyed to Admiral Hickey as he searched the carrier's island to view the CNO as we passed by.



The wider, more stable flight deck of the Midway class made for easier carrier landings, here with ZP2K-80.

Immediately following the takeoff, Admiral Sherman sent a flashing light message of congratulations with "well done." In sight of *Midway* we began the Chief's of Operations staged event to be witnessed in the air by the Commander Fleet Air Wings Atlantic, Admiral Robert Hickey. With the airship going through the motions, I explained the sequence of an airship detection and attack, using ECM (electronic countermeasures), radar, sonobuoys, and MAD (magnetic anomaly detector) and the final established track of a submerged submarine, a target now for depth charges, contact bombs, and homing torpedoes. Admiral Hickey, being familiar with all fixed-wing antisubmarine tactics, it was only necessary to convince him of the airship advantages of range, visibility, long-flight capabilities, heavyweight lifting of fuel and weapons, and successful performance in antisubmarine operations in World War II, only a half a decade earlier. Hickey expressed a favorable reaction to many airship advantages, including location of MAD antennae forward on the envelope without the metal interference sometime experienced on fixed-wing aircraft.

The 8.6-hour ZP2K-80 flight was a huge success and well worth the full second day of the Korean War that the three flag officers and Navy commander devoted to my flight. Arriving back at the base, I asked Admiral Hickey to make the airship's landing. He declined so I added that I would sit slightly behind and between the elevator and rudder controls and coach him, if necessary. He agreed. It was a perfect day, no wind, and the 2K-80 was in equilibrium, neither heavy or light. In order to provide Admiral Hickey time to be familiar with the rudder control in steering the airship to the landing party which would take the 2K-80's short lines, I told Herman Spahr to use the throttles only to clear the engines periodically during the long, slow descent. Usually the landing party suffered a long, agonizing run even with the props in reverse when there was no wind, but with hardly any headway this was an easy landing into the handling party hands. This made Commander Graves happy to see Admiral Hickey so pleased.



Sister airship ZP2K-88 takes a turn with CVE-120.

Following the third day of the war, I continued to fly 13 months of 50 wartime flights and 337.5 flight hours before being transferred to NAS Lakehurst Naval Airship Training Command, as a flight instructor and Officer in Charge of Ground School. Adding World War II wartime flight records to my Korean War wartime flight record from my Aviators Flight Log Book 1, in wartime operations I flew 33 months, and 209 flights for 1,778.9 hours.

We operated with two other CVEs, then *Midway* and also the USS *Roosevelt* (CVA-42). Despite the



At the rudder of ZP2K-80 is RADM Robert F. Hickey, Commander Fleet Air Wings Atlantic. LTJG Herman Spahr is on elevator and LT Fahey is sitting between them for the landing at NAF Weeksville, on return from the Midway 8.6-hour demonstration flight.

statement by Admiral John M. Richardson's Office of the Chief of Naval Operations in a letter to Senator Benjamin Cardin that the flight described above on the second day of the Korean War was my final flight and the only of my flights to occur during wartime, I continued flying a total of 101 flights and 560.2 hours in the Korean War. Earlier I flew 140 wartime flights and 1,371.1 hours in World War II.

On the 5th day of the Korean War, my wife Barbara, gave birth to our son.

Twelve years later in 1962, former CVE CO G. W. Anderson was an Admiral and Chief of Naval Operations, when I was complimented on November 22, 1962 in an unclassified portion of a CNO confidential letter: “. . . will be helpful in supporting present policy goals. Your careful research in this important area of International Relations has uncovered valuable information. It reflects broad intellectual capability and demonstrates professional competence.” Ω

**Then - LCDR Fahey
with then - POTUS
J.F. Kennedy.**



Dr. Hugo Eckener And The
Graf Zeppelin- A Study In
Personality And Technology
The Historians' Letters (Part X)
By Roy Schickendanz



In my forthcoming history of the rigid airship, Dr. Hugo Eckener will be celebrated as the world's greatest airship pilot, and his *Graf Zeppelin* as the world's most famous airship. Eckener, however, was far more than a supreme technician. Even more than Count Zeppelin, he impressed the world with the potentialities of the rigid airship as the vehicle for intercontinental travel by air, and had it not been the tragedy of the Second World War, he would surely have succeeded in his dream of creating a network of transoceanic airlines flown by Zeppelin airships.

An international figure, Eckener from 1924 to 1939, dominated the airship scene and through his brilliant demonstration flight with the "*Graf Zeppelin*" around the world, into Polar Regions, and across the Atlantic to North and South America, he enthralled millions and made the dream of world air commerce seem within reach. A master of manipulating public opinion, he welded more influence abroad than the official representatives of his government. A convinced believer in international amity and cooperation, he could, I believe, have been elected president of his country and saved it from the Second World War, and his reluctance to assume a political role, for which he was well suited by virtue of his ideals, his temperament, and his prestige, is the only phase in a great life which the historian must regret.

In the Chapel of the Air at the United States Naval Air Station in Lakehurst, New Jersey, there is a beautiful stained glass window given by Paul W. Litchfield, the president of the Goodyear Corporation, in memory of Dr. Eckener. Here the burning balloon of Pilatre de Rozier, in 1785 the first victim of the Air Age,

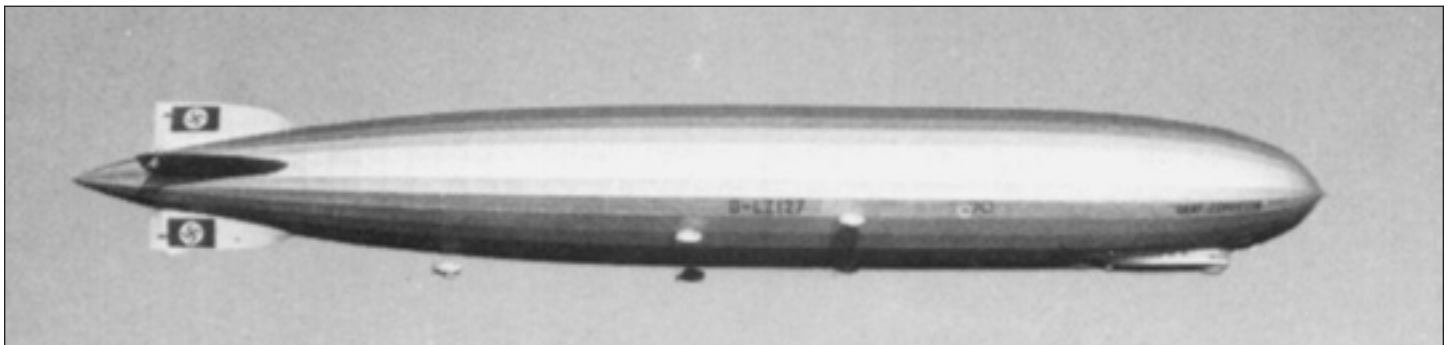
symbolizes "Sacrifice," and the *Graf Zeppelin* represents "Achievement." This is as it should be.

July 30th letter from Dr. Robinson:

Our last Letter crossed, and I have your money order for \$4.00. Thank you. Am glad that the Zeppelin drawings were satisfactory. I haven't seen anything quite like them anywhere, tho the Zeppelin Museum has recently been selling drawings of sorts; I have not asked about the WWI ones, and their *Hindenburg* drawing was a copy of one I already knew from V.D.I Magazine for March, 1936.

As for WWI German non-rigids, I would like to refer you to Cross & Cockade, vol. 5, No. 2, Summer, 1964, with an article on the German wartime non-rigids written at the request of Tim Miller, who also did British and French non-rigids. My article is weighed in the direction of the German Navy non-rigids, as the Navy is always my chief interest, and there are good photos of PL 25, PL 26, PL 27 and M IV, with considerable data on the last two big Parsevals, some of which has not before been published. The M IV was flown in the Baltic for local reconnaissance in the western Baltic in the vicinity of her base at Kiel; PL 25 was flown in the eastern North Sea for reconnaissance; PL 26 and PL 27 were never accepted by the German Navy. The German Army accepted only five Parsevals, PL 2 (P I) of 4,000 cbm. In 1909; PL 3 (P II) of 6,600 cbm in 1909; PL 8 (Ersatz P II) of 8,000 cbm. In 1910; PL 11 (P III) of 10,000 cbm. In 1911; and PL 16 (P IV) of 10,000 cbm. In 1913. The latter was stationed for a time early in 1915 on the Eastern Front and made two attempts to raid Warsaw from Thorn, then was withdrawn for training. None of the Army M-ships made any wartime flights.

As for Metzling, I have some good news for you that I have a Photostat copy of the Hamburger Fremdenblatt for Sept 11, 1913, covering the L1 disaster and giving brief obituaries of the officers lost in her. Metzling's obituary is the only one I have for the information you desire. Ω



NADU Wave Propagation Study

By Marc J. Frattasio, AW1 USNR (Retired)



NADU ZPG-2s BuNo 126718 and 126719 operating off the coast of Massachusetts during the spring or summer of 1954. NARA, author's collection.

In early 1954, just a few weeks after the Naval Air Development Unit moved from NAS Quonset Point, Rhode Island, to newly reopened NAS South Weymouth, Massachusetts, the command was tasked to furnish a ZP2N (ZPG-2) type blimp to provide flight testing support for a radio “Wave Propagation Study” on behalf of Project Lincoln. Project Lincoln, which evolved into the famous MIT Lincoln Laboratory, was established in 1951 to develop the Semi-Automatic Ground Environment (SAGE) air defense system.

Since the SAGE air defense system was intended to employ blimps and conventional aircraft to extend early warning radar coverage out over the ocean, it was important to test and perfect radio communications between land installations and aircraft operating off the coast. Although it was not explicitly stated in the project documentation, this appears to have been the purpose of the Wave Propagation Study. NADU commanding officer CDR Robert H. Wood appointed airship pilot LCDR Charles A. Mills to serve as the project coordinator for the Wave Propagation Study.

A NADU memorandum dated February 1, 1954, indicates that ZPG-2 BuNo 126719 was assigned to the Wave Propagation Study. According to John Yaney's book, “NADU: The Forgotten Naval Air Development Unit of NAS South Weymouth”, BuNo 126719 was the fourth ZPG-2 completed and the second blimp of this type operated by NADU. The Goodyear Aircraft Corporation delivered ZPG-2 BuNo 126719 to the Navy at NAS Lakehurst on January 24, 1954, only about

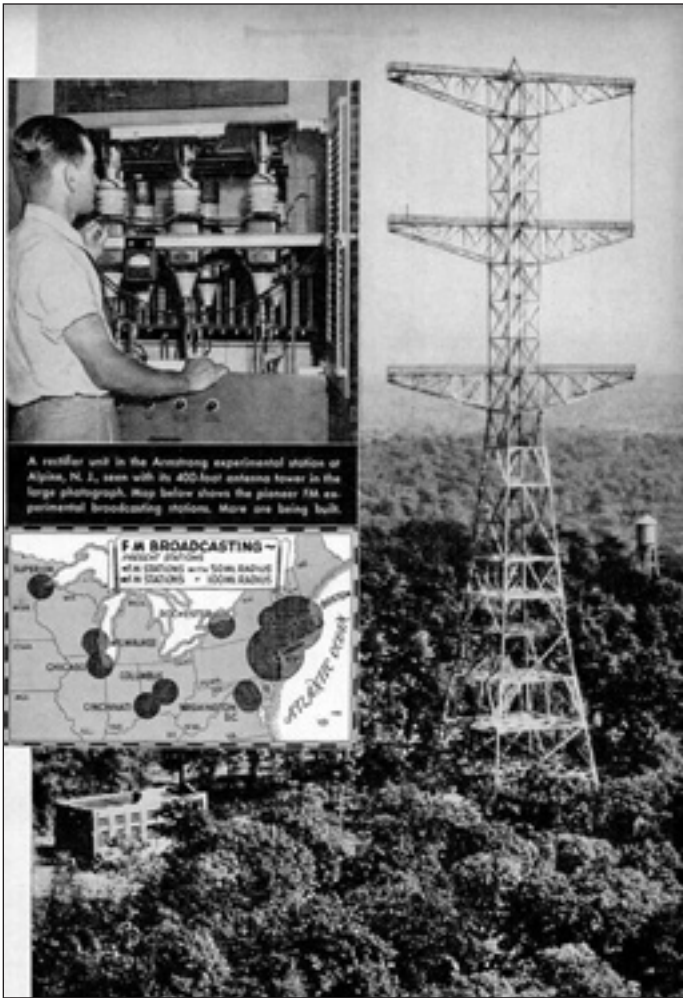
a week before it was assigned to the Wave Propagation Study.

It appears that NADU operated this blimp from NAS Lakehurst until the Wave Propagation Study was completed. (John Yaney's book indicates that it did not come to NAS South Weymouth until April 16, 1954.) The records indicate that Wave Propagation Study-related equipment was installed onboard the blimp on March 12, 1954. This equipment included a radio receiver, a UHF signal generator (for calibrating the receiver), power supplies, and data-recording devices that were installed inside the blimp's car and a corner reflector antenna that was mounted externally beneath the rear section of the car. The antenna could be rotated 360 degrees in azimuth as required to maximize radio signal reception.



Test equipment installed on board ZPG-2 BuNo 126719 for the Wave Propagation Study. NARA, author's collection.

The blimp flew a series of test flights over what the project documentation described as “a predetermined seaward course from Alpine, New Jersey,” between March 15th and April 14th. Although it was not referenced by name in the project documentation, the tests obviously involved the so-called “Armstrong Tower.” Resembling an electric power transmission tower, this odd-looking 425-foot-tall radio antenna was erected about 500 feet above sea level on top of the Hudson River Palisades in Alpine, NJ. Built in 1938 by Edward H. Armstrong, the inventor of FM (frequency modulation) radio, it became part of the first FM radio station (W2XMN, later KE2XCC) in 1939. This radio station was owned and operated by Edward Armstrong for experimental purposes and to demonstrate the superiority of FM over AM (amplitude modulation). During and after the Second World War, the Armstrong Tower was also used from time to time for military testing. It is still in use today.



*Armstrong Tower at Alpine, New Jersey, during 1940.
(Wikimedia Commons)*

It appears that the Armstrong Tower was used to broadcast UHF radio signals that were received by the blimp while Project Lincoln scientists collected data pertaining to the completeness of signal coverage, signal range, skip tendency (propagation over the horizon), and signal quality. The Armstrong Tower was ideally suited for this purpose since it was fairly close to the Atlantic coast and could transmit radio signals over a hundred mile radius.



NADU ZPG-2 BuNo 126719 at NAS South Weymouth in later years as the "Snow Goose" with high-visibility orange Arctic markings applied to its nose. Jim Noone photo, author's collection.

The test equipment was removed from the blimp immediately after the Wave Propagation Study concluded on April 14th and it flew to NAS South Weymouth on April 16, 1954. NADU operated ZPG-2 BuNo 126719 from NAS South Weymouth in support of various other Project Lincoln-related initiatives for many years afterwards. It was nicknamed the "Snow Goose" and claimed some fame for a historic flight above the Arctic Circle in 1958. Ω

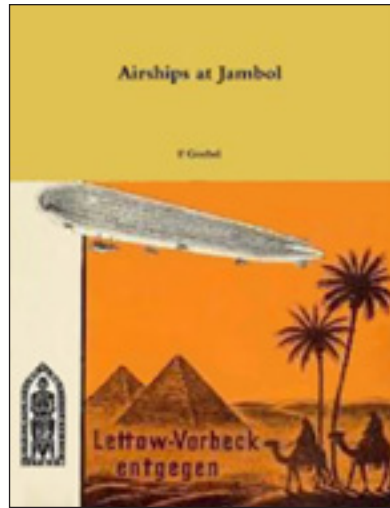
On Ross Wood's photo of a ZPG-2 during a refueling operation seen below left, the towed sonar "fish" is highlighted. This had been removed to install the corner reflector antenna in that location below the rear section of ZPG-2 BuNo 126719's car for the Wave Propagation Study, seen in the NARA photo at right from the author's collection.



MEDIA WATCH

Airships at Jambol The Lettow – Vorbeck Relief Expedition

(Original title
*Afrika zu unser Fussen,
40,000 km Zeppelin
Kriegsfahrten, Lettow –
Vorbeck entgegen
Leipzig, 1925)*



By F. Goebel, engineer, with the help of
Dr. Walter Forster airship meteorologist.
Translated by Alastair Reid, 2017
Reviewed by C. P. Hall II

The title implies that this is a straight-forward history of the 1917 attempt to re-supply the colony of German East Africa by zeppelin. It is also a detailed description of the German airship station in Jambol, Bulgaria, the airship base furthest south and east as well as most isolated of all of the wartime stations. There is a description of two German Army airships stationed there, the S.L.X and LZ 101. There is a brief description of the history and fate of the first Afrika Zeppelin, Naval airship L 57. Finally there are three versions of the Afrika flight and a brief synopsis of the L 59 post Afrika flight history.

Version one: An abridged translation of Herr Goebel's text. The translator felt that 'someone', likely Dr. Forster, was showing off his education by citing unrelated historical events about many of the landmarks that L 59 passed over - which the translator deleted.

Version two: The unabridged translation of Herr Goebel's text with the previously abridged sections now offered in bold face. As one who remembers "vini, vidi, vici," has seen "I, Claudius" and can offer rough dates of the fall of the western and eastern Empires; at page 158, I found the historical embellishments interesting. By page 164 "...the island of Kos was under the control of the Knights of St. John between 1308 and 1522." "Kos had been under Italian rule since 1912..." and I had come to sympathize with Alastair Reid's decision about abridgements!

Version three: Ernst Lehmann's version of the Afrika flight from Reid's recent translation titled "Pilot of the Hindenburg".

Goebel was an "engineer", Forster was an "airship meteorologist". They offer passable statistical details of L59 and of the lading for the Afrika flight. Questions are left unanswered? Builder's nbr. LZ102, Naval designation L57, 743 ft. long was built in Friedrichshafen for the Afrika attempt. It was wrecked at Jambol on 8 OCT 17. It was decided to complete the 644 ft. long LZ104, L59 under construction at Staaken (Berlin) as a 743 ft. Afrika ship. The L59 was already framed, so "The hull of L59 is cut in half and lengthened at Staaken, Berlin". When R.101 was 'stretched,' gasbags were inflated and the two floating halves could be separated in the shed. The photo of L59 shows the frame erected but fabric work (neither gasbags, nor cover) not installed. L59 was split in half and enough space created to install two new 78 ft. main transverse frames and four intermediate rings; too bad that there is no explanation of this process. Again, after L59 returns from Afrika, "... the ship was flown back (sic) to the factory at Friedrichshafen for a thorough overhaul and reconfiguration for front line service." Details of "reconfiguration" would have been interesting but are not forthcoming.

Photographs & Maps: An Alastair Reid translation often includes additional maps and photos not found in the original and without differentiation. In this case, there is an old map of western Turkey and a chart of the Afrika flight. There are included photos of all four ships, several Ottoman Empire and African landmarks, and two aerial photos of the RN's nemesis in the Med, S.M.S. *Goeben*, and S.M.S. *Breslau* at Stenia. Regrettably, the photo quality is of the Lulu standard which is a factor regarding the map and chart as well.

Alastair Reid always offers a readable translation. The text offered by Herr Goebel and Herr Dr. Forster is more interesting and detailed than one might expect from an 'engineer' and an 'airship meteorologist'. The original text dates from 1925, long enough after the war that secrecy was no longer an issue and Luftschiffbau Zeppelin was willing to provide data to those writing positive airship stories. The Afrika flight was a high adventure, long shot at best; the flavor of which is successfully captured by Goebel & Forster. Airships at Jambol is soft cover, 200 pages, with numerous B & W photos for about \$13.00 (US) plus S & H from Lulu. I believe that every reader will find something of interest.

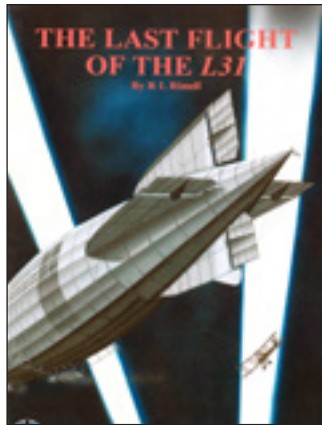
Ω

The Last Flight of the L31

(The True Story of the
Potters Bar Zeppelin)

By R. L. Rimell

Reviewed by C. P. Hall II



In his first book, the author is described as someone with "... a lifetime interest in early aviation, in particular the aircraft and aviators of The First World War." That first book was titled, ZEPPELIN!, which was published in 1984 so it is a lifetime interest indeed. THE LAST FLIGHT OF THE L31 is a far less ambitious publication than was ZEPPELIN! This 'book' is about the same exterior dimension as one edition of either "Dirigible" or "The Noon Balloon" with only 24 numbered pages. The cover is a painting by the author of a BE2c attacking L31. Inside the front cover is an informative drawing of an "R" type Zeppelin by Professor William F. Kerka. In Part One, there is a brief but detailed biography of Heinrich Mathy who would become commander of the L31. There are brief sub-chapters regarding select flights of his first command, L9. One sub-chapter covers his marriage. Two sub-chapters cover his time as captain of L13; one of which is devoted to his single most destructive London raid. Two additional sub-chapters are devoted to L31. One sub-chapter covers the raid on London during which L32 and L33 were brought down. Sub-chapter "Last throw of the dice..." leads up to the final L31 raid on London.

Part Two: Gotterdammerung is the part which the title implies is the subject of the book. I was curious as there are several versions of the last flight of L31 within the genre, all of which seem questionable due to details brought forth and, because there were no survivors, one is often dealing with either German or British propaganda-influenced narratives. Rimell relates the route of L31's last flight over Britain in considerable detail. Unlike others, he does not claim that L31 was suffering from an engine defect. He does offer some questionable details such as, "L31 was then seen to make a sharp turn westwards, a manoeuvre so severe it must surely have over-stressed her frame amidsthips." His prose become a bit florid when he observes, "As if an enormous blow torch had suddenly been ignited, flames ripped right through the stricken airship: millions of cubic feet of volatile hydrogen, now 'superheated'

beyond all measure, expanded in an instant punching the blazing hulk upwards more than 200 feet."

Part Three: Potters Bar is photos and discussion of wreckage, treatment and remembrances of those killed in action, and three pages of footnotes. There follows a one page biography of 2LT Wulstan Joseph Tempest who shot down L31 and survived the war. The inside back cover are Appendices.

This 'book' will be of interest to those who are puzzled by conflicting reports of The Last Flight of the L31 commanded by an officer who was an original tactician, both courageous and bold; but who had also previously demonstrated prudence by abandoning raids when his ship suffered mechanical failure. He knew that SL 11, L32, and L33 had been brought down by the London defenses. He had no weather advantage except a 30 mph tail wind (per Rimell). His orders read, "London, if possible" but it was a "clear, star-studded night" over London and Tempest spotted L31 in the search lights from an estimated distance of 15 miles! Rimell suggests a sluggishness, possibly due to A.A. damage in L31's apparent inability to climb even after dropping its bomb load, however, he also reports that the bombsight was set at 11,500 feet while Tempest reports that L31 ignited at "...about 12,700 feet." while L31's "operational ceiling was 13,000 feet (3,962.4m)". Barometric altitude measures, either in feet, or meters, were far less than precise on both sides so all of these details which I cite are questionable. The "R" type Zeppelin was likely the most robust class of Zeppelin built during the war so I wonder if L31 could damage itself by a simple rudder-actuated turn?

The Last Flight Of The L31 is offered by Albatros Productions Ltd., www.mail@windsockdatafilespecials.com. It is a signed, limited edition of 1,000 and I have #438. Credit card orders accepted (but not American Express) and the price is \$11 - \$12 USD, based upon rate of exchange. Ω

The Shipper ADVOCATE, Official Publication of the Freight Management Assoc. of Canada, published Dr. Barry Prentice's article "The Role of the Airship in the New Low-Carbon Era." Barry writes, "Transport Airships In 2010, the International Air Transport Association (IATA), the trade association of the airlines, caused an uproar by Airbus and Boeing by calling for the air-freight industry to change to airships rather than conventional aircraft as a way to meet targets on GHG emissions. "Lighter-than-air airships have much

higher fuel efficiency than heavier-than-air aircraft,” said an IATA spokesman, Jean Baptiste Meusnier. “This makes them ideal for the use of cargo, as seen with some of the super-heavy lifters already in operation.” “An airship produces 80 to 90 percent fewer emissions than conventional aircraft,” explained Meusnier. “They also fly at the lower altitude of 4,000 feet instead of 35,000 feet, which means their water vapor trails contribute almost nothing to global warming.” Professor Sir David King of University of Oxford, the former U.K. government’s chief scientific adviser, also supports the use of airships for air freight. Few cargos need to travel at 800 kph, with the possible exception of organ transplants. He does not believe that airships would replace conventional air freighters completely due to their far slower speed of 125 kph (78 mph), but would instead become a viable option between air and ocean freighters.”

Barry concludes, “The massive public investment in airplane technology during WWII led to significant advances in speed, safety and cost reduction. The Jet Age allowed the masses to afford holidays in exotic locations, multinational business organizations to operate globally and high-value goods to be shipped across oceans in a matter of hours. At the time that jet-powered aircraft were being adopted, no one was concerned about the by-products of burning such vast quantities of carbon fuels, like Jet-A (kerosene). Now that the real costs of GHG emissions from jet airplanes are being recognized, air transport is scrambling to devise plans to reduce fuel consumption and find alternative fuels, or effective GHG offsets. The oldest and least-fuel-efficient jetliners are dedicated freight transportation and are the most polluting segment of the aviation industry. Cargo airships are being designed and tested that could reduce GHG emissions greatly. A worldwide competition is emerging to develop transport airships, and with the added incentives of carbon taxes, it is only a matter of time before this new technology begins to be employed commercially.” Ω

The ZR III and The Flight to America

By Anton Wittemann

Translated by Alastair Reid

Reviewed by C. P. Hall II

This is a classic, paperback book-sized volume of 159 numbered pages. It was originally published in 1925 to exploit curiosity regarding the delivery flight of LZ-126 to the United States. The author, Anton Wittemann, was a qualified Zeppelin Captain whose role for the

flight in question was Navigator. Once again, Alastair Reid demonstrates his ability as a translator; regrettably he did not have a great deal to work with.



Wittemann begins with the obligatory brief biography of *Graf Zeppelin* (1838 up to 1900), a brief history of early Zeppelins and of Zeppelin organizational development (1900 to 1914), and a very brief review of statistical Zeppelin progression from pre-war through 1918. Forty-five pages in, he finally gets to the LZ-126. There is a description of the ship itself. There are descriptions of each test flight, and finally we get to the flight to America on page 123.

As already noted, though one of several qualified airship captains on board, Wittemann’s role on this flight was that of navigator. The crew was divided into two watches which worked on a four hours on, four hours off, division of labor. When Wittemann was on duty, he was occupied with navigation rather than the operational details. When he was off duty, he was conscious about sleeping so as to be sharp for his next watch. Not surprisingly, he was aware of the weather throughout and he notes some occasions of rising to pressure height to blow off surplus hydrogen as fuel was consumed and the ship became lighter. His version of the delivery flight is but 20 pages long and there are 10 photographs among those pages as well.

Other items of interest: The book contains a substantial number of photos and illustrations. The knowledgeable reader will recognize about 80% of the photos as published elsewhere. It is typical of this translator to add photos to those not found in the original publication. Two examples of photos which I had not seen previously are labeled “crew rest area” and “book shelves, sofa and table in rest area”. Regrettably all of the photos are of the reproduction quality typical of Lulu. The last 10 pages are “Advertisements by those firms who supplied materials or donated funds toward the construction of ZR III” as published in German with translations of the texts.

“The ZR III and the flight to America” is available from http://www.lulu.com/spotlight/alastair_reid for \$8.16 plus S & H. Ω

Cable TV has had a bit of a rebound in blowing up the *Hindenburg* in and around the accident’s 80th anniversary. Replays of older shows are not unlike some

of the new shows in that repeat common misconceptions. One episode of “NASA’s Unexplained Files,” following its formula of at-hand spoke-persons reading scripts prepared for various segments, then edited to seem spontaneous for each, did not bother to interview the NASA scientist who actually performed experiments demonstrating how the fabric was ignited. Of the script written and performed therein, Dr. Addison Bain observed, “Clearly, they are naive about the properties of hydrogen. Additionally, they are unable to construct a sequence of events that can be backed with evidence from credible sources.” Like the one “author” who claimed all Zeps were covered with the same thing, or the NSTB “expert” reading, “A sharp turn broken wire, cell 6 (!) going up in flames,” you give them what they want, or you don’t get broadcast. Website creator Dan Grossman is becoming a go-to guy for those not at NLHS; the previous mad-bomber, broken girder and stuck valve speculators not getting equal time. (For some, all are acceptable *simultaneously* as long as an H2-air mix is hovering in between the fabric and its ignition source!)

Slightly greater hopes were up for the people who brought you the “Impossible Engineering” helium-compressing Aeroscraft episode, whose unwittingly apropos title nonetheless had it referenced in a court of law (see “Sort Lines”). Their new AIRLANDER segment, which premiered last June, featured some new location (reads *expensive*) work and graphics that were dazzling the first half dozen times they were replayed. They were the first to take video of the historic *La France* hangar and actually visited Dexter, Texas.

Sadly, the viewer is left with the impression the people of Dexter developed helium for use in WWI airships. Innovatively, instead of LZ-129 burning fabric being used to illustrate dangerous, volatile, un-American, toxic and evil hydrogen, soap bubbles are employed. You wouldn’t know AIRLANDER used to be spelled L-E-M-V or the US Army played a role, so the same few clips of Cardington-based footage had to be re-played. - Ed. Ω

READY ROOM

-30 September 2017 South Weymouth Closing 20th Anniversary Reunion Event, Randolph, Mass.

www.anapatriotsquadron.org

- Airship Association Conference & Model Regatta
19-21 OCT 2017 Bedford, UK

- Naval Airship Association Reunion Akron, Ohio
September 2018

BLACK BLIMP

Donald “Red” M. Layton, 94, passed 26 FEB 17. USNA Class ‘46, Layton’s 23 years’ service included ship commands, land and seaplanes and some 4,000 hours in LTA. He was the first director of the Navy Safety School and as NPS Professor headed the Aeronautics Department in Monterey. Layton is survived by a daughter, grand and great-grandchildren. Ω



Don Champlin passed away first week of June, 2017. Ω

George Traver Whittle, 90, passed May 7, 2017. Born in Lakewood, NJ, he spent his childhood between Akron, Ohio, and Sag Harbor, NY. He entered Princeton University at age 17, and was a member of the Navy V-12 officer Candidate Program. In 1952, he was called to active duty in the Navy and served as a doctor during the Korean War. George is survived by his wife of 24 years, Gloria, children and grandchildren. Ω

William McElhaney passed on March 12, 2017. Ω



James W. “Jim” Kissick, Jr., 92, of Bradenton Beach, Florida, passed on Feb 24, 2017. He entered the U.S. Navy in June 1942, and served as a combat air crewman in dive bombers over the battleship *Yamato* and others. Accepting a US Navy commission he qualified in many props, all early jet fighters, as an airship commander, and extensively in anti-sub helicopters. In late 2014 he learned he was the only known quadruple-qualified pilot of all active/retired aviators. Ω

Lee Joseph Roach passed on 15 JAN 16. He held a certification for ZPG-2s, left the USN in 1959 and became a pilot for Delta Airlines. Ω

LIGHTER SIDE

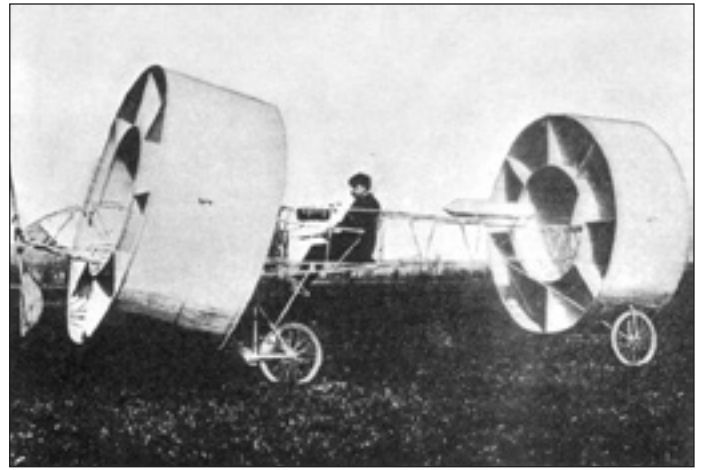


Mark Lutz reports, "There was a F.I.R.S.T. robotics practice competition in the Minneapolis area; 24 local high school teams present. This year's robot game is played on a field with two steam-punk style "airships" which look sort of like US Navy training balloon baskets. The airship boarding ladder is down, and the two pilots are aboard, in preparation for the match. Where's the lifting gas envelope, you ask? Note the DaVinci airscrew in the center. The hexagonal brown structure is a "steam tank" for power. At the end of the match the robots attempt to climb ropes to "board" the airship for take-off. Our robot performed poorly. We have a lot of work to do before our scheduled real match on 7 April 2017" ☺

A wise man said, "Lettin' the cat outta the bag is a whole lot easier than puttin' it back in." ☺

I'm great at multi-tasking: I can waste time, be unproductive, and procrastinate all at once. Today a man knocked on my door and asked for a small donation towards the local swimming pool, so I gave him a glass of water. ☺

Isn't it ironic that the colors red, white, and blue stand for freedom, until they're flashing behind you? ☺



Artificial intelligence is no match for natural stupidity. ☺

Fighter Pilots are steely eyed weapons systems managers who kill bad people and break things. However, they can also be very charming and personable. The average fighter pilot, despite sometimes having a swaggering exterior, is very much capable of such feelings as love, affection, intimacy and caring. (These feelings usually don't involve anyone else.) ☺

Rubes



Last flight of the Chiquita blimp.

He who laughs last thinks slowest. ☺



WDL continues operations in Europe. These images illustrate their commitment to maintain their fabric-covered hangar with its unusual fold-up door. This present advertizing contract is fulfilled with the use of an attached banner, rather than utilizing the earlier technique of painting the envelope in a client's colors. In the image below, the adoption of the Lightship-like translucent envelope extends the advertizing mission into the nighttime hours. It also allows us the study of the hull's construction. Easily visible are the outlines of the fore and aft ballonets, the center hull car mounting reinforcements, and the many "finger" patches bonded to attach fins and handling lines. Photos by Lars Slowak.



