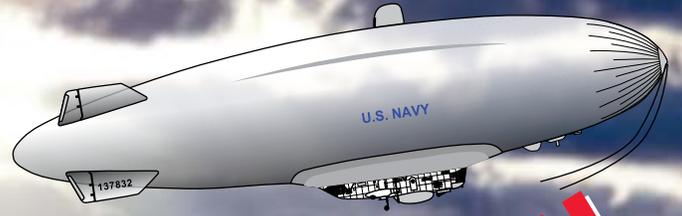
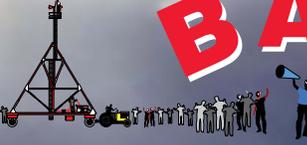


THE

NOON



BALLOON



The Official Newsletter of THE NAVAL AIRSHIP ASSOCIATION, INC.

No. 87

Fall 2010



NORTHROP GRUMMAN WINS ARMY LEMV CONTRACT



Top: The former NAS Richmond Administration building is guided “into the cup” by honorable ground crew. (See “Shore Establishments” for a close-up photo of these distinguished “handlers”.)
The timber structure was lowered onto its new foundation.

Speaking of old wood, (below): What does this old wooden boat have to do with LTA? See “Cover Stories” on page 16.



THE NOON BALLOON

Official Publication of the Naval Airship Association, Inc.

| ISSUE #87 | FALL 2010 |
|--------------------------|-----------|
| Editorial | 2 |
| President's Message | 3 |
| Treasurer's Strongbox | 4 |
| Membership Comm. | 4 |
| Pigeon Cote | 5 |
| Shore Establishments | 13 |
| Cover Stories | 16 |
| Short Lines | 21 |
| Flying Wind Tunnel Pt. 2 | 26 |
| Pro & Con | 30-31 |
| Media Watch | 31 |
| History Committee | 33 |
| Black Blimp | 35 |
| Lighter Side | 36 |



In this issue we learn Moffett Field is host for a new LTA-based power generation design whose heritage can be traced back to Canada's Magnus-effect airship studies and concepts (above). See "Shore Establishments."

Attitudes are contagious: Is yours worth catching?

On the Covers of TNB #87: Front: Artist's conception of the proposed Northrop-Grumman design for LEMV. See "Cover Stories." on page ??

Inside Front: Upper: The partially restored NAS Richmond Admin building, whose initial move was covered last issue, is guided onto its foundation by a crew of honorables. See "Shore Establishments." **Lower:** The only lifeboat that saw service on two famous airships has been donated to NASM by Goodyear. See their report in "Cover Stories."

Inside back: Bert Padelt photo of the first newly American-designed and built hydrogen balloon in nearly 70 years. See Peter Cuneo's report in "Cover Stories." **Back:** Sunnyvale's Hangar #1 in happier days. At press time Airship Ventures President Brian Hall has accepted NAA's invitation to speak at the Reunion. His banquet address and all other news from our Reunion will be covered in #88, tentative deadline 15 SEPT.

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

The Naval Airship Association

www.naval-airships.org

President

Herman G. Spahr, email: herm1032@gmail.com
1032 N. 21st St., Lafayette, IN 47904-2217
Tel: 765-447-3676

Vice President / Membership Chair

Fred Morin, email: frmorin@comcast.net
PO Box 136, Norwell, MA 02061
Tel: 508-746-7679

Secretary/Treasurer

Peter F. Brouwer, email: peterfbrouwer@bellsouth.net
1950 S.W. Cycle St., Port St. Lucie, FL 34953-1778
Tel: 772-871-9379

NAMF Liaison

Mort Eckhouse, email: mortusn@yahoo.com

NMNA Liaison

Joe Hajcak, email: jghajcak@juno.com

Webmaster

Michael Vinnarick, email: michael_vinarcik@email.msn

Technical Committee Chair

Norman Mayer, email: normanmayer@juno.com

Small Stores

Ford U. Ross, email: zcaams@tampabay.rr.com
66062 Cambridge Rd., Pinellas Park, FL 33782-2117
Tel. 727-289-8467 (0900 - 1900 hrs EST)

EDITORIAL

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

Each year the Florida Solar Energy Center hosts the “Energy Wiz Olympics” in which high school teams learn by doing. As a volunteer judge for the fuel-cell powered model car event, my team rates the kid’s efforts in design and construction. At nearby Daytona Raceway they say, “The bull** stops when the flag drops,” and it was the same out on FSEC’s small track: One very racy-looking car would hardly move. Happily, the car that we rated among the highest in design and build quality literally blew the “doors” off all others on the track.



Pictured above are (L) Julia Harper and Kimberly Rosenthal, representing the Trinity Prep team. Their model car, number 4, “Trinity,” was the easy all-around winner – making even some of the all-boy teams head back to their drawing boards. Perhaps it is their generation, unfettered by preconceived notions, which will achieve national energy independence. How much LTA is, or is not, a part of this bright future will hopefully continue to be debated in these pages for years to come. Therefore it’s fitting with this issue we begin a new feature weighing two sides of difficult issues facing LTA past and present. To begin **Pro&Con**, we have LTA vs. HTA itself. Mathematician Newcomb’s 1906 dissertation contains the earliest reference (my dear old Mom) found to the “square-cube law,” which if Newcomb did not originate, he certainly had no stake in. The man who helped found Lockheed, by contrast, might be spinning in his grave to see his company lose its bid to make what will be the first serial production of a totally new large (>1mil ft³) LTA design in more than 50 years.

Our own **Herman Van Dyk’s** meticulous research and illustrations of LTA history and technology, which often grace our pages, has completed an entire book which our own **Laurie Soffe** has published. Likewise, NAA member **William Althoff** is now writing/researching a book-length history of the postwar airship program (1945-62), to complete his trilogy on USN lighter-than-air. Bill writes, “Persons having images/documents to loan and/or personal reminiscences to offer are invited to contact the author at skyships@juno.com. Support will be acknowledged in the final work. Renaissance proposals to revive the platform for commercial, military, and research applications are [also] part of this project.” Also terrific news for those (like me) who want to hold a book in our hands, USNI will be reprinting the other two major works in Bill’s trilogy. Want high-tech? USNI will offer the titles as e-books soon! Also coming is our own **Grant Carichner’s** “Fundamentals of Aircraft and Airship Design,” his two-volume tome with L. M. Nicolai published by AIAA. The second volume, with the airship design, is expected next year.



On a personal note, Editor’s life is entering a new phase. The Space Shuttles (above, OV-105 the last time Pad “B” was used) have been my livelihood and the dominant purpose in my existence for thirty-one years. Atlantis will be in limbo before you read this, and Discovery retired shortly thereafter. USA does not need as many astronaut stand-ins to support Endeavor’s single remaining mission, so I too have been “retired” – laid off, actually. The frequent traveling and other aspects of being a Spacecraft Operator in many ways complicated my volunteer editorship and other LTA hobbies, but ultimately made them possible. I shall continue to do my best to organize our member’s excellent submissions and select reprints into a magazine of which we can all be proud. Ω

View From The Top: PRESIDENT'S MESSAGE

My time is running short. During my two tours as President we have attempted to "fine tune" the administrative process of the NAA. With the cooperative efforts of the Executive Council and much help from interested members we have achieved several accomplishments. But we have only just begun. I wish to pass on some personal observations and comments for your new President and perhaps new additions to the Executive Council.

Our revised By-laws specify the number of members on the Executive Council. At present there are two vacancies for Members at Large. The need for a Naval Aviation Museum Foundation (NAMF) representative no longer exists. This position has temporarily been combined with a Liaison Officer for the National Naval Aviation Museum (NNAM) and is being admirably filled by Joe Hajcak, a resident of nearby Pensacola, FL, and a current Member of the Executive Council. I recommend that any addition to the Council be filled by representatives from our Western Membership.

VP Fred Morin has done an excellent job coordinating the efforts of our Membership Committee. A new Member, Donna J. Forand (daughter of veteran Member Bob Forand), is typical of the enthusiastic new Members. More need to be recruited if our organization is to survive. Again, there is a void in our West Coast representation.

Our communication efforts between officers and Committee Chairmen need improvement. Group meetings are preferred but are very costly. Personal contacts have been by telephone, e-mails, and letters. Secretary/Treasurer Peter Brouwer has done an excellent job in maintaining communication enabling the organization to function. Peter has proposed that we adopt the SKYPE Management system - a video display in conjunction with e-mail communication. The "system usage" is free and the cost of equipment is minimal. I strongly support Peter's recommendation. An alternative is also costly "telephone conferences." Officers and Executive Council should however strive to personally meet at least every six months.

Our new website is up and running, thanks to a great many people who have been recognized previously. It requires constant updating, which is the responsibility of designated "administrators." It is a GREAT public relations asset in addition to our official publication,

THE NOON BALLOON. Under the expertise of Editor Richard Van Treuren and publisher David R. Smith, it has become known as one of the "best not-for-profit professional aviation publications distributed." Since his recent retirement of 31 years under NASA, Richard plans to spend more time improving TNB.

There is much more I'd like to say but which I will share privately with your new President. I've enjoyed my tenure, and appreciate the cooperation and support of all who served so valiantly in behalf of the NAA and its Membership. I look forward to our reunion at Moffett Field, with the opportunity to renew old comradeships and to form new ones.

UP SHIP

- Herm Spahr

Ed: notes Herm sent along his letter to USCG Commandant ADM Thad Allen reminding him of the potential usefulness of airships should they be employed in the armada on the Gulf oil spill.



THE NOON BALLOON

Newsletter of the NAA

Volunteer Staff

Contributing Editors: NAA Members

Masthead Artwork: *Bo Watwood*

www.navyblimps.tripod.com

Editor: *Richard G. Van Treuren*

www.airshiphistory.com

Publisher: *David R. Smith*

www.gyzep.com



TREASURER'S STRONGBOX

Have you tried the new and improved website yet! We have had a lot of positive feedback from our members and as a result of this site, have acquired a few new members. Also, some members have “donated” information to this site. So...check it out, see what's new. The site is www.naval-airships.org. You can e-mail your fellow shipmates by simply clicking on their e-mail address in the membership roster. Having trouble getting on the roster site? Give me a call, and I will walk you through it.

Just to let you know, we are in the 21st century. Our new website has a monthly fee and the site is controlled by the NAA. We can send “blast” e-mails to all of our members who have a registered e-mail address. For future use, we have installed PayPal, which will enable you to pay dues thru the website if you wish to do so. Payments will still be accepted by check. Ω

- **Peter F. Brouwer Secretary/Treasurer**

WELCOME TO OUR NEW MEMBERS

Ron Steffen, Sultan, WA
T. Mark Peaslee, Sunnyvale, CA
Daniel C. Gibson, Clinton, MD
William V. “Bill” Gustin, Pembroke Pines, FL
Lee Steffen, Seattle, WA
John Kush, Kirkwood, MO
John C. Mitchell, New Market, MD

MEMBERSHIP COMMITTEE UPDATE

This marks the 10th Membership Update I have written. I would like to report that our membership roster is expanding significantly. It's not. Our traditional base of potential members has been steadily decreasing since the last Navy airship was decommissioned. We are constantly trying to promote the NAA to people who have an interest in aviation, history, and/or who may have never been exposed to airship's contributions to Naval Aviation. We are, however, making progress and I believe that the tremendous improvements we are making to the NAA website will produce results, soon. There is still a lot of work to be done. I reported last issue that we will be adding significant content to the site, specifically historic articles, an index of History Committee holdings, an index of The Noon Balloon articles, technical articles and updates, and photographs. These additions should appeal to potential members from the academic, aviation enthusiast and historical researcher areas that we are trying to reach. Our direct mail campaign to colleges and universities, military history depts. and ROTC groups now have a substantial new benefit to offer with the website additions. We will restart our direct mail campaign to those groups and others.

I recently got a call from a gentleman in CA who had picked up a copy of The Noon Balloon on a table at an American Legion meeting. He was very impressed with the magazine and called to discuss the benefits of membership. I hope to see his membership application soon. The Noon Balloon continues to be our most visible and world-class promotional tool. Spread it around. Please continue to be on the lookout for new members, you never know where they will be. Ω

- **Fred Morin, Chairman**

Pigeon Cote

Ross Wood e-mailed Ed., “I just returned this morning to our home in Sun City West, AZ from Sun Valley, ID. I found the copy of your book “Airships vs. Submarines” waiting for me. I went to Chapter 14, “Postwar & Beyond,” and it is just excellent reading. I am very impressed with all the detail. Some of the things you describe, I was involved in, and can find no fault. I’m looking forward to reading the whole thing. Hope you are both doing well and looking forward to seeing you in Sept.” Ω

Answering a request for images from NAS Richmond with a small selection, a reply came: “Mr. Van Treuren and Captain Mason, Thanks for the follow up and offer to help. As it turned out the author wanted to use some photos from the Naval Institute of a ZPG-2W and a ZRS-5. The ones you have online are wonderful, though, thanks for sharing them. Having grown up in Miami, I found them especially interesting.” Ω *Ed. laments, lead a horse to water... but speaking of...*



Roy Gibbens e-mailed, “I was going through some old “Flying” magazines last night and ran across the attached photo and thought you may have not seen it before.”

[*Ed. notes motion pictures in our postwar DVD show Goodyear also tested a single-float configuration on L-1. A wobble pump was affixed to take on water ballast.*] Ω

Al Robbins e-mailed about **William Althoff's** new book FORGOTTEN WEAPON: “I’ve spent a great deal of time studying this most poorly organized book. I preferred his more coherent account in SKY SHIPS. He has added a lot of illustrations (modified a few), deleted all references to his interview with ‘Rosie,’ and provided some interesting points - if correct - that I was either ignorant of, or had previously ignored. This led me back to Rosie’s book, **Jim Shock's** catalog of Navy lighter-than-air pilots, and in particular Rech’s 1944 tabulation. I’d always blamed Rosie for the fixation on rigid airships, the ring-knocker’s emphasis on “Command at Sea.” Buried at the end of an endnote regarding the 1939 cancellation of the ZRN, (p. 345, ch. 1 note 27) attributed to Garland Fulton, there’s a stark sentence: “The law had been changed, however, so as to allow qualification of ‘naval aviators (airship)’ on the basis of nonrigid experience.” I was unaware that training in rigids had ever been a prerequisite. Rosie sort of skipped over the Brazilian Air Force training program, Officer Class graduation photo (23 June 45) on page 291 of FW. Neither attempts to explain what happened, or why the course lasted a year, instead of the abbreviated courses given to APs, NAVCADS and US Naval Officers throughout the war. None of my earlier sources have provided any information on the actual curricula at Lakehurst, either that used by the last prewar class or the abbreviated, six- month program introduced early in the war. Particularly that taught to the first class consisting of all three categories of candidates. Rosie doesn’t indicate how many airships, or instructors were dedicated to training, or even which organization was responsible. (I’d always assumed it was NATEC; still don’t know.) I served with a number of former APs in my career, and in general they were more experienced and technically proficient than officer pilots - their primary job was flying. I’ve almost broken Rechs’ code in the 1944 roster (still don’t know the difference between NAVCAD AV(N) and AV(G), but by process of elimination, students that weren’t NAVCADS or already commissioned were APs. The unanswered question, were the APs previously fixed-wing aviators, or were they a lesser qualified group of beginners - not quite NAVCADS? (Most appear to have been subsequently commissioned. The important point, graduates went directly from basic flight training, to the “fleet”. Either to a squadron (first U.S. Navy airship squadron formed in 1942), an air station, or to a supporting command, for on-the-job training. (Sort of like Rosie’s introduction to aviation, part of the class’s

assignment was developing the training materials. His first free-balloon flight was on part of the *Shenandoah*.) FW includes several interesting Appendices (no applicable endnotes): Appendix B - Pilots Check-Off List Blimp Squadron Twelve (ZP-12) Appendix C - Emergency Bills in Flight FLA/SWING One (1944) Appendix G - MAD and Sonobuoy Training Exercises Fleet Airships Pacific. Most of the 1944 graduates appear to have gone directly from Lakehurst into transitional training. Both the east and west coast operational training units were formed in 1944, about the time that the LTA program was being strangled, however these units seem to have been patterned after the FAETULANT and FAETUPAC programs, providing short training courses for crews or individuals on temporary duty from squadrons. FW introduces a new claim, TC-13 and TC-14 were sent west because the K-ships couldn't be shipped by rail. (First K was rail-shipped a few months later.) I can postulate several legitimate reasons: Politically astute - sending the former Army airships to Sunnyvale while it was still an Army base. Actual transition was still a very touchy subject. Simplified logistics support - All peculiar support equipment received from the Army went along. Also the people most familiar with operating and maintaining the TCs. Kept all the K-ships in one place so Lakehurst could incorporate necessary fixes and modifications into the new airships. Smaller ships, a lesser Helium requirement on the west coast. Finally, the Nazi threat was increasing, Japanese appeared to be abating.

Mr. Althoff devotes several pages to the K-74 incident; the only reported airship - submarine battle of the war. Unfortunately he apparently failed to interview any of the survivors of the incident. (Chapter 9 in Rosendahl's book presents a more complete account. Althoff doesn't cite any of Rosendahl's published writings or the interview and recorded notes which he previously referenced in SKY SHIPS.) I first met Nelson Grills (then a Commander in the Naval Reserves) the day he received his medal for that action. As the only Ensign in ZP-1, I was tolled off to be the retired Vice Admiral's unofficial Aide. We became reacquainted after I moved to Indiana. Nelson had retired from the Reserves and from the Indiana State Senate, but still practiced law from his office overlooking the Soldiers and Sailors Monument in downtown Indianapolis. We discussed his wartime career over lunch many times. Nelson had completed law school and was working in the

Treasury Department in Washington, DC, when Japan attacked Pearl Harbor. He used his connections to get released from his job so he could join the Navy (a close friend's father, a Navy Captain, pulled strings to get some peace in his household). He was already commissioned when he reported for Officer Indoctrination in New York City. To his dismay, he was ordered back to Washington as a Contracting Officer in BuAir. After repeated rebuttals (Rosendahl personally turned him down twice, insisting he was too old) he wangled a transfer to Lakehurst and qualified for his NA (LTA) wings in the spring of 43 (Class L22). Nelson had duty the day of the encounter (18 June 1943) but wasn't scheduled to fly; and was wearing his new Wellington Boots for the first time. (His wife, Reva, was upset about this wasteful extravagance.) Nelson was a last-minute substitute. The second pilot, ENS Darnley Eversley and Navigator, AP John Jandrowitz had just won their wings (both recent graduates of Class L2-43). VADM Rosendahl didn't mention that they'd never flown as a crew, or had any tactical training (even with practice bombs). As luck would have it, they had the most highly experienced gunner in the squadron, if not in all of LTA, as a crew member. Nelson vividly remembered carefully removing his boots and placing them on the pilot's seat before clambering out of the sinking car for the second time. Throughout the long night and the next day's swim towards the Florida coast, he worried about what Reva was going to say about his damned boots. I think it was a pretty valiant effort by a virgin crew... The NAA still has a sizeable number of members who were war-time graduates. Perhaps some of them might be able to explain when and how they received their initial introduction to ASW tactics. Some might even have records of their actual training course(s) in 1942, 43, and 44.

I enjoyed Rick's Guest Editorial. Richard's reins need to be hauled up every now and then. Unfortunately both of them are selectively right and wrong. Perhaps if the Navy had continued using hydrogen, WWII blimp crews might have had a similar cachet to the suicidal crews that flew Torpedo bombers, instead of their undeserved reputation of being afraid to go into battle. AVGAS was probably a greater fire hazard than hydrogen. We lost several airships to it. Lots of ships, if you count hangar fires. 100LL costs nearly \$5/gallon, slightly more expensive than Jet A, which is a lot more expensive than kerosene or regular gasoline. The new fuels still aren't cost competitive with

gasoline or natural gas, but much closer to these easier targets. The editor's sneak-in article, #85 on page 14, virtually ignores all foreign sources of helium. Also, although few other fields have 3% concentrations, there are now dozens of Cryogenic facilities, and the evaporants (not sure if this is a word!) will include virtually all the helium in the already cleaned LNG. The question really becomes when does it become worthwhile to stop wasting helium. Richard makes a good point regarding the one-shot use of helium in stratospheric balloons. (Does NASA also vent all helium used in preparing launch vehicles? *) You could make a case for an explosion-proof helium-hydrogen blend in airships. Topping off with a locally produced low-cost gas would provide numerous benefits. When/if the FAA ever gets around to managing unmanned airships, I expect they'll be forced to process several Supplemental Type Certificates... Gas costs for the few remaining blimps increased ten-fold when NASA took over helium management from the Navy and began stocking only the purest helium. If there had been a future, and a budget, the remaining LTA stations (Lakehurst, South Weymouth, and Key West) might have invested in maintenance or replacement of purification equipment. The Navy had already retired all its low-cost training airships.

Nugget pilots reporting from fixed wing training were already senior LTJG's by the time they got their indoctrination flight in a ZPG-2 or ZPG-2W. A really pushy reserve LTJG might nearly qualify as CAC before it was time to submit his letter requesting augmentation or extension on active duty. The Navy "trained" quite a few, but didn't keep many. (A LTJG or LT in LTA was rated as one-of-twenty, and, if he was very lucky, had a collateral duty assignment; his "real Navy" competitors had already demonstrated their capabilities as a Division Officer (leadership) and qualified as pilot or PPC in at least one aircraft type. (Not noticed-not promoted. This ignores a very real detailer bias, that if they had been any good in the first place they wouldn't have ended up in LTA.) Increased gas cost, increased depot costs-O&R Lakehurst needed every operational airship to maintain minimum workload. To top off the mix VADM Pirie, decided that no naval aviators should fly more than 100 hours per month. Helium cost was the least of our worries. Rick greatly oversimplifies the ballonet dilemma. (They were a fantastic thing to watch even under relatively

calm conditions.) Ballonet manipulation was the most effective trim technique; the difference between a great pilot and those that burned twice as much fuel. I doubt that, except for Endurance Record attempts, crossing the Rockies and a few emergency situations, any pilots voluntarily launched with flat ballonets. The 2s and 3Ws had twin midships ballonets, which might be allowed to go flat first. But pumping air, to trim the ship, and/or to control temperature, as well as to maintain adequate envelope stiffness while minimizing helium leakage was one of the most important tasks. It's also a lot easier to pump a large quantity of gas rapidly, particularly since we no longer had large off-duty crews which could be ordered from one end of the ship to the other. The rigids used their large crews as human ballast, as did Solomon Andrews and as do modern sailboats. [Ed note: See Short Lines - *Slocum glider*] Unfortunately, until recently, designers were satisfied with the historic rule of thumb of up to 40% of envelope volume being devoted to ballonet. (Colting actually patented his massive ballonet.)

Boundary Layer Ship: Note the hatch in the fin. No blowers were needed. The airflow across the holes near the top sucked dead (boundary layer) air into the lower holes and up through the inside of the fin. Unfortunately, the framework wasn't designed to be constantly exposed to salty humid environments. I think they used circular holes - instead of slots - out of habit.

JULIE-JEZ - I attended JEZ operating school at FAETULANT as an Ensign. It was a signal intelligence system (using a really stinky thermal paper chart). It was being widely introduced into the fixed wing community, and apparently was based on technology developed under the SOSUS program. Possibly ZX-11 might have been involved. We'd had Sniffer in P2's in the mid-50's, nearly useless near shore or near fishing grounds. Primitive infrared systems, when they worked, and if the sea was stable - calm surface, uniform column could detect strong thermal tracks. Worked often enough to keep funding the program for decades. Remember, we depended on very short-lived vacuum tubes then. Even the relatively benign airship environment required constant tube replacement. John Fitzpatrick (founded AEREON III) was an AEDO Lieutenant when I was in NADU. He was one of the "Navigators" on SNOWBIRD's record flight. I never flew with him and don't know what projects he was responsible for. Ω * [Ed.: Yes]

Mark Lutz e-mailed, "Robert Ashford's "Second Trans-Atlantic Blimp Crossing" - Another WOW! My father described the WW2 K-ship "drift sight" to me. It struck me as very crude. I wondered how they could have more than a very crude idea of where they were. It was a real eye-opener to read Ashford's description of adding 2 60° offset readings, and combining them via a compass rose chart to get an accurate wind direction and velocity. My father, who was made a Senior Pilot in July 1943, and a Command Pilot in Nov 1944, was given a lot of "green crews" to - um - polish by "on the job training." His big complaint was the green crews often had trouble navigating. He described one flight where he went over the navigation, then went for a few hours rest in the back of the K-ship. When he came back on duty, and asked where they were, sure enough, they were lost. He figured out where they were, corrected the course, flew with them, went over the navigation again, then went for his second rest. Again, to his dismay, when he came back on duty, they were lost again. This time they were way off course. My father said they made it back to base with only 15 minutes of fuel, which he described as "nothing" in a K-ship. According to my father, one skipper was so poor at navigating that, when sent out on a patrol, rather than fly the specified course, this skipper would fly to a lighthouse near the base and fly around it in circles all night - near the limit of radar range or the sight limit of the light itself - so he wouldn't have to navigate (and get lost).

My father also said the Navy impressed on each skipper that his airship was very expensive, and that he was personally responsible for getting it back intact to the base, and especially was to avoid running out of fuel and thus not making it back to a base equipped to handle an airship, with resulting loss of the ship. Dad said each skipper was required to sign out his airship for each flight, to emphasize personal responsibility.

Rick Zitarosa made the following challenge in his guest editorial in NB 85: "Richard, can you name me three helium-inflated airships that burned and were lost with all aboard?" Before I deal with the challenge itself, I want to say that I think this exchange between hydrogen lifting gas proponents such as Richard Van Treuren & myself, and helium proponents such as Rick Zitarosa, is a good thing. I find it very valuable. Mr. Zitarosa's concerns regarding the safety of hydrogen are valid, and I take them very seriously.

It also adds spice to the Noon Balloon. I believe it is possible and feasible and reasonable and desirable to

engineer an airship to SAFELY use hydrogen as its lifting gas. However, for hydrogen lifting gas safety engineering to be at its best, criticism from opponents such as Mr. Zitarosa is an invaluable help in pointing out aspects which may need more attention; aspects which an avid proponent might miss. Whether Richard Van Treuren and I are ever able to convince Rick Zitarosa that any hydrogen lifting gas safety system provides sufficient safety, or not, I still find Rick Zitarosa's input valuable. I read his guest editorial in NB 85 with great interest, and take his input in the spirit of constructive criticism, no matter how forcefully he puts it. I look forward to reading his response to any hydrogen lifting gas safety systems Richard Van Treuren may put in future NB issues. I believe that any future hydrogen lifting gas system will be better because of Mr. Zitarosa's input, and that of others like him.

Now, on to that irresistible challenge: Consulting VADM C. E. Rosendahl's book "United State Navy Airships in World War II," Appendix G "Major Airship Accidents During WW2" and Appendix H "Synopses of Major Airship Accidents:"

Six helium filled K-ships were lost to fire during WW2. This is twice the number requested in Mr. Zitarosa's challenge. This is the list of the six per VADM Rosendahl:

#1: Case 16: 16 October 1943, NAS Lakehurst Ship K-64: While on patrol, during low visibility, the ship unwittingly passed under the K-7. The pointed aluminum static discharge rod attached to the after portion of the K-7's lower fixed fin penetrated the envelope of the K-64, ripping it open like a can-opener for a considerable distance. The K-64 fell into the sea about 200 yards off Barnegat Inlet, and caught fire upon impact. Eight of the nine men aboard lost their lives.

#2: Case 17: 30 October 1943, K-94 on ferry trip from Guantanamo to San Juan, Puerto Rico, which I believe makes it a NAS Richmond ship: After the K-94's 13th hourly position report at 2200, no more was heard and it disappeared abruptly from the shore radar-tracking screen. Eyewitnesses on surface craft report seeing a small flaming object similar to a flare dropping from the airship. Almost immediately afterward, a bright colored flame was noticed, increasing in size until the entire airship was engulfed in flames on its descent into the water. Eight lives were lost. A B-25, searching for survivors of K-94, met a similar fate about 3.5 hours later at approximately the same position.

#3: Case 33: 6 August 1944, K-102, NAS Glynco:
While being refueled in hangar at Glynco, a fire started and consumed the ship.

#4: Case 38: 17 October 1944, K-111, NAS Santa Ana:
While on an overnight navigation flight, the ship crashed into a mountain on Santa Catalina Island in zero visibility and was destroyed by fire of its gasoline. Six lives were lost.

#5: Case 48: 21 April 1945, K-25, NAS Sunnyvale:
While making a night landing approach as NAS Moffett Field, ship crashed into power lines 3,000 feet from landing mat, deflated and was destroyed by fire.

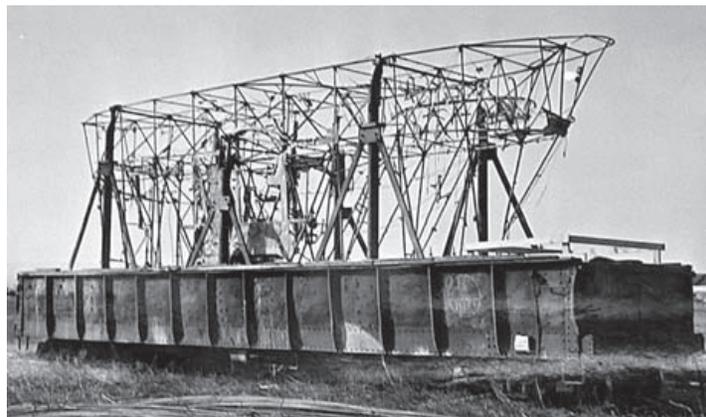
#6: Case 50: 3 May 1945, K-51, NAS Santa Ana:
While making a landing approach at NAS Santa Ana, ship caught fire in the air, crashed about 200 yards off the landing mat and was destroyed by fire. Eight lives were lost.

My Father, then Lt(jg) John Lutz, was a Command Pilot at NAS Santa Ana when this last incident occurred. His Flight Log Book shows he was not flying that day. It is possible he was in the ground crew, in which case he would have been an eye-witness. Because he passed away 10 years ago, it is not possible to ask him. Here is my Father's version of the incident: The ship encountered a sudden rain-squall, which quickly added several tons of water weight to the envelope surface, making the ship too heavy. As per standard procedure, the ship vented aviation fuel, which vaporized in the air. A bolt of lightning ignited the fumes, and the flame followed the venting fuel up to the ship, which itself then burst into flame, killing all on board.

This story made a huge impression on me as a boy of about 10, which would have been in the late 1950s. I vividly imagined that lightening-ignited flame shooting up toward the doomed ship in a dark and stormy sky, and the terrified men in the crew. I imagined the horror I would feel if I was one of them. My father told me this story as part of his response when I asked him if airship duty during WW2 was dangerous. One could argue about whether this list of six helium-filled K-ships destroyed by fire during WW2 meets Mr. Zitarosa's "burned and were lost with ALL aboard" criteria, with the exact meaning of the word "ALL," or, since fires and crashes tend to go together, how much of the blame to assign to the crash,

and how much to the fire. I hope we don't get into a "legalistic" battle over verbiage here, and thus lose sight of what I think is the "take-home" point. I feel I have met the spirit of the challenge, since six ships were destroyed by fire, twice the number requested, and since in a number of cases either all or almost all the crewmen were killed. In two cases, the fire was part of a crash into the surface of the earth. We'll probably never know how many of the crewmen were killed by the crash, and how many by the fire. However, generally airship crashes tend to be remarkably survivable, and it is likely many of the men survived the crash itself only to have been killed by the fire. Crashed WW2 airships were generally salvageable and rebuilt. Fires, however, were, I think, fatal - irreparable damage to the car.

The "take-home" point here is that as soon as you add enough fuel to run an airship on a serious mission, you've added a very serious fire hazard. In fact, I believe the hazard of the fuel itself probably exceeds the hazard of hydrogen lifting gas. Ω



Ed. found this photo of the original K-113 car, which burned to its steel frame while being delivered to Moffett Field by rail. (James Shock's research shows a later car was pulled out of sequence to become a replacement K-113 so as not to upset the delivery schedule; it was a clamshell-door type.) To those ignorant egotists who, in the face of the evidence, continue to insist that LTA ASW duty was a free ride away from danger, consider this: that K-113 car had not seen a flammable envelope or even aviation gasoline... nature found a way of igniting its aluminum, today used for solid rocket fuel, all by itself. Ω



Dr. William Reed writes: “Somehow, in going through many things collected during my wonderful life here in the great U.S.A., I chance to find a sheet from the Santa Ana Ballonet of August 8, 1947. At that time, I was not only the “head physician” of the Naval Air Station Dispensary, but was also the editor of the Ballonet. The photographs on the enclosed sheet show the entire personnel of the dispensary, save one, CPLM who was on leave.

This was a wonderful group of U.S. Navy personnel – wonderful young men – loyal to God and country – every one of them. Note, there was no corps, waves or officers. We did everything except major surgery and obstetrics. It was my first duty as a medical doctor after I left my USNH internship at Great Lakes. I had achieved my 25th year of age. Our previous Senior Medical Officer was Dr. Hal LeBland, who left us to go into plastic surgery practice in San Francisco.

Hopefully, I’ll see you and other friends in September unless my 60th Medical Class reunion interferes. I am proud to be a part of the great “Naval Airship Association.”

Ω

“Lt USNR Ret. (without pay)” **Joe Dymkowski** e-mailed, “Reading about ‘Ace’ Culbertson brings back memories. I knew Ace, flew with him. We were stationed at an outlying Base in Lompoc, near Santa Barbara, CA. The field was surrounded by high tension wires. One morning about 5 am, it was dark, I was attempting to take off when one of the engines sputtered. I knew I couldn't make it with one engine so I ordered the depth charges to be dropped. A blinding blue light lit up the sky. I thought one of the charges exploded. I braced myself thinking I was going to Kingdom Come? I made the takeoff. I returned to the field to get the charges. I discovered the seaman that released them armed them. I decided to dump them in the ocean. I got permission from the Main Base to practice bombing and dumped the charges.

On returning to the Base there was a message, “The captain wants to see Dymkowski.” Apparently one of the charges dumped at the field tumbled and struck the gondola damaging a panel. The plan was to simply repair the damage and forget about it but someone reported the incident to the Main Base.

Ace said “I’ll fly you there.” On arrival in Santa Ana, Ace stormed into the captain's office and said something like, “Captain what are you trying to do, hurt a good pilot?” We told the captain what happened. He ordered Ace back to Lompoc. He told me to go to the beach for some R&R and when I was ready to go back he’d have me flown to Lompoc.

When I was ready the captain gave me a couple of shotguns and ammunition for something to do at Lompoc and had me flown back. We used to shoot black birds, pluck the breast and BBQ them on a clothes hanger. Captain asked Ace if he was the one that flew the blimp under the Golden Gate Bridge in San Francisco. Ace said, “NO, but I can show you how.” Ace was firing the machine gun at something on one of the Channel Islands and set the brush on fire. He landed the blimp. Had the crew hold the blimp down. He took the fire extinguisher's and put the fire out. The incident was not reported. Subsequently another crew practicing an emergency drill discovered the extinguisher's were empty. Ace was Court Martialed. The last I heard of Ace, he was a HTA pilot in the Pacific. I always heard Ace got a medal for a rescue in the desert but that's all I know. Sorry I’ll miss the reunion.” Ω



*Ed. corresponded with MFHS concerning the original ZP-32 squadron insignia. The design above is believed authentic, both by **George Allen's** research for the LTA squadron patch project, and the Ed. who remembers seeing the design on a ZP-32 K-ship photographed at a remote mast site (and not found since). No original patch seems to have survived, nor has a photo resurfaced clearly showing the design on a ship or a squadron space. If you have any image of this patch in place, please share it with the MFHS and the Ed. Meanwhile, the Disney-like pixy shown below on L-9 (according to **James Shock's** research, the first L-ship to be built on the West Coast) probably represented the Station and its training command. The pixy adorns at least one of the Moffett LTA training manuals made during 1942-43, but we have no definitive info that the Disney Studios actually made this insignia as they did so many others for HTA. (Oddly enough rival Fleischer Studio's famous Popeye character featured a wartime cartoon in which the one-eyed sailor joins the US Navy and dons white cracker-jacks, only to show him in his original Merchant marine garb as the insignia of a Navy bomber squadron.) The search for LTA nose art continues, and your input is requested! Ω*



Herm Spahr sent along a clipping *Ed. guesses was printed in the early 1970s and OCR'd here*: "76 year-old shoe salesman James ("just call me Ray") Summers of Vista has been a familiar face to many San Marcans for more than 43 years. Simmers recently told The NEWS that, as a San Diego sales rally last year, he too saw a familiar face, a face that brought back memories of Zeppelins, a song called "Over There" and 25-pound bombs. (And that's pounds — not mega-tons!) The face was that of Clarence Knapp, whom Summers hadn't seen since the pair saw service together 47 years ago, in the "War To-End-All-Wars." "I first met Clarence in France in 1918," Summers recalled, "while serving on patrol duty behind enemy lines over St. Nazaire." "Our outfit was called the "Lighter-than-air-service," he continued, "and we never got much publicity, but we sure had our share of heroes." "In those days," the veteran said, "the undercarriage of a blimp, as they were called, carried a crew of between three and six men. The cabins were called "gondolas", Summers explained. "The official name of our outfit was The Mobile Observation Blimp Service," he continued, "and while our primary job was to observe and report enemy positions, we carried several 125-pound bombs, which we dropped by hand." "I remember one night off the coast of Brest," Summers said, "when one of our blimps was shot down by a German submarine. They spotted it in the moonlight," the old-timer recalled, "The captain's name was Maxwell and he was personally decorated for rescuing two of his crew. They were picked up by a destroyer and taken to Britain, where Maxwell later lost his life piloting the R Z2" [sic] Summers said. Summers related that one of his former commanders went down with the *Shenandoah*, when it broke up in a storm. "She split clean in two," he said, "and Captain Landsdowne rode her down. He didn't survive the crash," Summers added. "There's quite a difference between flying today and the way we did things in those days," the old gentleman observed. "You'd never believe some of the things we did and the chances we took," he said." Ω

*In kindred publication Zeppelin Collector editor **Cheryl Ganz** has compiled a listing of LTA men buried at Arlington. She notes Maxfield's head stone (photo) fails to mention the R-38/ZR-2.*



William F. "Bill" Althoff, 1999-2000 Ramsey Fellow of Naval Aviation History, NASM Smithsonian Institution, e-mailed he "is 'lightening ship' - seeking to distribute his collection of airship and Lakehurst-related memorabilia, books, archival documents (mostly copies), typed reminiscences, correspondence, photographs, postcards, covers, and countless miscellaneous items to individuals and to institutions that will cherish items. The collection is rich in signatures of airmen, correspondence, signed books, National Archives and vintage images, hardware (e.g., girders), as well as Lakehurst-related souvenirs and further items, some of museum caliber. Institutions only: begun in 1975, the audio-cassette library includes about 110 individuals totaling hundreds of in-depth interview-hours. An inventory is available. All queries to skyships@juno.com. [Also] The Guest Editorial (Spring 2010) demands a response. The current editor of "Noon Balloon" can at times, in my view, allow his advocacy to degrade good judgment. Still, his views are to be respected: an advocate, his is the Cause of lighter-than-air. The peer-reviewed literature, as well as editorials, function as a vehicle for rational debate, an exchange of opinion, research and information, however strongly one may dislike or disagree. However, it is one thing to disagree, quite another to belittle to the point of insult. Mr. Zitarosa's intolerant remarks go beyond advocacy, into zealotry--a disservice to all. He is no scholar, no historian of the record. Ω

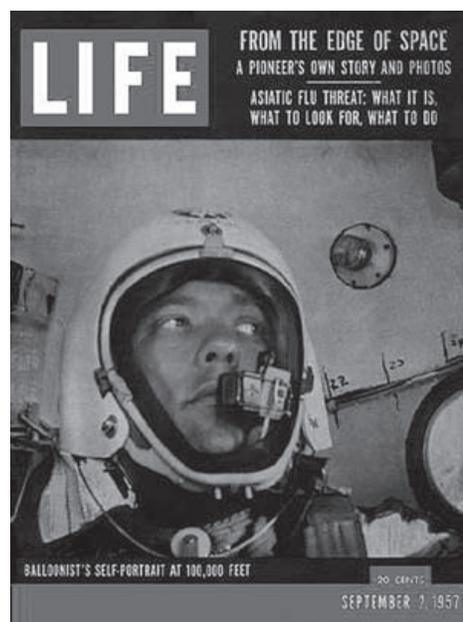
Ed. notes that in spite of a very slick ad campaign designed to raise support for tearing down the Santa Ana (Tustin) hangars, they continue to be the most video'ed and media-employed of any of the surviving timber structures. Repeatedly seen in a recent Verizon commercial, and at the end of the new STAR TREK movie now released on DVD, one hangar was also featured in a news spot where two internet personalities attempted to motivate a four-wheeled construction with the chemical reaction between "Mento" brand hard candy and diet Coke. Ed. continues to hope he'll find a way of making Santa Ana both a location and a stage to build sets for filming "ZRS The Movie." Photo taken during 1998 visit. Ω



Roseanne "Missy" Belsito, Ed.D., e-mailed Tres.: "These films were very interesting. I have been on the Goodyear Blimp in Pompano Beach, Florida. I loved the experience. I remembered my Dad talking about M-ships and K-ships. He was stationed in Lakehurst and we lived outside of Philadelphia, so we did get to see him. When I was very small, we lived near Weeksville for a few months, but always returned to Philly.

He flew mainly up and down the coast, and spoke of Weymouth, Mass. and Key West. January 23rd or so, 1945, he was in Lakehurst, and the airship was in a blizzard and could not land. They were aloft for many hours beyond flight plan. They were nearly out of fuel when they safely landed. He had promised his shipmates that if they made it down, he would finally marry my mother, Rose, to whom he had been engaged for many months. After debriefing, he went to sleep, but his shipmates woke him up and he called my mother. They were married either that day or the next. Their wedding date was January 25, 1945.

I would love to hear from anyone who may have been on that flight, and who knew my Dad. His name was Natale "Tony" Belsito, and he and my mother were members. Dad passed away in January 2002, and Mom passed away in January of 2006. Keep up the good work." Ω



LtCol David G. Simmons USAF (Ret), 87, died 5 APR 10. The former Korean War flight surgeon became Chief of Space Biology at the AF Missile Development Center in New Mexico. During Project "ManHigh II" Simmons rode a balloon for 32 hours to an altitude of 101,156 ft., convincing the Air Force that human space flight was survivable. Ω

Shore Establishments: Moffett Field



Magenn Power Inc. aims to produce electricity at 1,000 feet through helium-filled wind turbine

by Daniel DeBolt, Mountain View Voice Staff

A Washington, D.C.-based company called Magenn Power Inc. has taken up residence in Moffett's Hangar Two, where it plans to test its floating wind turbine at heights of up to 1,000 feet, sending about 30 kilowatts of electricity down a tether. The turbine is called MARS, which stands for Magenn Air Rotor System.

Magenn CEO Pierre Rivard said fast-moving higher altitude winds are the largest source of untapped energy on Earth. At just 1,000 feet, wind speeds are often double what they are on the ground, which allows eight times as much energy to be produced. There is even talk of someday using the jet stream five miles up, where wind speeds are three times what they are at ground level. "There is enough energy in high-altitude winds to power civilization 100 times over, and sooner or later, we're going to learn to tap into the power of winds and use it to run civilization," says Ken Caldeira, professor of global ecology at the Carnegie Institution for Science. Going five miles up is not within Magenn's business plan, however, Rivard said, adding that the company is quite happy with what is achievable at 1,000 feet. Rivard believes his wind turbines would be especially useful in poor or remote regions of the world where there is no electrical grid. The turbines could also be quickly deployed after natural disasters that cause major damage to electrical infrastructure. They can either compliment or replace traditional diesel generators. In many cases, the cost of buying and operating the wind turbine is expected to be "well below" that of a diesel generator, he said. Ω

Historic "cork room" slated for demolition soon inside Hangar One by Daniel DeBolt, Mountain View Voice Staff

In the early 1930s, the massive Navy airship the USS *Macon* sailed over Mountain View and the Pacific Ocean like an airborne aircraft carrier with a handful of small fighter planes ready to be deployed from its belly. In its home base, the 200-foot-tall, 1,133-foot-long Hangar One, the cork room was a temperature-controlled environment used to store and maintain the *Macon's* fragile helium gas cells which kept the airship aloft. They were made from cow intestines before Goodyear came up with a cotton fabric that did the job, said Bill Wissel, founding board member of the Moffett Field Historical Society. The fragile cells had to be constantly inspected and patched because of chaffing on the airship frame. The 30-yard-long, narrow steel-framed room with double doors on one end is likely to be last of its kind after a similar one in Lakehurst, New Jersey (the location of the fiery *Hindenburg* crash) was demolished, Wissel said. "In my opinion, the cork room is the most significant historical artifact in the hangar," said Carl Honaker, the last chief executive officer at Moffett Field before it ceased to be a Naval base, in an e-mail. "It's the only physical evidence of the USS *Macon*/Lighter-Than-Air era, which was the purpose for constructing the hangar in the first place."

Navy officials have said it is impractical to decontaminate the cork room for preservation. It is unclear what needs to be decontaminated, though lead paint is found throughout the hangar and the hangar's asbestos-laden siding is scheduled for removal this fall. The Navy currently plans to preserve a section of the five-inch-thick cork insulation and take photos of the cork room and other interior structures set to be destroyed. "It is not the actual cork that is historically significant," Wissel said. "Cork is cork. The real technical value of the room is the design and its function. That is what makes it so unique. When you look at it, it is obvious what the room was designed for and how it worked." Naval officers would sometimes take refuge in the cork room during hot summers. Wissel said. "The Navy vets I talked to said that on hot days they would go into this room and it would still stay remarkably cold," Wissel said. "I don't know why the Navy is determined to demolish it, there are lots of steel-framed rooms they are going to keep.

To say this one won't survive doesn't make any sense." Ω

RICHMOND

Miami Military Museum and Veterans Memorial Ground-breaking Ceremony 24 April 2010.



(above) Manning the “landing lines” for the final pull are (l to r) the Honorable Mario Diaz-Balart, 25th US District of Florida; Rear Admiral Steve Branham, Commander, Seventh Coast Guard District; the Honorable Jose “Pepe” Diaz, Miami-Dade County Commissioner for Military Affairs; and NAA’s own CWO **Anthony Atwood**, USNR. (See inside cover photo.)

Welcomed aboard by Chief Warrant Officer Anthony D. Atwood’s boatswain’s pipe, the delegation hauled on a rope to “move” the 700,000- pound structure five feet north to a permanent foundation adjacent to the Gold Coast Railroad Museum grounds. The three-story structure from the Richmond Naval Air Station was rebuilt under a new roof and ship-lapped wall siding on all four sides to further recreate detail of the 1940s-era administration building.

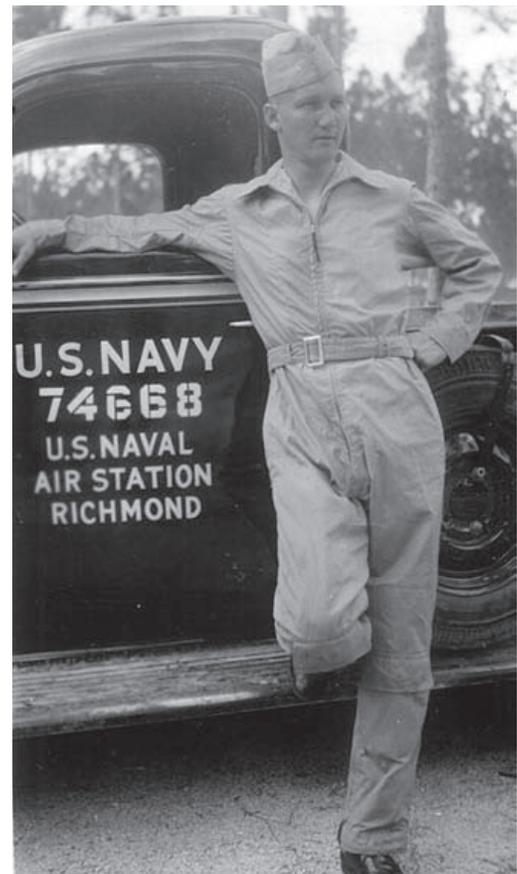
Dade County pine hardwood beams still intact, it was the last structure that could be salvaged from the sprawling base that was home to ZP-21 and Headron Two. A \$2 million grant from the Building Better Communities bond issue provided funding to rehabilitate the long dilapidated, asbestos-ridden, termite-infested structure to restored greatness. Rep. Diaz-Balart termed it a “most significant reminder of our first responders, the men and women who serve the United States military.”

Meanwhile, a local media company had undertaken an effort to produce a historical video about Richmond’s rich past, and contacted NAA officers.

WKLG’s (l to r) Executive Producer Susan Spinnato, Camera Operator Jason Gracia and Director Gavin Bagwandeem came to the Ed.’s home to interview NAA member **Joe Lundy** about his wartime experiences,



including flying K-ship patrols from Richmond. (The large K-ship framed photo above will become a part of the new Richmond Museum, a gift of member **Donald Connover**) Joe provided this priceless photo from those days at the “country club,” as some called the sprawling three-hangar base near Miami. With his wonderful speaking voice, Joe had earlier narrated the WWII video “The Blimp Goes To War... Again” back in 1996. Ω



LTA Concepts from the Internet



Peeping into the future with vision and strategy, London-based design and innovation company Seymourpowell has designed a giant, elegant “clipper in the clouds” airship called “Aircruise” that seems to embark on a new era in luxury travel. Harnessing solar power with a primary hydrogen fuel cell drive, the Aircruise can cruise at around 90mph, leaving no carbon footprint behind. Lying somewhere between a cruise ship and a floating hotel, the airship, which is based on the “slow is the new fast” principle, could move 100 people from London to New York in 37 hours or from Los Angeles to Shanghai in under four days in utmost luxury.



Accommodating four duplex apartments and five smaller apartments together with a penthouse apartment and bar/lounge/communal zone, the Aircruise offers capacious spaces with a low density of passengers, creating a luxury hotel in the skies. Measuring 30 meters in height, the giant airship features dizzying glass-viewing floors, offering mesmerizing views from the sky.



Four external envelopes integrate modular self-sealing lifting bags to ensure a safe flight, even with a major external skin tear. Amalgamating the feel of a fine hotel with absolute freedom of flight, the Aircruise redefines the future of the high-end travel.



To quote Nick Talbot, design director at Seymourpowell, the Aircruise concept questions whether the future of luxury travel should be based around space-constrained, resource-hungry, and all too often stressful airline travel. In a world where speed is an almost universal obsession, the idea of making a leisurely journey in comfort is a welcome contrast.

Belgian architect Vincent Callebaut has put together a design for airships with bags of hydrogen inside them to make them fly, with hydrogen generated from algae.

The airships are 400m high and 180m in diameter. It would fly at 2,000m height and at a speed of 100 miles per hour. Within the airship would be housing, offices, science labs and entertainment. Ω



Cover Stories

Northrop Grumman Awarded \$517 Million Agreement for U.S. Army Airship

A new hybrid airship weapons system, just larger than the length of a football field, will take to the skies in just 18 months to provide an unblinking, persistent eye for more than three weeks at a time to aid U.S. Army troops in Afghanistan, according to Northrop Grumman Corporation.

The company today announced it has been awarded a \$517 million (POUND350.6 million) agreement to develop up to three Long Endurance Multi-Intelligence Vehicle (LEMV) systems for the U.S. Army. Northrop Grumman has designed a system with plug-and-play capability to readily integrate into the Army's existing common ground station command centers and ground troops in forward operating bases--the main objective to provide U.S. warfighters with persistent ISR capability to increase awareness of the ever changing battlefield.

"This opportunity leverages our long-standing leadership positions in developing innovative unmanned air vehicles, C4ISR weapon systems, and leading edge systems integration, and moves Northrop Grumman into this rapidly emerging market space of airships for the military and homeland defense arenas," said Gary Ervin, corporate vice president and president of Northrop Grumman Aerospace Systems sector. Under the agreement, awarded by the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, Northrop Grumman will design, develop and test a long-duration hybrid airship system within an 18-month time period, and then transport the asset to the Middle East for military assessment.

"It is critical that our warfighters are equipped with more enabling integrated ISR capability to tackle today's and tomorrow's conflicts," said Alan Metzger, Northrop Grumman LEMV program manager. "Our offering supports the Army's Joint Military Utility Assessment that this disruptive innovation must meet the Army's objective of a persistent unblinking stare while providing increased operational utility to battlefield commanders. Part of our innovative offering includes open architecture design in the payload bay to allow sensor changes by service personnel in the field."

LEMV will sustain altitudes of 20,000 feet for a three-week period, and it will operate within national and

international airspace. It will be forward-located to support extended geostationary operations from austere operating locations using beyond-line-of-sight command and control. Northrop Grumman has teamed with Hybrid Air Vehicles, Ltd. of the United Kingdom using its HAV304 platform, Warwick Mills, ILC Dover, AAI Corporation, SAIC, and a team of technology leaders from 18 U.S. states to build LEMV. Northrop Grumman will provide system integration expertise and flight and ground control operations to safely take off and land the unmanned vehicle for worldwide operations. - (GlobeNewswire) Ω



Winner selected in American airship competition
(Excerpt) By Ben Iannotta C4ISR Journal

The U.S. Army has selected Northrop Grumman to build the giant airships it plans to rush to Afghanistan as a new persistent surveillance technology. Known as hybrid airships, they will combine the aerodynamic lift of forward movement with lift from a lighter-than-air gas. Northrop beat Lockheed Martin Skunk Works for the agreement. Northrop Grumman will manufacture up to three of the airships pronounced "LEM VEES" under the \$517 million agreement, the company said June 14. The U.S. Army Space and Missile Defense Command in Alabama will oversee the work. The Army is calling the deal an agreement, rather than a contract, because the LEMVs will be procured under a provision of U.S. acquisition law, called other transaction authority, which allows the Defense Department to hire companies not normally eligible to join defense manufacturing teams, Cummings said. Northrop's main partner, the British company Hybrid Airship Vehicles, would not have been eligible under a traditional contract approach.

Ed. note: Some of our members in the U.K. are hopeful this contract award will save at least one of the Cardington hangars. Illustration above from U.K.'s Hybrid Airships website. FLORIDA TODAY reports assembly will be at Tillimook. Ω

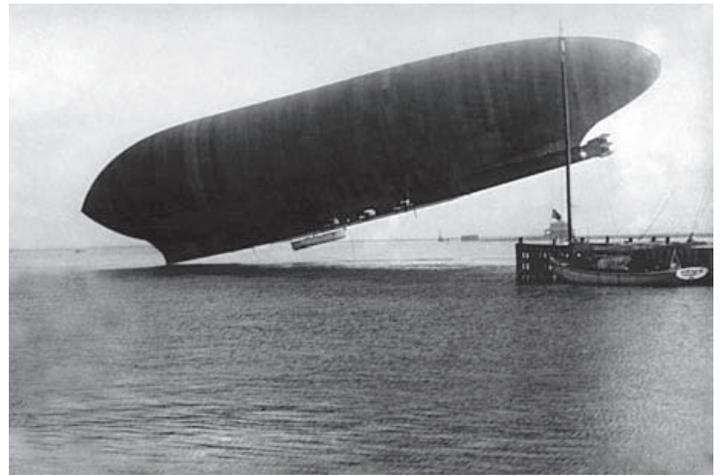
100-Year-Old Airship “Akron” Lifeboat Donated to Smithsonian – (see inside cover)

The Goodyear Tire & Rubber Company is making another significant gift to the Smithsonian National Air and Space Museum Wednesday [7 JUN 10] with the donation of a 100-year-old lifeboat from Goodyear’s earliest lighter-than-air endeavor – the airship *Akron* built in 1911 (right). The *Akron*, not to be confused with the Goodyear-built Navy airship U.S.S. Akron, was Goodyear’s first airship envelope, designated serial number D-1. (Goodyear’s newest blimp envelope, # D-654 is in use on its blimp *Spirit of Innovation*.) The *Akron* was lost at sea in 1912 during an attempted transatlantic crossing. The only significant piece to be recovered from the accident was the lifeboat, in storage by Goodyear since 1912.

The boat departed Goodyear’s blimp hangar in Suffield, Ohio, for its new home in Chantilly, Va. on June 9 at approximately 11 a.m. “The National Air and Space Museum is delighted to add this survivor of the very first Goodyear airship to its collection of historic air and spacecraft,” said Tom Crouch, Senior Curator of Aeronautics, National Air and Space Museum. “It will have a place of honor in a section of the Steven F. Udvar-Hazy Center housing the *Double Eagle II*, the first balloon to fly the Atlantic, and the [airplane] Concorde, which whisked travelers across the Atlantic at supersonic speeds.”

Constructed by S.E. Saunders of East Cowes on the Isle of Wight in 1910, the boat is made primarily of wood, measures 27 feet long with a 6-foot beam and weighs over 500 pounds. In addition to the *Akron* legacy, the lifeboat’s radio compartment has the distinction of having transmitted the first wireless message from the air. Goodyear has donated other aviation items to the Smithsonian. In 1932, it offered the gondola from its first public relations blimp, *Pilgrim*, which the Smithsonian accessioned in January 1933. It is currently on display at the Steven F. Udvar-Hazy Center. Goodyear operates three airships in the United States. The *Spirit of Goodyear* is based near Akron, Ohio; the *Spirit of America* is located in Carson, Calif.; and the *Spirit of Innovation* is in Pompano Beach, Fla.

For more information about Goodyear, go to www.goodyear.com/corporate and for the photo www.goodyearnewsroom.com Ω



New Helium Source: Linde Gases, a division of The Linde Group, announced it has been awarded a significant long-term contract to supply helium from the new Qatar Helium 2 Project, which is due to begin production in early 2013.

With a production capacity of almost 40 million cubic meters per year, the Qatar Helium 2 Project will be the world’s largest helium plant along with the Qatar Helium 1 plant. This will make Qatar the largest exporter of helium globally. The new contract with the Qatar Helium 2 Project owners, when combined with its current off-take from Qatar Helium 1, will make Linde one of the largest buyers of helium from Qatar. The new supply agreement, which covers 30 percent of total helium production output, will significantly enhance Linde’s ability to reliably supply helium to its worldwide customers.

“This is an important supply agreement for Linde,” said Steve Penn, Global Head of Merchant and Packaged Gases, Linde. “It is our second helium agreement for supply from Qatar and, along with our recently opened helium plant in Darwin, Australia and our Algerian joint venture Helison, it confirms our position as the supplier with access to the most diversified helium source portfolio. As global demand for helium increases, Linde’s Qatar supply will allow us to satisfy our customers’ growing helium needs and shield them from potential industry supply constraints.”

Qatar Helium 2 Project will produce liquid helium from the helium-rich stream resulting from expanding the LNG facility. The facility is supplied from Qatar’s North Field in the Arabian Gulf which itself has reserves of more than 25 trillion cubic meters, making it the largest natural gas field in the world and therefore providing a long-term source of helium as a by-product from LNG. Ω



First New American H₂ Balloon in 70 years

By **Peter Cuneo**, BFA, NAA

On this past March 28 at 0930 MST, the first manned, hydrogen-rated free balloon to be built in the US since probably about 1940 [see inside back cover photo], launched from Balloon Fiesta Park in Albuquerque, New Mexico. The maiden flight N505HY (505-high) carried pilot and builder Bert Padelt and co-pilot Peter Cuneo. The flight's purpose was to complete the requirements of FAA mandated, Phase I testing. This mainly consisted of safely completing ten hours of free flight. A secondary objective was to characterize the system's flight performance through a full cycle of daytime solar heating and nighttime cooling. Hydrogen's inherently higher coefficient of thermal expansion (versus helium) led us to expect a more unstable flight with greater altitude excursions (up and down) than we were used to when flying helium-filled systems.

We did experience considerable thermal activity flying above the city and then over the mountains just to the east, but the balloon always recovered with moderate ballasting on our part. At our maximum altitude of about 10,500 feet MSL, the view was a magnificent panorama of snow-capped peaks and high desert. As night fell we were approaching Clovis, NM, and Cannon AFB. No activity there so we had permission to fly through their

airspace. The balloon stabilized out about two hours after sunset and we flew on into the night and Texas. As dawn approached so did Amarillo, TX. We passed to its south east and headed for the far northeast corner of the Texas panhandle with its reputation for hellacious surface winds and wide open spaces. According to the sectional, the only thing that looked inhabited downwind of us was Canadian, TX, whose name comes from the nearby Canadian River. Our speed had increased during the night and continued to increase as we descended into our landing approach. At about 200 feet AGL we were doing about 35 mph, which might sound pretty slow for a fixed wing aircraft but is right sporting for our craft whose only braking ability was the friction of the trail rope and the bottom of the basket along the ground. We called the AWOS at the Canadian airport and were relieved to hear that they were reporting surface winds of 3-5 knots. So our goal was to get out of the flat, high mesa top and drop down into the river valley for an early morning landing. For once, things worked just as planned and we executed a stand-up landing to a full stop. We needed a photo of our very depleted craft, so Bert jumped out with camera while I stayed in the basket and tried to look "in-control." (Left, Bert Padelt photo; also back cover)

Total flight time was about 22 hours and we covered about 500 or so miles. We were happy with the system's performance and plan to fly it again in the America's Challenge Gas Race out of Albuquerque this coming October.

Here are some technical details. The fabric is a 3.9 oz ripstop nylon with a carbon impregnated, urethane layer bonded to one side. All seams are sewn French fell with a two-inch wide sealer strip covering the seam. The strip is the same material as the main fabric except that it is coated on both sides to maintain conductivity across the seams. Envelope volume is 35,000 cubic feet (991 cubic meters). The envelope is fitted with two, four-foot diameter deflation ports that are held fast with heavy duty, conductive, hook and pile wraps. All load tapes are conductive. Maximum measured resistance across any junction was less than 5,000 Ohms as measured by a Fluke 1587 insulation tester. Ω

Ed. notes Sport Aviation, magazine of the Experimental Aircraft Association (EAA) for June '10 featured a cover and complete report on Balloon Federation of America member Jonathan Trappe's helium cluster balloon N878UP. He mentions the gas was "regrettably expensive," but he hopes to stay aloft long enough to float across the English Channel. His configuration of large latex balloons, their suspension and control also meet FAA standards. Ω

Selling the Nation's Helium Reserve

Committee on Understanding the Impact of Selling the Helium Reserve; National Materials Advisory Board; National Research Council
(Excerpts from the Preface & Executive Summary)

In the public's mind, helium is the gas that fills balloons and the Goodyear blimp. Supply shortages or price structures that result in the loss of either helium-filled balloons or the Goodyear blimp would probably stimulate media coverage of the problem and generate some regret, but their loss would not impact national security or the public welfare. Interestingly, it was lighter-than-air use—to supply airships—that motivated the creation of the Federal Helium Reserve back in 1925. In the 1960s, helium's strategic value in cold war efforts was reflected in policies that resulted in the accumulation of a large reserve of helium owned by the federal government. This report assesses whether the interests of the United States have been well served by the 1996 Act and, in particular, whether selling off the helium reserve “has had any adverse effect on U.S. scientific, technical, biomedical, and national security users of helium.” In response to its charge, the committee finds that selling off the helium reserve, as required by the 1996 Act, has adversely affected critical users of helium and is not in the best interest of the U.S. taxpayers or the country. The amount of federally owned helium being sold is enormous: it is currently equivalent to approximately one-half of U.S. helium needs and almost one-third of global demand. One consequence is that the price of federally owned helium, which is set not by current market conditions but by the terms of the 1996 Act, dominates, if not actually controls, the price for crude helium worldwide. Another of the committee's concerns is that the drawdown schedule required by the 1996 Act, which dictates that the reserve helium be sold on a straight-line basis—the same amount must be sold each year until the reserve is substantially gone—is a wasteful way to draw down a reservoir. Given recent developments in the demand for and sources of helium (the principal new sources of helium will be in the Middle East and Russia, and if the sell-down continues, the United States will become a net importer of helium in the next 10 to 15 years), the committee recommends that Congress reconsider whether selling off substantially all federally owned helium is still in the nation's best interest. Ready access to affordable helium is critical to many sectors in academe, industry and government. DOD must have

ready access to helium to operate the balloon and dirigible-based surveillance systems needed for national security. The Federal Helium Reserve, managed by the Bureau of Land Management (BLM) of the U.S. Department of the Interior, is the only significant long-term storage facility for crude helium in the world and currently plays a critical role in satisfying not only our nation's helium needs but also the needs of the world. The Federal Helium Reserve consists of:

- (1) a naturally occurring underground structural dome near Amarillo, Texas, where federally owned (and some privately owned) crude helium is stored (the Bush Dome Reservoir);
- (2) an extensive helium pipeline system running through Kansas, Oklahoma, and Texas that connects crude helium extraction plants with one another, with helium refining facilities, and with the Bush Dome Reservoir (the “Helium Pipeline”);
- (3) various wells, pumps, and related equipment used to pressurize crude helium, to store and withdraw it from the Bush Dome Reservoir, and to operate other parts of the Federal Helium Reserve. In late 2009, as this report is being issued, the Federal Helium Reserve contains slightly more than 18 billion cubic feet of federally owned helium, with a value of approximately \$1.2 billion using BLM's current posted price of \$64.75 per thousand cubic feet.

A market that had been stable for several decades prior to the sell-off of federally owned helium, experiencing neither drastic price increases nor shortages of supply, began to change after BLM started to sell its crude helium. Almost immediately, privately sourced crude helium prices began to rise, and those prices continued to steadily increase so that they now meet or exceed BLM's price, and many of the sales contracts for private helium expressly tie future sales prices to BLM's price. Thus, this legislatively set price for federally owned helium is now setting the price for crude helium, and there is no assurance that this price has any relationship to the current market value of that helium. The managers of the Reserve should shift to a market-based pricing policy to improve the exploitation of this important national asset. The report notes that several mechanisms could be used to implement market-based pricing and thereby introduce competition, or the threat of it, to the process. However, one complicating factor is that before federally owned helium can be used, it must be refined, and the refining capacity linked to the Reserve is owned by four companies. The committee

believes that market-based pricing of crude helium from the Reserve will require that purchasers other than those four companies have access to refining capacity linked to the Reserve.

An additional aspect of the 1996 Act that has significant—and undesirable, in the judgment of this committee—implications for the overall management of the Helium Reserve is the Act's requirement that the sale of federally-owned crude helium is to take place on a straight-line basis. The BLM should develop and implement a long-term plan that incorporates appropriate technology and operating practices for delivering crude helium from the Reserve in the most cost-effective manner.

The crude helium in-kind program and its associated customer priorities should be extended by BLM, in cooperation with the main federal agencies not currently participating in the in-kind program—for example, the National Science Foundation, the National Institutes of Health, and the extramural grant programs of the Department of Energy—to research being funded in whole or in part by government grants. In addition to recommending that these users be allowed to participate in the in-kind program, the committee believes that the conservation and reuse of helium by these users should be promoted by the agencies funding this research. Although such policies may be costly in the short-run, in the committee's judgment these policies will save money in the long-run and will help to address many of the negative effects of the price and supply disruptions referred to in the preceding discussion.

Federal agencies such as the Department of Energy, the National Science Foundation, the National Aeronautics and Space Administration and the Department of Defense that support research using helium should help researchers at U.S. universities and national laboratories acquire systems that recycle helium or reduce its consumption, including low-boil-off cryostats, modular liquefaction systems, and gaseous recovery systems. The committee notes that because total U.S. research applications account for only 2 to 4 percent of all usage of refined helium in the United States, the negative effects of supply and price disruptions for the U.S. research community not currently participating in the in-kind program could be addressed at relatively low cost. Moreover, in the judgment of this committee, the benefits for the nation that would accrue

from minimizing these disruptions would be substantial. BLM should acquire, store, and make available to any interested party the necessary data to fill current gaps in (1) modern seismic and geophysical log data required for characterization of the Bush Dome Reservoir, (2) information on the helium content of gas reservoirs throughout the world, including raw data, methodology, and economic assessment for the classification of reserves contained in specific fields, and (3) trends in world demand. BLM or other agencies with the necessary expertise, such as the United States Geological Survey (USGS), should develop a forecast over the long term (10-15 years) of all U.S. demand for helium for scientific, research, space, and military purposes.

Helium is critically important to many U.S. scientific, industrial, and national defense sectors. The Federal Helium Reserve is a finite resource and so at some point in the future will be depleted. However, the helium needs of users in the in-kind program will continue. The BLM and the White House Office of Science and Technology Policy (OSTP) should develop a strategy to address these important future needs. The congressional committee or committees cognizant of and having oversight of the federal helium program should reevaluate the policies behind the portions of the 1996 Act.

Conclusion

The committee notes that securing a stable and accessible helium supply in the future requires addressing several important issues that are beyond the scope of this study. For example, the legislative framework for the operation of the federal helium program is silent on the management of the Federal Helium Reserve after January 1, 2015, the mandated date for disposal of substantially all federally owned crude helium. What is to be done with the remaining federally owned crude helium? How will BLM operations beyond 2015 be financed? Should the Reserve, either a federal or a private entity, as appropriate, continue to exist after the BLM debt to the U.S. Treasury has been retired? While the committee supports maintaining a strategic reserve, addressing these issues requires the involvement of Congress and the broader federal science policy establishment because they go well beyond the reserve management responsibilities of BLM, keeper of the only significant helium depository in the world. ^Ω Entire 128-page report can be downloaded from: <http://www.nap.edu/catalog/12844.html>

SHORT LINES



Lockheed sees good prospects for unmanned air-craft: By Andrea Shalal-Esa (Reuters) 4 MAY 10

Lockheed Martin Corp expects to double its production of new tethered unmanned surveillance airships [*sic*] to eight a month by June under a \$142 million Pentagon order for Afghanistan... a direct response by Lockheed to the Pentagon's drive for lower-cost unmanned systems to fight insurgents in Iraq and Afghanistan, and show the company's determination to play a key role in the unmanned systems that the Pentagon now favors.

Stephanie Hill, Lockheed's vice president and general manager for ship and aviation systems, said the Pentagon first contacted the company in January, asking how many of the white helium-filled blimps [*sic*] it could build, and how quickly. In response to the urgent need for more of the Persistent Threat Detection Systems (PTDS), Lockheed and its suppliers began working on the new airships [*sic*] and buying needed materials on their own even before they received the contract, she said. 'It was an amazing ramp up,' she said in an interview at the annual Navy League conference. The latest order brings the total number of PTDS systems under contract to over 30. It calls for Lockheed to build 17 airships [*sic*] for rapid deployment to Afghanistan, where they will be used to keep watch for enemies and people planting roadside bombs. Pentagon acquisition chief Ashton Carter last month said he would dramatically boost use of airships as 'eyes in the sky' over Afghanistan to protect the growing number of U.S. troops. Equipped with sophisticated cameras and the ability to stream images to U.S. bases on the ground, the airships [*sic*] help track any activity that could jeopardize the troops. The unmanned aircraft are a more affordable way to maintain surveillance than more-expensive unmanned airplanes, which are also being deployed in Afghanistan in large numbers.

The 35-meter tethered PTDS airship [*sic*] can stay aloft for 30 days, even in extreme weather, and can carry

up to 500 pounds of sensors. It has been in use by the Army since 2004. Hill said Lockheed hoped to sell more of the airships [*sic*] to other U.S. government agencies, including possibly the Department of Homeland Security for border patrol, and some foreign countries were also interested. Ω

AV WEEK reports Mexican drug gangs are expanding in Central America. "Semi-submersible ships motor from the western coast of Columbia, around the Galapagos Islands..," The semi-subs are 60-70 ft. long with diesel engines and a 5,000 mile range. They carry a crew of four and present almost no radar signature... Air Force General Douglas Frazer would like better intelligence, surveillance and recon capabilities..." Ω

The Space Chair Project



On September 26 and 27, 2009, four missions were flown carrying chairs to the edge of space. These flights filmed an amazing TV commercial for Toshiba that played all across Europe and Japan. Each vehicle carried two H-D cameras. Ω

USNI Proceedings reports the robot Slocum glider Scarlet Knight (RU-27) became the first unmanned vehicle to swim the Atlantic, Apr-Dec 2009. These AUVs are propelled solely by buoyancy shift. Ω

If you have a pilot certificate and a current medical certificate, you may wish to join one of the more exclusive clubs in aviation: Zeppelin pilot. Airship Ventures, operator of Eureka, the world's largest airship (and the only Zeppelin in the United States), offers a two-day course that puts you in the pilot's seat of the unique dirigible. The course includes ground school, flight instruction, stick time, logbook endorsement, and more. Students are guaranteed 30 minutes of stick time in the left seat - all for \$2950/person, plus taxes. Ω





24 SEP 09 – SKYBUS 80K Unmanned Aerial System completes preprogrammed and in flight navigation routes with Piccolo II autopilot.

SAIC Airship Tested: *Aviation Week 5 APR 10*

Science Applications International Corporation's (SAIC's) SKYBUS 80K Lighter-than-Air Unmanned Aerial System (LTA-UAS), controlled by a Piccolo II autopilot, successfully completed flights with pre-programmed and in-flight tasked navigation routes carrying a 500-pound payload in Limestone, Maine, last September. Flights were conducted in the National Airspace at the Loring Commerce Center, affording flight operations within a six-mile radius around the airfield.

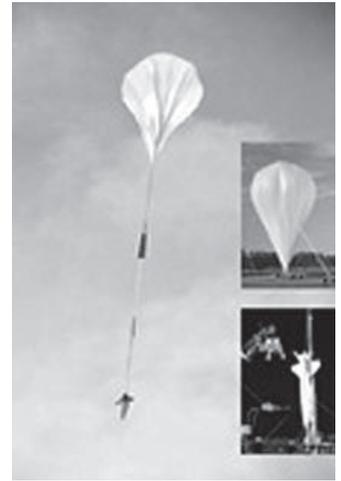
Cloud Cap worked with vehicle primes SAIC and Telford Aviation to provide a Piccolo implementation of the control laws for the airship. The Piccolo II supported all of the automated flight modes for the successful tests. The next logical steps for advancing Piccolo controls will be implementation of autopilot controlled station-keeping, which will allow the airship to maintain a fixed position over a single waypoint on the ground.

The SKYBUS 80K is an 80,000-cubic-foot unmanned airship developed to carry more than 500 pounds of payload to 10,000 feet for 24 hours with a maximum speed of 50 knots. It can be used for a variety of security, intelligence, and communications relay operations. The system is able to demonstrate the utility of long-duration intelligence, surveillance, and reconnaissance (ISR) capabilities where extended duration overhead capabilities are desired.

SAIC has been testing its Skybus 80-K LTA UAV expecting to conclude in late April '10 prior to shipment to Yuma, AZ. Ω

Pollux Flies At Last: *Aviation Week 19 APR 10*

Italy's Unmanned Space Vehicle (USV) program underwent a successful balloon-drop test off the coast of Sardinia second week of April. The Pollux splashed down uneventfully following its balloon-borne ascension and subsequent release. Its single point parachute deployed flawlessly, in contrast to its sister ship Castor (photo) suffering a decelerator system failure in a similar drop test. Ω



Helium Balloon Accident – Wire Service Report

A gigantic NASA balloon designed to carry science instruments to the edge of space crashed during takeoff from Australia's Alice Springs launch site on 29 APR 10, destroying the Nuclear Compton Telescope (NCT), owned by University of California at Berkeley. Designed to study the polarization of gamma rays and other astrophysical phenomena, it was serving as a test bed for instruments being developed for the Advanced Compton Telescope.

NASA is still trying to sort out what happened, but a video taken by an ABC News team shows the balloon's undercarriage coming loose, smashing through a fence and toppling an SUV before landing in pieces on the ground. When inflated, the balloon is about the size of a football field and capable of carrying science instruments to an altitude of about 25 miles -- above 99 percent of the atmosphere. High-altitude balloons are often used to facilitate astronomical studies. In Antarctica, NASA is using a balloon-borne instrument to look for antimatter. Ω



Giant Airship Poised For Liftoff

Excerpts from MSNBC piece By Irene Klotz

After a 100-year dry spell in technological innovation, a pioneering inflatable airship is about to debut, promising a near-space experience for science experiments, as well as a sky-based platform to relay communications and to keep watch on oil spills, forest fires or even pirates at sea. The 235-foot airship, called the Bullet 580, also could be used to transport heavy equipment to remote locations. "We're kind of like a truck in the sky that can have different types of payloads for different requirements," Mike Lawson, chief executive of Alabama-based E-Green Technologies, told Discovery News. E-Green acquired airship builder 21st Century Airships, which holds patents for Bullet 580 technologies and designs, including a system of bags that hold helium for lighter-than-air lift and an inner hull that is filled with ambient air. Payloads are carried inside the balloon [sic], which is one-sixteenth of an inch thick, but 10 times stronger than steel. The material is a new type of Kevlar, which is used to make bulletproof vests. The airship's engines are mounted on the fuselage. E-Green is betting that Bullet 580 will usher in a new age for air-based remote sensing and heavy-lift transport. The ships are designed to haul payloads as heavy as 15,000 pounds up to 2,500 feet. Or, they can fly at mid-latitudes of around 20,000 feet to serve as a communications hub-in-the-sky or a surveillance platform to monitor oil spills, forest fires, volcanic eruptions, hurricanes as well as provide border patrol and other security monitoring services. Lawson expects Bullet 580 to be able to stay airborne for at least 48 hours, and eventually up to about a week. The ships, which can be flown with a crew, or remotely, sell for \$8 million apiece, Lawson said, adding that the company is also creating a fleet for leasing at a cost of \$300,000 to \$500,000 per month." Ω In mid-May E-Green Technologies successfully air-inflated the 235-foot long, 65-foot diameter envelope for the Bullet 580 airship inside the Garrett Coliseum in Montgomery, Alabama. (Via **Andrew Kohut**) Ω

US Military Using Modernized Aerostats In Afghanistan: Excerpts AOL News 18 MAY 10

A type of aircraft dating back more than 100 years, blimps were used in World War I to drop bombs and conduct reconnaissance over enemy territory. Now, updated versions are making a comeback in military operations in Afghanistan. As troops face a deadly escalation in roadside bombings, the U.S. military is responding with a new surveillance system featuring tethered, sensor-equipped blimps to protect forward operating bases by monitoring the ground below.

The Pentagon is sending blimps, like the one pictured, to Afghanistan to serve as surveillance systems for roadside bombs. The unmanned airships, also called aerostats, are just one of the technologies the Pentagon is rushing to Afghanistan in the hopes of battling the rise in homemade bombs, which continue to be the top killer of U.S. and allied troops fighting the Taliban insurgency. In the Persistent Ground Surveillance System, these lighter-than-air vehicles are equipped with day and night cameras and combined with a ground control station. Seven of the aerostats are already in-country, and 31 are expected to be in place by the end of the year, Ashton Carter, the Pentagon's chief weapons buyer, told reporters today at a demonstration of the system. "What you see here is one of the many new capabilities we are introducing into Afghanistan in association with the new surge effort this spring and summer," he said, as the white blimp floated above him.



Currently, the aerostats are equipped with an MX-15 sensor that provides day and night imagery, but more sensors might be added once they are up and flying in Afghanistan, Carter said. The airships will be operated by private contractors, rather than military personnel. The technology itself is by no means new, as tethered aerostats are already used to monitor the U.S.-Mexican border for drug smuggling and other illegal incursions. But the blimps going to Afghanistan are smaller -- just 75 feet long and 25 feet in diameter -- and are designed to spot insurgents, particularly those who might be involved in planting improvised explosive devices, or IEDs. Ω

Support



Z-Prize

All countries around the world will ultimately introduce some form of cap and trade or carbon tax with transportation being the largest contributor, therefore it is imperative that alternative transport modes with zero or low emissions are found and commercialized.

Additionally, all involved in humanitarian relief efforts and viable transport access/support to remote communities will agree that current transport modes are unable to effectively meet transport needs in the case of disaster due to damaged infrastructure; and even ongoing resupply of remote areas is at risk given the volatility of fuel prices.

Based on the historical success of airships traveling many thousands of miles in the 20th century, combined with new advances in materials and other flight technologies, makes airships a viable alternative and the Z-Prize is intended to drive the development of this industry forward in support of both humanitarian and environmental purposes.

The Z-Prize will be offered for the successful development and flight race of a Zero (or low) emission transport airship.

First step will be the development of very specific criteria for the significant cash award to the winning team based on rate of emissions, flight speed, transport capacity and cargo transfer capability.

Initial development of the Airship Z-Prize is being coordinated by **Ron Hochstetler**, **Barry Prentice** and **Jeff Ashcroft**. For more information visit:
<http://www.airshipzprize.org> Ω

Russia's Flying Saucer Airship

Designed and tested in Russia, the unusual-looking EKIP aircraft is a prototype of a larger craft that will be suited for large loads and won't require a long landing strip.



Their press release stated, "The "EKIP" aircrafts can carry heavy large-scale loads (100 and more tons) at long distances (thousands of kilometers) at a speed of 500-700 km/h at the altitude of 8-13 km. These flying vehicles can move near the surface of ground or water using the air cushion at a speed up to 160 km/h and glide at a speed up to 400 km/h as a "screen-plane." The flying vehicles "EKIP" do not require an airfield. They can land on airfields of any category, including ground and water surfaces. The length of the runway for heavy vehicles (several hundred tons) does not exceed 600 meters, take-off and landing are performed at steep descent trajectory, which decreases the level of noise affecting the vicinity."

The latest incarnation appears to carry the name "Locomoskayer." Ω

Zeppelin distance and endurance trial— Nigel Hills

On 23rd March 2010, ZEPPELIN NT07, D-LZZF, departed on an endurance trial, with a crew of three pilots aboard.

Take-off was at 10:20 local time. The Zeppelin NT overflew several German cities, including Kempten, Munich, Nuremberg, Frankfurt (Main), Mainz and Friedrichshafen on the first route. The second route took the Zeppelin NT to Laupheim, Augsburg, Landsberg, Kempten and back to Friedrichshafen. In 24 hours and 40 minutes the ship covered a total un-refuelled distance of 1450 KM (783 NM) and returned to land on 24th March at 11:00 local time. Ω

Chinese See Intel, Surveillance Role for Airships

By Wendell Minnick excerpt DefenseNews.com

Chinese academic, commercial and military institutions are aggressively studying the use of lighter-than-air (LTA) platforms for a variety of missions, including intelligence, surveillance and reconnaissance, special operations, transportation over rugged terrain and as communications relays. A report issued 23 MAR by the U.S. National Air and Space Intelligence Center (NASIC), is the first known paper on China's military LTA research.

The People's Liberation Army (PLA) is looking at the development of airships and aerostats for a variety of military missions. The PLA already uses aerostats for ground force exercises. Though efforts have so far involved small platforms, the PLA is funding development of larger aerostats and airships able to operate at strategic altitudes of 10,000 meters or higher, which would allow surveillance of Taiwan from China. For the PLA, having a networked formation of large airships over the East China Sea or South China Sea could offer the potential of an inner-space satellite system that could operate for a week at a time. China is considering the use of "super-altitude airships" for early warning detection to supplement existing early-warning networks.

"Because of its vertical takeoff and landing, and fixed-point air stationary capabilities, load capacity, low noise and low energy consumption, it is cost-effective and is very valuable for reconnaissance and surveillance, emergency communications," the report said. Defense News found more than 30 Chinese academic, corporate and military institutions and facilities on the Internet conducting research on LTA.

The Suzhou Fangzhou Aeromodeling Co. produces an "investigative security surveillance airship" for use by the police or the military. The Hua Jiao Airship Co. makes the HJ-3000 airship that it advertises as a surveillance, minesweeper and special operations platform. The Beijing Buaa Lonsan Aircraft Co. produces the LS-S900 airship for use as a surveillance platform. It can be equipped with a camera, infrared thermal imaging unit, radar and a signal relay. The Aerospace Life-Support Industries Co, produces the FKY-1, which can handle small missions of up to four personnel and carry a variety of sensor payloads. Ω



India To Open Competition for New Aerostats

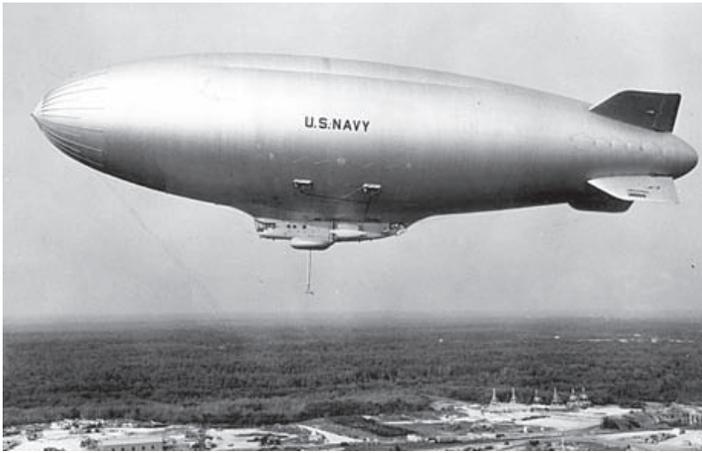
By Vivek Raghuvanshi excerpt. Defensenews.com

India, which bought three radar-equipped aerostats from Rafael [above] in 2005, has thrown open the competition for a new batch of three to the global market. Last month, Indian Air Force officials asked the Defence Ministry to prepare a request for information, which is to be issued in the next two to three months to BAE Systems, Israel Aerospace Industries, Lockheed Martin, Northrop Grumman, Rosoboronexport and Thales, ministry sources said. The aerostats must be able to carry a payload of 2,400 kilograms to 15,000 feet for 28 days at a stretch, including radars that can spot aircraft and missiles up to 30,000 feet and out to 300 kilometers.

The Air Force intends to integrate the aerostat radars with the three Airborne Warning and Control System AWACS being purchased from Israel. The balloon-borne radars can virtually act as AWACS themselves, an Air Force official said.

India has deployed its three aerostats along the Pakistani border in the state of Punjab. The country eventually seeks to own 13, the Air Force official, said. The payload would consist of air and surface surveillance radars, electronic intelligence and communication intelligence gear, and V/UHF radio telephony equipment and Identification Friend or Foe (IFF) system. The Navy also wants to buy aerostats for coastal security. The new batch will be bought at a competitive price, said analyst Mahindra Singh. Ω

Joe Kittinger was inducted into the Ballooning Hall of Fame in Indianola, Iowa, on August 1, 2010. The Skydiving Museum in Deland, Florida, will be recognizing Joe a few weeks later, Aug 13-15. Ω



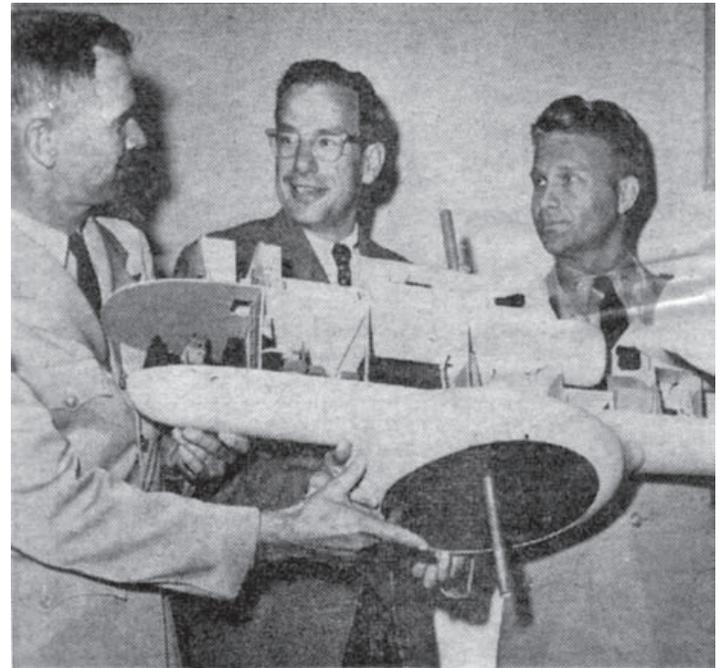
The Flying Wind Tunnel

Part Two by **David Hazen**

Although the official word that Secretary Wakelin had decided to keep two airships in active research status was not received in Lakehurst until May 24th, I learned of the decision from Capt. Eppes in early April. Although my March was taken up with these concerns, Henry Payne in the airship continued to fly as frequently as the weather permitted. Unlike our beginnings with the ZS2G-1, most of the operations were now at night to take advantage of the normally smoother conditions then prevailing. The first task was to repeat the flow field survey to be certain conditions below the larger ship replicated those below the ZS2G-1. Finding that they did, the next task was to check out the instrumentation by testing a full model. Still awaiting much of the electronics that were on order, we substituted amplifiers and recorders with those from Forrestral and used the wind tunnel model of the S2F that had hung for some years as a decoration in our lab. With a seven-foot wing span it was the largest model readily available.



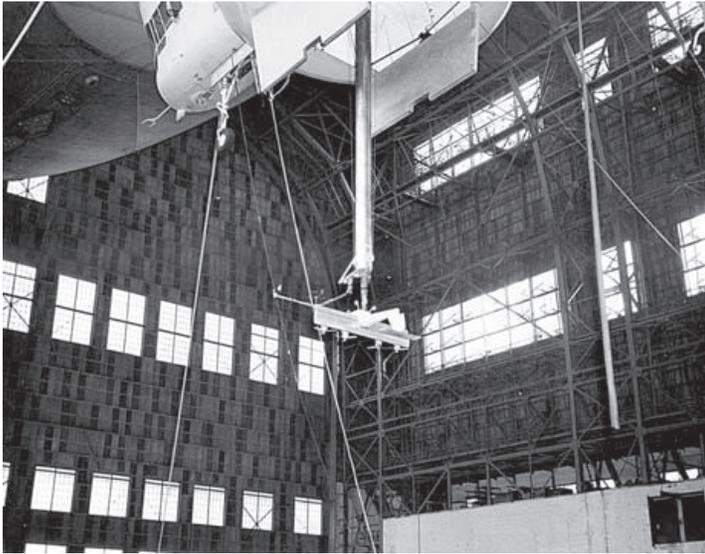
The end of June saw many changes. At Lakehurst the Fleet airship activities came to an end, Capt. Eppes retired, and both Frank Carter and Wayne Harrison of the early ZS2G-1 experiments went on to other duty. Their replacements as project pilots were Lcdrs. Lundi Moore and Bob Shannon. AT&D had also managed to hire two civilian engineers specifically assigned to the Flying Wind Tunnel, a former undergraduate student of mine, Peter Erlandsen, and an experienced aeronautical engineer John Zarcarro. At Forrestral, Henry Payne got married and returned to his home town of Charleston, West Virginia, his place being taken by Jack Olcott, another former student of mine.



FLYING WIND TUNNEL: Shown holding the cut-away model of the Navy's Flying Wind Tunnel are, left to right, Capt. Marion H. Eppes, Commanding Officer, NAS Lakehurst, Professor David C. Hazen of Princeton University's Forrestral Research Center and Lt. Comdr. Frank Carter, project officer of Aircraft Test and Development Department, NAS Lakehurst.

By this time, working with the Air Branch of ONR, the Air Frame Division of BuWeps and David Taylor Model basin, a program had been thrashed out in which a series of models of promising V/STOL concepts that had previously been extensively tested in various wind tunnels of differing dimensions would be tested in free air under the blimp. The two sets of data would then be analyzed in an attempt to get a handle on the magnitude and nature of the wall effects with an eye to developing a generalized approach to estimating the required corrections. The first of these models was that of the North American Aviation entry in the Tri-Service V/STOL Transport competition. This was a four-engined tilt wing design. It was arranged that NAA personnel would assist with model preparation (the internal balance system had to be altered

to accommodate the inverted mount under the airship) and that the complex (in those early days of computer computation) data reduction process would be carried out on their computers in Columbus, Ohio, then returned in final form.



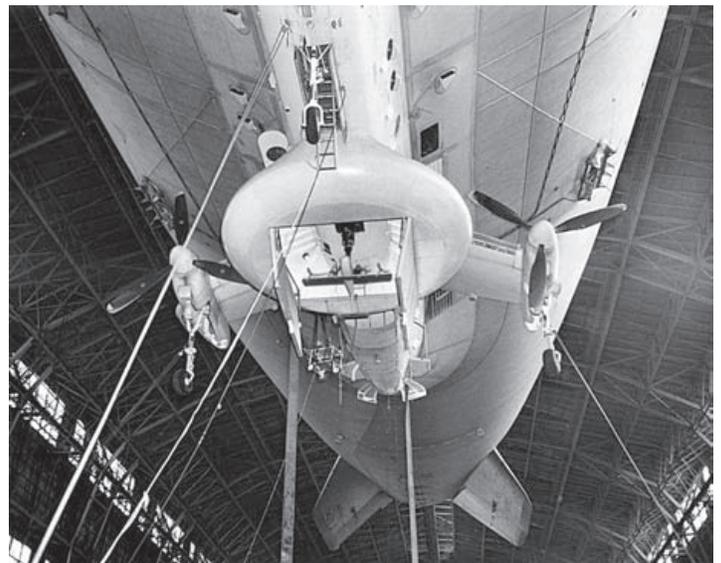
Despite the naming/acronym frivolity (see TNB 86 pg 36) the entire group worked very hard to make a success of the enterprise. We flew at night to take advantage of the smoother flight conditions normally encountered then. Taking off just before sunset, if conditions were good and everything functioning properly, we often would not land until after sunrise. As the program had been conceived, we should have had two complete flight and test crews, so that by rotating testing on consecutive nights to take advantage of a stretch of good weather should have been routine without anyone getting excessively fatigued. However, because of the expected termination of the program at the end of the fiscal year, AT&D had been unable to attract anyone to sell Zarcarro and Erlandsen, so in practice, despite drawing heavily on the Forrestal lab staff to help fill the lack, successive night flights, though made on occasion when really needed, were never routine.

The tests were normally conducted over water, partially because the smoothest conditions were generally found several miles off shore, and partially because we did not want to inadvertently drop something on somebody. On the few occasions when conditions reversed and it was found smoother over land than sea, we would almost always cause a stir. An airship flying at 800' to 1,000' at night with its navigation lights on and light showing from its ports will attract attention. Add spotlights at either end of the car illuminating a model below on which 18" propellers turning at high rpm are screaming like banshees

and you get a real traffic stopper. We were the cause of a number of reported UFO sightings, and it's alleged one night we backed up traffic on the Garden State Parkway for more than two miles.

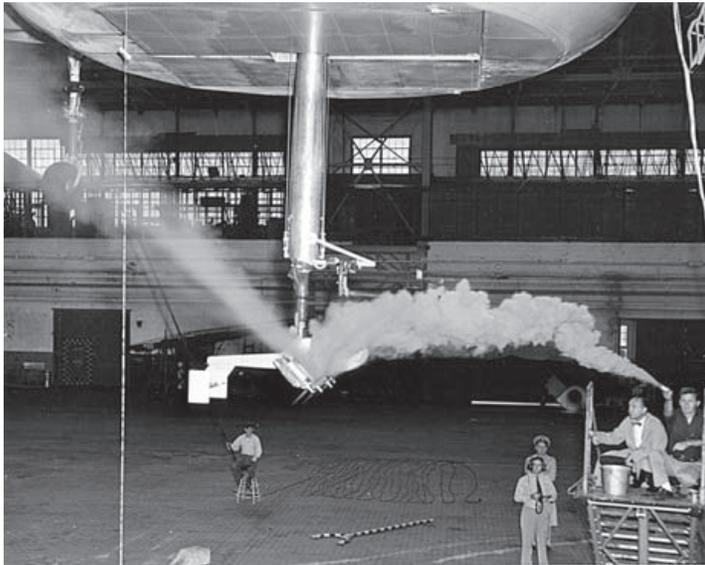
I had expected that there would be numerous glitches and delays as we started to test the NAA model. It was a complicated beast with a self contained six component balance. Being our first experience with such a complex test program, even though, based on our ZS2G-1 experience, our average time per data point—including weather delays—indicated the planned tests should take a month, I allowed two. They took four.

There was no problem with the airship which performed beautifully, holding airspeed within half a knot, and pitch angle constant within our ability to measure it, for as long as required. Excellent hovering conditions were obtained by tethering the floating blimp within the hangar with the model deployed. Our major problem resulted from a failing wire connection giving spurious balance readings that, owing to the time it took to get the raw data to Columbus, have it reduced and returned, wasn't discovered for over a month, requiring a complete repeat of all the tests so far performed.



That setback was bad, as were the delays occasioned by the sheer fatigue of the inadequately staffed test team, but what really caused me to pull out my remaining thinning hair were the unnecessary administrative delays created by trying to run a research operation like a regular operational outfit. Successful testing depended upon having smooth flight conditions that should have been grasped whenever they occurred, a concept that was incompatible with such things as blanket orders prohibiting flying on Sundays and holidays, during the Army Navy Game and Christmas

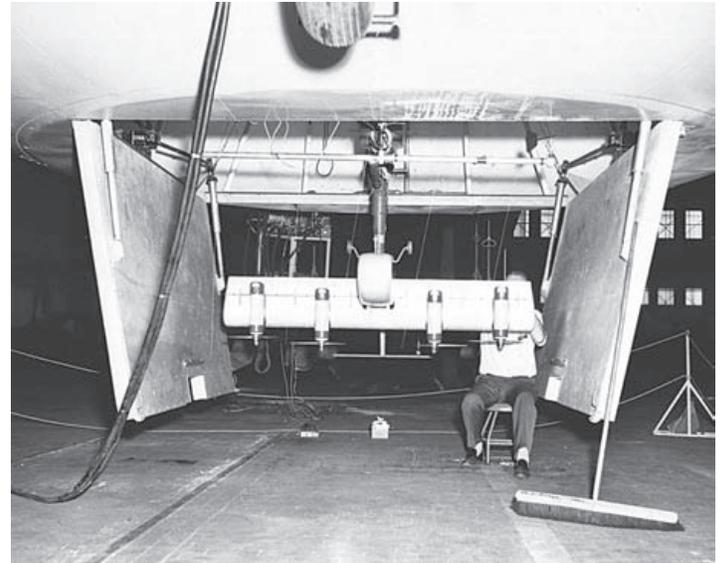
vacation, or the assignment of officers to base functions with frequently conflicting schedules. A further real blow to efficiency and morale was attempting to fill the flight crews as required from the Aircraft Maintenance Division rather than leaving them as a dedicated team assigned to AT&D.



With the hope of extending operations beyond the time granted by Wakelin's year extension, I had started the test program in high hopes that the results would develop such a clear demand for the services of the Flying Wind Tunnel that there would be no question of terminating its operation, but as we slipped further and further behind schedule, it became more and more obvious to both Walt Ashe and myself that this was not going to happen under the existing system of management. While pushing ahead with a reduced program to fit the time remaining—modified by eliminating several of the models it had originally been planned to test—we thrashed about examining alternative administrative arrangements such as attaching the facility to ONR or DTMB, but nothing worked out. In desperation we even got Goodyear and the Thurston Erlandsen Corporation (Peter Erlandsen's father's company) to submit proposals to conduct the operation for the Navy. It's not clear that these proposals were ever seriously considered.

Finally finishing with the North American model, the next to be investigated was a four-ducted fan configuration developed by DTMB. Because of its high power demands, major modifications in the variable frequency generators that supplied the model motors were required—yet another delay. To avoid still further delays owing to winter weather, the airship deployed to Key West for

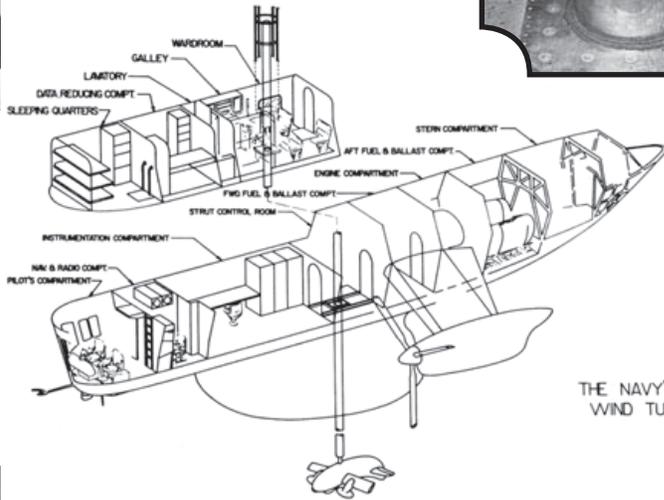
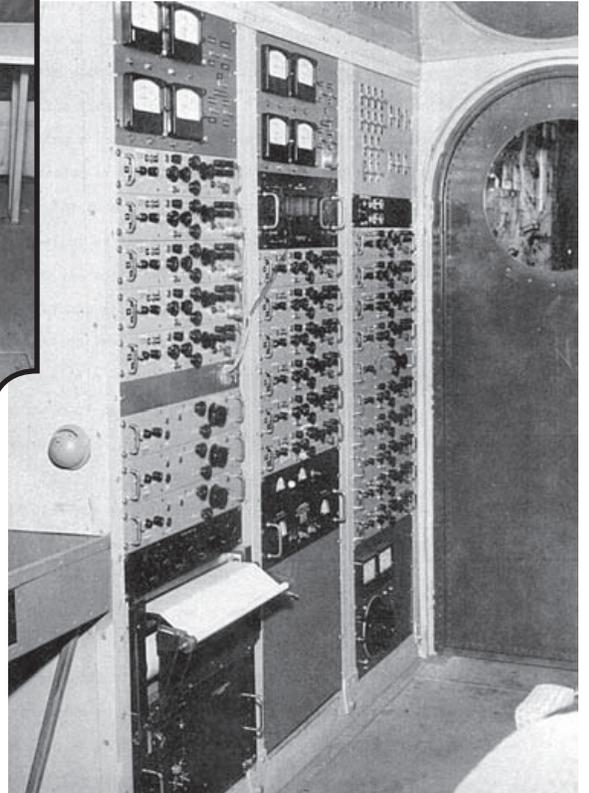
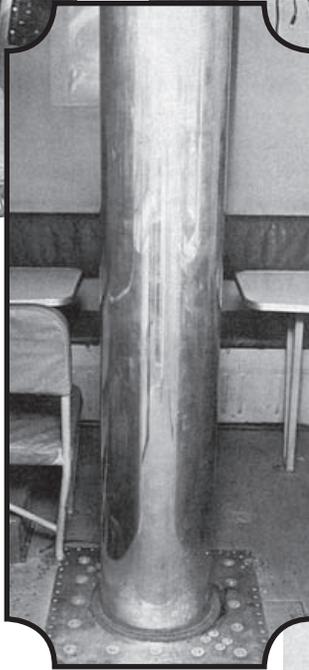
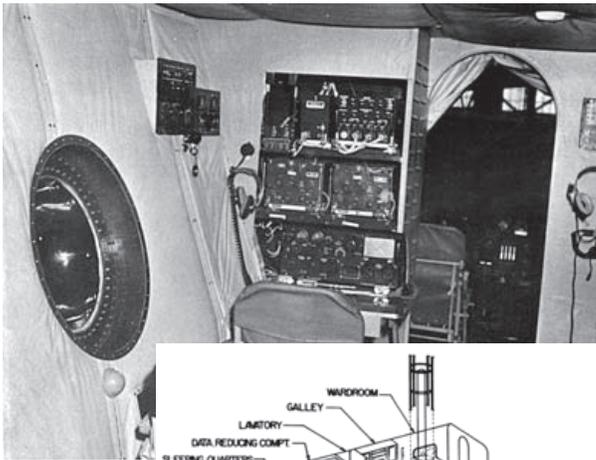
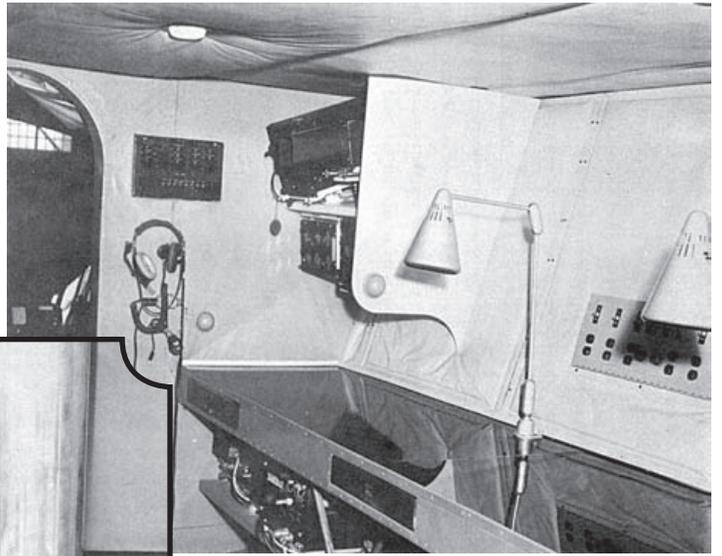
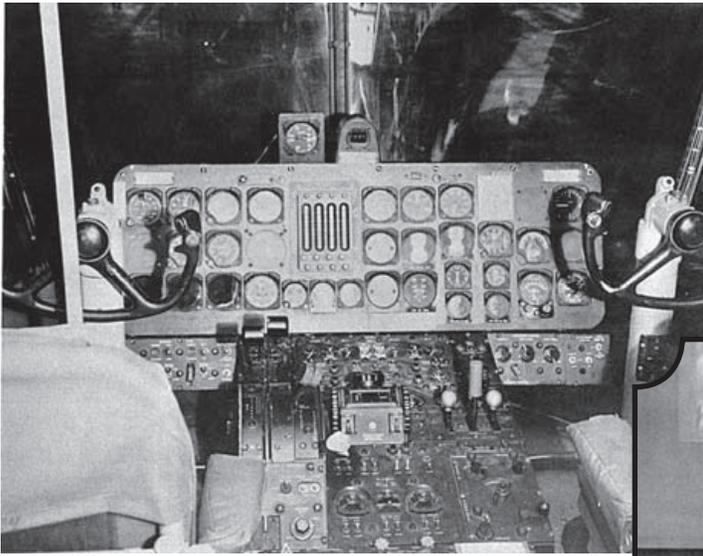
a month. Though clear, test conditions were less than optimum owing to Trade Wind induced turbulence, so it's not clear much was gained.



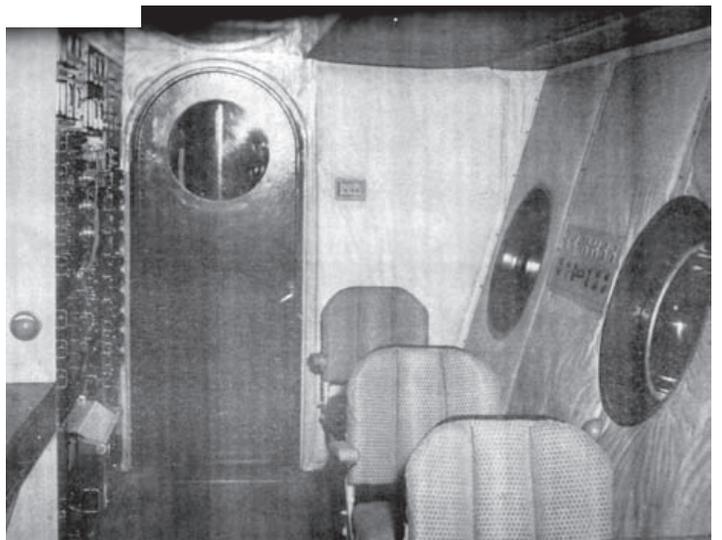
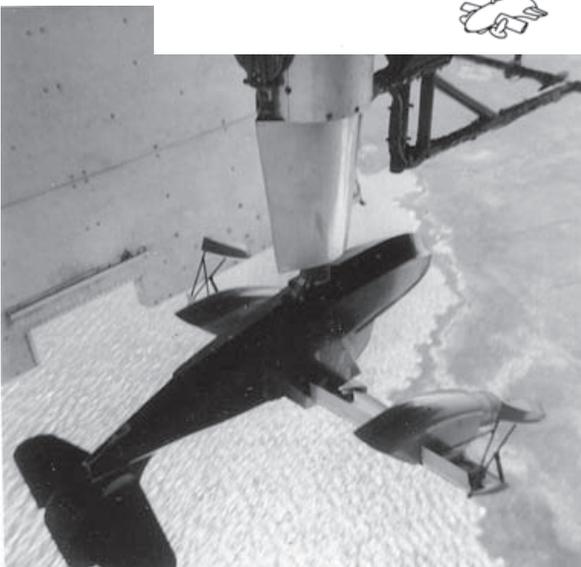
Upon returning to Lakehurst two more models were tested without untoward difficulty. A several week extension beyond the end of the fiscal year was granted so that an urgent set of tests on models of the Hamilton Standard propeller designs to be used on the Tri Service transport could be conducted. As luck would have it, these final tests went flawlessly. Oh, that we could have started with them!

Though I had been on the last Navy balloon ride, I missed the final one of the blimp by one day because I had to attend a meeting in London, but I tried to convey my heart felt appreciation to the officers and men of AT&D for their unstinting support in a letter to Walt Ashe composed just before I left. They were an exceptional group of officers and men and deserved far more recognition than they ever received.

Looking back some 50 years, I still think the Flying Wind Tunnel was a good idea. Time has shown that V/STOL testing was perhaps not as crucial as it seemed to me at the time, but that doesn't diminish the fact that, despite the program's many problems—few of which were airship related—the machine and its crews performed splendidly and provided data we couldn't at that time have gotten by any other means. To me what's even more significant, no one has yet come up with a conventional wind tunnel that comes remotely close to bettering the Flying Wind Tunnel for sheer fun per data point. Ω



THE NAVY'S FLYING WIND TUNNEL



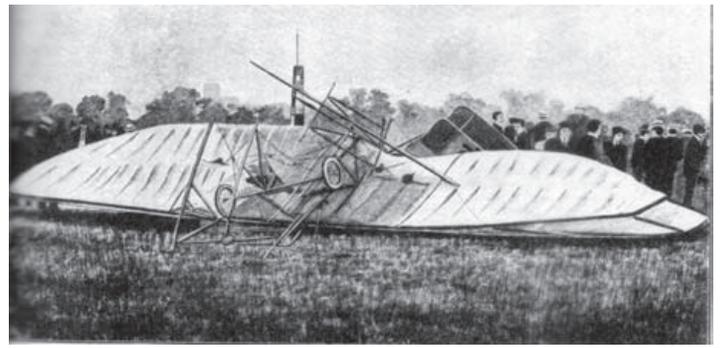


"The Outlook for the Flying Machine" (1906)
Sidelights on Astronomy by Simon Newcomb

The example of the bird does not prove that a man can fly... the bird operates by the application of a kind of force which is peculiar to the animal creation, and no approach to which has ever been made by any mechanism... We do not see the dawn of the age in which such a result will be brought forth.

The basic principle on which any such machine must be constructed is that of the aeroplane... A plane of ten feet square, for example, would not need any great inclination, nor would it require a speed higher than a few hundred feet a second to bear a man... The whole problem of the successful flying-machine is, therefore, that of arranging an aeroplane that shall move through the air with the requisite speed... It is the speed alone that sustains him. How is he ever going to stop? Once he slackens his speed, he begins to fall. He may, indeed, increase the resistance to the sustaining force. Once he stops he falls a dead mass. How shall he reach the ground without destroying his delicate machinery? ...there is no mechanical combination, and no way of applying force, which will give to the aeroplanes the flexibility and rapidity of movement belonging to the wings of a bird.

With all the improvements that the genius of man has made in the steamship, the greatest and best ever constructed is liable now and then to meet with accident. When this happens she simply floats on the water until the damage is repaired, or help reaches her. Unless we are to suppose for the flying-machine, in addition to everything else, an immunity from accident, it would be liable to derangements of machinery, any one of which would be necessarily fatal. If an engine were necessary not only to propel a ship, but also to make her float - if on the occasion of any accident she immediately went to the



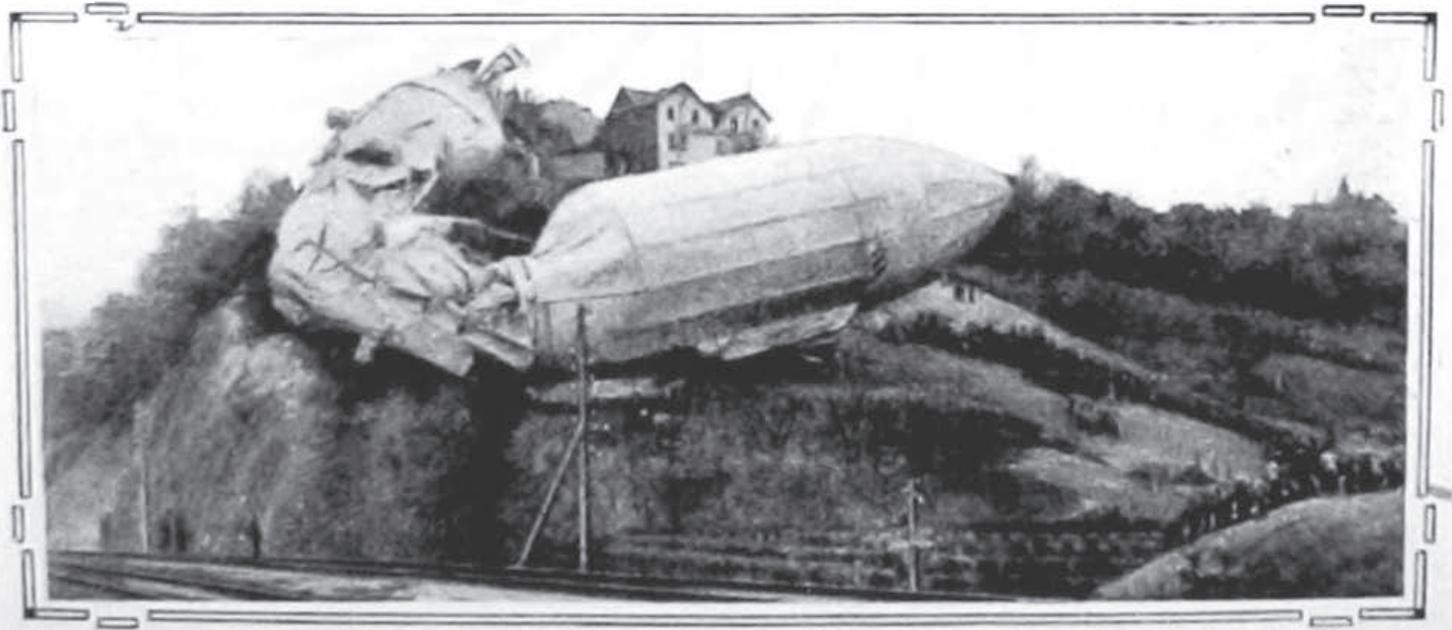
bottom with all on board - there would not, at the present day, be such a thing as steam navigation.

A more fundamental [difficulty] is that when we increase the size of any flying-machine without changing its model we increase the weight in proportional dimensions, while the effective supporting power of the air increases only as the square of those dimensions... The[se] difficulties I have pointed out apply only to the flying machine... and not to the dirigible balloon or airship. It is of interest to notice that the law is reversed in the case of a body which is not supported by the resistance of a fluid in which it is immersed, but floats in it, the ship or balloon, for example. When we double the linear dimensions of a steamship in all its parts, we increase not only her weight, but her floating power, her carrying capacity, and her engine capacity eightfold. But the resistance she meets with when passing through the water at any given speed is only multiplied four times...



The balloon is in the same class as the ship. Practical difficulties aside, the larger it is built the more effective it will be, and the more advantageous will be the ratio of the power which is necessary to drive it to the resistance to be overcome. If, therefore, we are ever to have aerial navigation with out present knowledge of natural capabilities, it is to the airship floating in the air, rather than the flying-machine resting on the air, to which we are to look. Ω

(Illustrations of machines that killed [l to r] Hoxley, Rolls and Brookings postdate this article.)



The \$250,000 Zeppelin dirigible, ruined beyond hope of salvage through being wrapped around a German hillside by a wind gust. Fortunately none of the passengers was seriously injured, but the slow speed of these clumsy and unwieldy giants renders them unable to drive into an opposing wind and thus escape such mishaps.

"The Fallacy of the Dirigible"

By Victor Loughheed (excerpt from *POPULAR MECHANICS* March, 1912)

The balloon as a means of travel is still of negligible utility, despite the numerous and long-continued efforts to make use of it in many fields. Without a counterpart in nature, it has proved without justification in fact.

The limit of its lifting capacity is the easily ascertained weight of the air... the best of balloons must be hopelessly bulky and fearfully flimsy, and of only the very smallest lifting capacities in proportion to their sizes... The problems of its propulsion, steering, and navigation are inescapably definite. Yet, in the 50 years the dirigible has existed, it has not undergone a single fundamental change or improvement.

Although tremendously expensive to build, and almost impossible to keep built, the problems of floating a balloon structure in the air are so inherently simple as to be easily understood by, and thus appeal to, the veriest tyros in mechanical science.

Experiments with dirigible balloons within comparatively recent years have cost, in Germany, \$6,300,000; in England, over \$2,000,000; in the United States, \$4,000,000; in France, 3,000,000; and in other countries of Europe and in Japan not less than \$5,000,000 more.

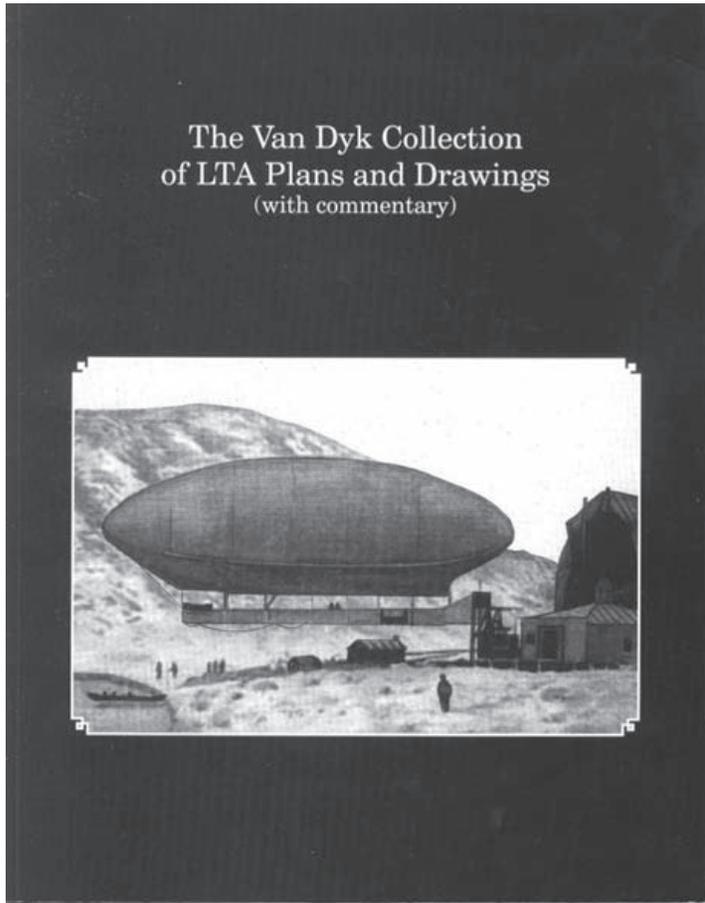
The various phenomena of balloon ascension, drifting and dirigibility, however interesting they may be, are by no proper process of logic entitled even to the classification

with the phenomena of true flight - such as the controlled flight of birds and aeroplanes, faster than the average movement of the earth's atmosphere in the form of winds, such speed and control being absolutely essential prerequisites to any real navigation of the air. Thus the balloon is an evasion rather than a solution of the real problem of aerial navigation... is no more flying machine than a cork in the sea is an ocean liner. Ω



The wreckage in the Seine of the gigantic military dirigible recently built by the Clement-Bayard concern in France. This accident, like many other dirigible accidents, occurred without loss of life but with tremendous destruction of valuable property.

MEDIA WATCH



The Van Dyk Collection Of LTA Plans and Drawings with commentary
Reviewed by **C. P. Hall**

Was I allocated space for only a single word to review this offering; that word would be “eclectic.” The volume is softbound and of diminutive dimension, 7 5/8” (19.4 cm) by 9 7/8” (25 cm). Primarily it is a collection of drawings of historic LTA projects: some are well-known, others are so obscure that they only come up in LTA Trivial Pursuit® at N.A.A. reunions; some were successful, others were not, some will be of interest to any reader while others will interest a very few.

Herman Van Dyk has been providing line drawing to illustrate LTA craft for books and articles for more than 20 years. A prolific author in his own right, some of these drawings illustrated his own essays. Now they are brought together in a single tome.

The potential buyer should be aware that this is not one of those “all the airships ever built” reference works. For example, if he wants to compare the last ‘height climber’ built with 10 meter bays to the stretched class x Zeppelins, then cross referencing page 17 with page 40 will do him no good.

That said, if our reader has just seen the Airship History Series DVD “The Early Days” and wants to know more about U.S. Army LTA craft from the between-the-war-years, he will find drawings, photos, and commentary regarding D-class non-rigids, the semi-rigids *Roma* and RS-1, and the non-rigids TC-13 and TC-14.

If our reader does wish to compare the class x Zeppelin LZ-112 (L70) with the stretched-class x Zeppelin LZ-114 (L72), subsequently *Dixmude*, then he will be pleased as both are included. (Here it should be noted that the *Dixmude* drawings are from the article in TNB #82 and Mr. Van Dyk announces in TNB #86, page 11, that a revised drawing of superior accuracy is available to those interested enough to send him a self-addressed stamped envelope.)

To paraphrase Patrick Henry, I know not what others may do, but as for me . . . I am adding a copy of this little volume to my library and Herman Van Dyk will have an S.A.S.E. from me before you read this review in The NOON BALLOON.

Ω

C.P. stopped by the Ed.'s domicile and we agreed to skip what comes after Blu-Ray. We don't want to rebuild our collections yet again... some beginning with the cylinder that recorded Count Zeppelin's voice. WB just re-released this "classic" on DVD.



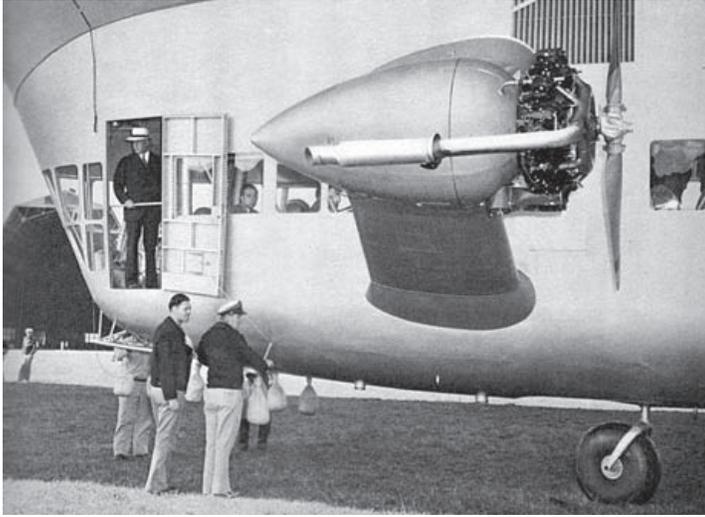
Last June 18th AIAA Technical Committee member Dr. Brandon Burgee was a guest on National Public Radio's "Science Friday" discussing with NASM's Dr. Tom Crouch the history and future of airships. **Fred Morin** e-mailed, “I missed the NPR program this afternoon, but it is available on the internet for replay. [link below] Informative to a degree, but the old *Hindenburg*-hydrogen issue pops up several times. By the way, Tom Crouch is on the committee with me for the 100th anniversary celebration of the 1910 Harvard-Boston Aero Meet and he is the keynote speaker at the opening night banquet. The event is taking place at the old Squantum NAS where the H-B meets were held. After NAS So. Weymouth closed in 1945, Squantum was home to reserve unit, ZP-911, until Weymouth reopened in 1953.” Ω

<http://www.npr.org/templates/story/story.php?storyId=127932754&sc=emaf>

History Committee

The Flight Test Engineers

By Norman Mayer



This is about a little known group of engineers who were involved with the flight testing of each airship produced by the Goodyear Aircraft Corp. during World War II. Before delivery to the Navy, each airship was test flown with an engineer or two on board to make certain measurements and functions and report the results to the Navy and the company.

The flight test group was comprised of about six young men most of whom were recent college grads and not married. The group was part of Goodyear's Research Division. They occupied desks in a corner of the Airdock in Akron, Ohio, where they prepared reports on the results of flight tests. In 1943, the year I joined the group, Goodyear reached its highest airship production rate - 92 K, 6 G, 10 L and one M. There was plenty to do. Cars, envelopes and tail surfaces were built in various Goodyear plants or contracted facilities. Final assembly of K, L and G type airships took place at Wingfoot Lake; a Goodyear facility located about 8 miles from Akron. Components were trucked to the Wingfoot hangar. This was built during World War One and was doubled in length to meet World War II requirements. Flight test engineers spent much of their time at Wingfoot. When flights or other tests were scheduled an engineer had to be there. Wingfoot Lake was a busy place. Airship assembly moved quickly from laying out the envelope to a fully assembled aircraft ready for flight testing. Wingfoot operated under the skilled managing hand of Karl Fickes, who also was a veteran airship pilot. Riggers and other specialists expertly accomplished assembly of each airship. The latter group included qualified pilots, radio operators and engine mechanics and made up the flight crews during tests and also the delivery of the airships to the Navy. Each week

one or more airships were flown by Goodyear crews to NAS Lakehurst, New Jersey.

Special tests were made on some airships while in the hangar or on the ground. Flight engineers participated in some of these and reported results. These included checking the functioning of systems such as gas and air valves. A frequently performed test in the hangar was a check of envelope contour known as a Sag check. Each K-ship was flown a minimum of four hours before delivery. During the flight, a number of tests were conducted by the engineers who were also responsible for preparing the reports that were later sent to the Navy. One or two engineers were on each flight. The flight crew included two pilots, an engine mechanic and a radio man. The routine for testing K-ships was generally the same. We took off from Wingfoot Lake and headed north to Lake Erie. The pilots maintained a fast cruise speed through the gusts and thermal currents produced by the varying atmospheric conditions over towns, lakes and farms. This rapid pace caused the airship to pitch and roll severely. Once in a while the command pilot would throttle back to an idle setting to allow the airship to reach a more stable condition. No tests were attempted during the transit to Lake Erie. Immunity to airsickness was a necessary requirement for flight test engineers who used the time to get their equipment ready for later test runs. Once over Lake Erie, the flight became very smooth. The pilots maintained a straight heading at about a 2,000 foot. altitude while the flight test engineer began the procedures required for tests. An example was collecting the data required to correct the airship's indicated airspeed. The engineer lowered an electric anemometer to about 50 ft. below the airship. The device resembled a small streamlined bomb. Its spinning vanes generated frequencies that were displayed corresponding to air speed. This was calibrated to establish this relationship in the vertical wind tunnel at the Daniel Guggenheim Airship Institute across the airfield from the Airdock. Atmospheric conditions of humidity, pressure and temperature during the anemometer readings were measured. These readings, corrected to standard conditions, were necessary to correct the airship's indicated airspeed for instrument and installation errors. These corrections were later used in the Navy's Navigational Computers. Other tests included checking functioning of various systems. It was often the case that all of the engineering tasks were completed in less than four hours. Then, the pilots would establish a slow cruise along the Lake Erie shore and allow the flight test engineer to occupy the rudderman's seat for a while.

Most flights went without incident. One airship, the K-90 developed an engine fire during its flight test. It was safely extinguished in flight. I was in a second ship

out of sight of the K-90. Its radio man kept us informed to their progress putting out the fire. He said he was guarding his coffee in case someone tried to throw it on the fire. The K-90 made its way back to Wingfoot Lake on one engine. During the fire, a woman reported that small pieces of nacelle structure fell to earth striking some newly washed bed sheets. Goodyear reimbursed the irate owner later. Early as a flight test engineer I soon discovered that flight tests often ended after normal working hours. Car pooling, mandated to save gasoline, was impractical. I gave up my carpool. When the M series airships were introduced their final assembly was moved to the Airdock so as not to interfere with production at Wingfoot. The M airship had a special significance for me. I had worked on its preliminary design under the direction of H. R. Liebert, Goodyear's chief designer, before becoming a flight test engineer. I was assigned to the M-1 as flight test engineer and participated in most test flights. One long memorable flight included more than 20 tests and took us to Canada and Niagara Falls. The M-1 returned to Akron after dark. Wingfoot personnel accomplished the landing

and mooring smoothly in the quiet night air.

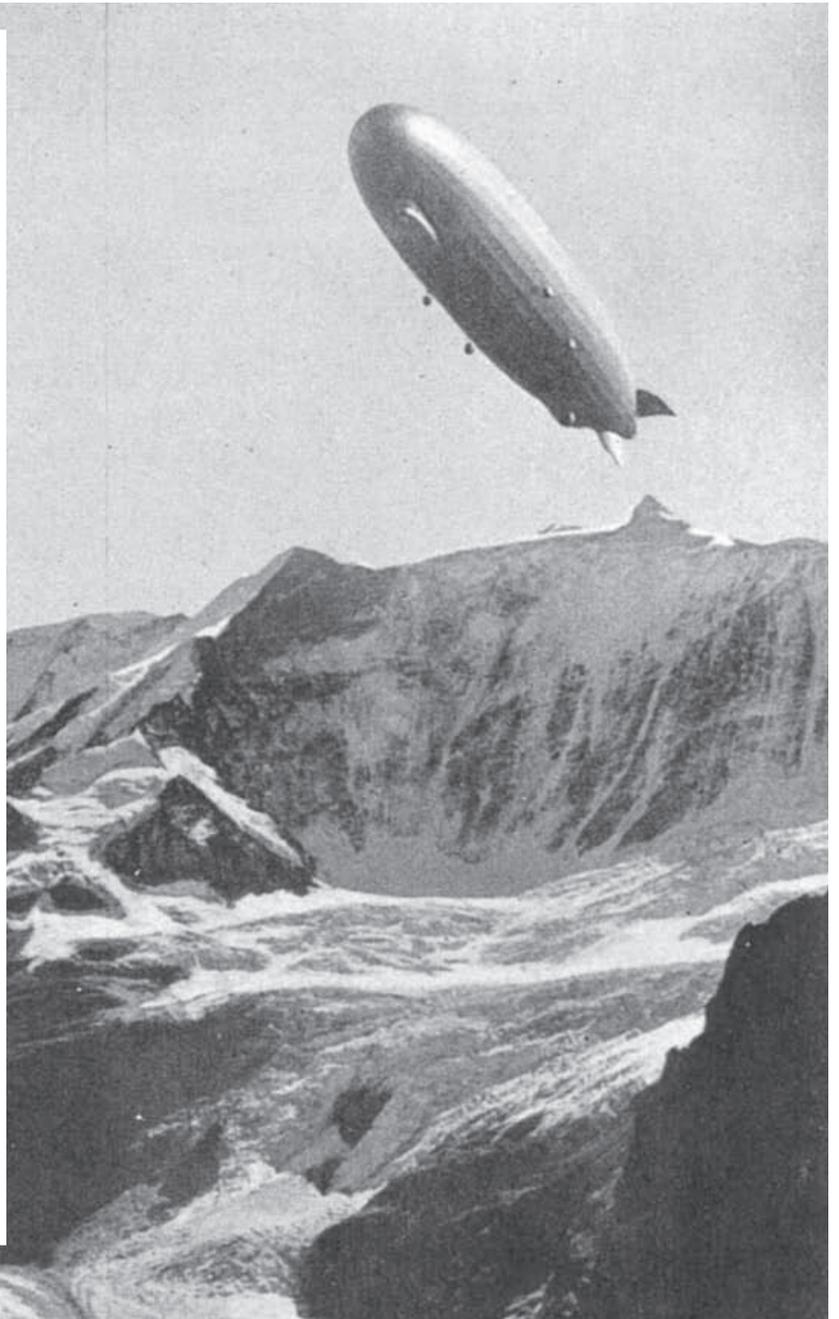
The smaller L and G airships also were flight-tested to a simpler program and closer to the Wingfoot base. These too had a flight test engineer aboard during these flights. Components, such as fins and cars for ten L ships and 7 G's were built under contract by two bus manufacturers. Flight test engineers became temporary Goodyear representatives at these plants when not involved in other duties.

The Goodyear Aircraft wartime production of airships exceeded all records for manufacturing this type of aircraft. 134 K-ships were built, flight-tested and delivered. The flight-testing group provided an efficient way for collecting necessary information for the use of the airship in wartime service. Cooperation between pilots and engineers was excellent. The variety between involvement in ground and flight tests and other assignments served to make the engineers more valuable. Today, flight testing is more complicated and still requires presence of engineers supported by much electronic equipment and computers. Ω



Black Blimp

Fredrick H. McHargue Phillips, 81, passed 1 MAR 2010. Phillips served 7 years in the US Navy including LTA, 20 years in the US Air Force and 24 years as a mail carrier in Rockledge, Florida. His hobbies included a ¾ scale P-51 ktiplane. He is survived by his wife Dorothy, 4 daughters and 5 sons, 20 grandchildren and 16 great-grandchildren.



What is a ZEPPELIN Airship?

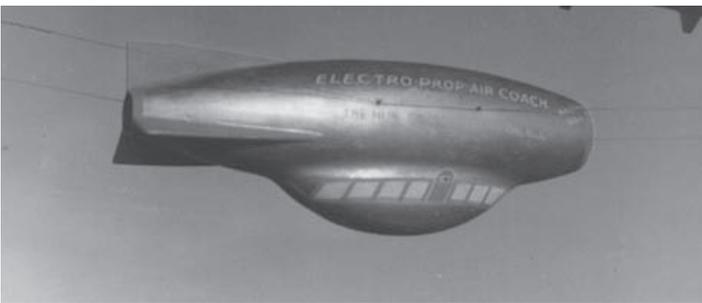
"It was not, as generally described, " A SILVER BIRD SOARING IN MAJESTIC FLIGHT," but rather, a FABULOUS SILVERY FISH, FLOATING QUIETLY in the ocean of air and captivating the eye, just like a fantastic, exotic fish seen in an aquarium. And this fairy-like apparition, which seemed to melt into the silvery blue background of sky, when it appeared far away, lighted by the Sun, seemed to be coming from another world and to be returning there like a dream.....emissary from the "Island of the Blest" in which so many humans still believe in the inmost recesses of their souls."

Dr. Hugo Eckener,
Chairman,
Luftschiffbau Zeppelin, GmbH

Lighter Side



When asked, "How high should you be before you jump out of a blimp?" Hollywood Squares' Charlie Weaver answered, "About three days of steady drinking ought to do it." ☺



Still trying to build a practical vacuum airship, these fellows seem to have employed a Hoover-type hull. Sucks. ☺



Who says there is no interest in Solomon Andrews and his Aeron? ☺



Seen in the "opinions" section of the paper: "Editor: I object and take exception to everyone saying that Obama and Congress are spending money like a drunken sailor. As a former drunken sailor, I can assure you, I quit when I ran out of money. B. L. H., USN (ret)." ☺

Advice seen on signs in ready rooms:
- "The only time you have too much fuel is when you're on fire."
- "If you see a depth bomb technician running like hell, follow him!" ☺



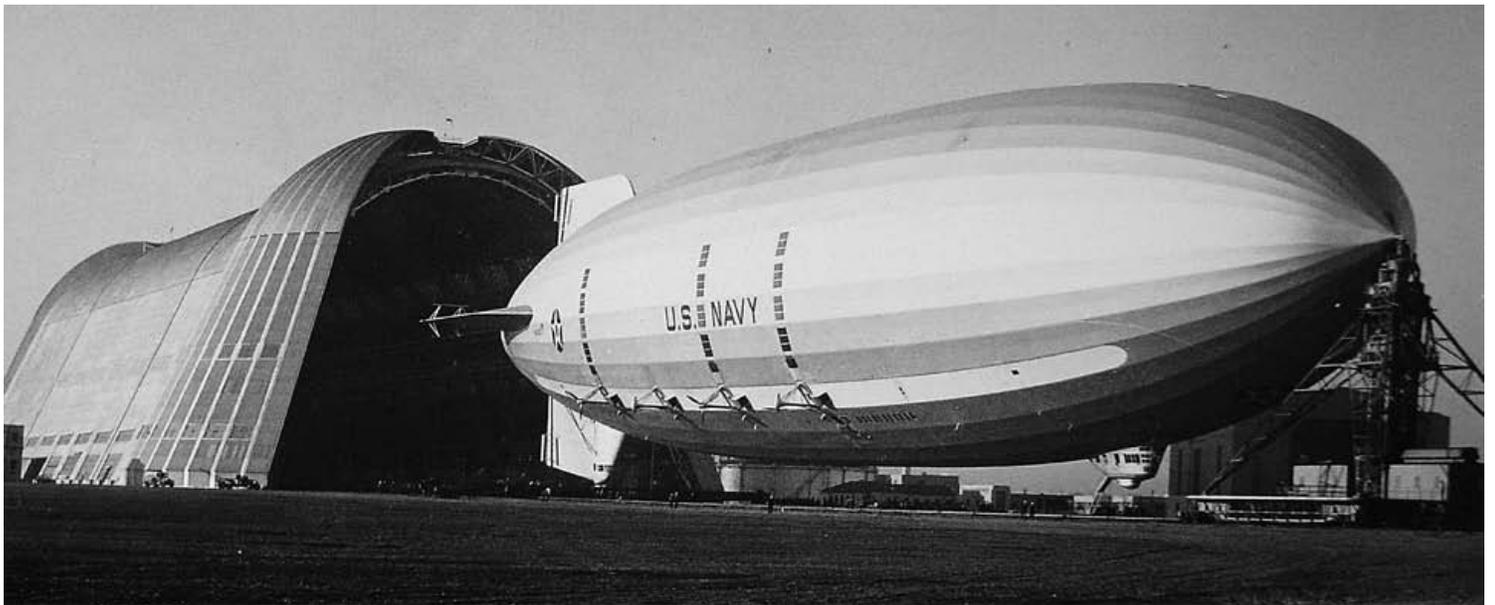
Goodyear-Zeppelin all over again! ☺



(Above) For one brief moment this summer, one could use the term Goodyear Zeppelin and be somewhat correct. During the last week of June and the first week of July the Friedrichshafen-based Zeppelin NT 07 #3 was branded with the Goodyear logo for a 2-week contract for Goodyear Netherlands. The airship appeared over cities in Holland and proved to be as popular there as anywhere in Europe it operates. Thanks to the social networks such as Face Book airship fans around the world followed its busy schedule almost daily with photos and videos provided by the company and fans in Holland.



(Left) The U.S. Navy MZ-3A Airship enroute to Gulf Coast and was expected to arrive after July 6 at Jack Edwards National Airport in Gulf Shores, Ala. The airship was requested by the U.S. Coast Guard to support Deepwater Horizon Response operations of the Unified Area Command. The airship will be used to detect oil, direct skimming vessels, and look for wildlife that may be threatened by oil. The airship began the flight to the Gulf Coast in June from Yuma, Ariz. The airship is a commercial A-170 series blimp, manufactured by the American Blimp Corporation. U.S. Navy file photo. (Right) Bert Padelt photo of the first newly American design and built hydrogen balloon in nearly 70 years. Read more on page 16.



USS *Macon* emerges from the then new Moffett Field Hangar #1 in 1934.

2010 photo of Hangar #1 with the Airship Ventures Zeppelin NT *Eureka* overhead

