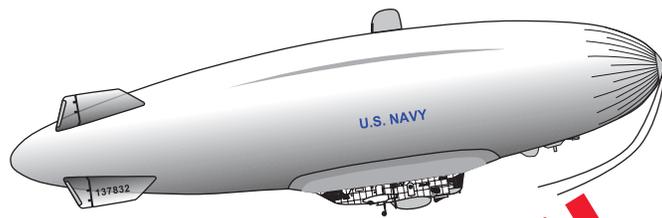
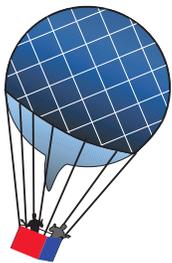


THE
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BALLOON



The Official Newsletter of THE NAVAL AIRSHIP ASSOCIATION, INC.

No. 96

Winter 2012



End of an Era



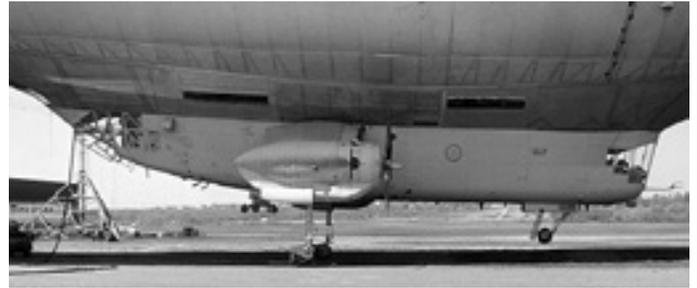
Ironically Cardington's Hangar One (above) had begun restoration and improvements just about the same time Moffett's Hangar One (below) was completely stripped and left for the birds to roost. Space Shuttle OV-105, carried by its 747 hearse, flew by on its way to its final resting place shortly after the last of Moffett's Hangar One's cladding had been removed.



THE NOON BALLOON

Official Publication of the Naval Airship Association, Inc.

<u>ISSUE #96</u>	<u>Winter 2012</u>
Editorial	2
President's Message	3
Treasurer's Strongbox	4
Pigeon Cote	4
Shore Establishments/Cover	10
News Stories	15
Technical Papers	22
Short Lines	29
History Committee	32
Media Watch	33
Black Blimp	35
Ready Room/Lighter Side	36



The Naval Airship Association
www.naval-airships.org

President –

Fred Morin

PO Box 136

Norwell, MA 02061

Tel: 508-746-7679

Email: fmmorin@verizon.net

Vice President / Membership Chair –

Anthony Atwood

9337 SW 37th St.

Miami, FL 33165-4123

Tel: 305 225-9165

Email: aatwo001@fiu.edu

Secretary-Treasurer –

Peter F. Brouwer

1950 S.W. Cycle St.

Port St. Lucie, FL 34953-1778

Tel: 772-871-9379

Email: peterbrouwer@bellsouth.net

Executive Committee Members-at-Large -

East Coast: George Allen

E-mail: faxco77@att.net

West Coast: William Wissel

E-mail: willyum54@comcast.net

Immediate Past President -

Ross F. Wood

Email: rfwood@cox.net

Technical Committee Chair -

Norman Mayer

Email: normanmayer@verizon.net

History Committee Chair -

Al Robbins

Email: simplicate@comcast.net

Historical Liaison Webmaster

Don Kaiser

E-mail: don.kaiser@gmail.com

NNAM Liaison –

Joe Hajcak

Email: jghajcak@juno.com

Flying is a hard way to earn an easy living.

On the cover: Artist Wes Harrison has graciously allowed us to reproduce his outstanding painting of an F9C-2 hooking on *Macon* as her shadow passes over Hangar #1, now a mere skeleton if its former self (left, also see "Shore Establishments/Cover Story").



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

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EDITORIAL

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

Since our deadline for the Winter issue is earlier owing to the bulk mail holiday cut-off, we haven't had the usual luxury of everyone having plenty of time to examine the previous issue and respond to questions, make comments, etc. History Chair **Al Robbins** reported that "I've been contacted by phone or E-mail by half a dozen members as a result of the squib in the latest NOON BALLOON, most regarding Project Klinker. I still haven't heard from anyone that actually operated the system. Also got a call from Mario Martini. He's 94 now, but informed me that he was the only Navy trained pilot that Goodyear hired after the war. All the other pilots had flown for Goodyear before they were called to active duty between 1940 and 1942." Unhappily there is a crying need to wake up the politicians who choose to forget our heritage to the point of throwing away an invaluable asset – Moffett's Hangar One. Your help is needed – see page 10. With LEMV now entering the testing phase, it's the right time for a simplified version of member **Juergen Bock's** technical paper on the nature of hybrids, which includes lessons learned many years ago on the "Deltoid Pumpkinseed." Likewise, with an Arctic airship seemingly only one signature away from reality at last, it is a great time for the late CDR Charlie Mills' paper recalling lessons learned from the Navy's fair and foul weather expended ZPG airship operations.

Enjoying our beautiful covers of donated art, including Wes Harrison's stunning hangar one depiction? Since the sausage shape of an airship makes a particularly difficult cover subject, we're always looking for those odd heads-or-tails shots to splash across our bow and stern. The ultimate expression of this problem is the early "panoramic" large rectangular format photos taken by photographer Clements with special-negative sized cameras. With the aspect ratio of a pencil, even tilting such photos on their side (so you have to rotate your magazine, like our back cover this issue) does not do them justice. About the best we can do is spread such a rectangular image across our centerfold. Members supplied the photo spread on pages 18-19, which is not only high resolution for clarity, but hopefully the size will allow individual faces to be identified via the signed photo with names that might otherwise be

lost – and many are in the entire crew's and officers' photos taken shortly after *Macon's* arrival at Sunnysvale. It's a way we have of respecting our roots – even as the renewed Goodyear-Zeppelin alliance is building the latest version of the ZEP NT – in Ohio.



This photo from the 'Blimp Crew Tavern' site was taken by Elizabeth Flynn. I'm hoping our publisher **David Smith** will include this shot in his [Airship Calendar](#) for 2013, since in the frame you can see the two vehicles so dear to me, taken just days before first-moonwalker Neil Armstrong was buried at sea.

Ironically OV-105's tree-destroying trip through south Los Angeles to reach its vertical crypt illustrates the crying need for what Thomas Jefferson foresaw with the first balloon in America, of which he said, 'we could use that to move things.' Among the many might-have-beens in the intervening couple of centuries was a Lockheed Skunk Works drawing illustrating how their proposed hybrid airship could have been employed to move their proposed spaceship, the 'Venture Star.' Both old Tom Jefferson, and I'll bet even John R. Fitzpatrick, would have approved of the regular-production 'Aerocraft' (as it was called then), equipped with only a special handling harness, trimmed to hover over the "flying fuel tank" that Venture Star was to be. Grappling, the airship would have carried the fragile spacecraft from factory to launch site with minimal environmental impact or even carbon footprint. Of both craft, each built for their respective operating mediums, we could repeat Alexander The Great's lament, "What a horse they are losing for want of skill and spirit to manage him."

– R G Van Treuren

View From The Top: PRESIDENT'S MESSAGE

The NAA Executive Council met at the Van Treuren's home in Edgewater, Florida, on Friday, September 28. We discussed a number of issues, particularly plans for where the NAA will go over the next few years. As I mentioned last time, my version of what outgoing President George Allen called Future II in 1995 is called NAA VISION 2012 AND BEYOND. This is the foundation of a plan that will take the NAA through the next five years in which we expect to see major changes in our membership demographics. We need to appeal to a totally different LTA market as we grow. Specific topics of discussion were:

By-Laws: We need to address several aspects of the By-Laws. Among them are the severely limiting conditions of supporting only the National Naval Aviation Museum at Pensacola and the nominating process for future elected officers. This will not change our policy of supporting the NNAM, but will allow us to assist other Navy LTA museums in promoting and making available Navy LTA artifacts and photos of particular significance. A list of proposed changes will be submitted to the Executive Council for review and their recommendation will be published in a future Noon Balloon.

Committees/Help Wanted: We need to clearly establish active members for each committee allowed by the By-Laws. We have a very interactive membership and need to tap into that wealth of knowledge and experience to make our NAA better and stronger as we move forward. If you can spare a few hours to help on a particular committee, please call us. There is no heavy lifting or travelling. Phone conferences and/or emails should do it.

Website: I detailed the plans for this new Website History Committee in the last Noon Balloon. I am pleased to report that under David Smith's direction they have outlined a plan of action and have begun putting this together. The goal is to make the NAA website THE source for Navy LTA.

Reunions: We have had some preliminary discussions about holding our next Reunion & Conference in Newport, RI. The centerpiece of our gathering will be a guided tour of the Naval War College. The NWC

Museum has not only the history collection of the college and it's many distinguished presidents, but also the history of the torpedo testing center on Goat Island where some of our Lakehurst and So. Weymouth blimps participated in testing and recovery of torpedoes, the history of Navy activities in Narragansett Bay dating from the Revolutionary War, and the recent addition of our own John Kane's papers. There is also an aviation museum at the former NAS Quonset Point, a short drive away. I use the term Reunion & Conference as we have had some initial discussions with the Airship Association of the UK to have them join us in Newport for their conference. This is a great opportunity to meet fellow LTA enthusiasts and share experiences, more on this later.

Future II: This is a topic that George Allen presented at the end of his tenure as NAA president. It has intrigued me each time I have read his remarks. It lays the foundation for the continuation of the NAA as we lose the original founders and LTA veterans. It addresses a couple of key objectives that have implications not only for the NAA, but also the other LTA organizations and museums in the USA. Significant portions are (George's comments in quotes): "Lesson learned is selecting the right people and then all you have to do is designate a target. So if you want to change the direction of NAA pick the right people." While we honor those Navy LTA veterans by electing them to office, we need a committed and dynamic slate of officers to lead and direct the NAA into the future. This will mean leaders who probably have no Navy LTA experience, but do have the enthusiasm and interest in LTA and the NAA to see it prosper. The Navy LTA veterans can and will continue to provide a valuable service to the NAA through their experiences and can contribute much guidance through Executive Council membership and individual committee membership. A suggestion I have implemented would be to let each NAA president establish a Special Advisors committee to report to him made up of those NAA past officers or key individuals he deems important to his administration. I have chosen Herman Spahr, Mort Eckhouse and John Fahey as my advisors. Past President Ross Wood has given me valuable guidance and advice and will continue to do so.

“Never were the words “we must tap into the cadre of experience that is growing in the commercial market.” The current leadership could make this their number one priority. The fixed wing people do it all the time. It is easier when government contracts are being established but it can be done. One (Navy) airship is available today and we see it being used time and again on different projects. When we meet in reunion there should be a half dozen commercial entities represented.”

This relates to my comments above concerning reunions. There is no reason we cannot secure sponsorships or allocate space at the Ready Room or banquet site during a reunion for commercial displays. Many corporations are researching and building LTA prototypes for the military. We should tap into those resources and offer our expertise to them in return.

“Also we best get everyone under the umbrella of the NAA. As time wears on the membership continues to succumb to age. Each group will suffer. I strongly believe NAA should serve as an “umbrella” and all the smaller societies take on a “chapter” relationship. In 5 years there will be but a handful of shipmates who will have ever flown in a Navy airship and they will be in their 90’s.”

There are other LTA organizations that may be responsive to this sort of arrangement and we should research these. That said I believe George’s intent here is a little too far reaching. The NAA does not have the people or resources to establish an umbrella organization. However, establishing a formal relationship between the existing organizations to promote common LTA interests is workable. The discussions regarding the Airship Association joining with us at the next reunion is a start. Such a combination could work together to promote our common goals and possibly develop the economies of scale to secure reasonable advertising rates in relevant publications that each organization does not now have, a plus for all. Furthermore, this compliments a proposed collections policy by allowing specific artifacts, photos, personal histories, etc., to be displayed locally rather than stored in a massed collection.

I welcome any comments or suggestions on any of the foregoing.

– **Frederick R. Morin**

TREASURER’S STRONGBOX

By the time this issue, #96, has been delivered to you, you will have received and perhaps already have paid your 2013 N.A.A. membership dues. Just take a minute and think of why you have done this? Maybe it’s because you have great memories of your time with the “bags” or have a great respect for the purpose of the blimps or maybe it’s the special time when airships ruled the sky. Whatever your reason, thank you for being a part of our great association.

Reminder! If you have not paid your dues for the coming year, you can safely pay them with Paypal through our website: www.naval-airships.org or send a check payable to: N.A.A. If you are uncertain of your status on the renewal dues, feel free to call.

WELCOME ABOARD – NEW MEMBERS

Luther E. Franklin, Issaquah, WA

Mark Bayuk, St. Paul, MN

Don Day, Cheyenne, WY

Charles J. Sevola, Randolph, NJ

DONATIONS

Charles V. O’Brien

Salvatore D. Vacanti

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

772-871-9379

PIGEON COTE

Larry Hurley e-mailed **Ross Wood**, “I was so glad to read the article “MAY WE NEVER FORGET” on page 10 in the Summer 2012 Edition of the Noon Balloon about the crash of the ZPG-3W ‘Reliance’ on 6 July, 1960, and I thought I would offer the following information: Since being assigned to an aircrew shortly after my transfer to ZW-1 in late 1958 as a newly designated ACWAN, I was a proud member of that aircrew and, just as fate would have it, I was transferred from that aircrew to another Combat Air Crew “CAC” only two weeks or so before that fateful day, so I knew every one of the crew. As a matter of fact, that was the first flight after my transfer and was indeed the aircrew in which I earned my enlisted “Aircrew Wings” which I proudly wore throughout my over 35

years that I served in the Navy. I also was a member of the "Retrieval Crew" near Barnegat Light, New Jersey, as those that were recovered were brought ashore for identification (some of which I had the sad duty of confirming) and further transport of the remains. As an ACW, I remember well those other AC/s including Edwin Turner Jr. who was cited in the article. During those times we were single, and we all (although I'm not positive about Turner) lived in the (4 men to a room) barracks at Lakehurst and were very close to one another, so that tragedy also had a very big effect on all of us who were in the squadron at the time. Although I was not personally aware of the 1968 testimony of the survivors, I remember well Donald Saumier who was one of the survivors, and with whom we all discussed the accident in detail after he returned to duty in our division, which was located in the very end corner of Dock 5 at Lakehurst. After arriving at Lakehurst in late 1958, I first started flying in the ZPG-2W and then later assimilated into the 3W/s when they were introduced into the squadron. As you know, the airship mission (squadron) was later transitioned from Airborne Early Warning to Anti-Submarine Warfare (ZP-1) status in which I also flew as a crew member before the squadron was finally decommissioned in 1961. Needless to say, those were some of the happiest days I ever served in the Navy and, as I said earlier, I proudly wore my aircrew wings right up to and including my retirement from the Navy as an O-5 on 1 September, 1993.

To the best of my knowledge, I retired the very last set of "Enlisted Blimp Aircrew Wings" from the Navy when I retired. I was also fortunate to have known **Andy Granuzzo** when he was an enlisted "Blimp Sailor" at Lakehurst, and asked him to serve as my guest speaker (by then Admiral Granuzzo) at my retirement at NAS Oceana, Virginia, in 1993. My special thanks for the great article on that unfortunate day and "MAY WE NEVER FORGET". I certainly have not, and never will!"

Ross Wood replied, "It's interesting to hear from someone who was on the scene of the 144242 disaster recovery. As I commented, on page 7, I left ZW-1 several days before the crash, and was in S. Calif. at the time. I had been in ZW-1 for 2 1/2 years and knew the air crews very well, particularly the officers. I was particularly shaken, to have flown my last flight with CAC 104. All the officers and men in that crew were

really nice, dedicated folks. In all honesty, I have to say that I was just as happy to not have been onboard for the recovery efforts. Also, one of my primary activities, prior to going in the Navy, was competitive sailing, both small one-design boats and crewing on ocean racers, out of Seattle. Considering the mission that CAC 104 was on, I would have been beating on Joe Saniuk's ear to go along on the flight. Very scary. Thanks again for writing of your memories." Ω

William Burling e-mailed, "My magazine arrived of Aug 6 and my "Recollections" article appears to be very well edited and formed. I want to thank you for your assistance in getting the article published. So far I have rec'd several comments from other NAA members, all seeming quite interested and positive. Had a phone call yesterday from **Harry (Hy) Blythe** in California who said his father was head of Goodyear Aircraft for 30 years, and he, at 86 now, had grown up with airships, went to Harvard in engineering and law, and worked on K-ship design. He said he had many feet of 16-mm film on airships. He owns a 7,000 acre ranch in Paso Robles near the coast. I found him quite interesting to talk to. He told me about the effort to get the German zeppelin engineers over to this country right after WW I, and they became the nucleus of Goodyear. He knew Hugo Eckener personally, may have some historical info for your archives. Keep well, Bill." Ω

Warren Winchester e-mailed, "Dr. (LT) Lloyd Carnahan, flight surgeon of ZW-1 1956--1960, passed away on July 9, 2012. After leaving the Navy in 1960 Dr. Carnahan moved his family to Fullerton, California, where he established a very successful and broad-based medical practice which treated the sick of all ages and needs. Lloyd was an avid golfer, and as the Gods would have it, he passed as a result of injuries sustained on his favorite course. Dr. Carnahan always enjoyed his flights in the ZPG-2W, and he will find some old shipmates somewhere in the skies. Ω



Juergen Bock e-mailed, "Time runs fast, while one convention is over, we are already planning the DGLR-LTA-Workshop XIV in March 2013 in Bremen. Open Subjects: (1) To warrant economical operation in the

future, hydrogen must be reintroduced as a lifting gas, especially in view of the rising price of helium, but also due to the higher lifting potential. The antiquated regulation helium-only prejudice must be overcome. (2) Hydrogen is considered as one of the efficient energy carrier producing no CO₂ at highest energy content kWh/kg. Hydrogen gas in airships can be used both as lifting and fuel gas. (3) Hybrid airships have been operated by the US Navy: the 2W's and 3W's have been overloaded with fuel for long-term missions and took off "heavy" by performing an "airplane takeoff" on the runway. Moreover, they landed even with extra sea water ballast like an airplane for safety reasons, especially under windy conditions. (4) The conventional blimp is already a "winged" airship, because the empennage contributes already a substantial portion of the aerodynamic lift. (5) The shaping of a "lifting body airship" requires a perfection of the aerodynamic properties to guarantee economical operation. (6) A hydrogen-inflated lifting body airship may even use gaseous hydrogen fuel for medium flight ranges. Well, these seem to be some well-known arguments, but obviously not common knowledge, especially in the decision-making authorities. Therefore I plan to produce a booklet or a sequence of chapters, respectively, compiling all available relevant publications by Ed., possibly Marc Piolenc, myself and others for strategic dissemination. Ω

See disclaimer on page 24.

Mark Lutz e-mailed, "I'm really pleased with what I learned from the 4-per-page copy of the ZPG-51 WWII records you sent me. For example, I learned my Father was assigned to the British Guiana detachment for about 6 months of 1944 (because his log is signed by the officer in charge there - a Lieutenant Tregillis who doesn't show up in any of the Blimp books I have. I even had an email exchange with Tregillis's daughter...) Lt. Tregellis had previous WWII experience in actual encounters with U-boats while an officer on a Destroyer - a companion Destroyer was sunk during one engagement - I suspect this U-boat combat experience was the Navy's motivation in assigning Tregillis command of the British Guiana Blimp detachment. In 1945, the Navy put Tregillis in command of a medium sized landing ship (smaller than an LST) and he saw combat against the Japanese in the Pacific. His daughter

does not know any details of the actions the medium sized landing ship participated in under Tregillis. (Tregillis died 10 years ago.) I had thought Dad was at Trinidad itself in 1944 - not realized Dad was assigned to British Guiana. I'm now fairly sure Dad's "blimp on mobile mast in mooring circle with palm tree" photo was taken at the British Guiana detachment. I'll have to update my page on the NAA website to reflect the new info. Ω

Bill Walker e-mailed the sad news that Betty Johnson passed away September 7th. She was the widow of longtime NAA member James Johnson, the couple having made very generous donations to the NMNA, NAA and helped support the original NAHP video effort. Ω

Bob Lehr and **Pete Brouwer** forwarded this photo of **Ken Braun's** new license plate. Pete says Ken is a longtime NAA member and was stationed in Lakehurst with ZW-1. Ken lives in Dana Point, CA with wife Irene. Ω



Don Kaiser passed along an e-mail request: "Hi, my name is Elaine Collins. My grandfather, Joseph J. Connelly, was an aviation machinist mate assigned to blimp squadron 12, on K-64, out of Lakehurst during WWII. He was one of the enlisted men killed on 10/16/1943 when K-7 collided with them causing the crash that resulted in the deaths of 8 of the 9 men on board. My family has had many unanswered questions over the years regarding the incident and finding information has proven to be difficult at best. If there is a direction you could point me in to start it would be greatly appreciated."

Ed. responded: Here is how I carry the accident in my book, Airships vs. Submarines: "The worst accident involving K-type airships happened that infamous day, 16 OCT 43. Lakehurst's veteran K-7, one of the early ships by then relegated to training, was sent out in fog over the objection of an experienced but junior officer who was concerned squadron airships were in

the area. Unaware of the closing K-64, and with neither ship operating its radar so close to shore, somehow the K-7's static discharge rod, hanging below its lower fin, cut a huge slice through the K-64's envelope passing below. The huge gash allowed such a rapid helium loss the K-64 plunged into the sea. The ruptured aviation gasoline storage caught fire, killing all but one aboard and leaving little of the airship. K-7, with minor fin and control cable damage, was recovered without further injury. "

Dan Cavalier also responded via **Ross Wood**, "I do remember the crew hanging out of the Blimp window shouting at us because we had to dress in our Navy Blues and stand muster. If I remember correctly, it was within the hour that we got word that the ship was down. I believe it was near Asbury Park, New Jersey. People on the ground in that area (if still alive) will certainly remember the accident. Perhaps an article in the local paper or radio station might have some information. I believe this was the flight I was supposed to skipper on Saturday (need to check date?). My flight was changed early that morning and I stood muster in the hangar when the Blimp with crew left the hangar. My experience that day is written in my memoir. Ms Collins can call me. I wish I could be more of a help." **John Fahey** also replied, "Your rendition of the K-7/K-63 collision is probably going to be the only detailed report of the tragedy available since little was known or said at the time of the tragic incident at Lakehurst. My fellow classmates who were in the K-7 had really little information or knowledge about what happened. My first cousin Howard Fahey, himself the only survivor of the collision of the G-1/L-2 collision on June 8, 1942 (twelve perished), was an instructor in the training command at the time of the collision of K-7/K-64, but said nothing to me about nor did my flight instructor, Neil Barry, with whom I flew in the K-7 shortly after the collision. The only news I had was the very brief announcement of the collision. From the little I saw as an aviation cadet at the time and the lot I saw as a member of the training command in the early 50s, there was no contact, coordination, or cooperation between the training command and ZP-12 at NAS Lakehurst. In the training command we sort of looked down on ZP-12 as ZP-12 may have looked down on us. I remember vividly standing by the window with some

other pilots watching the ZP-12 duty officers whom we knew taking a K-ship out of the hangar while we said, "He's going to deflate it," and he did. **Walt Ashe** was in ZP-12 at the time. Even the survivor of the K-64 probably knew little at the moment of the collision." Ω

CP Hall, Ed. and **John Mellberg** were having a Zep NT discussion as CP e-mailed, "I must plead some degree of ignorance regarding the Zeppelin NT as the drawings offered in the public press are so inconsistent. Look at the ones in the latest NOON BALLOON and you might think that there is a three "longeron" mittelaufgang running down the center of the ship ala LZ-129. Other drawings show three longitudinals, spaced as the keels were in ZRS-4, but looking for all the world like the stainless steel longitudinals from R101. Designers and experts have debated the function(s) of the keel in a rigid airship. Is it a "keel", a hull strength member? or do the longitudinals the bearers of aerodynamic stress while the keel merely contains the 'useful loads'? In England, designer C.I.R. Campbell held the first position in 1919 and the second position in 1920!?! Regrettably, he never explained how this change of heart affected the design of R.38; designed before the first declaration and under construction when the second was made. The reaction to the crash of R.38 was a ban on keels in subsequent British ships as they complicated the calculation of aerodynamic stress!?" Ω

George Diemer e-mailed History Chair **Al Robbins**, "I volunteer at the New England Air Museum, and Craig Farley has let us digitize an Aviators Flight Log Book which he had obtained. (Above, and next page) It is the 7th log book of Ivan J. Korson, ACMM, and it shows LTA flights from April 1941 to May 1943. He flew in TC-13, TC-14, G-1, K-2, K-3, K-4, and a number of other K-ships. He was in ZP-12 at Lakehurst initially, and later flew in ZP-21 in Richmond. One of his flights, K-4 on July 1, 1942, is the same flight noted in Al Grappone's log book, posted on the NAA website -- a patrol flight of 18.4 hours under pilot Fleming. Craig has said it is OK to offer Ivan Korson's log book to the NAA Personal Histories collection, if you are interested. I have the book as a .pdf file (7.3 mb) or as a group of 26 .jpg double-page images (1280 x 1006, about 270kb each). I also have single-page

JUL 1942					
Date	Type	Number	Duration	Character	Remarks
1	2X	K-4	18.4	J	Training
7	"	"	1.9	R	Training
15	"	K-4	11.9	J	1-leaf
16	"	"	12.0	J	Russell
22	"	"	16.4	J	Metc
28	"	"	19.0	J	Conc
31	"	K-10	14.7	J	Becker

VERIFY THAT THE FOREGOING
FLIGHT RECORD IS CORRECT

[Signature]
1942

Total for this month
Flights: 7
Brought forward: 1976
Grand Total: 1983

images at much higher resolution as .bmp files, up to 60mb each. If you would like some or all of these files, let me know the best way to get them to you. I am attaching two double-page images as examples. By the way, Craig is the one working on the amazing digital animation of the K-74, as part of a future video production.” Al



I was on duty in Hangar One and in the Dope Shop (marked by the arrow in the photo) when it collapsed. It would be a pleasure to contact some else who was in one of the hangars when it collapsed. As promised, I will send you more photos taken at ground level of the wreckage in the hangars as soon as I can have them copied. Ω

N.A.A. Exec. Council Meeting Minutes

The Executive Council of the Naval Airship Association meeting was called to order at 9:05 AM on September 28, 2012, at the VanTreuren's home in Edgewater, Florida, by President Fred Morin. Members in attendance: Peter Brouwer, Fred Morin, Richard Van Treuren, David Smith, Anthony Atwood, Joe Hajcak, George Allen, and Bill Wissel. The secretary's report was read and accepted, reporting a balance of \$4,095.35 in the checking account and \$27,582.33 in the money market account. Small Stores has had a good year. The reunion income was exceptional. Most squadron patches have been sold. Discussion was held regarding upgrading our membership brochure.

Joe reported The National Naval Aviation Museum at Pensacola will give us an area for more airship memorabilia. There is a spare airship engine from the *Akron* or *Macon*, located at Silver Hill, (a Smithsonian storage area) in Washington DC, which could be loaned for display at the museum. We are looking for a representative for the mid-west area. Suggested were: Jerry Bess and John Chilcoat. Presidents Special Advisory Committee: Mort Eckhouse, Herman Spahr and Ross Wood were asked for information.

responded, “Thanks George: I’m passing it to Don, who might have some ideas also. My best guess is that most of the flights in 1942 and ‘43 were primarily training flights. Unfortunately we haven’t any reliable flight schedules, from any of the squadrons, as they stood up. This is particularly interesting, being Korson’s seventh log-book; what are the final entries? According to my pilot’s data base, Korson was a LTJG in 1944, assigned to BlimpHedron 2 Det 22. In the 1945 register he was identified as Officer-in-charge of the detachment. Don’t know when he first entered the Navy, no indication of when or where he earned his wings, or where he went in 1946. The double page images (100 dpi) would be adequate. Now if we could only find an effective method of collecting, and extracting the data elements from as many Log Books as possible, we should start to get a better picture of who was doing what, when and where. Isn’t history fun? We have damned little data about the enlisted personnel, even of the enlisted pilots. This is the first item I’ve seen that indicates Korson probably joined the Navy in the 20’s or 30’s.” Ω

Member **Pete Urban** wrote, “Enclosed is the photo of the blimp hangars (numbered in the photo) at N.A.S. Richmond, Florida, which collapsed and burned during the hurricane which hit them dead center on Saturday, Sept. 15, 1945. The instrument that measured a wind speed of 168 MPH blew away recording that wind speed. What a hell of a fire – 100 octane gasoline in the airplanes and wood constructed hangars. Three hundred and ninety-one airplanes and twenty-five blimps were destroyed. This was the largest number of aircraft lost by the U.S. Navy in one day, including the attack on Pearl Harbor and subsequent battles.

George's complete collection of early TNBs has been scanned and on our website. It was decided to post one from 2007 on to the website for each year. The by-laws need to be brought up to date. Also, procedural changes need to be made regarding ballots as members are from all over the country. All changes will be considered before publication in The Noon Balloon. David suggested we put together a committee on our website to make it a source of airship history without duplication of other sites, and to check on a way to put member info on our site.

Newport, Rhode Island, with its Naval War College has been discussed as a site for the next reunion by Fred Morin, President. The area has a huge military history and many activities (member John Kane's memorabilia is stored there). Possible date, the end of June of 2014, a Wednesday, Thursday and Friday. Richard will investigate contacting the Airship Association of the UK to work with us.

Discussion was held on a NAA Future II program. The proposals: to attract new members, bill reunions as NAA Reunion and Conference, invite colleges in area, create an umbrella of LTA organizations. sending a blast e-mail to members to tell their story, add members profile to website. Anthony suggested writing letters to governors and other officials and letting them know what is going on with LTA and our support of the Naval Airship Association. He will look into the matter. George Allen strongly supports sending letters. Richard will try to contact the US Army in regard to airships. The meeting was adjourned at 3:25PM. Respectfully submitted,

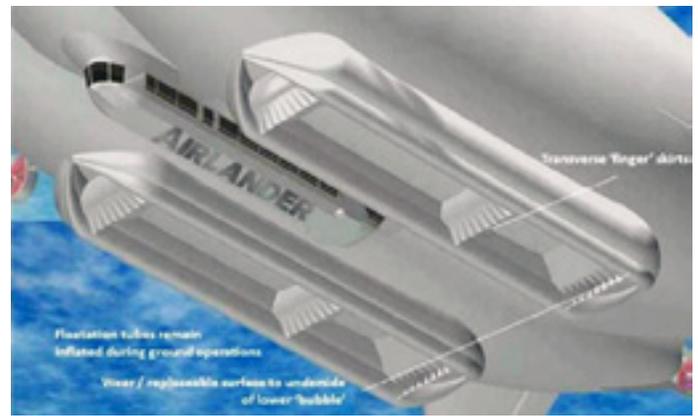
– **Peter Brouwer, Secretary/Treasurer** Ω

2nd Cargo Airships For Northern Operations Workshop, Anchorage (Excerpt) By Robert R. Knotts, member, AA Council.

The 2011 workshop was succeeded by the 2nd Cargo Airships for Northern Operations Workshop, held in Anchorage, Alaska, during the period 21-23 Aug. Speakers from the mining, oil, and gas industries described their transportation challenges and how they plan to exploit cargo airships in support of their businesses. Local Alaskan air freight firms explained how cargo airships could complement existing air

transport fleets by providing additional capability and expand air shipping services. Representatives from the financial community presented options available for what has often been the missing element of airship development and operations, funding.

Aeroscraft gave a presentation and status of plans for deployment of hybrid cargo airships in Alaska and Canada. Hardy Gielser, HAV's Business Development Director, gave a presentation on HAV's Airlander. (below) Dr. Robert Boyd presented the Lockheed Martin Skytug derived from the Skunks' P-791 demonstrator, first flown in 2006. Alan Handley presented his Varialift concept. The Varialift section prototype testing was completed in November 2011 when the unit lifted off the ground under full control using its variable buoyancy units. Michael Talsnikov gave a presentation on status of plans to deploy Augur Atlant cargo airships in Russia. NASA commissioned a study on the cargo airship market potential.



Very little economic information was presented. Ice and snow offer major operating difficulties that will affect safety. The impact of hail and ice on lightweight monocoque structures was not addressed effectively. All the airship manufacturers concentrated on marketing presentations that lacked sufficient information to address technical and commercial matters. Another issue that prompted discussion were the question marks hanging over Airship Airworthiness and Certification Regulations. The FAA does not have airship certification regulations; it does have the 'Airship Design Criteria (ADC)' [2]. Canadian Aviation Regulations (CARs) address airships in Airworthiness Manual Chapter 541. The FAA and Transport Canada are considering developing joint certification regulations. The State of Alaska needs to see more than just proof of concept models, but real cargo airships. Ω

SHORE ESTABLISHMENTS:

MOFFETT FIELD (Cover Story)

For the last 10 years a group of veterans, historians and airship enthusiasts have been lobbying and negotiating to preserve Hangar One at NAS Moffett Field. Elected representatives and State agencies in California have spoken in support of preservation efforts. In spite of all best efforts, the Navy removed the exterior siding leaving the frame unprotected. As it stands, the hangar is in REAL danger of being totally lost. A proposal to reside the hangar, funded 100% by private industry, has been rejected by NASA, the current owners of the hangar. We are urgently requesting that all NAA members interested in preserving this important, unique part of airship history write to their local Senate and Congressional representatives and urge them to act in support of the preservation of Hangar One. A template for letters to representatives is provided; please personalize this template with your own experiences. The most influential letters are those that are personalized and mailed to representatives. Emails also make a big impact. Please send to your representatives and also copy Anna Eschoo, Representative from California. Now is the time to act as there is one more session of Congress before the inauguration of the new representatives. You can find the address for their representative using this link: <http://www.usa.gov/Contact/Elected.shtml>

– **Bill Wissel**

Dear Representative [add name],

I am writing you as a veteran of the US (Navy, Marines, Army, Air Forces, Coast Guard) who served in the military from [dates]. I am very concerned because a unique, important part of our military heritage has been partially dismantled, and is in danger of being forever lost. Historic Hangar One at former NAS Moffett Field is a massive hangar over 3 football fields in length and 200 feet tall. It was originally built in 1931 and served as a base for defense of the Pacific Coast through war and peace time operations. Including submarine detection in WWII, Korea, Viet Nam and through to 1991. There is currently an offer from private industry to fully fund restoration of the hangar; but the offer is time-limited. There are numerous proposals for use of the restored hangar, including museums, and private aviation, which ensures that this unique space could be available for future military use when needed. I am asking you to act on behalf of this historic landmark by joining Anna Eshoo's efforts in support of the private industry offer to preserve this hangar. Without your urgent support Hangar One faces the real prospect of being lost in government red tape. Can you help?

Sincerely,

Your name, Your address, Telephone number

cc: Rep. Anna Eshoo, 205 Cannon Building,
Washington, D.C. 20515



Santa Ana/Tustin



Worldwide Aeros building a blimp-like aircraft in WWII-era hangars (compiled from LA Times).

Not since the waning days of World War II have the mammoth wooden blimp hangars at the former military base in Tustin seen as much airship manufacturing work as they do today. Inside the 17-story structures that rise above southern Orange County, Worldwide Aeros Corp. is building a blimp-like airship designed for the military to carry tons of cargo to remote areas around the world. “Nobody has ever tried to do what we’re doing here,” Chief Executive Igor Pasternak said of the 265-foot skeleton being transformed into the cargo airship. “This will revolutionize airship technology.”

Residents of Southern California are no strangers to airships. The Goodyear blimp, based next to the 405 Freeway in Carson, regularly lumbers its way across Southland skies and settles above the Rose Bowl and other locations for televised views from overhead. Goodyear imitators also dot the skies above other venues. But in recent years, the affordability of airships as well as developments in high-definition cameras, high-powered sensors and other unmanned technologies have turned these oddball aircraft from curiosities of a bygone era to must-have items for today’s military. And airships increasingly are being used for civilian purposes. The federal government is buying blimps, zeppelins and spy balloons, and many of these new-generation hybrid “lighter than air” aircraft are taking shape across California. Lockheed Martin Corp. designs and builds airships for commercial use at its secretive Skunk Works facility in Palmdale. Northrop Grumman Corp. does design work for airships around the Southland but is building them in Florida (*src*).

The importance of these next-generation airships became obvious to the Pentagon as increased use of drones highlighted the need for stationary aircraft that could provide constant surveillance, not just overhead flights for a few hours. That’s where these unmanned blimps came into play, with their ability to linger over an area for days at a time. They have played an expanded role in recent years in Mideast conflicts. Currently, there are more than 100 aerostats being used in Afghanistan, up from fewer than 10 in 2004. Resembling small blimps, these aerostats are tethered to the ground and float thousands of feet above military bases and important roadways. They are big enough that gunfire below won’t take them down. Cameras on aerostats are similar to those on drones and can see for many miles at a fraction of the per-flight-hour cost of a drone. They’re also used to monitor the U.S.-Mexico border. “It’s an affordable solution,” said Terry L. Mitchell, intelligence futures director at Army headquarters. “You can provide overwatch of the base or troops as they make their way on the ground.” But these less-sophisticated aerostats don’t have nearly the size or the capability of the next-generation airships that are being designed and manufactured in California and across the nation. Pasternak’s Aeroscraft being built in Tustin is a zeppelin with a rigid skeleton made of aluminum and carbon fiber. A new type of hybrid aircraft that combines airplane and airship technologies, the Aeroscraft doesn’t need a long runway to take off or land because it has piston engines that allow it to move vertically and a new high-tech buoyancy control system. Pasternak hopes to have a first flight by early next year and to demonstrate cargo-carrying capability shortly thereafter. The Aeroscraft is being built under a contract of around \$35 million from the Pentagon and NASA. That’s a tall order for Worldwide Aeros, a company of about 100 employees. **Ω**



Akron

Piece by piece, Goodyear's new airship arrives at Wingfoot hangar By Jim Mackinnon, ABJ (excerpt)



(Above) A tractor trailer rig backs carefully past the Goodyear blimp Spirit of Goodyear delivering crates of zeppelin parts from Germany on Thursday at the Goodyear blimp base in Suffield Township, Ohio. (Michael Chritton/ABJ)

Starting in January, those parts - with lots more to come - will be assembled into a state-of-the-art airship. By early 2014, the *Spirit of Goodyear* and its late 1960s-era design will be retired and taken apart.

The \$63 million overhaul of the iconic Goodyear blimp fleet, first announced in May 2011, is under way. "It's a new beginning," said Ed Ogden, who heads public relations for the *Spirit of Goodyear*. Almost the entire Wingfoot hangar base turned out to watch the tractor-trailer work its way slowly through the open hangar, then through large doors to a work area for unloading. The large container on the back of the trailer held large wooden crates with 21 longerons, which are aluminum and carbon-fiber structures. [Photo] Those pieces will provide an internal frame for the 246-foot-long airship, a joint venture between Goodyear and ZLT Zeppelin Luftschifftechnik. The longerons arrived by ship in New York Harbor and were trucked to the Suffield Township hangar. The internal frame is one of the significant features that will separate the new aircraft from Goodyear's U.S. fleet of three blimps, which have no frames. All three blimps will be replaced with the new Zeppelin airships in upcoming years. Each of the modern Zeppelin craft will cost about \$21 million, Goodyear has said.

The semi-rigid aircraft will still be called Goodyear blimps, Ogden said. "We don't want to change that." He acknowledged that purists will point out that blimps do not have internal frames. They basically are large, helium-filled bags with gondolas, or cabins, fastened underneath for the pilot and passengers. Besides being significantly longer and wider than the current 192-foot-long blimps, another big difference is how the new airships will move. The new Goodyear blimps will have three prop-engines instead of two, with two engines mounted on the side of the airship and one at the rear. The design also provides more room in the cabin. The new airships will have room for 13 people; the current blimps hold seven, including the pilot. Work has been going on behind the scenes for more than a year to get ready for the new blimps, Ogden said. The Wingfoot Lake hangar has been upgraded to accommodate the Zeppelin building process, which is different from how the old blimps were made, he said. There also are separate storage areas for new blimp parts and for current GZ-20A blimp parts to make sure nothing gets mixed up.

Already, Goodyear blimp pilots and Wingfoot base technicians have traveled to Germany for training. Zeppelin engineers from Germany will be coming to the Ohio facility to oversee the building of the new blimps, with most of the hands-on work to be done by Goodyear employees, Ogden said. Goodyear and Zeppelin first worked to build blimps together in the early part of the 20th century. The GZ designation Goodyear uses for its blimps stands for Goodyear Zeppelin. The first new airship will be based in Florida. The *Spirit of Innovation*, Goodyear's newest old-style blimp, built in 2006, will move to Wingfoot Lake and be replaced in 2017. *The Spirit of America*, based in Carson City, California, will be retired in 2015. Ω



DLZ N07-101 Airship Development

By Juergen Fecher, Zeppelin Flight Test (excerpt from FLIGHT TESTING magazine)

Since 2005, four LZ N07 airships have been in active service worldwide in a variety of roles. The airships, operated by the Deutsche Zeppelin Reederei, the operating arm of Zeppelin Luftschifftechnik, have so far safely carried more than 120,000 passengers on sightseeing flights. Just recently, a fifth airship was assembled in Friedrichshafen, southern Germany. This rebuild took to the skies for its first functional check on April 27, 2012. Zeppelin began building lighter-than-air vehicles a few years before Goodyear. However, Goodyear has the longest continuous history of building and operating airships, and no manufacturer has built more than the company. Goodyear produced its first airship envelope in 1911 and its first airship on contract for the US military in 1917. Between the military and Goodyear's own public relations blimps, it has built more than 347 airships.

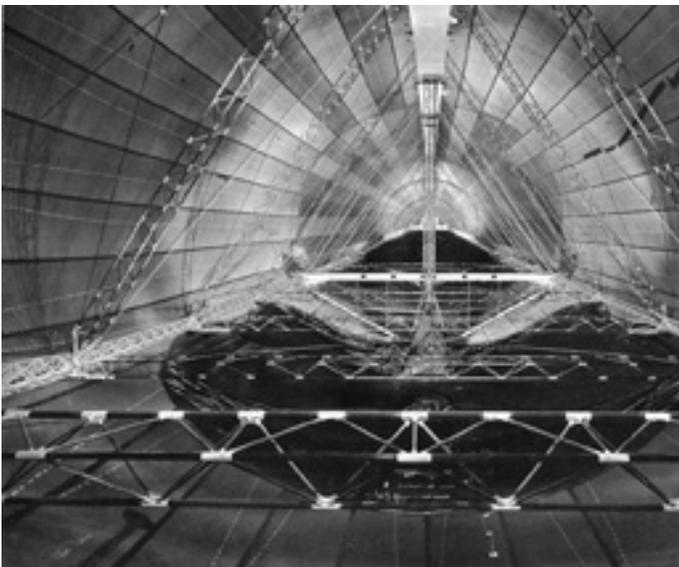
It was in 2008 that Zeppelin decided to start development of an improved version of the airship Zeppelin LZ N07 - the -101 variant. Experience in building and operating the previous airships had shown that, within the overall dimensions of the airship, an airship could be designed that offered more payload by optimizing the envelope cut, therefore offering more aerostatic lift as a result of weight-reduction measures. It would also offer more versatility by incorporating from the start provisions that had been found useful; during non-passenger missions performed by the airships. The new variant would have a slightly larger passenger gondola. With two more seats, more electrical power available for mission equipment, an avionics interface for mission equipment, provisions for a mission platform for 450kg of scientific equipment on top of the airship, structural modifications for easier production and longer fatigue life. To increase operational flexibility of the airship, an extended range and endurance kit had been designed and tested. Pilots' duty, times permitting, this kit would enable the airship to be flown for more than 36 hours, giving it a no-wind range of approximately 1,400 nautical miles.

Around the same time, Goodyear and Zeppelin began negotiations on possible replacements for their current airships and it was decided to join forces to design and build the -101 variant with additional design changes that Goodyear wanted to have in its new airships. The task was to combine the design experience of Zeppelin with the operational experience of Goodyear, and to design and build one of the most modern and versatile airships.

Among other features that were now added to the design of the -101 variant were a new cockpit display system and avionics suite that, once approved, will permit LPV approaches with the airships, a daylight-readable, high resolution LED advertising system, an improved envelope material and air system, and improved ground support equipment. All in all, the LZ N07-101 will be an improvement in all three marketing areas: passenger operations, special missions, and advertising.

When the Zeppelin NT was designed in the mid-1990s, a glass cockpit was standard from the beginning. At that time, individual ADIs and HSIs were still the standard inflight displays, with mechanical back-up instruments. Airship systems information was displayed on a two-screen integrated instrument display system. A lot has changed in the field of cockpit displays since then. It is, however, still very difficult to find suppliers that are willing to adjust their display systems to the needs of an airship, where the number of units sold will not go into the hundreds. Nevertheless, the new airships of the -101 series will get a new cockpit display system. In designing the new cockpit, special emphasis has been put into designing a state-of-the-art 'airship-to-crew interface' for system and flight parameters, by using multiple large active matrix liquid crystal display (AMLCD) color screens. The cockpit display system is divided into the engine indicating and crew alerting system (EICAS) in the central section and the electronic flight instrument system (EFIS) on the left and right side of the instrument panel, plus the necessary standby instruments and back-ups. To provide sufficient redundancy, two EICAS computers and screens and two EFIS units with multifunction display (MFD) for enhanced situational awareness will be employed. The EICAS will indicate the various

system parameters (most of them very specific to airships, such as envelope system data), parameters of the three engines of the thrust vector propulsion system (there are few aircraft out there with three engines), and a warning and alert messages to the flight crew. The EICAS is designed to provide clear, safe, and fast access to airship parameters required for flight, preflight checks, or maintenance purposes. The architecture designed by Zeppelin for the EICAS uses two Barco PU-2000 display management computers (DMCs) and connects them with two Barco CHDD-268 displays in a way that allows each PU-2000 to drive both screens. Should one of the PU-2000s fail, then the other can drive both screens. Should one of the displays fail, then the other display can display the complete information needed by the crew in composite mode. The CHDD-268 displays have the inherent capability to display additional analog and composite video pictures as main image or as picture-in-picture. The PU-2000 unit has been chosen because it provides a modular and open system architecture with sufficient growth capability, so that future upgrades or temporary changes for special missions are possible. The EICAS is able to perform logical operations with input parameters to provide visual and aural alerts to the crew.



The application software for the EICAS is generated by the Belgium software house (UN)MANNED and certified through Zeppelin. The software must generate all airship-specific illustrations, display parameters, and text messages. It must also be able to process signal data to physical data for the displays (i.e. non-linear fuel quantity data or discrete inputs into warnings and cautions) and check for limitations. A maintenance

menu provides provisions to adjust and calibrate input parameters in a wide range without having to change hardware (actuator and rudder positions, etc). The displays supplied by Barco are already certificated and will come with an European Technical Standard Order (standardized equipment qualification requirements). The processing computers PU-2000 are also off-the-shelf units with a basic certification, but the application software for the Zeppelin N07-101 must be developed and, of course, certified according RTCA DO-254. Three engine data acquisition units, one for each engine, and one cabin data acquisition unit (C-DAU) provide the two processor units (PU-2000) with systems data. Whereas the old IIDS (Integrated Instrument Display System) had the capability to handle several analog signal inputs directly, modern computers prefer digital inputs only. Zeppelin therefore developed a new C-DAU in cooperation with BMC-Messtechnik to sample 28 different analog signals and more than 50 discrete signals, and to send them to the DMCs via an ARINC 429 bus. The new C-DAUs will be developed and certified according RTCA DO-254/DO-178B and DO-160 from scratch on. The EFIS provides the pilot with all the necessary flight (IAS, VAS, pitch and roll attitude, rate of turn indicator, barometric altitude, radar altimeter, decision high, wind vector) and navigation data (CSR, HDG, NAV #1 and #2, DME, ADF, MB, GS, LOC). For the EFIS, Zeppelin selected the Garmin 600 in a dual-installation version. It contains a primary flight and navigation display, and a multifunction display. It is an approved off-the-shelf system with all necessary TSO (Technical Standard Order) and is IFR-capable. Each system has a dual 6.5in diagonal color AMLCD display in portrait orientation and provides sufficient redundancy through dual installation. An interface to display video pictures from a TV camera (one of the missions of the airship is to provide high-definition TV footage of sports events, and it is very helpful for situational awareness if the pilot knows what is to be filmed), satellite downloaded weather data, and map data is also provided. Although the airship currently has no Traffic Collision Avoidance System (TCAS), Terrain Awareness and Warning System (TAWS), weather radar, or FPI system (Flight Path Indicator) installed, these options are possible in future. Some other add-ins will depend on operation and mission requirements. The G600 systems get their navigation data from two Garmin GTN 650 units. The GTN 650 is a GPS/NAVICOM system with

touchscreen control because the Zeppelin airship often operates at low altitude, especially during scientific or TV missions, a radar altimeter is an integral part of the avionics suite. One of the most demanding changes required by Goodyear came about as a result of the addition of the new electronic sign technology. Because of the many uses Goodyear puts on its airships, it was necessary to give the Zeppelin NT an increase in its rate of climb. In airships, climb rate is not limited by engine power, but by the outflow performance of the ballonet valves (Note: In pressure type airships, such as blimps and also the Zeppelin NT, air filled ballonets inside the envelope serve the purpose of maintaining a constant envelope pressure. They are needed as a compensation volume when the lifting gas inside the envelope expands or contracts due to changes in altitude and/or temperature). Outflow tests in a special test rig at Zeppelin showed what had to be done to improve the outflow characteristics. In the end, the required outflow could be achieved without increasing the number of air valves. Adding the LED electronic advertising banner to the airship moves the empty weight center of gravity to the rear. If not compensated by passengers in the gondola, the inflight center of gravity must be brought forward by other means. In airships, one of the main tools to trim the airship is using the two ballonets. The Goodyear airships will therefore be equipped with a special ballonet configuration, adapted to optimize trimming the airship with LED banner installed. The envelope of an airship such as the Zeppelin NT is a pressure vessel. The pressure envelope is constructed of a high-strength, multilayer laminate that has low gas permeation. The long service life of the pressurized skin is achieved by a combination of the different materials used in the laminate. The envelope strength is achieved by a strong base fabric designed specifically for airship use. The outermost films must be resistant to environmental aging. The Goodyear blimp is one of the most recognized corporate symbols in the world and its paint scheme is based on a silver/gray background. The standard white color of the Zeppelin envelope would have required a lot of paint or adhesive foils to provide this background color, so an accommodation to the envelope material was developed by DuPont. DuPont has provided a special gray Tedlar as the outermost layer for the envelopes manufactured for Goodyear. Ω

Dirigible would hover at height of just 400 feet over “high crime areas” of city by Paul Joseph Watson

The Ogden Police Department wants to fly an unmanned surveillance blimp at a height of just 400 feet over high crime areas of the city to watch for “suspicious activity,” but an initial request for approval was rejected by the FAA on the basis that the program would be a safety risk. Recently released FAA documents obtained by the Electronic Frontier Foundation illustrate how law enforcement bodies across the country are rushing to deploy drones and surveillance blimps with scant regard for the fourth amendment or privacy rights. It is likely that the police department will get permission to use the blimp so long as they give assurances that the dirigible will be under visual observation at all times.

The use of surveillance drones and blimps to carry out sweeping surveillance of the public with total disregard for privacy rights is expected to accelerate in the coming years. The FAA has forecast that 30,000 surveillance drones will be in U.S. skies by the end of the decade. Last month, Secretary of the Department of Homeland Security Janet Napolitano told a House Committee on Homeland Security that the federal agency was working on deploying drones for purposes of “public safety.” US law enforcement bodies are already using drone technology to spy on Americans. In December last year, a Predator B drone was called in to conduct surveillance over a family farm in North Dakota as part of a SWAT raid on the Brossart family, who were suspects in the egregious crime of stealing six missing cows. The U.S. Army recently tested a football field-sized blimp over the city of New Jersey. (SIC) The blimp can fly for a period of 21 hours and “is equipped with high-tech sensors that can monitor insurgents from above.” Recently released FAA documents obtained by the Center for Investigative Reporting revealed that the FAA gave the green light for surveillance drones to be used in U.S. skies despite the fact that during the FAA’s own tests the drones crashed numerous times even in areas of airspace where no other aircraft were flying. The documents illustrate how the drones pose a huge public safety risk, contradicting a recent coordinated PR campaign on behalf of the drone industry which sought to portray drones as safe, reliable and privacy-friendly. Ω

Ed. notes this web page shows the USN MZ-3A (!)

DGiant Helium Reserve Awaits Likely Closure

By Eric Morath, Wall St. Journal (excerpt)



John Hamak of the Federal Helium Reserve, in a 2010 photo at a facility in Cliffside, Texas. The gas is crucial in high-tech and medical-device manufacturing and in industrial operations. A. Campoy/WSJ

One of the world's largest reserves of helium could be shut down as early as next summer unless Congress passes legislation to exempt the stockpile from the sunset provision of a 1996 law, the U.S. Bureau of Land Management said. The Federal Helium Reserve, located deep underground near Amarillo, Texas, supplies a third of the world's crude helium, and its closure could strain an already limited supply of the gas that has become crucial in the manufacture of many high-tech and medical devices and is extensively used in health-care, defense and high-tech industry operations. The stockpile is at the mercy of a law dating back to 1996, when Congress mandated the reserve remain in operation only until its helium supplies were sold to pay down a \$1.3 billion debt incurred by the BLM to acquire the helium and equipment to process it. Most of that debt has been paid, with an estimated \$24 million expected to remain at the end of 2012. The BLM said the reserve is expected to sell \$200 million of helium this year, putting it on track to repay the remaining debt in 2013. In 2010, a National Academy of Science report warned of a possible helium shortage if the reserve closed, and House and Senate committee at the time considered taking up the matter. Now, a proposed Senate bill would allow the reserve to continue selling helium, even after the debt is repaid.

“We need to authorize Washington to sell from stockpile for another 10 years” and do it at market

prices,” said Sen. John Barrasso (R., Wyo.), one of the bill's sponsors. Sen. Jeff Bingaman (D., N.M.), chairman of the Senate Energy and Natural Resources Committee and one of the bill's authors, said the measure could be added to “must-pass” legislation in the fall. However, many helium industry insiders say they are already experiencing instability, largely as a result of government price-setting. Increased demand and limited supplies have resulted in the government's rate (which will rise to \$84 per thousand cubic feet in October) essentially setting the global price. But the government sells the gas using a formula designed to guarantee repayment of the debt by 2015, and some are calling for the government to sell at higher, open-market prices, a move that also would provide additional revenue for the government. In recent years, because the government dominates the market, private firms have seen little reason to invest in helium extraction and refining. Now, the possible shutdown of the reserve could lead a rise in prices to a point that would make production profitable, though it could take years to establish supplies lines from as far away as Qatar and Russia, which have reserves under development.

“If you think helium is in short supply now, you haven't seen anything yet,” said Walter Nelson, an executive at Air Products and Chemicals Inc. Medical-imaging machines, which are used to diagnose strokes, cancers and sports injuries, rely on liquefied helium for cooling. Helium also is used in the production of LCD screens and fiber-optic cables. NASA and the military need the element to purge rocket engines. Helium also is used in the welding industry. Hospitals run by the University of California, San Diego, will soon only receive 80% of their typical supply, said William Bradley, chairman of its radiology department. That will likely force the school to pay a premium to keep its 10 magnetic resonance imaging, or MRI, machines operating. The concern is even greater for older MRI hardware, which are more prevalent in rural areas, because they need to be topped off with helium on a regular basis... One C.T. Johnson wrote in to WSJ, “... the pipeline needs to be extended to the Four Corners area in order to gain access to more of the gas. This was among the recommendations of the NRC's study on the matter. Additionally, one of only two known crude-helium storage facilities in the world is nearby, making this extension even more practical.” Ω

Van Wagner Communications Acquires World's Largest Blimp Advertising Operator



Van Wagner Communications, LLC, the nation's largest privately-held outdoor advertising company, announced the acquisitions of The Lightship Group (TLG), the world's largest blimp advertising operator, and the American Blimp Corporation (ABC), the designer and manufacturer of TLG's exclusive Lightship® model blimps, the most popular advertising airships in the world. No financial details were disclosed. Through these acquisitions Van Wagner's Aerial Media Group provides advertisers a powerful array of non-traditional advertising and experiential marketing opportunities. In addition to fixed-wing planes carrying aerial banners, the group now includes blimps and complementary experiential marketing teams which will help brands engage consumers in unique and memorable ways. Richard Schaps, principal owner and CEO of Van Wagner Communications, has named John Haegele, a ten-year veteran of Van Wagner's senior management team, CEO of the Aerial Media Group.

"These acquisitions constitute a perfect strategic and operational fit with our iconic billboards, sports group and banner towing business," said Mark Johnston, President of Van Wagner Communications. "We have a unique ability to help build brand awareness in major city, sporting and event environments," he added. Headquartered in Orlando, Florida, TLG has operated in over 35 countries in the last 20 years, providing blimp advertising, broadcast services and related promotional programs. TLG is currently flying such notable brands as MetLife, DirecTV, Horizon Blue Cross Blue Shield of New Jersey, Hangar 1 Vodka and HP Hood.

In commenting on the deal, John Haegele, CEO of the Van Wagner Aerial Media Group, stated, "Aerial advertising is a powerful, proven medium for creating awareness and elevating brands above competing messages. In addition to owning most of the blimps used for advertising worldwide, we also have the only Lightships® that are internally illuminated for maximum visibility at night, and the only commercially available LED Lightsign that can show full color video on a blimp. We are firm believers in the opportunity to integrate this new offering as a part of broader national and regional campaigns with integrated promotions, broadcast tie-ins and experiential events that are core to Van Wagner's business."

Over the past 30 years, blimps have been used in a variety of ways and are especially recognized for their televising coverage of sporting events. TLG has provided turn-key broadcast services for television and radio remotes, having successfully broadcast well over 2,000 live events. Haegele added that, "Van Wagner's Sports Group has contractual advertising relationships with over 200 professional and collegiate sports teams. We expect that these relationships will provide an important boost to the Aerial Media Group." ABC is the exclusive designer and manufacturer of TLG's blimps, including the A-60+ model, the most popular airship in the world. There are more A-60+ blimps in commercial service than those of all other manufacturers combined. ABC's airships have flown on every continent with the exception of Antarctica. In addition to the use for advertising, the company has also built airships for a number of military and civil projects. ABC is headquartered in Hillsboro, OR. Ω





Can you help the History Committee match the names with the faces of the gallant *MACON* crew? Sure, everyone can pick out the CO, XO and senior HTA pilot, but how about the Chief Rigger, or senior bo' sun? If you know who's who, please contact any member of the History Committee.



From Battlefield to the Border: Blimps (SIC) Used in Afghanistan Tested to Monitor Aliens, Drug Runners From Mexico By Dion Nissenbaum



The U.S. military is joining with border-patrol officials in a new initiative that could bring dozens of surveillance blimps from the battlefields of Afghanistan to America's border with Mexico. Over the next few weeks, the military will oversee a test in south Texas to determine if a 72-foot-long, unmanned surveillance blimp—sometimes called “the floating eye” when used to spot insurgents in Afghanistan—can help find drug runners and people trying to cross illegally into the U.S. The project is part of a broader attempt by U.S. officials to establish a high-tech surveillance network along the border and find alternative uses for expensive military hardware that will be coming back from Afghanistan, along with the troops. The Department of Homeland Security is taking a careful approach, wary of costly mistakes in past government attempts to set up electronic border surveillance. “This kind of technology can be very alluring,” said Mark Borkowski, assistant commissioner at the U.S. Customs and Border Protection Office of Technology Innovation and Acquisition. “In the past, we’ve said: ‘That’s kind of cool. Let’s go out and buy it.’ That can turn out to be a less than bright thing to do.” The U.S. military is offering the surveillance drones to border officials free of charge, said Mr. Borkowski. If the tests are successful, the military could provide Homeland Security with dozens of blimps and other surplus gear worth \$27 million—a significant chunk of Mr. Borkowski’s annual equipment budget of \$100 million to \$130 million. For years, specialized, helium-filled blimps have floated above Kabul and scores of U.S. military bases across Afghanistan and Iraq. Equipped with sophisticated cameras, infrared sensors and other detection equipment, the small blimps often

float 2,000 feet over an area to keep a round-the-clock watch. They have been used to monitor militants planning attacks, insurgents planting roadside bombs and troops in battle. The blimps, which can be a quarter of the size of the 192-foot-long Goodyear blimp, have become an increasingly valuable tool for soldiers, who are able to monitor the information from the nearby bases. Equipped with radar and cameras for use by U.S. troops in Afghanistan and Iraq to monitor insurgents, the blimp (shown in Texas, left) will be tested along the U.S-Mexico border. Now that the American bases in Afghanistan are being shut down, the blimps—which can cost \$1 million to \$5 million each—will be part of the massive flow of equipment leaving that country over the next two years. In south Texas, the military and border officials are trying out a 72-foot-long blimp made by TCOM LP of Columbia, Md. The blimp, which includes a battlefield sensor, is tethered to the ground by a cable that provides a communications link. Later this month, the test will expand to include another blimp equipped with different sensors. This spring, border officials conducted a test in Arizona of a yet another blimp that was fitted with a battlefield camera known as Kestrel, a system created by Logos Technologies Inc. of Fairfax, Virginia, that is capable of continuously monitoring a city-sized area of land for days at a time. Such cameras have been credited with helping U.S. soldiers in Afghanistan pinpoint insurgent attackers and avoid hidden bombs, said John Marion, director of the company’s persistent-surveillance division. Border officials said the technology, known as wide-area surveillance, has the potential to become another valuable part of the new monitoring project. “We do see wide-area surveillance becoming increasingly important in our quiver of technology,” said Mr. Borkowski. Ω





Voliris 901C Variable Geometry Airship Prototype – Rollout and First Flight

Moulins-Montbeugny Airfield, France: The small piloted prototype of the planned “Hydrogen Automatic Lightened Aircraft” lifted off for its first flight here on July 3, 2012.



Though known only to web-surfers outside France as just another airship proposal that offers to solve the paradox of cargo airship operations, the Voliris team graduated from the slick-looking internet-dream illustration stage into flight testing this past summer.



The Voliris concept varies the volume of the airship without ballonets or gas compression pumps. The prototype’s nominal volume of almost 32,000 ft³ can be varied by up to twenty percent. Initially the prototype is passive, but an “active volume control system” using cables is stated for installation early in the test program.



In the coming months the prototype will be testing hydrogen inflation, hydrogen propulsion, and hydrogen electrical power generation. The goal of the full-sized 30-ton capacity cargo airship will of course depend on continued support and development. Ω



Note: please refer to disclaimer notice pg. 24.

Outlook on Future Airship Technology for a Mass Transportation System by J. K. Bock, Berne-Coldewei, SLTA, Germany (short excerpt)

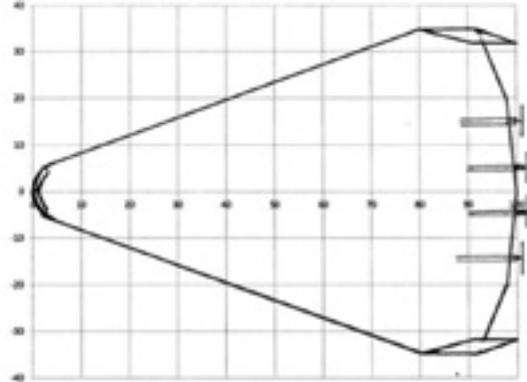
Airships, as well as heavier-than-air craft, have to be huge to be economical for mass transportation. One characteristic parameter is the ratio of empty weight to the maximum lifting power which should be in the order of 50 per cent as an engineering guideline. Temporary aircraft - as e.g. the Airbus family – reflect the engineering endeavors about the 50 per cent ratio to be a realistic value for airborne carriers, partially only achieved by the use of carbon fiber materials, resulting in a ratio of 48 to 49 percent in the case of the A-380. Interesting are the data for the *Hindenburg* (LZ-129) with 54 percent, which proves that zeppelins of that size were already at the brink of becoming economical carriers. The idealistic goal of a “weightless” aircraft goes back to John R. Fitzpatrick of the Aereon Corporation in Trenton, N.J., in the 1960s. He also designed the first experimental configuration of three side-by-side zeppelins which provided also substantial aerodynamic lift. The advantage of such a mix seemed to be convincing for the transport of mass goods as air freight. Based on the experiments with “lifting body” configurations of NASA for orbital reentry, the author developed a subsonic “lifting body airship” which was successfully flown by CDR Charlie Mills and John Olcott in the years 1969-71.



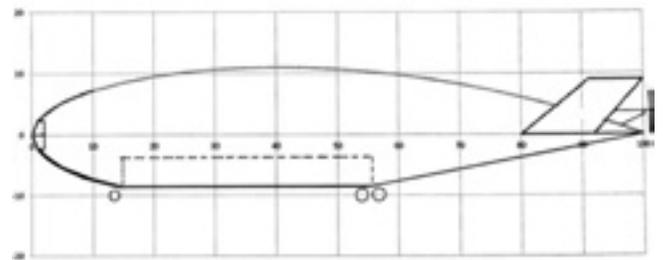
Aereon 26

The obvious advantage of a “weightless aircraft” - as a hybrid between an airship and a flying wing is that it requires only about half of the volume for lifting gas as compared with a buoyant airship. Variations of gas lift due to temperature and barometric air pressure can be more conveniently compensated by means of aerodynamic control.

The available useful load capacity equals about the aerostatic lift according to the previously discussed 50 percent ratio of empty weight and gross load. Consequently, not only the footprint ground pressure is reduced, but also Short-Take-Off-and Landings (STOL) are possible, a quite desirable property in the case of unprepared fields.



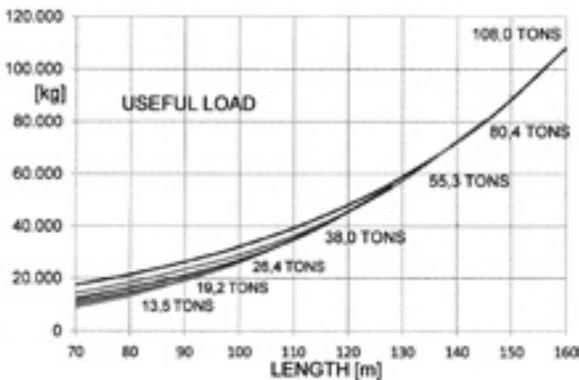
The plan view (above) of the investigated hybrid carrier is essentially the same as for the Aereon 26, except for the empennage. The aerodynamic aspect ratio is 1.23; minor deviations may depend on the final shape of the empennage. The wing of such a low aspect ratio has the advantage of being practically stall-free. Besides investigations have shown that, in spite of the induced drag, the Lift/Drag ratio is in the order of 10 for this type lifting body. A further comforting property is the moderate response to gusts compared with a conventional high-aspect ratio wing.



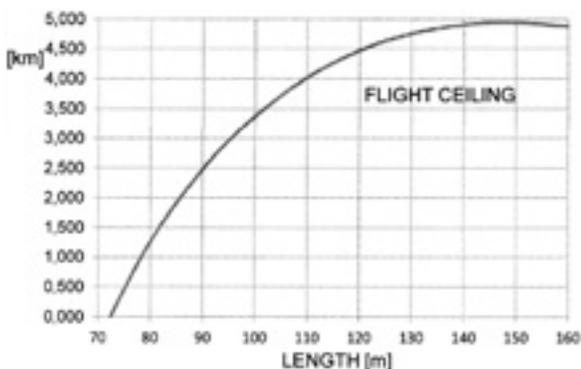
Side view (above) shows a slight modification of the symmetric Aereon profile, *i.e.* a flattening of the bottom for better access and improving the ground effect especially during take-off. This feature is also advantageous for landing on snow or on water. The lower inside volume is provided for the payload which may rest on the bottom of the compartment or be suspended from overhead rails. The rear bottom part is also flattened up to the trailing edge to allow a high scrape angle for STOL. The pilot's station is foreseen at the bow tip for best overview.

The equality of deadweight and aerostatic lift can be extended to useful load and aerodynamic lift, hence resulting in: Useful load = gas lift = aerodynamic lift = aerodynamic lift.

The latter one determines the airspeed at the optimum L/D (about 10 for the Aereon lifting body) being in the range of 100-150km/h), Subsequent diagram shows the overlapping useful loads from 70-160m carrier lengths. The resulting curve corresponds to the deadweight function and determines the degree of gas inflation which diminishes with growing size of the carrier.

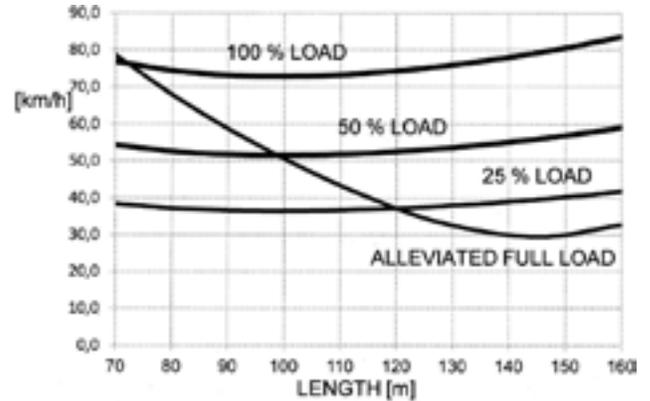


The largest type is 160m long and would correspond to the performance data of LZ-129 *Hindenburg* except for the autonomy with respect to ground operations and the flight altitude ceiling about 5,000m. On the other hand, the empty weight of types less than 70 m of overall length can no longer be fully supported by aerostatic lift, hence extra dynamic lift has to be produced by applying more propulsion power at the expense of diminished economy. The diminishing degree of inflation allows flight operations at higher altitude, as shown in subsequent diagram.

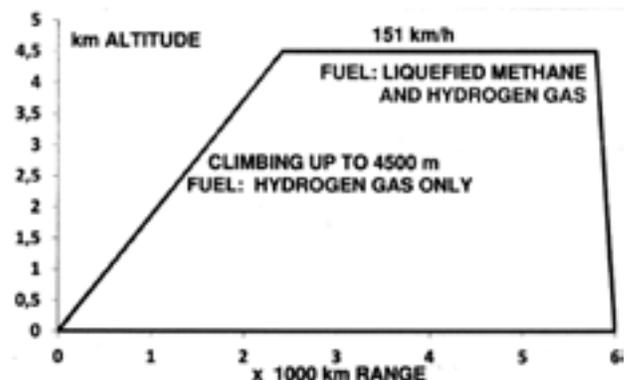


The resulting cruise airspeed at 4,880m altitude amounts to 151km/h and exceeds, therefore, the airspeed of known airship carriers.

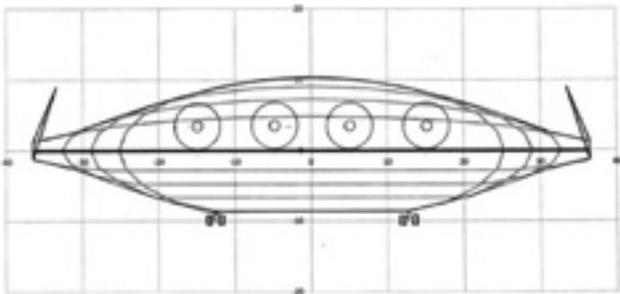
Take-off and climb-out is quite similar to fixed wing aircraft and requires extra power, albeit for a short time only. Although the angle of attack provides a considerable increase due to the scrape angle, the cruise power only would require a typical runway length, due to the inevitable acceleration of the airborne masses including the virtual mass of the displaced air.



However, STOL potential available by additional inflation with hydrogen up to 90 percent at ground level. The diagram indicates also the alleviation due to the additional aerostatic lift at full load, which leads to a considerable reduction of the ground pressure with growing size of the carrier. Moreover, by reducing the load, even VTOL is possible if needed. Needless to say that the actual load must not be increased under any circumstance due to structural limitations. However, there is a special clue if inflated with hydrogen, because hydrogen can be used as fuel for propulsion. While consumed, it can expand and allows gradually higher flight altitudes and air speeds. In forecast of the “hydrogen” age, one should appreciate the fact of having this kind of fuel practically pressureless and conveniently ready for use, instead of undergoing complex processes for storage and decompression. A typical flight profile is shown in this diagram.



It starts with a fully loaded carrier with 90 percent inflation with hydrogen. In the first phase of the flight, the carrier will exclusively use hydrogen gas as a propellant and will consequently not be affected by the usual trade-off between payload and fuel until the pressure altitude has been reached after approximately 2,500 km. At an altitude of about 4,500 m a mixture of liquefied methane and hydrogen will be used *e.g.* for a transatlantic flight at maximum cruise speed. As a preliminary result one may consider the hybrid as an operationally more flexible substitute and structurally more compact aircraft than the traditional fully buoyant airship. Further new aspects are explained in the following on the fuel and propulsion system.

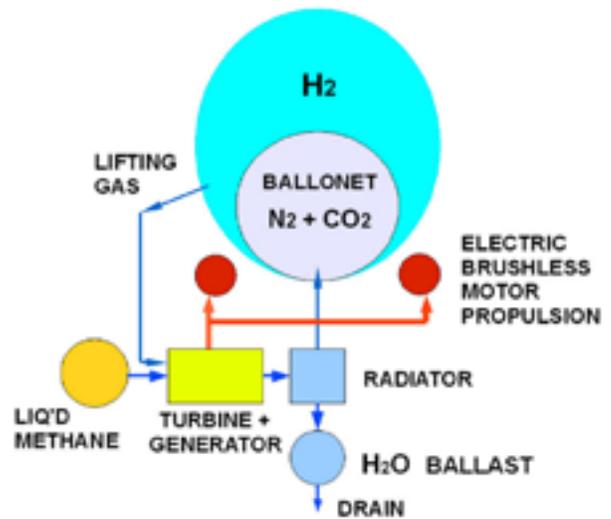


Four turbines provide the electric energy for four aft propellers of 7 meter diameter; each will be driven by a brushless electric motor of about 800 kilowatts, which would correspond to the parameters of one *Hindenburg* diesel engine. For take-off, climb and dash flights extra batteries may be foreseen to provide extra power for a limited time. The essential difference is the overall efficiency of this combination, *e.g.*:

	<i>Hindenburg</i>	Aereon-type Hybrid
Propeller efficiency	90%	80%
Diesel efficiency	30%	
		Turbine efficiency 45%
		Generator / Motor 90%
Overall	27%	32%

A major part of the exhaust gas from the propulsion system will be scooped by the ducts of the condenser system. The gasses are primarily nitrogen and carbon dioxide which will - as a fire safety measure - be ducted into the ballonnet system to displace the atmospheric oxygen. In addition the exhaust will contain a major portion of water vapor for the optional collection of safety ballast. The ecological aspect of low CO₂ emission is self-explanatory due to the recommended use of liquefied methane having high hydrogen content. As proposed by author at several occasions, hydrogen gas shall be utilized as lifting power as well as gaseous

fuel. since hydrogen provides about eight percent more lifting potential as compared with helium. Hydrogen as a fuel gas does not only improve the flight economy, but it serves also to warrant a routine refresher of the lifting gas since - under realistic conditions of standard flight operation - the lifting gas will be permanently subject to inevitable diffusion and increasing impurities over the time of operation. Routine hydrogen replenishment will thus maintain a high degree of purity for continuous carrier utilization in practice. It should also be noted that methane is lighter than kerosene of the same energy content, yet with considerably less CO₂ exhaust.



Gas / Fuel / Propulsion / Ballast - Concept

The payload will therefore profit from the substantial weight saving especially in the case of extended missions. Besides, the additional space of the hydrogen gas consumed would allow climbing towards higher altitudes, thus improving the fuel economy even more. The CO₂ output will be considerably less than for diesel or jet fuel.

In conclusion. the modified Aereon Lifting Body Airship is in its full size both a long-range transport and - with full inflation - an STOL carrier. The structural layout avoids stress concentration areas in flight similar to a flying wing aircraft. The utilization of hydrogen as both a lifting and a fuel gas is economically and ecologically very attractive, but requires a reliable safe-guarding technology. Ω

Disclaimer notice: Hydrogen, even in these theoretical discussions, for lift, or even as fuel, as well as actual use of hydrogen in current manned balloons and airships (as in the previous article), or even Boeing airplanes to power APUs, is not condoned by the publisher.

All-Weather Airship Operation of the US Navy

By Charles A. Mills, CDR USN (Ret)

1. Introduction

Having spent most of my life in aviation, and well over half of it in Lighter-Than-Air, I have both witnessed and been part of the progress in all-weather flight and ground operations of airships. Over the past decades then, I have observed how these experiences have been ignored and forgotten, and how new concepts are repeating the same mistakes that had already been identified and remedied some 40/50 years ago. The main reason for this set-back is the relatively low level of technical and operational requirements imposed on present days advertising airships: essentially fair-weather operations of low range and payload at minimum size and investment. While the Navy had to handle surveillance airships up to 1.5 million cu ft, ground handling and ground operations of present advertising ships can still be achieved with a relatively small standard ground crew with no or little mechanized equipment.

2. Flight Operations

2.1 Take-Off

Standard procedure was the airplane-type 'heavy' take-off from a runway with an excess weight of up to 8000 lbs, mainly fuel to increase range and endurance. For the ZPG-2, the lift-off occurred within 1000 ft, depending on wind conditions. Under extreme conditions, the full runway length was required. With the classical engine arrangement for non-rigid airship, however, a substantial pitch-up moment was generated which required an initial nose-heavy trim for compensation. The downward elevator provided, at the same time, an additional counteracting pitching moment as well as aerodynamic lift of the empennage.

2.2 Landing

Since 1948 it be standard procedure to land airships also slightly heavy at slight tail-heavy trim. This was possible after Willie Baker developed an operational ballast bag that allowed scooping of ballast water from the sea to compensate for fuel consumption. Until then, a "slow" approach was practised and a large ground crews had to be employed to catch the ropes, to slow the ship down and to pull it to the ground. Inexperienced pilots occasionally got 'blown off' by side gusts during the slow approach and had to go around again for a second

(or third) attempt. But all such nonsense ceased with the implementation of fast acting reverse pitch propellers, when the M-ship was introduced. The former practice of landing in near-equilibrium was abandoned in favor of slightly heavy landings, *i.e.* 500 to 1,000 lbs for the M-ship. Instead of the "slow" approach, a minimum approach speed of 25 to 30 knots was adopted as standard and after touchdown on the wheel - reverse pitch was applied, bringing the ship to a standstill, even on a no-wind day in about two ship lengths. With a 25 to 30 knots approach, excellent yaw control was available from rudder control alone until touchdown. If a side gust was then encountered, it was immediately countered with full rudder and - if needed - with full reverse on the windward side and forward thrust on the leeward side. Pilots were encouraged to practise landing with no crew in the field, stop the ship and then, by proper application of differential throttle and pitch, sit on the field for 5 to 10 minutes. Good pilots could hold the ship in a small circle with a diameter of between 1/4 and 1/2 ships length. The M-ship, with its engines located below the c.g. and c.b., and with the propeller thrust lines 21 ft. apart, could be held relatively motionless by a skilled pilot, even on a fairly gusty day. With the arrival of the ZPG-2 in the early Fifties, control was greatly enhanced: a moment arm of 33 1/2 ft. was now available which, when multiplied by the differential thrust supplied by the two 800 HP engines, each swinging a 16 ft. 7 in. propeller, gave essentially instantaneous response. Far less skill and lead time was required, and even mediocre pilots could hold the ship steady without a ground crew.

At South Weymouth, Massachusetts where I was in charge of an airship test project on icing, ZPG-2s were operated from three 150 ft. wide runways - no landing mat or field. Landings were made on the runway nearest to the wind, sometimes necessitating a "crab" angle over 40 degrees. Never in the two years that I ran the project did a ship drift or get blow off the runway, even with over 40 knots of wind. Since traffic at the field was fairly heavy, with many piston engine airplanes and many jets as well as airships, it was mandatory to abandon anything resembling a "slow" approach. The airships would normally enter the pattern at about 50 knots, slowing to 40 knots over the end of the runway, and to a

stop at the masting site, usually at the intersection of two runways. The excellent ground maneuvering properties of the ZPG-2 were also due to the introduction of a retractable landing gear in the two outboard propeller nacelles. Together with the bow wheel under the forward car, a stable tricycle wheel configuration prevented the occasional “leaning” of the car due to side forces, which sometimes resulted in “ground digging” of one of the propellers.

2.3 In-Flight Operations

Experienced airship pilots use to say that once in the air, weather is of less concern, because you are part of the atmosphere in which you are moving along. This is - with some exceptions - true and has been proven by a long record of successful airship flights under partially severe weather conditions. While high winds in themselves are no threat to the structural safety of an airship in flight, the limited airspeed may necessitate circumnavigation of barometric depressions to avoid high head winds. This technique of flying pressure patterns dates back to World War I German zeppelin operations. Thunderstorms should be avoided; however, experienced pilots have demonstrated during hundreds of flights in thunderstorms that a properly designed airship can safely fly in this environment. At any rate, modern weather forecasting, communications and constant weather report updates along with on-board radar could enable an airship to avoid a thunderstorm. The need to render proof that an airship-borne early warning radar system can be maintained under practically all weather conditions had motivated the Office of Naval Research in 1954 to assign to the Naval Air Development Unit at Weymouth, Mass., a project to demonstrate the all-weather capability of US Navy surveillance airships. The test ships were of the ZPG-2 type, having a volume of 27,600 cubic meters, a length of 105 meters and a maximum diameter of 22.6 meters. During the first two years, nine flights were made in weather conducive to icing, snow and other winter conditions. On the last two flights, ice accumulation was recorded. On one flight, intentionally ascending and descending through freezing rain, about 3,000 lbs of clear ice were accumulated. At no time, control or flight characteristic were changed, except for the static heaviness, and the crew become adapted to flying in icing conditions. As a result of these flights, several

minor modifications were made such as protective coatings, heaters for the pitot head etc. In the third year, three phases of flight operations were conducted:

Phase 1: a weekly flight of approximately 30 hours when the worst weather was predicted

Phase 2: a joint operation with a squadron from Lakehurst, NJ, to maintain a specific station for ten days in January when the worst winter conditions might be expected

Phase 3: a long simulated barrier flight from South Weyrnoth over the North Atlantic to another base along the Eastern seaboard

During Phase 1, seven flights were made with icing conditions encountered at two occasions. Phase 2 was scheduled from January 14 to 25, and the worst East Coast weather in many years was then experienced: icing, fog, sleet, snow, rain and gale winds were encountered. Eleven flights were made and the station was manned continuously for 240 hours, using five airships. The “icing” ship accounted for five of the test flights and spent 30 hours in icing conditions on one flight. Even though field conditions at Weymouth were rigorous, the operations were conducted off a mobile mast, the test ship was hangared only once for a regular maintenance check. Phase 3 began in March with the completion of an assigned 60-hour patrol mission across the North Atlantic. Then the ZPG-2 continued to circumnavigate the Atlantic without refuelling along the coasts of Portugal, Africa, Brazil, West Indies, and landed in Key West, Florida, after 11 days in the air.

3. Ground Operations

3.1 Standard Procedures

The classical ground rule says that airship landings require a large number of personnel which increases with the size of the airship. The answer is that this statement, while true, is false. It is true when speaking of ground handling ‘in the olden days’; but once mechanical mules came into being and were regularly used, it became false. We, in the Navy, used precisely the same number of personnel to handle the ZSG-3 (456,000 cu ft), ZSG-4 (527,000 cu ft), ZS2G (5K) (670,000 cu ft), ZPG-2 (975,000 cu ft), ZPG-2W (1,011,000 cu ft) and the ZPG-3W (1,516,300 cu ft). The lengths of the ships varied from 352 ft to 403 ft.

The number of personnel varied with the five evolutions as follows:

For undocking from a hangar:

Ground Handling Officer or Director	1
Tad Chief (or Director)	1
Mast Tractor Driver	1
Mule Drivers	2
Mule Winch Operators	2
Total	7

For Unmasting and Take-off:

Ground Handling Officer	1
Top Man on Mast	1
Mast Tractor Driver	1
Mule Drivers	2
Mule Winch Operators	2
Total	7

For Landing without Masting:

Ground Handling Officer	1
Mule Drivers	2
Mule Winch Operators	2
Total	5

For Masting after Landing:

Ground Handling Officer	1
Top Man on Mast	1
Mast Tractor Driver	1
Mast Winch Operator	1
Mule Drivers	2
Mule Winch Operators	2
Total	8

For Docking into Hangar:

Ground Handling Officer	1
Tail Chief	1
Mast Tractor Driver	1
Mule Drivers	2
Mule Winch Operators	2
Total	7



As can be seen from these listings, seven personnel were used for most operations with any of the ships, regardless of size. For intermediate landings and takeoffs - landings to discharge and pick up passengers - only five personnel were needed on the field, where the ship was not put on the mast, but just held with the mules. Only when the ship was put on the mast were eight personnel required.

3.2 Potential Improvements

From the foregoing it is obvious that the need for large numbers of ground handling personnel should have disappeared 35 years ago. In my opinion, further reduction can only come with improved ground equipment; for instance:

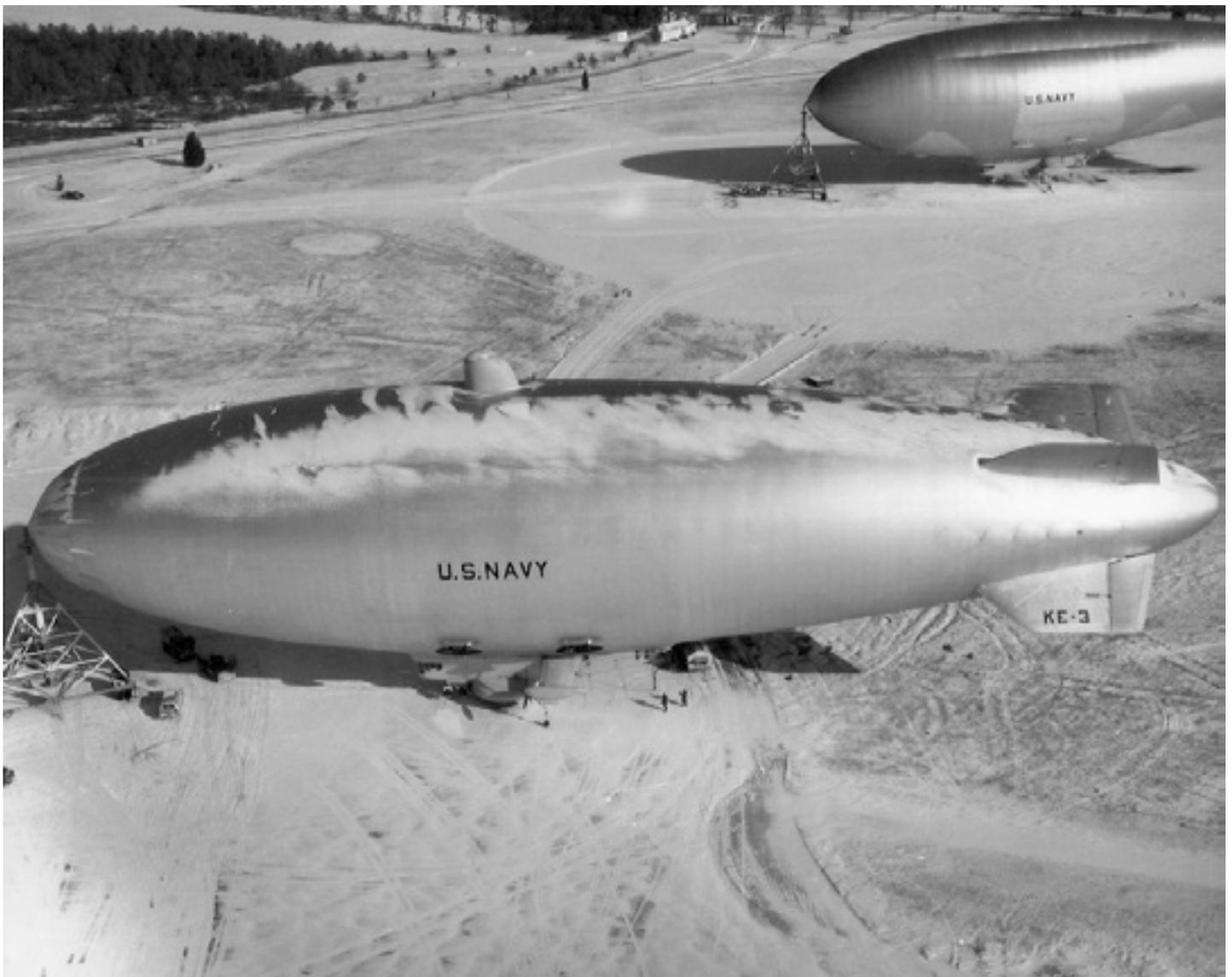
- remotely controlled mast head to eliminate the need for a top man on the mast
 - remotely controlled mast winch to replace the winch operator
 - mule driver also can handle the functions of the mule winch operator, with appropriately placed controls during undocking, docking, take-off and masting operations
 - mast tractor driver not needed in stick mast operations
- Unfortunately, one person for making the initial connection between each bow line and mule winch after landing is still necessary.

4. Comments on Vectored Thrust

Vectored thrust has been employed by several recent airship concepts, which allow the thrust vector to be turned by approximately ± 90 degrees. Vectored thrust certainly has its merits. It is excellent for heavy take-offs from confined fields and for making "light" landings in light winds. Properly designed, it can be a great help to the operator, especially for heavy take-offs with the engines mounted far aft and at an inclination in the order of 30 degrees up. In this configuration, 87 percent of the thrust would be available for horizontal acceleration and 50 percent for lift. The previously described pitch-up moment from propeller thrust during take-off would become negligible, and the ship could afford a slight static tail heavy-trim for better safety in gusty weather. For autonomous ground maneuvering under adverse wind conditions, however, one should always recall that horizontal thrust vectors for translatory motions

and yaw are of vital importance. This implies that the thrust line must be practically horizontal to render best efficiency. But, this is the case with the 'classical' airship, anyway. At several instances, I had the opportunity to observe the landing technique (or lack of it) of airships with vectored thrust, approaching the field slowly with the propellers vectored up to counteract heaviness. As they slowed to allow the landing party to catch the bow lines, they became so slow that all yaw control was lost, and the ship drifted away with a light crosswind shift. We watched landing maneuvers where the pilot, trying to land, got blown-off three times in a moderate wind. In conclusion, it has to be emphasized that, by experience, autonomous ground maneuvering and the reduction of ground crew depends - by no means - on the use of vectored thrust, especially when adverse weather conditions prevail. Ω

(Below: View from the mooring masthead as a "mule" is used to handle a bow line. Bottom: ZPG-2W prepares to launch while a ZPG-2, with a visibly painted envelope, weathervanes nearby.)



SHORT LINES

Helium Discovered In Moon's Atmosphere

The Boulder (CO) Daily Camera (8/22, Snider) reports, "An instrument designed by the Southwest Research Institute in Boulder has confirmed the presence of helium in the wispy lunar atmosphere and opened the door to pinpointing whether the light gas is blown to the moon on the solar wind or whether it's released internally via 'moonquakes.'" The Lunar Reconnaissance Orbiter's Lyman Alpha Mapping Project (LAMP) made the discovery and is "allowing scientists to track helium concentrations over time and use those findings to puzzle out the source of the helium, said Boulder scientist Alan Stern, LAMP principal investigator and lead author of the study." Stern said the helium find is "just gravy" after discovering the spectral signature for water ice on the moon.



Rick M. Saccone (left), inventor and vice president and Jeffrey E. Wilhite, president and CEO, stand next a generator and small engine that run on compressed hydrogen using technology developed by Saccone during the Hydrogen Technologies LLC press conference in the Akron Global Business Accelerator Wednesday. (Paul Tople/Akron Beacon Journal)

Startup has big dreams for small hydro-fueled engines

By Katie Byard Akron Beacon Journal (excerpt)

Partners in an Akron startup called Hydrogen Energy Systems LLC showed their patented Mixing Block system, which delivers the right mix of hydrogen and air to successfully and efficiently run small internal combustion engines used in lawn mowers and outdoor power equipment, among other devices.

Ed. asked H2 Components to comment: "I notice that the O2 is almost 15%. That is so lean that the engine is barely overcoming its own friction. If you want to make useful power from a H2 engine, you need to get down

to 7% O2 or less. That is where they will encounter backfiring problems." Ω



2 Aluminum atoms and 3 water molecules react to form one aluminum oxide molecule and 3 hydrogen (H₂) molecules

Replacing Gasoline with Aluminum? (D. Sigler)

Alchemy Research in Israel makes the following rather startling claims. "Alydro... producing clean energy from a reaction of aluminum and water at elevated temperatures... aluminum has 2.5 times the energy density of gasoline, about 84 mega Joules per liter or 23.3 kilowatt hours. Aluminum has about 8.6 kilowatt hours per kilogram, considerably more energy dense than lithium batteries..."

Ed. asked Dr. Addison Bain to comment: "H2 from aluminum, just another "metallic catalytic" process. As usual the claims are screwy. a.k.a Browns gas!" Ω

Pentagon Criticized For Spending On Biofuel

"Russia Today" (7/17) reports, "If you were mad about \$4 per gallon of gas, think about this: the Air Force is spending \$59 per gallon on 'green biofuel' that supposedly has to compete with traditional petroleum jet fuel." The article notes this is more than twice what the Navy paid per gallon for its Great Green Fleet demonstration that "is already angering some US lawmakers." The article calls these biofuel demonstrations "examples of wasteful spending" by the Pentagon, even though the Pentagon says it is spending up to \$400 per gallon delivering fuel to field operations. Ω

Airbus To Test Hydrogen Fuel Cell For Nonpropulsion Systems.

"Technology Review" (8/6, Graham-Rowe) reports, "Airbus plans flight tests of a fuel-cell system that could reduce fuel consumption by as much as 15 percent simply by powering an aircraft's nonpropulsion systems - such as the lights, the entertainment system, and the environmental controls." A hydrogen fuel cell "will be installed into an A320 owned by the German Aerospace Center with the aim of commencing test flights by 2015." Ω

Report Finds UAV Operations Only Slightly Cheaper Than Manned Planes

The US News and World Report (8/22, Bennett) "Dotmil" blog reports, "Military drones are only slightly cheaper than manned warplanes,

and data indicates the remotely piloted aircraft also are more prone to mishaps, a new report says.” The American Security Project (ASP) released the report that found UAV operations require “a large crew” of over 80 people. According to the article, the findings in the report are a “blow to drone proponents.” Ω

Study: Challenger Explosion (SIC) One Of The Most Memorable TV Moments The AP (7/12, Bauder) reports, The Sept. 11, 2001 terrorist attack is by far the most memorable moment shared by television viewers during the past 50 years, a study concluded. Sony and Nielsen conducted the survey. The “other biggest TV events, in order, were the 1995 verdict in O.J. Simpson’s murder trial, the *Challenger* space shuttle explosion in 1986 and the death of Osama bin Laden last year, the survey found.” Ω

Ed. notes the media still envisions both OV-099 and LZ-129 accidents as “explosions.”

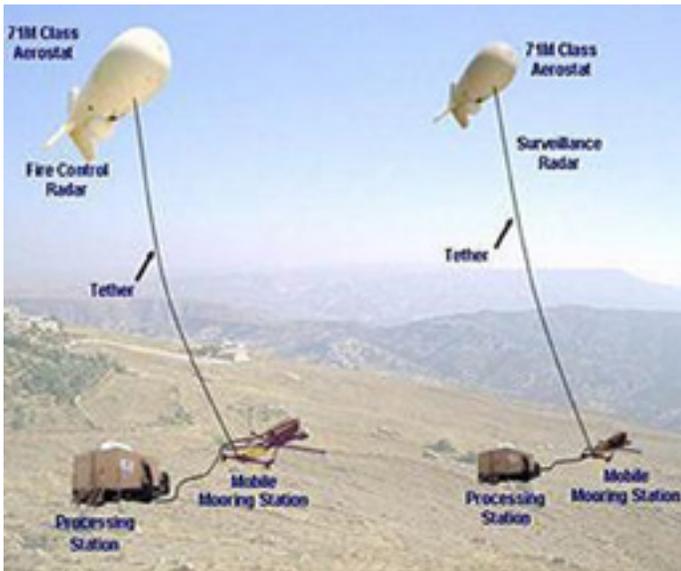


Up in the air over the ride of a lifetime (excerpt) Kristen A. Graham, Philadelphia Inquirer. Other people yearn for big things like sparkly jewelry, grand houses, massive fortunes. But my mother - Jean Metzger Graham - has always had another fascination. Blimps. Yes, blimps. Mom has lived her entire life in Northeast Philadelphia, and is the sort of person who rarely asks for anything for herself. But ever since she was a child, she has always dreamed of riding in a blimp. The morning of our ride dawned overcast, with rain on the radar. We worried, because blimps don’t fly in bad weather. We drove to the company’s Wingfoot Lake airship base, set in a pretty, pastoral patch of the world. After a short ride in a company van, there it was in front of us - the 192-foot *Spirit of Goodyear*. All we could do was marvel. A 20-person team was on the ground, readying our ride - mechanics, technicians, ground crew members, a pilot. Finally, it was time to go. We walked one by one up a small stepladder into the gondola, or passenger cabin,

affixed to the bottom of the envelope, the part of the blimp that contains the helium gas. Once Mom, Aunt Kathleen, and I were seated - no seat belts, just headsets to hear one another over the din inside the blimp - the crew adjusted the blimp’s weight to ours, removing some of the ballast, 25-pound bags filled with stainless steel pellets. Pilot Jerry Hissem, a 15-year Goodyear veteran, used two rudder pedals (to steer left and right) and a massive wooden elevator wheel (to pitch us up or down) to gain altitude. As we climbed to 1,000 feet, the drop in atmospheric pressure caused the helium to expand, and Hissem released air through valves on the bottom of the blimp. Our ride was lovely - placid and relaxing, a 30-mile-per-hour cruise around downtown Akron. Because we were flying so low and slow, I saw things I would have missed had I been in a plane or helicopter - a child jumping into a swimming pool, a structure with “Hi Blimp!” painted on its roof. After about 45 minutes, it was time to return to the ground, and Hissem steered us into a perfect landing as our crew waited. Flying the blimp can be hard, physical work - there’s no hydraulic assist, and a pilot might need to half stand to execute a maneuver on a particularly turbulent day. Did the ride match the expectations she had built up after a lifetime of blimp dreams? “It was just amazing,” Mom said.” Ω

Boeing Tests Fuel Cells For Planes KING-TV Seattle (9/26, Farley) website reports, “An experiment into the practicality” of using fuel cells on airplanes instead of jet fuel “is now underway at Boeing Field. Boeing is testing a new American Airlines 737-800 that’s equipped with a giant fuel cell...takes up most of the aft baggage well.” This is being tested on Boeing’s Eco-Demonstrator, According to the article, fuel cell use on planes has been “problematic” because they use flammable hydrogen. Boeing, which does not believe the technology is ready yet for commercial use, “says ways need to be found to make the system safe - possibly by keeping the fuel cell’s hydrogen outside of the pressurized part of the plane, such as in the tail behind the rear pres. bulkhead.” Ω

Army certifies soldiers with JLENS (Space Daily) In June 2012, the first class of U.S. Army soldiers completed mission operator training on the Raytheon JLENS elevated, persistent over-the-horizon sensor system. JLENS uses a powerful integrated radar system to detect, track and target a variety of threats.



\$2 Billion Later, Bloated Spy Blimp [sic] Finally Kills a Cruise Missile By Robert Beckhusen

For the first time, one of the Pentagon’s spy blimps successfully detected and tracked an anti-ship cruise missile, which the Navy then proceeded to blast out of the sky. But it’s only a marginal success for the once-hyped blimp program. Once sweeping in scale and designed to use radars to help shoot down enemy missiles — a threat we could potentially face during a war with Iran — the blimps have seen drastic cuts after nearly \$2 billion in development costs and years of delays.

The Raytheon-designed spy blimps, called the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor or JLENS, used its radars to home in on a test cruise missile during a demonstration Friday at White Sands Missile Range in New Mexico. After the blimps detected the test missile, the Navy fired a Standard Missile-6 interceptor and shot the incoming missile down. ”It was a very successful intercept, and I’m pleased to say lots of pieces of the target scattered over the desert,” Mark Rose, Raytheon’s program director, told reporters during a teleconference Monday.

And on paper, the blimps sound better than in practice. Seventy-five meters long and almost as wide as a football field, a JLENS is actually not one — but two — blimps touted as a missile-defense radar in the sky. The Pentagon has hoped for years to field the blimps — designed to float at 10,000 feet for up to a month at a time — as a tool for tracking missiles, planes and boats.

In the event of a war with Iran, the blimps are designed to float calmly above the Persian Gulf, while

defending against incoming missiles that could sink ships. The blimps’ sensor range — about 342 miles — reaches farther than the Air Force’s E-3 Sentry early-warning plane, while staying on guard for longer and using less fuel and manpower. The sensor range also reaches far enough that it could cover a sizable chunk of the Gulf including the strategic Strait of Hormuz waterway.

But the JLENS also has an inglorious history. First proposed in 1998, the Pentagon had by 2007 planned to build 28 blimps — divided into 14 pairs of two when deployed — at a total cost of \$1.4 billion. By 2012, the military had already spent \$1.9 billion, more than the original cost, and didn’t have a single blimp ready to go. The program also needed another sum of \$6 billion to field all the blimps by the year 2014.

The program was also running into problems. A mobile mooring station, which anchored the blimps, was delayed; it needed more armor than originally envisioned. The software powering the radars was also incompatible with a similar Army air defense system, which forced another delay so the military could standardize the two networks. In the fall of 2010, a prototype was destroyed when a commercial airship crashed into it after becoming unmoored during inclement weather. That further added to costs as the Army built a replacement.

This year, the Pentagon all but killed it. The 14 pairs of blimps turned into two, which is expected to save \$2 billion in costs. A March report from the Government Accountability Office noted the JLENS now has a “stable design” (.pdf) after fixing bugs with the software, but noted that design changes still pose a risk that the whole project could be canceled.

But the two survivors, including the one tested last week, are still slated to be completed. The blimp’s developer has also pushed hard to sell it. The blimps are “significantly less expensive to operate than a fixed-wing surveillance aircraft because it takes less than half the manpower to operate and has a negligible maintenance and fuel cost,” Raytheon vice president David Gulla said in September.

But the cost isn’t so negligible given the billions spent, and the billions more required to field them in any substantial number. It’s still a wonder how they’ve managed to survive for this long. Ω

HISTORY COMMITTEE (STATUS REPORT)

ITEM 1. The vast majority of progress this year has been from an outpouring of documents recently surfaced by Herman Spahr: A huge box of photographs and documents that he'd squirreled away when NAS Lakehurst was purging its LTA records. (Including the "Official History of Postwar Navy LTA" and shots like this rare look inside a ZPG-2.) Herman also found and has copied original movies which he had shot of several key LTA events in the late fifties. What must we do to be legally able to use the Official Navy Photographs which have been stamped NOT FOR PUBLICATION, we wonder. Herman also supplied two of the latest Pilots registers; we now have five points in time, the official lists of all Navy (officer) Pilots qualified as airship pilots: 1944, '45, '58, '59, and 1960. Herman found photographs of the first post-war training classes, and the names, which we should be running in an upcoming NOON BALLOON. It also generated a number of new names and corrections to my data base; I still have nearly six hundred postwar pilots and observers that we don't have a qualification date or location for.) Stacks of documents which members and former members have recently provided to him. Don Kaiser has greatly expanded his histories of selected WWII airship squadrons, on his website, which is linked to ours.



It bears repeating, few pilots served more than one tour, most less than two years in LTA. Most of today's airship crews have been flying for five or more years. But they could still learn from our experiences.

ITEM 2. A large proportion of our members do not have an E-mail address, and we don't have a fix on the capability of those that do. I've discovered to my chagrin, that many can't accept large photos, or PowerPoint. According to the service's stats, very few members or non-members visit our website regularly. While posting a personal history is difficult, it is not a reliable method of communication.

ITEM 3. Several of our members are Museums, with particular interest in Airships and Lighter-than-air in general. Tony has been instrumental in establishing the most recent one. Perhaps we can make arrangements for a repository, available to each of these Museums (and to any College or University that may become interested in Airship history.)

– Al Robbins





Pat and Robert “Robin” Wood Jr. (from left) with Robert Wood Sr. on the back of the Moonlight Maid, formerly the sub chaser that Robert Wood Sr. served on in World War II. (excerpt from article)

Divers searching to prove story of sunken enemy sub off Oregon coast By Lori Tobias, The Oregonian

The call to sub chaser SC-536 came at night on May 19, 1943. A patrol boat had made contact with at least one enemy submarine off the Oregon coast, but was out of depth charges. With guidance from two Navy blimps, the crew on SC-536 headed out of Astoria to join the hunt. What happened in the coming hours is as clear to Robert Wood, now 93, as when it happened. “The blimp sent us a message saying our charge had made a direct hit on the sub and sunk it,” Wood recalled by telephone from his Tennessee home. “We felt mighty honored that we had done that because that was our job, to try to find Japanese subs and sink them. We were a happy bunch of sailors.” But they were about to become a disappointed bunch of sailors. When the sub chaser’s executive officer arrived in Seattle with Wood’s typed report, the admiral insisted it never happened. Now, a group of divers believes it’s on the cusp of proving Wood’s claim, with evidence of a sunken vessel in an undisclosed area off Cape Lookout. They’ve got the images from an infrared camera, Wood’s recently declassified original logs and personal stories that have persisted for decades. On the night of May 19, the sub chaser crew got a call from the USS PC-815, a newly commissioned Navy ship, built in Portland and under the command of L. Ron Hubbard. “We heard the right kind of ping off Cape Lookout,” Wood said. “We were just fortunate in picking it up. I think at that time we called John Beck to be sure it was a sub.” The crew on the

sub chaser dropped a total of 12 depth charges at 200 and 300 feet under the direction of the PC-815, Wood said. “The signalman on the blimp made the report to me, ‘You have found the sub and you have made a direct hit and you have sunk the sub,’” he said. The crew members also believed they may have damaged a second smaller sub. And they had their evidence -- an oil slick and blood in the water, Wood said. Later, locals would report finding material from the wreck washed ashore. The sub chaser returned to homeport in Astoria on May 22... Kroepke returned with the troubling news that Admiral Frank Jack Fletcher, commander of the Northwestern Sea Frontier, had denied their claim. “It upset me that the admiral denied it when he had all the proof that he needed,” Wood said. The denial puzzled the men, but 44 years later, they got the only explanation that would come. “Admiral Fletcher showed him a map of the Pacific and said, ‘Here is Astoria, Hawaii, the Marianas, Marshall Islands and there is Guadalcanal. I will tell you one thing, Kroepke -- the war is not in Astoria, it’s in Guadalcanal.’” Wood (right, in 1943) believes the government denied the incident for fear of upsetting residents in Oregon and Washington. “It would have been bad publicity,” he said. Since 2007, Wallis, who lives in New Mexico, and her team of divers have been trying to prove otherwise. They’ve spent \$20,000, most of it their own money, and have made 10 diving excursions. Wood’s son, Robert “Robin” Wood Jr., also recalled a handwritten note to Kroepke from L. Ron Hubbard commending the crew for the sinking the sub. Wallis believes it’s only matter of time before her team reaches the vessel if other divers don’t beat her to it. She hopes she’ll have the satisfaction of corroborating a story at least 69 years in the making told by people who refused to give up. “I couldn’t believe someone would spend a life telling a story and no one would listen,” Wallis said. She doesn’t dive, but knows how to do the camera work involved. So she resolved: “Let’s tell the story and maybe someone will listen.” That’s all Robert Wood asks. “That would please me greatly if they could get down there,” he said. Not only to back up his word, but for the families of the crew who never knew what became of the men. “After all,” said Wood. “They were human beings too.” Ω



MEDIA WATCH

Fundamentals of Aircraft and Airship Design Vol II

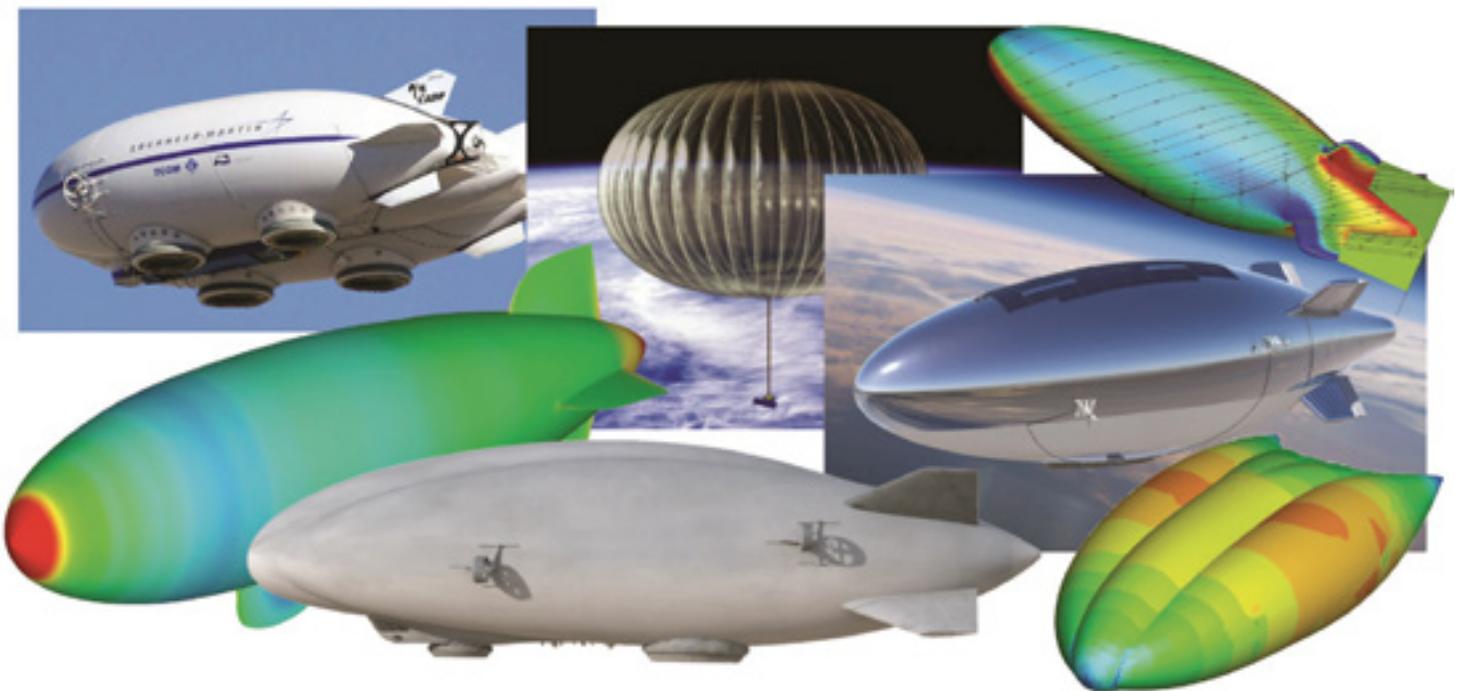
*The first new book covering Airship Design to be published in the US for decades is coming soon. We asked NAA member and co-author **Grant Carichner** to tell NOON BALLOON readers about the work:*

The original plan when we were writing “Fundamentals of Aircraft and Airship Design” was to have a single volume. About one year into the project we realized that the book would be too thick if both aircraft and airship designs were discussed. We suggested to the AIAA that the book become a 2-volume set with Volume I covering aircraft design and Volume II covering airship design. Everyone agreed.

Shortly thereafter we realized that Volume II could contain air vehicle design case studies and stay within the page count limit. We put together an initial list of 5 studies that we definitely wanted to include but were always open to other ideas on new inclusions. Ultimately the case studies expanded to a total of 9. These case studies include the SR-71, X-35 (F-35 prototype), Boeing 777, HondaJet, Hybrid Airship, Daedalus, Cessna 172, T-46A Trainer, and Hang Gliders. Each of these studies is written by someone who was on the program and/or intimately involved with its history. These stories are original and have not been published before.

There are 13 chapters in the airship design section that cover all aspects of designing an airship. Material is included to give the reader a fundamental understanding of the principles of buoyant vehicle design. This background is sufficient to complete the conceptual design of a conventional airship (body of revolution) or a hybrid airship. While there have been a few books that provide good reference material none of them combines the information into a design process. The book is rich with example problems. Especially helpful are the two detailed design problems for both conventional and hybrid airships. These problems both have step-by-step discussions of every calculation (50+) that is important in the design process. There are also 6 appendices with pertinent information helpful to designing an airship. One appendix writes about the real story on helium and its future availability. For the balloon enthusiasts the last chapter is devoted entirely to that class of buoyant vehicle. Written by Roger Farley of NASA it is the most current and comprehensive instructional material on balloon design that is available anywhere.

This 2nd volume has taken us three years to complete and is much more comprehensive than our original goals. What started out as an add-on to Volume I has turned into a unique book that is unlike any other technical book. In the end, we are proud of what we have created. Although there were many disagreements in its writing, our overall efforts ended up being a labor of love. Ω



Eerie voice in sky greets Akron in 1927

By Mark J. Price, Akron-Beacon Journal (excerpt)

Somewhere in the darkness, high above the glow of the city, a distant voice rang out from the clouds. “Good evening, ladies and gentlemen of the radio audience,” it crackled. “This is Graham McNamee.” World history was made in Akron on a chilly night in September 1927. Technically, world history was made over Akron. New York announcer Graham McNamee (1888-1942), the most famous personality in early radio, became the first man to broadcast from an airship. The exciting stunt was sponsored by the Akron Times-Press and Goodyear Tire & Rubber Co. in conjunction with the second annual Akron Radio Show at the Akron Armory. Radio buffs were invited to the show Sept. 21-24 to inspect the latest receiving sets, loudspeakers, power units, batteries, eliminators and other accessories “amid a gorgeous setting of stately columns, flowers and other attractive decorations.” Admission cost 35 cents and included musical entertainment by tenor Allen McQuhae, the Ina Arnold Chamberlin Banjo Band, the Blue Room Singers and the Shades of Moses Cleveland Quartet. Radio was still in its formative years in Akron. The city’s first licensed radio station, WOE, went on the air in 1922 but signed off in 1923. Akron’s second radio station, WADC, arrived in 1925. Buckeye Radio Service Co. on East Mill Street sold crystals, dials, tubes, condensers, wires and other equipment for Akron residents to build radio sets. Increasingly, however, companies sold consoles that were already put together. Visitors to the Akron Radio Show could ooh and ahh over the latest receivers, including the Kolster Model 6-D, the Sparton Model 6-26, the Bosch Cruiser, the King Crusader, the Crosley Bandbox, the Atwater Kent Model 33 and the Freshman Equaphase G-3. Paul Heasley, sales manager at Buckeye Radio Service, was the brains behind the broadcast from the Goodyear blimp *Pilgrim*. In less than 24 hours, he built, tested and installed a short-wave transmitter aboard the airship and set up a short-wave receiver in the armory. If all went as planned, the five-watt signal would then be relayed to WADC radio for a wider audience. Veteran pilot Carl Wollam served as McNamee’s captain on the *Pilgrim*, Goodyear’s first helium-filled commercial airship.



The silver blimp was 110 feet long and 32 feet in diameter, with a gas capacity of 56,000 cubic feet. Its enclosed gondola, finished in velour with polished aluminum and nickel, had room for one pilot and two passengers. Radio owners listened intently, waiting to hear one of the most recognizable voices on radio. “Good evening, ladies and gentlemen of the radio audience,” the announcer said. “This is Graham McNamee. I am aboard the Goodyear blimp *Pilgrim* and we are flying over the city of Akron.” Engineers cheered at the armory and patted each other on the back. The futuristic broadcast, which lasted no more than 20 minutes, must have sounded to WADC listeners like something out of a Jules Verne or H.G. Wells tale. A man in the sky was talking to them! “The voice from the clouds seemed eerie — a disembodied spirit,” the Times-Press reported. “But it came in. The great announcer’s voice told of watching the city as it lay beneath him. After circling overhead, Wollam set a return course for Wingfoot Lake and the announcer signed off. “This is Graham McNamee speaking. Good night, all.” McNamee returned to the armory to meet fans and talk about his adventure. “Don’t think I’ll forget that ride in the Goodyear pony blimp *Pilgrim*,” he said before leaving town. Ω

BLACK BLIMP

Edward Bethel Seeger, 95, of Worcester, Pennsylvania, passed May 7, 2012. Edward ranked first in his class at Pennsylvania Maritime Academy in 1939. During World War II he served as a Naval Aviator flying blimps on anti-submarine patrols. Edward earned the rank of Commander. A former longtime resident of Haddonfield, NJ, he was a vice president of Sales Engineering at Samuel Langston Co. in Camden, NJ. He is survived by his wife Barbara and sons Edward Jr. and Geoffrey and family. Ω

READY ROOM

DGLR-LTA-Workshop XIV, 1-2 March 2013, Bremen, Germany. Main topic: "Hybrid Technology." Ω

20th AIAA Lighter-Than-Air Systems Technology Conference, co-located with the 22nd AIAA Aerodynamic Decelerator Systems Technology Conference & Seminar and AIAA Balloon Systems Conference, Dates: Monday-Thursday, 25-28 March 2013. Location: Hilton Daytona Beach Oceanfront Resort, Daytona Beach, FL. Ω

LIGHTER SIDE



What the Team envisioned...



...and what the budget allowed. ☺



Above: LTA's answer to the Weiner mobile.... ☺

HAZARDOUS MATERIALS DATA SHEET

ELEMENT:	Woman
SYMBOL:	☺
DISCOVERER:	Adam
ATOMIC MASS:	Accepted as 55kg, but known to vary from 45kg to 225kg

PHYSICAL PROPERTIES

1. Body surface normally covered with film of powder and paint
2. Boils at absolutely nothing – freezes for no apparent reason
3. Found in various grades ranging from virgin material to common ore

CHEMICAL PROPERTIES

1. Reacts well to gold, platinum and all precious stones
2. Explodes spontaneously without reason or warning
3. The most powerful money reducing agent known to man

COMMON USE

1. Highly ornamental, especially in sports cars
2. Can greatly aid relaxation
3. Can be a very effective cleaning agent

HAZARDS

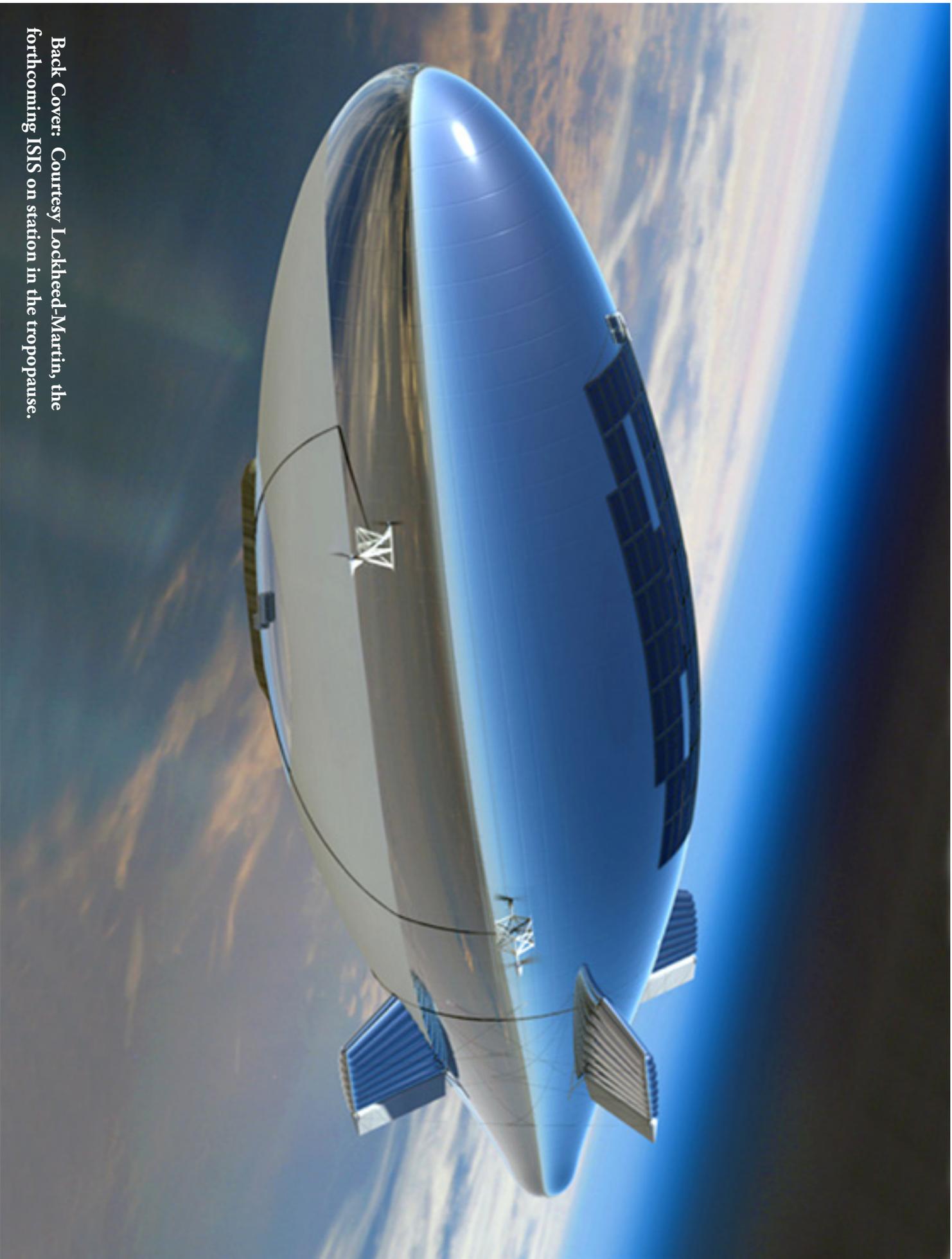
1. Turns green when placed alongside a superior specimen
2. Possession of more than one is possible but specimens must never make eye contact

The earthquake in Washington obviously was the government's fault. ☺



Webmaster Don Kaiser has located a Disney-inspired patch (below) that is thought to have been the emblem of the balloon training group at Moffett. We are asking if anyone can confirm or deny what it actually represents. Meanwhile enjoy this rare color shot of ZTFs going aloft to initiate airship pilots to be aware that an airship without engines is, after all, just a free balloon.





Back Cover: Courtesy Lockheed-Martin, the forthcoming ISIS on station in the tropopause.