THE NOON BALLOON

The Official Newsletter of THE NAVAL AIRSHIP ASSOCIATION, INC.

No. 86 SUMMER 2010

FIRST USN LTA DEPLOYMENT WEST SINCE 1961

See "On the Covers" on the next page about the big move!

Mike Kolasa supplied this image he took during a 1950s exercise with his ZP3Ks, helping a British researcher writing a book on aviation in Bermuda. See "Pigeon Cote" inside.

(Below) **Ross Wood** climbed atop his ZPG-2W for this interesting view of NASL hangars 1-2-3 and some of 4.

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On the Covers of TNB #86: Front: The first deployment of a US Navy airship across the Mississippi since 1961, MZ-3A (see page 13). At press time CWO **Anthony Atwood** e-mailed: "Over the three days of March 27-28-29th the historic Richmond Naval Air Station Administration Building was saved. This largest historic structure ever moved in the State of Florida was relocated a short distance from restricted-access private property onto the public access land of the Miami-Dade County Metro Zoo/Gold Coast Railroad Museum complex. The building will house the new Miami Military Museum and Veterans Memorial. The Administration Building is the last remaining wood frame structure of the Richmond Naval Air Station. The structure was also used during the Cold War and Cuban missile crisis as a United States base of clandestine operations. Saturday, April 24th, at 11 am, will be a formal Groundbreaking Event. Anthony, Executive Director and historian of the project can be contacted directly at 305-225-9165 or e-mailed at Anthony.Atwood@fiu.edu."

*In this issue member **Dave Hazen** shares his first balloon flight – which was also the Navy's last!*

The Naval Airship Association

www.naval-airships.org

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EDITORIAL

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Within our 50-50 news-history mix, the subset of accident discussion remains prominent, if not dominant. Recent message traffic concerning BuNo 135448's accident demonstrates the difficulty with re-creation, even by participants and even when recorded soon after the event. Levelheaded discussions should displace "battle," but emotions come into play; Lundi Moore, for example, quit the LTA Society over the specific time BuNo 144242's bag ruptured. Some accidents' mysteries, like the Pakistani airliner whose hard landing turned into a funeral pyre for 301 Muslim pilgrims in August of 1980, have never been solved. Accuracy is our goal, but I feel equal resources should be devoted to accident prevention in our pages.

Take the case of the lightning-struck ZP5K BuNo 13740 whose envelope burned in less than two minutes encouraged by pouring down rain.


Baltimore Sun

LIGHTNING HITS AND DESTROYS NAVY BLIMP

Huge New-Type Ship Is Burned In Georgia; One Man Injured

Bags were of course ignitable with much less current, shown by the 4K replacement envelope alone (ser # D-528) that burst into flames during its air inflation test. It may be wild speculation, but reoccurrence avoidance seems no more complex than engineering fabrics that nature can't ignite.

Likewise, **Rick Zitarosa** challenged me to "...name me three helium-inflated airships that burned and were lost with all aboard?" Sadly those would not be limited to K-25, K-51, K-64 and K-94. Like the nonfatal fire losses of K-42, -57, -58, -62, -102, -109, etc. the cause of many non-combat aircraft accidents can be traced to a failure that exposed air-contaminated petroleum to an ignition source. Updating fuel systems to modern robust standards goes without saying. Should we avoid talking about it? If the airship's future was limited to some combination of flammable envelopes demanding affordable helium lifting some petroleum fume-filled fuel cans, this journal would be 100% history.

Neither would I edit a 'World Is Flat' society newsletter. In the 50% news side, our members have come to grips with the disappearing resources of today's environment. Ironically, energy scarcity is an opportunity for LTA, beyond the "Z Prize" competition to build a zero-emissions airship.

In a recent article "...The Impact of Oil on Aviation and Daily Life," Walter Shawlee warns the recent high of $147/barrel was seen as survivable and not even caused by real shortage. Warning that viable airplane commerce has no alternative to petroleum and passenger jet travel stops at $8/gal., he's optimistic automobiles can convert to electric propulsion. In the air, he concludes, "While I can picture helium dirigibles in the future with electric steering motors powered by fuel cells or other electrical sources, I have trouble with the basic science magically making the leap to fuel cells or secondary batteries running a Boeing 747, Beech Bonanza or Bell Jet Ranger." Indeed.

By the mid-1880s electric-powered vehicles demonstrated short but repeatable navigation in our oceans of air and water. By the late 1920s submarines had complete control of their buoyant condition as long as they had fuel. An airship circled the world using its fuel to help manage its buoyant condition, and another was built fire-resistant.

Today we are quite capable of building an airship the equivalent of a non-nuke oceangoing submarine: fire resistant, and with complete control of its static condition as long as it has fuel. And we need to start it now. Long before either helium or petroleum wins the race to become first to be unaffordable, we need airships that can lift large antennas to high altitudes for cost-effective radar footprint-durations. We need airships that can carry sensitive gear that can find ultra quiet, cold, non-ferrous submarines carrying their 100-knot plus torpedoes, not to mention affordable countering of fleets of smuggler's plastic u-boats. We need cargo airships that can carry the low-density, medium-value bulk cargo of everyday life. If all the easily reachable oil really has been found, only airships can deliver oil rig and supplies to untapped Arctic fields well beyond roads.

I wouldn't be here if I wasn't sure LTA can prosper in the post-leaded gasoline (2017) and post-$100/cylinder helium era. If & when presented, we will continue to print arguments that suggest postponing the inevitable is somehow beneficial. But, let us also add accident prevention discussion to our pages. There are more ways to lose an airship than fire, and the majority of air accidents – even HTA – are survived. **Ω**

View From the Top: PRESIDENT'S MESSAGE

Few people are aware of all that happens "behind the scenes" in an organization such as ours. As President, I am privileged to know those who voluntarily contribute much time and effort in support of the Naval Airship Association. I want to share with you their names and some of the activities in which they are deeply involved.

Reunion 2010: **Peter Brouwer**, assisted by our West Coast Contingent (**Herb Parsons**, **Don A. Kaiser**, and **Neale Sausen**) have put together a memorable program which all of us will enjoy. You will receive individual invitations and information in the near future.

NAA Website: Our entire Membership will find their names listed on our new website. Preliminary information and pictures relating to our reunion are also posted. Former WebMaster **Michael J. Vinarick** has promised to transfer all of the historical information on file to **B. I. "Bo" Watwood** for insertion on the new webpage. Much of the preserved information relating to ASW Operations, carrier landings by airships, and air-sea rescue operations provided by Past President John Fahey did not appear on the original website and will be of immense historical value. "Bo" will be assisted in the transfer by **Ron C. Moore** (son of former VP **C. C. Moore**) and **John T. Moore** of Texas.

VP **Fred Morin**, assisted by several others, will assume the tedious task of cataloging and indexing all of the material for the convenience of Members and researchers who are interested in lighter-than-air operations. This is a time consuming and continuous project of vast importance, long overdue. A series of "Fact Sheets" are being prepared which will serve to correct many published misconceptions about the history and success of airship operations from about 1900 through the post-war period. After review by the Executive Council these "Fact Sheets" will also be posted on the website and made available to the general public.

100th Anniversary of Naval Aviation: Our organization has been invited to be a participant in this year-long celebration during 2011. VP **Fred Morin** has been designated as our Liaison Representative and is in frequent with the Staff Planning Committee of VADM **Thomas J. Kilcline**, USN. Several articles of historical significance have been submitted for consideration. You will hear more about this celebration during the coming months. I urge all who can, to attend the many celebrations which will be held throughout the US.

The NOON BALLOON: Our publication continues to receive constant praise. The success is due to the hard work of our Editor, **Richard G. Van Treuren**. Despite the many times Richard has been called away for his NASA duties, he has managed to assemble and produce our TNB on time. **Betty Brouwer**, Administrative Assistant, has volunteered to type many handwritten pieces submitted by our many contributors, putting them into proper format. None of their efforts would have been successful if it were not for the cooperative effort of our publisher, **David R. Smith** and his staff.

Nominating Committee: Chairman **Mort Eckhouse** reports that the Officer Nominating Committee is actively seeking a slate of officers to be presented at our Reunion. Members are: **Bob Ashford**, **Bob Forand**, **Albert Robbins** and **Daniel R. Toleno**.

My grateful thanks to all the above and the many unnamed contributors who continue to make our TNB an interesting professional publication.

- Herm Spahr, President

THE NOON BALLOON

Newsletter of the NAA

Volunteer Staff

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www.gyzep.com

MEMBERSHIP COMMITTEE UPDATE

As was reported in the previous Noon Balloon, the Executive Council met in November 2009 and it was decided that we needed to make some improvements in our website and databases to attract more members in the academic, aviation enthusiast and researcher areas. I am pleased to report that **Pete Brouwer** and **Bo Watwood** took on the job of redesigning the NAA website and that it is now up and running. Over time we will be adding significant content to the site, specifically historic articles, an index of History Committee holdings, an index of The Noon Balloon articles, technical articles and updates, and photographs. In this day and age, most people look to an organization's website for information on the organization, their benefits of membership and what they have to offer to researchers, enthusiasts, and members. The new NAA website will provide all this and will be a significant asset to our organization. Our direct mail campaign to colleges and universities, military history depts. and ROTC groups now has a substantial new benefit to offer. We will restart our direct mail campaign to those groups and others.

I recently reported on a student in a high school science class who was researching and building a radio-controlled blimp for his science project. I am very pleased to report that he captured third prize in the local science fair. He showed a good understanding of LTA principles, did thorough research into the subject, and built a scale model of the gondola with (3) operating, battery-powered engines. His only drawback was his inability to demonstrate a flight for the judges. High winds prevented an outdoor demonstration and the confines of the room and the other exhibits at the science fair prevented an indoor demo.

An interesting sidelight to this story is that I addressed a letter on NAA letterhead to the principal of the school and the student's science teacher complimenting the student and his project. Another science teacher saw the letter and approached me. She told me her father had flown blimps out of NAS So. Weymouth and was involved in the crash of ZP2K-85 off the N. Carolina coast in August, 1957. He wasn't aware of the Naval Airship Association, but I'm happy to report that with **Pete Brouwer's** able assistance we now have a new member, J**ohn Tkaczuk**. Please continue to be on the lookout for new members, you never know where they will be!

- Fred Morin, Chairman

TREASURER'S STRONGBOX

By this time, everyone who is planning to attend our reunion that will be held on September 24, 25, and 26 in Sunnyvale, California, should have made their reservations.

Note our new and improved website ! We encourage all our members that have internet access, with a valid e-mail address, begin using our new, revised NAA web site: www.naval-airships.org. Please use and enjoy. Note… you can also e-mail your fellow shipmates simply by clicking on their e-mail address in the membership roster. Contact me if you have any questions.

WELCOME TO OUR NEW MEMBERS

Francois Marc de Piolenc, Iligan City, Philippines
Owen Werth, Alpena, MI
Dane Werth, Alpena, MI
Paul Kieliszewski, Alpena, MI
John H. Cobb, Jr., Roswell, GA
Gerald W. Patrie, Fayetteville, GA
John A. Tkaczuk, Port St. Lucie, FL
William Althoff, White Horse Station, NJ (renew)
Andre Ledux, Titusville, FL

DONATIONS

Betsy Behny –
in memory of Herbert E. "Herb" Biedebach
Rosemary Belsito –
in memory of her father, Natale "Tony" Belsito
Walter Swistak
Mario Martine
Leonard B. Pouliot
Edward E. Miller
Stephen J. Ulrich
Robert Feuilloy
Dick Shively
John A. Fahey
Anthony L. Carrone "Larry"
Donald Maurer
John H. Cobb, Jr.
Gerald W. Patrie
Jack Freedman
Lou Prost
Fran Mayfield
Gloria Molander
Betty M. Gustafson
Barbara Dolan
Pat S. Seal
Dorothy A. Dannecker

- Peter F. Brouwer, Secretary/Treasurer

Pigeon Cote

Ed. received a request from author Tom Singfield of the U.K. for information on USN LTA in Bermuda. (See **Mike Kolasa's** *photo inside front cover.) We forwarded* **Bob Ashford's** *article from last issue and Tom then offered the rough draft paragraphs for correction. Put politely, it needed it.* **Herm Spahr** *responded first:* "Thank you Tom, for your interest in airships. I was one of two Command Duty Officers at Airship Squadron THREE (ZP-3), Lakehurst, N. J. during what is known as Operation Whole Gale, from Oct 1, 1959-31Mar 1960. One airship and two flight crews were transferred from Airborne Early Squadron ONE (ZW-1) on temporary additional duty to bring ZP-3 to war-time strength during the operations. LCDR Claude Makin was one of the Senior Pilots transferred with his crew. I think you may have co-mingled information concerning the three incidents you mentioned. I launched LCDR Maken in the ZPG-2 141560, in mid-February 1960 due to approaching severe weather in order to get it safely over warmer water and on station. Despite the fact we were in constant communication, at about 0200 the second day of flight, we received a SOS forwarded from Hawaii. When I questioned the airship regarding the message, I was advised they considered themselves low on fuel. They were instructed to divert to Bermuda.

At that time there was no aircraft, civilian or military, flying anywhere on the east coast. The entire surface task force was steaming downwind for comfort. A request was obtained from the Chief of Naval Operations for an operational flight clearance from NAS Lakehurst to Bermuda to land the airship. I was the Command Duty Officer dispatched in a R4D with a mast crew and in inflight crew to land the airship. The flight was made under instrument conditions at low altitude until well clear of the coast, where weather conditions improved.

We arrived a day prior to the airship. LT Ross Wood, from ZW-1 and his in-flight refueling crew, fueled the airship during the night, enabling it to fly until daylight hours and more favorable wind conditions permitted landing. The airship landed at about 0900 hours. There was a slight cross wind and a normal approach and landing was made. However, the inexperienced ground handling crew from the Naval Operating Base attempted to halt the forward movement of the airship, without waiting for it to come to a complete stop. The strain on the ground handling lines pulled the airship nose toward the ground and caused the nose wheel to collapse. The airship was almost immediately masted without further incident. The right side of the radome was slightly dented. The following day the airship returned to NAS Lakehurst without repair of the nose wheel.

No one wrote in about having known either Ginger or Greenwald in this photo. You…? **Ω**

For your information, I flew the final flight of a ZPG-2 to Bermuda with CAC 303. Our purpose was to inspect and preserve the airship mast and other equipment for long- term storage.

On our return flight we crossed the path of the HMS Queen Of Bermuda. I noted their flag hoist signaling for us to "Pass to Port". As we did so, the passengers lined the rail to take pictures as we passed at a low altitude. As a military courtesy, we exchanged salutes with the Queen lowering her flag to half staff.

A few weeks later I received a formal invitation from the Commanding Officer inviting "LCDR Herman G. Spahr and Crew 303 to a luncheon on board the Queen" when it was docked at New York City. The sister ship, HMS Monarch, was dry-docked alongside for repairs. Her officers and crew joined us for a memorable occasion.

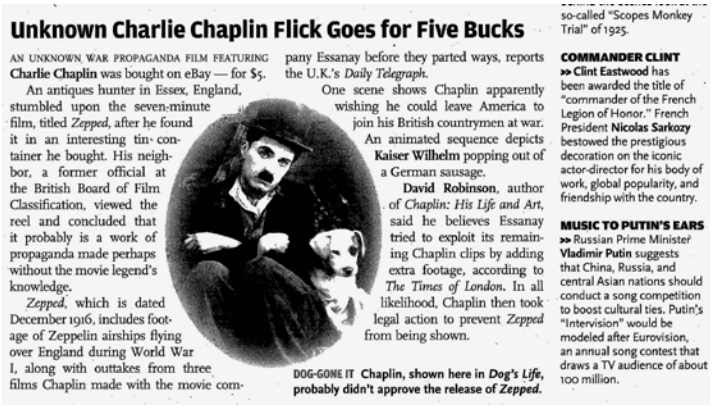
I am hopeful that the other addressees can provide you more correct details about the other incidents you relate. Bermuda did not have the facilities to repair a deflated airship for further flight. **Ω**

Indeed they did (con't next page):

George Allen also responded: "Reference (a) my LTA log book. 3 DEC 57 Departed NEL for "SALMON" a Loran fix about 200 miles east of Barnegat light, New Jersey. This was our operational site for the squadron's part of the Air Defense Identification Zone (ADIZ). Time of flight 47.6 hours. Normally this would have been a total of 33-36 hours. I was a LTJG, command pilot and LTJG Winchester was co-pilot. We were flying ZPG-2W BuNo 141335. A standard flight was 4-6 hours from takeoff to station and 6-8 hours station back to base depending on the head winds. From takeoff up to about 5 miles off Barnegat it was standard. Suddenly we were in a heavy wet snow storm. There must have been about 2,000 pounds of wet snow on the "roof". The nose went up to an altitude of 20 degrees and with full power on the engines we were slowly sinking into the Atlantic Ocean. We had picked up 2,000 pounds of salt water in preparation for landing. My attempt to dump this ballast did not seem to make any difference so I yelled to my co-pilot to maintain full power while I ran aft to physically open the valve. Immediately the ships altitude changed to 8-10 degrees and we stopped our descent. Amen. We contacted the base and said we would go south to NAS Weeksville. Going south while heading west we kept backing out to sea. A weather map was sent to us via radio. Within a couple of hours we coordinated a fly-over by a Coast Guard "Albatross". The Albatross reported 62 knots of wind. The 2-W could indicate 60 knots at full power so we went back out to sea despite our best efforts. The decision was made to fly to Bermuda arriving ahead of the storm. So at single engine we headed for Bermuda. We arrived at dawn. Meanwhile, on the ground arrangements were made for a LTA-qualified pilot to be heloed over to Kindley AFB where he assembled a ground handling party. Lt "Flip" Stromski had just finished a tour at Lakehurst. We knew each other and I was confident we would be able to land. We were unable to get the nose gear to lock down so we made the approach anyway since the front was coming rapidly. We were no sooner on the ground in the hands of the crew when we were pulled out of the ground crews' hands and at 300 feet altitude. Too often it has been our experience a sailor would hang on, we were fortunate no one had. We began our descent again with my request to Flip to pull the nose of the bag down on the ground. It worked and we finally "were in the cup". The base CO's vehicle was waiting to take me to his office where he proceeded to let me know he wasn't too happy with the position of the airship. Fortunately at this point my XO who had been circling above the field waiting for me to clear the runway so he could land and in turn land me, walked in. Eight days later after 19.2 hours of flight I landed at Lakehurst. My debrief with the CO was short and I effected my orders to go to Line School at Monterey, CA. During the 8 days we pumped helium in the ship to replace that which I had valved, removed the cracked radome which broke when we pulled the nose down and the nose landing gear folded. Needless to say it was a flight which I have recounted time and again for these past fifty plus years." **Ω**

Al Grappone e-mailed Ed., "I have posted an album of my WWII experience in LTA. You should be able to download any you think can be published from: http://gallery.me.com/blimpal#100029 **Ω**

Ford sent this in. No, really, Small Stores Chairman **Ford U. Ross** *sent this image of one of the handful of K-ships that found employment postwar carrying advertising. (Goodyear themselves tried one, the K-28, but found it too expensive to operate. Following retirement and storage, it is now being restored to wartime trim at the New England Air Museum. See back cover.)*



Unknown Charlie Chaplin Flick Goes for Five Bucks

AN UNKNOWN WAR PROPAGANDA FILM FEATURING **Charlie Chaplin** was bought on eBay — for $5.

An antiques hunter in Essex, England, stumbled upon the seven-minute film, titled *Zepped*, after he found it in an interesting tin container he bought. His neighbor, a former official at the British Board of Film Classification, viewed the reel and concluded that it probably is a work of propaganda made perhaps without the movie legend's knowledge.

Zepped, which is dated December 1916, includes footage of Zeppelin airships flying over England during World War I, along with outtakes from three films Chaplin made with the movie company Essanay before they parted ways, reports the U.K.'s *Daily Telegraph*.

One scene shows Chaplin apparently wishing he could leave America to join his British countrymen at war. An animated sequence depicts **Kaiser Wilhelm** popping out of a German sausage.

David Robinson, author of *Chaplin: His Life and Art*, said he believes Essanay tried to exploit its remaining Chaplin clips by adding extra footage, according to *The Times of London*. In all likelihood, Chaplin then took legal action to prevent *Zepped* from being shown.

DOG-GONE IT **Chaplin, shown here in *Dog's Life*, probably didn't approve the release of *Zepped*.**

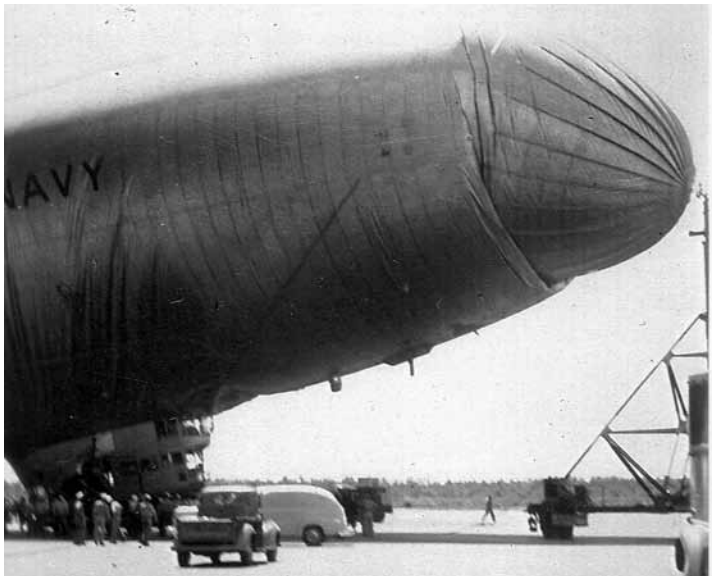
so-called "Scopes Monkey Trial" of 1925.

COMMANDER CLINT
» **Clint Eastwood** has been awarded the title of "commander of the French Legion of Honor." French President **Nicolas Sarkozy** bestowed the prestigious decoration on the iconic actor-director for his body of work, global popularity, and friendship with the country.

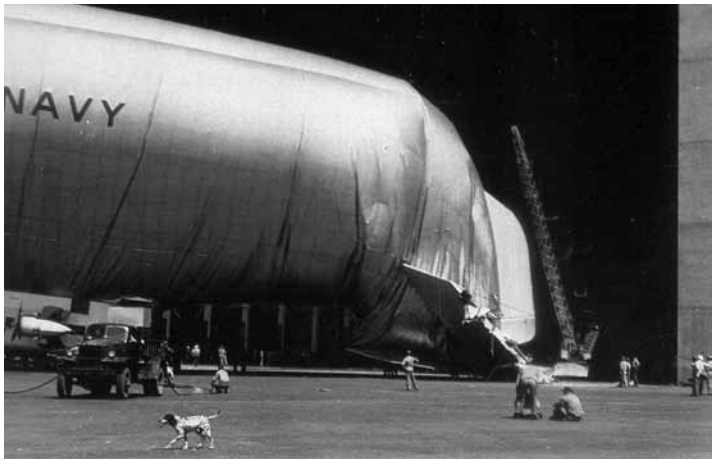
MUSIC TO PUTIN'S EARS
» Russian Prime Minister **Vladimir Putin** suggests that China, Russia, and central Asian nations should conduct a song competition to boost cultural ties. Putin's "Intervision" would be modeled after Eurovision, an annual song contest that draws a TV audience of about 100 million.

Ford Ross also offered corrections to the Brit's LTA-in-Bermuda story, then found this item had been sold on E-bay. Since those Brits probably had no clear motion pictures of Zeppelins in 1916, one can only wonder what this footage is - models were somewhat crude in those days, and the first complete animation Ed. is aware of was American propaganda about the sinking of the Lusitania. **Ω**

Rich McComb *shared many of his Dad's images; above is another.* **Ω**



Larry Corrone *mailed these photos and wrote,* " I called you 'while back about the K-59 ... I'm enclosing some photos. I happened to be there - I was stationed at ZP-3 in Hangar #5 next door. I think it was a Saturday morning, the Reserves were preparing to fly.



Normally there would be a man at the rear doors to crack them open to create a draft to prevent this. I was also in the crash of the K-43. If I can give you some info, let me know..."

Why yes, Larry, we'd like to hear it, and thanks for including how this accident could have been prevented. **Ω**

Ed. once made a motion that NAA investigate the airship hulk lying in the swamp off Brunswick (see inside back cover) to determine its pedigree and condition. No action was taken then, since there seemed little hope of doing anything with the hulk. Today nothing may be left since the 4K was evidently more easily corroded than other types. Now, a member may at least identify which 4K it was, as well as how the accident might have been prevented: **Edward G. Stephany** *writes:* "I was the pilot of ZSG-4, BuNo 131922 airship that crashed unceremoniously in the tidal swamp to the east of the field at NAS Glynco, at approximately 2300 on 10 December, 1957. At the time, I was an airship commander/flight instructor carrying a minimum crew and three students.

The Accident Board was convened sometime after Christmas leave. I was introduced to the board members and advised that my statement was sufficient. Not one of the board could figure out what happened and what caused it. Retired Captain **Vern Smith** was called and he explained the cause. He basically testified that the day had been warm, unseasonably; the helium less than pure, the cold night air had caused the helium to "shrink" in volume. This caused the ballonets to fill. The pressure was decreasing; the bags were full and trim was difficult. I tried to insure that the ballonets were full by holding the forward one closed manually. Bad call! It blew loudly. Overall, hard to maintain trim. Captain Smith further advised that the reason that the airship went vertical was that the cold night air would not mix with the helium and "rolled like a heavy ball" to the tail of the ship, causing it to go vertical.

Following is the statement of **LTJG E.G. STEPHANY** concerning accident ZSG-4 BuNo 131922 10 December 1957:

Took off 1820 for normal instructional night landing flight of which I was the instructor and AC. At approximately 2030, I made an intermediate landing to exchange students. Shortly thereafter, I noticed difficulty in maintaining trim of the airship and difficulty maintaining pressure. I subsequently had the rigger check the ballonet air valves to see if they were opening at a pressure below normal. They were. I also noted that the outside forward air valve was opening at an indicated l.4 inch pressure. After check for over pressure, I had the forward outside

valve tied off and I had the rigger stand by to close the inside forward air valve manually. With the about action taken, I was able to control trim and pressure safely and continued with the flight with full confidence that I had control of the airship. I called the tower and told them to notify the duty officer that my ship would be down on landing.

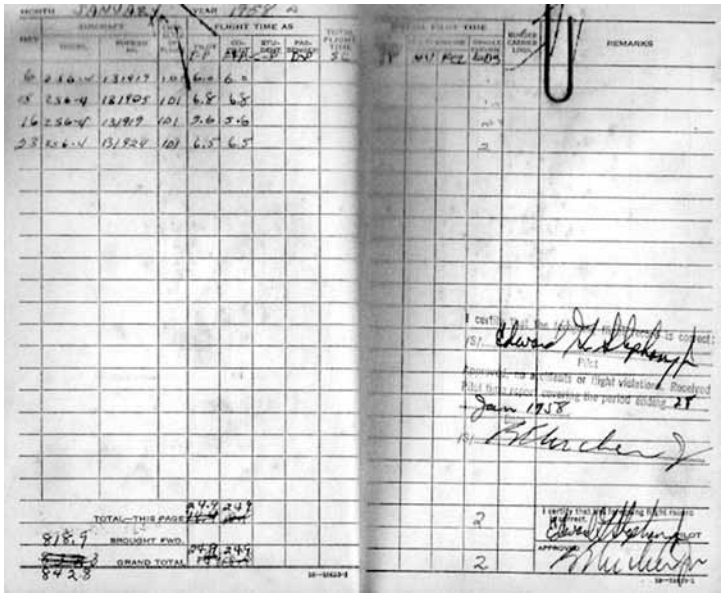
At 2320 (approx.) I was holding in the approach position prior to final landing just after having weighed-off the ship with a trim of 3 or 4 degrees up by the nose. Then without warning there was a sharp noise which I analyzed as the forward ballonet ripping and the ship assumed an extreme nose up altitude which I approximate to be between 60 and 80 degrees. As we had forty knots of air speed, we climbed rapidly. I immediately put in full down elevator; put both engines in full reverse in order to slow down and stall to a lower altitude. I was in the co-pilot seat and ENS WHEELER was in the pilot's seat. I told Wheeler to valve aft and told the rigger to rip air to helium. I then called "Mayday" and told of my difficulties. We attained an altitude of approximately 1200 feet before coming down. I controlled the rate of decent by using forward and reverse thrust as needed. I was able to control it fairly well by this means. The extreme nose up altitude caused a loss of directional control. After getting down to 200 feet, I attempted to hold there, but had difficulty. Noting that we were drifting seaward and noting that I was not improving my trim and expecting the car to tear loose from the envelope, I elected to ditch and rip the ship. I called my intentions over the radio and told the crew to prepare to ditch, ordering them to ditching stations.

I put the engines in full reverse. The tail hit first and the car came to the ground at which time I ordered the rigger out to grab the rip cord and rip the ship. We started to rise again due to the tail resting on the deck. At that time, I knocked the window out that held the rip cord and tossed the cord to the rigger on the ground. He attempted to pull it but the airship drifted towards him. I motioned him out of the way and commenced pulling it myself. I secured the engines and ordered all electrical gear secured. The ship ripped when we were approximately 25 feet up. We came down with a resounding crash at which time we all abandoned ship. Being separated, we attempted to find the others by cutting a hole in the bag and looking for them. They came around the side of the ship and all were accounted for. I then ran in and secured the APU.

One of the men, (BACON) had a badly cut finger. We got a first aid kit and dressed it. After counting noses and saying a prayer of thanks, we all went forward for a smoke.

The crew acted admirably through the whole incident and there was no sign of panic. I especially want to commend ENS WHEELER for his level-headedness and his fine job as co-pilot. His knowledge of emergency procedure was outstanding, far better that those expected of a student pilot.

In my opinion, the only way this accident could have been prevented would have been aborting the flight before takeoff or at first sign of any air system difficulties."



I applied to be released from active duty, my intention to attend law school at the University of Florida. I departed 31 January 1958. I never got a copy of the results from the board, naval courtesy notwithstanding. The log book reveals that I was kept busy until I left. As it turned out, Captain Smith was the lead pilot for the Goodyear airship division. He advised me that I had been completely absolved for cause and loss of the ship. He took me and my family up for a ride later in the year.

Fortunately, the Naval Reserve at NAS Jacksonville couldn't have cared less about my having a LTA log book. I stayed a reserve NA, having a command of 3 squadrons, S2F, SP2H and P3B. It has been fun reliving this. I thank you for the opportunity." **Ω**

...and thank you for the <u>prevention</u> discussion. Ed.

Arthur C. Clark, who passed away on 5 JAN 10, served in LTA in WWII. His notice also mentions a postwar career with Goodyear in blimps. **Herman "Tex" Dukes'** passing on to the "Fiddler's Green" (see "Black Blimp") followed travels with the Navy to many parts of the world, from Iceland to the Key West. Tex was part of the crew that set up the first tent city in Iceland in August, 1941. His favorite tale was about the Navy inventing "pink" alcohol for use as ballast in the blimps. Pink alcohol signified alcohol that had additives that would make you very sick if imbibed. It appears conventional alcohol disappeared regularly for some unknown reason. Within two days of distribution, the sailors of the US Navy figured out they could pour the pink stuff through a loaf of bread and the liquid coming out the bottom went down just fine! **Ω**

Herm Spar *got a call from* **Walt Ashe**: "He spoke about the mooring mast he rigged with a high pressure hose at the top and one at the bottom, which he used to save one of the airships at Lakehurst. I was there." "We talked for over an hour about people we both knew and served under, but who are now gone: Marion Eppes, Guy Balleau, Fred Klein, Max Cawley, Louie Strum, Larry Reagan, Pinky Hosmer, Doug Cordiner, Bob Shannon, Harold Van Gorder, Bob Colopy and many others." *Herm asked about* **George Allen**: "He told me you were one of the finest ZP3W pilots in the BIS system. He recalled the day you signed for the ship for delivery to the Navy. He said he had personally been ordered "never to sign for a BIS ship for which he had overall responsibility." For that reason he always had to fly as a co-pilot and you were the PAC… I asked if he was familiar with your experience with the ZP3W in the snow storm" *George replied*, "Gosh, I'd forgotten that trip. It was on that same flight they dove from 7000 feet down to about 2000 and "bent" the ship. I was up in the electronics space under the height finder radar. I saw the fold and reported it to the pilot and in my report to the BIS. This was the same ship that crashed and killed 18. It also folded when Dick Widdecomb flew over the field at Lakehurst. He went from about 500 to 1500 and it folded then also. Walter and I got along well. He had plans for me to make a special flight which never came about after the crash and the demise of the program. Those were the days... *George Allen remembered*, "For the record I was still in ZW-1 when I went to Bermuda, in a 2W, landed on Dec 5 and took off for NEL on 13 Dec, landed same day. The story gets embellished each time it is told!!" *George also e-mailed*, "In today's mail there was a letter from **John Barth's** daughter. She writes that Myra, John's wife, died 15 DEC 09. They would have celebrated their 69th anniversary New Years Eve. John was Maintenance Officer for AT&D while the 3W was in BIS and a regular attendee at NAA reunions up until the last couple of years. She says he is in good shape for a 92-year-old. She included John's new address. John Barth, c/o Ms Beverly Dress, 2809 Terrwood Dr. E. Macungie, PA 18062-8485. **Ω**

Member **John Moore** *wrote Treasurer:* "Was nice speaking with you the other day. The reunion in the Bay area next September sounds great. If possible, I would appreciate a brief mention in both your newsletter and internet site requesting NAA members to contact me with the names and phone numbers of any living veterans that were blimp pilots, flight crewmembers, ground personnel, or administrative (especially female) personnel stationed onboard any Naval Lighter-than-Air (LTA) Station (preferably, but not limited to, Hitchcock, Texas) during World War II. I am still awaiting contact from the Duke family. Your assistance is greatly appreciated. **Ω**
John is in the roster, and the need for Hitchcock information is critical. Please help, Ed.

Richard Higy *wrote in part,* "…at the end of 1945 I obtained a picture which I took to be a K-ship flying over Cleveland stadium., though it was a flight test… to my looking closer it had "US ARMY" plus <u>two</u> bottom fins. I checked James Shock's "US NAVY AIRSHIPS 1915-1962" and there was an article about the TC-13 of the US Army. Question: why was the double bottom fin not used later? I was in Lakehurst A & R and took care of fins topside. I remember in the early 30s my father woke me up to look out the bedroom window – one of the airships was going over, it must have been German. We lived like 2 miles south of the Goodyear hangar. All the lights were on and people looking out of the windows…" *Ed. sent Rich a copy of an earlier article covering the advanced features of the TCs that were not put into Goodyear's K-type, in 1937 thinking K-2 would just be another one-of-a-kind prototype with no gear to find subs "other than the human eyeball." Rich and his daughter dropped by Edgewater and donated two nicely framed photos, the TC-14 over Cleveland and the Graf Zeppelin over the Golden Gate.* **Ω**

Norm Mayer *e-mailed,* "George Spyrou was a good friend. *[See page 35]* I first met him during contract negotiations regarding Resorts International's purchase of an Airship Industries Skyship 600 airship. George was the lawyer representing AI. After he formed Airship Management, I met with him in Connecticut whenever I travelled there. On one of our visits, he took us (me, my wife, daughter, & grandson) to the Westchester airport where we boarded one of his airships for a 4-hour aerial tour of New York and vicinity. George well deserved the AIAA award for his leadership in lighter-than-air operations and development. His death is a great loss to me." **Ω**

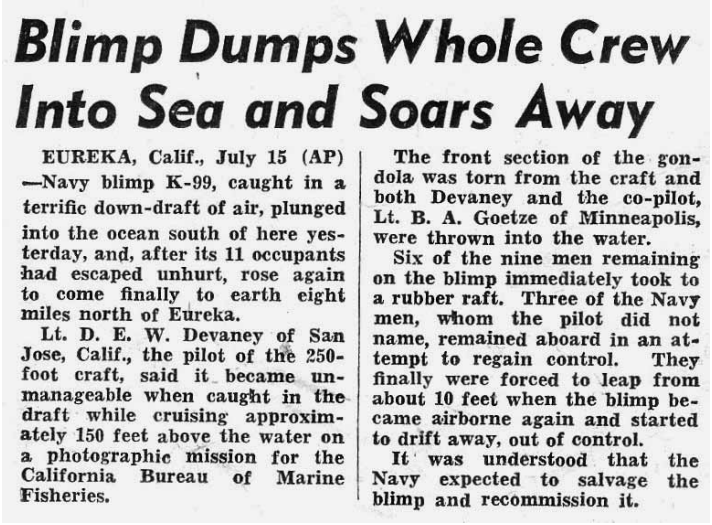
David "Dan" Chernow, class of 17, e-mailed: "It seems like a thousand years ago (1944) while sitting around the table at a staff meeting with Admiral Rosenthal to learn of a big review of all the rescue programs in existence to take place off shore the Jersey coast. In attendance would be every Navy bureau representative.

The admiral was determined to show the airships place in the theme of things. It was determined to have a party lifted from the seas on to a life ring lowered from a blimp hovering about 200 feet above. I need not tell you the difficulty of getting a ship to hover at practically no ground speed (even in ideal weather conditions) necessary to do the job. Two of us present volunteered to be the guinea pigs – I being one of them.

A practice run had a PT boat drop us off at sea, inflate our life jackets (Mae West) and tread water until the proper conditions were in place for the pick up. If you recall the standard life jackets had lines hanging at the bottom of the jacket which was attached to two cartridges which when pulled would inflate the jacket.

Unfortunately the lines being fairly snug when inflated nearly made a eunuch of me. Every move I made merely tightened the pressure in the crotch area. I was determined then that for the actual show there would be lots of room for comfortable expansion on the jacket straps.

On the day of the show the water dropped proceeded as planned. However, upon the pulling of the elongated line on the life jacket nothing happened. I proceeded to check out the problem and saw to my chagrin that the long extended lines had twisted around the cartridges locking them firmly in place. I spent the next half hour with my head in and out of the water trying to unsuccessfully untie the twisted straps. And so I treaded water until the actual pick up praying that the rescue ships present would not feel (with my head in and out of the water) was an emergency and not pull me onto the rescue vessels standing by for just such emergencies. And so ended another day in the annuals of airship lore." **Ω**



Blimp Dumps Whole Crew Into Sea and Soars Away

EUREKA, Calif., July 15 (AP) —Navy blimp K-99, caught in a terrific down-draft of air, plunged into the ocean south of here yesterday, and, after its 11 occupants had escaped unhurt, rose again to come finally to earth eight miles north of Eureka.

Lt. D. E. W. Devaney of San Jose, Calif., the pilot of the 250-foot craft, said it became unmanageable when caught in the draft while cruising approximately 150 feet above the water on a photographic mission for the California Bureau of Marine Fisheries.

The front section of the gondola was torn from the craft and both Devaney and the co-pilot, Lt. B. A. Goetze of Minneapolis, were thrown into the water.

Six of the nine men remaining on the blimp immediately took to a rubber raft. Three of the Navy men, whom the pilot did not name, remained aboard in an attempt to regain control. They finally were forced to leap from about 10 feet when the blimp became airborne again and started to drift away, out of control.

It was understood that the Navy expected to salvage the blimp and recommission it.

Bob Forand had sent the clipping above some time ago and the Editor has given up trying to find the picture we once had of K-99, bent worse than any banana, settled between two hills on the property of a logging company. Back when Ed. first heard about this incident he wondered if this might be the one chance we had of finding the remains of a WII-trim K-ship that, owing to the mild California forest climate, might be restorable. The late **Simon Beattie** dropped everything and took the visiting Ed. up the road to the company's timber preserve, pointing to the remote location in the distance – miles behind the locked gate. Many calls and letters later we were no closer to gaining permission to gain access for an inspection tour. Ed. happened to visit the SeeBee Museum in California, and in their LTA file – a photo rich report on the salvage of the K-99 car. Nothing there anymore either! *(See inside back cover for the richest stash in LTA.)*

Bob also sent documentation showing what was obviously official brouhaha concerning the wreck of the K-61. The memos from BuPers and a senior officer indicated Bob could not be considered for promotion while the judge Advocate General looked into the crash as "a matter of interest."

Bob added, "I wasn't even on the K-61!" **Ω**

Herman Van Dyk wrote, "When my article *"Dixmude:* The French Airship Disaster" went to press in TNB #82, the line drawing of the airship was not yet complete, lacking some information regarding the passenger cabin the French had added. I had not been able to obtain detailed information, in spite of having contacted almost any Air & Space museum I knew, including the huge and famous *Le Muséde Air et Espace* at Le Bourget, France.

After publication of TNB #82 Mr. **Andreas Horn**, Basel, Switzerland, located the missing information in the Zeppelin Museum, and was so very kind to share it with me. It allowed me to correct the drawing of *Dixmude*. In order to provide accurate information to our readers, I will mail a copy of the revised drawing to anyone who sends me a s.a.s.e at Herman Van Dyk, 7 Birchwood Ave. Peabody, MA 01960.

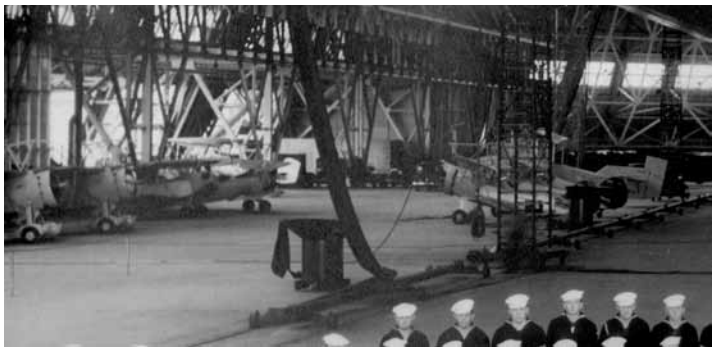
This author is very grateful to Andreas Horn and **Rick Zitarosa** for the additional information, as well as the extra photographs **Robert Feuilloy** provided. Thanks very much!" **Ω**

Robert Von Zeppelin sent along some photos of new items in his collection and wrote, "Keep up the good work on the NOON BALLOON as I am sure that must take a lot of work for the quality work you put out. With all the other airship projects you are involved with it is a wonder you find time to get any sleep." *Ed replies, "Huh? What?"* **Ω**

Robert Meyerowitz sent along copies of a 1964 *Mechanix Illustrated* whose cover story was the Aereon "3 Hull Dirigible." The article mentions "John R. Fitzpatrick, ex-Navy blimp pilot, designed the tri-hull and bossed its construction." Anyone remember Fitzpatrick? Ed. actually saw this craft in its Pennsylvania hangar years before he knew anything about airships, but Ed. has never read the Aereon's story in the book, "The Deltoid Pumpkinseed," so it's not obvious if this rigid is covered in the book. Just as **Al Robbins** is tackling the Slate family airship, so should some other knowledgeable member observe and report on the Aereon saga. We'd like to know it all – the design philosophy of adjusting the center of buoyancy dating back to Solomon Andrews trying to get President Lincoln to listen, to the successful prototype flights, to what might be done with the concept today, We're not getting any younger here! **Ω**

Tresur. rec'd an e-mail: "I read about the Navy Airship Association reunion on-line. Sunnyvale in September should be a great place to be! I am a member of the Universal Ship Cancellation Society (USCS), which is an international organization of 1200+ men and women, founded in 1932, who collect naval covers (postal pieces cancelled aboard Navy & Coast Guard ships and Marine Corps bases). We are committed to keeping alive the histories of the fine ships of our Navy, Marine Corps, & Coast Guard team, and the men & women who serve in them. Collecting airship covers, as you may know, is one of the most popular facets of naval cover collecting! Attached are scans of three *Macon* covers and a commemorative cover for the loss of *Shenandoah*, *Akron*, & *Macon*, and I thought that perhaps some of your shipmates might enjoy seeing them… To learn more about our society, please visit our web site at: www.uscs.org. If anyone wants more information about collecting naval covers and the USCS, they may contact me directly. Another web site that might be interesting to some of your shipmates is the Naval Cover Museum (www.navalcovermuseum.org), which is an on-line collection of naval covers, and *Macon*, *Shenandoah*, *Los Angeles*, and *Akron* each have their own page there. Best regards, Glenn Smith. highlandglenn@kuhncom.net **Ω**

Don Connover donated a huge batch of LTA photos and memorabilia through Ed. which allowed them to be scanned and gleaned before shipment to NNAM. From the collection of his father, the late LCDR Wilmer Connover, the *Macon's* last helmsman, amid many photos was this undated and uncaptioned K-ship and officers pose. In this detail one can easily see attached on the K-car's side is the so-called "flying MAD head" which we are still trying to find out more about. It was obviously an attempt at getting the MAD sensor closer to the target but we don't know how they were controlled.



His *Macon* crew photo was so large one can scan the corner to see most of the HTA unit. L to R, two of the F9C2 Sparrowhawks, three of the N2Y-1s, the two Wacos, and even the Martin torpedo bomber they'd considered using to deliver fuel to the airship. I am guessing the large spittoon-like creations adjoining the spreader gear are to collect dumped ballast, though nothing in the literature confirms that to my knowledge.

Rick Zitarosa commented, "I believe "spittoons" to be rolling catch basins for when oil-change/maintenance work was done on the main engines and the gear boxes on the Allison transmissions. The tilting-props were a nice concept but proved to be a maintenance headache and relatively ineffective given the amount of extra weight they represented, while the prop-wash from all eight propellers turning up high revvs at the same level caused vibration which was "bad enough to rattle the fillings out of your teeth" (as Admiral Rosendahl would remember 40 years later) the vibration also being bad enough to cause constant light bulb failures in the rear engine rooms and keel area. In addition to some alarming "weight and balance" figures that came to light after the ZRS-ships had already entered service, the vibration issue was one of the reasons they wanted to retrofit the *Macon* with six engines of higher power and delete the location for the #3/#4 engine positions. I have never subscribed to the belief that *Akron* failed structurally as did *Macon*, but both ships did have their problems and many considered them to be "overdesigned" and not as good as they could or should have been given all the effort and expense that went into them.

John H. Cobb, Jr. e-mailed, "I recently joined the NAA and received my newsletter. Let me say that "The Noon Balloon" is a first-rate publication, and deserves a big Navy "Bravo Zulu"! The wealth of information in every issue is amazing.

NAA members might like to know that some high-quality photo prints of ZP-2 ships and hangars at Glynco are available from Steele Studio, Beaufort, SC. Go to www.antiquepix.com and click on Brunswick, GA. Also, there is a very nice historic display of NAS Glynco in the main terminal of the Brunswick Golden Isles Airport. It is not far from the exit off I-95, on the north side of Brunswick.

... By the way, I have your "The Blimp Goes to War... Again," which I ordered from The Flight Deck store of the museum. An excellent production: interesting, informative, and full of rare footage you won't see anywhere else…

I spent my childhood summer vacations on St. Simons Island, and loved to see the ZP-2 ships flying offshore. I would have probably gone LTA, except that I did not enlist until 1967, so I was a surface Navy ET. Most of my twenty was at COMMSTAs Spain and Iceland (transmitter sites), and my two shipboard tours were USS *Hunley* (AS-31) and, yes, USS *Shenandoah* (not ZR-1, but AD-44!). The last *Shen* is in mothballs now, only 13 years after we commissioned her in 1983. I retired onboard in '86.

There is a plaque on the quarterdeck that says, "The fifth ship of the line to bear the name." They included the Confederate raider in that line!" **Ω**

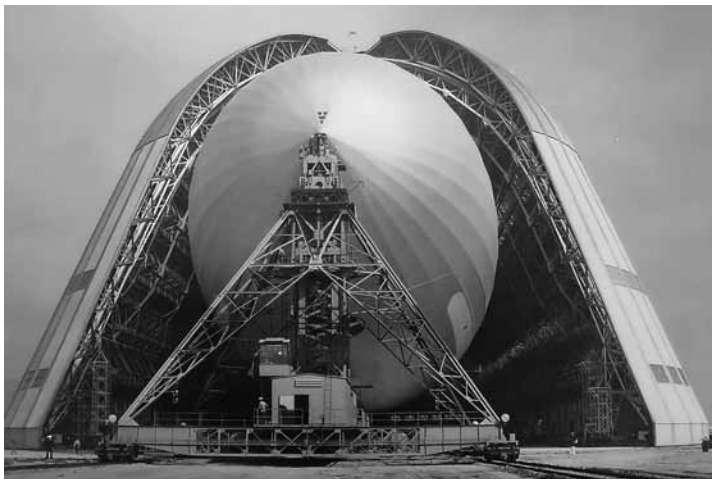
SHORE ESTABLISHMENTS: MOFFETT FIELD

NASA 'committed' to re-skinning Hangar 1
by Daniel DeBolt, *Mountain View Voice* Staff

In a meeting on 11 March, NASA and Navy officials said that, for the first time, they are jointly "committed" to preserving historic Hangar One at Moffett Field, and that various options for restoring the Hangar will probably be released by the end of March. "We are currently working to figure out the details of various options," said NASA Ames director Lew Braxton. "We all have a requirement to get back to Congresswoman Eshoo in a couple of weeks." The hope of nearly everyone involved is to make sure a new exterior can be installed at the same time the old skin is removed later this year, using the same scaffolding. While NASA's tone was positive, there is still no funding allocated -- more than $15 million is needed -- to put a new skin on the 200-foot-tall structure, and the Navy still plans to remove its siding as part of an environmental cleanup in mid-December. "Everybody watch this," Braxton said. "NASA and the Navy are getting along." Braxton said he imagined there may be some sort of public-private partnership to fund restoration and reuse, and did not want to say how much re-skinning might cost so as to not influence possible future bids on the project.

Developer would restore, lease out Hangar One
by Daniel DeBolt, *Mountain View Voice* Staff

A major Emeryville-based real estate developer is proposing to restore Moffett Field's historic Hangar One, which — if the government allows it — could save the landmark building after its toxic siding is removed in November. Eddie Orton, president of Orton Development, says he has a "realistic" plan to restore the NASA-owned hangar, which has sat vacant for years after toxic dust from its asbestos-laden siding was found inside. …his proposal, made in a letter to Congresswoman Anna Eshoo, the Navy and NASA, mentions an initial design allowing a "diversity" of uses inside the massive hangar, which has a floor the size of 10 football fields. It says those uses could include a museum, meeting rooms, offices, research and development, light industrial, a public venue and "mission-consistent government work…." The Navy announced last month that Amec Earth and Environmental had been contracted to remove the hangar's siding this November, leaving behind the hangar's massive skeletal frame structure. Every elected official in the area has opposed that plan. The sensible thing is to replace the siding as the old siding is removed, say community leaders from the city of Mountain View to the Moffett Field Restoration Advisory Board. Bill Berry, president of University Associates LLC, which wants to build a major University of California campus and NASA Research Park next to the hangar, was supportive of Orton's proposal. "The difficult thing is the bureaucracy" of working with the government, he said. Berry was recently elected to be the community co-chair of the Restoration Advisory Board. His predecessor in that position, Bob Moss, was more critical of Orton's proposal, singling out its mention of new "architecture" for Hangar One…. **Ω**



NASA still plans to house airships in Hangar 1
by Daniel DeBolt, *Mountain View Voice* Staff

A NASA Ames official said on Tuesday that the agency still hopes to use Moffett Field's historic Hangar One to house airships, standing by a proposal made a year ago. "You may soon see airships flying around the area like we did in the 1930s," said Lew Braxton, Ames deputy center director. Braxton clarified his agency's position after Congresswoman Anna Eshoo made a strong statement last week that a plan must be in place to reuse Hangar One if Congress is to approve funding to restore the massive structure.

Braxton also noted that "there are companies that are interested" in using Hangar One for the development of lighter-than-air aircraft for the U.S. Department of Defense, which Lockheed Martin is already doing. **Ω**

LAKEHURST (Cover Story)

In a personal triumph for myself and several other people who absolutely positively refused to ever give up, Navy MZ-3A airship BuNo #167811 was undocked from Lakehurst Hangar #6 for the first time since May 31, 2007. After getting the Seabees to come in with a front end loader and clear two feet of snow away from the hangar doors Friday, February 19, the afternoon of Monday, February 22, saw her come out of Hangar 6 for the first time in 2-1/2 years.

Nearly three years ago, when the ship was put "in the box" for the "final time" one of the skeptical Naval officers connected with the original project had invited me for a glass of "celebratory champagne." ("No thanks" I said. " I'll have my champagne when this ship comes back out of the hangar!") Thirty-one months, 22 days and 6 deflation orders later, the Navy LTAV program is ready to take to the air again! Victory belongs to those who believe and persevere…to those who did believe, BRAVO ZULU... and yes, I am enjoying my celebratory drink!

Prior to getting underway, Commander Chris Janke (LEFT) of (custodian) Squadron VXS-1 ("Warlocks") congratulates Navy Civilian Program Manager Herbert "Bert" Race (Navy Advanced Development Projects Office-Airships "ADPO") on the fine job of getting the airship "up and running" on five weeks' notice in brutal weather conditions. After leaving Lakehurst Hangar #6 on 2 March, ship was "moored out" in "less-than-ideal" weather reminiscent of the "old days" when Navy LTA was required to maintain readiness for ASW/AEW patrol. Coming out amidst the delays from several unusually heavy New Jersey winter snowstorms, the MZ-3A made a quick series of test flights on 2-3 March 2010.

Navy MZ-3A airship BuNo #167811 departed Lakehurst Friday 4 March 2010 for an extended deployment in "warmer weather." The 6x8 American flag that once covered the late John Iannaccone's casket fluttering proudly from the stern. It was a great privilege to witness this event (and all the events that led up to it.) There was some feeling of sadness standing by myself looking at the empty hangar interior as I closed the big doors, shut the lights off and secured the office. Many in the crew had become close friends, a few are like family. Due to other commitments, I myself will be staying behind. I may fly out and join the ship and crew for a few days at some period during their deployment, otherwise will be "holding the fort" in Hangar 6 and making sure nobody carts away our spare parts or office furniture. (Lakehurst Hangar #6 remains the designated "home base" for Navy airship operations at this point.) Integrated Systems Solutions, Inc. (ISSI) of California, MD, is the primary support contractor on the resuscitated Navy LTA/LTAV program.

Now they are doing their "thing" as they know best, operating the Navy's only airship with confidence, purpose and professionalism.....Good Luck and Clear Skies to all, see you on the next chapter of this adventure!

I was tasked by NAVAIR with writing a 2-page article on Naval Airships past/present/future for WINGS OF GOLD magazine.

- Rick Zitarosa
Lakehurst Operations Manager
ISSI Airship Operations

Photo by Christine Basham

VXS-1 Airship visits Pax

By Christine Basham, Staff Writer, dcmilitary.com

The VXS-1 MZ-3A Airship — in other words, a blimp — moored near Hangar 109 March 5 on its way from Lakehurst, N.J., to Yuma, Ariz., where it will be stationed for at least the next six months. While there, the airship will be an integral part of "a multi-service venture to impact the war fighter, we hope, very soon," said VXS-1 Commanding Officer Cmdr. Chris Janke.

VXS-1 is a part of the Naval Research Laboratory, and the time at Yuma will be "the first level of development for war fighter systems," said Janke. "We try as many different flight regimes as we can, so the client can test things at airship height and speed."

An airship's ability to travel slowly and hover for long periods is just as valuable to the war fighter as it is for sporting event coverage. Aside from the height and speed capabilities of an airship, their fabric construction means that onboard radar equipment is not troubled by the "shadow zone" of a standard aircraft.

The blimp has spent the past two years at Lakehurst. While it is owned by NAVAIR, Lakehurst has one of the country's few airship hangars, and NAVAIR had existing tenants there. NAVAIR is responsible for ensuring that maintenance, operations, and qualifications all are kept to Navy standards.

Burt Race, a retired Navy pilot, works as a civilian employee of NAVAIR to verify that Integrated Systems Solutions — the California, Md., firm that operates the airship — follows all NAVAIR requirements. He also intends to become a certified airship pilot himself.

For now, though, the craft relies on Chief Pilot Peter Buckley, a dual United Kingdom / United States citizen with approximately 24,000 hours of flying time in airships, and second pilot Russell Mills. "I'm very interested in the science of it, and now I'm involved in the design and engineering of airships," Buckley said.

Buckley started flying them in 1975, trained by Goodyear blimp pilots who received their training from the last U.S. Navy airship pilots. This direct line of succession brings airships back to the Navy for the first time since 1962.

While in transit to Marine Corps Air Station Yuma, the VXS-1 MZ-3A relies on a mast truck to provide a broad, stable mooring area at each stopping point. "It secures to the truck, but weathervanes around," explained Janke. "It needs a big circle."

At 175.5 feet in length, with a volume of 170,000 cubic feet, the MZ-3A is an imposing presence on the airfield. Compared to the World War II-era warships of about 1 million cubic feet, however, it's almost tiny.

The unique requirements of an airship extend beyond the hangar. In flight, the MZ-3A stays in constant radio contact with its ground crew. On this trip, the blimp and crew will follow two interstate highways, first I-95 South and then I-10 West.

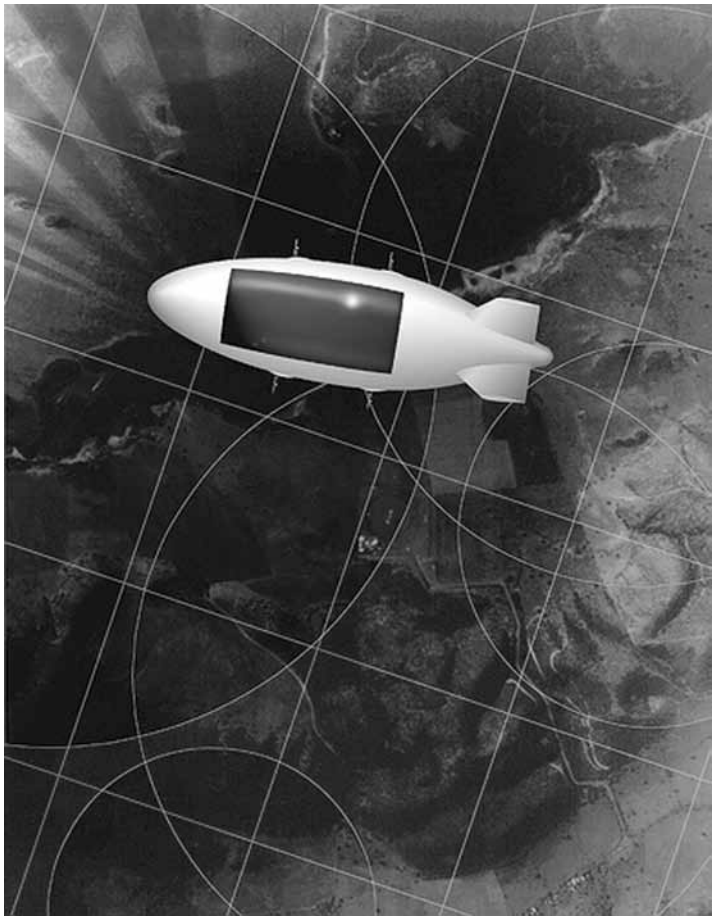
Whether or not to follow highways doesn't really matter to the airship, but it does to the ground crew. They need as simple a path as possible, so they can keep track of the blimp's location at all times. The ground crew also transports spare parts, an additional mast, and a mobile fuel tank.

"The fuel has to be on a truck that's running, so it can move if the wind moves the ship," Janke explained. Of course, the MZ-3A never moves very fast. It travels about 55 mph, depending on wind conditions. Over the course of an 8-10 hour flight, that translates to about 250 miles. Doesn't the saying go, "slow and steady wins the day"? **Ω**

Our LTA-forever stalwarts at Lakehurst might add "pugnacious tenacity wins a close second." Bravo Zulu to those who never lost the faith. - Ed.

Technical Committee

The U.S. Army Space and Missile Command/ Army Forces Strategic Command has received approval to competitively enter into an Other Transaction Agreement (OTA) for a Long Endurance Multi-Intelligence Vehicle (LEMV), namely an airship. *[see next page*]



Meanwhile, the Hale–D , Lockheed Martin's High Altitude Long Endurance Demonstrator, is grounded for lack of funding. This airship was completed and inflated in the Akron, Ohio, Air Dock. The 240-ft. Hale-D is designed to carry 50 lbs. to a 60,000 ft. altitude for 15 days powered by solar arrays and batteries. The Army Space and Missile Command is the contracting agency. *[Artist rendering, above. See back cover, TNB 84 for a spy photo of the Hale-D prototype.]*

The Navy airship MZ-3A has been flown from its Lakehurst, NJ, base to a western location where it will be involved in a variety of missions. *[Cover]*

Worldwide Aeros in California is developing a 200-ft.-long sport airship ML866. It is listed as a rigid airship capable of vertical take-off. It will be powered by either a single piston engine or twins.

Another high altitude airship is Raven Industries' Aerostar High Sentinel Stratospheric Airship (above). A combination of weather and contract restraint prevented a test flight last year. The next opportunity will be in the summer. Raven also produced $2 million worth of low altitude aerostats in late 2009.

The Sanswire Corp. demonstrated their STS-111 flexible segmented airship at their partner TAO's property in Germany in December 2009. A similar demonstration in Florida is planned. [See pg. 22] The STS-111 is designed to fulfill a range of missions at mid altitudes for two days carrying various payloads. The 111 ft. segmented design allows the envelope to flex with gusts. Gaseous fuel weighing the same as air is used for propulsion. Sanswire-TAO plans to build a larger high altitude airship.

The University of Delaware has acquired a 60 ft. remotely-controlled nonrigid airship. It can lift 100 lbs., fly up to 2000 ft. altitude, with a top speed of 25 knots. It will carry various instruments including a laser scanner and visible, ultraviolet and infrared cameras. The blimp will gather geographic and environmental data useful to students taking more than 50 courses at the University. The airship was manufactured by Galaxy Blimps in Dallas, TX.

The WDL company in Essen-Mulheim, Germany, has resurrected its WDL IB nonrigid airship for advertising and passenger flights. It is planned to operate in southern European skies during the winter months.

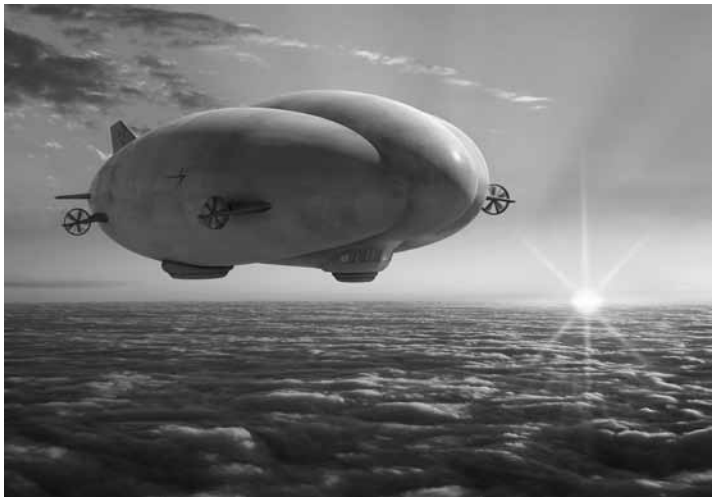
Airship Ventures Inc. airship, the Zeppelin NT-07 was used by the SETI Institute and NASA to study the salt ponds in San Francisco Bay as they revert to wetlands. Scientists can observe organisms and pond pigmentation while flying slow and low.

- Norman Mayer, Chairman

Afghan ISR Airship a Step Closer

by Graham Warwick @ AVIATION WEEK

The request for proposals for the Long Endurance Multi-Intelligence (LEMV) airship demonstrator is out, calling for three weeks' endurance - unmanned - carrying a 2,500 lb. payload at 20,000 ft. But plans to award the streamlined "other transactions authority" (OTA) contract to an ISR consortium formed for the program have changed.



Instead, US Army Space and Missile Defense Command/Army Forces Strategic Command (SMDC/ARSTRAT) is holding a competition and plans to award the OTA contract to the winning bid for the airship. Lockheed Martin plans to bid. Northrop Grumman also plans to bid, and is expected to team with one of the interested airship builders, which include the UK's Hybrid Air Vehicles, Aeros and others.

The OTA is for a five-year technology demonstration, with performance tests to begin in 18 months of contract award, expected in June, and testing and demonstration to be conducted in Afghanistan over the remaining term of the agreement. In theater, the LEMV will provide persistence surveillance with a variety of electro-optical, radar and sigint sensors, as well as communications relay. **Ω**

Military Seeks an Intelligence-Gathering Airship

By Walter Pincus @ Washington Post

The U.S. Army Space and Missile Defense Command and the Army Forces Strategic Command are continuing their multi-year search for a futuristic, self-powered, intelligence-gathering airship... Its engines would be able to keep a steady speed of 20 knots, but if needed possess an 80-knot "dash speed." Though it is expected to be unmanned and operated from the ground, it may be operated with a crew. The success in Iraq and Afghanistan of "spy blimps" [sic]-- now tethered to the ground but gathering intelligence such as full-motion video used to identify insurgents -- has sparked interest in these new airships. The ambitious and new five-year program for a 250-foot-long "Long Endurance Multi-Intelligence Vehicle" calls for 18 months of performance testing "followed by additional tests and demonstrations conducted in Afghanistan," according to the notice. Under special acquisition rules designed to get new companies into the defense business, the winning contracting team will develop the airship, integrate its payload and other systems to keep them working, then test and support the vehicle. If all things work, the contractor is to support operation of the airship and train military personnel to run it during the five-year contract period.

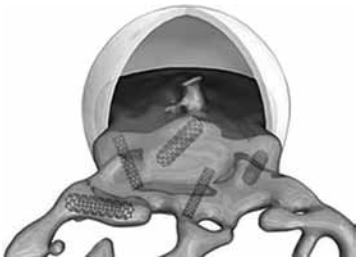
Last year, the idea was to have a consortium of companies build a similar system based on a hybrid airship that Lockheed Martin flew in 2006. Lockheed's "Skunk Works" was to be central. Then, in July 2009, the Pentagon changed its mind and decided to reprogram $5 million to support a different initial acquisition and planning approach for the vehicle, which will be run by the Army Space and Missile Defense Command out of Huntsville, Ala. It will have cooperation from the Air Force and Navy. Now, Lockheed Martin is just one of 51 bidders. Under this plan, one group will build the airship and another provide the payload of sensors and ancillary systems. Last week's notice is for construction of the airship, but that also includes integration of the payload devices, plus testing to make sure that everything works. An additional $90 million for the program has received congressional support in the fiscal 2010 budget. Potential bidders must apply for the documents detailing the requirements….means potential bidders can show the documents to subcontractors but not disclose them publicly.

However, in May 2009, the Army posted a draft statement of objectives for the vehicle, and that document spells out the thinking at that time. Although the sensor payloads would be selected by the military, the document said they could include optical or radar surveillance, other intelligence sensors, laser communication and other broadband data relay systems. The earlier document also calls for control of the ship to be housed in a fixed, land-based command center, but the airship itself should be able to operate from "an austere location," such as a forward operating base. It will be able to be guided back to its home base. A "rapid deflation device" is required to terminate the flight if control is lost and to prevent the sensitive payload from falling into the wrong hands. **Ω**

Short Lines

Reduced Prototyping Costs Seen:
"Flight International" (1/11, Coppinger) reported a new type of foam, developed by Fopat Production, will save the aerospace industry "millions of dollars" by "replacing wax in lost-wax of aerospace components." According to the USAF Research Laboratory, "traditional casting processes and designs are severely limited due to the properties of wax," but the new foam will eliminate current "wax-pattern making processes and wax cycles" with a "temperature stable, energy-efficient" model that also provides a "smooth surface finish." **Ω**

Self-Healing Conductors Seen Possible:



Polymer nanocomposites based on liquid-filled suspensions for carbon nanotubes encapsulated in poly (urea-formaldehyde) shell. Triggered release of the contents is hypothesized to restore electrical conductivity in damaged conductors. To date self-healing materials systems have largely focused on restoring mechanical properties of structural composites and barrier properties of protective coatings. This self-healing concept based on release of liquid content from microcapsules is to restore electrical conductivity in damaged electronics. For example, in order to overcome the cycle life and the safety issues that plague lithium-ion battery technology, new approaches are needed that can stabilize the electrode-electrolyte interface and restore electrodes degraded by micro-cracks formed from charge-discharge recycling. New types of polymer nanocomposite in which precursor materials such as carbon nanotubes (CNTs) are suspended in organic solvents encapsulated within polymer-based microcapsules. Shells that erode under conditions of high electrical potential, temperature spikes, mechanical damage or other appropriate stimuli could release these suspensions and deliver conductive components where they are needed, thus restoring current in damaged electrical conductors (illustration). The migration of CNTs in an organic solvent driven by an external electrical field has been previously reported, suggesting that triggered release of CNT from microcapsules suspensions – even at small CNT weight fraction – could indeed provide an autonomous mechanism of self-repair of electronic functionality. **Ω**

Tough Coatings for Aircraft:
By Katherine Bourzac, Technology Review

For decades, materials scientists have looked to naturally existing composites as inspiration for tough, lightweight materials that could lighten vehicles. The material that lines abalone shells, called nacre, has been of particular interest: it's lightweight and strong, yet shatter-resistant. But mimicking the microscale structures responsible for its properties has been difficult, and hasn't resulted in materials that can be manufactured on a large scale. Now researchers in Helsinki, Finland, have developed a simple method for making large-area, nacre-like papers and coatings that could be painted on building walls and airplane skins for lightweight reinforcement. Last year Ritchie's group made a nacre-like material that is the toughest ceramic ever made. In the form of a coating, such a strong, tough material could reinforce walls and airplane skins without adding significant weight. "The excitement with nacre is that its properties are impressive when you consider what it's made out of: calcium carbonate and a protein," says Robert Ritchie, chair of the materials science and engineering department at the University of California, Berkeley, who is not involved with the coatings research. Nacre's combination of interconnected plates of a very hard but shatter-prone material with an infill of a very soft but ductile material results in a composite whose properties are better than the sum of its parts. By starting with better materials, such as industrial ceramics and polymers or metal, it should be possible to make a synthetic composite whose properties are even better than those of nacre. Researchers at the Helsinki University of Science and Technology describe a process for combining strong, disc-shaped clay platelets with the soft polymer polyvinyl alcohol. When mixed together in water, the polymer coats the discs to create a slurry that can be made into paper or painted over a surface such as a wall. The resulting paper or coating is made up of discs of the so-called nanoclay stacked in rows like plates in a cupboard with the polymer surrounding them, a structure very similar to that found in nacre.

The Helsinki coatings are very strong and lightweight; their material properties are similar to those of fiberglass, says Andreas Walther, one of the Helsinki researchers. The first application for the material may be as a reinforcing coating for walls. Experiments with flamethrowers showed that the coatings can act as a heat and fire shield. **Ω**

AIAA LTA Tech Comm. Tele-conference 16 FEB 2010 at AIAA headquarters, Reston, VA, minutes:

The meeting/teleconference concluded that the 2011 AIAA LTA conference will be combined with the important Centennial of Naval Aviation Conference Sept. 21st and 22nd, 2011 in Hampton Roads, Virginia. For easier planning the following dates have been proposed for quarterly meetings of the LTA TC in 2010: May 26th (Wed.), Sept. 29th (Wed.) and Nov. 17th (Wed.) for noon time luncheon meetings. AIAA LTA TC members were invited by Balloon Systems chairperson, Deborah Fairbrother from NASA and former Chair Mike Smith from Aerostar to join their group at this important and historic conference opportunity. A vote indicated widespread acceptance among the group. Also discussed was the National Helium Reserves article Michael Conners of BAH had circulated. While airship and aerostat usage plays a very minor role in national consumption of helium, it was thought that a position paper, vetted through AIAA would serve the LTA industry interests. This will be initiated by Curt Westergard and circulated for committee input.

Old business included ideas for purchasing translation of the German language text book on LTA tech by Juergen Bock. Dr. Pant from Bombay indicated interest in possibly combining this book with aerostat related course guides he has already produced.

Mary Kukla asked the LTA TC to give their Pax River Conference consideration. [next col.] Subject: Hybrid Airships for Heavy Lift Conference March 31-April 1, 2010. Mary e-mailed, "We have been informally working on an airship conference with our Navy colleagues, until airships were moved to the US Army. We were pleased to find an Army department (AMRDEC) interested in continuing the planning of this conference, which will be held at the end of this month, so we have both EUCOM and AMRDEC co-sponsoring this conference."

- Curt Westergard, Chair
AIAA LTA TC

<u>Hybrid Airships for Heavy Lift Conference</u> sponsored by Aviation Missile Research Development and Engineering Center, US European Command and The Patuxent Partnership.
Tentative schedule: Wednesday, March 31, 2010.
Welcome, Dr. Robin Buckelew, Acting Executive Director, Aviation and Missile Research, Development and Engineering Center, RDECOM
Welcome, Mr. John C.F. Tillson, Deputy Director, Strategy, Policy and Assessments, US Euro. Cmd. "USTRANSCOM - Meeting a Global Challenge," General Duncan J. McNabb, Commander, U.S. Transportation Command
"EUCOM/AFRICOM/TRANSCOM "Point-of-Need Delivery (POND) Experimentation Campaign," LT COL Brian "Gazer" Mead, USAF, EUCOM, J8-C, Experimentation
"Joint Task Force Haiti," LTG Ken Keen, Deputy Commander, SOUTHCOM - VTC/USMC COL Alex Vohr, Director for Logistics/J4, SOUTHCOM
"Current Capabilities for Unmanned Airships for Battlefield ISR & Communications Shortfalls," Mr. Bruce Metzger, Director, Technology Transition Office, AMCOM G-3 Op. Integration Directorate
"Long Endurance Multi-Intelligence Vehicle (LEMV)," Mr. Ed Loxterkamp, Rapid Acquisition Lead, DoD ISR Task Force, AT&L, OSD
"Airships: Everything You Thought You Knew," plus "Lifting Gases," Mr. Pete Buckley, Airship pilot, Integrated Systems Solutions, Inc.
"History of Hybrid Aircraft 2000 to Present," Mr. Steve Huett, Director, Advanced Development Program Office for Airship Concepts, NAVAIR
"OSD Heavy Lift Perspective," COL Dale Holland, USAF, Emerging Capabilities Portfolio director, Office of the Director, Defense Res. & Eng. "Heavy Lift Applications," Mr. Bill Crowder, Director for Advanced Technologies, LMI
Thursday, April 1, 2010: Industry R&D Panel - Mr. Chris Felker, Program Manager, Boeing Phantom Works, Dr. Bob Boyd, Program Manager, Lockheed Martin, Mr. Igor Pasternak, President & CEO, Aeros Corporation, Mr. Mike Durham, Chief Engineer, Hybrid Air Vehicles, Ltd
Nontraditional Requirements Panel - USAID/State Dept, Mr. Jacques Collignon, Senior Regional Logistics Officer, UN World Food Programme, USCG "The Art of the Possible," LTGEN George Fisher, Jr. (Ret), Director of DoD Programs, Global Security Directorate, Oak Ridge Laboratories
"OMNI Warfare Game Changer: Laser Beam Weapons + Static Lift," Mr. Chuck Myers, President, Aerocounsel Inc.
"NASA Ames Airship Research," Dr. Alan Weston, Director of Programs, NASA Ames
"Collaborative Engineering and Research Capabilities to meet DoD Hybrid-Aircraft Heavy Lift Requirements," Dr. John Horack, Ph.D, Vice President for Research, U of Alabama, Huntsville
"Future Deployment and Distribution Assessment," Mr. Curt Zargan, Study Director, USTRANSCOM JDPAC Futures/Transformation (invited) **Ω**

Clean, Quiet Eye In The Sky

By Dr. Barry Prentice

The Winnipeg Police Service has determined that it needs better search and surveillance capability. Police argue that an "eye in the sky" can improve the productivity of officers in cruisers, assist in gathering evidence for trial and provide overall better safety. This viewpoint has a lot of merit. In following the lead of the big Alberta cities, the Winnipeg Police Service has lobbied for the acquisition of a helicopter.

Physics require a helicopter to burn a lot of fuel beating the air to carry its own weight, passengers and fuel. As a result, helicopters sit at the pinnacle of the carbon-emission "food chain." If the police want to be progressive, economically efficient and in tune with the need for greener technology, they should take a hard look at the new generation of security airships.

Could an airship do the same job as a helicopter? Clearly, an airship is not going to pick up stranded skiers from a mountainside. But if the task is to search the riverbanks or the Assiniboine Forest, an airship would operate just as well.

Helicopters can achieve speeds of 225 km/h, whereas an airship's sprint speed would be between 100 km/h and 140 km/h. An airship, however, would probably arrive just as fast because it is more likely to be airborne. Moreover, the police concept is to train their cameras on any 911 call site and direct police cruisers to the location. No vehicle could outrun the camera lens, whether it is carried by an airship or helicopter.

A helicopter is an easy, definable asset for the police to request, but it is old technology with very high operating costs, limited capability and negative environmental attributes.

Criminals can adjust to the helicopter's operating hours and can hear them coming. With an airship as a silent and constant threat to the bad guys, their tactical options are eliminated.

The environmental and economic differences between airships and helicopters are like green and black. Even a small helicopter is going to burn through a 45-gallon barrel of aviation fuel every hour it is in the air. An airship can turn off its engines and drift whenever it chooses.

Helicopters require constant daily maintenance; airships require only one serious inspection every 1,000 hours. For the "eye in the sky" mission, an airship can do more for security and police interdiction with much less cost and environmental impact than a helicopter.

Helicopters have been described as "a million pieces trying to shake themselves apart." Excessive vibration requires expensive systems to protect sensitive equipment from damage.

Airships provide an almost vibration-free, stable platform for sophisticated sensors, gyro-stabilized cameras, radio and/or video relays and downlinks to surface operations. The stability of the airship platform lowers the cost of sensor packages and increases the scope of tasks that it can perform.

Before being stampeded into accepting the only solution that the police put forward, the City of Winnipeg and the Province of Manitoba should undertake an investigation of greener solutions.

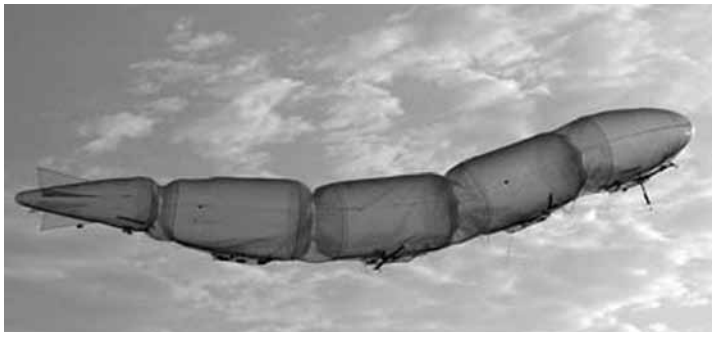
Just as military needs have pushed helicopter technology forward, airships have been gathering increasing attention and investment. Airships are a common safety feature at the Olympic Games and major sporting events. Locations like Moscow, Trinidad, Tobago and Thailand have manned airships providing police and military security.

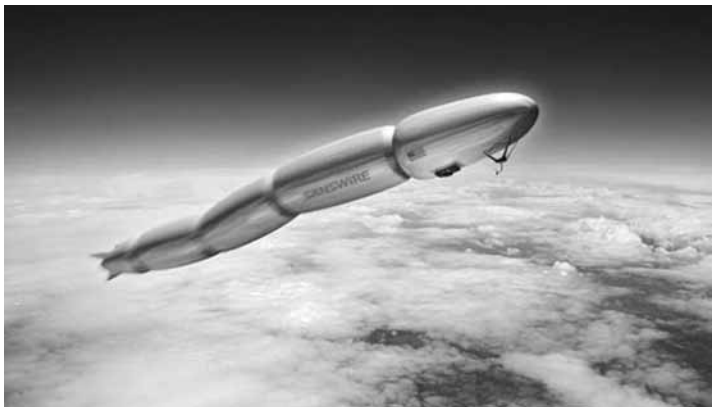
At least six different airship companies stand ready to provide piloted vehicles for security use: SAIC/Zeppelin, Guardian Flight Systems, Airship Management Services, American Blimp Company, RosAeroSystems and Worldwide Aeros.

Usable payloads range from 1,000 to 2,000 kilograms and they can fly as high as 5,000 metres. All the newer airships are engineered to operate as Unmanned Aerial Vehicles (UAV) or optionally as piloted airships. Usually a piloted airship has to land after six hours to exchange crews, but in UAV mode they can loiter or traverse areas of interest for more than 24 hours.

The Moscow police have proven that airship technology can operate in our winter conditions. Let the people who have the oilsands have their polluting police helicopters. Manitoba has long advocated the move to greener technology. Using airships to enhance the effectiveness of our police force would be evidence of such a policy. **Ω**

NAA member Dr. Barry Prentice is a professor of supply chain management at the University of Manitoba. He recently appeared on Canadian radio and television advocating airships as an alternative to expensive ice roads. Below is the prototype eye-in-the-sky from Sanswire, see next page.





Sky Snake: Flexible blimps are bending the rules on UAV design, by Michael Klesius
Excerpted from airspacemag.com

Leave it to the Germans to think we can do a better blimp. TAO (Trans-Atmospheric Operations) Technologies GmbH, of Stuttgart, Germany, partnered a few years ago with the University of Stuttgart, and more recently with Ft. Lauderdale, Florida-based Sanswire Corporation (from the French "sans" for "without" paired with the English "wires") to develop and market a new kind of airship, the Stratellite—a smaller, more flexible, unmanned, autonomous blimp that may rewrite the books on the value of lighter-than-air vehicles.

The biggest plus for blimps is their time in the air, which can last days to weeks depending on whether they have people on board. Their biggest drawback is that when the wind blows hard from the side, they don't stay on course very well. And several thousand feet up, blimps encounter a lot of wind. For a blimp driver trying to angle for a good camera shot of a football stadium, it's not a matter of life and death. For soldiers on the ground in Kandahar trying to maintain, say, a communications link to their supply base, or a video feed of insurgents across the valley, the stakes are higher.

Sanswire-TAO has done away with the rigid blimp design in favor of a flexible one, with segments linked like sausages inside a double-sleeve design. As it undulates in the sky in a crosswind, it bleeds off the energy of the gusts, and stays on course or in place more efficiently. "We focus strictly on being an eye in the sky—a very low-cost eye in the sky," says Daniel Erdberg, Sanswire-TAO vice president of operations. "It's not a complicated machine like a typical aircraft. Our [flight] duration exceeds anything on the market just due to design, to physics."

Made mainly of rip-stop nylon, the multiple-cell airship, still in the test phase, would come in a crate that can be unpacked by two soldiers and deployed in a matter of hours. The forward bladder is filled with helium, which gives the airship its buoyancy. The rest of the bladders are filled with a gaseous, combustible fuel that gets compressed before being fed into a one-cylinder, reciprocating engine mounted below the front section, which pulls the airship along at almost 40 miles an hour. The company's current model, the STS-111, which is 111 feet long and 11 feet in diameter, can stay aloft for up to three days at altitudes between 10,000 feet and 30,000 feet. A larger version on the drawing board will go to 60,000 feet, where it will loiter for up to a month, with an expected top speed around 85 miles an hour. "At that altitude," says Erdberg, "the airship has a line-of-sight view over an area the size of Texas." Sanswire-TAO claims they're ready to fill a need now for more persistent UAV loitering where it's needed: mainly in the military, but also for homeland security, border patrol, environmental study, commercial telecommunications, and maritime needs. "We said, 'Duration, duration, duration,' measured in weeks. That's what our soldiers need now," says Erdberg. Sanswire-TAO conducted their latest demonstration of their airship on December 17 and 18 [09] in Stuttgart. "We've built about 30 prototypes and have flown them thousands of times," he says.

The Stratellite, the company's high-altitude vehicle, would find what Erdberg calls a "sweet spot" around 60,000 feet where it would experience the least amount of average wind. "Below and above that layer it's very windy," he says. "The idea," he continues, "is to mix a balloon with an airship. Without fuel, it just becomes a balloon." Erdberg says that solar cell technology isn't as far along as it needs to be. One of many problems for solar cells operating at very high altitudes is overheating from the sun's powerful radiation. "We do believe that solar technology is the future," says Erdberg. He claims that the company is doing research in that area. "But our gas technology is ready today." In the second quarter of 2010, the company plans a public unveiling of their airships for two days at the Orlando Sanford International Airport.

"This is outside the box," Erdberg says. "You're taught something in school every day, but then this is something very different." **Ω**

THE FLYING WIND TUNNEL

Part One by David C. Hazen

The Flying Wind Tunnel was the result of the conjunction of a number of disparate factors and events. The first was the increasing problem that, not only my laboratory at Princeton's Forrestal Research Center, but all wind tunnel labs working in the emerging field of V/STOL aerodynamics, were having with flow distortions produced when, under test, the strong downwash associated with models of such devices interacted with the restricting test section walls. The second was my appointment as the Aeronautical Engineering Departmental Undergraduate Advisor, and the third was the fact that the Naval Air Test Facility at Lakehurst had sent a representative to a Career Day event sponsored by our Office of Student Placement in hopes of attracting some graduating seniors, only to be disappointed when no one showed up for an interview.

The officers involved with the Test Facility (obviously HTA types) were convinced this was because Lakehurst Naval Air Station was so associated in peoples' minds with airships that young engineers couldn't conceive of the exciting cutting edge work on catapults and arresting gear being conducted there. To help change that image, they invited the head of Student Placement to visit the Facility, and because my department was the one most likely to have interested students, as the Undergraduate Advisor the invitation was extended through him to me.

Our visit, my first to Lakehurst, took place as planned on May 26, 1960. I was delighted to find that the commanding officer of the Air Test Facility was Capt. Bill Fortune who had sponsored some of my research when he had headed the Air Branch of the Office of Naval Research. The work on advanced catapult concepts was indeed intriguing, but try as I would to concentrate on it, my attention kept wandering towards the several squadron blimps moored out on their circles. In the course of my travels and work I had flown in a good number of civilian and military aircraft, but never in LTA, a fact I mentioned to Capt. Fortune, adding that I'd love to expand my experience by taking a blimp ride. The good Captain assured me that he could easily arrange for me to go along on a flight. "Of course," he added with a grin, "a typical mission takes several days." I gulped, and explained that wasn't quite what I had in mind.

He laughed and said he'd see what he could do. He did very well. About two weeks later I got word that it had been arranged for me to join "a test flight" going out for just an afternoon.

Prof. David C. Hazen and his project officer, Lt. Cmdr. Wayne Harrison, keep eyes on airspeed indicator during test flight.

On the appointed day, June 22, 1960, as directed, I presented myself at the headquarters of the Airship Test and Development Division. The Commanding Officer, Cdr. Walt Ashe, being absent, I was taken in hand by Lcdr. Frank Carter, the Aeronautical Engineering Officer, who got me outfitted in a flight suit and walked me out to the closest circle where a blimp awaited. Up close and personal it seemed huge, but I was told that it was a ZS2G-1, the smallest ship on the base, referred to as a "sports model" by the pilot, Lcdr. Wayne Harrison.

I was established in the copilot's seat and watched the preparations for take off in fascination, realizing for the first time just how many people other than the pilot were involved in the evolution. After warning me, Wayne demonstrated his "Scare the Bejeezus Out of HTA Pilots" maneuver by chopping the throttles just after lift off. Even though I was told what to expect, I was impressed by the way the airship serenely continued on its way. After we headed for the coast, Frank Carter gave me a tour of the car. Having grown up on the Eastern Shore of Maryland in sailboats, I was enchanted by everything about the machine, from its low noise and vibration levels, gentle motion and obvious use of fabric and rope, to the fact that it included "riggers" as members of the crew, all of whom,

like proper sailors, seemed to be wearing sheath knives and binoculars. When asked, Frank explained that besides their utility both as general purpose tools and means of cutting through the envelope fabric in case of emergency, the knives were to cut curious Associate Professors out of the way in case of a ditching. The use of the binoculars became apparent as we flew over Asbury Park's several rooftop sunbathing establishments.

Besides thoroughly enjoying myself on the ride, while munching on a very substantial sandwich that magically appeared shortly after take off, I got musing about the airflow around the envelope and car, wondering how far the distortions so created might extend out into the flow field. I was familiar with Dr. August Raspet's use of gliders at Mississippi State College as a source of low turbulence flow in which to study boundary layers, and vaguely wondered if the airship could be used in a somewhat similar fashion to relieve the restrictions being imposed on our work at Forrestal by the limited size of our tunnels. I mentioned the idea to Frank Carter, who became quite interested and got Wayne to run some tests to see how closely the airspeed and pitch angles could be maintained at a constant value over a period of time. The results seemed promising, but not knowing the accuracy of the instrumentation, far from conclusive.

At the end of the flight (during which, if any "tests" other than our airspeed ones had been conducted, I was unaware of them), Frank agreed to talk with his boss, Walt Ashe, to see if there was some way we could piggy back some flow field studies during future flights on a "no interference" basis.

The next day I described my flight to Rudy Lehnert, my lab manager, and Henry Payne, a former grad student of mine serving as project manager of our V/STOL program. I was not surprised by the enthusiasm with which they immediately set to work on designing the velocity and angle probes that would be required to conduct the necessary flow field surveys, because I knew they were working on getting their own blimp rides. I was, however, very much surprised by the degree of enthusiastic support we received from AT&D. While we built and calibrated the required sensors, under the direction of Lcdr. Bill Barnes, their instrumentation specialist, they undertook to construct a mounting system that could be deployed from the bomb bay to hold and position them as they were traversed from point to point under the car to survey the field. What I hadn't realized at the time was that the Navy's entire LTA program was threatened with termination, and anything, regardless of how far out, that might be a reason for its continuance was eagerly explored.

The tests were conducted only five days after my initial flight, and showed the airship to be capable of satisfactorily maintaining speed and pitch angle settings through the range from 10 kts to maximum speed, while the flow field below the car proved to be more uniform in direction and velocity than that we could obtain in our tunnels. Before long Bill Barnes had a deployable mast constructed and we mounted a model—an 18" span delta wing—hardly an appropriate candidate for the type of low speed test facility we were trying to develop, but it had the virtue of being available along with an appropriately sized three component strain gage balance. The results almost exactly replicated those from the tunnel. We were ready to try a powered model of the type that had proven so troublesome in the closed wind tunnel.

Obviously these tests had not been conducted on a non-interference basis, and both Walt Ashe and I had expended funds in conducting them that might very well raise eyebrows in our respective funding agencies. Action was clearly necessary to protect our very exposed rear ends. Figuring offense was the best defense, we undertook a two-pronged approach.

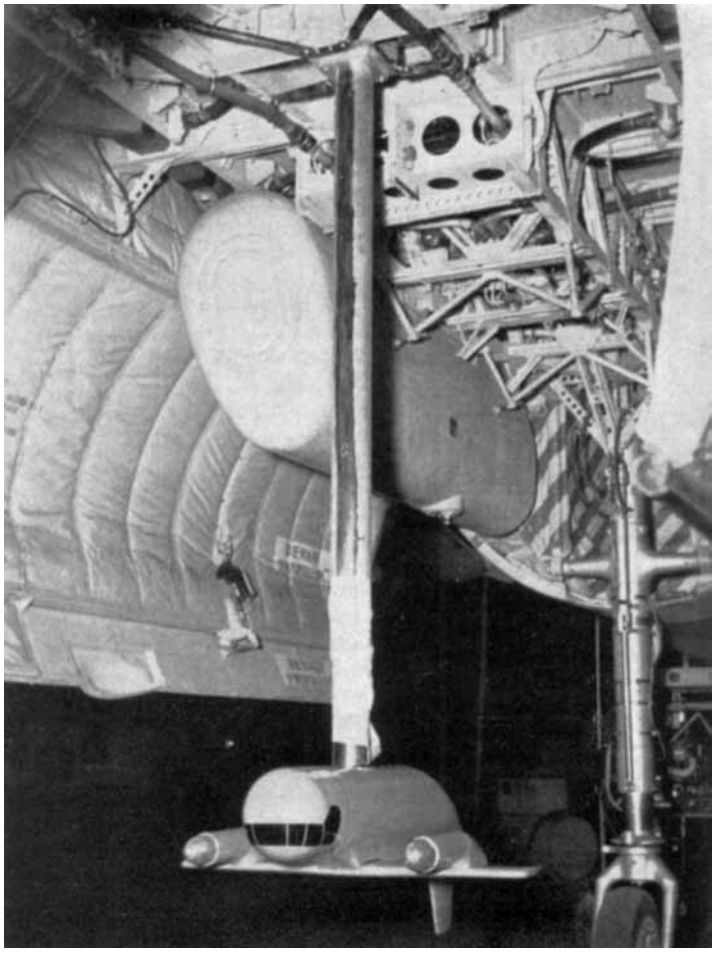
The first was to have Rudy Lehnert, who was an accomplished cinematographer, shoot a 16mm movie of the entire operation to use as a film report. Capt. Eppes, Commanding Officer of the Air Station, had been made aware of our activities by Walt and arranged for a helicopter to take Rudy aloft for the in-flight shots. (Years later he was to borrow the film for the NAA, claiming it

showed airship operations as complete as any he was aware of). The second prong of our attack rested on the fact that I had grown to know Jim Wakelin pretty well during the years he had served as the Director of Research at the Textile Research Institute located in Princeton, and had stayed in touch with him after he had assumed the position of Assistant Secretary of the Navy for R&D. Figuring that a friend in high places couldn't hurt, I informed him of our activities and expressed the hope to see him when I showed the film at a joint meeting of representatives of the Air Branch of ONR and the Aircraft Division of BuWeps on October 6th. He expressed interest in our efforts, asked to be kept informed, but pleaded a previous commitment.

The meeting on the 6th proved to be a critical turning point in the project. By this time Henry Payne had replaced the delta wing model with a powered propeller and initial data showed significant differences between wind tunnel and free air results. Armed with the film and these preliminary results, what started as a mea culpa account of the possible misuse of funds before a thoroughly skeptical audience, ended with them urging that we move beyond our lash-up arrangements and equip the airship to perform serious work—the existence of funding was implied, but amounts not specified until a definite proposal was received.

We needed little encouragement. The ZS2G-1 envelope was scheduled to be scrapped by the end of the year, so with Walt's assistance, within two weeks I had prepared, "A Proposal for the Modification of a ZPG-2 Airship to an Airborne Model Carriage" which detailed the changes contemplated to be made in the larger ship as an improved replacement—the removal of the radar antenna and the installation of doors in the bottom of the radome converting it into a "modome" the installation of a 32 foot retractable model mounting strut with a sleeve allowing it to retract into the envelope; and the acquisition and installation of sufficient instrumentation to handle a 6 component strain gage balance system. With a price tag figured at $29,500, it was submitted to ONR to be distributed, as necessary, to other potential funding sources.

During the time this proposal was percolating through the system, we continued Henry Payne's propeller investigations under the ZS2G-1. Tilt wings and/or propellers were leading contenders as V/STOL systems, and although we knew a lot about both propellers and rotors individually, we knew little about what transpired either as a propeller disc rotated through 90° to become a rotor, or during the reverse process that would occur during the transition from hovering to forward flight. Henry's investigations demonstrated that much of what we thought we did know was in error by as much as 20 to



30 percent because of the wall effects arising from testing in a confined test section.

I was able to take this information to the several conferences called to consider the proposal with the result that it was generally well received—until a memo from ONR committing to funding the purchase of the required instrumentation in view of BuWeps funding the airship modifications, landed on Capt. Chambers' desk. This seemed to be the first he had heard of the operation. As Director of Research in BuWeps he obviously felt the "Poopy Bags" had blind-sided him, and were trying to pull a fast one. He immediately demanded an explanation from Walt Ashe. Fortunately, Walt had once worked for Vadm. P. D. Stroop, Commander of BuWeps, who upon hearing of the possible objection, was able to reverse it. I use the word "fortunately," because without awaiting

authorization, Walt had already started the required modifications. They had proceeded far enough that Henry Payne, Frank Carter and Wayne Harrison were able to present a paper on the results of the propeller tests, while I narrated the film (complete with delta wing model) at the annual meeting of the Institute of the Aeronautical Sciences in New York on January 24, 1961, and a picture of the ZPG-2 with a tilt wing model deployed beneath was featured on the cover of the February issue of Aerospace Engineering magazine. The Navy and Princeton issued a joint news release at the same time and a number of papers featured articles about "a new use for Navy blimps."

In early March just as the idea of using an airship to address the problems posed by testing V/STOL models seemed to be attracting a lot of interest and potential users, word was received that the rumors that the Navy's LTA program was to be cancelled were "substantially correct." I had kept Jim Wakelin abreast of our activities—we had taken him for a demonstration ride in the ZS2G-1 in November—so I immediately called him, and then followed up with a letter expressing my fears that my baby was about to be thrown out with the bath water. He replied he would look into it, but "the entire field is fraught with both emotional and fiscal problems, which I think we should really take a hard look at before final decisions are made."

The next weeks saw a flurry of activity as Henry Eppes and Walt Ashe tried to come up with estimates of what the operation of two airships—the one we were using and one dedicated to Project Clinker, an infrared submarine wake detector—would cost as stand alone operations in the absence of the squadrons, and I worked with ONR and BuWeps and DTMB to outline a program of research compelling enough to warrant the expenditure. The climax came on March 17th in a meeting with Secretary Wakelin in his office attended by Vadm. Pirie DCNO Air, Vadm. Haywood, Asst. CNO for R&D, Rdm. Raborn, of the Polaris Program, Walt Ashe and myself. Pirie was dead set against all airships; Haywood felt the V/STOL data was important, but could perhaps be obtained in other cheaper ways; Raborn was certain the Clinker data could not be obtained without an airship; and Walt supplied the requested fiscal and manpower data. Since my letter to Wakelin stating the case for our program had been circulated to all attendees, I kept my mouth shut. (End Part One) **Ω**

(Ed. note: Part Two will follow in TNB 87. Now Dave has a lighter tale that happened between FWT missions.)

First Balloon Flight is the Last

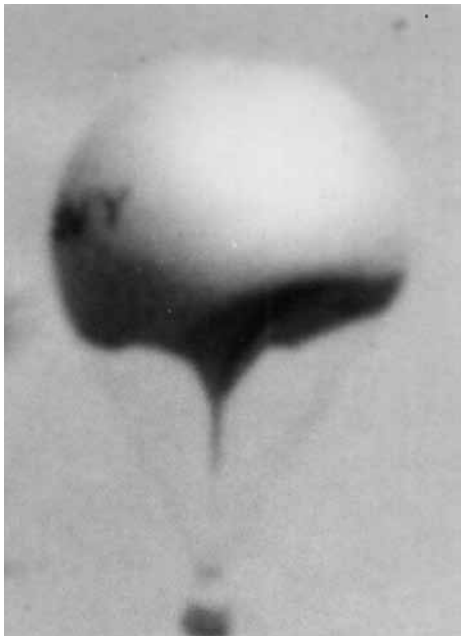
By David Hazen

It was to check on the status of our instrumentation (which we needed returned) that I visited Lakehurst on the morning of Monday, May 15. I was met by Walt Ashe with, "Boy, do we have a thrill for you!" It seemed that Fort Dix and Lakehurst shared the limited number of potential visitors between them by celebrating Armed Forces Day on adjacent weekends. The past weekend had been Lakehurst's turn, and as part of the activities two of the old training free balloons had been inflated and tethered and had been used to give children rides up and down within the big hangar. This morning one had been found to have lost most of its lift, but one was still in good shape, so Capt. Eppes had decided to initiate some non-balloonists into the wondrous ways of unpowered LTA flight.

Along with Eppes who was pilot, the others were Capt. Fortune, Commanding Officer of the Air Test Facility, Cdr. Little, Commanding Officer of the Technical Training Unit (read parachute packing school), Lt. Kniely, who coming to LTA late seemingly had missed free ballooning when it was dropped from the training syllabus, and, volunteered by Walt Ashe without previous warning, me. Once the five of us climbed into the basket to stand on a number of sandbags on the floor, the bags hanging on

the outside were removed by the ground crew one or two at a time on Eppes' command until we began to scrape along the ground moved by the gentle breeze. "We're off," Eppes announced as he opened a sand bag and started to drop pinches of sand over the side. Our rate of scraping increased, but we didn't rise. Obviously concerned by the rate with which we were approaching the buildings down wind, Capt. Fortune spilled about half a bag of sand overboard. We immediately shot upward, obviously somewhat to Eppes' dismay as he had not wanted to valve much gas so soon. Nevertheless, he did so, and we ceased climbing at about 1200'.

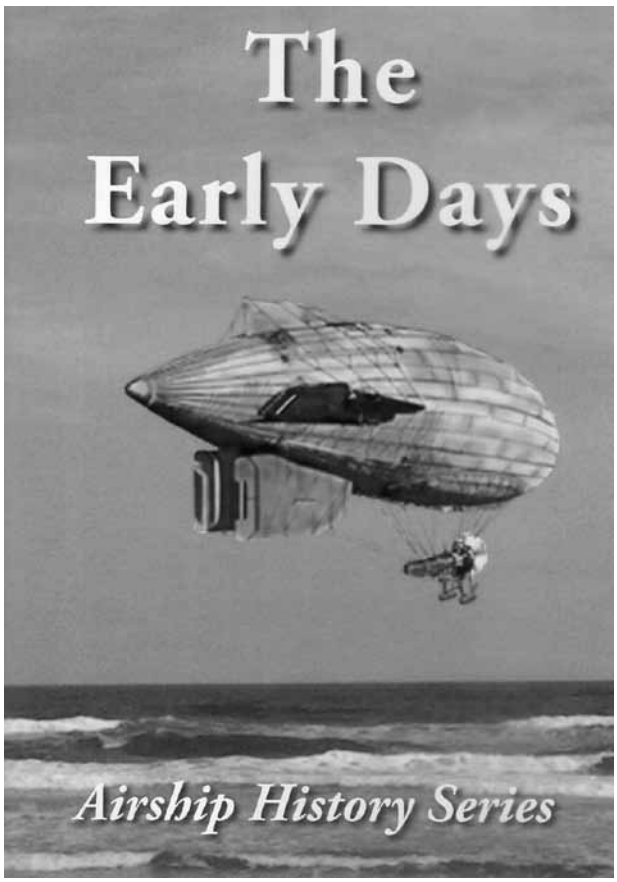
It was a lovely day. We enjoyed both the scenery and the experience of noiseless buoyant flight until it became obvious we were heading toward an airspace where we had no right to be at which point Eppes declared he would take us down to demonstrate how the drag line worked until we reached a suitable landing spot. He pulled the line leading to the valve. Lt. Kniely, looking up the stem, suggested that he pull again since the valve was still open. He did so, but the valve stayed open. We started to descend with increasing rapidity despite dropping the remaining sandbags—and anything else we could find in the basket. The deflating envelope was formed into a parachute shape by our rate of descent somewhat slowing it.



We all hung on as we descended through some trees to hit with enough force to tip the basket and throw Capt. Fortune and Cdr. Little out and the rest of us into jumble. Little and Fortune hung on as we scraped along until a snag broke Little's grasp and freed of his weight, the envelope still contained enough gas to lift us clear of the surrounding trees with Capt. Fortune still hanging on outside. He was pulled aboard just in time to prepare for our second crash, this time slithering down a power line pole, tangling the lines around the power wires and nearly landing on top of a man operating a power mower who, alerted by our shadow, had looked up in time to get out of the way.

After disentangling ourselves and deflating the remaining gas bubble, Cdr. Little who had followed us on the ground, caught up. He reached Capt. Fortune first to feign envy that he had enjoyed one more balloon ride than Little, had. "Yes, I've had two. My first and my last!" was the reply. Almost immediately the chase team arrived, calmed down a somewhat disturbed farmer; collected the balloon; straightened the pole; tightened the wires; repaired a chimney damaged before we got the envelope deflated; and replaced a bent TV antenna. Not attached to any receiver, the antenna proved to be simply a status symbol. Thus ended my only free balloon flight, which I later learned happened also to be the Navy's last. **Ω**

Media Watch



"The Early Days" #1 of the Airship Video History Series, Atlantis Productions. 1 hr 40 min. $30

Review by C. P. Hall

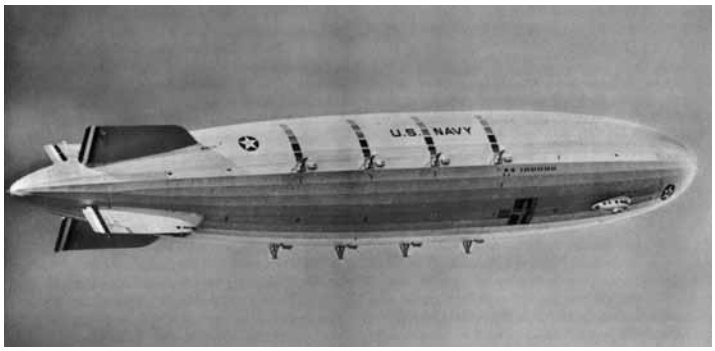
THE EARLY DAYS is a DVD history of lighter-than-air development and flight from before the earliest recorded efforts until the beginning of the Second World War. This history is divided into four sub-sections: Pre-First World War, The early First World War, America's entry into the First World War, and the period of peacetime that followed the First World War. The primary emphasis of this history is the non-rigid type of airship. The semi-rigid type enjoys no more than emphasis in proportion to its significance, and the rigid airship is mentioned to the point of not being ignored but ignored to the point that some viewers may be disappointed.

In a recent book review, I quoted an Englishman who felt that the British non-rigids from the First World War enjoyed enormous success but were under recognized as the publicity went to the larger, but less successful, rigid airships. To him I say, my friend, this is your DVD! First you must get past the caveman (?), then Francisco de Lana, the Montgolfiers, Dr. Soloman Andrews as well as a detour into submarine development. Finally, you arrive in the wonderful world of *Alpha, Beta, Gamma, Delta, Eta, Willows, and NulliSecundus, S.S.s, SSZs, Coastals and North Sea* types pursue U-boats around the British Isles, the Med, and even go world-wide as they are sold to Russia, Japan, and the USA. The best story and best photograph from the new book, BRITISH AIRSHIPS 1905 1930, even find their way into these first three sections.

The final sub-division is entitled, "Losing the Peace." This time the emphasis is on the between-the-wars years in the United States. Once again the main topic is non-rigid craft, the pleasant surprise being the focus on U.S. Army LTA program. While I knew that there was an Army involvement in LTA, from before World War I through the mid 1930s, I did not realize how large the program was, how many ships distributed over how many bases were involved, and how many experiments, both of design and operations, were undertaken. It is a striking contrast with how the U.S. Navy developed non-rigid LTA between the wars, which is also covered.

My conclusion is that the opening of this exercise is a little too convoluted, passing more information than is truly needed as introduction to the actual subject matter. Once the story line arrives at the 20th Century, this is airship history from unique perspectives. You will come out knowing more than when you came in. I recommend it. **Ω**

Ed is greatly relieved to finally complete the series first proposed more than 15 years ago and eventually made possible through the generous support of NAA members James Johnson, Hepburn Walker, Jr. and Adolph Schope. It breaks my heart it was not finished in time for them to enjoy, though the two chapters covering the rigids and the WWII and postwar episodes were completed before their passing. Member Robert Feuilloy, Secrétaire général de l'ARDHAN, whose efforts also made this video more accurate, complete, and entertaining, e-mailed, "I have spent the necessary time to view your video and I was so pleased to see the Chalais Meudon flying in the USA. Your team has gathered a great amount of videos and I know the pain it takes to do that over the years. Sometimes the commentaries go too fast and I would like to slow down the speed at which the images appear…Overall it is an amazing work of great historical value. Bravo and congratulations to all and specially yourself." **Ω**



USS *Macon* Added to National Register of Historic Places

by Robert Schwemmer

Commemorating the 75th anniversary of the loss of the U.S. Navy airship USS *Macon*, NOAA on 11 FEB 10 announced that the wreck site on the seafloor within Monterey Bay National Marine Sanctuary has been added to the National Register of Historic Places. The *Macon*, a 785-foot dirigible was one of the largest airships in the world – comparable in size to the RMS Titanic. It was intended to serve as a scout ship for the Pacific Fleet and had the ability to launch and recover Sparrowhawk biplanes. In service less than two years, the Macon, based at Moffett Field in Sunnyvale, Calif., was damaged in a storm on Feb. 12, 1935, and sank in the Pacific Ocean off Point Sur, south of San Francisco. All but two of the *Macon's* 83 crewmen were rescued by nearby Navy ships. "The USS *Macon* and its four associated Sparrowhawk biplanes are not only historically significant to our nation's history, but have unique ties to our local communities, where public museums highlight the airship's history," said Paul Michel, Monterey Bay National Marine Sanctuary superintendent. "The National Register listing highlights the importance of protecting the wreck site and its artifacts for further understanding our past." The National Register of Historic Places is the nation's official list of cultural places considered worth preserving. Authorized by the National Historic Preservation Act of 1966, the Register is part of a national program to coordinate and support public and private efforts to identify, evaluate and protect America's historic and archeological resources. Properties listed in the National Register can qualify for federal grants for historic preservation.

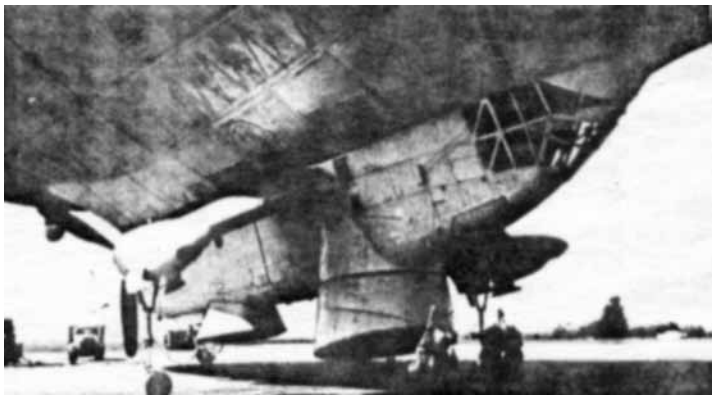
The wreckage of the *Macon* and four aircraft lie at a depth of more than 1,500 feet and were first documented in 1990 by the Monterey Bay Aquarium Research Institute (MBARI). Monterey Bay National Marine Sanctuary conducted a sonar survey in 2005 followed by the first archaeological expedition in 2006 that documented the *Macon's* remains. The expedition was a collaborative venture involving NOAA's Office of National Marine Sanctuaries, NOAA's Office of Ocean Exploration and Research, NOAA's Preserve America Initiative, MBARI, Stanford University, University of New Hampshire, U.S. Navy, Monterey Maritime and History Museum and the Moffett Field Historical Society and Museum. The *Macon* wreck site includes the airship's hangar bay, containing its four Sparrowhawks and their detached landing gear. Five of the *Macon's* eight engines also have been identified along with objects from the ship's galley, including two sections of the aluminum stove and the enlisted men's dining table and bench. Aluminum chairs and desks that may have been in a port side officer's or meteorologist's office also have been found. "Dirigibles were an important development in the history of aviation and the Macon's remains represent the only archaeologically-documented example of such aircraft in the United States and possibly the world," said Bruce Terrell, senior archaeologist, NOAA Office of National Marine Sanctuaries Maritime Heritage Program. The *Macon* wreck is the second site in Monterey Bay National Marine Sanctuary to be included on the National Register. The wreck of the California Gold Rush side-wheel steamship *Tennessee* was listed in 1981.

NOAA understands and predicts changes in the Earth's environment, from the depths of the ocean to the surface of the sun, and conserves and manages our coastal and marine resources.

Visit: http://www.noaa.gov. Office of National Marine Sanctuaries: http://sanctuaries.noaa.gov Monterey Bay National Marine Sanctuary Macon Expedition: http://montereybay.noaa.gov/research/macon/ **Ω**

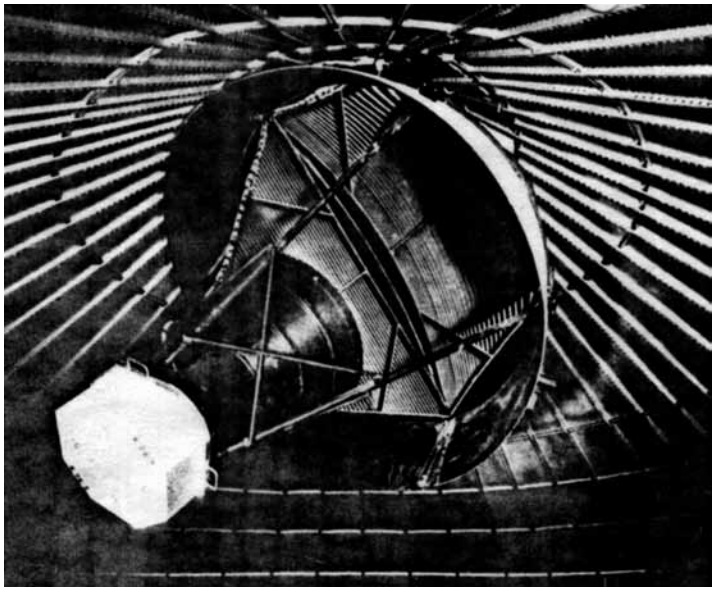
History Committee

Previously Classified "Clinker" Program



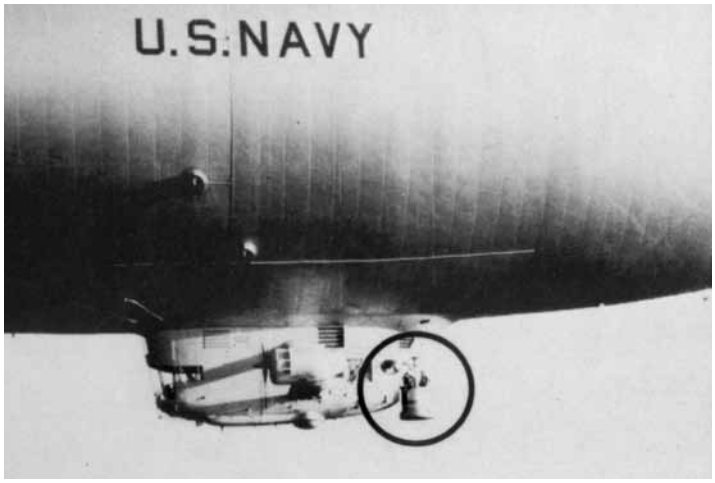
… is still a secret. Why? President Bill Clinton declassified most everything that was then 25 years old or older. Are the veterans of this program concerned they may be prosecuted if they talk about it? **John Fahey** happened to take some home movies of the predecessor M-ship so configured, but we know nothing else about that ship, or the N-1 above, or the final ZPG-2 configuration that evidently hollowed the radar dome so the airship looked fairly normal.

The simply awful, fuzzy zerox above is the only image we have of the N-1 modified to carry the large "radiometer" (below) and we know nothing about how it was supposed to find nuke subs by their heat trails.



The only reason we have even these scratchy images is because someone thought it necessary to create a "cover story" as to why these rather large protuberances were jutting out from the airship cars. The magazine article stated the research was to "study ocean currents," the same line of bull given the newspapers on the West Coast when the ZPG-2 stenciled #12 showed up at Santa Ana years after all the other blimps there were long gone. **Ω**

Project "YGAR" Explained

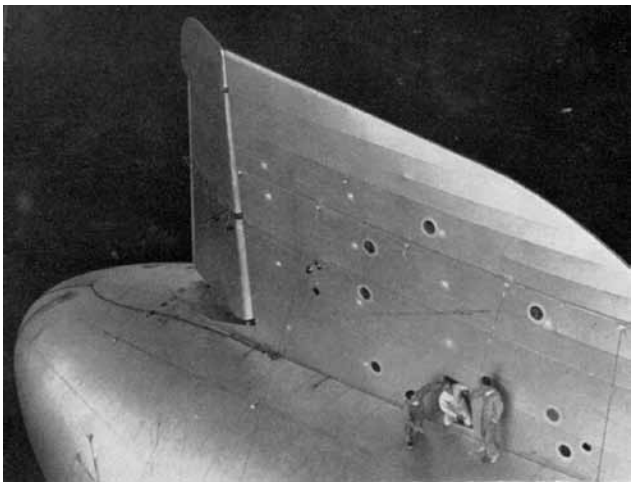


… we hope, by one of our members before it's too late. The British demonstrated crew exchange with a surface ship back in 1917. The US Navy finally caught up with the idea in the mid 1950s. What's so secret about putting crewmen in a basket and sending them down to a surface vessel, then hauling their reliefs back up to the airship?

These images were lifted from ALL HANDS magazine. Yet little has been published… was the 4K (pictured, also inside back cover) the first to use the basket? Motion pictures show a telephone being used to talk while looking up to the airship… so obviously the cable included a phone line. Same wire as the "fish?" Film shows a pulley system mounted on a smaller surface ship, not a carrier; the movie's "clapboard" was a home-drawn sheet of paper with magic marker titles and dates. (This film, which exists only in negative form, was tele-cined out of the Rosendahl collection at UTD Dallas by Ed.) Still other movies, in fact one official Goodyear film, show the crew exchange was also done with the 5K. **James Johnson** donated a new 5K winch to our Pensacola Museum; neither it nor a photo of this unique part of history is in our LTA exhibit. So what's the full story on YGAR? **Ω**

Mysteries of the Boundary Layer Study

…are also losing participants before they talk. ZS2G-1 #559 was obviously streamlined, as the above photo shows – smoothing fabric over the nose battens. (This photo was run in "Aerospace Engineering" with the Flying Wind Tunnel article, nothing about BL work.) Look closely at the tail.



Some sort of vacuum arrangement was supposedly used to draw air into the fin. Our own **Norm Mayer** flew inside the fin of an airship, but no one has copies of the reports made about the success or failure of the program. The fin image above was run in a Goodyear employee paper, or we wouldn't even have that. The editor seems to remember an image of a ZPG-2 also streamlined, though it might have been only a drawing, there is no information.

And then there is "Sniffer," designed to detect the stinky diesel exhaust of a submarine miles away, which was said to be so sensitive pointing it inland would set it off owing to the diesel semi-trucks on the highways. That's not to mention Julie gear… and Jezebel… all previously classified gear undoubtedly developed with airships. How come little or nothing has been published?

Gentle reader, stop and consider YOU might be the last man alive who can tell these stories – and others no one even remembers the acronym for. Or perhaps you have a non-NAA friend who worked these programs? A phone call might end the mystery. If you don't do it, who will?

Let the Editor have it at rgvant@juno.com. **Ω**

WATER BALLAST RECOVERY SYSTEM OF THE LZ-130 *GRAF ZEPPELIN*

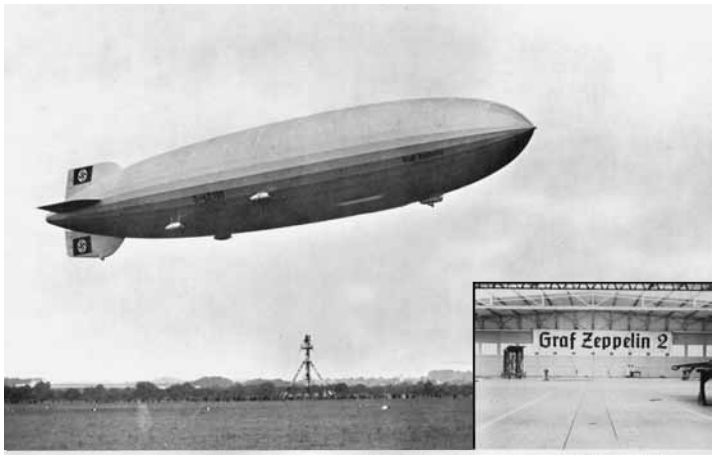
Translated from German text of Dr. Eng. Fritz Sturn and Dpl. Eng. G. Molt, VDI, April 15, 1939
(VDI = Society of German Engineers)
Courtesy John Mellburg Typist: Betty Brouwer
Additional photos: Ed. Drawing: David Fowler

THE NEED FOR BALLAST RECOVERY IN AIRSHIPS

The static buoyancy of all German airships in the past was regulated during flight by discharge of hydrogen or water. Water ballast had to be carried along to assure the rapid re-establishment of buoyancy equilibrium, which is affected by sudden temperature variations, leaks in lift gas cells, vertical thermals, the diminishing weight of fuel supply, etc. It stands to reason that the valving of hydrogen is inefficient and in the case of helium, cost wise totally out of question.

In addition, there is the further and more important factor of danger of valving hydrogen during certain weather conditions, as the case of the *Hindenburg* disaster might indicate. The airship GZ-1 used engine fuel that had approximately the weight of air, hence no appreciable buoyancy change occurred as the fuel load diminished during flight.

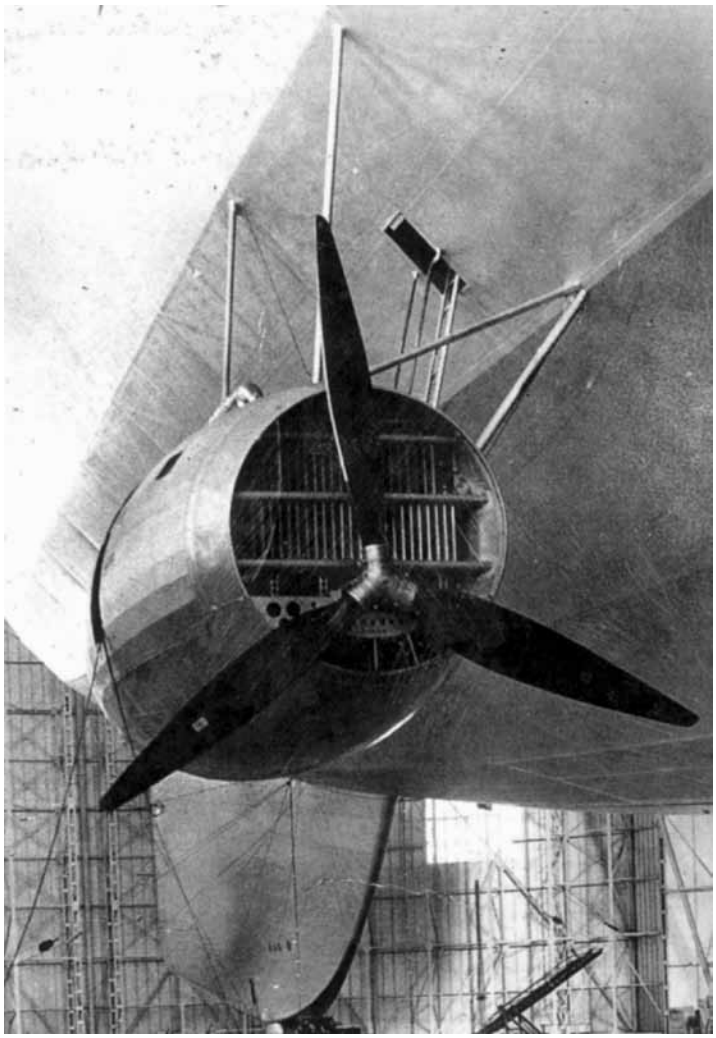
In the case of the *Hindenburg* it was decided, for the first time in the [German] airship industry, to use diesel engines for reasons of economy and safety. However, this brought to the fore once again, the problem of ballast recovery during flight. This was further intensified due to the very short layover periods after landing. This did not permit a supplemental filling or adding of hydrogen gas to make up for the valved gas that had been lost during flight maneuvers.



Since LZ-130, first flown September 14, 1938, was the second airship to bear the name of "Graf Zeppelin", virtually all writers have referred to it as "Graf Zeppelin II". However, as the inset (lower right) shows, it was originally intended that it be so designated on the airship with an ordinary Arabic numeral. This panel was never applied, and it flew simply as "Graf Zeppelin", since LZ-127 had already been retired by the time it was completed. (Both photos courtesy of Zeppelin Metallwerke and John Mellberg)

THE VARIOUS METHODS OF BALLAST RECOVERY

The efforts to solve this problem efficiently is decades old. Already in 1910 trials were under way to use hydrogen-fueled engines. The water ballast recovery from the engine exhausts was also being investigated during the lifetime of Graf Zeppelin himself, (prior to 1917). The unsatisfactory results derived from these experiments, however, forced further and different methods to be investigated; among them was a means of taking on ballast from bodies of water encountered enroute, such as lakes and oceans. These efforts met with more or less success. New and improved water scoops were tried with the *Hindenburg*, with limited results.



UTILIZATION OF WATER VAPOR IN THE AIR

The evident contamination of water secured from exhaust gases resulting in untenable after and side effects, directed the attention towards the exploitation of water vapor in the air; for instance, through the use of silica gel, which attracts moisture and discharges the water when heated. This particular process was experimentally developed by the Luftschiffbau Zeppelin in Friedrichshafen. Later, however, during full scale tests with the airship, a number of obstacles were encountered. The dependence of this method on the respective moisture content of the air at any one time requires an additional load factor for the technical useful realization, which is relatively complex in its control variable technique.

Other methods occasionally suggested, like the use of water assimilating ammonia or sulfuric acid, are, of course, unsuitable for use in the airship for safety reasons alone. The utilization of absorption, exhaust gas, carbon dioxide, has no possible chance for success as a water recovery system.

HYDROGEN AS AN ADMIXED FUEL FOR USE WITH DIESEL MOTORS

Experiments were undertaken in England to use hydrogen as an additive to the fuel used in their airship diesel motors. The English airship R-101 was equipped with Beardmore Diesels. However, no reports appeared in any trade journal of the results. In the crashed R-101, there were no hydrogen additive fuel operated diesel motor installations. In the U.S.A., trials were also made with smaller motors, to use hydrogen as an additive to the diesel fuel; but these efforts were not connected with airship engines or airship operation. The Zeppelin Airship Construction Company did not use or pay much attention to these fuel mixture trials as it proved to be a very complicated undertaking in connection with safety, regulating, etc. and secondly, because no significant compensating weight factor could be achieved.

SWIVELING PROPELLERS

The American Navy Airships Akron and Macon were equipped with swiveling propellers that could be tilted into a horizontal position. Looking into future development, the Zeppelin Corporation staff was active already in 1931 and tried out the use of a swivel prop system in connection with the regularly used motor gondolas and achieved very good success. It was decided however, to refrain from incorporating this change in the LZ-130 in view of the fact that the problem of static balance is not solved thereby, but rather is a considerable supplementary means in assisting landings and take-offs.

HYDROGEN MOTOR

At the beginning of the new research and development work at the Zeppelin Airship Corp. in 1935 there were only two methods in evidence, with any promise success: The hydrogen engine and recovery of water ballast by means of cooling of the engine exhaust. Although further work on hydrogen engines came to a halt after the Hindenburg disaster, a brief report on the results of this work is in order.

In September of 1935 work was started with an old Maybach Airship Motor, "Type MB. IVa" which had an output of 250 HP, using conventional aircraft gasoline. Shortly thereafter, it became possible to attain approximately one third of this HP after long trial runs using hydrogen. The main characteristic feature of this motor was the single mixing valve employed at each cylinder. Further development and trials with larger motors of various designs and construction proved the influence and effect of the shape of the combustion chambers. The relative best results were achieved with a "BMW 6" motor. The top performance of this motor by a 1:5 compression ratio using A.S. gas was 650 HP. With hydrogen a continuous output of 200 HP was achieved by a 1500 RPM P/M. The consumption was 0.85 M3/p sh.8 corresponding to 2040 K CAL/P sh. relative to a lower calorific value of hydrogen of 2400 K CAL/M3.

The exhaust cooled to 20° C resulted in a yield of 0.71 L. water per 1 M3 of consumed hydrogen gas, by continuous operation, a 70% humidity and a 15° C air temperature. With this engine a compensating weight factor the LZ-129 could have been achieved, as follows: the hydrogen consumption amounted to 170 M3/h and the recovered amount of water from the exhaust gases 120 Kg/h. Calculating 1 M3 hydrogen = approx. 1Kg lift resulting in a weight increase of 290 Kg7h. The four diesel motors (Daimler Benz LOF 6) of the LZ-129 required approximately 4x135=540 Kg/h gas oil at a continuous output of 300 HP corresponding to a consumption of 168g/PSH. This means that by the same airship speed (33.5 m/s-1206 KM/h) and an added hydrogen engine, they would have had to produce 50 KP less each and therefore would have used only 505 Mg/h gas oil. Therefore, a compensating weight factor of 290/505 = 57% would have resulted. It follows that the airship could have been equipped with two such hydrogen engines to achieve the desired compensating weight magnitude.

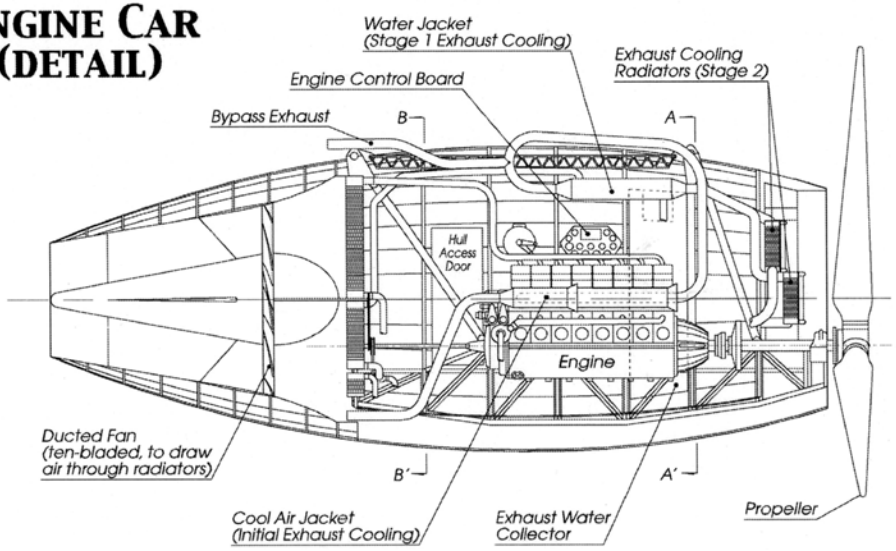
As a result of all the above mentioned experimental work, it became clear that the only remaining method for ballast recovery was the cooling of exhaust gases of the motors. Careful and exhaustive laboratory tests were undertaken, which in time, provided all the required answers. This permitted the decision to use this recovery method for the new airship LZ -130. **Ω**

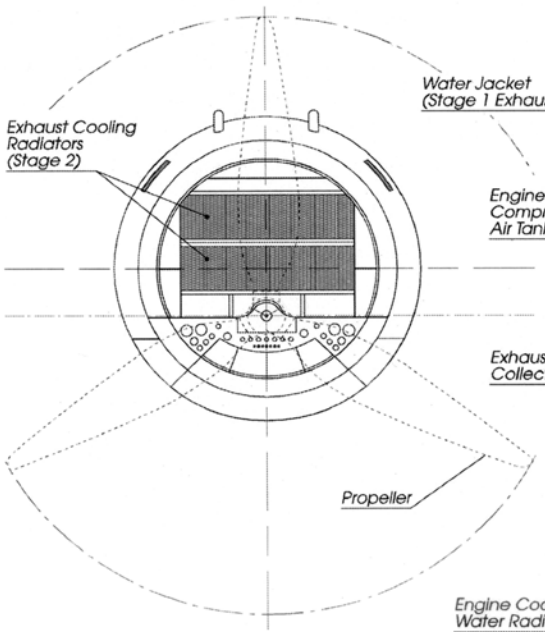
Specific details were provided in the Bauer--Dugan book "LZ130 *Graf Zeppelin* and the End of Commercial Airship Travel" (1996):

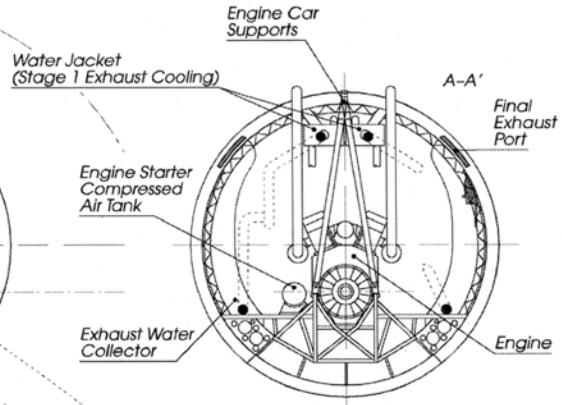
"Tests on the corrosive effects of the water ballast on the whole installation had been carried out since March. They showed ordinary gas oil to contain so much sulphuric acid that after combustion the water ballast contained a high level of SO4, which after a short time would destroy the cooling and collection tanks, and the water itself would be so sour as to be unsuitable for either washing or washing up. Experiments in other directions, such as using copper, were rejected because the weight would be comparatively high and especially because the protective covering for the pipes would be eaten away in a few weeks. However, a solution suggested itself through the use of German synthetic "Kogasin-Diesel" which contained only a small trace of sulphuric acid thus removing the risk of corrosion… it produced clean water… Following experiments, it was established that with the use of synthetic gas oil from Ruhrchemie, with 13.5% hydrogen, a complete weight exchange could be obtained; that is to say from 1 kg of gas oil at an exhaust gas temperature of 21 degrees and with a temperature of 16 degrees, 1 kg of water could be recovered." **Ω**

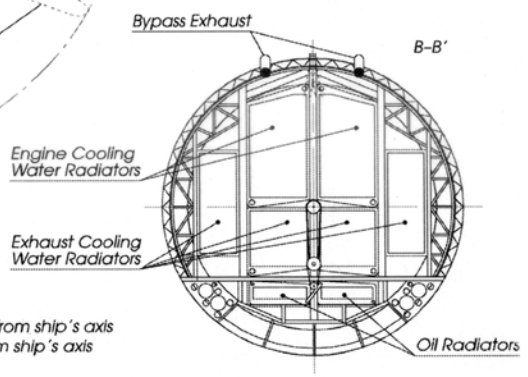
Next page: enjoy the excellent re-creation of the all-inclusive LZ-130 power car by David Fowler. The most obvious difference in the last rigid's construction than the more than 100 "pushers" that came before him, the power cars were an engineering marvel themselves. In 1940 one set of Nazi goons ordered the LZ-130 to be completely destroyed, with nothing to be saved even for museum purposes. Then designated to be sacrificed in a last-ditch effort to save the Nazi invasion of Norway, the assigned Luftwaffe officer arrived in Friedrichshafen to find LZ-130 in the final stages of demolition – not by LZ-workers, who had refused the Nazi's order, but by an SS unit. **Ω**

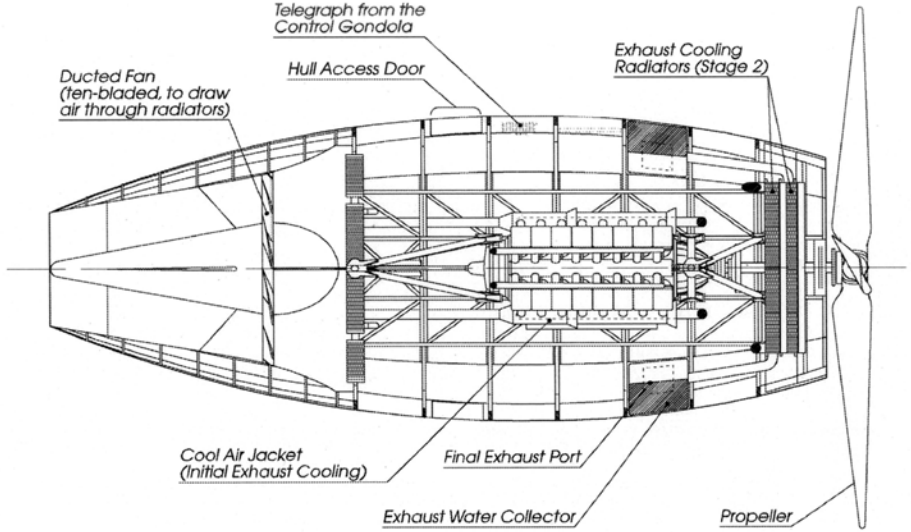
Engine Car (detail)







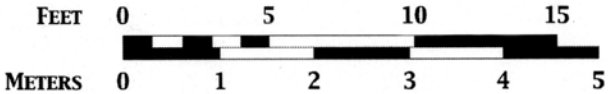




4 Engine Cars
Forward Engine Cars mounted 4° outward from ship's axis
Aft Engine Cars mounted at 3° outward from ship's axis

Engine specifications:
Daimler Benz LOF 6 diesel
V16, 4 valve per cylinder

Exhaust cooling system to reclaim water for ballast.
Initial: Cool Air Jacket (Exhaust temperature in = 500°C, temperature out = 400°C)
Stage 1: Cool Water Jacket (temperature in = 400°C, temperature out = 50°C)
Stage 2: Cooling Radiator (temperature in = 50°C, temperature out = 20°C)



SCALE 1/50

Ready Room

NAA REUNION
SEPTEMBER 24, 25, 26, 2010
MOFFETT FIELD & SUNNYVALE, CALIFORNIA

Reunion HQ: Sheraton Sunnyvale Hotel
1100 North Mathilda Avenue,
Sunnyvale, CA 94089

Complimentary pre-arranged shuttle service to and from the San Jose airport M-F, 7am-7pm; Free self-parking; Flat panel HD TV in every room. Sweet Sleeper bed in every room. Starbucks coffee in every room. Heated outdoor olympic sized pool. Free internet in all public areas as well as complimentary internet up to 45 minutes in our signature LINK Center; transportation arrangements Sat-Sun.
Members will make their own reservations with the Sheraton per the flier's instructions.

Tentative Schedule:
Friday, September 24:
Welcome Aboard Reception
Saturday, September 25:
Moffett Field Historical Society Museum: Barbeque lunch at Museum
Pending for Saturday the 25th, based on the commitment of 60 seats (that's only 30 couples!):
Half-hour flights in *Eureka*, the largest and most advanced airship in the world today, from Moffett. **Members make their own reservations.**

NAA special target price per seat, half-hour ride, $225, *subject to change*.
Sunday, September 26:
Free daytime; NAA Banquet in the evening

In the late Spring, you should have received information by mail to make your reservations. Hotel, airship flights, reception and banquet will be available "ala carte" for separate purchase.

If you have not received a Reunion mailing by June 1st please contact Treasurer, Peter F. Brouwer. The first Reunion of what became the NAA was 1980. Come celebrate 30 years of NAA! **Ω**

Other **Ready Room** marks for your calendar:

April 16 to June 22, 2010, in Logroño (La Rioja), Spain: "Leonardo Torres Quevedo. The Conquering of the Air" http://www.torresquevedo.org/LTQ10/index.php Ω

AA Convention / AHT's 80th anniversary of the R101 crash. Tentative schedule SEP 29 – OCT 4: Weds 29th Sept - Mayor of Bedford opens new airship gallery in town, Museum and Conference Registration opens. 30th and 1 OCT - Conference and partner program - Banquet in evening Sat 2nd - Visit to Cardington sheds to see *Skykitten* and watch model Airship Regatta. Public opening of airship gallery at Museum. Sun 3rd - Commemorative service for R101 in Cardington Church (seating limited to invited guests only) followed by re-dedication at the tomb in the churchyard (open to public).. Mon 4th - Peter Davison and Giles Camplin will be giving a lecture on R101 at the Royal Aeronautical Society in London. www.airship-association.org **Ω**

From the United Kingdom's Airship Association, Arnold Nayler sent the sad news: "Roger Munk died of a major heart attack on Sunday morning 21st February. He was only 63. He will be sadly missed by all at HAV, his family and the world airship community. I am sure that you will agree that modern technology airships would not be the same without the serious design development work that he undertook, firstly on the large methane gas carrier airship design for Shell in 1970, on long-distance balloons, on the successful Skyship 500, 500HL, the various 600 versions, the Sentinel 1000 and the design of the YEZ-2A for the US Navy. Trained and working as a naval architect, he switched to lighter-than-air and was recognized worldwide as the leader in the field during his 40 years involvement with airships."

Mike Conners wrote only a week later, "It is with great sadness that I convey the news of the loss of George Spyrou, Saturday morning, February 27th. He lives in my memory as a great leader in LTA; a man of great integrity and vision. I will miss him." In the photo above, Mike (left) gives George the AIAA's Lifetime Achievement Award.

Black Blimp

James Crowley Jr., 85, passed 2 JAN 10. A Bronx native, Crowley was a resident of Houma, LA, and activist supporter of the Regional Military Museum Foundation. He was known locally as a generous humanitarian. Crowley served in LTA during WWII and worked to preserve the history of the Houma Naval Air Station. He is survived by his wife Shirley, four sons and a daughter, and many grandchildren. **Ω**

Herman "Tex" Dukes passed on 26 DEC 09. Tex retired as a Master Chief Petty Officer. Most of his "war stories" involved his time with Lighter-Than- Air service. Tex is survived by Jill, his wife of 68 years, his children, many nieces, nephews and friends. He was buried with full military honors as a celebration of his 30 years of service to the nation. **Ω**

John Emerson Jackson, Jr., 86, passed 10 MAR 10. He was born in Gloucester, New Jersey, and enlisted shortly after Pearl Harbor, advancing from E1 to E9, later being commissioned. He earned citation for extraordinary heroism in the Korean Campaign, pioneering the employment of helicopters under combat conditions and participating in successful life saving missions with Sikorsky helicopters. He was awarded for services in Vietnam, and Citation for Bravery for battling a ravaging fire on the USS *Oriskany* in 1966. He was married in 1952 to Rena B. Williams in Honolulu, and was married for 48 years before losing 'the love of his life'. He is survived by his three children, grandchildren and extended nieces and nephews. **Ω**

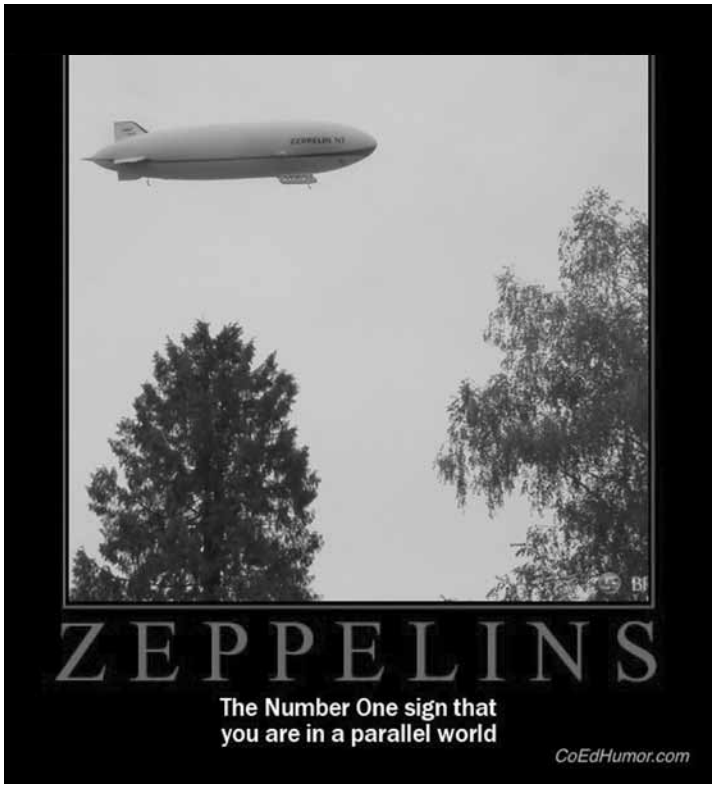
"Fiddler's Green" is sailor's heaven, the place where all good seafarers go, a paradise or Elysium where unlimited supplies of rum, women and tobacco are provided. Unlike Davy Jones's Locker, the final resting place of sailors lost at sea, it is on land, the place where sailors go who die ashore. It is very like Cockaigne, another mythical country of luxury and idleness. Its origins are unfortunately even more obscure than those of "Cockaigne", and as elusive as that magical place, Glockamorra. **Ω**

Lighter Side of LTA

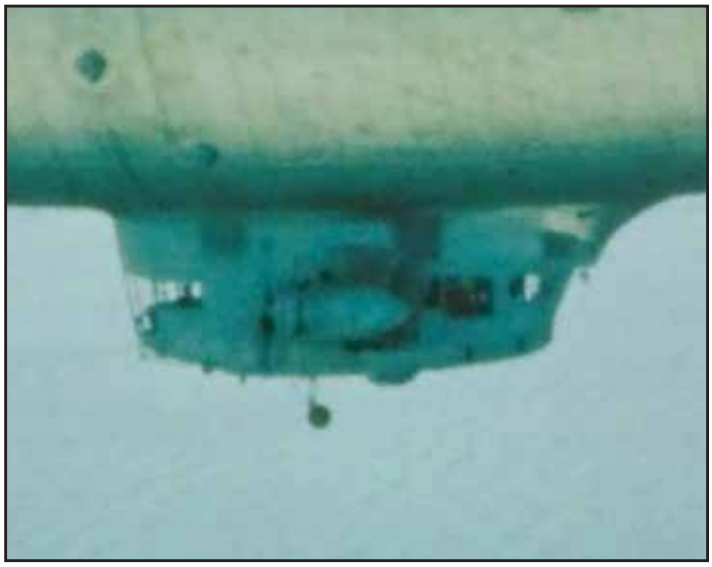
Dave Hazen recalls, "The first WEPTASK ASSIGNMENT covering this [FWT] work gave rise to a continuing bit of ribald humor concerning the name of the system. In my original proposal to modify the ZPG-2, I had referred to an "Airborne Model Carriage." The Weptask renamed it the "ZPG-2 Aerodynamic Test Facility." Neither provided a particularly jazzy acronym. We thought we could do better. Forrestal Aeronautical Research Tool, FART, had LTA connotations; Princeton Inair Model Platform, PIMP, sounded professional; the Tunnel in the Sky, TITS, appealed because we thought the two observation globes fitted to the side ports so one could stick one's head in for a good view of the model below were highly suggestive and that a winged brassier might be an appropriate project logo. Cooler heads prevailing, the Flying Wind Tunnel, FWT, though not particularly exciting steered clear of numerous minefields." ☺

The company promised him a Golden one, but times are tough....

"In those days [WWI], fires in airplanes were common - so common that, in fear of a firey end, some pilots carried pistols to commit suicide; others chose to jump to a quick death… Pilots weren't eager to adopt a parachute either. They argued that carrying one showed a lack of trust in one's machine… Army brass [feared] that the presence of parachutes would make pilots abandon their machines needlessly." – L. Ritter, "Pack Man: Charles Broadwick Invented A New Way of Falling" – AIR & SPACE SMITHSONIAN APR/MAY 2010 ☺



Mike Kolasa also supplied the images above showing the New Jersey junkyard's airship storage section prior to the collector's death and subsequent selloff. The single ZP-2K, second from the "closed" end, was purchased by NASM and has at least been stabilized. Two ZP3Ks, -47 and -88, became our treasure at Pensacola (back cover), the remaining 3K hulks winding up with Mr. Kermit Weeks in Florida. The single ZP4K, on the "closed" end of the lineup above, disintegrated while attempting to move it. Its magnesium construction is likely to blame. What is believed to be a 4K in the photo below (kindly located and snapped by Goodyear at Ed.'s request 10 + years ago, and likely all but gone now) may be the very one described by **Ed Stephany** in "Pigeon Cote." The 4K is often mistaken for a wartime K-ship though it's rarely-photographed car (right) was unique inside and out.



Above: The K-47 car that was recovered from the New jersey rubbish heap and now fully restored and on display at the National Naval Aviation Museum of Naval in Pensacola. (NNAM photo via Mort Eckhouse) Below: The K-28, whch was donated by Goodyear to the New England Air Museum undergoing restoration at the Museum at Windsor Locks, Ct. (NEAM photo via John Craggs)