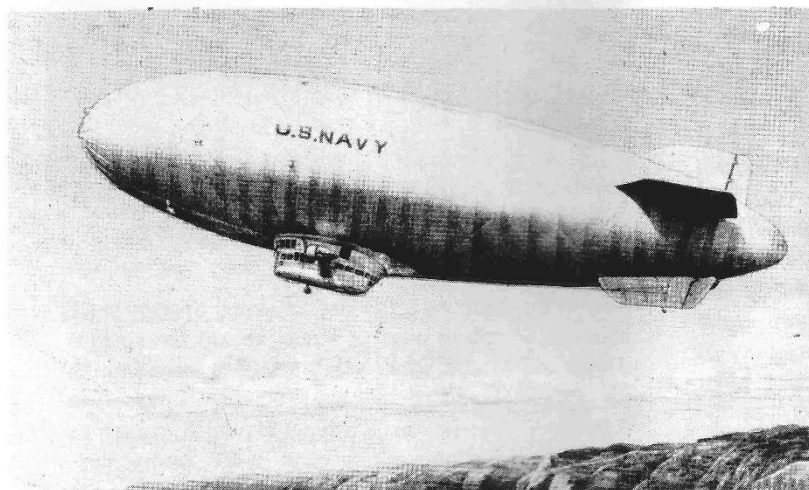


DIRIGIBLE

THE JOURNAL OF THE AIRSHIP & BALLOON MUSEUM

PUBLISHED BY THE FRIENDS OF CARDINGTON AIRSHIP STATION. No. 9 Jan - March 1992

NAVAL AIRSHIP ASSOCIATION REUNION REPORT



Below, FOCAS Chairman Jarvis Frith, standing left in the picture, and Executive Secretary Peter Garth stand before the nearly completed K47 gondola during the NAA reunion at Pensacola. They are holding a painting of K88 in flight (left) which they presented to the NAA on behalf of FOCAS. See news items inside.



NAA REUNION REPORT

For many years the role played by the U.S. Navy in the development of lighter than air activity was definitive. Today, the officers and enlisted men, who manned and flew the airships, now retired maintain the camaraderie of years long gone through membership of the Naval Airship Association. It was therefore with an awareness of honour bestowed that Peter Garth and I flew to Pensacola in September to present a joint paper to the biannual convention.

To follow up Paul Adams earlier acquaintance with the National Museum of Naval Aviation we called on Captain Bob Rasmussen, Director and Robert Macon, Deputy Director for a rewarding exchange of views and a tour of this supremely elegant and informative exhibition. Later in the week we were to visit the cities other other excellent museum, that of the Civil War Soldier in downtown Pensacola and observed another comprehensive and cunningly displayed collection. The convention was held in the Pensacola Hilton where the atmosphere was relaxed and hospitable. On arrival we were duly inducted into membership and presented with a commemorative mug and baseball cap. Many new friendships were made and old ones renewed, in particular with Jim Shock and Hepburn Walker. Several papers were read on the Friday concerning such diverse subjects as, the history and constructional features of various airship bases in the U.S., the detection and suppression of attempts to import drugs by the employment of TCOM radar carrying balloons along the Mexican boarder, and the discovery and planned retrieval of the Macon wreckage off the coast of California, a report on deliberations of the N.A.A. Technical Committee on aspects of the YEZ 2A design and a video, Flying Aircraft Carriers, depicting the development of the means by which Akron and Macon carried scouting aircraft.

The FOCAS paper on the proposed Cardington Museum was accorded a lively appreciation and many offers of help with artifacts and cash were voiced, which bodes well for the future.

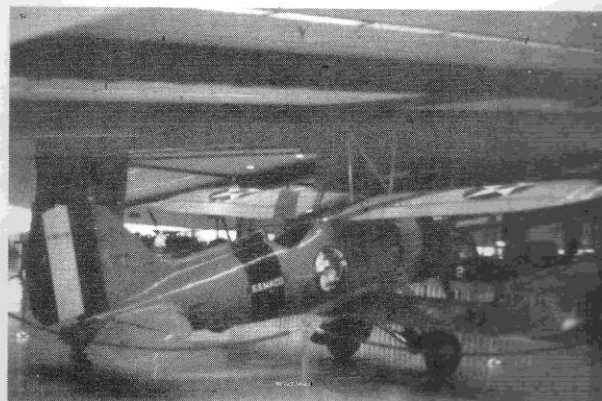
We flew back to the U.K. feeling that it had all been worth while, most particularly in the exchanges of views and compliments with a group of uniquely influential airshipmen in America. The next jamboree is at Scottsdale Arizona in 1993. Be there!

JARVIS FRITH.

K47 NEARS COMPLETION

The K47 gondola being restored at the National Museum of Naval Aviation is nearing completion. The

project has taken a team of ex-Lakehurst flight crew and ground crew almost two years. The gondola was on display at the museum during the NAA reunion which was partially held at the museum. When the finishing touches have been applied the gondola will be suspended from the museum ceiling where it should make an imposing sight. Visitors will be able to view the interior of the car from the second floor mezzanine where the enlarged lighter than air exhibit is to be based.



Photos: main front page and above, Jarvis Frith

New at the museum is the last remaining Sparrowhawk hook-on aeroplane used as scouts aboard the airships Akron and Macon. The aircraft has been loaned to the the Pensacola based museum by the Smithsonian Aerospace museum in Washington which closed its Airship and Balloon gallery early in 91. During their visit to the NMNA Jarvis Frith and Peter Garth were able to inspect the Sparrowhawk being reassembled for display. See above photo.

The aircraft carries the Bureau Number of 9056 and the markings as it appeared in 1933 when operating from the Macon. However the machine is in fact comprised of a number of spare fuselage and wing assemblies. The Sparrowhawk will join the K47 gondola as the centre pieces of the new LTA display.

MEMBERSHIP GROWING

FOCAS membership continues to grow. Among others we are pleased to welcome John Proven, curator of the museum at the Frankfurt International Museum, a leading authority on German airships and Ray Rimmel, author and publisher of many books about World War One aviation including the much praised 'Zeppelin!'.

Members who pay by check or cash are reminded that 1992 subscriptions are now due.

OBITUARIES.

Sidney Herbert Duke.

It is with great sadness we have to report the death of our oldest member Sid Duke. Sidney Herbert Duke was born in 1897 and spent most of his working life in engineering, reluctantly retiring in 1970. His service in the R.N.A.S., flying in various coastal airship and R29 fired an interest in airships which stayed with him throughout his life. Through his friendship with the late Geoffrey Chaimberlin and other members of the steering group which founded FOCAS he became the first honorary life member. In all he did he was encouraged and cherished by his wife Elizabeth, to whom we extend our deepest sympathy. December 21st 1991 would have been the 73rd anniversary of their wedding.

W V Callard.

Age 94. 14 November 1991

Joined RNAS in July 1916 where he trained as a rigger. For most of his service time he was stationed at Pulham.

K88 PAINTING

To record the acquisition of the gondola from the U.S. Navy airship K88 FOCAS has commissioned a painting of the airship in flight. The painting, by artist Patrick Loan, depicts the ship early in her career leaving on patrol from Fortaleza, Brazil in 1944. Copies of the painting were presented to the National Museum of Naval Aviation and the Naval Airship Association by Jarvis Frith and Peter Garth during their recent visit to the NAA reunion in appreciation of their assistance with securing the gondola for FOCAS

Copies of the print are available to members (see enclosed form) with all proceeds going towards the restoration of the gondola.

FUND RAISING DRIVE

A major fund-raising effort for the museum project will be ready to get under way early in 1992. FOCAS Executive Secretary Peter Garth has been in charge of preparations for the campaign and, with professional assistance, has produced a brochure to be sent to prospective contributors. A full report will appear in the next issue.

All items for inclusion in DIRIGIBLE number ten should reach the editor by February 10.

LISTED BUILDING STATUS REFUSED FOR ADMINISTRATION BLOCK

In a letter to FOCAS the National Trust has turned down our application to have 'Listed Building' status granted for the Administration Block at Cardington. The trust stated a lack of "significant history" for their decision. The building, which stands adjacent to the main gate, was built by Shorts Brothers in 1917 as the Headquarters for both their aeroplane and airship building business. It was acquired by the Air Ministry in 1919. As part of the 1924 airship program it housed the design rooms for the R101 along with the offices of such important figures as Scott, Colmore and Rope. The building was taken over by the RAF in 1931 who still occupy it today. With the proposed withdrawal of the RAF from Cardington any future plans which call for the demolition of the building could presumably go ahead unopposed. It was because of such rumours of demolition in 1990 that FOCAS applied to the National Trust for listed building status. We shall continue to remain vigilant about the future of this important building.

EDITORIAL

In response to many requests and suggestions from members the first 1992 issue of 'Dirigible' has a 'new look' enlarged format. The additional pages will allow a broader and more detailed summary of FOCAS news and events plus more in-depth features.

To help contain the increased production costs of the enlarged journal a Desk Top Publishing unit has been installed at the editors address who will now be responsible for the design and layout of each issue. Members comments and suggestions about the design and contents of the journal would be very welcome.

A feature of 'Dirigible' I would particularly like to promote is the correspondence column. Letters do come in but we would like to hear much more from our members on whatever subjects they would like to raise. An important topic at the moment is the future of the Cardington sheds and particularly shed No.1 which now lies largely empty. Send in your views and suggestions about how the future of these vital buildings can be secured.

As reported on this page the Department of the Environment has refused FOCAS's request to have the Administration Block given listed building status. The DOE cited 'a lack of historical importance' for their decision. A brief study of the 75 year existence of the building makes one wonder just what is required to qualify as 'significant history'?

ZEPPELIN FIELD

PART ONE

WRITTEN AND COMPILED BY PAUL A ADAMS

Shortly after three on the morning of June 17, 1917 three British aircraft engaged the Zeppelin L48 over Theberton, Norfolk. The ensuing thirty minute battle concluded with the destruction of the airship and marked a turning point for the Zeppelin as an offensive weapon of war. The first of the 'Height Climbers' to be brought down by British defences her loss demonstrated that the effectiveness and safety of the hydrogen inflated airship was being eroded by the advancing technology of the aeroplane. Using eye-witness accounts and reports from some of the few crewmen to survive the destruction of a Zeppelin in aerial combat, we recount the events

surrounding the loss of the L48.

The first report, entitled "Fireball In The Sky" is by aviation author David West. Written in 1956, West was unable to take advantage of the later research of such historians as D. H. Robinson and Ray Rimell and unknowingly includes several errors in his account, the most significant being his assumption that the commander of the Zeppelin was trying to surrender when his craft met with destruction. None the less, his vivid description of the final hours of L48 rate as a unique record of a type of aerial combat long gone.

"FIRE BALL IN THE SKY"

The Germans used Zeppelin airships for some of their night raids on England during the First World War. One of their favourite targets was the port of Harwich on the East coast. At the time of the episode described here, I was a Sergeant Instructor in Signalling in the Sussex Yeomanry, and was stationed at Rendlesham Park in Suffolk.

Harwich was situated a short distance East of our camp. On the night of June 17, 1917 there were no clouds and the stars were bright. The anti aircraft guns at Harwich started firing about midnight, and a number of my comrades and I stood around our huts to watch the fun.

Usually the Zepps came in from the North Sea either North or South of Harwich, then they would turn around and fly over the port on their way home, dropping bombs on the way.

Watching the guns firing at Harwich was like seeing a distant fireworks display, and when shells burst in the air, our secret hopes were that the gunners would "Get One". Now and then we could hear the drone of engines, when the wind direction was right, and at about 2 am headquarters was warned by the AA Command at Harwich that they had disabled a Zepp, and that it was drifting in the direction of our camp. Those of us who were still up, kept a sharp lookout and soon spotted its dark form blotting out the stars as it floated along.

The great ship was being blown inland; if the engines remained silent, it would still be over land when daylight came and a sitting duck for the fighter aircraft at Orfordness nearby.

At that time of year it was light about 4.30 or at least light enough to see the Zeppelin in silhouette. As it

floated over us, we speculated on the frantic efforts of the crew to get the engines started. Everything was dead silent when the engines suddenly came to life with a roar.

Now it was all excitement again, and we wondered in which direction the captain would steer his ship. To our surprise, he turned about and headed for Harwich with the engines at full speed. It looked as if he was getting away when the engines stopped again, and everything became very quiet.

Soon we saw the dark form of the ship drifting towards us once again. Realizing that the dawn was rapidly approaching, and that the crew might not get the engines started again, we knew that it would either come down and surrender when it became daylight, or be shot down. In either case it promised to be a thrilling adventure if we were in at the finish. So three of us mounted our bicycles and set off in pursuit. We followed any road which led in the general direction of the fugitive.

We soon found that we could not ride a bike and look up at the same time without losing balance, so we arranged for one to go on ahead for about quarter of a mile, dismount and watch the airship. Then we caught up with him, and decided on the next direction to take and repeated the same plan.

After several miles of travel like this my two companions tired of the chase and returned to camp. Shortly after they had turned back the engines started again. The airship now headed for the coast, but at quite a slow speed. I knew that the direction I was now taking would bring me to the small seaside town of Leiston, where I felt sure there would be an AA battery. The chances of

escaping over the North Sea were now completely gone, for ahead were the Navy gunners aboard British Warships out to sea, while behind there were the fighter aircraft waiting their chance at Orfordness. The Zepp captain must have realized the position, for after having flown out to sea for a short while he turned back. I am sure he intended to surrender. There was nothing else he could do. But as soon as he crossed the coast the AA guns started up.

Ranging shells were bursting near the airship, which was now easy to see. Suddenly, I saw a red flare falling from the sky near to the airship, and the guns ceased firing. The flare had been dropped by a fighter pilot, to let the gunners know he was attacking.

Then I heard the chatter of machine gun fire overhead, and realized that one of the fighters from Orfordness had taken off in the dark, and was attacking the Zepp. Tracer bullets could be seen streaming at the Zepp, and any moment I expected to see it become a blazing inferno. True the men in the Zepp were the enemy, but even so I was furious with the pilot of the fighter, for had he thought for just a moment it would have been completely obvious that the airship was being brought in to surrender. It was losing altitude and the engines were silent. In those days there was no two-way radio and the pilot could not be warned of the obvious situation. The capture of a Zepp, fully intact, would have been a grand prize.

The pilot-flying a Sopwith Pup I believe- kept up the attack, and one of his hits set fire to the airship just above the nose. Now the real drama began.

I was only a few hundred yards from the Zepp when it caught fire. Instead of immediately becoming enveloped in flames and crashing to the ground, as I expected, it just stayed where it was, with the flames gradually creeping along the top and down under the nose, with the top flames moving quicker than those below.

It was astonishing that the giant ship did not fall. Even when it was more than half enveloped in flames it still appeared to be at the same height. It must have been the heat from the flames which kept it up. Suddenly I saw a huge golden ball of fire drop from the airship, and fall

straight to the earth where it burned furiously, and then the airship began to come down, but only at a slow pace. I pictured the frantic effort which had been made to start the engines, only to bring the crew to disaster. I felt pity for those poor devils trapped in the floating furnace, with no means of escape, for there were no parachutes. As I watched this terrible sight, I jumped on my bike, and raced to the field where I could see the wreckage would fall.

I vividly remember the thoughts in my mind at that moment. I fled enraged at the pilot who brought the Zepp down for the reasons I have stated.

When the Zepp (it was L48) finally hit the ground -at quite a slow speed it seemed- it settled tail first still blazing. I was already in the field waiting for it. I was the first person to arrive, and ran around the wreck, as near as I could get. I ran around it twice, for no special reason, but it seemed the only thing to do. I did not see anyone. Then I was joined by a policeman and a Petty Officer of the Navy.

Together we searched for survivors. We found one still alive and called him the Sergeant Major because he had a crown on his sleeve. We carried him to a spot which was being used for First Aid, and saw another survivor there calmly smoking a cigarette. How either of them survived I'll never know. By this time, of course, crowds of people had come from all directions, including soldiers and naval officers from Harwich.

From having been the very first on the scene, I now found myself just one of the crowd, and of very little consequence. I retrieved some objects from the wreck. A tin which had contained morphine tablets, several bits of the framework, and a silver revolver. This I slipped into my breeches as a worthwhile prize. However, in moving about, it slipped down to my knee and became a conspicuous bulge.

Before I could make it less noticeable, an officer asked me what I had there, and I had to show him. I then got a dressing down for having taken the gun from the wreck and nearly found myself under arrest. The officer took the revolver.

There were some strange happenings associated with this disaster. For example, the burning wreck fell in the only



ABOVE: L48 on an early trial flight. Photo: A&BM

uncultivated field for miles around. All the other fields were golden with ripening crops.

Near the edge of the field I saw a crowd. On investigating, I found they were motorists helping themselves to petrol from one of the airships tanks which had fallen intact. A "bolt from the blue" so to speak, as petrol was rationed.

The strangest thing of all was the fate of the airship commander. I went to get a drink of water from a small cottage on the edge of the field. The housewife gave me a cup full, and asked me who the gentleman was with the fur coat. "Fur coat?" I said, mentally noting it was summer. "yes" she replied. "he came for a drink of water, look, there he is, going towards the airship".

I looked where she indicated, and saw the man, and what's more I recognised the uniform. It was German. I ran after him, passing my petty officer on the way "come on" I called, and pointing ahead I added "That man is a German". We soon caught up with him, and the Navy said "you'd better come with us, your off this airship". the German looked at us and fell into step.

"Lead me to a high officer" he said. We did and handed him to a Vice Admiral - so the Navy said.

Now the amazing thing about this officer - he turned out to be the commander of the airship-was that he was wearing a big fur collar on his coat, and large cuffs of fur on his sleeves. yet there were no signs of burning or singing anywhere of the fur or coat.

He smelt strongly of burning fuel and oil but was untouched.

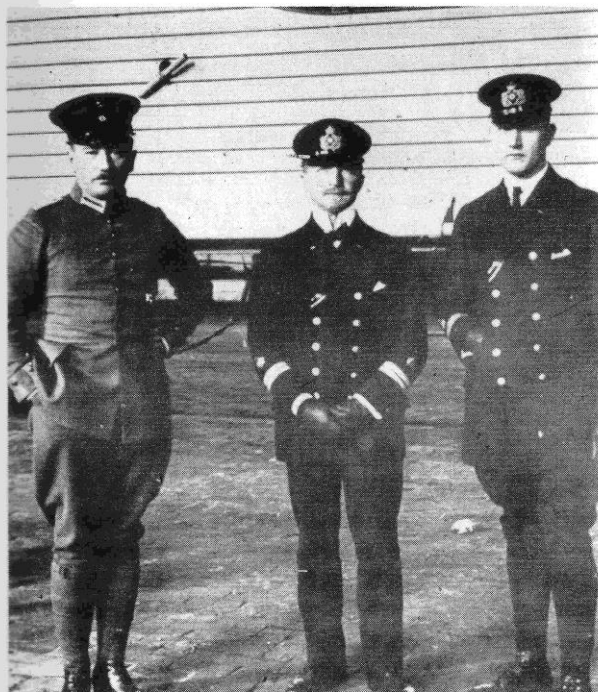
Where he came from, or how he escaped baffled us completely. He did not come out of the one gondola which we found fairly intact at the scene of the wreck, and there were no others. He could not have jumped without being killed or injured like the others were, and he was certainly not in any fireproof cabin, because there weren't any. His actions in the last few minutes of the life of the Zepp were a complete mystery, and we never heard the answer. One solution which had been suggested was that the commander was in one of the observers gondolas which the Germans used to let down below the clouds during their raids for observation purposes, but although I did not know this at the time, we certainly did not find anything like a gondola in the near vicinity of the crash nor was one found in the wreckage.

The remaining incident which stands out in my mind, was seeing the fighter pilot who brought the Zepp down, land in the same field and then walk over to the remains of the wreck to survey the results of his handiwork, and I still did not feel any different towards him. He offered to try and fly one of the badly injure Germans to the military hospitals nearby at Ipswich, but this could not be done in a single seat fighter, and another machine

was used to get the German to hospital.

This episode happened over forty years ago, but it was so vivid, that it seems like it was only yesterday, and I have no difficulty in reliving it again in every detail. "

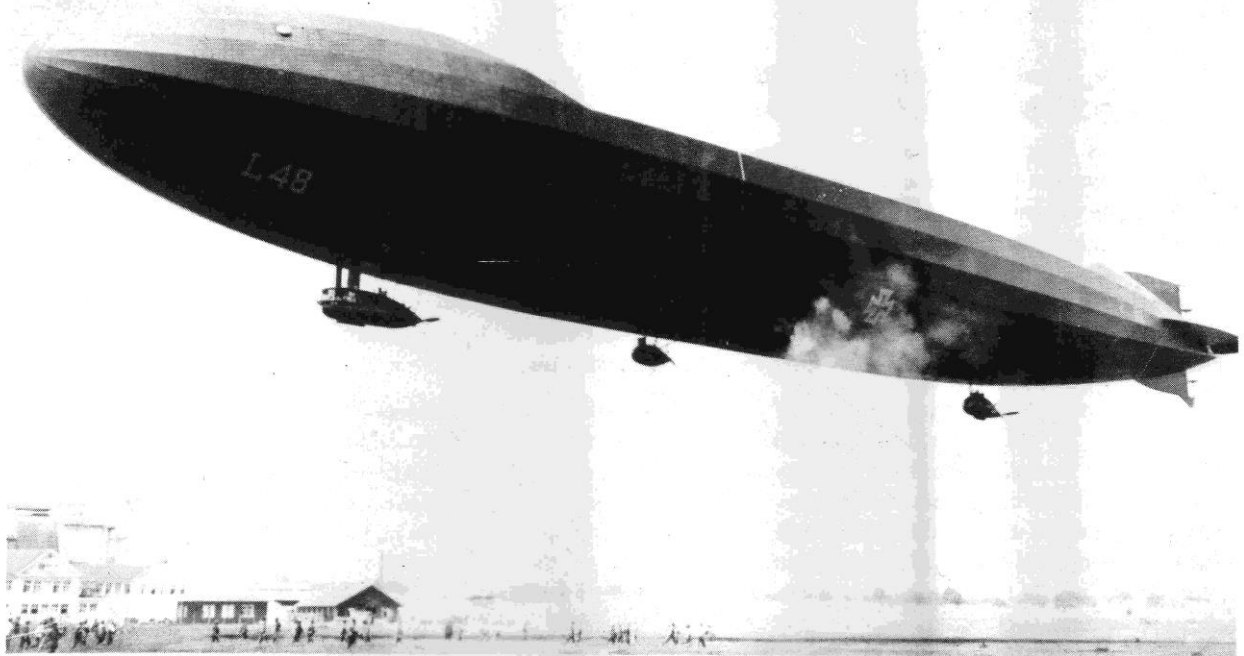
The L48 was the fist of the new 'U' type Zeppelins conceived as a direct result of the increasing losses incurred during 1916. The new class of Zeppelin was designed to out climb the ceiling of the British home defence aircraft by reaching the lower levels of the sub-statosphere, five miles above the surface of the earth. As part of an on-going development program she was the first ship to be fitted with a new, smaller, streamlined control car. The rear gondola was also of a new design equipped with two engines driving a single propeller, replacing the three engined car with clumsy



ABOVE: In the centre is Franz George Eichler, commander of L48. On the left is Kuno Manger and right is Hans-Karl Gayer, commanders of L62 and L49 respectively.
Photo: Ray Rimell

outrigger mounted propellers of previous classes. Modifications to the hull included the removal of all crew spaces and reduction of the bomb release gear by half. With the new ships and their greatly increased altitude performance, the Chief of the German Naval Airship Division, the legendary Peter Strasser, believed he had in one move rendered the British defences obsolete. He was swiftly to be proved wrong.

The raid of 16/17 June 1917 was ill conceived from the start. L48 was to lead five other Zeppelins, L42, L44, L45, L46 and L47 in an attack on London during one of



ABOVE: The newly commissioned L48 on a trial flight over Friedrichafen, May 1916. Note the ship has cleared the ground before the engines are started.

Photo: Ray Rimell

the shortest nights of the year. Convinced of the invulnerability of the new ships Strasser ordered the Zeppelins into combat on a night which would give them just three hours of darkness over the target.

The raid ran into trouble even before it got underway. Crosswinds prevented L46 and L47 from leaving their sheds at Ahlorn. L44 set out from Nordholz before L48 but turned back several hours into the flight with recurrent engine failures, making most of the return trip on just her port amidships engine. Likewise, L45, based in the Toska shed at Tondern, turned back with engine trouble. Only L42 and L48 reached English soil, neither reached London and only one would return to Germany.

Commanded by Kapitänleutnant der Reserve George Eichler the newly commissioned L48 was walked out of the 'Norman' shed at her Nordholz base shortly after midday on the 16th. On board as observer was Strasser's right hand man, Commander of the Naval Airship Division, Korvettenkapitan Victor Schütze. Take off was to the sound of the station band as the ship trimmed off, floated free of the ground crew and started her engines before heading west. Previously L48 had undertaken eight scouting missions but this was to be

her first raid. The North Sea was soon in sight and over flying the German High Seas Fleet at anchor near Schilling Reede the warships below signalled "a successful trip".

Entering the range of British defences Eichler ordered the ship to 9000 ft. as the crew began a lookout routine for hostile aircraft. As darkness began to fall mist obscured the surface of the sea and the first difficulties with navigation were encountered. Climbing steadily to 15000 ft Eichler made his first approach towards the South East coast just after 22:00 hours but the midsummer night sky was still too bright and he turned away to await more favourable conditions. While loitering over the North Sea the crew watched a massive thunderstorm "with flashes of lightning a kilometre long" pass over England. The spectacular display brought with it a sharp increase in wind speed and a change in direction, greatly reducing the ground speed of the ship. During this time the Zeppelin was spotted forty miles north-east of Harwich, just after 22:30.

"Zeppelin field" will conclude with part two in the next issue.

CORRESPONDENCE

Norman Peakes letter published in the last issue drew two authoritative and interesting replies;

From Don Woodward, editor of AEROSTATION, the journal of The Association Of Balloon and Airship Constructors.

Mr. Peakes's letter calls for a thoughtful reply. I included the weight of R 101's reefing girders, not because they acted at all as fibers of a beam resisting bending, but because they reduce the radial loads on the longitudinals due to tension in the outer cover. These loads are hard to quantify because of the uncertain elasticity of the cover fabric; however, lateral loads on a slender beam-column in compression are very effective in reducing its safety margin against buckling. The "intermediate longitudinals" in the R class and later Zeppelins, *Shenandoah*, R 38, etc., were effectively "reefing booms", but are always included in the structure weight.

Similarly, I include the weights of R 100's axial girder and the axial corridors of LZ-127/129/130. Being near the neutral axis, and not shear wired, they had no effect on the girder strength of the hull. But they did fix the centre of the wire bulkheads longitudinally, and thus considerably decreased the wire loads on the main transverse frames in cases of unequal inflation of cells. (I don't argue that an axial cable might not have been more weight-effective, if such factors as access to the valves be left out of consideration. In LZ-131, the valves were to have been on top of the cells, and the corridor replaced by a cable)

Whether the given weights of fins and control surfaces include their supporting structure is typically not known. (I don't concede that lack of cruciform girders was the Achilles's heel of the *Macon*. If cruciforms had been fitted, that were well proportioned to the original fins, they too would have failed when subjected to the air load generated by the revised fins.)

I have used gas volumes, which are well known, in preference to air displacement volumes, for which authoritative figures are difficult to discover. Also, although the air volume enters directly into aerodynamic calculations, the gas volumes give the static lift immediately, and it seems to me that a ratio of weight to lift is a natural measure of the engineering success of an aerostatic vehicle. By this measure, R 101 was distinctly heavier-framed than R 100, and R 100 was heavier than any of the "modern" German or American rigrids.

From Mr. A. D. Topping, editor, BUOYANT FLIGHT, the journal of The Lighter Than Air Society.

I found reason to write to you promptly in the letter on p. 4 of DIRIGIBLE No. 8, from Mr. Norman B. Peake, where he states that the absence of a cruciform tail carry-through structure "in the *Macon* was her Achilles's heel." This idea was popular in Nazi Germany among those who knew little about structures and less about the *Macon*'s design. It's validity is about what you'd expect.

The design of the *Akron* and *Macon* used deep rings to carry the loads carried by the cruciform in more conventional design (actually, the structural cruciform was introduced in LZ-126 by Dr. Karl Arnstein, who also lead the design of the *Akron* and *Macon*). The *Macon* failure, briefly, was the result of a U.S. Navy order to change the fin aspect ratio to make the lower fin visible from the control car. No aerodynamic data existed for the new configuration, and to obtain the data from NACA took more than two years. Estimated loads used in the meantime were then found to have predicted only about half the actual load on the forward spar of the fins, but the Navy project manager refused to allow the necessary strengthening urged by Arnstein until, after much foot-dragging, it was too late. The point is, a cruciform designed to the same loads would have failed likewise.

DIRIGIBLE is the journal of the Airship and Balloon Museum and is published by Friends of Cardington Airship Station. It is published quarterly and distributed free to all members and associate members of FOCAS and, through our close associations, to the Friends of the British Balloon Museum and Library.

The objects of FOCAS are to foster and promote the study of the history of airships in every aspect, and to present the results of such study to the public, and to stimulate public interest in the role of Cardington as an airship base and in the conservation of the principle buildings thereof, and in particular to promote and assist in the formation and operation of a museum and study centre devoted to the airship.

Full membership of FOCAS is limited to persons who, having a particular interest in or knowledge of airships, are approved by the Governing Council, the Trustees, who are elected by members from among their number. There is also provision for Associate Membership, which is open to the public generally. Further information and application forms can be obtained from:

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