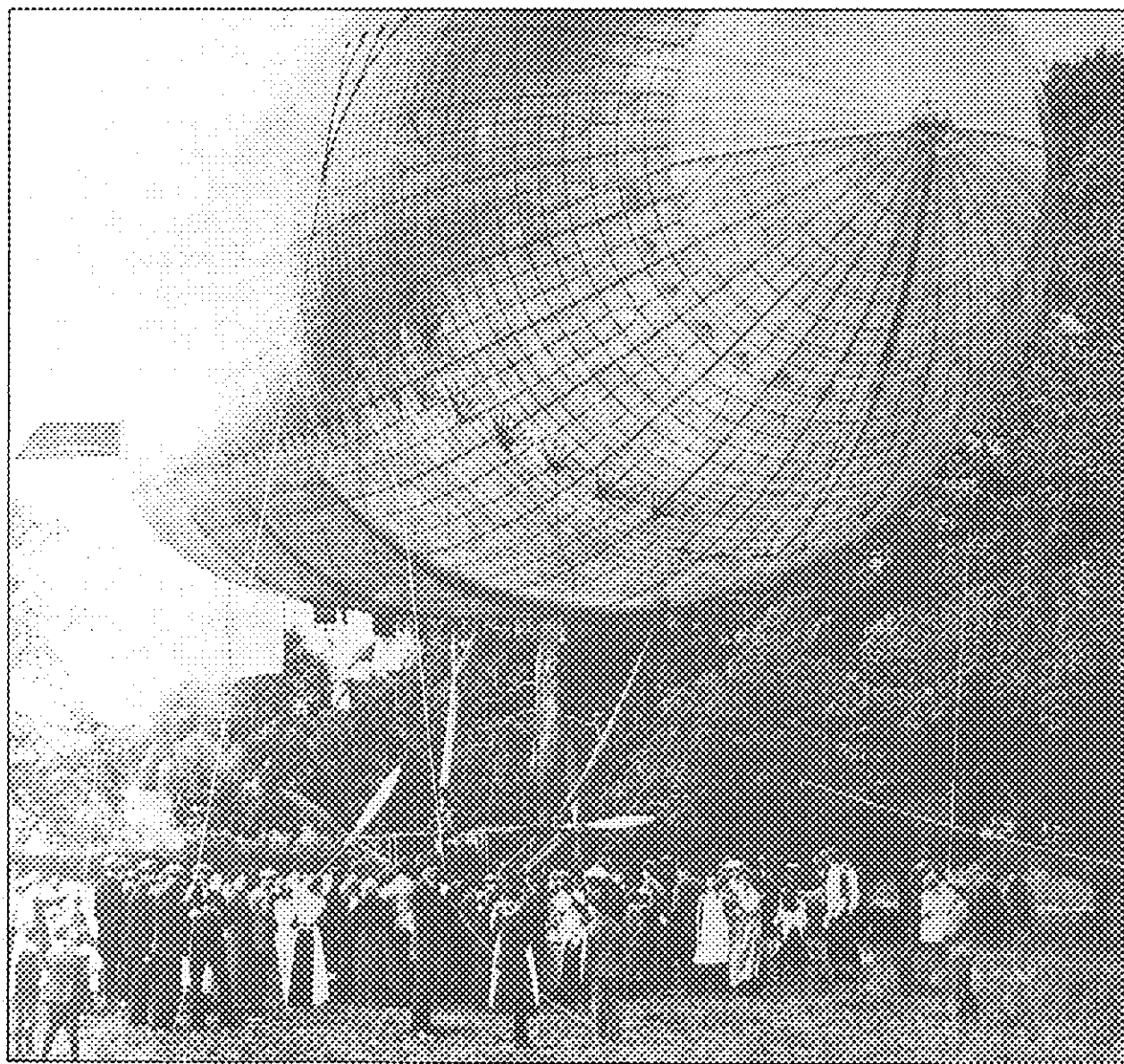


# DIRIGIBLE

THE JOURNAL OF THE AIRSHIP & BALLOON MUSEUM

PUBLISHED BY THE AIRSHIP HERITAGE TRUST (Formerly FOCAS): VOL. VIII No 1 - Spring 1997

This Journal is free to Members and Associate Members of AHT (FOCAS); other copies £2.50.



**AFTER THE 'WAR' - The Army Airship 'Beta II' makes an unscheduled stop en route from Thetford to Farnborough in September 1912. Both she and her predecessor are the subjects of Kent O'Grady's major article in this issue.**

# News from Cardington

## Editorial

Here in Norfolk over the past few weeks, a number of cold, clear nights have presented unrivalled views of the 'new' comet. How such a beautiful and mysterious object can be lumbered for all eternity with the faintly ludicrous name of 'Hale-Bopp' is indeed one of the wonders of modern science.

Comets have often been regarded as harbingers of great events (notably the toppling of kings and governments): one, later to become Halley's Comet, appeared before the Battle of Hastings in 1066 and was taken as a good omen by the Normans for their claim to the Saxon throne, whilst King Harold regarded the 'hairy star' with disquiet - he had an eye for such things. 'Halley' came again in 1301, and the painter Giotto put it into his fresco for the Arena Chapel in Padua as the greatest Sign of all time - the 'Star of Bethlehem'. In the airship world, another appearance by 'Halley' in 1910 seemed to favour Monsieur Clement's Channel crossing but did not augur well for Lebaudy's 'Morning Post', wrecked at Farnborough later the same year!

Recent news suggests that superstition still surrounds comets even in the late 20th century. If you believe 'hairy stars' to be harbingers of doom, then the amount of illness, disability and hospitalisation which has dogged the Council and Officers of the AHT so far this year, coupled with the loss of too many of our old friends (the number of obituaries this quarter is sobering) would be ample evidence to bear out your view; I would prefer to think that an object so beautiful and inspiring could only be a sign of great things to come; to which end, discussions concerning the future of AHT and the Museum still continue to jog along, boosted by much interest in the project from design consultancies and architects, and the making of a 10-minute promotional video to support the

Concept Document; so, for future developments (and in keeping with the habitat of the comet) "watch this Space"!

*Nick Walmsley*

## Annual General Meeting: Change of Date

Logistical problems, and a request from the staff of RAF Cardington, have made it necessary to move the AHT Annual General Meeting to **SATURDAY 31st MAY**. We apologise for the short notice of this change, but hope that you will still be able to attend in droves. Please note that an AGM 'flyer' dealing with catering and security requirements is enclosed with this issue of "**Dirigible**" for completion and return as soon as possible if you wish to attend on 31st May.

## Chairman's Report

Due to the proximity of the AGM there is no Chairman's Report in this issue; a full report will be given at the AGM and published in the subsequent issue of "**Dirigible**". Our Chairman Ted Greenstreet is currently out and about and making excellent progress following an operation, and we're sure that all members will join in wishing him well.

## The Arts, the Algarve and the AHT

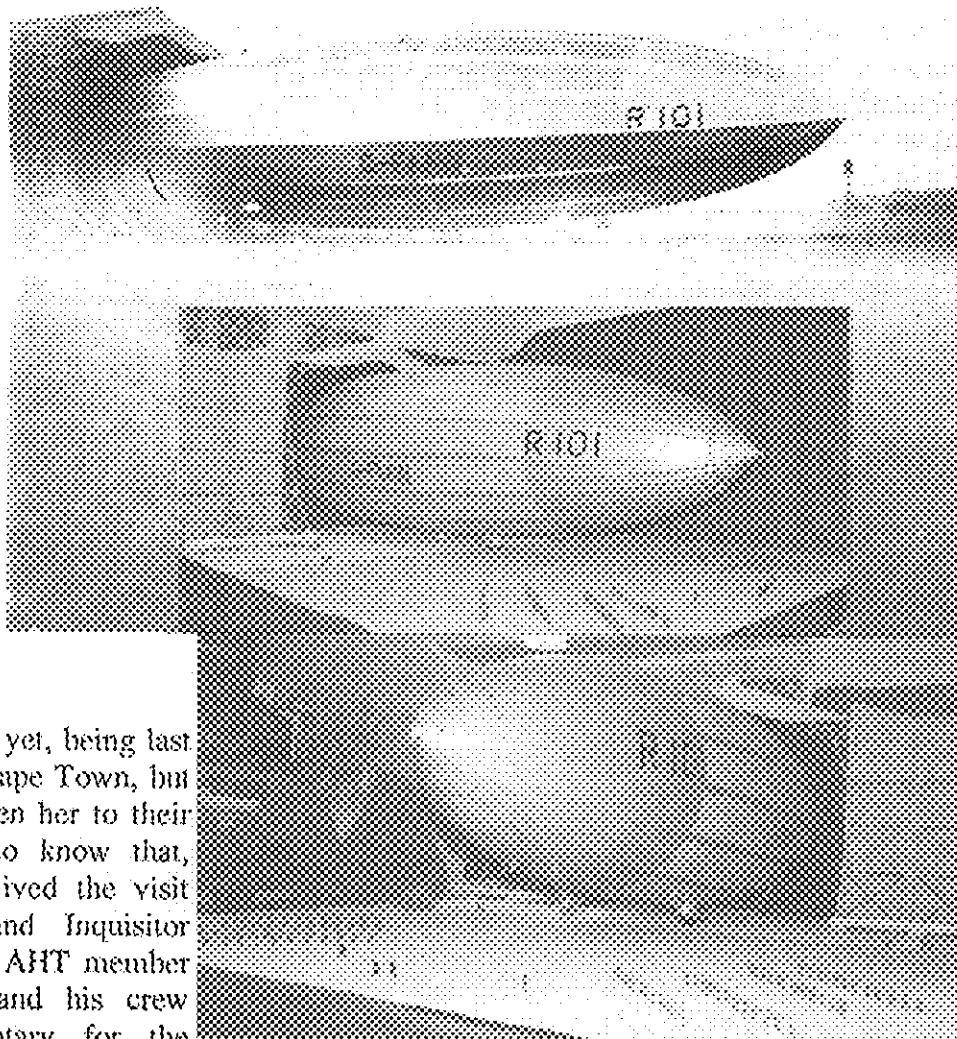
The reputation of the AHT continues to grow in circles not normally connected with aviation, this time as part of an exhibition of sculptures by Squadron Leader Michael Rope's aunt, Mary Ellen Rope, which was held in Birkenhead and London during February and March. Mary Ellen, a major woman sculptor of the British 'Arts and Crafts' Movement at the turn of the century whose work lapsed into obscurity, was recently 're-discovered' and the exhibition attracted a lot of interest in the art world. Nick

Walmsley assisted with photographs relating to Squadron Leader Rope and R101 - probably the first time that the 'ship' had appeared in a top West End gallery!

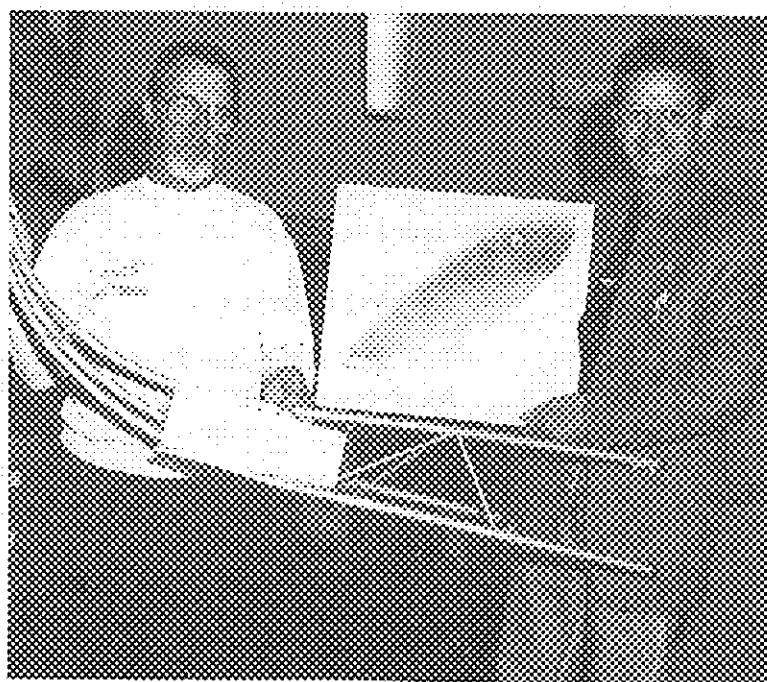
Secretary Group Captain Peter Garth has been flying the AHT flag abroad too, with a successful lecture tour of Portuguese Archeological and Historical Societies in the Algarve during February.

### November Bravo returns!

Well actually she doesn't yet, being last heard of on location in Cape Town, but readers seem to have taken her to their hearts and might like to know that, shortly after having survived the visit by "Dirigible's" Grand Inquisitor (Vol.VII No.4), her pilot AHT member Capt. Mike Nerandzic and his crew featured in a documentary for the 'Discovery' TV Channel which showed them bringing the Lightship home 'cross-channel' from Hamburg in a very brave race against wind and weather. The style of these documentaries is often called 'fly-on-the-wall': this one included such intimate shots of the ground crew at play that it might be more aptly termed 'fly-up-your-nose'. In any case, 'the lads done well' - many congratulations all round - and we hope that the major channels will take more interest in airships as a result. Although the documentary is thought to have been screened in the States, we don't believe it has been seen here yet, so watch for it if you can receive satellite channels. Mike himself is currently back 'Down Under' with Lightship No 10 advertising 'Whitman's Chocolates'.



*Above: R101 'roll-out', model and George Ambridge;  
below: Den Burchmore and Udo Herrmann with SR1*



## R101 Model for Cardington

Master modelmaker George Ambridge has completed another stunning diorama for the AHT museum. Members who have visited the museum rooms will be familiar with his enormous model of R101's tail poking out of the No.1 Shed doors; his dioramas sometimes have the disquieting effect of drawing you into them, and that is certainly the case now that George has turned his attention to the front end of R101 emerging for the first time in 1929, in a brilliant 3-D interpretation of that famous photograph taken at dawn on 12th October 1929. We reproduce that picture here alongside pictures of the new model - with George himself lending some scale to his creation [See **photographs: previous page, upper and middle**]. Despite its vast size, there is much intricate work in the model to which no photograph can fully do justice - even the accommodation within the hull is fully detailed and visible; truly, George Ambridge is to aeronautical modelling what Carl Faberge was to Easter eggs.

## SR1 at Friedrichshafen

Some members have asked what airship items the AHT recently presented to the new Zeppelin Museum at Friedrichshafen, apart from the gift of the R100 / LZ127 painting that the AHT party took with it last July. They are part of the keel structure from the Italian-built M-type semi-rigid SR1 which served with the RNAS; and an original Schutte-Lanz type wooden girder from R32. In return, our Airship Museum received some splendid Zeppelin memorabilia from the turn of the century, and a large section of girder from the replica "Hindenburg". My apologies for not telling you earlier! [See **photograph: previous page, bottom**.]

# Obituaries

## Heather Sanderson

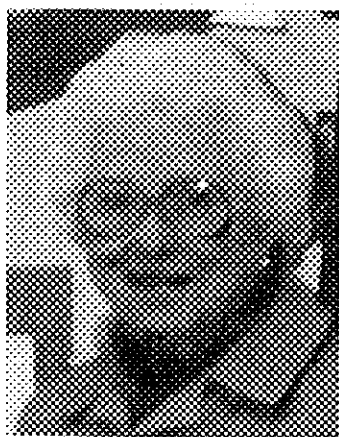
The sad news of Heather's death at her London home in December means another link with the old 'FOCAS' days has been severed, as she served the organisation as Registrar for some years. Heather was born in Brentwood, Essex, and spent her prewar childhood in Hong Kong, where her father was in the diplomatic corps. Evacuated to Surrey for the duration, she joined British European Airways in the 1950's and subsequently transferred to British Airways when BEA and BOAC amalgamated. Whilst there, Heather became a founder member of the British Airways Museum at Heathrow, with responsibility for the displays of uniforms. In this role, she was a frequent visitor to the BA stores at Cardington and Henlow, and thus became involved with FOCAS. Heather never married, and was able to indulge her enthusiasm for all things aeronautical; as well as the BA Museum and the AHT, she was also a supporter and Friend of the RAF Museum. We extend our condolences to her family.



## Leslie Murton

The last of the line from an heroic era died peacefully in his 96th year at his Norwich home on February 5th; Les Murton was the last surviving Great War Airship Coxswain, a unique character who always gave willingly of his time to researchers: indeed, he had taken part in a radio documentary a short while before his death, and was on splendid form! His remarkable career was detailed in "Dirigible" Vol.IV No.1 (Spring 1993), and a reworked version of this article will appear in the next issue of "Dirigible" in his memory. Joining the RFC Boy Service in 1916, Les transferred to the airship service and made most of his flights from

Howden; he later went to the Dardanelles with a kite-balloon tender spotting for mines. During the Second World War Les served in the Home Guard, and was responsible for the rescue of American airmen when a Liberator bomber crashed near his home. When the Goodyear airship 'Europa' visited Norwich in 1981 Les took the controls over his home city, some 63 years after he had last flown an airship! Les was a truly 'gentle man', always warm and good-humoured despite the blindness and poor health of his later years; his funeral at the St. Faith's crematorium was packed, and the AHT was represented by Jarvis Frith, Dennis and Jeanne Burchmore, and Nick Walmsley. Les had been looking forward to a trip to Cardington in the Spring, and we shall miss him greatly; our deepest sympathy is extended to his widow, Vi, and to his large family. *[Photograph: Les Munton in 1918].*



### Daisy Exley

An old friend of Cardington, Daisy died suddenly at the end of March in her 86th year. She had worked on the outer cover and gas cells of R101 in the fabric shop of the Royal Airship Works, and was later engaged on

balloons, hovercraft, dummy 'tanks' and inflatable-wing aircraft, receiving the Imperial Service Medal for 50 years' work at Cardington shortly before her retirement. She was the subject of a short article in "Dirigible" Vol.V No.2 (Summer 1994), and will be much missed by all at the AHT, who were represented at her funeral.

*[Photograph: Daisy Exley in 1993].*

### Margaret Lansdowne Hunt

The only daughter of the renowned US airshipman Lt Cdr Zachary Lansdowne, Peggy died in the Alexandria Hospital, Washington DC after a short illness on February 2nd. She was born in October 1922, and her early years were closely connected with her father's USS 'Shenandoah', in which he lost his life in September 1925. Growing up in Washington DC where her mother was Woman's editor of the Washington 'Star', she became the first bride to walk the full length of the main aisle of Washington National Cathedral when she married John Conway Hunt in November 1941! In April 1942 President Roosevelt asked Peggy to sponsor the christening of the destroyer escort USS 'Lansdowne', launched in honour of her father. The "Lucky L" as she was known, never lost a crewman throughout the war, and was selected to deliver the Japanese Surrender Party to the USS 'Missouri' in September 1945.



Peggy always had an enthusiasm for airships, and was an honorary member of the US Naval Airship Association; she had friends on this side of The Pond too, and was particularly touched by the article about her father in "Dirigible" Vol.VII No.1 (Spring 1996). It is fitting that she has been buried at the Arlington National Cemetery, close to her father and three of the 'Shenandoah' crew. She is survived by her husband, a brother, five children, three grandchildren, a great-grandson... and a host of friends.

*[Photograph: Peggy Lansdowne Hunt in 1991].*

# \*\*\*Venting Gas\*\*\*

... in the Correspondence Column

## R-100 Song

We begin with a plea from the USA where LTA enthusiast Roy P. Maricondo is 'desperate' for an original copy of the 1930 Canadian-issued sheet music for the 'R-100 Song' ('Here's to the R100, to Booth and his gallant crew...' etc.) The entire piece is not as important to Roy as a front cover in 'excellent' condition. Roy can be contacted at 219-F Miller Road, Akron, Pennsylvania 17501-1161 USA.

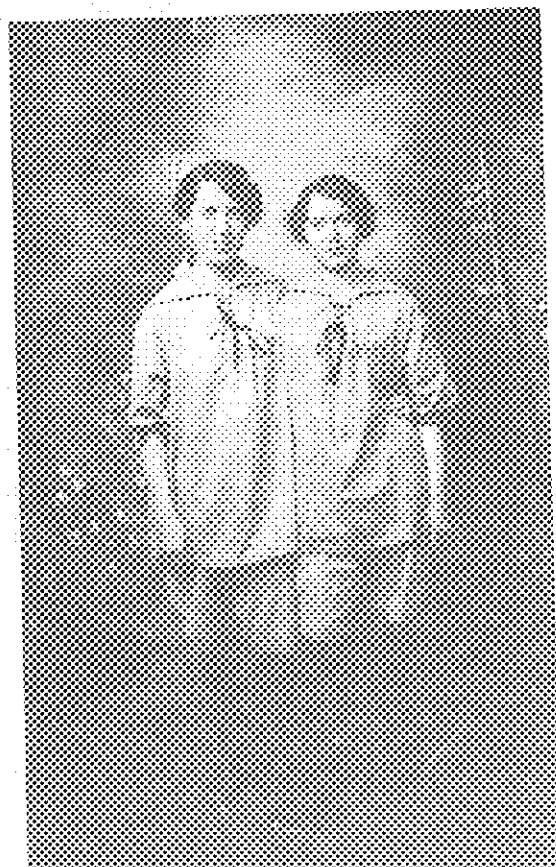
## Spencer - New Research

Ivan Sampson of Stockport gleefully adds further confusion to the saga of the Mellin airship ('Dirigible' Vol.VII No.4) by some excellent research amongst some very obscure volumes - he has found the photograph of the airship emerging from her shed reproduced on an Ogden's 'Tab' cigarette card circa 1900-1902 which corroborates this as the original version of 'Spencer No 1'. He continues '...the Ventry dimensions differ from those given in J.M.Bacon's "Dominion of the Air" (1902), these being 75' by 20'. A test flight was made "at the end of June" (1902), the September flight being its second outing. [Mr Sampson enclosed a fascinating photocopy from this book, unfortunately too dark for reproduction, showing "the completion of an air-ship in Messrs. Spencer's factory" now known to be at 56a Highbury Grove London N5 - it is a simple two storey brick building with a bow-shaped iron-truss roof and an enormous projecting skylight - Ed.]. For what it is worth, a trade card issued in 1959 states that "...in 1903 the Spencer Brothers... made a circuit of the City of London and St. Pauls. The flight... was sponsored by the London Evening News."

'Ralph Situnonds in "All about Airships" (1911) confirms Bacon's dimensions (which he may simply have copied) but gives a date of 1903. He refers to it as "the Mellin airship built by Messrs. Spencer and Sons" and indicates it was the first airship flight in London. The "Taschenbuch der Luftflotten (c.1914) equates Mellins with Stanley Spencer Ltd. but omits to state which it is, the 850 cu.mtr. of 1900 or the 1860 cu.mtr. of 1902.

'The lower picture on p.11 (of the "Dirigible" article) also appears in Gertrude Bacon's autobiography "Memories of Land and Air" (1928), which book also refers to "Spencer airship No.3" 84' by 32', 40,000 cu.ft. of household gas, 50' bamboo framework supporting the car and a 5hp Simms engine driving an 11' tractor propeller. She also gives an entertaining account of its flight at Slrewsbury in August 1904. A photograph of this machine appears to differ from the "Mellin" in having no decoration at the front of the envelope. Could No.3 be the "Bacon" built by Spencer and tested unsuccessfully in 1904, according to Henry de la Vaulx in "Le triomphe de la Navigation Aerienne" of 1911? Was there a Spencer No.4 (the "Bovril" airship?)

Mr Sampson enclosed copies of some early advertising cards for Suchard Chocolates, 'demonstrating that Spencer wasn't the only airship constructor to finance his first machine by sponsorship' although it would appear on closer examination that Suchard merely commissioned drawings of existing airships - LZ1 in her floating hangar for example - and had "Suchard" emblazoned down the side! It does prove, however, that airships have stuck with chocolate advertising from the earliest days, right up to the current "Whitman" campaign in Australia.



*Alive: Two young ladies wearing the Great war working dress of Bulton Paul, Norwich. See 'More Lilamoni' on the next page.*



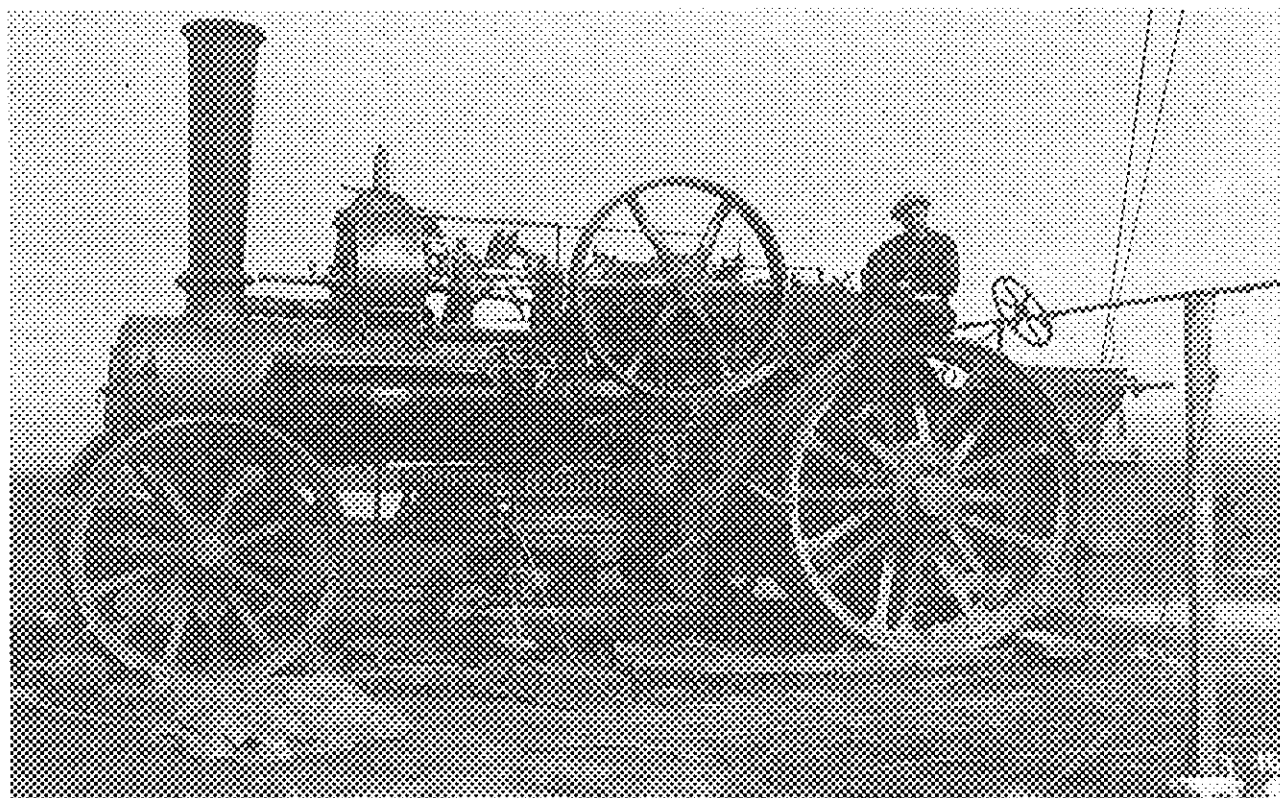
## More Glamour

Since the picture of the glamorous WRAF on page 4 of "Dirigible" Vol.VII No.2 proved popular (as did the boys on page 10, but not necessarily with the same people), here is another showing two charming young ladies in the work-clothes provided by Messrs Boulton Paul of Norwich, builders of R101. This picture of Ethel Goodrum and Fay Johnson dates from April 1919, and was sent in by Fay's nephew, Tony Johnson. Fay worked for Boulton Paul from 1916 to 1918 making ribs for aircraft wings by putting wood in a steam box to bend it into shape and then nailing it into position. Laid off with one week's notice just before the Armistice, Fay returned to the firm after the War when work picked up again. A leading light in BP's Riverside Road Works Operatic Society (singing such risqué items as 'Pretty Pink Petty from Peter' in the Christmas show of 1916), she was pretty, vivacious, and consequently 'never short of boyfriends'; one of the more wealthy ones chartered an aeroplane to fly her out to the crash site of R101 in October 1930; she returned with a tiny fragment of girder from the once-proud ship that her firm had constructed.

## Pulham Engines Identified

Many thanks to Beryl Critchell (daughter of R101 Chief Steward Bert Savage, first posted to R36 at Pulham in 1921) who recognised what her family had always called 'the tractor' on page 8 of "Dirigible" Vol.VII No.4 and sent us an original photo of the Pulham mast ploughing engine [below] so clear that we could not only read the maker's plate on the boiler, but glimpse the rear power car of R36 above her bunker! The Editor, together with Bill Smith of the Steam Plough Club and Jonathan Brown of the University of Reading got very excited, and we can now confirm that Fowler BB1 engines Nos. 15326 and 15327 (the engine in the picture) were finished at the Steam Plough Works, Leeds, in December 1918 and - here's the surprise - supplied to Benjamin Howkins of Bromham in Bedfordshire, only some five miles from Cardington! As a private customer, Howkins would have paid full price for the set - around £4,500 - compared with the £3,000 payable (in instalments) for sets sponsored by the Ministry of Munitions, so a long term hire contract would have been very attractive to him, especially since the demand for steam ploughing work fell off drastically after 1919. Registered for the road as NM 1285 and NM 1286, the pair were patriotically christened 'Windsor' and 'Saudringham' and by the end of 1924 had been sold to the famous steam ploughing contractor John Patten of Little Hadham, Hertfordshire; sadly, he scrapped them around 1950.

The photograph, which proves that the engine was a permanent fixture on its own hard-standing and did not, as was previously thought, return to a 'base' near the guardroom, also shows some interesting technical details, such as the block and pulley arrangement beneath the engine, and the large amount of cable carefully laid out in front of the drum. The explanation is that Fowler engines, being for 'winding' only, had a one-way clutch which made it impossible to unwind the drum mechanically; in order to get the cable out and up the mast, the drum brake catch would be released, and considerable effort employed to unwind the drum manually. The purpose of the permanent-looking shaft on the right connecting the engine to the hut at the base of the mast has yet to be determined; it appears to be an electrical conduit.



# Help celebrate Europa at 25!



The Goodyear Airship 'Europa', captured above at Norwich Airport in 1981 by the camera of AHT member Philip Armes, was the first commercial airship to be built and flown in Britain since R101, and 1997 marks the 25th Anniversary of her erection in Cardington's No.1 Shed. As a result she was rarely out of the news, and she endeared herself to thousands around the British Isles: for many, she was the first airship that they had actually seen (your Editor included!). Her career was brought to an untimely end when she was wrecked on the Continent some years later.

To mark the occasion 'Dirigible' will be devoting a Special Edition to 'Europa' this year and, in addition to the 'official' press coverage, photographs and articles, the Editor would like *your* stories and anecdotes about her for inclusion. All loaned material will be looked after and returned promptly. Thanks to all those who have already submitted material: the deadline for any further material and your memories of 'Europa' is **June 6th 1997**. The address to write to is: The Editor, 'Dirigible' Journal, Tryddyn, Horning Road West, Hoveton, Norwich NR12 8QJ, UK.



## For Your Bookshelf

**Naval Aviation in the First World War - Its Impact and Influence**, by R.D. Layman, Chatham Publishing 1996, hbk 224 pages, 39 b&w photos, appendices, etc.; £22.50

An important new book drawing on a lifetime's work, and, despite the forbidding title, a very readable account of the birth and blooding of naval aviation in the Great War, dealing with heavier and lighter than air craft, carriers, kite-balloon tenders etc. AHT member Dick Layman is a fine writer and a careful craftsman when it comes to research, rather better known in the States than here, but his art is so clearly demonstrated in this book that it is to be hoped more of his work will now appear in Britain. Airships and balloons feature in two chapters, from both German and the British Allies' point of view; naturally, 'airship politics' feature large, and Mr Layman has the knack of untangling the web woven by Admiralty and Government and explaining it in simple terminology; these chapters provide an excellent introduction to the whole complicated ethos of airship policy around that time. Poor Admiral 'Jackie' Fisher comes in for a terrible mauling - the author is clearly a Beresford man, whereas your reviewer is wholeheartedly in 'the Fish-pond' as Jackie's followers were derisively called! - but the great man is, rightly, credited with the idea of the SS ships and the convoy patrols which proved so vital against the U-boat menace.

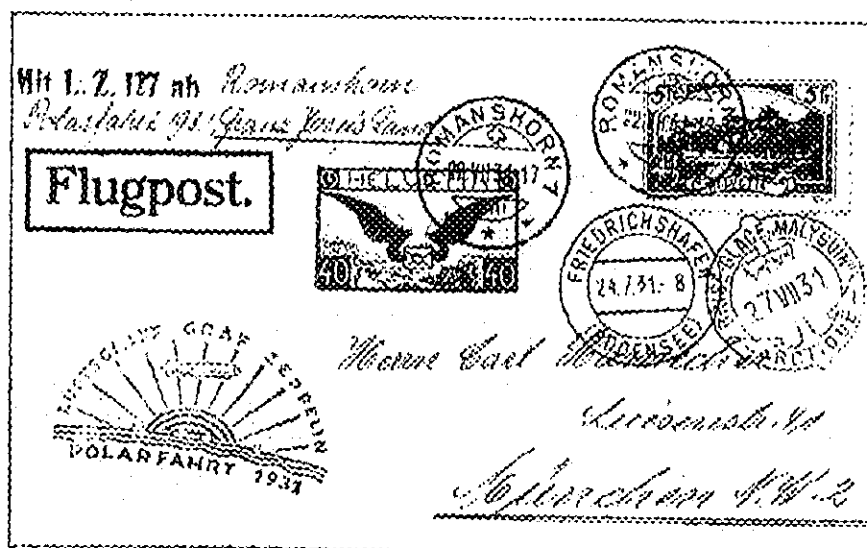
The only complaints I have rest with the publishers, I'm afraid: someone has labelled an obvious Sopwith Camel as a Pup; the format is small and rather overpriced when the importance and scope of the book cries out for a larger format; this small format and the revolting dust-jacket illustration (*incredibly* by a Founder Member of the Guild of Aviation Artists - those self-appointed arbiters of 'good taste' in British aviation art... 'nuff said!) combine to give the appearance of a tacky novel. But do read it, for it is a classic case of not judging a book by its cover!

*Nick Walmsley*

**Graf Zeppelin Polar Post**, by John Duggan & Gisela Woodward, publ. Zeppelin Study Group, pbk. 72 pages, 87 illus., post free from the author at 55 Thornhill Road, Ickenham, Middx UB10 8SQ at £5 UK, DM13 Germany or \$9 USA (US currency in bills, DM in Bar oder Eurocheck).

This historic flight to Franz Josef Island in the Arctic became financially viable mainly due to philatelists who sent over 600lbs of mail to Friedrichshafen to be carried on board. The backing of Randolph Hearst had been withdrawn when the submarine 'Nautilus' was unable to make the journey to rendezvous with the airship, and the mail was eventually transferred to the Russian ice-breaker 'Malyguin' when Hugo Eckener landed the 'Graf Zeppelin' on the Polar Sea. None of this information appears in this book which has been produced through the Zeppelin Study Group as an update of the 1994 book "The 1931 Polar Flight of the Graf Zeppelin", now unfortunately out of print, which contains the story of the flight and the preparations behind it.

The 72 page book has text in English and German and is an exhaustive listing of the mail, special stamps, cachets and cancellations which were carried and used, together with the postal regulations applying and indications of market values of the various covers. What is of particular interest to those interested in aero-philately, and especially those of us whose budgets do not allow us to acquire such gems, are the illustrations, though not in colour. No less than 87 covers are depicted as well as stamps and cancellations, all of them beautifully sharp as the attached example shows in spite of losing something in the scanning.



The flight was made in five stages from Friedrichshafen to Berlin (Staaken), to Leningrad, to Franz Josef Land, and back to Berlin (Tempelhof), and Friedrichshafen. This, together with mail being carried from a host of different countries, has made for a very wide range of combinations of stamps and cancellations on cover.

This publication maintains the high standards set by this study group and is excellent value, but it is of a specialist nature, and, as already mentioned, not for those who are only interested in the story of the flight.

*Peter Walmsley*

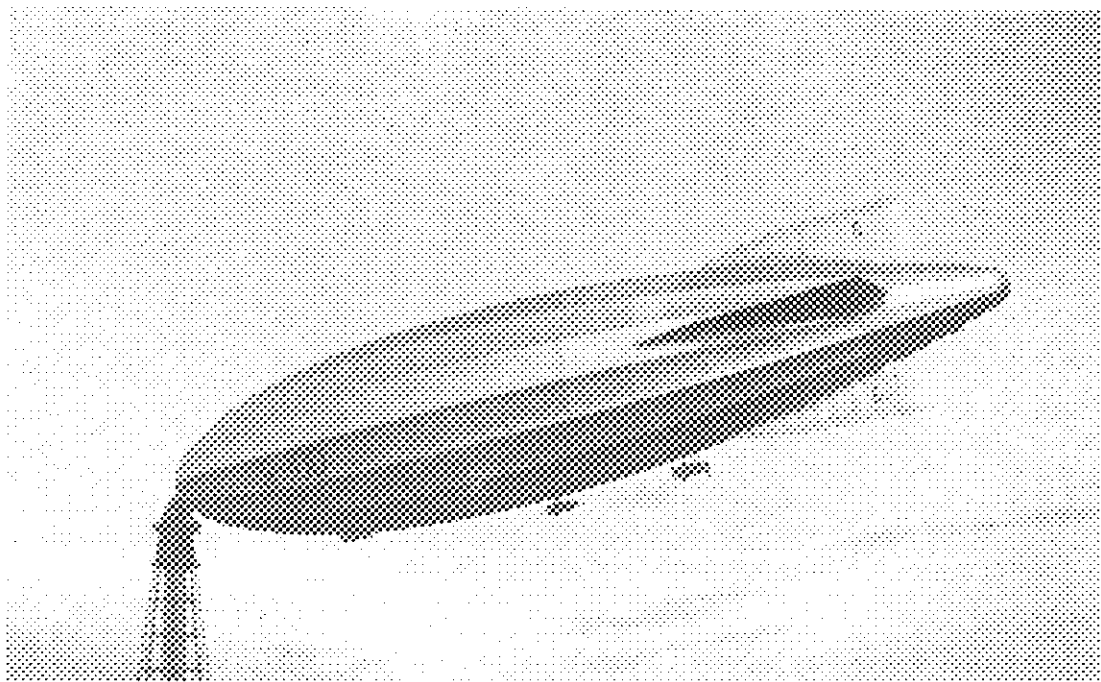
# New Pictures of R100

We are pleased to publish some 'new' pictures of R100 sent in by readers. At least one of these, and possibly the other two, has never been published before.

**Below:** Published here for the first time, this magnificent, atmospheric shot with an interesting Cambridge roofline against a bright windy sky was taken by the uncle of Brenda Giles from King's Lynn while he was an undergraduate at the University there in 1930. He also photographed R101 over the city at the same time: here, however, there was even more roof than airship!

**Following Page:** Two photographs taken in Canada by Dr. Alfred Hill, sent to 'Dirigible' via Kent O'Grady. In the first picture, R100 is seen approaching the St. Hubert airfield mast at Montreal - notice that the mast head coupling is extended prior to receiving the ship. In the second, Dr. Hill has chosen to depict the most elegant view of the ship, now safely moored, with the light catching her in a very flattering way. Evidence of the emergency patching undertaken in mid-air by Coxswain Greenstreet and his brave band of riggers can be seen around the lower middle surface of her port fin and hull following damage inflicted by the 'white squall' over the St. Lawrence River.

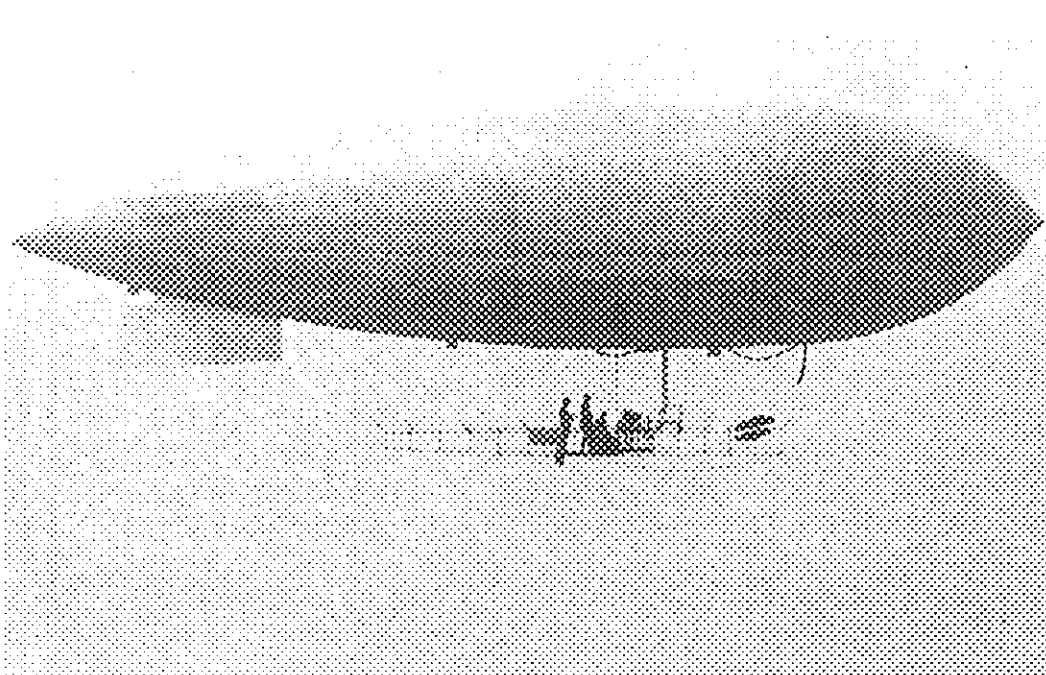




# The 'Beta' Airships

by

Kent O'Grady



Following on from his article of the Army Airship 'Baby' in *'Dirigible'* Vol. VII No. 2, the Canadian researcher turns his attention to the subsequent Army Airships, 'Beta' and 'Beta II'.

## Foreward

The airship 'Haby' was completely rebuilt by the British Army Balloon Factory at Farnborough early in 1910. The resulting airship was called 'Beta'.

*[Left: 'Beta' piloted by P.W.L. Brooke-Smith]*

## Improvements on 'Baby'

The major problem of the 'Baby' was control difficulty. Had this trouble been solved she may have proved adequate for training purposes, but her small volume would still have been insufficient for Army operations. With the 'Beta' an improved control system and larger volume led to greater success. Advances included rigid stabilising fins which were aerodynamically more efficient and easier to maintain than the previous air-inflated lobes. The elevators, which had been fitted too near the centre of the airship for adequate response, were moved forward. They were positioned slightly above the car; the new location an improvement making ascents less risky. However this new set of elevators was eventually removed from 'Beta' altogether, being replaced by a more effective set attached to the trailing edge of the horizontal stabilisers. With 'Baby' the rudder had been attached to a stabiliser at the rear of the car which often scraped the ground on take-off. In 'Beta' the rudders were moved to the trailing edge of the vertical stabilisers at the rear of the hull; being much larger, they were more effective. A number of other improvements included better transmission belts, fuel lines, cooling systems, pipelines, superior engine maintenance, and better streamlining.

## General Description

'Beta' had a long car with a central compartment for the crew and engines, similar to the French Astra car design, uncovered, and of tubular construction. 'Baby's' envelope was re-used, as it was still giving excellent service; a 6.7 metre section of goldbeater's skin was inserted to increase the length to 31.7 metres, and the volume to 945 cu. metres. The 35 hp Green engine chain-drove twin two-bladed wooden propellers. Cast steel cylinders were used, and the crankshaft was made from nickel-chrome steel running in white metal bearings. A copper water-jacket was employed, and the engine was lubricated by oil under pressure. A high voltage magnet was used for ignition.

## Flights and Inspections

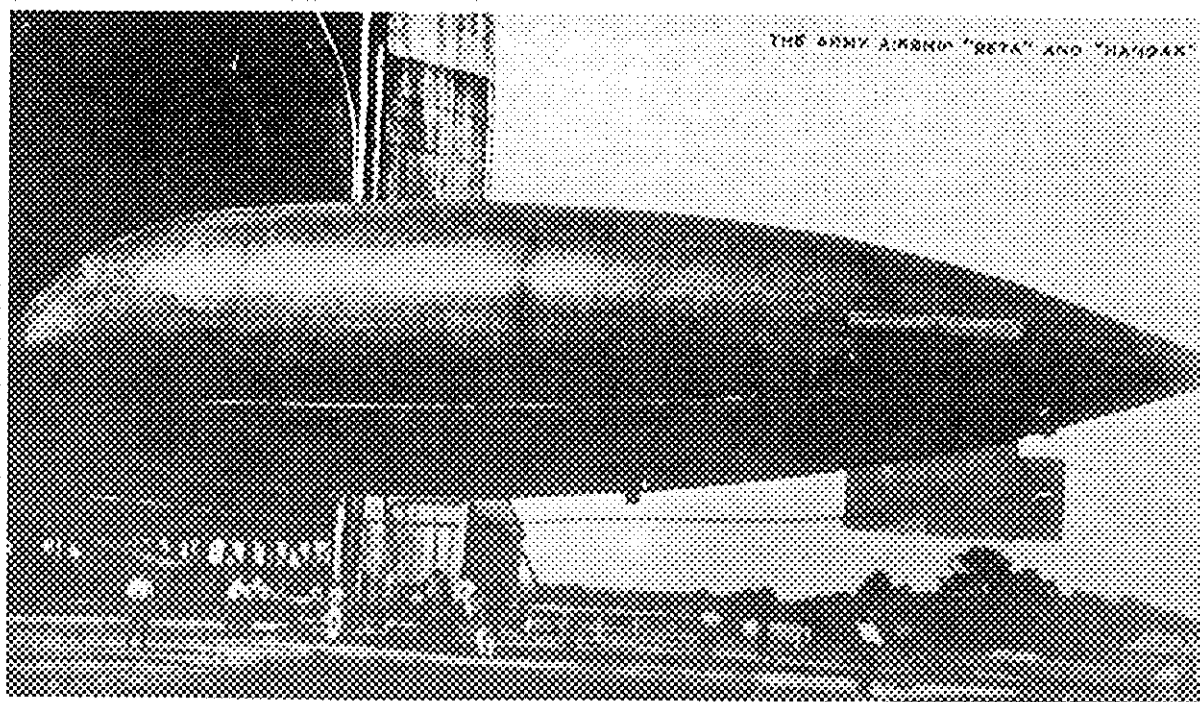
The first test flight of 'Beta' was on May 26th 1910, lasted for one hour, and was judged to have been a success. After this initial test, it was decided to give the airship a series of 'shakedown' flights. On June 3rd 'Beta' left Farnborough at

23.35hrs, bound for London. Following the railway line to Brooklands, she made a stop to adjust the petrol feed, and then flew on over the Thames valley, Ditton, Wimbledon and Battersea, before circling the dome of St. Paul's at 02.00. She flew over the Marble Arch and headed out down the Exeter Road to Staines and Bagshot on her way back to Farnborough, arriving early on the morning of the 4th. The flight, the first to be made at night by a British service airship, had lasted 4 hours and 4 minutes, under the command of Colonel Capper, with Lt C.M. Waterlow and T.J. Ridge on board. The same crew took her back to London on the night of June 12/13, covering the 80 miles in 3 hours and 45 minutes. The reason was that night reconnaissance was considered to be the principal role of a military airship at the time, although the expectations of officials were sometimes difficult to fulfil owing to the existing technology: maps and instruments had to be read with a pocket torch, but an accumulator-fed lamp was also suspended above the car. Navigation was by street lights in built-up areas, and by watching for trains on the move. One advantage of night flying was that the calmer winds were preferable for test flights.

On Monday July 11th, 'Beta' and 'Gamma' were hauled out of their hangars and overflew Farnborough; after returning to her hangar 'Beta' was keenly inspected by HM King George V who rode over from his horse from the camp at Aldershot. Queen Mary preferred to motor over, and the workings of the airship were explained to her in the presence of some thirty officers. On another occasion the Prince of Wales (the future Edward VIII) was taken aloft for a half-hour flight.

The following day 'Beta' flew to London again with Lt. Ridge and Sgt. Ramsay under the command of Lt. P. Broke-Smith. Ascending at 15.45 hrs. and after a five mile circuit over Farnborough the crew set course for the capital against a 16 km/h headwind, their forward speed being 24 km/h. 'Beta' arrived over St. Paul's at 18.20 hrs. and circled it before returning home with a tail-wind making a good 57 km/h. The 80 miles were covered in 3 hours 45 minutes again, and 'Beta' concluded her flight by passing over the Royal Pavilion at Aldershot, where she was observed by the Their Majesties, together with the Duke and Duchess of Connaught. Flushed with success, 'Beta' headed south-west towards Bournemouth on the 13th.

On another occasion she suffered engine failure over London and free-ballooned to a landing at Aylesbury, where she was deflated and returned to Farnborough by road. There was no damage, and 'Beta' was soon back in commission. In spite of some initial successes she did not have the performance hoped from her. After minor modification she was still proving difficult to control, though not as bad as 'Haby'. Moving the elevators to the end of the rear horizontal stabilisers was effective. Other teething troubles were dealt with as and when money and time permitted.



*(Above: 'Beta' entering the shed at Farnborough)*

## Manoeuvres

On Thursday August 3rd 1910 'Beta' set off from Farnborough with a crew of three to be observed by Lord Roberts and the Marlborough Contingent of the Officers' Training Corps. Army manoeuvres were conducted in Hampshire, Wiltshire, Dorset and Somerset at various times, and the airship was included in all of them; during August and September over 1,000 miles were covered, and 'Beta' had flown as far as the Bristol Channel. On the evening of September 8th she achieved another 'first', flying in consort with S.F. Cody's Army Aeroplane at Aldershot. For several nights mooring was accomplished in the open using trees or quarries for protection; landings were often made without the assistance of a ground crew, and the viability of a small airship and value of aerial reconnaissance were proven. During a very busy summer she was reinflated only once, and held up well.

On November 4th R.B. Haldane, Secretary of State for War, claimed to be the first War Minister to fly in an airship when the now Capt. Broke-Smith took him aloft in 'Beta' at Farnborough, having first traded his top hat for a mechanic's cap, a necessary adjustment in the windy open gondola.

August and September 1911 saw 'Beta' on a four-week detachment with Captain Maitland and his company. By this time the envelope was in poor condition, and she had only been used sporadically over the previous months for this reason. Maitland's night flights confirmed that a new envelope was needed; it was a cause of constant headaches. Nevertheless, 'Beta' was kept as a stand-by reserve (for 'Gamma') at Farnborough for the Army Manoeuvres of August 1911 which took place in East Anglia, without any overhaul.

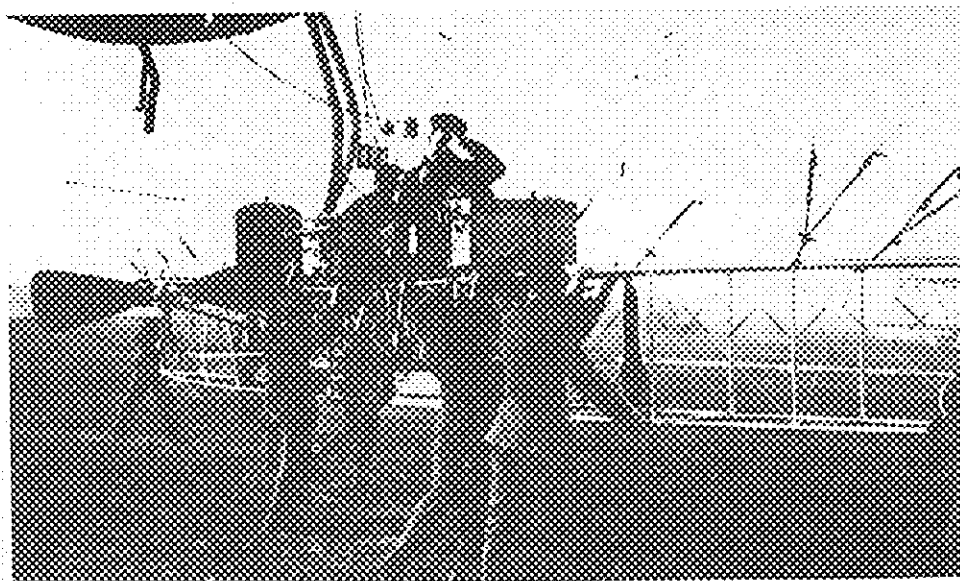
During 1912 'Beta' was used to train naval crews, and accordingly made several cross-country trips to Sheerness. She was then freed for Army operations again, taking part in West Country manoeuvres and a full-scale 'war' at Thetford, Norfolk, in June.

## Operational Difficulties

In-flight problems were common in these early days. Most frequent difficulties included propeller chains snapping, valves sticking, elevators jamming, and vibrations causing various fittings to come adrift. Most repairs were undertaken in flight with the crew crawling about on the frame of the gondola or the outriggers to effect repairs. Emergency landing techniques were practised and used without ground crew assistance - the airship had a grapnel for such emergency landings. Her ground crew would routinely follow the airship to provide help if needed, however.

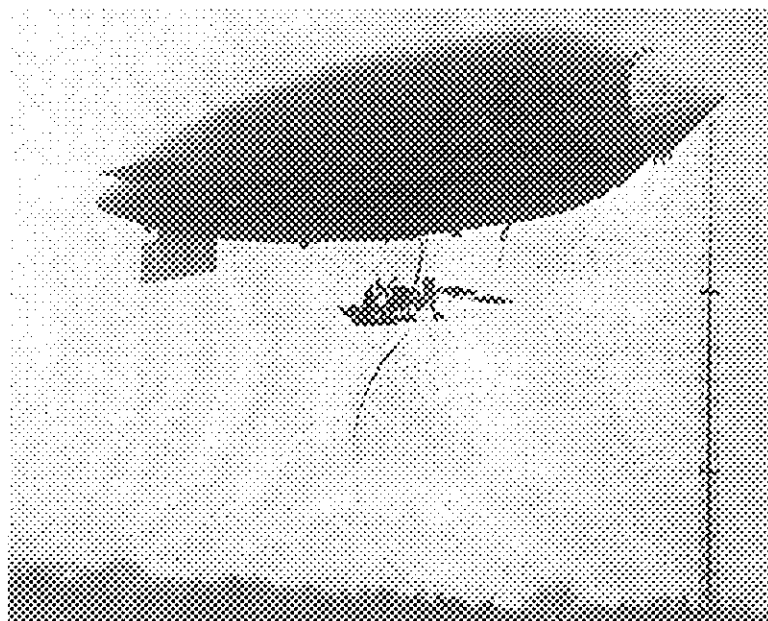
## Experiments

Colonel Capper had asked for a grant to conduct wireless experiments as early as 1903, but these were not approved until 1907. At that time he was working with Lt. Evans and Lt. C. Aston using free balloons - the first transmissions by balloon in 1908 were sent up to 20 miles, but testing was discontinued, either due to a lack of funds or interest in army circles. It was not until January 1911 that 'Beta' became the first British airship to be fitted with wireless equipment, specially designed by Capt. Hugh Lefroy of the Royal Engineers. The first test occurred on January 27/28 when 'Beta' flew from Farnborough to Portsmouth and back via Andover under the command of Lt. Waterlow. Messages were continuously sent out, but the engine had to be stopped for reception. By February, messages could be sent and received by 'Beta' over a distance of thirty miles.



*Left: Capt. Hugh Lefroy of the Royal Engineers with the air/ground wireless equipment he invented. His own caption on the postcard reads: 'Descending after the first run of an Army Airship - Beta - fitted with wireless for sending and receiving 28.1.11 - Aldershot - my gear is in the box in front of me. PS - I am only putting my cap on!' [In other words 'Phew, that's over!'. Ed.] Photograph by kind permission of J.G. Lefroy Esq.*





In 1912 the airship was employed in a variety of mooring mast trials, becoming the first non-rigid in the world to use a mast. *[Left: a well-known picture of 'Beta' on the 'high mast' at Farnborough from the Kiernan scrapbook in the AHT archive]* The first mast trial was conducted on February 19/20 during which time 'Beta' withstood winds of 54 km/h. On another occasion she remained at the mast in rain and snow for four days without a crew. It was only necessary to have a crewman climb up to check her gas pressure every thirty minutes or so; during this test it was discovered that she lost 2% of her gas every 24 hours: hardly ideal, and indicative of the envelope nearing the end of its life. Other experiments were made with machine guns and bomb dropping.

### Anecdotes

During a cricket match at Andover, one of the batsmen became preoccupied with a 'Beta' fly-past. The bowler, however, was unaware of the airship, and the batsman was bowled middle stump!

In 1911 'Beta' collided with the doors of her shed during a strong gust while she was docking, and was badly damaged. She returned to service after repairs.

The Benedictine Abbey of St. Michael is a well-known Farnborough landmark on the estate of the Empress Eugenie. 'Beta' often flew over when returning to her base, but on one occasion was very low on ballast. Things became serious when she was caught in a severe down draught, and several petrol-cans which were hastily heaved overboard to compensate caused a group of monks to scatter. The apologies extended after landing were accepted by the Abbot.

On another occasion 'Beta' developed engine failure in fog and drifted. After the engine was restarted she went 'low-level' to get her bearings, and almost hit Salisbury Cathedral in the process.

### Final Phase of 'Beta'

By August 1912 the envelope was found to be too old and porous. 'Beta' was to be scrapped and some of her components used for what became 'Beta II'. A new 42,000 cu.ft. envelope of goldbeater's skin was made, along with an entirely new boat-shaped gondola. The new 'Beta II' was soon transferred to the Navy as Naval Airship No.17.

Upon completion of 'Beta II' in August 1912, 'Beta' ceased to exist operationally, and her gondola and many parts were put into storage. However, 'Beta' flew again after major teething problems with 'Beta II' called for an overhaul. An airship is designated by her car, the envelope merely being an 'accessory', so 'Beta' was reincarnated when the newer, larger envelope of 'Beta II' was attached to her car which had been in store. Thus 'Beta' made some twenty more flights with the new envelope. After the boat-shaped gondola from 'Beta II' had been overhauled, the envelope was detached from the 'Beta' car and rigged to the 'Beta II' gondola. 'Beta' then ceased to exist, her car eventually being scrapped.

## Beta II

Built by the Royal Aircraft Factory at Farnborough, 'Beta II' relied heavily on 'Beta' as we have seen above. The intent behind the new airship was obtain greater lift and speed than 'Beta' had been capable of. In addition, the old envelope had become very porous, and a new larger one was made. 'Beta II' first flew on September 14th 1912, and was almost immediately sent on army manoeuvres before sufficient testing had been undertaken. As a result several problems occurred, notably with her engine, and 'Beta' came back to provide cover using her successor's envelope.

When the improvements to the car of 'Beta II' were complete and she was married with the new envelope once more, test flights showed that she was well balanced and easy to handle in the air; a considerable improvement over her

predecessors despite the engine trouble early in her career. Her Clerget engine was adapted to run very quietly, useful for night operations, and her boat-shaped car was well streamlined. The best performances included a top speed of 58 km/h and an altitude of 1,280 metres achieved during tests in 1913. She carried a crew of three, consisting of pilot, engineer and observer. The ability to carry an observer facilitated the training of many people in airship-handling. As the airship was operated by the Army, it was mostly Army personnel who went aloft, but some naval personnel were trained, even before all airships were transferred from the Army to the Navy in 1913. After the Navy took over, 'Beta II' conducted many training flights around Sheerness, and some passengers were carried (including, on June 20th 1913, the Prince of Wales, who thoroughly enjoyed his thirty minute flight).

### Army Exercises

Extensive use was made of 'Beta II' in military manoeuvres: during one exercise she stayed aloft for 7 hours and 25 minutes with her crew of three men and six homing pigeons. She took part in manoeuvres in the West Country, but it was nearer home on her way to Salisbury Plain that she struck telegraph wires at Ash and had to be deflated, returning to Farnborough by road for repairs. On a brighter note she had been of use for night-time artillery observation in 1913.

In September 1913, under the command of Lt. J.N. Fletcher RFC with Lt. N. Osborne RN along for the ride, she took part in the celebrated East Anglian 'war' at Thetford, attached to the 'Red Forces' while 'Gamma' (under Capt. Maitland) was detailed to the 'Blue Forces'. 'Delta' had mechanical difficulties and was unable to take part. Operating in conjunction with aeroplanes, the airships rarely flew above 1,500 ft., which would have made them vulnerable to attack in actual combat. However, the overall effect of aerial scouting was frequent changes of tactics by the commanders of the ground forces, and the manoeuvres were brought to an early close, largely due to the success of aerial reconnaissance. In spite of this, the performances of both airships and aeroplanes were viewed as marginal, particularly by conservative officers who had little patience for these 'new inventions' which drew funds away from their own branches of the service. It did not help when 'Beta II' had to make a forced landing on her way back to Farnborough from the 'war' to undertake mechanical repairs. She attracted a crowd of some fifty admirers, many of whom assisted as ground crew.

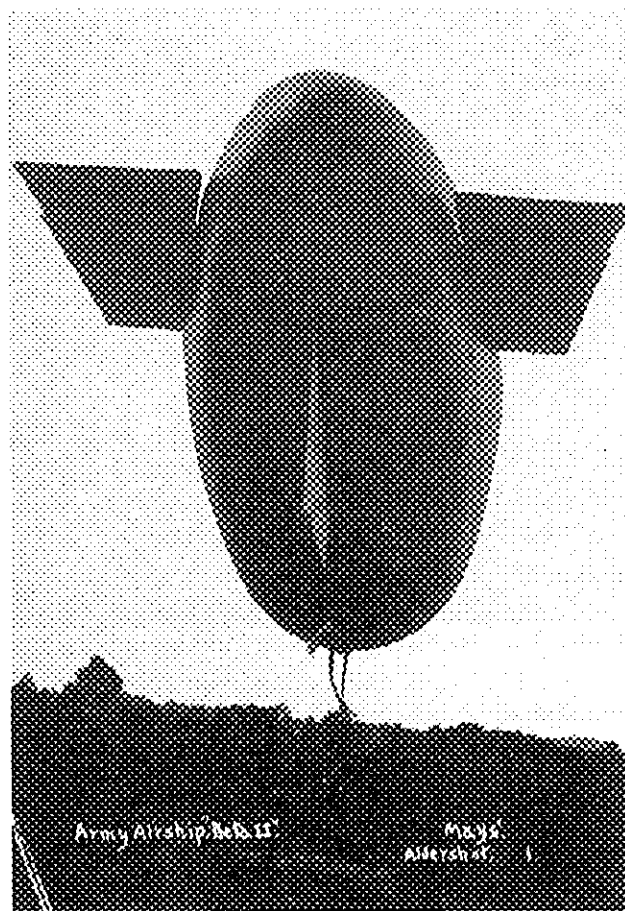
### Experiments and Experiences

Early morning flights were the norm for 'Beta II', usually commencing at 0500 hrs. and lasting until breakfast. Mist sometimes posed problems, such as the occasion on which the very experienced pilot Lt. Fletcher narrowly missed the dome of the Cambridge Hospital by inches in fog.

Captain Edward Maitland conducted experiments in parachuting on October 6th 1913, finally making a jump himself (probably the first from a powered aircraft in Britain) and becoming an avid parachutist in the process.

'Beta II' carried experimental machine guns for a time, but these were removed before the outbreak of hostilities in 1914. She went on to be based at Pullham for a time on training duties.

The small size of 'Beta II' lent itself to versatility, even though she was not fitted with swivelling propellers and relied on a ground crew (whereas 'Gamma' had swivelling propellers and could dispense with ground handlers). When the airship attended the wedding of Captain R. Pigot at Medmenham, she was moored overnight on the lawn while her crew participated in the festivities. On another occasion she was moored out at Berkhamstead Castle grounds, inside a running track, for students to view. An overnight thunderstorm soaked 'Beta II' and made her so heavy that she could only get airborne under dynamic power - full throttle. The tail fin scraped the ground on take off.



*Above: A view of the empennage of 'Beta II'*

In March 1913 'Beta II' flew a circular route from Farnborough via Reigate and Ashford. During the second week of July she was deflated and some modifications were carried out, at the same time as modifications to 'Delta'. That year she was transferred to the Navy, along with all responsibility for airship development, and was redesignated Naval Airship No.17.

### Active Deployment

The outbreak of the Great War found 'Beta II' on defensive patrols over London and the Thames Estuary; along with Airship No.3 and 'Eta' she made a number of night flights to evaluate the lighting of the metropolis. However, it was not long before she made her last public appearance over London for the crowds to see their 'Silver Queen' one last time before she was deployed to the Continent.

The need for a British airship in Belgium was perceived early in the War, and it was agreed to send 'Eta' was sent to Fiuming, the airship base near Dunkirk. Damage caused to 'Eta' in a landing accident meant that 'Beta II' went instead, and she was packed into boxes and transhipped from Farnborough to Fiuming. She was re-erected in only one day, but engine trials and other snags delayed her deployment. She then made many reconnaissance flights over Dunkirk, armed only with a rifle and the crew's revolvers, her machine gun having been removed; this situation did not change during her active career. Capt. Maitland was in charge of her, together with several captive balloons, all used in artillery spotting against the enemy. It was at this point that Maitland urged large scale deployment of observation balloons.

'Beta II' conducted daily patrols until December 27th 1914 when she was accidentally damaged by a sentry whilst in her shed. The envelope could not be repaired on site and was sent back to Farnborough; a new one was sent back on January 6th 1915 and the airship was ready for trials after a fortnight. Patrols continued, and she made two flights on February 1st, the second of which was reconnaissance to Coxyd and Oude Dunkirke; mist prevented complete success at locating the enemy. After two more flights 'Beta II' was deflated and sent back across the channel to Kingsnorth.

Here the gondola of 'Beta II' was married to the envelope of SS 34; official records refer to the airship thus created as SS 34, but we have seen that it is the airship car which constitutes the airship designation, and in this form 'Beta II' continued to fly until July 22nd 1916 when she was struck off charge.

### Conclusions

Under these official records, 'Beta II' was 'scrapped' in May 1916 as obsolete. It is not known how many flights she actually made in her career, but there was a minimum of 310 recorded flights, covering some 3,000 miles; in reality, the figures are probably much higher, but existing records are unclear. In any event, hers was a highly successful career, providing the British armed services with much experience in airship handling and mooring. While her tactical deployment did not live up to expectations of some outside the Royal Naval Air service, she should not be judged as a failure for, given the limitations of her day, 'Beta II' performed as well as could be reasonably expected.

In a sense 'Beta II' is with us still if, as we have said above, a gondola can be said to constitute the airship: her boat-shaped gondola is preserved in near-perfect condition to this day, and is displayed in the Aeronautical Galleries of the Science Museum in London.

### Sources:

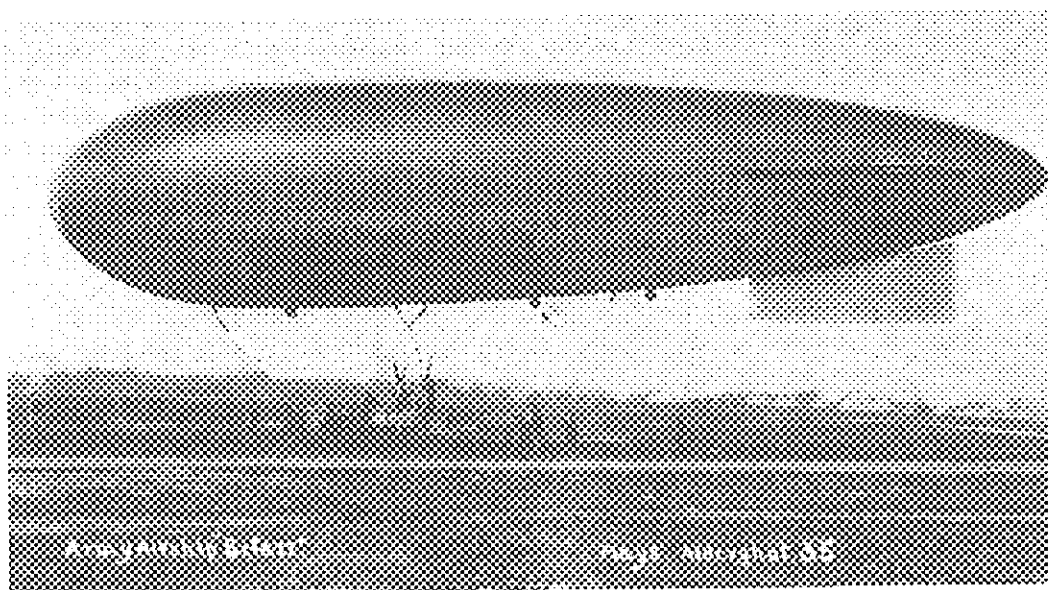
The Achievement of the Airship (Hartcup); The Airship (Sprigg); The Airship - a History (Collier); Airship - R34 (Abbott); Airship Saga (Ventry and Kolesnik); Airships (Beauvois); Airships (Jackson); Airships in Peace and War (Sinclair); The Army and Aviation (Robertson); The British Airship at War (Abbott); British Airships (Whale); The British Rigid Airship (Higham); D'Orey's Airship Manual; International Encyclopedia of Aviation (Mondey); The History of Early British Aeronautics (Broke-Smith); Janes' All the World's Aircraft 1913; Janes' Pocket Book of Airships (Ventry); Das Luftschiff (Gutschow); various issues of 'The Aero' and 'Flight' magazines June - September 1910; Buoyant Flight Vol.19 No.4.

### Specifications of 'Beta':

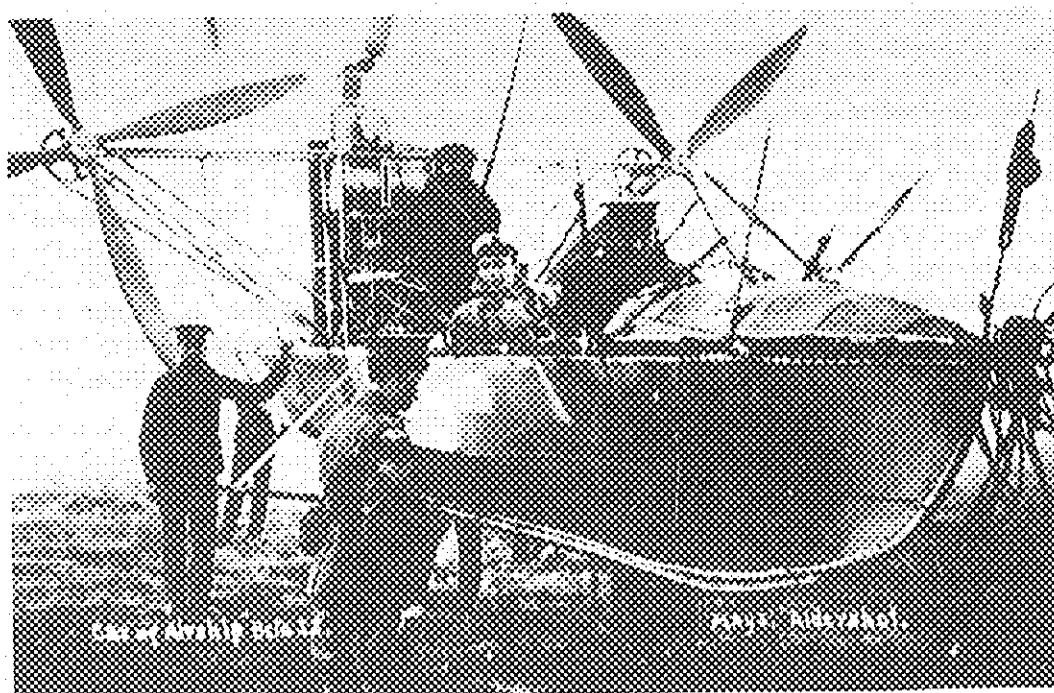
**Length:** 31.7m (104 ft); **Diameter:** 7.6m (25 ft); **Volume:** 991 cu.mtr. (35,000 cu.ft.) - 1,189 cu.mtr. (41,898 cu.ft.) envelope for last 20 flights; one ballonnet; **Lifting agent:** hydrogen; **Range:** 5 hours with a crew of 3; **Engine:** one Green 4 cylinder inline water-cooled of 35hp, weighing 72 kg (158.5 lbs); **Speed:** 40 km/h (25 mph); **Propellers:** two 2-bladed wooden 1.75m (5' 9") in diameter.

**Specifications of 'Beta II' (Naval Airship No. 17):**

**Length:** 35.36m (116 ft); **Diameter:** 7.92 m (26 ft); **Volume:** 1189 cu.m. (41,989 cu.ft.); **one ballonet;** **Lifting agent:** hydrogen; **Range:** 8 hours with a crew of 3; **Engine:** one Clerget rotary, 45/50hp; **Speed:** 58 km/h (36 mph); **Propellers:** two 4-bladed wooden; **Weight:** 835 kg (1,840 lbs); **Operational bases:** Farnborough, Wormwood Scrubbs, Dunkirk, Pulham.



Two views of 'Beta II' by the military photographer Mays of Aldershot. Her gondola, below, is displayed in the Science Museum in London.



Mr. Lindsay's

# GRAND INFLATION:

*A Record Amount of Hot Air?*

Most birthdays are not complete without a few balloons at least, so how would you celebrate Cardington No.1 Shed's 80th Birthday? Tony Lindsay of the BBML came up a scheme on 15th February this year to exceed all expectations! AHT was on hand for his "Inflation Event" since it is, spiritually at least, 'our manor'; various infirmities had struck the Council (including the Editor), but luckily Special Correspondent Anonymoose ("Dirigible" Vol.VII No.3 p.19 lower right) was there to elk out, deer fallow that he is. Without any further a-doe, let's hoove to for his report.

February 15th dawned cold and bright at Cardington, showing great promise following a week of storms and a spell of thoroughly bad February weather. Of the two massive sheds, which looked stunning broadside on from Cotton End with the dawn light streaming onto them over the hill, No.1 alone gave a clue to the secret to be revealed inside its mighty doors standing slightly ajar.

Walking into one of the side offices within the shed, I realise it is cold, very cold, with a chill seeping from the feet upwards through the bones. Today, after months of meticulous preparation, the BBML 'Inflation Event' was to try and set the record for the "largest number of hot air balloons inflated *INSIDE* a building". But, as an 'observer and crew member' from the AHT at a BBML event, was I attending a WRNS's wedding, or was there a rôle to play? The latter soon transpired, with plenty of opportunity to publicise the Trust through our photographic display - and earn some hard currency at the same time - as well as having a prime position from which to enjoy the Inflation. Huddling round Den Burchmore's trusty heater, we were still trying to wonder how on earth the shed floor could be so cold: it gave us a sense of reality as to how the riggers and crews of old must have felt working long hours there.

Content in the knowledge that the fire and medical services, and 230 (Bedford) Squadron of the Air Training Corps were on hand to cope with possible emergencies (there were none), the day wore on, and the largest empty space I have ever seen began to fill with the roar of burners, and acres of material bellying roofwards to form shapes generally recognisable as hot air balloons, although some are not distinguishable as such until fully inflated; the rotund grey balloon with five dangly bits that duly becomes a 40 ft elephant, for example; or the giant red-and-black tablecloth that somehow rises drily into a Fire Extinguisher. The level of noise increases, and so, to our joy, does the level of heat. The Shed becomes pleasantly warm - but I am still glad of the extra T-shirt I have on - and with so many burners going off at once someone comments that the site resembles a Kuwaiti nocturne during the Gulf War. It is only then that I notice how dark the Shed has become with all the skylights obliterated by the sheer number of balloons. Looking upward we see giant inflated cells of fabric pressing against the outer framework, giving us a glimpse of how the scene might once have been when the shed was full of airship. Suddenly, the 'launch' of one of Don Cameron's balloons gives an idea of the true size of the Shed as it floats upwards towards the roof, with plenty of room to spare.

The actual inflation attempt was adjudicated by the Mayor of Bedford, and the results are being submitted to the Guinness Book of Records; some 93 man-carrying balloons were inflated at one time, the total number of inflations during the day was 172, and a further two balloons flew free without inflating in the Shed. In all a great success for the BBML for the planning and execution of what might seem to the layman a logistical nightmare; but a great spectacle nonetheless, and a novel way of providing some balloons to celebrate the 80th birthday of No.1 Shed!

Below: The amazing scene in Cardington No.1 Shed on 15th February 1997 during the BBML Indoor Inflation Record Attempt.



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**DIRIGIBLE** is the journal of the Airship and Balloon Museum and is published by the Airship Heritage Trust. It is published quarterly and distributed free to all members of the Trust and, through our close associations, to the Friends of the British Balloon Museum and Library.

The objects of the Airship Heritage Trust 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; 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 national museum and study centre devoted to the airship.

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'DIRIGIBLE' (AHT House Journal)

Editor: Nick Wainman, Trydwin, Horning Road West, Hoveton, Norwich NR12 8QJ, UK

Tel: 01603 762768 (Fax: 01603 761011)

Published by The Airship Heritage Trust (incorporating FOCAS), AHT Office, RAF Museum BC, RAF Cardington, Bedford MK42 0TH, UK.

Tel: 01234 742710 (mornings only)

Registered Office of the Trust is situated at 4 Gidding Road Bedford MK45 3NF

Registered in England:

No 2104681

The Airship Heritage Trust (incorporating FOCAS) is a Registered Charity.

No 296398