



# THE HAWKER ASSOCIATION

## NEWSLETTER NUMBER 12 - SPRING 2006

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### EDITORIAL

The Committee wishes all Members a happy, prosperous and healthy 2006. We will do our best to provide a New Year's worth of imaginative and interesting talks, events and visits.

The AGM is coming up on April 12th as detailed on the enclosed sheet. We hope that attendance this year will be better than in 2005 as we have moved the AGM to a Wednesday and combined it with a social meeting and video. Please support your Committee by coming along and taking part in the discussions. Your 'feedback' and suggestions are needed so that a programme can be planned to meet your wishes. Also, Committee elections take place this year so here is your opportunity to get involved in running the Association.

The Editor receives many kind remarks about the Newsletter which is very gratifying. However, he would be even more grateful to Members if they would send in contributions. It's not that he is lazy - he enjoys preparing the Newsletter - but contributions make for variety and interesting reading. Don't be shy; follow Ron Williams's example below. What you may think of as mundane will be of great interest to others!

And don't forget the ties; and the visit to Yeovilton...

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### PROGRAMME FOR 2006

Wednesday 8th March	* = to be confirmed "My Three Jobs in the Front Office" - <b>Chris Roberts</b> .
Wednesday 12th April	AGM, social and video.
Wednesday 10th May	"The Kestrel Tripartite Evaluation Squadron" - <b>Air Cdr David Scrimgeour</b> .
Wednesday 14th June	Summer Barbecue - 1.00pm
Wednesday 12th July	"Boeing Training in the UK" - <b>Keith Hertenberg</b> .
Wednesday 9th August	Social with video.
Wednesday 13th September	Social with video.
Thursday 21st September	<b>Coach trip to the Fleet Air Arm Museum, Yeovilton.</b>
Wednesday 11th October	*"The Future of RN Aviation" - An RN Officer.
Wednesday 8th November	*"Competition Sailplanes" - Afandi Darlington.
Wednesday 13th December	Christmas Lunch - 12.30 pm.

Unless stated otherwise, meetings are at the Hawker Centre, Kingston - the old Sports & Social Club - and start at 2.00 pm. Lunch and drinks are available beforehand, tea afterwards, and there is a large, free car park.

**Chris Roberts**, best known to us as a Chief Test Pilot at Dunsfold, had an earlier career in the RAF and a later one in civil aviation, hence the three front office jobs. **David Scrimgeour** was the CO of the Kestrel Evaluation Squadron so will talk to us from first hand experience. **Keith Hertenberg** is an old McDonnell- Douglas colleague now with Boeing and in charge of product training in the UK.

Percy Collino has once again negotiated a good price for the hire of a 50 seater coach to take Members and guests down to Somerset to visit the excellent **FAA Museum at NAS Yeovilton**. The Sea Harriers may have left but there is still plenty to see in the way of 'Hawker' types and other aircraft in the museum. As for last year's very successful Duxford visit the coach will leave from the Hawker Centre where cars may be parked free of charge. **Departure** time on Thursday **21st September** is 8.45 am and we expect to back at about 7.00 pm. Attractions include P.1127 XP980 and all Kingston's naval fighters back to the Sea Fury. The technically minded will enjoy studying the BS.100 engine for the P.1154. The "Carrier Experience" display reproduces the sights and sounds of a live carrier deck whilst launching a Phantom, and a Concorde prototype is there together with its supporting research aircraft.

The price, including the museum entrance, fee is just **£15** for members and £17.50 for guests. You will be pleased to hear that there is a licensed restaurant! Book through Percy Collino at meetings or by telephone on 0208 3378143.

### ASSOCIATION TIES

These handsome ties in red or blue with the Association logo diagonally across the blade are available for £7.50. You can buy them from **Harry Fraser-Mitchell** at meetings or by post (50p) from him at 16 Guernsey Drive, Fleet, Hampshire, GU51 2TG; cheques payable to The Hawker Association, please. Telephone him first on 01252 626996 to check availability.

### KINGSTON AVIATION HERITAGE PROJECT

Members' responses to the appeal in the last Newsletter for help for Les Palmer in fund raising was, to say the least, very disappointing; there were no offers of help. The long serving and dedicated KAHP Committee was plunged into gloom by this news. The chances of raising funds for the memorial must be very slim indeed if 350 of those who were

intimately involved with the object of the memorial show no interest whatever in supporting the project. Les isn't going to ask you to stand on a street corner rattling a tin, or to do any 'doorstepping'. He needs help in researching potential donors and eventually in dealing with mail. Please contact Les who will explain the help he needs; it's not onerous, just vital. Please call him on 01784 460418 or approach him at the next Meeting. He promises to be gentle.

### **WHO'S WHO?**

Does anyone have a copy of 'Who's Who?' for 2003, 04 or 05? Is your office having a clear-out of redundant 'Who's Whos'? If so, Les Palmer would like to hear from you. He needs to borrow them for Kingston Aviation Heritage Project potential donor research. Please call him on 01748 460418. He will collect.

### **HAWKER PEOPLE NEWS**

Ralph Hooper, our great Chief Engineer and designer of the P.1127, was 80 years old on January 30th. We all congratulate him and are very pleased to see the excellent recovery he has made from a recent hip replacement operation. He seems younger than ever!

### **COL. JOHN DRISCOLL**

Do any Members remember Col. Driscoll who worked with the MWDP in the very early days of the P.1127 and BE.53? His widow, Liz, would like to get in contact. Please inform the Editor.

### **NEWS OF MEMBERS**

If any of you know of a Member who is unwell, in hospital or in need of cheering up, please call the Editor. It is only from your information that the Committee can learn of the fortunes of Members and so, perhaps, be of help.

### **CHRISTMAS LUNCH**

Once again a very good time was had by some sixty Members who enjoyed an excellent traditional three course lunch with mince pies and coffee. The YMCA staff produced tasty dishes with good vegetables, and served with skill and speed.

Chairman Ambrose Barber opened the proceedings and after lunch, John Glasscock, our President, gave an address in which he thanked the Committee for their work during the year and entertained the company with a couple of very good jokes. Harry Fraser-Mitchell plugged the Association tie and Cliff Bore promoted his new book; both were successful in making a number of sales!

Percy Collino was especially thanked for organising the lunch again. He was helped by Jan White who also assisted in Percy's raffle. The takings went towards a Christmas Box for the Hawker Centre staff. Ron, who puts out the chairs, screen and so on for all the meetings, and tidies up afterwards, was given a bottle of Scotch.

### **THE RAF HARRIER STORY**

Under this title the RAF Historical Society has published the proceedings of their Harrier seminar held at Filton in March 2005. The papers read are reproduced in its 130 hard bound illustrated pages, the whole being a definitive, concise and accurate account of the development of the vectored thrust concept and RAF Harrier operations from the first pilot conversions to today's 'Joint Force Harrier'. Accuracy is guaranteed because each author writes from first hand experience in his field. These expert contributors are John Coplin, Gordon Lewis, Ralph Hooper, John Farley, Air Cdre David Scrimgeour, Air Vice Marshal Peter Dodworth, Gp Capt Jock Heron, Air Vice Marshal Pat O'Reilly, Air Chief Marshal Sir Patrick Hine, Air Chief Marshal Sir Peter Squire, Gp Capt Andy Colledge, Commander Bill Covington and Air Marshal Sir Reginald Harland.

The Association has purchased some copies and if you would like one, very reasonably priced at £10 plus post and packing, please call Ralph Hooper on 020 8948 2581.

### **NOT BORING AT ALL**

Cliff Bore has written a short memoir about his life and his time at Hawkers. This personal, perhaps even idiosyncratic, view of his part in Kingston events gives an insight into one of Hawkers' outstanding research and project engineers and covers in some detail his pioneering work on fatigue life calculation, the application of the area rule, and wing design. I hope Cliff's example will prompt others to recall and record the parts they played in the history of our favourite aircraft company. In spite of some minor errors (for example, there were nine Kestrels, G-APUX was not the prototype two-seat Hunter, and Cuba was not subject to a blockade but to a US trade embargo) this home-published book produced to professional standards makes fascinating reading.

"My Path of Little Boredom" is available from Cliff on 020 8286 8676

### **HAWK NEWS**

Thanks to BAE Systems' "Hawk News" and "Response" for the following items.

The first of six Royal Bahraini Air Force Hawk Mk129s made its first flight in August 2005, nine months ahead of schedule. The Mk129 is powered by the Adour Mk95, the first to incorporate FADEC (full authority digital engine

control). The RBAF aircraft will equip an air training wing which will give flying training to new recruits who will progress to F-16s.

At the end of July, erstwhile Dunsfold test pilot Paul Hopkins, then Chief Test Pilot at Warton, made the maiden flight of the first of two RAF Hawk Mk 128 Advanced Jet Trainers (AJTs), serial number ZK010. Paul, retired from a twenty year test flying career, is now Hawk Mk 128 Project Director.

The Indian Hawk Mk 132 AJT programme is gathering momentum. To remind readers, there will be 24 aircraft built in the UK and ferried to India, 6 part manufactured at Brough and shipped to Hindustan Aeronautics Ltd for completion, and 36 manufactured by HAL from raw materials supplied by BAES. In all 3,000 assembly tools and 39 sets of raw materials, each containing 130,000 line items, are to be provided. The first of four major shipments was despatched in late 2005.

The Royal Australian Air Force's fleet of 33 Hawk Mk 127 Lead-In Fighter (LIF) aircraft achieved 30,000 flying hours in September 2005. The aircraft were delivered to the RAAF in 2000-2001 and are operated by 76 Squadron at Williamstown, New South Wales, and 79 Squadron at Pearce, Western Australia.

BAES's Australian Military Air Support business is providing The Royal Saudi Air Force with an upgraded aircrew training system for their three Hawk and PC-9 systems; two are in Saudi Arabia and one is at Warton.

Our old friend G-HAWK, now known only as ZA101, has been flying from Warton with a pointed tip to its long nose and a bare metal, but unpolished, finish. Rumour has it that it is engaged in some kind of 'low observables' research.

### **RN SEA HARRIER FINALE...**

On November 14 2005, 801 NAS Sea Harrier FA2s left Yeovilton for HMS Illustrious and the type's final cruise, through the Mediterranean. The squadron badge, a white winged trident, was carried on the Sea Harriers' fins superimposed on a black omega, indicating that 801 NAS is the last Royal Navy Sea Harrier operator. En route to Malta for a visit by HM the Queen on November 24, the aircraft were flown intensively and performed air combat missions against Portugese Air Force AMRAAM equipped F-16s; appropriately the FA2s won.

Back at Yeovilton on November 29 the Squadron then ran down and was disbanded on March 31 2006. On October 1 801 NAS will reform with Harrier IIs as part of Joint Force Harrier at RAF Cottesmore, following 800 NAS which is similarly to reform on April 1.

### **...BUT THE INDIAN NAVY SEA HARRIERS FLY ON**

The February 2006 issue of 'Aircraft Illustrated' reported that INAS 300 'White Tigers' and the training squadron INAS 552 expect to be operating their 13 FRSMk51s until 2012-2015 following a significant update programme by Hindustan Aeronautics Ltd (HAL), now under way. A new 'EL/M 2032 pulsed radar' system and 'Derby BVR' missiles are being installed. Previous improvements included 'Tempest' jammer pods, chaff and fare dispensers, GPS, improved WAC software and Blue Fox radar updates. Some aircraft are fitted with a 'Roshni' RWR system and all carry an 'Elta EL/L 8222' active self-protection jammer. (If any readers have any information on these items, the Editor would be pleased to hear from them.)

The IN still operates INS Viraat, formerly HMS Hermes, and plans to keep her operational for another ten years. Viraat with the Sea Harriers is well used, deploying typically for 45 day cruises and last year operated with USS Nimitz in exercise Malabar during which the Sea Harriers flew air combat training against USN Super Hornets.

### **THE ROYAL NAVY'S NEW CVF CARRIER AND THE F-35B**

The RN is to have two 65,000 tonne carriers to replace the Invincible class ships which were home to the Sea Harriers. Costing £2.7 billion they will be the RN's largest ever ships, so large in fact, that no single UK shipyard is capable of building them. Consequently the ships are being broken down into 4 large and 22 smaller units which will be built at a number of shipyards around the country ranging in size from Babcock at Rosyth, BAES at Govan and Vosper-Thornycroft, to the small Appledore yard in Devon. Each module with its self-contained systems will be brought as close to completion as possible before final assembly.

To realise this vast project the Aircraft Carrier Alliance has been formed by BAES, Babcock, the VT Group, Thales, KBR and the MoD.

The design task is made more difficult because the MoD wants the ships to be easily converted from the intended STOVL mode, where the US/UK F-35B Joint Strike Fighters (now known as the Joint Combat Aircraft, JCA, in the UK) needing just a ski jump, to a conventional aircraft mode needing catapults and arrestor gear. This is to cover the eventuality that the US Government discontinues the F-35B STOVL variant, or even worse, cancels the entire JSF programme. In the first case the USN's F-35C variant might be adopted. In the second case the RN might be stuck with developed F-18s or navalised Typhoons or Grippens. Harrier GR9s from the JASS programme (see Newsletter 10) would also be available, at least as a stop-gap.

Initial F-35B deliveries to the UK are not expected until 2014 but as the MoD is not yet contractually committed to the aircraft we could see Joint Force Harriers still operational in 2020!

Michael Pryce points out that on 2nd February BAES Salmesbury started manufacture of the first F-35B rear fuselage; 41 years to the day since the P.1154 was cancelled.

## SEA FURY RACERS

Of the nine starters in the September 2005 Reno Unlimited Gold Race seven were Sea Furies. The eight lap race over 67 miles was won by a Grumman Bearcat, 'Rare Bear' at 466.3 mph but the Sea Furies took second to eighth places at speeds from 448.8 - 397.9 mph; the ninth entrant, a P-51D failed to finish.

The fastest Sea Fury, 'Dreadnought', a two-seat Mk20 owned by Brian Sanders, like nearly all racing Sea Furies, has had its Centaurus replaced, in this case by a Pratt & Whitney R-4360 Wasp Major, 28 cylinder, four row radial as used in the B-50 Superfortress and the Stratocruiser. Known as the 'corncob' because of its layout it has been tuned to give around 4000 hp. Others have been fitted with the Wright R-3350 Turbo-Cyclone, 18 cylinder, two row radial, as used in the B-29 and Super Constellation. Airframes are also sometimes quite drastically modified with clipped wings and tiny, low profile canopies, although 'Dreadnaught', apart from a longer cowling and taller fin looks standard.

## ARADO CRESCENT CRITICICISM

Harry Fraser-Mitchell writes...

I cannot let you get away with the *canard* on page 3 (of the Winter Newsletter) that HP got the idea for the crescent wing from Arado. I have already taken Ralph Denning to task over this!

One version of the Arado 234, not in fact built, had a swept wing, the outer panels of which were given less sweep in order to get the centre of lift nearer the C of G. The aircraft originally had straight wings and the pure swept wing which they investigated could not be made to balance.

The idea behind the 'crescent' was aerodynamic in that in that it was kinked in order to limit the amount of boundary layer build-up towards the tips. A vortex was shed from each kink which tended to reduce the outflow.

Both Godfrey Lee and Dietrich Kuchemann, then Head of the RAE Aero Department, averred that the specific Arado work on the 234 was not used by Handley Page in 1946, and of course the Ar 234 did not have the linked thickness-sweep relationship designed to keep critical Mach constant across the span, which was the other feature of the crescent wing.

## A DOUBLE TESTIMONIAL

Ron Williams, member of the Project Office from 1944 until retirement writes...

I came across this January 1989 letter from Bill Bedford. I was probably one of the first to meet Bill when he joined Hawkers in 1958 as Chief Test Pilot. We met at London Airport on our way to visit Paris and Toulouse to assess the little Breguet Taon fighter entered in the NATO 'light fighter' competition, eventually won by the Fiat G-91.

Dear Ron,

This is a short note to wish you and your family all the best in your new chapter in life following your retirement from an outstanding innings with Hawkers/BAe.

As a younger man in the late forties, experienced aviators said to me, "There's only one firm to join, and that's Hawkers; they make the finest pilots' aeroplanes." How right that proved to be and to me it was a great honour and a pleasure to fly those aircraft and to appreciate the brilliant team that made it possible, with one success after another, terminating with the Harrier and Hawk, both of which hit the US jackpot against all comers.

An old Australian WWII pilot friend, 'Bush' Cotton, having recently read the RAeS fifty year anniversary book on the Hurricane, thanked me for it and said, "I read every page. I can see now why I was able to trust the machine more than any other aircraft I have flown before it or since." That is the true hallmark stamped on all 'Hawker' aeroplanes.

And thank you, Ron, for all you did personally to enhance this reputation by putting everything you had in terms of tenacity and ability to see that the RAF, RN and other pilots had the very best.

Yours sincerely,

Bill

## BEYOND THE HARRIER

On the 9th November Michael Pryce, whose uncle, JB Smith, worked in the Buying Office until 1970, came to the Hawker Centre to talk about Kingston's Projected Harrier Successors. He was slightly concerned at addressing an audience of 'knowledgable' Kingston people, but he needn't have been. His background ensured that he brought a new outlook to this topic. Michael took a BA in History at Manchester followed by an MSc in the history of technology at Imperial College and is now at the University of Sussex doing a PhD on the role of project design in procurement, studying in particular the contrasting methods of Kingston and Warton. BAES Chief Executive Mike Turner had been most helpful in letting him 'inside' the Company.

It was clear, Michael said, that Kingston worked as a team and that this was the key to their success. Also, Warton's greater project-related resources drew them towards the time and man-hours intensive analytical approach where optimum components are devised and then assembled in various combinations to achieve the 'best' configuration, whereas Kingston preferred to study fewer complete configurations based on experience.

A 'project' has several phases including: initial study producing a g.a., weights, performance estimates etc; a brochure for feedback, to sell the ideas and to raise funding; model testing; preliminary design leading to mock-up; and prototype build. Each stage takes perhaps ten times the effort of its predecessor. Michael said he would concentrate on the more serious VSTOL/STOVL projects.

The P.1127 single engine concept was a 'right first time' for Kingston. The more complex P.1126, chronologically a later design that had multiple swing-out lift engines, and the P.1137 with lift engines and a thrust diverter, were typical of

other configurations discarded at the initial project phase. It was never Kingston's philosophy to search for the 'optimum' design, as Germany had done with the complicated VFW VAK 191B, but to try to pick a winning configuration at an early stage. Just as the P.1127 was shown to be practical the RAF had supersonic ambitions so the P.1150 was drawn with plenum chamber burning (PCB), which Bristol had devised for Fokker-Republic, on its anhedral nozzle Pegasus. The P.1155 with added lift jets was discarded. The P.1127s were now flying and all that experience was pouring into the Project Office as the P.1154 evolved with the BS.100 PCB engine and was entered in the NATO NBMR3 international design competition.

In 1962 the P.1154 was declared the 'technical winner' but for political and economic reasons Dassault's Mirage IIIV was said to be of 'equal merit', and because national funding was required the competition collapsed. The UK P.1154 saga is well known in that RN and RAF requirements were essentially incompatible and the Navy's determination to keep big carriers, and Roll-Royce's confusing twin Spey offer, led to the demise of the P.1154 RN. However, much serious engineering was done on the P.1154 RAF which had hinged intake lips, and dams and strakes to control hot gas reingestion (HGR), as well as advanced avionics. The wing was a 'peaky section' design refined from that used on the Kestrel. Some 750,000 technical man hours were expended at Kingston and a workforce of 1,500 at Kingston, Brough and Hamble were involved in building 3 (of 8) prototypes, which were 33% complete, on cancellation in February 1965. At Bristol Siddeley, and Rolls-Royce who had sub-contract work, 3200 men had built 5 BS.100s. The Harrier, of course, was ordered for the RAF instead and became a great success and so influenced subsequent projects and led to work with McDonnell-Douglas in the USA.

Meanwhile other V/STOL aircraft had been or were under study. To meet the German VAK191 specification the subsonic P.1163/HS.1170 with a smaller PCB engine was proposed but the UK Government withdrew in 1963. The P.1175 had a two-nozzle Pegasus and a R-R/Allison lift engine; the P.1176 was a Harrier with an uprated Pegasus marketed in the USA. The P.1179 was aimed at the Multi Role Combat Aircraft (MRCA) requirement. Earlier designs had been Harrier derived but P.1179 was a 'clean sheet sheet of paper' approach with Brough yielding a series of projects, both conventional and V/STOL. Nevertheless the four nozzle vectored thrust P.1179L was seen as the best solution; eventually, of course, Tornado was selected.

In 1971 AST.396 for a RAF Harrier/Jaguar replacement was issued, and the USN was looking for a V/STOL fighter for Admiral Zumwalt's 'Sea Control Ship' concept. The P.1184-7 was the provisional winner of AST.396, an advanced, four (anhedral) nozzle Pegasus powered, tricycle undercarriage aircraft with a sharply swept, moderately high aspect ratio wing. Unfortunately, AST.396 was abandoned in 1974 for economic reasons. The HS.1185 and the derived AV-16S6 was a supersonic proposal for the USN, one of a number of Advanced Harriers studied with McDonnell Douglas under the AV-16 banner, some others being sub-sonic. It was powered by a PCB Pegasus 15 with anhedral front nozzles and with the rear nozzles close together under the fuselage. The AV-16 programme was discontinued for cost reasons.

The RAF had been impressed by the F-16 and consequently, in 1977, issued AST.403 for air combat and ground attack. Kingston's response was the P.1205 with a reclining seat, a chin intake, carbon fibre composites (CFC), fly-by-wire (FBW) and a PCB Pegasus with anhedral nozzles, mounted low to minimise rear fuselage structural damage from the hot and noisy exhaust stream. The latter feature led to insurmountable pitch control problems in the transition. Other configurations were studied but the P.1205 was abandoned in 1979.

Another solution to the rear fuselage damage problem was the tail-less twin boom P.1212 where the three-nozzle engine was carried in a short fuselage pod and exhausted in the gap between the booms which carried twin fins. Pitch control was by elevons on the wings outboard of the booms but adequate control power could not be achieved. Other variants were briefly studied, including layouts with canards but these generated a down force (lift loss) during the transition. The P.1214 was a forward-swept wing derivative that achieved some publicity but was not seen as realistic.

The solution to the P.1212 control problems was to lengthen the booms and add tailplanes outboard, to give the P.1216, studied in various forms from 1980 to 1988. Stiff CFC wings were used with leading edge root extensions (LERX), a translating chin intake, interchangeable weapon modules on the booms, identical slab fins and tailplanes, and FBW including nozzles independently vectorable during the transition. As well as PV Company funded work aimed at the RAF, the RN and the world market, the P.1216 was studied against the RAF's AST.410 of 1982 for air combat and ground attack and, in 1985, against the RN's NST.6464 with wing fold and extra boom fuel for combat air patrol (CAP). A mock-up was viewed by Margaret Thatcher in 1982 and strong service interest was maintained until 1983 when the prospect of a European Fighter Aircraft (EFA) pushed ASTOVL into the future. The RN were seriously interested but lacked funding. Much design, rig test and wind tunnel work was done over the years including a 'hot jets' rig still in use at Warton solving Joint Strike Fighter (JSF) HGR problems. (HGR still is not amenable to computational fluid dynamics evaluation techniques). Full scale PCB testing at Shoeburness, using a modified Harrier airframe, proved the value of nozzle toe-in and other HGR control measures.

In 1986 a US/UK Memorandum of Understanding was signed where four ASTOVL concepts would be studied: vectored thrust (VT), remote augmented lift system, ejector augmentor, and tandem fan (TF), all to be designed to match a common evaluation model (CEM). Kingston concentrated on VT designs having already examined and rejected the other three, which were therefore left to Warton, except for CEM-related work on their P.115 TF. The official VT project was the P.1230 developed with Brough and Warton, a conventional four nozzle airframe using P.1216 technologies, but in parallel Kingston developed the P.1216-50 to the CEM requirements. Within BAe this was recognised as the 'best' solution but was not revealed to the US. The last project to be drawn at Kingston before closure of the Future Projects Office in 1988 was the P.1246, a Harrier derivative with PCB.

The Harrier still provides the basis for current ASTOVL work with vectored thrust being the preferred solution, Kingston experience is supporting the JSF effort and Warton use the P.1216 test data. Michael observed that the Kingston-Warton culture difference is still there, albeit based at Farnborough!

During question time Ralph Hooper recalled that in 1961 the P.1150 was kept under cover whilst the P.1127 to OR.345 with an 18,000 lb thrust Pegasus was being considered by the RAF. The Air Staff cancelled OR.345 because they needed supersonics to counter the MiG-21s being sold by Russia around the world so there appeared to be no future for the P.1127. The case for the P.1154 was seen as hopeless when the Government insisted that it be a bi-service aircraft like the F-111. The P.1154 was forced on the RN who withdrew. After the RAF aircraft was cancelled the resulting Harrier was very like the OR.345 P.1127. Duncan Simpson observed that the USMC were delighted with their AV-8As when the RAF were saying they needed no more Harriers but turned out to be wrong.

The vote of thanks was given by Chris Farara and Michael received an appreciative round of applause from the large audience. Note that an expanded version of Michael's talk can be found at [www.harrier.org.uk/history/beyondtheharrier.pdf](http://www.harrier.org.uk/history/beyondtheharrier.pdf)

## **FROM COMET TO HAWK**

On 8th February, Duncan Simpson, at very short notice, gamely stood-in for Afandi Darlington, who was unavoidably delayed in the USA, and entertained a fascinated audience by reminiscing off the cuff about his life in aviation. Illustrated with slides, many made from his personal collection of photographs and drawings, Duncan started his talk from when he was a schoolboy. Having seen Alan Cobham's 1934 tour he already had a passion for aeroplanes and considerable ability at drawing them, showing a detailed design he had made for a fighter along, it must be said, Spitfire lines.

His formal training was at the De Havilland Aeronautical Technical School where he saw the world's first jet airliner, the DH 106 Comet, under construction and managed to sketch this beautiful and secret project without being caught! From there it was into the Royal Air Force in 1949 where, after training on Harvards, he flew Meteors with 222 Squadron, and suffered a major herring gull windscreen strike, and then Venoms, Sabres, Swifts and the elegant Hawker Hunter whilst at the Central Fighter Establishment. Unpainted "strip Venoms" with non-essential equipment removed were the only fighters that could reach over 50,000 ft to intercept incoming Canberras. The Sabre was underpowered; nice to fly but no interceptor. The Swift was good at low level but hopeless at altitude whereas the Hunter, in spite of its many faults, showed promise of becoming a fine fighter.

This contact led to Duncan being invited by Neville Duke to join Hawker Aircraft Ltd and, after an interview by John Lidbury and Eric Rubython at gloomy Canbury Park Road, he joined the test pilots at Dunsfold in 1954 where he became heavily involved in Hunter production test flying. An early highlight was being with Len Harsey's Service Department team in Peru, in 1956, getting 16 Hunters assembled, tested and delivered in three months.

In the mid sixties he joined the jet V/STOL P.1127 programme, having been the "most seasoned watcher" of the Bedford-Merewether pioneer flying, and was later responsible for converting the Tripartite Evaluation Squadron pilots from Britain, Germany and the USA to fly the P.1127 Kestrel. Five years later he did a similar job for the first RAF Harrier pilots.

In 1970 he became Chief Test Pilot at Dunsfold covering Harrier development, during which he ejected from the first two seater, XW174, following engine failure at low altitude. He also made the first flight in the Hawk and supervised the development programme carried out by Andy Jones and Jim Hawkins. It was Duncan who discovered the "Phantom dive" phenomenon during stalling tests performed, for weather reasons, at the unusually high altitude of 30,000 ft where, again unusually, he retracted the undercarriage before the flaps. This resulted in an uncontrollable nose-down pitch until the flaps were retracted. Further tests show that this tailplane stall occurred at altitudes down to 5,000 ft, albeit less severely. The cure for the RAF TMk1 was to cut back the outboard end of the flap vanes to reduce the downwash.

Duncan has a strong interest in old aeroplanes and was responsible, whilst with Hawkers, for master-minding the restoration of a Hart and Sea Fury and, against company management opposition, for keeping HSA's Hurricane, "The Last of the Many", flying, in the RAF Battle of Britain Memorial Flight. The Hart was retired to the RAF Museum, but the Sea Fury flew on with the Royal Navy Historic Flight. He also flew for Scotland's Strathallan Collection, particularly enjoying their Hurricane and Westland Lysander. The latter had naturally fully automatic slats and flaps and it was fascinating, said Duncan, to watch the wing change shape as one slowed down for the approach.

Space allows only this brief summary of Duncan's talk to be recorded here, which in itself was but a part of the fascinating story he has to tell. As Chris Farara said when giving the vote of thanks, perhaps he will return and give us a glimpse of more of his memories.

## **A FEW MORE SOPWITH STORIES**

John Crampton continues...

I asked Sopwith about his winning the 'Baron de Forest' prize in 1910. He started by saying that his first attempts at flying had been expensive, what with crashing his first aeroplane and so forth, so he decided to try to get some of his money back by having a go at the big prizes. There were two: the 'Michelin' for the longest non-stop flight by a British pilot in a British aircraft, and the other was £ 4,000 offered by Baron de Forest for the longest non-stop flight from any point in England to anywhere on the Continent.

Sopwith said: "Baron de Forest, who became Count de Bendor, was resident in England during the early part of the century and was an MP. When Bleriot flew the Straits of Dover in 1909 this event struck the Baron as one of tremendous strategic importance to Britain. So to stimulate British aviation, then practically non-existent, he offered his

prize of £4,000, substantial on those days, for this ambitious flight in an aeroplane wholly manufactured in the UK. Its object was undoubtedly obtained, leading as it did to the eventual formation of the Hawker Siddeley Group.

Almost at the end of 1910 I had a go at the 'Michelin' in the Howard Wright biplane, my second aircraft, and covered 107 miles in 3 hours and 12 minutes, a British distance and duration record. However, Cody was making determined efforts to win the 'Michelin' and as I could not do a proper job of both I decided to leave the 'Michelin' to him and go for the 'de Forest' prize instead. Both closed on the last day of 1910 so time was short.

Fred Sigrist, who had joined me that year from Parsons, the big marine engineering firm at Southampton, had a theory that the most likely time for an engine to fail was in the first few minutes at full throttle, so he advised me to start on the flight to the Continent at Eastchurch which meant about half an hour's flight over land before the Channel. We took the Howard Wright by road from Brooklands to Eastchurch and a few days before Christmas there was a dead calm; I took off at 0830 on the morning of 18th December. I hoped to reach Chalions - the Rheims area. I passed over Canterbury at 1,000 feet - this was my altitude record so far - and with a following wind I was over Dover in half an hour. I remember feeling very alone and so, to relieve the constant apprehension of a change in engine note, I started to sing. This, my wife insists, is not one of my outstanding talents, but the odd carol, tuneful or not, served well.

Twenty-two minutes later I crossed the French coast, exactly where I have never discovered, but I was very relieved to see it. My compass persisted in pointing NW, no matter how I turned, so I steered by the sun. Soon it was hidden by cloud so I continued to fly straight ahead as best I could, passing south of Lille where it was bumpy. Soon I crossed the Belgian frontier and it got so rough that I was nearly thrown out but hung on with one hand beneath the seat. We had no seat belts those days, nor did we have such luxuries as an air speed indicator. The only instruments were a rev. counter which worked, a compass which didn't, and a barograph; a very sensitive one which Cecil Grace had given me, 6 inches in diameter and reading to only 2,000 feet.

The wind was rising and hilly country lay ahead so I decided to land at the first favourable spot, a field near Beaumont. I was getting frightened! I still had 11 gallons left from the 20 I had started with so if the weather had been better I could have covered over 300 miles. However, the distance in a straight line from Eastchurch was 169 miles and as the weather got worse no one else beat me and I was awarded the prize when the competition closed on the 31st December. I landed, incidentally, in a field where in a corner an old gentleman was hoeing potatoes. When I stopped he looked at me for a moment - then turned away and went on hoeing potatoes..!"

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On entering the dining room at Compton Manor for my first lunch there I was placed with my back to the fireplace over which I noticed a magnificent gold bowl, a trophy of some sort. Should be spelt Trophy it was so magnificent. I turned to Sopwith and said that a good story must lie behind it. "Yers", he said, "well, two interesting points: it's solid gold and I damn near didn't get it."

"In June 1912 I was one of thirteen entrants for the first 'Aerial Derby', an 81 mile circuit of Greater London starting and finishing at Hendon. The first prize was that gold cup presented by the Daily Mail. I flew my 70 h.p. Gnome Bleriot. I was the first to finish but was told that I had been disqualified as I had not been seen from the Purley control and so it was assumed that I had turned inside it. I was quite sure that I had not and so appealed to the Stewards of the Meeting. They did not support my appeal so I appealed to the Stewards of the Royal Aero Club.

Gustav Hamel landed second and so was declared the winner, subject to appeal. I made a little arrangement with Gustav that whoever was declared the winner would stand a dinner at the Cafe Royal for the other competitors. Five months later the Club's Stewards did meet and they upheld my appeal. Other witnesses had seen me pass outside the Purley turning point and so all was well. I stood the dinner and got that magnificent gold cup. The dinner must have been a success as Cody, all dressed up in his evening clothes, fell asleep in the train taking him back to Farnborough and woke up in Bournemouth..."

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On Harry Hawker..."In 1912 four young Australians came to England to study flying; two came to me and the others went to Bristols. They included Harry Hawker whom I taught to fly. I well remember the day he came to my office after being with us for a few months and asked if I'd teach him to fly. 'Who'll pay for any damages?', I asked him, and added that I charged seventy-five quid to teach someone to fly up to Aero Club Certificate standards. Hawker reached down into his socks and pulled out fifty quid in notes and asked if that would do; it was all the money he had in the world and he was saving up for his return journey to Australia but he said he'd rather stay in this country and fly with me. After only a few flights he proved that he was master of the art. He was awarded his Certificate, No. 297, in September 1912." I never asked Sopwith if he took Hawker's fifty quid because I was sure he did not. "As for the other Australians: Harry Kauper stayed with me and became the works manager in the early days at Kingston; Harry Busted joined Bristols, served in the RNAS and RAF and retired to live in Cornwall; and E Harrison became a star performer on Bristol Boxkites."

Sopwith continued, "I failed to mention that I was running a flying school at Brooklands at the time, teaching people to do something I knew very little about myself. The Royal Flying Corps was formed in April 1912 and later that year I was approached by a major in the Scotts Fusiliers, with a deep booming voice, who wanted to join the RFC. Unless he held an aviator's certificate within the next ten days he would be over-age to join and he asked me if I could get him through his tests in time. He was successful, 'Boom' Trenchard, who was to become the Father of the Royal Air Force."

## NEW MEMBERS

We welcome the following as new members of the Hawker Association:

Mike Diprose, Max Fendt, Gerry Howard, Robert Millar - Members.

Ralph Denning, Mike Pryce - Associate Members (A).

Hank Cole, Stan Field, Vince Higbee - Associates (a).

## HAWKER ASSOCIATION MEMBERS - FEBRUARY 2006

**A:** Mike Adams (A), Ken Alexander, Peter Alexander, John Allen, Terry Ansty, Alma Apted, Steve Apted, John Arthur, Alan Auld, Bryan Austin. **B:** Colin Balchin, Ambrose Barber, Ray Barber, Derek Barden, Peter Barker, Geoff Barratt, Graham Bass, Ken Batstone, Dennis Baxter, Colin Bedford, Jim Berryman, Anne Beer, Guy Black (A), Keith Bollands, Paul Boon, Cliff Bore, Steve Bott, Pat Bott, Bob Bounden, Alan Boyd, Pat Boyden, Phil Boyden, Roy Braybrook, Clive Brewer, Laurie Bridges, Ian Brine, Doug Britton, Peter Brown, Christopher Budgen, Roy Budgen, George Bunt, Reg Burrell, Robin Burton, Ron Bryan. **C:** Bert Callan, Richard Cannon, Maurice Carlile, Chris Carter, Bob Catterson, Ken Causer, Jeremy Cawthorne, John Chacksfield, Colin Chandler, Jenny Chandler, Keith Chapman, Gerry Clapp, JF Clarke, John Cockerill, Hank Cole (a), Bob Coles, Percy Collino, Brian Coombes, David Cooper, Paul Cope, Patricia Cosgrove, Ron Cosgrove, George Cotterell, Nick Cox, Eric Crabbe, Shirley Craig, John Crampton, Russ Culley, RG Curtis. **D:** Roger Dabbs, Clive Dalley, Andy Dalton, John Danse, Afandi Darlington, Jo Davies, John Davie, Ken Davies, Trevor Davies, Diana Dean, Ralph Denning (A), Norman Devielli, Mike Diprose, Mike Dodd, Lambert Dopping-Heppenstal, Jack Dowson, Brian Drew, Dick Duffell, Jean Duffell, Peter Drye, Neville Duke, Chris Dunhill, Mike Dyke. **E:** John Eacott, John Eckstein, Andy Edwards, Dave Edwards, Tony Elliott, Norman Evans, Roy Evans. **F:** Ian Falconer, Mike Fantham, Chris Farara, John Farley, John Farrow, Max Fendt, Stan Field (a), Geoff Fieldus, Mike Finlay, Wilf Firth, Ann Fletcher, Richard Fletcher, Colin Flint, Dave Fowler, Mike Frain, Harry Fraser-Mitchell, Geoff French, Mike French, Heinz Frick. **G:** Roy Gaff, Mike Gane, John Gardner, Patricia Gardonio, Peter Gates, Sandie Gear, Tim Gedge (A), Mark Gerrard, Alan Gettings, Tony Gibbs, John Gilbert, Maurice Gilson, John Glasscock, Pat Goodheart, Eric Goose, John Gough, Andy Green, James Griffin, Barry Grimsey. **H:** Douglas Halloway, Liz Hargreaves, Simon Hargreaves, Bryan Harman, Dawn Harris, Guy Harris, Thelma Harris, Brian Harvie, David Hastie, Eric Hayward, Bob Head, Sheila Hemsley, Ted Hemsley, Jock Heron (A), Tony Herring (a), Keith Hertenberg (a), Frederick Hewitt, Merlin Hibbs, Richard Hickey, Peter Hickman, Vince Higbee (a), Reg Hippolite, Keith Hobbs, Chris Hodson, Gordon Hodson, Derek Holden, Doc Holliday, Ralph Hooper, Linda Hopkins, Paul Hopkins, Mike Hoskins, Gerry Howard, Dawn Howes, Terry Howes, Simon Howison, Gordon Hudson, Gavin Hukin. **I:** Pete I'Anson, Len Illston, Maive Impey, David Ince (A), Brian Indge. **J:** Keith Jackman, John Janes, Gordon Jefferson, John Johnson, Brian Jones, Ian Jordan, Trevor Jordan, Robin Jowit, Alf Justin. **K:** Brian Kent, Dennis Ketcher, Bill King, Dave King, Martin King, Charles Kirk, Ralph Kuhn. **L:** Barry Laight, Mike Laker, Charles Lamb, Richard Lane, George Latham, Paul Latham, Pam Lawrence, Andrew Lawson, Ron Leader, Geoff Lee, Gordon Lewis (A), Mark Lewis, Vernon Lidstone, Gary Lillistone, Andrew Lloyd, Gary Lockley, David Lockspeiser, Norman Long, Gordon Lorrimer, David Lovell. **M:** Albert Magee, Al Mahoon, Mick Mansell, John Marsh, Bill Marshall, Bob Martin, Dennis Mason, Brian Maton, Don McGovern (a), June McKeon, Ronald Mears, Mike Mendoza, Hugh Merewether, Jim Middleton, Kit Milford, Robert Millar, Jack Mills, Brian Monk, Pat Moon, Leslie Moore, Pauline Moore, Nicholas Morland, Pete Munday, Carole Murphy, Gloria Murphy. **N:** Anthea Newman. **O:** Roger O'Brien-Hill, John O'Sullivan, Robin Owen. **P:** Les Palmer, John I Parker, John L Parker, John Partridge, Bernard Patrick, John Pearce, Barry Pegram, Martin Pennell, Bill Phillips, Ted Pincombe, Dick Poole, Don Pratt, Dave Priddy, Mike Pryce (A). **Q:** John Quinn. **R:** Clive Radley, Raharto (a), Frank Rainsborough, Colin Raisey, Brian Ralton, Paul Rash, Diane Raymond, Vanessa Rayner, David Rees, Peggy Remington, Francis Rhodes, Geoff Richards, Bill Richardson, Chris Roberts, John Rodd, Eric Rubython, Malcolm Ruscoe-Pond, Peter Ryans. **S:** Helen Sadler, Roger Samways, Bernie Scott, Alex Seaman, Ray Searle, Arthur Sharpe, Peter Sibbald, Bill Sherwood, Jack Simmonds, Sadie Simmonds, Duncan Simpson, Derek Sims, Gerry Sims, Charles Smith, Don Smith, Harold Smith, John Smith, Karl Smith, Pete Smith, Selwyn Smith, Roy Sparrow, Peter Spragg, Cora Stanbury, Vivian Stanbury, June Stephens, John Strange, Carroll Stroud, Mike Stroud, Christine Strudwick, Tony Strudwick, Douglas Stubbs, Bill Swinchatt. **T:** David Taylor, Stuart Taylor, Brian Tei, Reginald Thompson, Geoff Tomlinson, Graham Tomlinson, Rod Tribick, Peter Trow, Ron Trowell, Frank Tuck, Bert Turner, Michael Turvey. **U:** John Underhill. **V:** Herbert Valk. **W:** Brian Walden, Terry Walker, David Ward, Harry Webb, Patrick Webb, Graham Weller, Rob Welsh, AP West, Bryan West, Judith Westrop, Jenny Wheatley, Phil Wheatley, James While, Jan White, Mick White, Roy Whitehead, Annette Williams, Ron Williams, Sally Williams, Colin Wilson, George Wilson, Paul Wilson, Dick Wise, Helen Woan, George Woods, Len Woodward, Alan Woolley.

## THOMAS ALLAN COLLINSON

Paul Collinson would like to make contact with anyone who knew his father, Thomas, who worked at Brough on a number of Kingston projects including the conversion of Kestrel XS693 into the Pegasus 6 flying test bed for Filton, the P.1154 and the two-seat Harrier. Either contact the Editor or e-mail Paul at <MColli2673@AOL.com>.