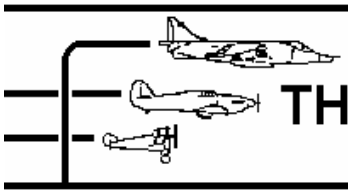

THE HAWKER ASSOCIATION

NEWSLETTER NUMBER 32 - WINTER 2012 Published by The Hawker Association for the Members
Website: www.hawkerassociation.org.uk

EDITORIAL

Thanks to **Ken Batstone** for organising another excellent Christmas lunch at the Hawker Centre whose staff put on a very well cooked meal. The big news is that a Heritage Lottery Fund grant has been received for the Kingston Aviation Centenary Project, thanks largely to the efforts of **David Hassard**. Please read the articles below and volunteer to help.

With this Newsletter is the AGM notice and your **subscription renewal forms** for 2012 - 2013. Why not send it off now before you forget! It's still only a fiver. **Subscriptions for 2011-12 are still awaited from 12 of you; your names are in bold in the Membership list on the last page.** Please send your £5 cheques to Barry Pegram, 12 Becket Wood, Newdigate, Surrey, RH5 5AQ. This is your final reminder.

There has been no room for Members' memories this time but please continue to send your contributions to the Editor, Chris Farara, 24 Guildown Road, Guildford, Surrey, GU2 4EN. Tel 01483 825955, e-mail cjfarara@ntlworld.com

PROGRAMME FOR 2012

Wednesday 8th February	Aviation in the 21st Century - **Prof Ian Poll**
Wednesday 14th March	My Life After Aviation in Boat Building - **Tim Gedge**
Wednesday 11th April	Annual General Meeting and video.
Wednesday 9th May	The Fleet Air Arm and After - Lt Nick Cowan RN Rtd
Wednesday 13th June	Summer Barbecue
Wednesday 11th July	The Great Richmond Road Aircraft Factory - David Hassard

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.

HERITAGE LOTTERY FUND NEWS RELEASE - 4th January 2012 (edited)

Many of Britain's most famous fighter aircraft started life on drawing boards and in factories at Kingston upon Thames, but the fact that no other town in the country has contributed so much to the UK's air forces has largely been overlooked. Now a group of former employees and aviation enthusiasts will put these achievements on the map thanks to a £49,500 grant from the Heritage Lottery Fund (HLF). The Hawker Association's Kingston Aviation Centenary Project will bring to the public's attention a roll of honour that includes the most successful allied WWI fighter, the Sopwith Camel biplane, the Hawker Hurricane, mainstay of the Battle of Britain in WWII, and the world's only operational vertical take-off fighter, the Harrier jump jet. Other iconic names include the Hawker Hunter, once holder of the world air speed record, and the Hawk, used by the RAF's flying display team the Red Arrows.

This year marks the centenary of the town's first aircraft factory founded by aviation pioneer Tommy Sopwith. A special celebration event, The Kingston Aviation Festival, will be held in Kingston Market Place in early June when a historic biplane, a Camel, will be a star attraction appearing in the town for the first time since 1918. A range of displays, scale models and paintings will be on hand, together with family activities including the opportunity to sit in the cockpits of other famous planes and fly a flight simulator. Joint project leaders Bill Downey and David Hassard said: "We are thrilled to have the support of the Heritage Lottery Fund. It gives us the opportunity to share this amazing history with the people of Kingston and especially the young people who might be inspired by what their predecessors were able to achieve through vision, hard work and determination."

The factory closed in 1992 and part of the HLF-funded project is to collect and record memories of former employees. This oral history archive will be used in presentations at the centenary exhibition and also on the dedicated website. Volunteers will be recruited to help run the Project that will also involve local schools, colleges, clubs and societies. The Project is working closely with the Brooklands Museum at Weybridge where the Camel and other exhibits are kept. Material is also being lent by the BAE Systems heritage archive. Sopwith Aviation evolved into Hawker Aircraft and this in turn became part of British Aerospace in 1977. For much of the last century the aviation industry was the largest employer in Kingston with a workforce which often exceeded 3,500.

Sue Bowers, Head of HLF London said: "This is the story of a world-beating local industry, the thousands of men and women who were part of it and the outstanding military aircraft which have played a vital role at key points in the nation's history."

CAN YOU HELP?

The Hawker Association sponsored **Kingston Aviation Centenary Project** has an ambitious programme to achieve this year. The big public event, the **Kingston Aviation Festival**, is less than 6 months away. We need a website in place and publicity rolling well before that. There are exhibitions to be designed, talks and presentations to be prepared, and an oral history project to get underway. The Project is organising itself with small teams of volunteers working with clear aims and making their own working arrangements. The plan is for each team to be at least 3 people to share the work and cover for each other. All assistance will be valued, and there is no assumption of regular or heavy commitments, providing the teams somehow meet their aims in time. The use of e-mail and shared files really helps where volunteers are scattered. For example the three-man project planning team is working from home with occasional meetings in the Project's office in North Kingston. Other teams will be using the Brooklands Museum when they need to meet. We want to give everybody the opportunity to contribute to the success of this exciting project. Prior knowledge of Kingston's aviation history is not essential and there is even a small budget to help with travelling expenses where that is an issue.

Do you think you could help one of the following teams?

Project planning and control; Project administration and records; Photo scanning, Newspaper research and photo archiving; Website; Publicity; Exhibition displays and exhibits; Illustrated talks and presentations; Kingston Aviation Festival planning and co-ordination; Audio/visual documentary slideshow; Oral history records, transcription and archiving; Oral History interviewers (training provided); Creative schools activities; Event stewards.

If you think you can help us, even if you are not sure quite how, please contact either of the Project Leaders:-
Bill Downey - 020 8949 5498 billdowney@sky.com or David Hassard - 020 8546 2715 hassards@talktalk.net

HARRIER NEWS

The MoD has confirmed that the UK has sold 72 Harriers with spares and support equipment to the US Marine Corps for £110m ($180m). Two of the Harriers have been kept in Britain to be offered to naval museums.

HAWK NEWS

BAE Systems has announced that Northrop Grumman will be its "manufacturing lead" on the jet trainer it wants to build for the US Air Force's T-X programme to replace their ageing Northrop T-38s. Company officials from BAE and Northrop argue that their combined experience building jet trainers would make their two-seat Hawk jet the cheapest and best option. Competitors are Lockheed Martin, Boeing and Finmeccanica.

The Finnish Air Force is upgrading 30 of its Hawks with modern avionics and 'glass cockpits' in line with their F-18 Hornets. The FAF has 49 Mk51 and 51A Hawks as well as 18 Mk66s purchased from Switzerland.

HAWK MODEL SPECIAL OFFER FOR HAWKER ASSOCIATION MEMBERS

Highly detailed 1/48 scale Hawk T1A models developed with assistance from BAES are available in three paint schemes officially licensed by the RAF: grey - RAF Chivenor 151 Squadron, black - RAF Valley 208 Squadron, and a Red Arrows aircraft. For details or to order please phone Frank Rainsborough on 01784 24 7 888. Images of these models are on the Association website.

HUNTER QUESTIONS

Member Mat Potulski (Hawker Hunter Aviation) needs help on the following to keep his Hunters flying.
1. When Hawkers converted F4 airframes to take the Avon 200 was the whole centre fuselage replaced or were there individual modifications? 2. The above airframes were re-lifed to zero hours standard. What did this re-lifing programme encompass; which airframe components were replaced or modified? 3. Hunter fatigue test data is needed, particularly the applied loads and their frequency and the sortie profiles on which the loading was based. Does anyone have, or know where to find,original Hunter fatigue test reports?

Please e-mail Mat at mat.potulski@hunterteam.com (copy to the Editor) or phone him on 07785 304482

HUNTER WING MAIN SPAR

Roy Braybrook responds to Ralph Hooper's article in NL.31.…

With reference to Ralph's note regarding the early history of the Hunter wing main spar, I believe he is confusing (a) the Experimental DO's 'butterfly fittings' that preceded the bent spar booms, and (b) what I termed the Production DO's 'Warren Girder' design, which Sir Sydney commissioned later as a fall-back in case the Stress Office had miscalculated those booms. I would suggest that the explanation for his confusion is simply that Ralph, being a product of the EDO, was not privy to the darker secrets of the PDO. The drawing was shown to me only many years later, and only as a joke. My friends in the PDO regarded me as 'Syd's gofer', and Bob Copland unearthed the drawing for me in a spirit of "If you think that he is the greatest fighter designer of all time, have a look at this monstrosity".

The 'Warren Girder' spar illustrated at least two aspects of Sir Sydney's way of thinking. Firstly, I believe that the catastrophic failures experienced in some early Typhoon fuselages (caused by badly positioned elevator mass balance weights resulting in flutter) remained a terrible blot on his personal reputation. I think he was determined that no other Hawker aircraft would experience structural failures in flight, hence the pin-jointed Warren Girder spar, which any idiot could analyse. Secondly, although Sir Sydney was capable of bold decisions (as with the P.1127), it was entirely in-character for him to have second thoughts and doubts. Almost on a daily basis in the 1960s he would come into the Project

Office and talk design with Ron Williams and myself. The downside was that one day he would make a decision, then the next day come back and endlessly go over all the arguments for and against. Often these arguments were evenly balanced and it was more a case of making a decision and sticking with it.

It must be added that it was an incredible privilege to have been one of Sir Sydney's "young gentlemen of the Project Office". I have many happy memories of working for him, including being asked to "See if you can make the P.1127 look like a Hawker aeroplane". I don't suppose Ralph heard about that, either.

THE HORNBY VISITOR CENTRE

On 22nd September a party of about thirty Members and friends took a coach from Brooklands to Margate where the headquarters of Hornby Hobbies Ltd is situated. On arrival at the Visitor Centre we had coffee and biscuits before being ushered into the presentation theatre where we were given talks by the marketing, design and research staff.

Darrell Burge, Airfix Marketing Manager, outlined the history of Airfix. In 1939 Nicholas Kove, a Jewish refugee from Hungary, founded a company to manufacture airbeds and inflatable toys, hence the 'Air' in Airfix. The name also ensured that in directories the company name came close to the beginning which meant the entry was read before the reader got tired of looking. Injection moulding machines were introduced, the first in the UK, to make plastic combs, of which Airfix became the largest British manufacturer, and in the late '40s moved into making toys from acetate. In 1949 Harry Ferguson approached Airfix to manufacture a model of his tractor as a give-away promotional item. Airfix obtained the rights to market the model but it was found to be too expensive to assemble so it was sold as a kit of polystyrene components, with Woolworth's as the main dealer. Plastic model kits were taking off in America so, following a suggestion from Woolworth's buyers for lower priced kits, a model of Sir Francis Drake's Golden Hind was launched in 1952. To keep the price down to Woolworth's two shilling limit the kits were bagged in polythene with an illustrated stapled-on paper header displaying the name with instructions on the back. This very recognisable packaging was used for the next twenty years.

The instantly successful Hind was followed by further ship kits and eventually, in 1955, by the first aircraft, a not terribly accurate 1/72 scale Spitfire, the first of many constant scale models. In 1957 Airfix became a public company, Kove sadly dying the following year. The Airfix magazine was launched in 1960 and the first catalogue in 1962. By 1975 Airfix had become the largest toy company in the UK with a huge model range covering ships, aeroplanes, helicopters, spacecraft, military vehicles, cars, locomotives, rolling stock, trackside items, figurines, natural history, dioramas, and film and TV spin-offs, some with initial production runs of 100,000 units. In 1971 Airfix bought Meccano and Dinky but unfortunately they had high production costs and a militant workforce threatening strikes over necessary job losses and changes in working practices. The costs to Airfix caused bankruptcy and receivership in 1981 and the closure of Meccano. Airfix was bought by the US conglomerate General Mills who owned Palitoy, makers of Action Man. Kit production was transferred to Palitoy's French factory, all tools being moved there. Production under the Airfix brand continued until 1985 when it was sold to Borden who owned the French kit firm Heller and Humbrol paints. The Airfix tools now went to the Heller factory where there was little investment in new kits, Heller models appearing in Airfix boxes, until the 1990s when new models started appearing. In 1995 Airfix/Humbrol was sold to Allen & McGuire, an Irish investment company who cooperated with Heller but took the profits from Airfix for new companies and did not invest in new tooling. In 2006 Heller went into administration taking Airfix/Humbrol with it but fortunately it was bought by Hornby who recognised the need to invest heavily in tooling for new kits of higher quality and brought the original tools back from France, allowing reissue of classic kits. Manufacture was moved to China and India. A re-branding exercise brought dramatically restyled boxes in eye-catching red with digital art illustrations and a modernised logo. Under Hornby the company has been rejuvenated with dedicated staff and a big design team willing to take sensible risks. Airfix-Humbrol is part of the Hornby group which also includes Scalextric and Superslot slot cars, Corgi die cast models, and Hornby, Jouef, Arnold, Lima, Elecrofen, Heico, Basset-Lowke and Riverossi trains. UK Airfix sales are 20% up in spite of the recession making it the fastest growing brand in the group.

Martin Ridge, Chief Designer, introduced his team: researcher Simon Owen and designers Scott Elsey, Matthew Whiting, Sam Townshend and Jordan Jenkins who all addressed us. The process starts with market research via questionnaires, surveys and forums which results in the choice of subject, the scale, the variants and colour schemes. Reference material is researched: books, drawings, visits to experts, and measuring any existing examples. From this a CAD programme is used to create a three dimensional digital base model which can then be used to determine the parts breakdown and design all the components. When completed a design review is carried out, corrections made and prototype creation by a subcontractor authorised using stereo lithography techniques employing two ultra violet (UV) laser beams and UV curable liquid polymer. Positioned by the CAD model, parts are built up layer by layer, the polymer solidifying only where the two laser beams cross. The parts are then hand assembled and any corrections made. The CAD data is then passed to the subcontractor toolmakers who produce tool drawings for approval. When approved sample tools are machined using computer numerically controlled (CNC) electrical discharge machining (EDM). These are reviewed, corrected and approved then used to produce a test model kit, the assembly and approval of which is the final stage.

In parallel the instruction booklet is generated using the CAD data and a drawing programme Arbortext Iso Draw which allows the user to create exact images which can be rotated, exploded or hidden to find the best way of explaining assembly. Decals are chosen for multiple releases and at an early stage a specific aircraft is chosen with artwork prepared by external graphic designers who are sent an information pack. The box artwork is prepared by an external digital illustrator who used the CAD data to create 3D shapes. Various concepts are prepared and colour added. The subject can be reoriented and lighting and livery changes can be made to arrive at the final approved design.

After an excellent sandwich lunch with our many hosts, Ryan Maxwell, Assistant Airfix Marketing Manager and Dale Luckhurst, Humbrol Marketing Manager, conducted us on a tour of the Visitor Centre where we saw the new Olympic Licence items including Hornby train sets, a slot cycling velodrome, a range of Corgi taxis and a Concorde. Next was the Catalogue Room where every item in the current catalogues of all the Hornby brands is displayed - 'schoolboy' heaven (we spent a lot of time there!). Besides all the kits and static models there were functioning digitally controlled model railways and slot racing layouts. Then onto the warehouses with stacks of all the products and the website warehouse for on-line customers; interestingly there are no discounts here as this would be unfair on the retailers. Finally we went to the shop, which incorporates a museum where we could see the original Ferguson tractor and the first Spitfire as well as many models we remembered from our childhoods, including pre-war O gauge clockwork Hornby trains and post-war Hornby Dublo three-rail electrics. After tea in the excellent and inexpensive café we got on our coach back to Brooklands. It had been a long but fascinating day thoroughly enjoyed by all the party, thanks to the original suggestion from Frank Rainsbobough.

FORTY YEARS OF LEARNING (OR POACHER TURNED GAMEKEEPER)

On 12th October Alan Millican outlined his career with HAL, HSA and BAe which spanned 34 years at Kingston and Dunsfold, where Alan rose from Craft Apprentice to Director and General Manager via Ground Test Services, Head of Design Computing & Quality Manager, Administration Manager, and Personnel & Resources Director. After Kingston he was Quality Director at Warton for four years and his final task, at Farnborough, was 'Founding Director' of the British Aerospace Virtual University, for two years.

Connections with 'Hawkers' go even further back; Alan's father was shop-floor foreman for 20 years, his mother worked in the canteen and his two brothers also worked at Kingston. At the age of 16 Alan started as a craft electrical apprentice and after three years of day release passed his exams, became a student apprentice achieving an HND in electrical engineering followed by the IEE Part III specializing in control systems. Alan's view is that the Hawker apprentice scheme was "an absolute triumph" due to the training it gave and the opportunities it offered. Formal education completed Alan was taken on as a control engineer in Ground Test Services run by Derek Thomas. His mentors were Brian Indge and Richard Cannon for whom he worked. He likened these two to Watson and Holmes: Richard the Holmes, all flashes of genius and an irritatingly quick problem solver; Brian the Watson, with rigour and absolute attention to detail. Alan's first major challenge was to design the multi-channel Harrier tail unit fatigue rig using Moog servo-actuators with load feedback, the first system of this type attempted by GTS. The system ran successfully.

Then came the revolution that changed, well, everything; DEC (Digital Equipment Corporation) produced the PDP11 mini-computer. Previously there had been large IBM and ICL mainframes but the PDP11 was the first computer designed by engineers for engineers. Under Richard's leadership, with copious supplies of the free manuals, GTS learned how to apply a completely new discipline to instrumentation and control having purchased PDP11 No.230. The first application was to the already-running hot gas ingestion rig where 45 thermocouples were mounted in radial rings in a Harrier intake model and were scanned 30 times. Now data reduction took one hour instead of six weeks.

Next came the Hawk main airframe fatigue test. Two PDP11s were used running identical software checking each other. Software design - the overall structure integrating all the control and monitoring elements, the individual algorithms and the detailed coding - was four years in the making and many techniques developed for the design and management of software subsequently became industry standards for real-time software design. And it worked - although Alan was always relieved to see the big loads come off after they peaked. GTS was now responsible for developing the Harrier airborne flight test instrumentation system, rather than Production who had previously done the job. Again new technology: a multiplexed serial PCM encoder, tape recorder, transducers and power supplies. Ray Arlott was leading the work on the tape and multiplexer side and Alan lead a small team managing the overall instrumentation side. The programme was late and a meeting with the General Manager, John Glasscock, was called to decide whether or not there should be reversion to the antiquated Production system. Alan clinched the matter by saying that the old system could be used but as 'design authority' GTS could not underwrite any of the recorded data.

What was working in GTS at that time like? Alan said that they had the best boys' toys in the world: big steel structures, airframes, pumps, electronic computers…so everyone ate, slept and breathed their design work. It was not just a job, it was a hobby too. The only thing lacking was a decent salary.

Now Alan came to the "poacher" in the title. Senior engineering staff were not represented in the Company trade union structure, only the draughtsmen through DATA. So Alan went to Bob Chitty, the Kingston Personnel Manager, to ask what was necessary to get representation and his answer was: 50% department membership of a recognised trade union. Clive Jenkins's ASTMS was the obvious choice and 50% of GTS joined so ASTMS was recognised by the Company. GTS was asked to help with the fin and tailplane loads calibration of a flight test Harrier which involved 12 hour shifts at Dunsfold but as no additional compensation was offered this caused a lot of unrest. Consequently as the ASTMS Representative Alan advised the Management that the GTS staff would not do shift working as it was outside their terms of reference…unless they received additional compensation. Along with the other ASTMS rep, Ray Arlott, Alan met with Ralph Hooper, Bobby Marsh and Bob Chitty. All knew that Systems Dept Analysts were working shifts running the central ICL mainframe computer and were getting 25% so Alan asked for 50% as compensation for disruption in their lives. He got 33%. However, it was not until a professional salary structure was introduced under Colin Chandler that engineers' salaries began to match their responsibilities.

Alan was next appointed Head of Design Computing and Design Quality Manager, under Bob Marsh, tasked with integrating all the elements of Design Computing and managing the new computing suite in the centre of the Design floor with BAe committed to developing their own systems such as CAD. He also had to secure ISO 9000 approval for the Design Department. As Assistant Chief Engineering Manager Alan next worked for Gordon Jefferson, taking his computing responsibilities with him, who taught him that manpower planning was not a science but an art, illustrated by a freehand sketch of the design labour build-up applicable to any project.

Mike Turner succeeded Colin Chandler as General Manager of the new Kingston-Weybridge Division and Alan was appointed Administration Manager responsible for integrating the two sites. Weybridge resented Kingston with a passion; they had had no major project for ten years and as a result a culture very different from Kingston's had grown up, a culture in which status seemed to be dominant. To start the integration process Alan arranged seminars at the Ashridge College for Senior Management to be attended together by managers from both sites. However, the new BAe Managing Director, Frank Roe, held that the Weybridge site development would be too expensive and be subject to further review… but the courses continued anyway as the decision was not yet final! Eventually in June 1986 closure of Weybridge was announced and Alan was made Personnel Director tasked with managing it which, seen by BAe as the precursor of several more, had to be done well. By now Weybridge's resentment had turned to anger and many still had to be persuaded to come to Kingston. Alan decided to arrange a presentation on the great future to be had there, with Mike Hoskins and John Farrow, to 500 hostile people in the works canteen. Chairing question time Alan received a statement from a Weybridge worker who said he didn't believe a word of what had been presented; he had been recruited on 25th June with the promise of 20 years of work…and on the 26th closure was announced. With all eyes on him he walked out and slammed the door. The moment was saved by one of the trade union representatives present who said they were here to hear about future prospects.

When Chris West took over as General Manager from Mike Turner, Alan was promoted to Personnel and Resources Director with an operational focus. Jack Golding from Weybridge was now Production Director and he wanted Alan to negotiate the pay settlement with the manual unions. Previously Kingston's long standing Production Director, Roy Adolphus, had done this. The 'final offer' was paramount and Roy went to these negotiations with a piece of paper folded over three times, at each fold there being an offer, the final at the third. The unions were used to this and Alan had no such paper to unfold and his final offer was turned down! Quality was now part of the negotiating strategy and memorably one manufacturing manager said, "You have to remember, Mr Millican, that this quality business is new to us in manufacturing." Manufacturing had their own culture in which the 'F' word was very important, the number of 'Fs' indicating the scale of the problem; a five 'F' problem was very serious.

Alan recounted a story of a visit by Jack Golding and Roy Britain to Boeing. Jack's introduction of Roy was misheard and throughout the visit he was referred to as, "Roy Britain from Dungsville". Roy later remarked that he had lot of crap to deal with at Dunsfold but this was going too far.

Jack wanted Alan to negotiate out the production bonus rate as the only people who understood it were the men working it and the Chief Rate Fixer! To Alan's surprise the unions were keen to see the back of the bonus scheme as well and a fair deal was achieved. But then came the industry-wide '37 hour week' strike. Alan believes that it was the wrong issue. All the personnel directors thought that working hours, canteens, working conditions and so on needed to be equalised across the Company and that the real issues were flexibility and productivity, changes needed for operational efficiency. Eventually the 37 hours was conceded in return for agreement over working practices. Kingston was the last factory to return to work after the longest strike, five months, in aerospace history; another 'first' for Kingston! Alan said change was always going to be difficult to achieve as job protection and demarcation were entrenched in the manual workers creed; it was certainly not merit based.

The lesson is that if you want everyone to contribute equally and to their full potential everyone must be treated equally. For example, Kingston had a multitude of dining places: Works Canteen, Supervision Staff, Monthly Staff, Executive Mess, Directors' Mess and Main Board. Also, as an illustration, manual worker absenteeism was higher than staff but the unions reminded Alan that if he felt unwell his secretary would bring him a nice cup of tea in his cosy office, an option not available to workers out on the cold factory floor.

Alan's final job at Kingston started when he was appointed Director and General Manager when Chris West left. The big task was managing the Kingston closure. BAe bought Arlington Properties who acquired land at the RAE Farnborough site to develop a business park and in 1991 the closure of Kingston was announced. There were six major programmes in progress and at a meeting with BAe Chief Executive John Weston, Alan together with Chief Engineer Mike Sharland said they could only manage the closure and protect the programmes if Dunsfold was retained. Every assistance was given to help redundant employees, from SERP and retraining to the Small Business Fund. Nevertheless it meant the loss to the industry of many good people and with no Kingston factory there was no need for a General Manager, so that is when Alan's Warton story began, a story for another time.

FUN, FRIGHT AND FARCE IN A FLYING CAREER

On November 9th 2011 Chief Test Pilot Andy Jones entertained Members with tales from his long and distinguished career as a pilot. A total aviation person, he was born at RAF Finningly, joining the RAF in 1957 and graduating from Cranwell in 1959. In 1960 he qualified as an instructor at the Central Flying School and in 1966 attended the Empire Test Pilots' School after which he flew Harriers and Lightnings in 'A' Squadron at Boscombe Down. Subsequently he was an exchange officer with the USAF test flying the F-106. In 1970 he joined HSA Dunsfold and was appointed Hawk Project Test Pilot in 1974, Deputy Chief Test Pilot in in 1978 and Chief Test Pilot in 1983. He retired from flying in 1985 to join the Kingston Marketing Department, was appointed BAe Vice President Defence Marketing for North America in 1988 and, after working under Vice Chairman Syd Gillibrand on international policy planning, retired in 1995.

Andy opened by saying that thirty years of fooling around in aeroplanes had taught him that a sense of humour was vital and went on to demonstrate this.

Often the most bothersome events happened while flying with guest pilots on overseas demonstrations. The Algerian air force required that the Hawk demonstrate its ability to carry a 4,000 weapon load over a certain range and their CTP decided that he would cross the mountain range to the south of Boufarik and then descend to low level and fly at maximum speed to the target; a large outcrop of rocks in an expanse of flat desert. He flew competently and as the nose went down and the speed went up he began to sing in operatic style; the lower the aircraft the louder the singing. As the target was approached it became clear that there were two rocky outcrops with a narrow cleft through which Andy realised the CTP intended to fly! As there was a fair amount of room Andy acquiesced and in any case the singing was now so loud that communication was impossible. As they entered the cleft at 500 knots they passed by, not over, a startled group of camels indicating to Andy just how low they were. During the subsequent climb all went quiet, the opera was over and Andy was, uncharacteristically, at a loss for words.

A less amusing event followed when the Algerian President visited Boufarik to witness a demonstration, with an Algerian pilot on board, including spinning. Andy was to fly the initial high speed low altitude fly-by and zoom to 10,000 ft. whence a ten turn spin would be performed. Initially all went well but when Andy pulled up to execute a wingover to fly back towards the airfield for the high speed pass the Algerian announced very loudly "I fly, I fly", and grabbed the controls. He ignored Andy's "I have control" calls several times and as they crossed the airfield boundary at well over 500 knots and well below 50 ft he shouted "My President, I fly" as he continued to push lower. Andy could only pull as hard as possible hoping that the control linkage would not fail. The rest of the flight went calmly; but it was an experience Andy wished never to see repeated.

On a trip to Tunisia with G-HAWK in desert camouflage carrying dummy bombs painted bright orange Andy flew with a local pilot setting off in a southerly direction at high speed and low level. Conversing in broken French it was not clear whether the pilot was comfortable with flying and navigating. They were flying south for an awfully long time in a country which comes to a very fine point at its extremity; after which it is Libya!
Suddenly they flew across an airfield; and there are no airfields in southern Tunisia, so Andy knew it was time to go back north. He never found out if the Libyans on the airfield were diving for cover or simply hadn't noticed. Later Andy was told that his copilot was a VIP's relation who had just got his PPL and not a military pilot at all.

The BAe marketing people made much of the fact that the Hawk could carry four 500 kg and five 250 kg bombs; and sometimes the pilots had to prove it. For a particular demonstration G-HAWK still had the low powered Adour 151 so take off had to be with full flap which was fine so long as full flap was selected only after the nose wheel was off the ground otherwise the aircraft would not rotate. Without full flap Dunsfold's runway was not long enough. As required Andy rotated G-HAWK and lowered full flap, the aircraft became airborne so he raised the undercarriage. But at 160 knots the aircraft sank with almost no runway left. Andy raised the nose to achieve maximum angle of attack and the aeroplane flew - just. He then noticed that the flap gauge indicated full up although his selector was at full down. The visitor in the back seat, a very experienced Egyptian pilot, had decided to raise the flaps and his control, the instructors, overrode Andy's in the front cockpit. Happily an alert air traffic controller saw that the aircraft was about to hit the arrester barrier net, which would have been disastrous, so he immediately dropped it. G-HAWK just cleared it and the trees beyond.

In Egypt Andy flew with an Air Force General in G-HAWK, again fully loaded with dummy bombs, who took him on a low level 500 knot flight past the pyramids and out into Western Desert, then militarily active due to tension with Libya. Ahead Andy noticed a small hill with a radar installation on top so warned the General. "OK" he replied as they flashed over the unit, scattering the crew of the anti-aircraft missile system. The General was now roaring with laughter. Andy asked him if there might be any repercussions. "No chance, all complaints come to my desk!" the General replied.

For a Hawk delivery flight to Abu Dhabi BAe had been requested that their pilots accompany the ferry pilots for experience. It is the responsibility of the customer's embassy to obtain Diplomatic Clearances to overfly the countries on the route and the accompanying pilots were asked to bring the documents with them to Dunsfold. All went well across France, past Italy to Malta for refuelling, then through Greek airspace and on towards Cairo whose Air Traffic seemed unhappy. They requested the Dip. Clearance number and were given it by the man in the back seat. This unusually long number was queried but before the matter was resolved radio contact was lost and they were nearing Luxor where the usual welcome was given. When ready to depart clearance to taxi was curtly refused and the crew was ordered to shut down and report to Air Traffic. Cairo had complained that Egyptian air space had been invaded by a foreign military aircraft with no diplomatic clearance! A long conversation in Arabic between the Egyptians and the Abu Dhabi pilots ensued and the pilots were told to wait. Before long an old friend, the Inspector of Quarantines and Inoculations, gave an assurance that the predicament could be resolved … but there would be considerable expenses. He disappeared and the guest pilots were taken away, by stern looking escorts. Eventually the friend returned, not in his well worn local garb but resplendent in a double breasted pin stripe suit which was not exactly his size and lacked fly buttons, no shirt or socks but a pair of dusty black and white shoes, presumably all bought from the local soukh out of the expenses. He said the pilots were all to be placed under arrest but as the British were good friends they could choose their own hotel of imprisonment whilst the customer pilots were to go to a military jail. A very expensive luxury hotel on Crocodile Island was selected as all bills were to be picked up by the customer. Next day the ferry continued with very quiet copilots and the bill for imprisonment was met without query.

Early in his career at Dunsfold Andy flew a routine production test flight on a refurbished export Hunter. On getting airborne he found the air conditioning stuck very uncomfortably in Flood Flow- fully hot. The first part of the schedule was a climb to 48,000 ft during which Andy made notes and spoke occasionally to London Military Radar when he realised somebody was shouting at him, the Controller who had notice that nobody was responding. Andy was very very dopey and losing consciousness but managed to select emergency oxygen. Still feeling quite ill he decided to operate the seat mounted oxygen bottle but could not get it to work because the operating cable was jammed, so he passed out. He came-to in a fairly steep supersonic dive with a town beginning to fill the windscreen but happily there was enough height to recover. Back at Dunsfold Andy suggested to Chief Inspector Jock Gould that the gas in the oxygen system was not actually oxygen and suggested blowing the gas through a lighted cigarette which oxygen would cause to pop and produce a bright flame: result, no bright flame. Apparently during long refurbishments oxygen tanks were filled with air and this time the purging and replenishment had been missed. Also the cable to the seat bottle had been misrouted. The symptoms of anoxia vary with individuals and Andy's was to feel stiflingly hot so he was unable to spot this effect with the cabin air fully hot.

For a radio range test flight on a Hawk the briefing was to keep flying west over the Atlantic until contact was lost. Half joking Andy said it would be just their luck (the Captain this time was Sq Ldr Dave Young, the Operational Requirements Liaison Officer - ORLO) for the engine to fail at this point, so they asked Flight Development to change the height so that contact would probably be lost over the Scilly Isles. As predicted contact was lost over the Scillies and as they turned for home there was a high frequency buzz from the engine followed by the oil pressure warning light! An emergency diversion to Culdrose was requested but the station was closed for runway resurfacing so St Mawgan was offered instead and accepted. Shortly afterwards there was an appalling noise like a circular saw followed by a profound silence. St Mawgan seemed a bit put out by the trouble being caused and after the dead-stick landing asked Andy to move onto the turn-off to make way for landing aircraft! When he said he would need a tractor they actually asked why. St Mawgan was a world of four engined aircraft.

In the early testing of the Hawk Andy discovered a severe engine vibration at about 93% rpm above 43,000 ft. No indication could be found on the instrumentation and the Adour engine was trouble-free in the Jaguar so there must be, some said, either a problem with Hawk or with Andy. It was even suggested outside Dunsfold and Kingston that he should be replaced as Project Pilot. To the rescue came Chief Designer Hawk, Gordon Hudson, who flew in the back seat. By the top of the climb to 48,000 ft Gordon had, correctly, felt no vibration, so Andy said "Why don't you bring the power back to about 93% now for cruise flight?" As he did so there was a horrendous onset of vibration. "What the hell is that?" said a moderately alarmed voice. "That's the vibration that everybody says is not there", replied Andy. Back at Dunsfold Gordon immediately got on the phone to Chief Designer Adour using a lot of strong language. The cause was found to be longitudinal vibration or shaft shuttling, a known problem with two-spool engines. A simple spring loading modification was the cure and a mod. was on the shelf at Rolls. The problem had been known all along by Rolls and MoD(PE), it was just a question of who should pay for the mod. should it become necessary. By the way, the engine instrumentation on the Hawk recorded only radial, lateral and vertical vibration!

Whilst at Boscombe Down having recently converted to the Harrier and done some flight refuelling trials Andy was told to collect a Harrier from Dunsfold and fly it New York to be a spare for post transatlantic air race demonstrations. Given about two days notice he was told that all he had to do was link up with the tanker and they would do the rest. He had a miserable flight with cloud the whole way across and severe toothache hampering vision in one eye. Because of bad weather on the east coast of the States they was diverted to Gander arriving in a snow storm. Next day as they approached New York the tanker surprised Andy by announcing that he was departing for Georgia leaving him to negotiate the NY Metroplex with only rudimentary navigation kit; and then the TACAN failed leaving no navigation kit at all. Andy was then diverted to a USMC base in Pennsylvania, arriving on a wet Sunday afternoon to be greeted warmly by the base commander. As the Colonel opened the door of his quarter Andy was struck dumb by the presence of an extremely well endowed young lady in a very inadequate and more or less transparent nightie. "Andy, this here is Doris. She is my fourth wife. Don't you think she has a beautiful body?" said the Colonel. They took Andy out to a sumptuous dinner that night and it became clear the Colonel, and possibly Doris, would do anything to get him to fly the Harrier. Happily the Colonel finally had one Jim Beam too many and Doris drove them home where they all slept peacefully - and alone. Next morning Andy flew the Harrier along a low level military corridor requiring no navigation aids to Floyd Bennett Field, safely clear of the Metroplex.

John Crampton had persuaded the French to accept the idea of a Harrier demonstrating a landing on a helicopter carrier, the training ship Jeanne d'Arc. Although he had never operated from a ship Andy was selected to fly a hastily repainted AV-8A to the ship whose Captain would hold it on a steady course at 20 knots with the wind 30 degrees off to one side. Visibility was not good so Andy called the ship. Silence. He called again. Still nothing. All of a sudden and very luckily he caught a glimpse of something large and grey and was astonished to hear the voice of Danny Norman. While, rather late, the deck was being cleared of helicopters, the Captain decided to slow his unstabilised ship with a hard turn and reversed engines. This stopped the ship but left it rolling and pitching. Coming to the hover over the aft deck with the mast structure right in front of him, swaying, heaving and pitching, and festooned with dozens of cadets, was an unforgettable sight for Andy. The Captain refused to believe that it had been Andy's first ship landing but broke open a bottle of Champagne anyway.

So ended Andy's talk which opened many eyes to the perils of test and demonstration flying and won the audience's admiration for the technical and improvisational skills of our test pilots. And, of course, it was delivered in Andy's inimitable witty and entertaining style. The vote of thanks was given by Duncan Simpson.

MEMBERSHIP NEWS

Sadly we record the death of Dawn Howes. Our condolences and sympathy go out to their relatives and friends. We welcome new Members Ted Henbery, Mat Potulski, Allan Abbott and Diane Howells.

MEMBERSHIP LIST JANUARY 2012

Members names in bold have not paid their subscriptions for 2011 - 2012 - see Editorial.

A: Allan Abbott, Mike Adams, Beryl Alexander, Ken Alexander, Peter Alexander, John Allen, Peter Amos, Terry Anstey, Alma Apted, Steve Apted, John Arthur, Alan Auld, Bryan Austin, **B:** Brenda Bainbridge, Dick Baker**,** Colin Balchin, Ambrose Barber, Derek Barden, Peter Barker, Frank Barrett, Geoff Barratt, Graham Bass, Ken Batstone, Dennis Baxter, Colin Bedford, Peter Bedford, Anne Beer, David Betteridge, Brian Bickers, **George Black**, Guy Black**,** John Blackmore, Keith Bollands, Paul Boon, Betty Bore, Pat Bott, Steve Bott, Bob Bounden, Mike Bowery, Alan Boyd, Sally Bracher, Roy Braybrook, Clive Brewer, Laurie Bridges, Doug Britton, Arthur Brocklehurst, Eric Brown, Peter Brown, Ron Bryan, Christopher Budgen, Maurice Budgen, Roy Budgen, Reg Burrell**,** Robin Burton, Dave Byford. **C:** Richard Cannon, Chris Carter, Tom Casey, Bob Catterson, Colin Chandler, Keith Chapman, Keith Chard, Gerry Clapp, JF Clarke, John Cockerill, Hank Cole, Percy Collino, Brian Coombes, Paul Cope, Patricia Cosgrove, Ron Cosgrove, **Nick Cox**, Mike Craddock, Shirley Craig, Richard Cripps, Tony Cripps, Russ Culley**,** Richard Curtis. **D:** Clive Dalley**,** Andy Dalton, John Danse, Afandi Darlington, John Davie, Jo Davies, Ken Davies, Trevor Davies, Michael Davis, Diana Dean, Ralph Denning, Norman Deviell, **Mike Diprose**, Mike Dodd**,** Colin Dodds, Peter Dodworth, Lambert Dopping-Heppenstal, George Dow, Bill Downey, Brian Drew, Peter Drye, Dick Duffell, Jean Duffell**,** Gwen Duke, Chris Dunhill, Mike Dyke. **E:** John Eacott, John Eckstein, Andy Edwards, **Dave Edwards**, Barry Elliot, Tony Elliott, Eric Ellis, Celia Evans, Norman Evans, Roy Evans. **F**: Russ Fairchild**,** Ian Falconer, Mike Fantham, Chris Farara, John Farley, John Farrow, Max Fendt, Donna Ferguson, Stan Field, Geoff Fieldus, Mike Finlay, Wilf Firth, **Anne Fletcher**, Richard Fletcher, Colin Flint, Ted Forster, Dave Fowler, Mike Frain, Steve Franklin, Harry Fraser-Mitchell, Geoff French, Mike French, Heinz Frick. **G:** Roy Gaff, Mike Gane, John Gardner, Patricia Gardonio, Peter Gates**,** Sandie Gear, Tim Gedge, Mark Gerrard, Tony Gibbs, John Gilbert, John Glasscock, Pat Goodheart, John Gough, Andy Green, Barry Grimsey, Ray Grout. **H:** Violet Hall, Douglas Halloway, Liz Hargreaves, Simon Hargreaves, Bryan Harman, Guy Harris, Thelma Harris, Brian Harvie, David Hassard**,** **David Hastie**, Sandy Hay, Norman Hayler, Bob Head, Sheila Hemsley, Ted Henbery, Brian Hennegan, Jock Heron, Keith Hertzenberg, Frederick Hewitt, Merlin Hibbs, Richard Hickey, Peter Hickman, Vince Higbee, Reg Hippolite, Keith Hobbs, Chris Hodson, Gordon Hodson, Derek Holden, Ralph Hooper**,** Linda Hopkins, Paul Hopkins**,** Mike Hoskins, Gerry Howard, Diane Howells**,** Terry Howes, Simon Howison, Gavin Hukin. **I:** Pete I'Anson, Len Illston, Maive Impey, **David Ince**, Brian Indge. **J:** Keith Jackman, Simon Jackson, John Janes, Gordon Jefferson, **Harry Johnson**, John Johnson, Andy Jones, Brian Jones, Ian Jordan, Robin Jowit, Alf Justin. **K:** Andrew Keech**,** Barry Kensett, Dennis Ketcher, Bill King, Dave King, Charles Kirk. **L:** Barry Laight, Mike Laker, Charles Lamb, Richard Lane, George Latham, Paul Latham, Pam Lawrence, Andrew Lawson, Stanley Lawson, David Lee, Geoff Lee, Mark Lewis, Vernon Lidstone, Gary Lillistone, Andrew Lloyd, Dawn Lloyd, David Lockspeiser, Basil Lockwood-Goose, Norman Long, Terry Long, David Lovell, Lynda Lucas. **M:** Albert Magee, Al Mahoon, Mick Mansell, John Marsh**,** Ann Martin/Disspain/Turk, Brian Maton, Don McGovern, June McKeon, Mike Mendoza, Alan Merriman, Jim Middleton, Buffy Milford, Robert Millar, Alan Millican, Jack Mills**,** George Mitchell**,** John Mitton**,** Brian Monk, Pat Moon, Pauline Moore, Nicholas Morland, Geoff Mudle**,** Pete Munday, Carole Murphy, Gloria Murphy, Martin Murray. **N:** Mike Newell, Anthea Newman, Jennifer Nicholas, Chris Nicholson, **O:** Roger O'Brien-Hill, John O'Sullivan, Chris Oliver, Adrian Orchard, Robin Owen. **P:** Les Palmer, Glynne Parker, John I Parker, John L Parker, John Partridge, Bernard Patrick, John Pearce, Barry Pegram, Martin Pennell, Bill Phillips, Ted Pincombe**,** Dick Poole, Mat Potulski, Dave Priddy, Mike Pryce. **Q:** John Quinn. **R:** Clive Radley, Frank Rainsborough, Colin Raisey, Paul Rash, Diane Raymond, Vanessa Rayner, David Rees, Peggy Remmington, Francis Rhodes, Geoff Richards, Bill Richardson, Kelvin Richardson, Chris Roberts, Graham Roe, Peter Ryans. **S: Ian Sandell**, Tim Sargant, Bernie Scott, Alex Seaman, Ray Searle, Maurice Shakespeare, Mike Sharland, Arthur Sharpe, Douglas Shorey, Duncan Simpson, Derek Sims, Gerry Sims, Charles Smith, Harold Smith, John Smith, Karl Smith, Pete Smith, Roy Sparrow, Don Spiers**, Peter Spragg**, June Stephens, John Strange, Carroll Stroud, Christine Strudwick, Tony Strudwick, Douglas Stubbs, Bill Swinchatt. **T:** David Taylor, Stuart Taylor, Brian Tei, Joanna Terrell, Reginald Thompson, Geoff Tomlinson, Graham Tomlinson, John Tratt**,** Rod Tribick, Peter Trow, Ron Trowell**,** Bert Turner, **Michael Turvey**. **U:** John Underhill. **V: Roland Van Haeften**. **W:** Terry Walker, John Wallace, David Ward, Harry Webb, Patrick Webb, Rob Welsh, Bryan West, Judith Westrop**,** Jan White, Mick White**,** Roy Whitehead, Peter Whitney, David Whittam, Annette Williams, Don Williams, John S Williams, Ron Williams, Sally Williams, Colin Wilson, George Wilson, Hilda Wilson, Paul Wilson, Dick Wise, Helen Woan**,** Alan Woolley, Kuo Wong, George Woods.