



## THE HAWKER ASSOCIATION

### NEWSLETTER NUMBER 39 - SUMMER 2014

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#### EDITORIAL

I am sorry to report that in spite of the usual clear renewal notice included with the Spring Newsletter (No.38) many Members have not paid their £5 2013 - 2014 subscriptions. Those who have also not paid for **last year** (2012 - 2013) are in **bold** in the membership list on the back page. **Please** send cheques payable to The Hawker Association to Barry Pegram, 12 Becket Wood, Newdigate, Surrey, RH5 5AQ.

Please note that our outing this year is to the Imperial War Museum at Lambeth which has been reordered to mark the centenary of the outbreak of World War I. This is easy to reach by train and bus. Frank Rainsborough (01784 247888) is organising this.

Also our 'social and video' meeting in August 13<sup>th</sup> will be a new departure; Members are invited to bring along some of their 'Hawker' photographs for others to see and possibly to be scanned for the Centenary Project and Brooklands Museum archives.

The Editor would welcome articles from Members about their time at 'Hawkers'. Please send them, preferably by e-mail but handwritten pieces by post are fine, to The Editor, Chris Farara, 24 Guildown Road, Guildford, Surrey, GU2 4EN, tel 01483 825955, e-mail [cjfarara@ntlworld.com](mailto:cjfarara@ntlworld.com).

#### PROGRAMME FOR 2014

Wednesday 9<sup>th</sup> July

Wednesday 13<sup>th</sup> August

Wednesday 10<sup>th</sup> September

Wednesday 8<sup>th</sup> October

Wednesday 12<sup>th</sup> November

Wednesday 10<sup>th</sup> December

Paper Aeroplanes - **Ed Hui**.

Social with **Members' photographs**.

Visit to the **Imperial War Museum**.

TBD

Sky-Hook - **Heinz Frick**

Christmas lunch.

**Ed Hui** will talk about and demonstrate his remarkable paper gliders, and Chief Test Pilot **Heinz Frick** will talk about his invention for launching and recovering Harriers from and to ships without decks. Please bring your 'Hawker' **photographs** on 13<sup>th</sup> August.

#### THE 11<sup>th</sup> ANNUAL GENERAL MEETING - 9<sup>th</sup> APRIL 2014

##### Chairman's Report.

Ambrose Barber noted that the Association had continued to enjoy the use of the Hawker Centre for monthly meetings of interesting talks or socials, the Summer Barbecue and the Christmas lunch. The outing was to the Museum of Berkshire Aviation covering Miles aircraft. He thanked those who had devised, arranged and reported on the programme of events then went on to mention our sister organisations: the Kingston Aviation Heritage Trust (KAHT) and the Kingston Aviation Centenary Project (KACP), the aims of which coincide exactly with those of the Association.

The KAHT was set up well before the Association to create a lasting memorial to Sopwith/Hawker/BAe Kingston. Funds were raised which were subsequently used for the commemorative plaque in the entrance to the Hawker Centre and for the construction of a Sopwith Tabloid 'replica' which was presented to the Brooklands Museum for permanent display. In hand is a life-size bronze bust of Sir Tom Sopwith for display in the entrance to the Kingston Library and Museum. Extra funds are needed to cover the casting (an appeal by Chairman Les Palmer is published in this Newsletter) of the bust which will stand alongside one of Sir Sydney Camm.

The Association and its members played significant roles in launching the KAHP by spearheading the Heritage Lottery Fund application and with ongoing volunteer support for events. The Project will continue with talks, oral history recording, historical e-newsletters and website expansion as well as supporting aviation related Borough initiatives such as the World War I exhibition. Help is needed so please contact David Hassard, Bill Downey or Mike French.

The Chairman congratulated all concerned with the achievements of both organisations. He submitted that the Association could view the past year with some satisfaction, but without complacency for a future because the Hawker Association will not continue by accident. An ageing Committee will now look for younger recruits from beyond the ranks of ex-employees.

In closing Ambrose thanked all the Committee Members, particularly Les Palmer and Jan White who were standing down after many years of valuable service.

### **Secretary's Report**

Barry Pegram reported that membership was close to 400 (actually 394 at present), and that sadly there had been six deaths since the last AGM. Attendances at meetings had been a bit disappointing unless free food was offered or it was a test pilot talking! The best attended meeting with 70 was David Hassard's Sopwith talk which had food and people who came for the Centenary Project wind-up. Test pilots Heinz Frick and Bernie Scott attracted over 40. Jeff Boyling's Circuit of Britain talk was badly affected by a frightening weather forecast. The other talks averaged 27 but less than 20 came to the socials. Happily, the Christmas lunch was very well supported, with over 60 enjoying the event, as was the barbecue with 45.

### **Treasurer's Report**

Martin Pennell reported that the finances were in an acceptable state and there was no need to increase the subscription. The end-of-year balance was slightly down on last year largely due to insurance and postage cost increases. A lower insurance premium had been negotiated for this year. Mike French drew attention to the level of outstanding subscriptions.

### **General business**

An amendment to the Constitution, a revised Rule 4 regarding membership conditions and grades was passed, Ambrose Barber was re-elected Chairman with a remit to oversee a merger of the KAHT and the KACP with the Association, and the Committee was re-elected en bloc except for retirees Les Palmer and Jan White, with new members David Hassard and Frank Rainsborough. It was suggested from the floor that some meetings might be held 'at Dunsfold' to attract attendees from that area. This would be considered by the Committee.

### **DAVID LOCKSPEISER**

Many members will remember David in the 1950s as a test pilot at Dunsfold. He flew the Hunter beautifully and was the master of the curved approach, touching down just as he levelled the wings. Full of fun he would 'buzz' from behind we flight development engineers operating the F-47 camera out in the middle of the airfield; we soon learned to watch out for a low flying Hunter in the circuit. He was also well known for having a sought-after Pirelli calendar on his office wall and owning a white Lotus Elite, Colin Chapman's fibreglass monocoque sports coupe with aerodynamics by Frank Costin. He kept that car all his life eventually having it restored in British racing green.

Son of Sir Ben Lockspeiser, David was born at Farnborough in April 1927. He studied at the Miles Aeronautical Technical School, joined the RAF and trained as a pilot. Having qualified as a pilot attack instructor and instrument ratings examiner, he left the RAF in 1955 as a flight lieutenant, joining Hawker as a production and development test pilot flying Sea Furies and Hunters (See NL.18).

David was not only a test pilot but also an innovative engineer who designed the LDA-01 (Land Development Aircraft, later named Boxer) utility aircraft, a pusher canard with detachable payload containers for different roles, such as transport for people, animals or goods and crop spraying. (Roger Dabbs did the stressing). He built a scaled down prototype in a Nissen hut at Dunsfold aerodrome when he was working for Hawker but he flew it for the first time in August 1971 at British Aircraft Corporation's airfield at Wisley after he had moved to BAC in 1968 as a communications pilot. Development continued until 1987 when the aircraft was destroyed in a hangar fire at Old Sarum where it was being stored. (See NL.10).

In 1977 David returned to test flying when he moved to Singapore, with ex Hawker engineer Bill Weetman, to join Lockheed Air Services, developing new weapon systems for the Singapore Air Force Hunter fighters. During his time with Hawker he had been forced to give up his hobby of motor racing as the company did not want one of its test pilots taking the risk, but on his return to Britain in 1984 he drove his Elite on rallies across Europe and the UK.

David, a member of the Society of Experimental Test Pilots, flew more than 7,000 hours in 100 different aircraft and continued designing aeroplanes until a few weeks before his death on March 23<sup>rd</sup> 2014 at the age of 86.

### **ED HARPER**

Ray Searle writes...

When the United States Marine Corps first took an interest in the Harrier Ed Harper was the NAVAIR officer in Washington assigned to initiate the contracts with Hawker and McDonnell Douglas for the AV-8A. On retirement from NAVAIR, he became a Vice-President at McAir and headed the team throughout the development of the AV-8B. Ed was always a very amenable character to do business with and we appreciated his ability to keep matters on an even keel. After fighting cancer for the last decade Ed died on Friday 14th February 2014.

### **KINGSTON AVIATION HERITAGE TRUST APPEAL**

KAHT Chairman Leslie Palmer writes...

Many of you have long supported our Trust's aspirations to assure lasting memorials to the Kingston-based Sopwith/Hawker aircraft industry. The Trust has funded the now familiar commemorative plaque inside the entrance to the Y.M.C.A. Hawker Centre and also the full-size static replica Sopwith racing Tabloid floatplane presented to Brooklands Museum in November 2013 for permanent public display there.

Our final project is a life-size bronze bust of Sir Tom Sopwith. This has been accepted for permanent display at the Kingston Library and Museum entrance beside a bust of Sir Sydney Camm sculpted by Ambrose Barber. Free of charge Ambrose has now completed a small portrait study of Sir Thomas with helpful guidance from the Sopwith family and has commenced work on the clay life-size version which we aim to have cast in bronze this summer. However, to pay for unanticipated outlays on the Tabloid (due to certain components promised free-of-charge not becoming available), some funds allocated for the sculpture casting were depleted to enable completion of the Tabloid. As a result we are seeking to raise £1,750 in order to cast and complete the Sopwith bust.

To raise this money the Trustees (Les Palmer, Barry Pegram, John Gough, Ambrose Barber and Mike French) beg to bring this predicament to members' notice and somewhat humbly seek contributions to enable this final aim to be achieved.

The Trust is a registered charity (no. 1068247) and donations, which may be Gift-aided, should be made out to the KINGSTON AVIATION HERITAGE TRUST and sent to John Gough KAHT Hon. Treasurer, 3 The Wharf, Whittets Ait, Weybridge, Surrey, KT13 8LH. We will keep you informed of progress on the KAHT link on [www.kingstonaviation.org](http://www.kingstonaviation.org) website.

### **BROOKLANDS MUSEUM NEEDS VOLUNTEERS**

If you would like to spend a few hours a week helping out at Brooklands, volunteers are needed in all areas, for example stewarding the aviation or motoring displays, marshalling at events, maintenance of the exhibits and facilities, manning the aircraft on display, helping with the Concorde attraction etc, etc. No particular skills are necessary except enthusiasm, and training will be provided. However, Hawker people will undoubtedly have knowledge and abilities ideally suited to this job - there are already several Kingston and Dunsfold people there, like Ken Batstone, Colin Flint and David Hassard. Your Editor has been a Brooklands volunteer for 20 years and has thoroughly enjoyed the work and the comradeship and can unhesitatingly recommend that you give it a try. Please call the Volunteers Resources Manager, John Silver, on 01932 857381 ext 242 who will explain what is available and the benefits, or e-mail him on [johnsilver@brooklandsmuseum.com](mailto:johnsilver@brooklandsmuseum.com). Mention the Hawker Association.

### **BROOKLANDS SOPWITH/HAWKER/HSA/BAeK ARCHIVE**

Please remember the Brooklands archive when you are thinking of disposing of items you have saved from your time with the Company. Contact the Editor who looks after the archive and promises you a good home for your treasures. Please don't bin anything until you have spoken to him. (01483 825955).

### **AIRCRAFT NEWS**

**SOPWITH SNIPE** - A Bentley BR.2 powered Snipe reproduction, built by The Vintage Aviator Ltd (TVAL) of Wellington, New Zealand, is now flying. It is the third Snipe that TVAL has built.

**SOPWITH TABLOID** - The Kingston Aviation Heritage Trust's non-flying near-replica has been presented to the Brooklands Museum.

**GNAT TMk1** - XS102 made its first post-overhaul flight at North Weald in December 2013. It had not flown for six years. Painted to represent XR992, the lead aircraft of the RAF Yellowjacks aerobatic team, it has joined two other Gnats in the Heritage Aircraft Trust's (HAT) Gnat Display Team

**GNAT FMk1** - . The HAT has acquired in the USA a Folland-built former Indian Air Force Gnat FMk1 which it plans to restore to flying condition.

### **CHINESE SKI-JUMP CARRIER**

China's first aircraft carrier, the Liaoning, is operating conventional Shenyang J-15 fighters (developed from the Russian Sukhoi Su33 naval fighter) from its ski-jump equipped deck.

Originally named Varyag the ship was built in the 1980s for the Soviet navy but was never completed. When the Soviet Union collapsed in 1991 the hull sat in a Ukrainian dockyard but was bought by a Chinese company intending to convert it into a floating casino in Macao. It was towed to China in 2001 and in 2011 it was announced that the ship would be refitted to serve as China's first carrier. Sea trials were completed in early 2014.

### **BOOK REVIEW - 'HOWARD PIXTON'**

Howard Pixton won the 1914 Schneider Trophy race at Monaco and set the world speed record flying for Tommy Sopwith in a Tabloid seaplane. Howard's daughter, Stella, has produced a biography of this outstanding test pilot and pioneer aviator. The book is written in the first person as Stella took down the story as her father told it to her when he was 84 years old. The writing takes the reader back to the early days of aviation to give a real flavour of the atmosphere during those exciting times and of the personalities of the day known personally by Howard.

Howard flew for AV Roe in 1910, moved to Bristols in 1911 and joined Tommy Sopwith in 1913. After the Schneider Trophy triumph Howard continued competition and test flying for Sopwith leaving at the start of WWI to join the government's new Aeronautical Inspection Department (AID), a testing and inspection establishment at Farnborough. There he continued his test flying for the AID and as a member of the Royal Flying Corps. Up until the end of the war he had flown some 60 types and seen the development of the aeroplane from the fragile and capricious pioneering machines to the fully developed scouts of 1918. The author is to be congratulated in constructing this memoir and in collecting together the large number of well chosen photographs, advertisements, documents and press cuttings reproduced in the book.

This outstanding book (ISBN 978 1 47382 256 6) will be published on 30<sup>th</sup> July by Pen & Sword Books at £19.99. It is worth every penny.

## **CIRCUIT OF BRITAIN**

The centenary of Harry Hawker's Circuit of Britain attempt was marked on 12<sup>th</sup> February when Australian Geoff Boyling gave a talk to the Association on Harry's original flight and on his own re-enactment 100 years later. Team Leader of 'Project Hawker 2013' and co-pilot of Catalina G-PBYA, Geoff came to flying quite late after 35 years as a physiotherapist, achieving a CPL in the 1990s and becoming a shareholder-pilot in Duxford-based 'Plane Sailing', operators of G-PBYA.

Firstly, Geoff described the original flight, saying that it all started when Lord Northcliffe, proprietor of the Daily Mail, offered a prize of £5000 for an over-water flight round Great Britain in a British seaplane with a British engine. To be organised by the Royal Aero Club, there would be eight control points and a limit of 72 hours flying time. There were four entries including Cody and Hawker. Sadly Cody was killed a week before the event and all the entrants except Hawker withdrew making it a 'one horse race', but none the easier for that. Sopwith built a special 'Circuit Waterplane' with a 100 hp Green six cylinder in-line engine for Hawker and his fellow Australian, Harry Kauper, to fly in the competition. Hawker took off from Southampton on August 16<sup>th</sup> 1914 for Ramsgate and Yarmouth but on landing Hawker collapsed through exhaustion. Sidney Pickles was to have taken over but bad weather put an end to the attempt. On August 25<sup>th</sup> the two Harrys set off again anti-clockwise, this time flying 495 miles to Beadnell in Northumberland, a new over-water record. Next day they reached Oban via Cromarty and the Caledonian Canal, a distance of 341 miles. On day three disaster struck when Hawker's foot slipped off the wet rudder pedals as he was landing at Loughshinny, north of Dublin, causing the Waterplane to crash and Kauper to sustain a broken arm. The aircraft was a write-off but the engine was salvaged. In recognition of the 1043 mile over-water flight the Daily Mail awarded Hawker £1000, a very considerable sum. Shell, suppliers of the fuel, presented Hawker with Silver model of the Waterplane by Mappin & Webb, and a handsome watch, both of which are still in the hands of Harry Hawker's descendants.

So, in 2013 a choice had to be made; should the 100<sup>th</sup> anniversary of this epic flight be ignored or celebrated? Geoff plumped for the second option and set about getting endorsements and sponsorships for the project and starting detailed planning. Endorsements were given by the Hawker Association, the Brooklands Museum and Flight International magazine, and partnerships were made with the RAF Benevolent Fund and the Imperial War Museum, Duxford. All together fourteen sponsors were recruited including the Daily Mail and Shell Aviation. In 1913 Shell had supplied the fuel but this was not possible now for logistical reasons so they were joined by Total and Exxon, Shell supplying the oil. Great help was provided by the UK Civil Aviation Authority (CAA) in arranging Airspace Co-ordination Notices, including permission to over-fly London, and display authorisations at several points en-route, and also by the Irish Aviation Authority (IAA). The National Air Traffic System (NATS), the RAF and various airports were equally helpful.

On August 28<sup>th</sup>, after final aircraft preparation at Duxford, the Catalina amphibian, Captained by Rod Brooking with Geoff as co-pilot and Shaun Jarvis as Crew Chief, took off in fine weather for Southampton with Barry Pegram and Julian Temple (Brooklands Museum) as passengers. This was witnessed by four of Harry Hawker's grandchildren, three great grandchildren and a niece! Departing at 10.30 the route was across London to Kingston, Hook (where Harry Hawker is buried) and Brooklands, landing at Southampton. From there the 1913 starting line was crossed at Netley then on to Scarborough and RAF Leeming via Portsmouth, the south coast, Ramsgate and Great Yarmouth.

On August 29<sup>th</sup> the weather had deteriorated and Aberdeen was invisible and abandonment of the destination seemed possible. However ATC directed the Catalina to 4000 ft for a long circuit and they broke through the cloud at 900 ft for a display then headed north for RAF Lossiemouth, along the Great Glen at low level (700 ft) to Oban. The 30<sup>th</sup> was a 'rest day' with a display and local flights but on the 31<sup>st</sup> August the Catalina headed for Dublin, Pembroke Dock (with PBY associations), Newquay and RAF St Mawgan. The last day, the 1<sup>st</sup> September, took the Catalina along the coast back to Southampton, north to Brooklands, Hook and Kingston then across London (looking up at the Shard), and home to Duxford for a TV welcome. This flight was awarded an FIA UK Aviation Record certificate for a Coastal Circumnavigation of the United Kingdom covering 3317 km (2061 miles) in 18 hrs 12 minutes, and a special Pooley's Dawn to Dusk Seaplane Trophy.

The vote of thanks for this excellent and well illustrated talk was given by Barry Pegram who had been privileged to participate in this flight. Please visit [www.projecthawker2013.com](http://www.projecthawker2013.com) for more details of this project and to see many of the photographs that Geoff showed.

## FIFTY YEARS OF FLYING

On 12<sup>th</sup> March Dunsfold test pilot, Bernie Scott, came to tell Members about his 50 years of flying, and very remarkable they were too. We listened with delight as his story unfolded, leavened with many humorous anecdotes which, sadly, space prevents recording here.

Bernie was born and grew up in Gosport, a Royal Navy and Army town blessed with two airfields, Gosport itself and Lee on Solent, so there very many opportunities for an air minded boy to see and get amongst aeroplanes; in fact his first flight was in a wicker-seated Dominie from Lee. His father, who had joined the RAF under age as an air gunner, was his inspiration. Bernie built models including a Jetex powered Hunter from Eagle Annual plans and retrieved aircraft parts from compounds of wrecks. In the Air Training Corps he learned to glide at Tangmere and went solo at 16 in a Kirby Cadet. Thus enthused he joined the RAF and at Church Fenton Elementary Flying Training School he learned to fly Chipmunks; a sheer pleasure, he said, because it was a low wing monoplane with a long engine cowling like a Spitfire (or "Hurricane !", as someone shouted from the audience). Next it was Linton on Ouse and the Jet Provosts JP3 and JP5; nice aeroplanes, easy to handle and forgiving, with Bernie flying with the Blades aerobatic team as a passenger on training flights.

After receiving his wings he moved to RAF Valley and the fabulous Gnat, very light and fast. The downside was the complicated longitudinal control system; Hobson motor with swash plates driving a hydraulic motor powering the tailplane plus elevators. The failure procedure was both complex and critical and it had to be got right to avoid disaster. The standard first solo was once round the island as students sometimes got lost.

After a spell at Bristol with 3AEF (Air Experience Flight) on Chipmunks it was back to Valley to fly the Hunter for six hours after which Bernie was posted for a spell to 79 Squadron at Chivenor where all the pilots were senior officers very experienced on Hunters, many of them ex-Aden. So it was in at the deep end with no briefing firing his first rockets which, not unsurprisingly, missed by a large margin!

Then to 45/58 Squadron at Wittering with immaculate Hunters; 18 per squadron, and tons of ammunition. A big thrill was firing all four 30mm Adens which filled the cockpit with cordite and gave huge deceleration whilst, to the despair of the range officer, took out three targets at once. Afterwards it was necessary to work out which circuit breakers had tripped before landing! Jaguars were supposed to be coming with Warton producing twelve per month. This rate did not materialise and introducing the aircraft into service was a nightmare.

So Bernie was very happy to go to 233 OCU Harrier Operational Conversion Unit, also at Wittering, before a posting to No.1 Squadron where he was quickly off to tropical Belize after arctic Norway. With tankers the Harriers had crossed the Atlantic to Bermuda and then took off for Belize in central America. Just east of Cuba the tankers, completely unplanned, departed, low on fuel advising "you're on your own, just fly 275 deg". The leader knew roughly where Belize was but to be sure laid off 5 degrees to the right, and turned left when they hit the coast. It was still not easy because the entire coast is jungle. However, they arrived safely and Bernie did the first hover there. Belize is all jungle, and when it's not nice and sunny it becomes a rainy quagmire, and Belize City houses all have corrugated iron roofs with each panel bearing the owners name for when the hurricanes blow them off. Bernie ejected over the sea whilst in Belize and showed an F95 camera sequence from ejection to rescue by a Puma (the first ever). Back in the UK he did hang gliding in home-made machines which, to start with, had rather low aerodynamic efficiency - a 30 second glide followed by 1 ½ hours carrying it back up the hill. He took them with him wherever he was posted.

In 1977 he volunteered for and was accepted into the Red Arrows as the youngest entrant ever - 25. The squadron was at Kemble and still had the Gnats. It was "a dream come true" for Bernie who flew his first season in 1978 in the "lovely aeroplane". Without the slipper tanks the Gnats were very light and very fast and Bernie reached 65,000ft. However, low fuel capacity was always a problem and the code for being out of fuel back on the runway was to call for a tow because of "brake fade". The Gnat was exceptionally easy to fly low and could be flown in the ground cushion with the pilot's head at standing height. Gnats were flown so low across wheat fields that they flattened the crop! The last Gnat show was at Jersey before the Hawk arrived in 1984. It was "a revelation" as it could "fly for ever". A problem was the slow acceleration of the Adour, even after modification, so the airbrake was used to keep the engine rpm in the responsive region. The Hawks were very reliable; Bernie flew XX260 and experienced 100% reliability. This and the range allowed the team to travel the world.

Next to the Netherlands as an exchange pilot on the F-16, the Block 10 model initially. Bernie learned Dutch and was appointed a flight commander. The Harrier was "the love of my life" but the F-16 was "just amazing". The bubble canopy gave a wonderful all-round view but at night at high altitude it was "spooky"; you could feel as if you were outside the aircraft. It was fast, Bernie saw 846 kn at sea level (and 64,500 ft). The 25,000 lb of thrust and the aircraft's agility led to the standard airtest take-off technique, for safety reasons, of a 60 degree climb because in the case of an engine failure you could turn round and land back on the reciprocal. The later Block 15 model had a bigger tailplane and was cleared for tailslides; the squadron never had a radar failure in the three years Bernie was there. It was very quiet in the cockpit and "a delight to fly".

Bernie was asked to apply to the ETPS but was sent to learn French to go to the EPNER (Ecole du Personnel Navigant d'Essais et de Reception) at Istres. It was an engineer-led course where the engineer, test pilot and instrumentation technician worked together; and it was all in French. Bernie flew the Alphajet, "a nasty piece of work" with an evil spin and transonic aileron reversal, but a good TP school machine because of its faults; and the Mirage 2000 which had "superb handling qualities" and could be pulled to 11g for operational necessity reasons.

Next it was Boscombe Down and the A&AEE, flying the Harrier GR5 and 7 working with NVGs (night vision goggles), laser pod, FLIR and guided weapons. Bernie thought that the GR7 set the standard for a really good pilot's cockpit. He also flew the Tornado with new weapons and sensors, the Harvard, and micro lights, the latter at very low level on Salisbury Plain by day and once by night with NVGs. The first Tucano at Boscombe required a lot of inspection and work before it could be flown. It had bad spinning characteristics, the first flat spin taking 13 turns to recovery. Bernie was hugely impressed with the EAP (Experimental Aircraft Prototype), the forerunner of the Typhoon.

Retiring from the RAF Bernie joined the Dunsfold TP team, Heinz Frick, Chris Roberts, Graham Tomlinson et al. The great thing about Dunsfold and Kingston was that, unlike other companies, people always were willing to talk about things; a "terrific community". He flew the Sea Harrier FRS2, which had a good radar, the Hunter T8M and the Indian FRS1s and took the Hawk 100 to Australia on a world tour. He visited Warton to fly the Harrier T10 and managed one low level flypast before it was banned as being "too much fun". He was on the Harrier GR7 and GR9 programmes at Dunsfold until the site closed. The 9 was, he said, at its peak as an electro optical aircraft - FLIR, TV, LGB, laser designator pod, all the elements for success in Afghanistan - when it was taken out of service.

A neck problem forced Bernie to stop flying fast jets and as he had always had an ambition to fly large aircraft he joined Airtours with Chris Roberts to fly the Airbus A320, 321 and 330, "fabulous aircraft". The Airbus design goal had been full automation, not even a landing gear handle (there would just have been a landing configuration selector) and full Cat 3B (zero visibility) landings and ground operations, the aircraft following cables buried in the taxiways. However, they backed off from this goal because the pilots felt out of the loop and the airport infrastructure costs were prohibitive, but retained some 85% of the capability. Consequently the Airbuses remain highly automated and very easy to fly - until things start to go wrong. For example the air data system can fail, due to freezing in the metal tubing, in which case the aircraft reverts to direct control laws ignoring the three inertial navigators and the three GPSs i.e from "fully auto to junk!" The system could be arranged to go to, say, fixed gains allowing the crew to sit it out until the system comes good utilising all the available data. This won't happen until there is a commercial case.

Back at BAE Systems Bernie was on the Nimrod MRA4 programme for 18 months flying worldwide, from Nashville to the south of France. Apart from some safety issues most problems had been solved. A huge expertise in system development and anti-submarine and surface vessel warfare was thrown away when the Nimrod was cancelled and the team broke up. At this point Bernie retired to occasional communication flying for BAE Systems in the BAe 146, and finished his talk.

In his vote of thanks Martin Pennell said the audience had been treated to a superb lecture by a 100% professional. The Editor would add that Bernie was a perfect example of the enthusiast who gets something positive out of everything he does, as well as lots of amusement, all of which he passed on in this talk. If you missed it a DVD can, as usual, be borrowed from Richard Cannon.

## **SUMMER BARBECUE**

The traditional Summer Barbecue was held on the 11<sup>th</sup> June, as usual at the YMCA Hawker Centre, and was well attended. Good summer weather added to the enjoyment of the diners who were able to enjoy their hamburgers, sausages, chicken, and salads, as well as the delicious deserts, in comfort outside. The food was of good quality and cooked well, albeit in the kitchen rather than on an outdoor grill! Many thanks to Ken Batstone for organising the event and to the Hawker Centre staff for the food.

## **AN AFTERNOON WITH JOHN ALLEN**

Actually entitled 'The HSA Advanced Project Group 1960 - 1976' the 93 year old Professor's talk on May 14<sup>th</sup> turned out to be more of a relaxed conversation about his career and his philosophy of engineering as much as about the APG.

Before joining APG John was Deputy Chief Engineer at Avro, under Hugh Francis, on the Blue Steel supersonic stand-off missile, the shape of which he designed in four weeks. The exterior of the vehicle was aerodynamic elegance but inside it was complex chaos. The nuclear warhead weighed two tons, the electronics were pre-digital and pre-reliable transistors so the inertial navigator was huge; and it all generated a lot of heat requiring a powerful refrigeration system. To carry the Blue Steel the Vulcan needed 1000 modifications. Trials were carried out in Australia where it took 29 flights to get the inertial navigation system to work properly. In 100 miles it gave a position just 100 ft short and 240 ft off to the left.

From here John moved into the field of aerophysics in super- and hypersonic flows and spacecraft design.

In 1960 Hawker Siddeley had set up at Kingston the Advanced Projects Group of 30 designers and engineers under Jim Floyd, former Chief Engineer of the ill-fated Avro Canada Arrow project. Its remit was to do things not done by the individual HSA companies. A major project was a 150 passenger supersonic transport (SST), the HS1000, but the contract was lost to BAC and what became the Concorde. Floyd resigned and Hugh Francis and John Allan were transferred from Avro in 1969 to the 'silver mile' in the office block fronting onto the Richmond Road.

Many innovative projects were investigated including the HS1011 M1.15 swing-wing SST which would produce no sonic boom at sea level, a V/STOL SST with very many engines and a number of M3 - M5 SSTs which proved to have no commercial advantage. On the military front there was the single-seat HS1034 variable geometry (VG) M5 rocket plane and the HS1043 M4 VG canard interceptor and strike fighter with the R-R Spey engine and variable intake and nozzle. The wing pivot was inside the fuselage. Its mission was the interception of supersonic bombers, cruising at 75,000 ft and M4 with a radius of action of 750 - 1250 miles.

Recoverable spacecraft were also studied in conjunction with Junkers in Germany and McDonnell-Douglas in the USA. A configuration of recoverable orbiter and boosters with expendable tanks was developed, like NASA's later Space Shuttle. Also studied were air breathing vehicles based on Kucheman's 'carrot' shape with base-burning propulsion, and alternative fuels such as hybrid liquid-solids (graphite, for example) but there was only a 5% energy advantage over kerosene. Liquid hydrogen had promise but was too difficult to handle in practice. Studies also included supersonic close combat fighters, airborne early warning aircraft and Nimrod developments.

After all this John was invited to join Ralph Hooper, as the Head of Future Projects, for whom he spent 14 years working with, he said, the great team that had produced so many outstanding aircraft.

John then chatted about other things that had exercised his imagination such as anti-gravity physics, the importance of project directed research, getting to Mars at ¼ g, an 'Air Rover' aircraft to operate away from runways and go into villages in Africa, and enthusing young people to take up engineering as a career.

He wants to carry out some research into how and why people became engineers and has devised the questionnaire below. Please take a little time to complete it and send it to John for professional analysis and so, perhaps, contribute to the burgeoning of engineering students in the UK.

The vote of thanks was given by your Editor who picked up a point John had made about Meccano, an excellent teacher of engineering, saying that in his view the shortage of young British engineers was due to Leggo which, because it was so easy, had pushed Meccano out of the market.

## GETTING INTO AERONAUTICAL ENGINEERING

At the present time there is a great deal of activity to direct young people's interests in developing an engineering career. To get good results it is necessary to give appropriate direction so it would seem to be a good idea for HA Members to think back to where they started from and spend a little time on the following questionnaire, the answers to which will be analysed to help generate an interest in engineering by young people.

Please send your answers to Prof JE Allen, The Gabriels, Angel Lane, Blythburgh, Suffolk, IP19 9LU.

NAME..... DATE OF BIRTH.....  
 DATE OF JOINING HAL/HSA/BAe..... DATE OF LEAVING.....  
 DID YOU COME FROM A PREVIOUS ENGINEERING JOB?.....  
 DATE OF FIRST INKLINGS OF ENGINEERING INTEREST.....  
 WHAT AROUSED THIS INTEREST?  
 AIR SHOWS.....  
 RELATIVES.....  
 MODEL AIRCRAFT.....  
 FLYING MODELS.....  
 OTHER.....  
 .....  
 DEVELOPMENT OF INTEREST  
 MECCANO.....  
 MODEL RAILWAYS.....  
 OTHER.....  
 .....  
 INFLUENCE ON EDUCATIONAL PATH.....  
 COMMENT ON PRESENT EFFORTS TO ENCOURAGE YOUNG PEOPLE TO TAKE UP AN ENGINEERING  
 CAREER/APPRENTICESHIP.....  
 .....  
 ANY OTHER GENERAL OBSERVATIONS.....  
 .....

## MEMBERSHIP NEWS

Sadly we record the deaths of David Lockspeiser and George Mitchell, and send our sympathy and condolences to their relatives and friends. We welcome new Members: Jane Cull, whose father was the well known weights engineer Ian Nightingale, David Gaitley, Bruce Mitchell and Geoff Wilshire.

**MEMBERSHIP LIST MAY 2014. Members who have not yet paid their subscriptions for 2013 - 2014 (ie last year!!) are in bold below.** Please send cheques payable to The Hawker Association to Barry Pegram, 12 Becket Wood, Newdigate, Surrey, RH5 5AQ. If you are **leaving** please let him know by post or by telephone on 01306 631125. Thank you.

**A:** Roy Adolphus, Allan Abbott, Beryl Alexander, Ken Alexander, Peter Alexander, John Allen, Peter Amos, Terry Anstey, Steve Apted, John Arthur, Alan Auld, Bryan Austin, **B:** Brenda Bainbridge, Dick Baker, Colin Balchin, Ambrose Barber, Derek Barden, Peter Barker, **Pamela Barnes**, Frank Barrett, Geoff Barratt, Graham Bass, Donald Bateman, Ken Batstone, Dennis Baxter, Colin Bedford, Peter Bedford, Anne Beer, David Betteridge, Brian Bickers, Guy Black, John Blackmore, Andy Bloomfield, Melvyn Bluck, 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, Clive Bushrod, Barry Butcher, Dave Byford. **C:** Richard Cannon, Chris Carter, Tom Casey, Bob Catterson, Colin Chandler, Keith Chapman, Keith Chard, John Chitty, Martin Churms, Gerry Clapp, JF Clarke, John Cockerill, Hank Cole, Percy Collino, Nigel Cook, Brian Coombes, Jonathan Cooper, Paul Cope, Patricia Cosgrove, Ron Cosgrove, Nick Cox, Mike Craddock, Shirley Craig, Richard Cripps, Jane Cull (nee Nightingale), Russ Culley, Richard Curling, 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, Wilfred Dimsdale, **Mike Diprose**, Colin Dodds, **Peter Dodworth**, Lambert Dopping-Heppenstal, Cliff Douthwaite, George Dow, Bill Downey, Brian Drew, Peter Drye, **Dick Duffell**, **Jean Duffell**, Gwen Duke, Chris Dunhill, Mike Dyke. **E:** John Eacott, Andy Edwards, Dave Edwards, Barry Elliott, Stephen Elliott, 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, Ian Ferguson, Stan Field, Geoff Fieldus, Mike Finlay, Wilf Firth, Richard Fletcher, Colin Flint, Ted Forster, Dave Fowler, Mike Frain, Steve Franklin, Harry Fraser-Mitchell, Geoff French, Mike French, Heinz Frick, John Friend. **G:** Roy Gaff, David Gaitley, Mike Gane, John Gardner, Patricia Gardonio, Peter Gates, Sandie Gear, Tim Gedge, Mark Gerrard, Tony Gibbs, John Gilbert, John Glasscock, Pat Goodheart, John Gough, **Chris Goymer**, Andy Green, **Barry Grimsey**, Ray Grout. **H:** Violet Hall, Douglas Halloway, Valerie Hanscomb, Liz Hargreaves, Simon Hargreaves, Bryan Harman, Guy Harris, Thelma Harris, Brian Harvie, David Hassard, David Hastie, Sandy Hay, Norman Hayler, Bob Head, Alan Heasman, Sheila Hemsley, Ted Henbery, Brian Hennegan, Jock Heron, Keith Hertenberg, Frederick Hewitt, Merlin Hibbs, Richard Hickey, Peter Hickman, **Vince Higbee**, Dennis Hills, Reg Hippolite, Keith Hobbs, Chris Hodson, Thelma Hodson, Derek Holden, Patricia Holt, Ralph Hooper, Linda Hopkins, Paul Hopkins, **Mike Hoskins**, Gerry Howard, Diane Howells, Terry Howes, Simon Howison, Miles Huckle, Gavin Hukin. **I:** Len Illston, Maive Impey, David Ince, Brian Indge. **J:** Keith Jackman, Barry Jackson, Gerry Jackson, Simon Jackson, John Janes, Gordon Jefferson, Mark Jennings, **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, Kiran Kirk. **L:** Mike Laker, Rich Lambert, 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, Basil Lockwood-Goose, Norman Long, Terry Long, David Lovell, Lynda Lucas. **M:** **David McCarter**, John McCarthy, Don McGovern, June McKeon, Keith McMahon, Albert Magee, Al Mahoon, Ron Mancey, Mick Mansell, John Marsh, Ann Martin/Disspain/Turk, Brian Maton, , Mike Mendoza, Alan Merriman, Jim Middleton, Robert Millar, Alan Millican, Jack Mills, Bruce Mitchell, John Mitton, Brian Monk, Pat Moon, Pauline Moore, Nicholas Morland, Geoff Mudle, Pete Munday, Carole Murphy, Martin Murray, Helga Mutton. **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, 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, Paul Rash, Diane Raymond, Vanessa Rayner, David Rees, Peggy Remmington, Brian Renwick, Francis Rhodes, Geoff Richards, Bill Richardson, **Kelvin Richardson**, Chris Roberts, Graham Roe, Chris Rostant, Peter Ryans. **S:** Ian Sandell, Tim Sargant, Bernie Scott, Alex Seaman, Ray Searle, Maurice Shakespeare, Mike Sharland, Douglas Shorey, Duncan Simpson, Derek Sims, Gerry Sims, **Siva Sivalingham**, Charles Smith, John Smith, Karl Smith, Pete Smith, Thomas Sopwith, Roy Sparrow, Don Spiers, **Peter Spragg**, Mary Stark, Chris Stephens, June Stephens, John Strange, Carroll Stroud, Nick Stroud, Christine Strudwick, Tony Strudwick, **Douglas Stubbs**, John Sweetman, Bill Swinchatt, Edward Syradd, Laura Syradd. **T:** Dominic Tait, David Taylor, Stuart Taylor, Brian Tei, Joanna Terrell, Peter Tews, Reginald Thompson, Geoff Tomlinson, **Graham Tomlinson**, Richard Townsend, John Tratt, Rod Tribick, Bert Turner, Michael Turvey. **U:** John Underhill. **V:** Roland Van Haeften. **W:** Terry Walker, John Wallace, David Ward, Harry Webb, Rob Welsh, Judith Westrop, **Jan White**, Mick White, Roy Whitehead, Peter Whitney, David Whittam, Annette Williams, Don Williams, John S Williams, **Ron Williams**, Sally Williams, Geoff Wilshire, Colin Wilson, George Wilson, **Hilda Wilson**, Paul Wilson, Dick Wise, Helen Woan, Alan Woolley, Kuo Wong, George Woods.