



THE HAWKER ASSOCIATION

NEWSLETTER 46 - Winter 2016

Published by the Hawker Association
www.hawkerassociation.org.uk

EDITORIAL

So far our search for a new **Chairman** has been unsuccessful with nobody coming forward or suggesting a name. This is not an onerous job: chairing the monthly committee meetings, signing off the minutes prepared by the secretary, occasionally representing the Association, at outside meetings or functions and occasionally sending letters drafted by the committee. A short Chairman's report is needed for the AGM as are a few jokes for the Christmas lunch. Please consider doing this straightforward and enjoyable job, fully supported by the experienced committee.

It's time to book for the **Christmas Lunch**; see Programme for 2016, below.

In this edition are two outstanding contributions about activities at Dunsfold: 'A Sea Fury Tale' and 'An Experimental Life'; don't miss these fascinating accounts of how things were done in the '50s and '60s.

The Editor still needs your stories! Please send them to: The Editor, Chris Farara, 24 Guildown Road, Guildford, Surrey, GU2 4EN, tel 01483 825955, e-mail cjfarara@ntlworld.com.

Now only 41 Members have not paid their current subscriptions! Your names are in bold on the back page. Please check Newsletter 44 to see if you still owe for 2015 - 2016.

PROGRAMME FOR 2016

Wednesday 14th December

Christmas lunch - see below.

PROGRAMME FOR 2017

Wednesday 11th January

Quiz - **Chris Farara**

Wednesday 8th February

F-105 Thunderchief - **Gp Capt Jock Heron**

Wednesday 8th March

Title tbd - **Simon Hargreaves**

Wednesday 12th April

Annual General Meeting and videos.

Wednesday 10th May

Title tbd - **Lt Cdr Ian Sloan**.

Wednesday 14th June

Summer barbecue.

Wednesday 12th July

tbd

Wednesday 11th October

UAVs - **Lambert Dopping-Hepenstal**.

Wednesday 8th November

Life with the Red Arrows - **Mark Zanker**.

Wednesday 13th December

Christmas lunch

Jock Heron was an RAF exchange pilot with the USAF and was with the Harriers in Germany, **Simon Hargreaves** was a RN Sea Harrier pilot, a Dunsfold and F-35B test pilot and deputy CTP at Warton, **Ian Sloan** flew with the RN Historic Flight and with the Aeronavale flew the Super Etendard, **Lambert Dopping-Hepenstal** was a Kingston systems engineer and is now Engineering Director, Systems and Strategy at Warton, and **Mark Zanker** had a long and varied RAF career flying Harriers and in the Reds. Unless stated otherwise, meetings are at the 'YMCA 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.

Christmas Lunch will be held as usual at the YMCA Hawker Centre, Richmond Road at 12 for 12.30 pm. The price is the same as last year at £16.50 per head. If you are unable to be at the November meeting to book and pay for your lunches, please send a cheque, payable to the Hawker Association, to Ken Batstone, 42 Kings Road, Walton on Thames, Surrey KT12 2RA, with your choice of dishes. Phone him on 01932 229938 with any queries. The menu will be: a glass of wine on arrival, prawn cocktail or soup, followed by roast turkey with trimmings, or poached salmon. There will be a vegetarian option. Dessert, being negotiated, will be followed by coffee and mince pies or chocolate mints.

KINGSTON AVIATION PROJECT REVIEW 2016

The Project, originally for two years from 2012, continues to research, record, share and celebrate the achievements of Kingston's aircraft industry from 1912 to 1992.

There were no exhibitions this year but a significant one is planned for early September next year at the YMCA Hawker Centre focussed on the history of the Richmond Road factory, as it will be 100 years since it was built and 25 years since it was closed. Hawker Association Members are invited to help. Please contact David Hassard on 0208 5462715.

A diary of the Sopwith Aviation Company continues to be researched and is published as an e-mailed newsletter week-by-week as it happened one hundred years ago. To receive this sign up on the home page of the Project website www.kingstonaviation.org where back issues are also accumulating. Just click on '100 years ago'.

At the September Hawker Association meeting members brought along photographs and many were scanned to add to the photo galleries on the Project website.

The 23 outreach talks this year were attended by well over 800 people from groups including luncheon Clubs; the U3A; a Dementia Centre; Local, Family and Industrial History Societies; Kingston University; the National Physical Laboratory; the RAeS Weybridge Branch and The Western Front Association.

AIRCRAFT NEWS

Fury - G-CBEL is now with North Weald Heritage Aviation painted to represent the Fury prototype SR 661, as seen on the Association's recent visit.

Hurricane XII - newly refurbished, Canadian built, VH-JFW flew for the first time at Scone, New South Wales, in October.

Hurricane I - P2902/G-ROBT is at Hawker Restorations and is expected to fly at North Weald next year.

Sopwith Pup - Kingston-built N6161, fully restored by Retrotec in East Sussex, flew at Duxford in October.

GUY BLACK

'AEROPLANE' magazine for November has an eight page article about Guy Black and his career in car and aircraft restoration from Lynx via Aero Vintage to Retrotec. Guy is responsible for the very high quality restoration of several Hawker biplanes and in the article he describes his searches for the remains and the restoration work itself.

HARRIER 'U-TUBE' VIDEOS

Ken Batstone recommends that you visit <https://youtu.be/rYscb9oKdC0> to view several videos of Art Nalls flying his Sea Harrier FA2, XZ439, at a number of air shows. There are the usual ground to air shots but most interesting are the sequences from the cockpit. The HUD has been removed leaving a wide panoramic view. Displays are covered from start-up to shut-down.

FLIGHT SIMULATOR

Mike 'F-4' Fantham recommends 'The Spitfire Experience' where for £30 you can have an hour's flight in a Spitfire simulator. Although Mike has never flown a Spitfire he found the experience convincing and entertaining. The simulator is at Wheelers Farm, Wisborough Green, Horsham, West Sussex, RH14 0BZ (phone 01403 700346, e-mail briansmithair@uwclub.net). The business raises money for the RAF Benevolent Fund.

ASSOCIATION OUTING TO NORTH WEALD

Tour Manager and organiser Frank Rainsborough describes the annual day out...

On September 21st, 29 Hawker Association members and guests assembled at the Hawker Centre ready to embark on the 'Hills of Hershaw' coach to North Weald, driven by trusty Danny Hill, the owner of the company. No less than the top man will do for our Association! The visit started at the entrance to the Airfield where we were met by historian Arthur Moreton who, on the journey round perimeter track to Weald Aviation's Hangar 4, told us what some buildings had been used for in the past, notably, those seen in the depiction of an attack on an airfield in Guy Hamilton's 1969 film, 'Battle of Britain.'

At Hangar 4 we were met by Clare Prior and Weald Aviation owner Russell Smith who, before our tour started, gave us a history of the site and of the company. The first of three areas that we were guided to was a workshop where the Fly Navy Heritage Flight's Hawker Sea Fury T 20 was being returned to airworthy condition and where there was a Tempest II at a very early stage of reconstruction. The second area was the hangar housing a two-seat Hunter finished in an Admiral's Barge colour scheme, a Vampire and a Jet Provost. The third was the engine repair shop where it was most interesting to see, and to have described to us, how a Bristol Centaurus 18-cylinder sleeve valve engine of 54 litres was being assembled back to working condition. There were no restrictions on photography, there was nothing restricting us getting close to the aircraft and no restriction on asking questions from the guide or the personnel at the workbenches; we were treated as a knowledgeable audience.

Outside on the apron, after the hangar tours, we had a group photo taken in front of a Fury FB11 finished in the identity of the prototype Fury, SR661. Then came the call to lunch in the 'Wings Cafe' where we sat outside in the sunshine to receive our promptly served, well cooked and good value meals; well done the catering staff! Lunch over we heard the rumble of a piston engine starting up and soon North Weald Heritage Aviation's TF-51 Mustang, 'Miss Velma', took off and gave a display over the airfield. What a treat that was, and more was to follow. Soon after the Mustang returned to the apron we heard another engine starting, this time it was the Fury, to be displayed by Richard Grace, son of historic aviation's famous couple, Nick and Carolyn Grace. Afterwards Richard posed for a photograph with the Hawker Association group; thank you Richard, we're honoured! A brilliant end to a fantastic day. Very complimentary comments on all aspects of the visit were recorded by the participants.

Editor's note. Frank is to be congratulated on his very thorough and detailed organisation of the visit, all aspects of which ran very smoothly.

A SEA FURY TALE

Colin Balchin recounts the untold story of his involvement in the restoration of Sea Fury FB11, TF956. A tale of enthusiasm, determination and subterfuge....

I started at Hawker Aircraft Ltd, Dunsfold, in 1962 as an aircraft electrician when Hunters were being rebuilt for foreign customers and we were assembling and flight testing Gnats from Hamble. At the same time the seven best Sea Fury airframes had been selected from about thirty aircraft that had been flown in from Lossiemouth as surplus to RN requirements. When I arrived at Dunsfold they were standing in Bay 2 of the Production Hangar to be reconditioned for service in Germany by the Deutsche Luftfahrt Beratungsdienst for target towing. I did a lot of work on them and became quite familiar with the type.

Part of my contribution was bay servicing of electrical components such as generators, voltage regulators, cowl engine cooling gill actuators and fuel pumps. As no one seemed particularly interested in what I was doing, and were probably glad that someone - anyone - had taken the work on, I had a very free reign on what I did. Can you imagine being allowed these days to strip down cowl gill actuators with their epicyclic gear trains and return them to service! All the other components received the same

detailed treatment. For spare parts, particularly in rebuilding instrument panels, I would take a company van over to where the remaining airframes were parked near the old clubhouse and strip off anything I needed. During this activity I accumulated quite a lot of spares not required for the German seven.

TF956 had been recognised among the fly-backs as the first production Sea Fury and was therefore of historical interest. It was separated from the bunch and stood for a long time in the far corner of Bay 3 in the Production Hangar which was, then, the Flight Shed. No plans seemed to be in hand for it so I started showing an interest myself, utilising spare time in short bursts as and when I could. Not a word was said! At the same time a fitter called Don Russell started working on the mechanical side of things. At that time we had a mountain of new and serviceable spares that came from Lossie stores, including a number of new engines. As a result Don replaced pretty well everything he could lay his hands on; and again, nobody stopped us.

For the electrics I decided that simplicity would be worth pursuing and stripped out all the armament system and RATOG (rocket assisted take-off gear) cabling and components, none of which would be needed. I dumped the armament cable assemblies and stripped the wiring out of the cockpit weapons control boxes but gave them to the paint shop where a sympathetic soul painted them to an excellent standard. I later fitted them back into the cockpit for appearances sake. Over a period of time I got everything possible smartened up by this most helpful painter, Ken Prosser. After rebuilding the generators for the German aircraft I used to run them up on the Hunter generator test rig and included a couple of spares for myself.

Instrument panels were no problem because I had stripped so much out of the spare airframes that I could give Dennis Clarke, in the Instrument Test House, a great selection for him to choose the best from. He reconditioned the lot including stripping and rebuilding the P11 standby compass. Ken painted the bare instrument panels, I installed the instruments and that was that. Ken was also a sign writer and he made a brilliant job of highlighting all the script on the components entrusted to him.

By this time, having gone through and replaced dodgy wiring and items where necessary, in all airframe wiring looms and junction boxes, and Don having done as much as he could mechanically, we set about searching for an engine. When this came to the notice of the 'powers that be' the red light got switched on!! They could see that we were very close to having a complete aircraft in excellent condition and stopped us from doing further work. In fact there was very little left to do except to fit an engine and the available spare engines were all reconditioned - easy.

Anyway, TF956 was given to the Navy who very soon collected it on a Queen Mary and took it to Yeovilton. Very shortly after that they had the aircraft completed and flew it back to Dunsfold as a sort of 'thank you'. I recorded the visit on colour slides which are now in the Hawker archive at the Brooklands Museum.

You'd never get away any of it now.

Editor's post script. It is claimed on the Internet that TF956 made its first post-restoration flight at Yeovilton on 21st January 1972 and then flew with the RN Historic Flight. It suffered an undercarriage collapse at Yeovilton on 19th June 1974 and crashed in the sea off Prestwick on 10th June 1989 following an hydraulic failure shortly after take-off which prevented one undercarriage leg from locking down. The pilot, Lt Cdr John Beattie, after many attempts to achieve a lock was ordered to bale out which he achieved successfully. The wreck was recovered and a broken hydraulic pipe was discovered. The aircraft was damaged beyond repair. Apparently, attempting to land a Sea Fury on one leg is extremely dangerous as the aircraft is likely to flip over.

AN EXPERIMENTAL LIFE

Norman Hayler remembers life in Dunsfold's Experimental Department working with Jimpy Sollis....

During my time at Hawker from 1951 to 1959 I spent five years as an apprentice being moved around various departments to gain experience of aircraft manufacture. In 1954 I did a year in the Experimental Instrumentation Laboratory at Dunsfold. This was a small department formed with partitions inside the Experimental hangar with a workshop at ground level and the instrument test and photographic laboratories upstairs. The hangar itself was divided into two sections with 'Erection' at the east end and 'Flights' at the west. It was here in 'Flights' that Jimpy worked as one of a team or around a dozen men maintaining Hunters during flight trials.

After a spell in the Service School, where RAF crews were taught about the Hunter, I was moved back to 'Flights' and worked with Jimpy and the crew for another year. He was called Jimpy because he looked similar to a cartoon character of that name, a small, round faced lad who appeared in newspapers and magazines, including the Daily Mirror, during the 1940s and 50s. Our Jimpy was all of 5 feet tall but as far as work went he was just as tall as any of us. He could get his hand in the Hunter aileron hydro booster access panel whereas I, among others, could not, so he got the job if adjustments were required.

When we loaded 1000 lb ballast bombs, in those days before 'health and safety', we had to lever them along the floor from the side of the hangar where they lived, onto a porters' trolley. It took six of us to do this with one to put a jack handle behind the bomb to stop it rolling back as we manhandled it onto the trolley forks. Then came the hard bit, getting the load on the wheels whilst keeping the bomb still with the jack handle. Four of us used all our might to pull the trolley shafts back and this is where Jimpy came in. He was small enough to climb up the cross bars on the trolley shafts which added enough weight to tip the balance and get the bomb on board. He then leapt off while two men pushed down and two men pushed up to stop the load from overwhelming us, making the trolley fall flat. Next we had to move the trolley across the hangar floor to under the aircraft wing. This was more of a drag than a roll because the cast iron trolley wheels had poor bearings and were reluctant to rotate, scoring the concrete hangar floor. Once under the aircraft we had a sling on which to place the bomb and a pair of Tirfor hand operated winches hooked on each side of the pylon to hoist the bomb into place where it was held by the pilot-operated bomb release. Loading four bombs took a couple of hours - so much for technology, or lack of it!

Jimpy always had a straight face and must have been a little hard of hearing because whenever spoken to he always said "Wazzat Shag?" and you had to repeat. He called everyone Shag without exception, it was just his way and we took it with amusement. We often had visits from the armed forces top brass. Once an admiral said something to Jimpy who replied with his usual

“Wazzat Shag?” We all had to suppress our laughter, but the Admiral didn’t seem very amused.

Jimpy and the lads in ‘Flights’ prepared Hunter WB188 for the world speed record flight by Neville Duke. You can see the aircraft at the Tangmere museum. They also worked on ‘the big Hunter shoot’ to prove that the four 30 mm Aden guns were reliable. First of all we ground tested the guns firing into the butts which was a large gravel and earth hummock to take the shells. In front were two wooden posts about 10 ft apart holding a stack of 2 inch thick timber boards to keep the gravel in. The aircraft was parked facing the butts about 30 yards back with its nose wheel in a concrete groove and a jacked up cradle under the rear fuselage to stop the aircraft bucking with the guns firing. We had no ear plugs and the noise was terrific and is probably why I’m hard of hearing today.

The tests started in late summer and continued through a very cold winter, dawn to dusk. We had two small Nissen huts, one for making up the belts, the other for tea breaks. The ammo came in steel boxes, thirty rounds apiece, already fitted with links. These we joined up in fives, removing the last three rounds as the gun pack took 147 rounds per gun. When winter came there was powder snow and with the wind blowing towards us it drifted over all our outside equipment. Our hut had a pot-bellied stove but our requests for fuel were turned down as we were deemed to be ‘outside crew’. So we took our hacksaws with us to the butts and soon branches began to disappear from nearby trees up to height of around 8 feet, as far as we could reach. With Jimpy on our shoulders we could reach a few feet more.

In the mornings some got a lift in our van down to the butts, the rest walked - past the fire station, behind the control tower, past the three production hangar bays and the dope shop, the hangar used for safety equipment and servicing, several Nissen huts used as the telephone exchange, the service training school and the pilots’ mess, across the road from the Stovolds Hill entrance, past the armoury to arrive frozen stiff at the butts. We took to passing behind the production hangar to collect a few lumps of fuel from the pile outside the boiler house....until an accidental solution to our fuel problem was found. After we had shot the butt timbers to pieces we called the Maintenance Department to come and renew them. Naturally we grabbed the old boards for fuel. “Just let us know when you want them replaced again”, said the maintenance crew - problem solved.

The guns were harmonised at 1000 yards using a barrel scope and a sighting board and could be adjusted vertically and laterally with worm gears. The next time our heating fuel ran out we set the guns wide apart, removed the rear fuselage jack and fired. The Hunter bucked up and down and the butt boards were cut from top to bottom almost to each end. Guns reset, problem solved again, more fuel.

Meanwhile the in-flight firing had started with Neville Duke using sea targets off Ford in Sussex. On his first trip the nose leg dropped on firing so the locks were tightened. The same thing happened on the next two flights so the locks were tightened even more and the nose leg stayed put. Unfortunately the leg failed to extend for landing so Neville had to land without it, holding the nose up as long as he could then gently lowering it. The runway ground through the base of the first three nose frames which were repaired later after solving the up-lock problem. In another Hunter after a full fire-out the windscreen de-icer system shook apart and the nose wheel bay was awash with alcohol. Ron Selley, the charge hand, told me to remove the system. A tall and slim physique was necessary to work in the confines of the bay. As the aircraft was still hot from its flight the alcohol had vaporised and after breathing the vapour for a few minutes I nearly passed out blind drunk. I was lent up against a wall to recover and the nose bay slowly drained and dried.

During the flight trials it took us just seven minutes to rearm and turn the aircraft round. Neville didn’t even get out of the cockpit. His flight to the range and back did not take much longer. We all had different jobs for the turn-round. Two men kept about six gun packs loaded and ready for use, Jimpy and three others removed and replaced the packs and every three flights I saw to refuelling and topping up the IPN (iso propyl nitrate) starter tank. We did this without any hurry or urgency, the jobs just needed seven minutes. When things got a bit more intense we borrowed a second aircraft from Production which Bill Bedford flew. On his first run he flew into a shell ricochet which took a lump out of his port wing; another job to sort out. Eventually we ironed out all the problems and got the system going.

On my earlier posting to Instrumentation I only had occasional contact with armaments. One day a high speed Paillard-Bolex 16mm cine camera arrived. After loading a film in the dark room my boss, Gordon Nuttall, and I went to the gun butts where I had to kneel a yard from the cartridge ejector tubes and when Gordon said “fire” the chap in the cockpit pulled the trigger and I started the camera. We needed to film the trajectory of the cartridge cases so the curvature of the ejector tubes could be altered to ensure the cases cleared the aircraft to avoid the damage that was being caused at the time.

Often we would have three 8 mm cine cameras set in the wing, fuselage and tail to record store releases and rocket firing and a 35 mm cine camera filming a panel of duplicate cockpit instruments. The camera was mounted in the instrument panel filming the panel through a mirror opposite to gain distance so the complete panel was in view and focused. This set-up was mounted in place of the ammunition tanks. We also had a Hussenot photographic paper trace recorder which provided time histories of additional parameters.

As soon as the aircraft landed after a test flight the bods in Flight Development in the control tower wanted the results. I had to remove the cameras and unload and develop the films in the darkroom. Fortunately photography had been one of my hobbies since I was ten years old. In the totally blacked out darkroom I took the cine films out of the cameras and put them in the developer which I had premixed from basic chemicals; no bought-in stuff ready for use. Unfortunately the 8 ft by 3 ft room was not only airless but all I had for the films was a Dallon tank designed for old fashioned glass whole plates used in the Victorian era. It was about 6 ins square in plan and 8 ins deep. Into this went four cine films and a paper roll from the Hussenot. An alarm clock told me when to take the paper roll out and put the lid back on. With the red safe light on the paper was rinsed and put in the fixer. With the red light off I took the tank lid off again, rotated and opened each roll of film, fed them through the fixer and when fixed opened the dark room door and rinsed the films and paper in the lab sink. After a few breaths of fresh air I strung the films over my outstretched arms, climbed down the steep staircase to the hangar floor and then ran over to the control tower where the still wet films were taken from arms and the

door closed on me without a word being said or a chance of knowing the results - only a quick glance to see that the development was OK.

Thinking back on this ill-equipped outfit at the forefront of fighter aircraft production, we performed wonders in spite of the Company's tight purse strings.

An event worth mentioning happened one day, when I was calibrating instruments which we did on all aircraft each month. A group of men came in with an instrument wanting to know if it was accurate. One of them was an American. I knew we had visitors as there was an F-86 Sabre on the hard standing and a car load of people. After testing the instrument, which was alright, I had a few words about it with the American and some of the others, and off they went. Gordon Nuttall then said "Do you know who you were talking to?" I didn't so Gordon told me it was Chuck Yeager who was here to evaluate the Hunter for NATO with a view to America financing it to re-equip European air forces. He had been flying the first Hunter Mk 6 in dog fights against another American pilot in the Sabre. I got to develop the gyro gun sight camera film and there was a lot of Sabre on it!

BORN INTO AVIATION

On October 12th Group Captain Peter Bedford, son of Hawker Chief Test Pilot Bill Bedford, came to Kingston to talk about his life in aviation. When Peter was a young boy Hawker's Chief Test pilot had the use of Primemeads Farm cottage so Peter grew up living on Dunsfold Aerodrome, where he used to shoot rabbits to sell to the nightshift. The Dunsfold pilots were part of his family. Peter was 14 years old as he watched his father make the first vertical takeoff in the P.1127 prototype. At 17, with a Combined Cadet Force (CCF) flying scholarship he learned to fly at Fairoaks Aerodrome flying Piper Colts and Tiger Moths. In thirty hours of free flying he gained his private Pilots Licence.

At 18 he enlisted in the RAF and went to Cranwell for 2 years where he joined the Jet Provost course. The course pattern was 6 months academics and officer training, 6 months flying, a further year of studies and then the final flying phase. His father flew up to see him at Cranwell in the last Hurricane, PZ865, and was not permitted to perform a display! Peter's first operational posting was to No 30 Squadron at Fairford on Hercules transports learning to fly at low level making air drops. In 1969 he, together with a small force of Police, was sent to the West Indies where Anguilla had staged a rebellion for independence from St Kitts-Nevis. He had six weeks in command of the airstrip on a tropical island with no tourists and beautiful beaches. Back at Fairford he observed Concorde 002's flight testing with which 30 Sqn shared the airfield.

Then to the Central Flying School at Little Rissington for six months to train as a flying instructor (and also observe the Red Arrows Gnat operations). He was awarded the Top Hat Trophy for coming bottom of ground school, thus winning the honour of giving a speech at the final guest night. During low flying a rather bluff Australian instructor told him how to judge height; "250 ft you can see the sheep but you can't count their legs". At Cranwell again he instructed for 18 months on the much improved Jet Provost JP 5. He was lucky enough to get a loan appointment to Singapore to teach students on the delightful piston engine SIAI-Marchetti SF 260 on which Peter became a solo aerobatic pilot. Back in UK he applied for fast jets and posted to Coningsby got fly...the simulator. He then volunteered for the Hercules force and joined No 47 Squadron at Lyneham - back to low flying and air drops. Notable tasks were taking a gorilla to Gerald Durrell's wildlife conservation trust in Jersey, flying the Bishop of Salisbury around his diocese and supporting the Red Arrow's last Gnat display.

On an exchange posting to the French Air Force he learned to fly the Transall transport and to cope with French hospitality which included a very liberal approach to alcohol consumption, even away from base. The Transall squadron flew low-level to Quimper en masse, were royally entertained then flew home at 1,500 ft. Peter spent some time with the Special Forces Flight of 47 Squadron and then moved to command the organisation that taught all low level flying and airdrop techniques.

The Falklands war provided some excitement. The Hercules had no air-to-air refuelling capability so probes were speedily fitted by Marshalls; the first aircraft was completed in just 19 days. Peter then taught in-flight refuelling and wrote the manual for a 2 ½ day course. The Victor tankers were faster than the Hercules so refuelling was carried out in a manoeuvre descending from 20,000 ft to 5,000 ft. The Falklands was reached staging via Ascension from where it was a 3,500 miles leg to the Task Force, which needed two in flight refuellings. After dropping personnel, including the replacement 2 Para Commander after the death of Lt Col H Jones, or stores the Hercules returned to Ascension with another refuelling, the total flight time being 25 hours.

Peter then attended the Department of Air Warfare and the Staff College at Bracknell. He became the personal staff officer to the Air Officer Commanding, No.1 Group, Upavon, before moving to Lynham as the boss of the Hercules Operational Conversion Unit where he kept current on formation flypasts. In the First Gulf War in 1991 he spent ten weeks in command of a detachment of seven RAF Hercules and 14 crews in Riyadh, Saudi Arabia. Two RNZAF Hercules and crews were also attached. They flew into 2,500 to 3,000 ft desert strips carrying up to 100 equipped troops per aircraft with a lot of 250 ft low level flying. In the six weeks of the air war the Hercules flew 1,300 sorties, carried 14,000 passengers and 7 ½ million lbs of freight.

Back at Lynham Peter was promoted to Group Captain and posted to the Force Planning Branch at the NATO HQ in Brussels where all NATO forces requirements were planned. He also spent three years with the UK Delegation. It was a difficult task to get military and political agreement amongst the 28 nations. Then, retirement from the RAF but not from the life military as he was employed to advise on NATO relations with the European Union (EU) at SHAPE (Supreme Headquarters Allied Powers Europe, or as it was known Superior Holidays At Public Expense) working for DSACEUR (Deputy Supreme Allied Commander Europe), via a two star Air Marshal.

In England once more Peter, neatly completing the circle, became involved with 1034 Squadron, Surbiton ATC which had Harrier GRMk3 XZ130 on the premises. However, the MoD sold the aircraft because it had "become a health and safety hazard due to its age and rapidly deteriorating condition". At Jet Art Aviation it has been fully restored and is for sale. However, the squadron has kept the link with Hawker and is now the guardian of the Rev Vernon Lidstone's large scale flying model Hurricane.

The vote of thanks was given by the editor.

SO, WHAT HAVE WE DONE SINCE 1866?

On November 9th, in recognition of the 150th anniversary of the founding of the Royal Aeronautical Society, Sir Donald Spiers CB, addressed the Association on progress in aeronautical engineering in that period. Sir Donald started his engineering career in the Royal Engineers then read Mechanical Sciences at Trinity College, Cambridge. Subsequently he became an apprentice with de Havilland Engines leading to a position as a gas turbine development engineer. Moving to the Air Ministry he was involved in the 1965 Kestrel Evaluation Squadron trials. After a number of other operational research, trials and analysis positions he was Assistant Chief Scientist to the RAF until moving to the MoD Procurement Executive to be the project director of the Hawk, Jaguar, Tornado and Eurofighter programmes. Amongst other important MoD positions he was Controller of Aircraft for six years. He was also President of the RAeS and of the Popular Flying Association, now the Light Aircraft Association.

Sir Donald started on what he called the 'pre-history' describing Sir George Cayley's prescient design of a 'governable parachute' which incorporated the main features to be found in modern aircraft configurations and which was towed into flight, with Cayley's unhappy coachman aboard, on July 5th, 1853. On January 12th 1866 the Aeronautical Society was formed by the Duke of Argyll and five other notables from the world of science, engineering and aviation. (In 1918 King George V would grant the Society its Royal prefix). A prize of £1000 was offered for a flight by a mechanical machine but this was not achievable. In 1875 Lord Kelvin stated "If you can't measure it, you can't understand it". Who would disagree with that - but he also said "A heavier than air flying machine is impossible"! In 1894 Hiram Maxim built a huge four ton steam powered flying machine intended to fly from an 8 ft gauge track. This was not a success.

However, in Dayton, Ohio, two brothers, the sons of a Bishop and owners of a bicycle shop, were designing and building a manned glider which flew successfully in 1900. They then designed and built their own four cylinder, water cooled petrol engine, which weighed 179 lb and developed 12 hp at 1020 rpm. With this engine, on December 17th 1903, Orville Wright achieved, at Kill Devil Hills in North Carolina, man's first sustained, controlled, powered flight. Four flights were made that day, each brother taking turns, increasing the duration from 12 seconds to 59 seconds. On the fourth flight the aircraft was damaged and never flew again. The brothers received the first Aeronautical Society gold medal in 1908.

The first sustained, controlled, powered flight in England, by Samuel Franklin Cody, an American showman, did not take place until October 1908. He received an Aeronautical Society silver medal in 1909, the same year that 'brave but incompetent' Bleriot flew across the English channel. Sadly, Cody was killed in 1913 when his aircraft broke up and crashed. Howard Pixton won the 1914 Schneider Trophy race at Monaco, flying a Sopwith Tabloid seaplane. This outstanding design led to the Sopwith family of fighters, so successful in WW I in which, initially aircraft were used for reconnaissance then shooting, combat and bombing. Some 11,000 Sopwith aircraft were used in the war by the RNAS, the RFC and the RAF. After the war Sopwith Aviation was liquidated to pay excess profits tax but started again as Hawker.

In the 1920s passenger flying got under way. The UK Government light aircraft trials Lympne were won by the de Havilland Hummingbird which was not a success commercially but led to the Moth family including the Tiger Moth. The 1934 MacRobertson England-Australia air race was won by the de Havilland Comet racer but, more importantly, a production Douglas DC 2 airliner of KLM came second. In the '20s and '30s Imperial Airways flew European and Empire routes with British airliners including Handley Page HP 42s and Short flying boats. These luxurious aircraft were built in only small numbers.

The RAF was biplane equipped in the 1930s but the monoplane Supermarine S.6B, which won the Schneider Trophy outright in 1931, showed that monoplanes were the way ahead leading to the Spitfire. Hawker produced the Hurricane and because the Company started production ahead of a Government contract there were enough fighters to win the battle of Britain in 1940. During WW II many aircraft types were produced in huge numbers for all purposes; bombers, fighters, flying boats, transports, specialist types, etc. In 1939 the RAeS had moved from Albemarle Street to 4 Hamilton place where it remains today.

Frank Whittle designed his jet engine which was to revolutionise aviation. The experimental Whittle powered Gloster E28/39 flew in May 1941. Production jet fighters followed; the DH Vampire, the Gloster Meteor. Faster aircraft were developed including Hawker's Hunter and the English Electric Lightning and the three (!) 'V' bombers. The civil turboprop Vickers Viscount was a commercial success but early DH Comet's fatigue problems blighted its prospects.

Outstanding technical achievements were the American Boeing 747 capable of carrying passengers and freight, and the Mach 2 Anglo-French Concorde. The latter made its last flight 100 years after Wilbur Wright first flew. Outstanding military aircraft technical achievements were the Lockheed SR-71 strategic reconnaissance aircraft of 1964 which could over-fly the Soviet Union at 85,000 ft and speeds higher than Mach 3; uncatchable, and the first truly stealthy aircraft, Lockheed's 1977 F-117. Bert Rutan's tandem twin-engined Voyager flew round the world, unrefuelled and non-stop, in 1986 taking nine days. It cruised on the 117 hp rear engine burning just 3 gallons of fuel per hour.

In the early days of aviation pilots followed the railways but now we have inertial systems and satellite navigation. Britain's primary airports in the 1930s were Croydon and Heston with a flying boat base at Southampton. Planning a new London Airport started in 1943 with Heathrow the chosen location. It opened for civil operations in 1946 with prefab huts; now there are five splendid terminals. The controversial decision to build a third runway has been taken, but.....Farnborough houses a large, modern business and VIP airport. BOAC was formed in 1939, BEA in 1946 using Northolt.

The world's first aircraft manufacturer was Short Bros who in 1909 built six Wright Flyers under licence. The Hon CS Rolls bought one for £1,000, over £100,000 today. The engine cost £400, Shorts got £200 and the Wright's fee was £400. Rolls got Aero Club certificate No.2 then sold his aircraft to the government for £1000! Before WWI aircraft manufacture was a craft process, the workers doing whatever job was needed. In 1914 mass production started with workers doing a specific, repeated task. In WWII

skilled craftsmen performed these tasks. In the 1950s a Hunter cost £100,000, by the 1980s the cost of a fighter had risen to £20m (equivalent to 200 Spitfires). Today's Typhoons cost £50m each and F-35s are £100m a copy.

To conclude the speaker told the meeting about John and Christine Delaney, from Adelaide, Australia, who, using original drawings from the Smithsonian, built in a year, a replica Wright Flyer powered by a 12 hp VW engine. It had four small wheels on its skids for compatibility with the runway. It made one flight, on February 9th 2004, lasting 8 seconds. This is the most successful Flyer replica flight.

After some questions the vote of thanks for this enthralling talk was given by Martin Pennell.

BOOK REVIEWS

Nick Stroud's '**The Aviation Historian**' provides insights into little known aspects of the world of aircraft. In Issue 15 you can read about Britain's other cold war VTOL fighter, the Predator (remember that?). Issue 16 tells the story of the West's strategic reconnaissance Soviet Union over-flight programme in which Hawker's Technical Sales Manager, the late John Crampton, played a leading part, and of Willard Custer's channel wing STOL aircraft which was so nearly a commercial success. And in Issue 17 you can read about Stefan Karwowski and his red Hunter, G-HUNT. There are, of course, dozens of other enthralling articles with which to settle down in these long winter evenings.

See a preview, subscribe or get back numbers at www.theaviationhistorian.com.

MEMBERSHIP NEWS

We welcome new members Richard Bateman, David Collingridge (who is restoring P.1127 XP984 at Brooklands) and John Donaldson. Sadly we record the deaths of Geoff Barratt and Gordon Jefferson and send their families and friends our condolences.

MEMBERSHIP LIST - OCTOBER 2016

Members who have not yet paid their subscriptions for 2016- 2017 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.

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