THE HAWKER ASSOCIATION

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EDITORIAL

In case you didn't notice the subtle indication above I must point out that this is the 50th Newsletter. I hope you have enjoyed reading them as much as I have enjoyed compiling them, writing the talk reports and other regular features, and editing your contributions. The latter are the most important parts of the Newsletter as they record what it was like to work for 'Hawker', what you did and whom you worked with. There is a personal story in this Newsletter which I know many of you will find particularly interesting as it concerns people you probably worked with or knew at Kingston.

Without your contributions the Newsletter is less interesting and less valuable. I have just about used up the backlog of articles so please put keyboard to screen or pen to paper and tell me what you did at Hawker or HSA or BAe. You will be surprised how memories come flooding back once you start. So why not make it a new year's resolution to remember and write? As I have said before, it doesn't matter how rough you think your article is, it's my job to polish it up!

Some 30 Members still owe their **subscriptions for 2017-2018** - see the back page please. With this Newsletter is the AGM notice and the **renewal form for 2018-2019**. Please send your payments to Secretary **Barry Pegram**, not to the Editor.

Members will be sad to hear that retired Dunsfold Chief Test Pilot Duncan Simpson died on December 5th, just before his 90th birthday. There will be a memorial service at St Clement Danes on April 24th.

Send your **contributions** to The Editor, Chris Farara, 24 Guildown Road, Guildford, Surrey, GU2 4EN or e-mail to cjfarara@ntlworld.com. Tel 01483 825955.

Send any **membership** correspondence to The Secretary, Barry Pegram, 12 Becket Wood, Newdigate, Surrey, RH5 5AQ or e-mal barryvpegram@aol.com. Tel 01306 631125.

PROGRAMME FOR 2018

Wednesday 14th February	"Airline Flight Safety" - **Chris Roberts**
Wednesday 14th March	"Harrier Ski-Jump Trials from a flight test engineer's viewpoint" - **Dick Poole**
Wednesday 11th April	**Annual General Meeting** and video.
Wednesday 9th May	"Paper Aeroplanes Again" - **Ed Hui**
Wednesday 13th June	**Summer barbecue.**
Wednesday 11th July	"Ernest Hemingway Visits Dunsfold, D-Day and Divorce" - **Dick Wise**
Wednesday 8th August	Social with a focus (tbd).
Tbd September	Outing to **Harrier Heritage Centre**, RAF Wittering.
Wednesday 12th September	Social with videos.
Wednesday 10th October	Title tbd - **Lt Cdr Chris Goetke**.
Wednesday 14th November	Talk tbd
Wednesday 12 December	**Christmas Lunch**

Chris Roberts, our Chairman, after retiring as Chief Test Pilot Dunsfold joined the commercial aviation world as a captain and manager, **Dick Poole** was Chief Flight Test Engineer at Dunsfold and managed the BAe ski jump trials, **Ed Hui** returns with more about paper aeroplane design, **Dick Wise** was an avionics engineer and Director Harrier and Lt Cdr **Chris Goetke** is the CO of the RN Historic Flight. Our proposed outing to the **Harrier Heritage Centre** at RAF Wittering is being planned. If you have a suggestion for a topic or theme for the **8th August Social** please let the Editor know.

P.1127 XP984 APPEAL

The response to the appeal for funds to help with the restoration of XP984 at the Brooklands Museum has raised the sizeable sum of **£2000**. The appeal is now closed and a cheque will be sent to the Brooklands Museum by our Chairman, Chris Roberts.

Thanks are due for the generosity of the following 43 members:

Anon, TE Anstey, LR Baker, AC Barber, PG Barker, GM Bass, PA Bedford, AT Boyd, AJ Buttler, DA Byford, CM Chandler, KFS Chard, T Davies, MGV Dyke, RJ Fairchild, M Fantham, CJ Farara, for CS Flint, JP Gardner, G Harris, N Hayler, RJ Head, BS Indge, JM Janes, AN Justin, MD Murray, P Moore, J O'Sullivan, RC Owen, LA Palmer, BV Pegram, LW Phipps, RJ Poole, C Radley, PR Rash, EJ Syradd, AB Turner, MJ Weatherly, GE Weller, G Wilsher, CJ Wilson, GW Wilson, RE Wise and also the Kingston Aviation Centenary Project who kindly rounded the total up to £2,000.

Once more, thank you all very much indeed

DUNCAN SIMPSON

The last of the original three P.1127 test pilots, preceded by Bill Bedford and Hugh Merewether, Duncan died on December 5th 2017.

Duncan studied at the de Havilland Technical School before joining the RAF in 1949 where he trained as a pilot and flew Meteors with No.222 Squadron. In 1953 he joined the Day Fighter Development Unit of the Central Fighter Establishment and in 1954 was invited by Neville Duke to work for Hawker Aircraft Ltd as a production test pilot. He made the first flight of P.1127 XP976 and trained the Tripartite Evaluation Squadron Pilots to fly the Kestrel. He also trained the first four RAF squadron pilots to fly the Harrier. In 1969 he became Chief Test Pilot, Dunsfold, and made the first flight of the Hawk prototype, XX154, in 1974. In 1978 he retired from test flying. He was the Deputy Director of the Society of British Aerospace Companies for fifteen years, responsible for air show safety. He took a special interest in historic aircraft, especially Hawker's Hart and Hurricane and ensured that they found good homes when HSA retired them. He was co-founder of the Historic Aircraft Association, flew the Strathallan Collection aircraft and was a keen supporter of the Tangmere and Brooklands Museums. He was appointed OBE in 1973 and Master of the Guild of Air Pilots and Air Navigators in 2002. He was a fellow of the Royal Aeronautical Society, the Institute of Mechanical Engineers and of the Society of Experimental Test Pilots.

In short, 'a total aviation person'.

CHRISTMAS LUNCH 2017

Organiser Ken Batstone reports on this excellent event…

On Wednesday 13th December the Association Annual Christmas Lunch was held, as usual, in the YMCA Hawker Centre. (For those readers who may be unaware of the fact, this Centre is the old Hawker Aircraft Social Club. After the demise and demolition of the Hawker factory and office block the YMCA took over the Social Club building to run as a community and leisure centre. Some three years ago the whole building was refurbished to a high standard and is now an excellent venue in which we hold our monthly meetings and other events. That's the end of the history lesson.) This was the 15th Association Christmas Lunch! Yes, the 15th; it hardly seems possible. At that first lunch we were all young …well, most of us.

This year's lunch was attended by 45 members and guests, who all enjoyed the event which started at midday. Diners arriving between then and 1pm, were greeted with a glass of wine (or a non-alcoholic drink) and took their seats at 1.15 when the meal was served. The menu was the same as last year: prawn cocktail, roast turkey and cheesecake. If, for reasons of diet, politics or religion, any course was unacceptable, an alternative was on offer!

The meal was excellent: your own mother couldn't have cooked it better. The main course was served piping hot with large portions and everything perfectly cooked; even the sprouts went down a treat. A moment treasured by many members was when the staff came round with extra gravy and crispy roast potatoes! When the meal was finished a number of dessert portions were left over but nobody came forward for seconds because we were all completely sated.

Coffee and mince pies were then served and everyone settled down expectantly for the after-dinner speeches (That is to say, expecting them to be short and in fact, the speakers duly obliged.) The first speaker was our new-this-year Chairman, Chris Roberts, who had taken over from Ambrose Barber after the AGM. As Chris said, Ambrose, our first Chairman, had agreed to serve for three years, but in fact held the position for fourteen! Chris went on to describe the achievements of the Association in those years under Ambrose's chairmanship and thanked him for all his hard work and asked those present to show their appreciation, which they did with long enthusiastic applause. Chris also talked about the past 12 months: the centenary of the Richmond Road site, the 25th anniversary of the closure of the site and the opening of the Tudor Drive Library extension with its scale model Harrier suspended from the roof. The second speaker was our President, Sir Colin Chandler, who reminded us of our achievements at Kingston over the years and how proud we should be, as he was. Kingston had been a great place to work; a small group of skilled people achieving manufacturing and financial success by delivering contracts on time and on cost to the MoD, the US Military and many other foreign customers.

After the speeches there was the customary raffle with Christmas-themed prizes; that is to say chocolates and alcohol. Thus ended the lunch, but nobody was in a hurry to depart but continued to converse socially and give their views on the afternoon. It seemed everybody had thoroughly enjoyed it and felt that the meal was the best of the 15. This sets a very high standard for next year.

Subsequently I wrote to the YMCA Catering Manager thanking her and her staff for laying on such a splendid meal and that we were now looking forward to the Summer BBQ, which is only six months away! The Association also gave the YMCA Staff a gratuity in thanks for their efforts.

2017 REVIEW OF THE KINGSTON AVIATION CENTENARY PROJECT

Presented by David Hassard and Bill Downey, Joint Project Leaders, and Mike French, Treasurer & Volunteer Co-ordinator….

Amazingly, six years into our two-year project we have been as busy as ever. The major event for our project in 2017 was the exhibition at the YMCA Hawker Centre in September celebrating the 75 year history and marking the centenary of the founding of National Aircraft Factory No.2 on Richmond Road. In addition to our portable exhibition, we collected, printed and displayed nearly 200 largely unpublished photographs and maps supplemented by Mike Frain's guided tours around the site. All this attracted an almost overwhelming 871 people over the two days, ranging from local residents with no idea about the heritage to ex-employees sharing stories and bringing photographs and memorabilia. Huge thanks must go to our volunteer steering group and stewards, our close colleagues in the Hawker Association and the YMCA for making this such a success.

The number of people who attended our illustrated talks this year on the Sopwith story through WW1 and on the whole history of the aviation industry in Kingston almost exactly matched the number attending the exhibition. 855 people including 119 children attended twenty-one talks taking the total over our six years to 6,935. Once again audiences ranged from a Primary School to a Dementia home. We have spoken to industrial history, military history, local history, family history and scientific societies, church groups, Probus clubs, U3A groups including the main Kingston U3A, as well as presenting at one of Richmond's "Know your place" events. Along the way we developed a new talk on the Hawker Hurricane and the Battle of Britain for a local school.

A factor in the popularity of our talks and exhibitions is offering people the attractive and informative "Designed and built in Kingston" brochure to take away and share with friends and family. Over the years we have handed out nearly 8,000 and this year BAE Systems Heritage have generously had many more printed to keep this going.

Research for the weekly e-mailed diary of the Sopwith Aviation Company and its products has become increasingly demanding but with a circulation of almost 700 worldwide it is intended to keep going. With Sopwith aircraft being produced in their thousands there was concern that the research for 1918 could not be completed in time but thanks to voluntary help from Dick Curtis and John O'Dell we now have a day-by-day index to in-service Sopwith aircraft key events throughout 1918. Further research on other less well recorded key events, like first flights and tests of prototype aircraft, will continue throughout the year. This diary can be easily accessed via our website.

The only addition to our website this year has been updating the "100 years ago" section from the weekly newsletters, but thanks to volunteers we have been making better use of social media to advertise events and broaden the ways we share information about Kingston's aviation heritage. The website has become a source of information for researchers all over the world and we are able to answer many of the enquiries that come in but frustratingly we do not have any personnel records to help with information about people who worked at the factories.

Thanks largely to local Councillors we continue to exploit opportunities to leave lasting reminders of the aviation industry around Kingston. We were pleased to be able to provide information and advice this year for the large Harrier model and information panel in the extension to the public library in Tudor Drive close to the Richmond Road aircraft factory site. We are working on some other ideas.

We expected to dig deep into our limited financial reserves this year for the special exhibition which did cost quite a lot of money. However thanks to donations by exhibition visitors and donations from some of our talks our funds have only reduced by £533, so we are able to continue to fund the website as well as our research and outreach work for the foreseeable future.

With special thanks to our volunteers, we wish all our supporters and readers a very happy New Year.

You can get in touch with us through the **website** www.kingstonaviation.org or by **e-mail** to kahp2012@hotmail.co.uk

AIRCRAFT NEWS

Camel. An airworthy Camel, externally correct but with altered structure and powered by a Czech Verner Scarlett 7Si seven cylinder radial, is being built at the Francesco Baracca airfield near Treviso, NE Italy. It commemorates Canadian Camel pilot Lt Gordon McLean who was shot down in the area in February 1918. A brass identification plate from McLean's Camel B2494 of No. 45 Squadron was found by chance.

Tempest V/TT5, NV778, is now displayed on the floor of the main hall in the RAF Museum, Hendon, having spent fourteen suspended from the roof.

Hunter Mk58, the colourfully painted Miss Demeanour, owned and flown by Jonathon Whaley, is being exported to Canada to join the Lortie Aviation Hunter fleet of at least six single seat Mk58s and a two seater, in Quebec. Lortie Aviation provides training support to military air arms. Google them for more information.

P.1127 XP984 in its beautifully restored state is now on show in Brooklands Museum's new 'Aircraft Factory' exhibit.

Gnat T1, XR977, in Red Arrows livery, has been moved to the RAF Museum, Hendon, from the Cosford conservation centre.

Harrier Mk 55, AV-8S/Spanish Navy VA-1 Matador bought for the Royal Thai Navy, is to be restored at the Royal Thai Air Force Museum, Bangkok.

Amongst the aircraft to tour Britain this year as part of the RAF's centenary celebrations are the RAF Museum's **Sopwith Snipe** replica a **Harrier GR3** and a full scale model of an **F-35**. They will be on show in the Cardiff City Hall Gardens (May 16 - 20), London's Horse Guards Parade (6 - 9 July), Newcastle, Northern Ireland (4 - 5 August), Birmingham's Victoria Square (25 - 27 August), Glasgow's Science Centre (1 - 2 September) and Manchester's Cathedral Gardens (15 - 16 September).

LIFE WITH THE RED ARROWS

On November 8th Mark Zanker returned to the Hawker Centre to give another talk, this time on his experiences in the Red Arrows, the RAF Aerobatic Team (RAFAT). He was introduced by Chris Roberts who told us that Mark is currently a B747 Captain with Cathay Pacific and had had a long and varied career in the RAF starting in 1981 at Cranwell and then flying Hawks, Jaguars, Harrier GR3s and Harrier GR7s. (See Newsletter 44 for a fuller account of Mark's operational career.)

Mark started with an excellent fast and furious Red Arrows promotional video then moved on to the Red's epic South Africa, far east and Australia tour in 1995-96. They were due to display at a five day trade show in Langkawi, Indonesia, an island about the size of the Isle of Wight. The programme was to arrive on Friday December 1st, rest on Saturday and Sunday, practice on Monday and do the show on Tuesday. On the Saturday Mark and two fellow pilots hired a car to see the beautiful island but unfortunately, at a right hand turn at the end of a long straight, a truck hit their car head-on but offset to one side and the locked-together vehicles slid to a standstill near the sea. Mark and one other had relatively minor injuries but their driver was hurt most with a broken collar bone and short term memory loss. He didn't know what had happened or where he was and asked the same questions repeatedly. All three were taken by fast ambulance through heavy traffic to a brand new hospital where they were patched up and 'phoned the 'boss' at the golf club where he was relaxing. Display possibilities were discussed. The Reds do not have a spare pilot. This is not practical as he would have to be competent and current in any of the nine positions. However, three new pilots are introduced in October to train. So, the new Red 3 would step in for the first half of the display, depart then rejoin for the landing. The second half would be flown by eight aircraft. Mark, although fit to fly, had a problem in that the oxygen mask containing the microphone pressed on the stitches to his chin and might open the wound. Oxygen wasn't needed but the microphone was essential. The solution was to borrow a throat mike.

British Aerospace had asked the Ministry of Defence to do a Red Arrows marketing tour to South Africa. The Hawk TMk1A could not carry drop tanks and had no in-flight refuelling system so its duration was about 2 hours covering 8-900 nautical miles. They would fly as eleven aircraft, including two spares, in a loose formation of three flights of three aircraft plus one of two, using the commercial air lanes. On each leg one pilot would be chosen to communicate with the air traffic control systems using the VHF radio while communications between the Hawks would use the UHF radio, and everyone would listen to both. On the way out on the Italy-Turkey leg Mark was the nominated communication pilot. The Istanbul controller asked "How many sheeps you are?" "Eleven". The startled controller said that was not acceptable but up to four was!

Several displays were flown in the Middle East before the team flew from Addis Ababa in Ethiopia to Nairobi, a leg of 1hr 40min with no diversionary landing grounds, controllers or radar cover en route, so flying was just 'by the book'. In the intertropical convergence zone which circles Earth near the equator, thunder storms in huge cells rising well above the Hawk's ceiling, proliferate. Hail and icing conditions are a hazard in the clouds. However, Nairobi was reached safely but the weather there was poor so an instrument approach was flown with four sections.

At Pretoria the team spent three days at the South African Air Force base at Waterkloof before departing for Capetown where they displayed over the Waterfront . From there they went on to Durban following the Garden Route along the coast. Later in Sydney the Red Arrows were to boost 'UK plc' and Mark showed a video of an interview by Anthea Turner for GMTV. On Australia Day the team displayed over Sydney Harbour Opera House watched by a million people.

What, asked Mark, distinguishes the Red Arrows as a first class team? He then gave an example. The team was to appear at the 1994 Buoch International Air Show in Switzerland, where the airfield was in a steep sided mountain valley, together with the Patrouille de France and the Italian Frecce Tricolore teams, so it was going to be a competitive event on the Saturday. Ideally the teams would arrive on Friday so the site could be assessed ahead of the display. The French and Italians did and decided to truncate their displays due to the proximity of the mountains. The Reds left England on Saturday morning and on the way to Switzerland Red 6 experienced a control restriction so the team landed at Emmen. Red 6 took the spare aircraft but time had been lost so the team flew straight into their <u>full</u> display at Buoch which was completed successfully. The French and Italian teams were stunned! How had the Red Arrows been able to do this? Planning, meticulous preparation and the desire to be best is the answer. They plotted their standard flight paths on a map of Buoch and adjusted them to take account of the mountains. They then transcribed the adjusted flight paths onto a map of Scampton which they then practised using the lower thrust which would be available at the high altitude of Buoch. It should be added that the team flew straight back to England at the end of their display!

Mark finished with a video of the 1995-96 world tour which involved 1,100 sorties travelling 52,000 miles, or more than twice round the World at the equator.

During question time Mark gave more information. The team is always practiced in three display routines: 'flat' consisting of turning manoeuvres for low cloud base and poor visibility conditions, 'rolling' which excludes vertical plane manoeuvres, and 'full' which needs 5,000 ft of clear air and includes looping. During a display the leader can call for a change from one to another. Annual intensive training is carried out in Cyprus. For example Reds 1 - 4 fly 3 flights per day for 5 days per week for 6 weeks. Only the leader sees where the formation is going, all the others are concentrating on station-keeping with him, or a neighbour, by keeping two features (or sighting points) on his aircraft aligned. The Hawk is a simple and reliable aircraft. Transit flights are made with an engineer in the back seat, the Boss taking the Engineering Officer. The Red Arrows aircraft have an easier life structurally than training squadron aircraft. Asked about the Gnat, the Hawk's predecessor, Chris Roberts, who flew the Gnat with the Red Arrows, said the Gnat was superior for formation aerobatics but the Hawk was far better for the role because of its more modern design and technology. The Red Arrows Gnats were cleared to fly with the electrically actuated aileron angle limiter fuse removed. Maximum roll rate was then 540 degrees per second.

The vote of thanks for this behind-the-scenes look at the Red Arrows, a real privilege, was given by Frank Rainsborough. The talk was illustrated with many of Mark's own photographs.

THE HAWKER INSTALLATIONS DEPARTMENT IN THE 1960s

Karl Wingett-Smith remembers his time at Hawker from April 1960 to September 1962.…

I spent only a short time at Richmond Road compared with many members of the Hawker Association but, from the point of view of gaining experience, they were important. Before joining the Installations Department (ID) to work on P.1127 cockpit air conditioning I had spent most of the previous decade with Handley Page (HP) at Cricklewood in northwest London. I worked there on design analysis of the fluid systems of what began as the HP80 prototypes and became the highly successful and long-lived Victor, the V bomber that never dropped a bomb in anger but made the Vulcan Falklands raids possible because of the vast quantities of fuel carried in the tanker conversions. Most of you will remember the late Harry Fraser-Mitchell, well, he and I were contemporaries at HP and quite good mates.

So, why did I move to Hawker Aircraft Ltd (HAL)? My home was then in Croydon and HP was 17 miles northward via places like Brixton, Victoria, Hyde Park, Marble Arch followed by about 5 miles of the Edgware Road with its 23 sets of traffic lights before turning off at Cricklewood Broadway for the final couple of hundred yards to the old WW1 Aerodrome site that was by then full of houses (just like Kingston was to become). Throughout the 1950s private car use grew astronomically and caused more and more congestion. My homeward travel time increased from less that one hour to more than two hours, and I'd had enough. Stupidly I'd thought that working for one aircraft maker would be the same as any other. I was wrong.

My time at Hawker was short, partly due to my relationship with the Head of Department, Dr Elias Gabbay, partly because during my time there I met the girl I later married and neither of us wanted to live in suburbia. Add to that the fact that the ID had a habit of 'dealing with' future bridegrooms light-heartedly in various ways that I wanted to avoid. (OK John Davey, you were always one of the ring leaders, so I didn't let on!).

When I started at HAL my first tasks were to perform mathematical analyses of the air conditioning system to establish that it would be satisfactory. It had been sort of cobbled together with a cold air unit from the two-seat Hunter, together with a new design of primary heat exchanger and intercooler in series with air pulled through it by engine intake suction when on the ground and at low forward speeds with expectations of flow direction reversal in flight. Dr Gabbay's view was that it had worked on the Hunter so why not on the P.1127? I thought a little differently largely, I suppose, because HP had required me to do some quite extensive thinking about what could go wrong with Victor systems, how would we know and what could be done about it; a 'what if' process. I'd also prepared test and instrumentation schedules for ground and flight purposes and sorted through their results to produce reports. That also became part of the job in the ID.

At HP the elapsed time between release of a test request and getting the results back might be a year or thereabouts. At HAL, because there was a P.1127 cockpit in the Robin Hangar, it was a joy to do some sums in the morning, spend the afternoon testing with John (Davey) and sort through the numbers next morning; a great mixture and a joy to find out if we were right or wrong so quickly. But some aspects turned back on me!

A part of our testing showed that, due to the nature of V/STOL and transitions from forward flight to hover and back, there could be times when the inward and outward pressure differences that created heat exchanger cooling airflow could balance and so reduce that flow to zero, resulting in unacceptably hot air being delivered to the cockpit. The example established by the Hunter success was due to this changeover being instantaneous during the take-off run. The P.1127, with the virtually unlimited time that might be spent at this condition was a totally different kettle of fish. Also, Dr Gabbay didn't want to believe my maths because I'd brought that know-how from my previous firm.

Anyway, John and I undertook a series of tests with reduced airflows and made that point. We also thought about a cure and working with the Project Office we found a possible relocation for the louvred exit for the cooling flow just to the rear of the sliding cockpit canopy. Our solution was effectively to turn that duct around and fit a pair of forward facing intakes. We made cardboard mock-ups and set about proving the point that it was possible.

Another problem we found on the test rig was in the flood/demist facility which was to deal with any loss of cabin pressure and/or canopy condensation by supplying a 'modest' amount of unconditioned engine bleed air as well as conditioned air to the cockpit distribution system. That consisted of alloy ducts with a series of drilled holes or slots that fed air directly onto all the transparencies and the pilot's hands, feet and body. That installation used a Teddington Aircraft Controls electro-pneumatic butterfly valve that was 1.5 inch nominal diameter with flow limited by an orifice plate having a hole of roughly 5/16 inch dia. Firstly, we found that the valve was normally closed and would only ever be opened in an emergency. Great, but the damn thing seized up on us as it wasn't ever moved. Remember, that was a standard valve that had worked well on other applications but the P.1127 was a shoe-string project, otherwise we might have come up with a lighter weight, special valve (as we did, later). That issue was readily overcome by simply writing an instruction that the valve should be opened and closed before every flight. Not only did it prove that it still worked but it rubbed off all the corrosion that had made it stick.

The next aspect of that installation was to assess the effects of 'what if' it is opened in fight. I can't recall the exact numbers but the normal cockpit airflow was, I think, 30 lb of air per minute (was it 18 lb/min on single seat Hunters, 30 on 2-seat, or 12 and 18? Sorry, I'm going back 55 years or so.). My numbers showed that the addition of around 15 lb/min of air at engine bleed temperature could raise the delivery temperature of around 29 to 25 deg C by quite a bit, so John and I set up a simple test. The only operating controls for any part of the system were inside the test cockpit so we found a wooden box on which I sat while John set up the hot air supply and cooling fan. When it was all nicely stabilised and I, with shirt-sleeves rolled up, was comfortable on the box, I operated the flood/demist switch so the additional air came in. In an incredibly short time the 25 deg C became 230 deg, at which point I closed the valve. I certainly felt that my concerns were justified and went away to write a report to that effect and come up with some form of safety device.

At that time I certainly didn't understand anything about the financial state of the project. I'd been used to working with backing of all new ideas coming readily from HP's Resident Technical Officer (RTO). I learned much, much later just how important this was to ensuring that Britain retained a foremost position in aviation technology and manufacturing capability throughout the Cold War. An RTO held the strings of a modest purse and could sanction spend to evaluate possible ways of improving virtually any new military aircraft. After preliminary funding in this way the findings might result in another major project; P.1127 wasn't funded in that way, money was tight.

Anway, I got the OK to come up with an idea; my suggestion was that we should insert a thermal change-over sensor in the main feed to the cockpit, set at 120 deg C, round about a safe limit that would neither cook a fully dressed pilot much nor weaken the alloy of the ducting. That switch was to operate in the temperature control valve circuit and over-ride the pilot's chosen setting to run it to the fully cold setting. In that way the cold air unit would be flat out to reduce the flood (bleed) air mix as much as possible. The temperature control valve, incidentally, was of HAL design being a rotating, ported sleeve in a ported body so that the mixture of hot and cold air from the air conditioning pack could be varied. In its form at that time it was driven by a Plessey electric actuator that took 30 seconds for full travel and was controlled by a pilot operated inching switch. I recommended a faster actuator to improve the now semi-automated response time. Plessey offered an interchangeable 15 second actuator. The final part of my proposal was that the manually operated temperature control should be fully automated because I felt that it was a task that should not be added to the pilot's workload when he was performing transitions. Again, Dr Gabbay was unhappy with my pessimism until he was to learn that I was right and that some of these things were not entirely pessimism run wild.

My brief experience of rapid temperature rise inside the cockpit led to some changes; we actually got a dummy pilot and a seat for it in the cockpit, and John and I were able to break into the control electrics and fit duplicate switchery outside on the instrumentation panel. Incidentally, all our instruments had to be read and the numbers written down by hand. John and I, working together, found that we could change settings, allow them to stabilise and record the results in 2 minutes. Not for us recorders and computers, we had slide rules. As far as the heat exchanger intakes were concerned, I don't think I was believed – until a test on the rig resulted in softened transparencies that blew out under internal pressure! At that point our cardboard model received a bit more attention but, by that time I was married and had moved on.

In parallel with working on theory and practice with the test rig, I also had the tasks of preparing ground test and flight test schedules for the air conditioning system. These had to be drafted and discussed with the company WID and ministry AID Inspection Departments before being finalised and released. Having reached that point my next job was to find or get made anything we would need to perform these tests.

P.1127s were really simple machines, devised as the cheapest means of proving the feasibility of V/STOL using the Gordon Lewis and Ralph Hooper nozzles that made the Wibault fan concept actually workable. The airframe and systems were almost incidental to that requirement. Because of the relative positions of engine, cockpit and air conditioning equipment access could be difficult. Pre-flight ground tests required mainly pressure testing using compressed air with the pipework broken down in sections from engine bleed to cockpit entry in the rear bulkhead. Joints were split, blanks inserted and where required these would have AGS connectors for the separate air supply and pressure gauges. All tests were at Dunsfold, witnessed by WID and AID inspectors.

All of this work was undertaken shortly before the first, tethered, hover in October 1961 when I spent around 30 continuous hours at Dunsfold. What I remember about that is that Dunsfold called Kingston around mid-day on a Monday and my immediate boss (the late John Apted) made the decision to drive down during our lunch break so we could start work at Dunsfold shortly after 2 pm. We worked through the day, grabbed a light meal in the canteen and returned to join the night shift. During the night I managed an hour or so's rest on some boards on the hangar floor. I'm sorry to say that I don't know if John did the same or not, just sad that I didn't even think of asking. Then it was a canteen breakfast and back with the dayshift (who thought we'd come back early!). We remained on the shop floor until the lunch-time arrival of Stan Williams when we could leave and return to Kingston. From there I drove home. At one point I woke up to find myself driving down the wrong side of Acre Lane, Carshalton, just a couple of miles from home.

There was a bitter pill to swallow afterwards because the entire air conditioning equipment was stripped out to reduce weight for the first hovers because the early engine was a bit down on thrust. I've always said that Bill Bedford in his plaster cast could have stood down and let the much thinner Hugh Merewether lift-off instead. No rudeness to either of these gentlemen intended, especially since neither can reply me!

There was one other part of the job that doesn't quite fit into either of the previous categories, that was some small amount of work on the six aircraft as they were built in the Experimental Shop at Kingston; that was pressure sealing the cockpits. It was a simple task, really, just getting inside the cockpits and plugging any leak paths with a silicone potting compound; at least, that's the theory. Firstly, at that time I weighed about 14 stone and was near enough 6 ft tall – and had to get my head and one arm through the pilot's knee holes in the instrument panel to get sealant into the nose. That required my back to the floor and legs up the rear bulkhead. Why me? I then had some fair knowledge of the installation, I also had a Private Pilot's Licence that require me to have an annual medical check for fitness – further, the cockpit had to be pressurised to find the leaks. Yes, you listen for hissing and, with someone else outside, feel for air movement with a wet finger. Of course, the cabin discharge valves had to be rigged; otherwise they would remain open at ground level. There were no real problems with that until I, inside the cockpit concerned, and everyone around were aroused by a loud bang when the canopy locks let go and I was suddenly decompressed. I don't think any damage resulted; the locks simply hadn't been fully home and luckily, they let go before full differential was reached. The men in white coats say that I should be OK, given time…..my wife disagrees.

My reward for all this (apart from the overtime pay, that is) was to witness the first ever hovers from the grid at Dunsfold. I'm not 100% sure but the figure in the background of the photograph, behind the main wheel, could be me. I was certainly standing thereabouts, away from everyone else apart from the fireman. If it is me, I was wearing my motor cycle coat, bought in 1957 and still used in bad weather in 2018. If I become dissatisfied with it I shall complain to the makers, I still have the receipt

BOOK REVIEWS

Hemingway in Wartime England by retired Director Harrier and HA Member Dick Wise is sub-titled 'His life and times as a war correspondent'. As Hemingway was in England for only 64 days some readers might consider that there is more background than foreground in this book's well produced and illustrated 240 pages. However, to this reader, that is the book's great value. Dick has, around Hemingway's brief stay in England, created a vivid record of a short period of English history. Full of fastidiously researched peripheral but enlightening and fascinating detail Dick has written a memorable book. This is not just for Hemingway enthusiasts, who will surely be delighted by the main thread of the story and the facts about Hemingway's stay that Dick has unearthed during ten years of research, but also for anyone wishing to know what it was like living in England in world War II. The book has a first class index, detailed chapter end-notes, a comprehensive bibliography and specifications of the aircraft Hemingway flew in or was associated with. The surviving buildings and places where Hemingway stayed, worked or visited are listed, described and located allowing the reader to visit them.

And, by the way, Dunsfold features prominently as Hemingway flew from there in a RAF Mitchell on a mission attacking V1 launch sites.

The book, ISBN-13:978-1974459230, is published by Janus Transatlantic and is available from Amazon at £8.90, a genuine bargain; recommended.

The Aviation Historian Issue 22. Another volume to delight HA members! It contains a typically thorough and comprehensively illustrated Tony Buttler article on Kingston's P.1129 which was finally merged with the Avro 739 for submission by Hawker Siddeley to GOR339. However, the successful bid was BAC's doomed TSR2. Ron Williams was the project designer and a piece he wrote for the HA Newsletter is included. Another fascinating article, by Phillip Jarrett, describes a newly discovered 1919 design for a triplane glider by Sydney Camm complete with Camm's own drawings. In this issue you will also learn how Hawker/Camm got the wing root fairings wrong on the Hurricane while Supermarine/Shenstone got them right on the Spitfire. Not to be missed.

Issue 20 has an article on the P.1040 with many excellent Hawker photographs showing its construction, and continues the story of the 1957 Defence White Paper covering OR329 in which fighter contest Hawker's P.1103 was an outsider.

MEMBERSHIP NEWS

We welcome new member Kevan Tulip, Mark Walsingham and Laureen Chapman.

Sadly we record the deaths of Brian Drew, Tony Gibbs, Pat Goodheart, Ray Grout, Duncan Simpson, Reginald Thompson and David Ward.

MEMBERSHIP LIST - February 2018

Sixty five Members have not yet paid their 2017 - 2018 subscriptions. 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: Allan Abbott, Ken Alexander, Peter Alexander, John Allen, Peter Amos, Terry Anstey, Steve Apted, John Arthur, Alan Auld. **B:** Brenda Bainbridge**,** Lyn Baker, Colin Balchin, Ambrose Barber, Derek Barden, Peter Barker, Graham Bass, Donald Bateman, Richard Bateman, Ken Batstone, Dennis Baxter, Colin Bedford, Peter Bedford, Anne Beer, Brian Bickers, 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, Bill Brice, Dominic Brice, Laurie Bridges, Doug Britton**,** Arthur Brocklehurst, Peter Brown, Christopher Budgen, Reg Burrell**,** Robin Burton, Clive Bushrod, Barry Butcher, Tony Buttler, Dave Byford. **C:** Richard Cannon, Reg Carden, Chris Carter, Tom Casey, Bob Catterson, Colin Chandler, Keith Chard, John Chitty, Martin Churms, Gerry Clapp, JF Clarke, John Cockerill, Hank Cole, David Collingridge, Nigel Cook, Brian Coombes, Jonathan Cooper, Patricia Cosgrove, Ron Cosgrove, David Cotton, Nick Cox , Mike Craddock, Shirley Craig, Richard Cripps**,** Russ Culley**,** Richard Curling**,** Richard Curtis. **D:** Clive Dalley**,** Andy Dalton, John Danse, Afandi Darlington, John Davie, Jo Davies, Trevor Davies, Michael Davis, Diana Dean, Ralph Denning, Norman Deviell, Wilfred Dimsdale, Mike Diprose, Colin Dodds, John Donaldson, Lambert Dopping-Heppenstal, Cliff Douthwaite**,** Bill Downey**,** Barry Dreghorn, Mike Drew**,** Gwen Duke, Graham Dunn, Gordon Dunne, Chris Dunhill, Mike Dyke. **E:** John Eacott, Andy Edwards, Dave Edwards, Barry Elliot, Stephen Elliott, Tony Elliott, Celia Evans, Norman Evans, Roy Evans. **F:** Russ Fairchild**,** Ian Falconer, Mike Fantham, Chris Farara, John Farley, John Farrow, Max Fendt, Ian Ferguson, Stan Field, Geoff Fieldus, Mike Finlay**,** Wilf Firth, Richard Fletcher, Moira Flint, Ted Forster, Mike Frain**,** Steve Franklin, Howard Freeman, Geoff French, Mike French, Heinz Frick, Peter Frost. **G:** Roy Gaff, David Gaitley, Daphne Gaitley, Mike Gane, John Gardner, Patricia Gardonio, Peter Gates**,** Sandie Gear, Tim Gedge, Mark Gerrard, John Gilbert, John Glasscock, John Gough, Andy Green. **H:** Violet Hall, Margaret Hamilton, Howard Hancock, Valerie Hanscomb, Liz Hargreaves, Simon Hargreaves, Bryan Harman, Guy Harris, Thelma Harris, Brian Harvie, David Hassard**,** Juliet Hassard, David Hastie, Norman Hayler, Bob Head, Alan Heasman**,** Sheila Hemsley, Ted Henbery, Jock Heron, Keith Hertzenberg**,** Frederick Hewitt, Merlin Hibbs, Richard Hickey, Peter Hickman**,** Dennis Hills, Reg Hippolite, Keith Hobbs, Chris Hodson, Michael Hogan, Derek Holden, Ralph Hooper**,** Linda Hopkins**,** Lesley Hoskins, Diane Howells**,** Terry Howes, Simon Howison, Miles Huckle, Ed Hui, Gavin Hukin. **I:** Len Illston, Maive Impey, Brian Indge. 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V:** Roland Van Haeften**. W:** Terry Walker, Mark Walsingham, Dave Weatherley, Michael Weatherley, Harry Webb, Graham Weller, Judith Westrop**,** Jan White, Mick White, Roy Whitehead, Peter Whitney, David Whittam, Kevin Wilkins, Annette Williams, Don Williams, John S Williams, Sally Williams, Rosemary Wills, Geoff Wilshire, Colin Wilson, George Wilson**,** Dick Wise, Helen Woan, Kuo Wong**,** George Woods, Richard Wood, Alan Woolley**. Z:** David Zanker**.**