



THE HAWKER ASSOCIATION

NEWSLETTER NUMBER 15 - WINTER 2006

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EDITORIAL

Many thanks to all of you who contributed articles to this Newsletter. Like me, I'm sure you will find that these personal reminiscences, as well as being very interesting, are great memory joggers...and while your memories are jogged why not follow these contributors' examples and write them down and send them in?

We apologise to those of you who turned up on October 11th expecting to hear a RN Officer talking about the future of his Service. Although the event was confirmed the night before, we were let down at the very last moment.

In spite of the gentle reminder in the last Newsletter there are still a number of **subscriptions overdue**. Please see the Membership section on the back page...now! Subscriptions were due in April when everyone got a form with the AGM notice.

It's nearly Christmas again so don't forget to book your Christmas lunches, for yourselves and a partner too. The Hawker Centre has put on very good food in past years; and this time there's a drink included in the price.

Write to: The Editor, Chris Farara, at 24 Guildown Road, Guildford, Surrey, GU2 4EN.

Tel. 01483 825955; e-mail <cjfarara@ntlworld.com>

PROGRAMME FOR 2006

Wednesday 13th December

Christmas Lunch for Members and partners - 12.30 pm.

PROGRAMME FOR 2007

* = to be confirmed

Wednesday 10th January

Social with Quiz by **Les Palmer**.

Wednesday 14th February

"The easyJet story; why pay more?" - **Sir Colin Chandler**.

Wednesday 14th March

"The Tripartite Evaluation Squadron" - **Air Cdre David Scrimgeour**.

Wednesday 11th April

AGM with video.

Wednesday 9th May

"Anything but Aircraft" - **Revd Vernon Lidstone**.

Wednesday 13th June

Summer Barbecue.

Wednesday 11th July

"Joint Force Harrier Operations from Cottesmore" - **Cdr Adrian Orchard**.

Wednesday 8th August

Social with video.

Wednesday 12th September

* Social if visit arranged for September

Wednesday 10th October

* Chris Roberts

Wednesday 14th November

"Fifty-three Years of Flying" - **Clive Rustin**

Wednesday 12th December

Christmas lunch

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

This year the **Christmas Lunch** is open to partners. Tickets at £15 each, including a drink, are available from Jan White and Ken Batstone at meetings, or from Jan on 020 88760210. Cheques payable to the Hawker Association, please.

Sir Colin Chandler was, among many other things, our General Manager when we were the K-B Division of BAe, and is now Chairman of easyJet. **David Scrimgeour** was the CO of the Kestrel Evaluation Squadron so will talk to us from first hand experience. **Vernon Lidstone** was Kingston's Commercial Director, retiring from business to become ordained and has worked for 15 years in the Prison Service. **Cdr Adrian Orchard** is the CO of 800 NAS at Cottesmore and **Clive Rustin** is best known to Hawkers through his test flying work at RAE Bedford and the A&AEE

KINGSTON AVIATION HERITAGE PROJECT

Fund raiser Les Palmer and the other KAHP Trustees send their sincere thanks to Members who responded so generously to the appeal in NL 14. New Committee Members are urgently needed to help steer the Project through the next phase; please telephone Secretary Trevor Jordan, on 020 89942018, for details.

DUNSFOLD WINGS AND WHEELS

It was quite like old times on 27th August when, for the second time, the Brooklands Museum and Dunsfold Park collaborated to mount an excellent all-day motoring and flying display. In beautiful weather the large and happy crowd were treated to displays by many 'Hawker' types including the Red Arrows and the RAF singleton display Hawks, a Harrier GRMk7, a Hunter, the Peter Vacher Hurricane Mk 1 R4118 and Sea Fury FB 11 VR930 from the RN Historic Flight. The supporting cast included the Battle of Britain Memorial Flight, the 'Utterly Butterly' Boeing-Stearman Model 75 girl-on-wing team, the YAK formation aerobatic team and the astonishing Will Curtis in his Sukhoi 26 showing just what incredible manoeuvres a small aeroplane with a large engine can be persuaded to do. Twins were represented by a Dakota from Aces High and a Dutch B-25 Mitchell which recalled the days in 1943 when 320 Squadron of Royal Netherlands Naval Air Service flew from Dunsfold on operations over northern France.

HARRIER NEWS

The Harrier Joint Upgrade & Maintenance Programme (JUMP) team, responsible for upgrading the Harrier GR7s to GR9 standard which includes new smart weapons, major avionics system redesign, new avionics units, rewritten software, rewiring and marinisation, have delivered thirteen aircraft in eighteen months. This allowed the RAF to declare the GR9 in-service at the end of September, a date set four years ago. At Cottesmore, the Joint Force Harrier base, JUMP has also achieved a 50% reduction in the number of aircraft out of action, and £44m saving in maintenance costs.

HAWK NEWS

At the Farnborough International Air Show the UK Secretary of State for Defence, Des Brown, took part in a ceremony to mark the delivery of the first of six Hawks to the Royal Bahrain Air Force. The C in C of the Bahraini Defence Force, His Highness Sheikh Salman bin Hamad Al Khalifa, Crown Prince of Bahrain, attended the event.

JOINT STRIKE FIGHTER PROGRESS

On July 7th the first pre-production F-35 JSF, a CTOL variant, was unveiled at Lockheed-Martin's Fort Worth factory. The aircraft was officially named Lightning II, clearly alluding to the famous Lockheed twin fuselage fighter of WW 2, although BAE Systems News seems to think it has something to do with Warton's English Electric supersonic fighter! First flight is expected later this year.

SEA HARRIER ZA195

Chris Budgen reports that ZA195, the first Sea Harrier FRSMk2 development aircraft, is now to be found in the Farnborough Air Sciences collection. The aircraft was retired in 2000 and placed in store with the Fleet Air Arm collection at Yeovilton.

There is also a Sea Harrier FA2 outside the Maritime Museum at Greenwich.

SEA HAWK RECOVERED

Thanks to Ralph Hooper for the following...In the early 1970s Cdr Kanjilal, Indian Navy, suffered a flame-out as his Sea Hawk approached INS Vikrant steaming in the Arabian Sea off Cochin. The Commander ejected safely but his aircraft was lost until a minesweeping exercise thirty years later located the wreck. It was subsequently recovered by the IN Diving School and the USN using a rescue and salvage ship, the USS Safeguard.

SEA FURIES AT RENO

Sea Furies finished first, second, fourth, fifth and sixth in the Unlimited Gold Race at Reno, Nevada, in September. There were no other finishers since two Mustangs retired. Third place went to a Yak-11. The winning aircraft, at 453.61 mph, was 'September Fury' flown by Mike Brown; 'Dreadnaught', based on a TMk20, flown by Matt Jackson was second. Both aircraft are powered by Pratt & Whitney R-4360 engines.

HUGH MEREWETHER, 1924 - 2006, TEST PILOT

The following appreciation was given by Duncan Simpson at Hugh Merewether's funeral on 25th September at Hawkinge Crematorium...

I think it unlikely that Hugh parted with much information about his working life - his contribution to aviation - to his family or friends, so I shall try to give a brief account of his outstanding career in the test flying business. On leaving school, the Diocesan College in South Africa, Hugh joined the South African Navy and after secondment to the Royal Navy was taught to fly by the US Navy in 1944-45, eventually leaving the Service to join Barnes Wallis at Vickers Armstrong's research and development department at Weybridge. Whilst there he obtained a first class honours degree in engineering at London University. Throughout this time he continued flying, with the RAFVR from 1947 to 1951 and with No.615 (County of Surrey) Squadron Royal Auxiliary Air Force, commanded by Neville Duke, from 1951 to 1955. Neville recognised Hugh's ability and invited him to join Hawker Aircraft Ltd as a test pilot, which he did in 1954 after a year of freelance flying, ferrying fighter aircraft to the Middle East and the Sub-Continent.

He soon brought his engineering ability and flying skills to help sort out the first generation of powered flying controls in the Hunter. For the next six years he continued to work on developing the Hunter which resulted in the aircraft becoming one of the most outstanding of its generation, being exported to twenty countries world-wide. One of his most remarkable achievements was the Hunter erect and inverted spinning programme which Hugh both devised and carried out. As a result such spins became a standard educational exercise at the Empire Test Pilots' School for some thirty years. Those tutors at the School who flew with him will not forget his calm presence in the left-hand seat whilst rotating upside down, loose straps hanging upwards, with his pencil tied to the correct length of string so he could reach it when note writing was required.

Hugh's biggest challenge came in October 1960 when he and Bill Bedford commenced flying the P.1127 prototype at Dunsfold. To the development of this remarkable aeroplane Hugh brought his flying skill, his engineering intellect and total dedication. Many of us watched in admiration as Hugh and Bill tackled this early flying; they alternated, step by step, in developing new techniques and helping Ralph Hooper and the engineers at Kingston solve each problem as it arose. Six prototypes were built and nine production Kestrels saw successful service in a three nation (UK, USA, FRG) squadron evaluating military V/STOL. Nobody else in the world had succeeded in producing a fighting aeroplane with this capability.

I have but skimmed the surface of this painstaking development work which is detailed in Hugh's book: "Prelude to the Harrier" (HPM Publications, 1998). However, two incidents are more than worthy of a mention here, for during those early trials Hugh succeeded in carrying out two forced landings with total engine failures. The first was in 1962, at RAF Tangmere in the third prototype; the second in 1965, at RAF Thorney Island in the sixth prototype. Both these aircraft were on fire; the first failure was at 3,000 ft and 530 knots, the second at 28,000 ft and Mach 1.13. Hugh's achievement in putting both these aircraft down cannot be adequately described here. Both required the highest degree of flying skill, judgement and courage.

Hugh decided to retire from Hawkers in 1970, having seen, as Chief Test Pilot, the Harrier into RAF service. He saw the fruits of his work, and that of colleagues at Kingston and Dunsfold, in the Falklands campaign, and of course the Harrier remains in service today and will continue well into the future.

May I continue with a quotation from his book. He wrote: "The flight development history of the P.1127 is inevitably slanted towards the matter of problems encountered and overcome. By concentrating on them it is easy to forget the excitement and exhilaration of test flying such a novel aircraft, particularly in its early stages of development; also the technical satisfaction involved. We were extremely lucky to experience this and knew that we were highly dependent on very many dedicated people: the Hawker and Bristol Siddeley Engines design and production teams; the Flight Development Department at Dunsfold with whom we discussed every individual flight, before and after; those in the Experimental Hangar who prepared the aircraft and carefully inspected them before flight; the air traffic controllers who monitored our flights; the firemen who patiently stood by to cover emergencies; plus all manner of other supporters."

It was my privilege to know Hugh for over fifty years; I met his father and mother and several members of the family. I hope the he would approve of what I have said about him - I felt his presence when writing these notes. He used to monitor our joint flight reports insisting on complete accuracy in the text and diagrams. On his visits to the design department at Kingston late in the afternoon, key people knew that his appearance put paid to their early evening departure. During his two years as Chief Test Pilot he continued his total dedication to flight development of the Harrier - when eventually persuaded to go on leave his preparation was last minute and somewhat haphazard for such an organised man.

On retirement his boat took most of his attention, the beloved Nicholson 38, Blue Idyl, which he sailed by stages round the world. His seaman's certificates were all taken in record time, and off he went. The testing of his boat was exhaustive and his initial Biscay crossing took him and his bruised companions to the limits.

Hugh will be remembered with affection and admiration by all who knew him, and his family will take pride in his outstanding career.

SPINNING WITH HUGH

Ambrose Barber was a flight development engineer at Dunsfold when Hugh Mererwether was flying his Hunter spinning programme. Ambrose had a memorable demonstration of Hugh's focused approach to flight testing...

In 1958 the members of Hawkers' project office moved back to the site of Sopwith's WW I factory on the Richmond Road and their attention was beginning to turn to a vectored thrust fighter concept. To meet this ground-breaking testing (literally at times) our select little technical office at Dunsfold would become strengthened and known as the Flight Development Department.

But for the time being Dunsfold had continuation testing to do on the newest Hunters which were now enhanced with wing leading edge extensions. I found myself allocated to the aircraft being used to assess handling characteristics with this mod, such as stick force per 'g', onset of buffet and so on. This included exhaustive spinning programmes, first on the single seat Hunter and then on the two-seater. They covered both erect and inverted spin characteristics and recovery actions which I monitored from the safety of the instrumented telemetry cabin! Here, in R/T contact with Bill Bedford and Hugh, it was fascinating to watch the roll and yaw needles depart in opposite directions when the spin was inverted.

Hugh got so intrigued with his study of inverted spinning that he extended it to the Hawker Tomtit, an elderly open-cockpit biplane once belonging to Neville Duke and in 1958 still kept at Dunsfold. In this he practised inverted spins to his heart's content and eventually demonstrated this demanding and uncomfortable manoeuvre at, I think, a Royal Aeronautical Society garden party later that year. My initial amusement at Hugh's masochism was given a sharp jolt one morning when he breezed into the office saying he would much like to explore the effect on the inverted spin of moving the Tomtit's centre of gravity. Ideally, what he wanted was some man sized ballast strapped into the front cockpit. Everybody looked at me, quietly creasing themselves.

"Parachutes?" I enquired guardedly. "Of course!"

For some reason, which I can't recall, the intercom system in G-AFTA was incomplete to the extent that Hugh could talk to me but I could only reply with sign language. It was a fascinating sortie. If you are not in current practice on inverted spinning, and I certainly never had been, it demands clear headed concentration under the influence of negative 'g' to stay fully attuned to the correct and necessary recovery actions. A mixture of pride and professional curiosity, but mostly, I suspect, the former, induced me to give Hugh, sitting behind me, the thumbs-up each time for yet another one!

Editor's note You can read more of Ambrose's, and others', exploits in 'Tail Ends of the Fifties' compiled by PG Campbell and published by Cirrus Associates, from which the above was extracted.

FASTER, HIGHER, FURTHER

Trevor Jordan, the Kingston Project Office performance evaluation wizard, recounts some little or unknown Hugh Merewether 'records'...

I believe that Hugh Merewether flew the Hunter faster, higher and further than anyone else.

I was personally involved in establishing the first of these milestones. Hugh recounted how, during tailplane load tests at high Mach number in a vertical dive, he had reached an Indicated Mach Number of 1.17 when, to his great surprise, the reading suddenly increased to 1.35 IMN, clearly without any real increase in speed. Consideration of the supersonic flow regime, supported by Schlieren photographs from wind tunnel tests, showed that in these conditions a shock wave spreads laterally from the wing root intake. It passes over the static ports of the port wing tip pressure head causing the static pressure to change from higher-than to lower-than atmospheric pressure, hence the observed jump in IMN. This occurs at 1.25 True Mach Number - FASTER.

When I was talking to Alan Gettings, the Dunsfold Flight Development Engineer covering performance measurement aspects, about Hugh and the above, he recalled reading an Automatic Observer Panel (AOP) film taken during a climb-cruise (a flying technique employed to obtain maximum aircraft range), probably during flight tests connected with increasing the range of the Hunter. He had noted that Hugh had reached an altitude of 52,000 ft - HIGHER

Finally, when doing some reading in connection with these observations, I found, in Frank Mason's book 'Hawker Hunter - Biography of a Thoroughbred' (Patrick Stephens, 1985), an account of non-stop return Hunter flights from Dunsfold to Turin, with 2x230 gallon drop tanks, and Dunsfold to Elba with 2x230 and 2x100 gallon drop tanks. These were followed on 2nd October 1957 by Hugh's proving flight in the latter configuration to El Adm, Libya, stated to be 1,500 nautical miles. However, accurate calculations show the distance to be 1,570 nm. In his 'History of the RAF' Chaz Bower gives the Hunter's range as 1,840 miles (1,600 nm) so the El Adm flight was near the absolute maximum - FURTHER.

Editor's Note. Trevor's article prompted me to do some reading. Roy Braybrook in his splendid book 'Hunter' (Osprey, 1987) states, with reference to Hugh's El Adm flight in XF374: "The straight-line distance is 1,588 nm but Merewether was forced to fly a dog-leg course of 1,609 nm. The flight took 3 hr 24 min and he landed with 450 lb (fuel) remaining. It had been a fairly marginal exercise..." !

MJ Hardy's 'Hawker Hunter Super Profile' (Foulis, 1985) gives the range of the Hunter F.6 as 1,854 miles (1,612 nm) with two 230 Imp gal and two 100 Imp gal drop tanks.

So, whichever way you look at it, Hugh got as far as you can get.

HUGH MEREWETHER AND FLIGHT DEVELOPMENT

The Editor remembers Hugh as a flight testing colleague...

When I joined Flight Development in 1961 Bill Bedford was Chief Test Pilot, Hugh was his deputy, both covering P.1127 experimental flying, with Duncan Simpson and David Lockspeiser concerned mainly with production Hunters. I, as a junior engineer, found Hugh a joy to work with; his verbal post-flight debriefs were clear and concise and he was always quick to come to our office, then in the Production Hangar, as soon as the paper trace instrumentation rolls were developed and dried by John Weeks in the Instrumentation Laboratory in the Experimental Hangar. We would unroll them on our desks and, with cardboard cursors that we had made from the calibrations, read off the data that Hugh was anxious to see: RPM, JPT, control deflections, throttle position, rates, attitudes and so on. He would compare this with his kneepad notes and write the Test Flight Report.

He also wrote the major part of the large reports, each covering a complete phase of test flying, the FRDs (Flight Reports Dunsfold), although Bill usually signed them off as well. It was one of our more demanding and enjoyable tasks to carry out the analysis of the recorded data and prepare for Hugh the graphs and tables that he carefully specified for these reports. He was very particular that the data should be well presented and it went without saying that it should be accurate. Hugh always had time to sit with the flight development engineers and patiently explain analysis methods that people such as me, fresh from university, would still be unfamiliar with.

For some reason Hugh kept the meaning of his initials, HCH, a secret from us in Flight Development for a long time until one day, on a visit to Bedford, I think, he was forced to give his full name, in front of Ambrose Barber, to the security officer - Hugh Christopher Henry he muttered as quietly as possible - but the cat was out of the bag!

Hugh was a charming and reserved man, tall and slim, but physically a rather restless and fidgety person and, when pondering a problem, would rub the back of his head, up and down, with his hand. We both drove to Dunsfold along the A281 so I would often follow him in his blue-grey Jaguar XK150 coupe. He must have used this driving time to think because I would see, through the back window, the hand rubbing the head as he drove along; there was no mistaking Hugh!

FLIGHT TESTING FROM A DESK

Editors note. I had planned for some time to put this piece, written by Eric before his retirement in 1987, in the Winter Newsletter, when, quite by coincidence, I heard from Eric's wife, Pat, that Eric had died earlier this year. Before working for HSA Eric had worked for Armstrong Whitworth, Glosters (where his father was Managing Director), Avros and Follands, as an aerodynamicist and flight test engineer, working on many types including the AW.52, the Gloster Meteor and E1/44, the Avro 707 and Vulcan, and the Folland Midge, Gnat and Gnat Trainer. When HSA took over Follands in 1964, Eric, already at Dunsfold with Follands' flight test department, transferred to the P.1127 programme...

After the conclusion of the Gnat spinning trials at Dunsfold I became involved in vectored thrust in the shape of the Hawker P.1127. I soon became engrossed in the wonders of short take-off (STO) performance measurement and in trying to non-dimensionalise the results. I was also introduced to the longitudinally destabilising effects of the Pegasus engine at high power. When I first measured it I thought that the aircraft should be very difficult to fly but Bill Bedford and Hugh Merewether did not report any problems, the bob weight in the longitudinal control circuit providing ample stick force per g. I was also concerned with rapid rolling trials. All the above testing was carried out using paper trace recorders, the reading of which was very long winded and tedious.

When the P.1154 was cancelled in 1954 there followed a short break from my direct association with aircraft when I worked with computers for two years with Benson-Lehner but returned to flight testing at Dunsfold in 1968 where the Harrier was undergoing development and clearance. The first job I had on my return was to write reports on the handling aspects of the Harrier in eight Acceptance Standard configurations with various combinations of bombs, rockets and combat tanks. The surprising thing about it was the relatively small effect that stores had on the general handling characteristics. This proved to be case throughout the development of all variants.

Intentional spinning did not have to be demonstrated on the Harrier but we had to show that it could be recovered from an unintentional spin. Here we had the advantage of having the use of the Lille spinning tunnel prior to flight trials, and of having Hugh Merewether as the pilot for the majority of the trials. Little more need be said about Hugh's expertise as a pilot and his knowledge of spinning characteristics gained from his experience in the Hunter spinning programme. The Harrier is very spin resistant and during tests it was found that there was a tendency for the engine to surge during spins. With the engine windmilling when shut down post-surge it was discovered that a more sustained spin at higher incidence, a flutter spin, resulted. Hugh therefore chose to carry out the rest of the test programme with the HP cock closed and the engine windmilling. This says a lot for his courage, and his faith in the Pegasus relighting dependability; it did not let him down.

VIFF, vectoring in forward flight, is a capability unique to the Harrier. The test programme added a bit of variety to the run-of-the-mill testing of the Harrier GRMk3.

The two seat Harrier TMk2 followed and one of the highlights, for me anyway, was a twenty-five hour programme on XW175 measuring fin loads during rapid rolling tests and rolling pull-outs in six different stores configurations. Duncan Simpson did most of the flying and it was amazing how well his 'seat of the pants' feeling tied up with the measured fin loads.

Another highlight was a sea trial carried out on G-VTOL, the Company demonstrator Harrier two seater, in 1972. The trial was flown from the Indian Navy carrier, INS Vikrant, off Cochin, to measure take-off performance in 30+ degree C temperatures. I'll never forget John Farley carrying out ten deck take-offs on the first day, and nine on the second, staying in the cockpit between flights. That's stamina for you. Twelve years later we would be testing the Sea Harrier ordered by the Indian Navy.

The story has not finished by any means, the Hawk and the Sea Harrier being my latest jobs. The Hawk first flew in 1974, with Duncan Simpson at the controls, very near the time of the SBAC Show at Farnborough, at which it appeared. The development programme went reasonably smoothly, the wing sprouting some vortex generators and a fence to cure handling problems at both the high and low speeds. Finally the Sea Harrier. I never imagined this would be the third aircraft I'd worked on which would see combat, in its case in the Falklands conflict.

It has been a real challenge to work with pilots of the calibre of Roly Falk, Jan Zurakovski, Ted Tennant, Dick Whittington, Bill Bedford, Hugh Merewether, Duncan Simpson and John Farley and Andy Jones, but one thing I regret is that I have never been able to participate in the actual flying; I was too old by the time I was working on two seaters. During all my years in flight testing I have worked closely with the A&AEE, Boscombe Down, and I must put on record my admiration for their unfailing consideration, and my praise for the high quality of 'A' Squadron pilots and Performance Division.

To sum it all up, things don't seem to change much in respect of the test methods but magnetic tape recorders have replaced the old paper trace machines. It is possible now to use the computer both for reading and plotting the magnetic tape data, and analysis programmes are available to calculate directly, for instance, aircraft stability derivatives and drag. So sophisticated computers do some of our work for us. I say some because if you're not very careful you find you're running out of files to put all the data in!

I think I have lived through the most exciting time in the history of the age of jet propelled aircraft, and wouldn't have missed any of it, and I feel especially proud of the achievements of all the firms for whom I have worked.

Editor's Post Script

At the time of his retirement in September 1987 Eric was in charge of analysis methods and test technique development at Dunsfold utilising the powerful computer systems and digital data recording equipment available to the flight test engineer. He died on 11th May, 2006.

SIR SYDNEY AND SIR GEORGE

The publication of Sir George Edwards's biography ('From Bouncing Bombs to Concorde' by Robert Gardner, published by Sutton) prompted John Crampton to remember an incident at Paris airport...

About forty years ago, could be forty five, I was waiting to fly home from Paris Orly after the Paris Air Show of that year and found myself sitting next to Sir Sydney and Lady Camm in the departure lounge; all quite by chance. I muttered a courteous "Good morning, Sir - Lady Camm", and as we waited I said to Sir Sydney that I thought we'd be flying home in the first Vickers Vanguard to enter service with BEA. That got no more than a "Humpf..." Then we were invited outside to walk to the aeroplane as we did in those days. Half way to the aircraft Sir Sydney suddenly stopped and stared at the shiny new aeroplane in its smart BEA livery. "Come on Sydney", said Lady Camm, "You're holding everyone up", which he was. Sir Sydney stood his ground and stared, glared at the new aircraft. After a few moments he moved on muttering, "Poor old Edwards, 'e 'asn't got it right."

THE FEMALE ANGLE

Brenda Bainbridge gives us some "scribblings over 17 years from a very lowly member of Hawkers"...

I was lucky enough to join Hawkers at, I think, a very exciting time in our history - the War was just over, no more loss of life, we were young and free to go forward. So, I was sent by the then Labour Exchange as a secretarial 'temp' filling in for holidays and sickness, which gave me good and varied experience. I recall several managers: Mr Heasman the Chief Accountant, Mr Humberstone the Buyer, Mr Judge, and there were others whose names have slipped my memory.

A short time after this, Mr Lidbury, who to me was the epitome of a Managing Director - square build, black overcoat, heavy horn rimmed glasses - introduced Eric Rubython, who eventually became Chief Executive, to the Company. With, I think, excellent judgement he concluded that many junior secretaries working for managers at middle level were not fully occupied. He offered me the task of forming a Secretarial/Typing Department where these girls would be under one roof, so to speak, and all work from certain managers, together with work from many departments, would be ferried through me. I could engage staff that I needed. It was quite daunting; I was twenty-five and can clearly recall Eric Rubython's words, "I do not wish to know how you go about it but at the end of the year I expect you to have an up and running department."

You could 'hire and fire' in those days so in time I was able to sort the wheat from the chaff. It was a good training ground with the idea that when a secretarial vacancy occurred a girl, who would already have some working knowledge of the Company, could seek promotion. Financially, too, it was a sound idea saving possible agency fees. I had difficult girls, naturally, who thought they had been demoted and, of course, some managers did not like losing their personal secretaries.

The volume of work was horrendous, remembering that the country was practically broke in the aftermath of the War, and Hawkers were endeavouring to sell aircraft throughout the world. Dates and deadlines had to be kept and, although we were at the lowly end of the ladder, it was my job to keep the pace of turning out work on schedule if humanly possible. Sometimes this was at the cost of upsets and tears, and several girls were unable to stand the pace or the discipline. How many people today can remember ORMIG or stencilling machines? But generally we were a happy band with many laughs. There were several romances with girls marrying members of the Company and I recall going to at least three weddings. I am still in touch with several 'old girls' to this day.

Throughout the years there were so many amusing incidents; but I will recount just one. A very elderly lady implored me to engage her; she had worked for the Diplomatic Corps but had retired and fallen on very hard times. She was totally eccentric in her manner and appearance but a brilliant worker and a great asset, especially with translations, work she shared with a Dutch girl. There were some fifteen typing and checking desks in front of me and one morning, as this lady walked up to me with a query, her 'bloomers', yes, 'bloomers', fell to the ground. The girls were convulsed with laughter but imagine how difficult it was for me to keep a straight face!

Being an all female office we naturally attracted a good deal of interest at Christmas time and one particular Christmas Eve morning my office became stacked with crates of drink. At 12.30, when work stopped, the fun began. On returning after the holiday break I was summoned to the 'Golden Mile' by Eric Rubython who said, in a chilling voice that I can hear to this day, "I understand your office was awash with drink on Christmas Eve. Please see that it does not happen again." Then I was dismissed with a stern reprimand, but responsibility taken. I reminded him of this incident when he kindly invited me to stay with him and Joan in America a few years ago. Eric Rubython was a superb boss. He would always listen to my views and agree or disagree as the case might be, and in the sixteen years I worked for him my respect for and my opinion of him did not alter.

I worked for and with many managers, section leaders and engineers during the years, brilliantly clever men for whom I had respect and liking, and can honestly say with my hand on my heart that I could not have stayed the course, because my job was pressurised and demanding, if I had not had the feeling that we were all pulling together. They were great and memorable times. From those years I could name just two managers who gave me a hard time, both pompous and arrogant little men.

Hawker Aircraft, British Aerospace, call it what you will, gave me the very best seventeen years of my forty years business life.
Editor's note.

Beryl has asked me to correct an error I made in the Camm Headstone article in NL 14. As is clear from the above piece, although Eric Rubython was her boss, she was not actually his secretary; apologies.

A SUMMER'S DAY AT DUNSFOLD

Dick Poole remembers flight test fun in the sun...

It was a hot summer day at Dunsfold in the 1980s and a hose-pipe ban had just been introduced. The Finnish Hawk Mk 51s were to be fitted with a new adaptive anti-skid braking system to improve braking performance on wet and icy runways. The system should have been tested on G-HAWK in the winter when wet runway conditions were readily available but equipment delivery delays resulted in the system being ready for test at this most unsuitable time of the year. Not to be beaten by nature or the ban the stalwart members the Dunsfold Airfield Fire Department were enlisted to wet an area of the runway large enough for an initial test of the system.

The test aircraft, flown by Jim Hawkins, took off and loitered with the undercarriage down to cool the brakes prior to the test landing on the wet runway. Whilst the Hawk was cruising round the firemen took the opportunity to spray more water on the test area. At the same time a Dove communications aircraft that arrived in the overhead was requested to hold until the Hawk had landed. On seeing the activity below a voice from the ether was heard to say, "It'll never grow, you know," to the amusement of all within radio range.

SOPWITH AND GRANVILLE BRADSHAW

Don Williams, author of 'The Great No. 1 Factory at Kingston, Surrey' (see Newsletter Number 6 for review), puts some questions...

One of Sopwith's undoubted strengths was his ability to choose not only reliable members of staff but also business associates. But did he make a mistake with Granville Bradshaw?

Bradshaw's reputation as an engineer, businessman and human has suffered from the freedom of historians to besmirch the deceased, sometimes on flimsy evidence. It has been suggested that, despite Bradshaw's OBE, his apparent acceptability to the Institute of Mechanical Engineers as late as 1945, and the certainty of his many engineering achievements, he was a plausible rogue. However, it is clear that, from 1911 when Sopwith bought a small ABC engine made by Bradshaw at Brooklands, Sopwith and then Harry Hawker held Bradshaw in high regard. This happy relationship must still have been extant in 1920 when the Kingston factory began to make ABC motorcycles. At that time Sopwith had been aware of, and seemingly in at least tacit approval of, Bradshaw's Dragonfly engine for over two years. Yet it is the Dragonfly engine which is cited most often by Bradshaw's detractors.

The prototype Dragonfly, a big twenty-three litre, nine cylinder static radial, was built by Guy Motors of Wolverhampton and the writer, who was employed by Guy Motors when Sidney Guy was still its chief, finds it difficult to believe the Company would willingly have become involved in a project obviously a dud. Yes, in July 1921, it was a Dragonfly that powered the Nieuport Goshawk biplane in which poor Hawker died, but the engine fire which crash witnesses described was due, not to Bradshaw's basic design, but to one of the engine's three carburettors having shed its float chamber. LK Blackmore in his book "Hawker", describing Hawker's last flight does not emphasise Bradshaw's overall responsibility for the engine's bought-out ancillaries, but he seems to have been open to censure.

Did such censure come from Sopwith? Or did Sopwith overlook the carburettor failure and accept that the fire had been blown out in the (intentional?) dive reported and that the aircraft could still have been landed had Hawker not at that moment suffered paralysis of his legs due to the bursting of a long-existing abscess on his spine?

Eighty-five years have passed but only seventeen since Sopwith died, so it is still possible that someone in the Hawker Association has the answer. Two reputations are involved: Sopwith's for his choice of associates, and Bradshaw's already tarnished image. Unlike Sopwith's feelings the subsequent history of the Dragonfly is well documented. It is a story of major modifications, thought worthwhile by other than its designer, and decline in demand for which Bradshaw can hardly be blamed.

HAWKER GRADUATE APPRENTICES

Responding to the Editor's request, Guy Harris looks back to the 1950s and 60s and gives us Part 1 of another perspective on 'life at Hawkers'...

My early years were spent at Abingdon where my father, during the war, was working at the MG Car Company, responsible for building Churchill tanks for the war effort. Our house backed on to fields which in turn were not far from the RAF airfield, so that, at the tender age of four or five, I used to watch Stirlings, Hampdens and other bombers staggering back from operations, often with bits hanging off them. Thus my interest in aircraft was well and truly established and I resolved that when I grew up I would help to build these monsters. In the meantime making model aircraft became a passion and by the early 1950s I had graduated to diesel powered models with a 0.5cc Dart and a 2.0cc ED Competition Special purchased with saved pocket money. For Christmas 1953 I was given the Aeromodeller Annual and an article in it resulted in me buying plans for, and building, a rather smart delta winged model, designed by a young, up and coming aeronautical engineering student. Not until a few years later did his name, John Fozard, mean anything to me!

By January 1957 I was heading for a summer of 'A' Levels to be followed, I hoped, by a university engineering course, and I had applied to both Vickers at Weybridge and Hawkers at Kingston for possible enrolment as a student/graduate apprentice. An interview at Vickers, which included all sorts of mechanical aptitude and psycho-analytical test, and some rather personal interview questions, was followed the next day by a much more informal interview by Len Holton, the Apprentice Supervisor, at the Hawker Apprentice School. I was immediately offered a five year Student Apprenticeship which included three years at university. Hawkers were, of course, building 'proper' aeroplanes (ie fighters) being in the middle of the Hunter programme, and the Hurricane had been one of my favourite balsa wood models, crashed and rebuilt several times; as tough as the real aeroplane. So, although Vickers also offered me a place, there was no contest as far as I was concerned and I replied "yes" to Len's offer.

A Student Apprenticeship with Hawkers involved practical training in the company's various departments during summer vacations and for two years after graduation. Especially significant to me, as a prospective impecunious student, was being 'sponsored' by the Company whilst at university to the tune of £50 per year, doubling my county grant at a stroke. Thus my financial viability for the next three years seemed to be assured and I was eternally grateful to the Company for this generosity.

In July 1957, having finally left school, I arrived at Richmond Road for my first spell in the real world before going up to university. I was sent to the 'Inspection Test Lab' where three months were spent tensile and notch impact testing sample materials, and routine sample testing weld test pieces, micro and macro etching and microscopic examination of these same test pieces; all proving quite useful in the strength of materials course at university where I could show my fellow students a thing or two! Whilst working in this section I was sent on an errand to collect some samples from the 'Research and Development Department', then at the rear of the main factory, and I managed to have a good look at the wooden mock-up of the fearsome P.1121 supersonic strike fighter, at the time under development as a private venture but, alas, soon to be scrapped. It was in the 'Test Lab' that I had my first industrial accident when I was hit in the eye by a piece of stainless steel wire when cutting the tie holding the test pieces together; a lesson painfully learned, fortunately without lasting damage.

I see from my Apprentice Agreement that I was paid the sum of £4/13s/6d for a forty-four hour week. I distinctly remember that my 'digs' that first summer were £4/10s/0d a week, and canteen lunches I seem to recall were heavily subsidised and cost something ridiculous like 4d for a two course meal; so I just about broke even and managed to avoid starvation! One tends to forget how much prices have inflated since those days but these figures help to put into perspective John Glasscock's contract price for the Hawks as related in the Summer 2003 Newsletter.

Training really commenced at the end of the first year at university (salary now £5/12s/9p a week) when I was introduced to the apprentice training workshop in the tin hangar next to the new R&D Department. I forget the name of the Workshop Training Supervisor, (Bill Woodley perhaps?), but I am grateful to him for teaching me to manipulate metal and to make the usual set of apprentice tools, such as G-clamps, a bevel gauge and others that I still have. We 'Student' Apprentices (as opposed to 'Trade' Apprentices) were a bit of a bind to Bill, I think, and not real apprentices in his estimation. However, I like to think that, as I had been using tools with my father since the age of seven so could handle them reasonably well and enjoyed the manual work, after three months Bill came to accept that maybe I had been worth teaching after all - even though I did once break his bandsaw blade, a heinous crime, eagerly anticipated and cheered by the other apprentices in the shop. Occupying the bench in front of me was Alan Boyd and my introduction to him was watching him trying to hacksaw off a half detached pocket from his jeans! Another item of importance learned during this first training period was the Hawker hierarchy of canteens and toilets. There were canteens for hourly paid employees, separate ones for weekly and monthly paid staff, yet another for senior managers and, of course, special dining rooms for the directors. Similar arrangements existed with toilets (and car parks), hourly, weekly and monthly paid, senior managers and presumably gold plated ones for directors; all rather amusing in this supposedly enlightened age.

The summer of 1959 was extraordinarily hot with record temperatures and I spent it down in the 'Machine Shop' at Canbury Park Road, the old Sopwith building with a low tin roof where temperatures soared to well over 100 deg F for several days, with a very humid atmosphere stinking of cutting fluid. Union agreements meant that as a Student Apprentice I was not allowed to touch the lathes and milling machines and was supposed to stand and learn by watching, although different works departments seemed to apply the rule arbitrarily. That, with the high temperatures, nearly drove me insane and after about two weeks of this two of us 'students' went to the shop foreman and suggested that we would learn more by going and sunbathing down by the river. A quiet discussion followed between the foreman and the shop steward and we were given a horrible job milling hundreds of rough alloy forgings into cleats for the Vulcan fuselage sections being built at Kingston. Well, we couldn't very well complain and it kept us quiet, but after the first hundred or so cleats I don't think we learned very much. The only thing that enlivened our time there was when magnesium rings, for the Hunter 230 gallon drop tanks, being machined elsewhere in the shop caught fire on a couple of occasions.

From the 'Machine Shop' we moved to the 'Fitters' and I seem to recall lying inside Vulcan leading edge sections holding the dolly whilst the fitters knocked up the rivets; no ear defenders in those days and probably my partial deafness in later life stems from that time, but it was certainly more fun than the machine shop. The social parts of those days on the shop floor were the official tea-breaks when the canteen girls came round with their trolleys of spicy sausage or cheese rolls and vile tea in five gallon tea urns, quite disgusting stuff. *To be continued.*

VULCAN TO THE SKIES

Karl Wingett-Smith, onetime member of the Installations Department, writes about his current activities...

Nowadays my reincarnation is busy with, amongst other things, Vulcan XH588, struggling to prove how we can make its remaining old systems airworthy. (In some ways I'm relieved that Dick Duffell is retired from the CAA!) Half the time seems to be spent in trying to make them better than they ever were because, with increases in engine power came temperatures higher than some of the materials could stand; and do they show it since we've been daft enough to strip them out for examination after twelve years without use.

Some of the older materials are no longer permitted, asbestos for one, and in other cases the manufacturers have vanished or been swallowed up by commercially minded outfits for whom the past creates no profit, and therefore no interest. Harsh? Maybe, but true in some cases. Where alternative new materials have to be found they need qualification to satisfy BAES and the CAA that they are adequate replacements for those which, in my opinion, weren't up to the job in the first place anyway. That is a marginally more difficult task than getting a military aircraft released for RAF service! After all, nobody wants fifty tons or so of ageing retired 'V' bomber making a forced landing in The Mall next June.

In case there's anyone who doesn't know, XH588 is housed at Bruntingthorpe, near Leicester, and for those of you who, like me, spent time with Handley Page, there's a Victor there, too. It periodically makes taxi runs and it was reported that on one of these, a couple of weeks before the Vulcan roll-out in August, it gave its crew a spectacularly smooth ride; it is said to have lifted off for quite a bit of the runway length.

Note for Harry F-M - I know you've sent me to Coventry for working on the scrap metal from Manchester but at least 'our' aeroplane has beaten it into the air ! Not that anyone from HP could ever be accused of bias.

HAWKER PEOPLE NEWS

We have just learned that Eric Crabbe, Folland and 'Hawker' Dunsfold flight test aerodynamicist, died in May this year. George Bunt, of Systems Engineering, died on 4th November. The Association sends condolences to families and friends.

NEW MEMBERS

We welcome Ian Sandell to the Association.

SUBSCRIPTIONS

Members with overdue subscriptions (at mid November) are in **bold** type below. It's only a fiver to renew! Please send your £5 cheques, payable to the Hawker Association, to Barry Pegram at 12 Becket Wood, Newdigate, Surrey, RH5 5AQ. Go on; do it now! Thank you.

HAWKER ASSOCIATION MEMBERS - NOVEMBER 2006

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