



Air Pilot

JUNE 2019 ISSUE 33





AIR PILOT

THE HONOURABLE
COMPANY OF
AIR PILOTS
incorporating
Air Navigators

PATRON:

His Royal Highness
The Prince Philip
Duke of Edinburgh KG KT

GRAND MASTER:

His Royal Highness
The Prince Andrew
Duke of York KG GCVO

MASTER:

Malcolm G F White OBE

CLERK:

Paul J Tacon BA FCIS

Incorporated by Royal Charter.
A Livery Company of the City of London.

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Diary

JUNE 2019

3rd	Pilot Aptitude Testing	RAF College, Cranwell
13th	GP&F	Air Pilots House (APH)
19th	AST/APT	APH
26th	T&A Committee	APH

JULY 2019

4th	ACEC	APH
15th	Summer Supper	Stationers' Hall
18th	GP&F	APH
18th	Court	Cutlers' Hall

VISITS PROGRAMME

Please see the flyers accompanying this issue of Air Pilot or contact Liveryman David Curgenven at visits@airpilots.org.

These flyers can also be downloaded from the Company's website.

Please check on the Company website for visits that are to be confirmed.

GOLF CLUB EVENTS

Please check on Company website for latest information

Cover photo: A P-38 Lightning, taken by John Daly.

A message from your Editor...

Politicians are very skilled at kicking tricky cans down the road. Problems (and costs) are much better deferred for successors to handle, leaving one's reputation unblemished and budget unthreatened. One such monumental (literally) problem for our legislators has been the overhaul of their place of work. The epic fire at Paris' Notre Dame cathedral was the proverbial shot-across-the-bows for UK MPs, and the Paris episode seems to have injected a new sense of urgency into their deliberations on rehousing. Our DAA considers the aviation implications of Notre Dame in this edition. He goes on to examine aspects of the 737 Max fallout, and I have also included a contribution on this issue by Liveryman Howard Wheeldon.



From the editorial desk it seems that the USA's attitude towards self-regulation has been shown by the 737 Max incident to have gone too far. Other implications may be a re-assessment of the degree of automation on the flight deck, and the degree to which anything is 'hidden' from flight crew. An aspect of this saga which seems so far to have escaped much public scrutiny is the structure of Boeing itself. American corporate structures do differ slightly from those in the UK, however it seems to me that the composition of Boeing's board was particularly egregious. Dennis Muilenburg is Boeing's President, Chairman, and CEO. To hold all three senior positions flies in the face of all current corporate best practice. Who holds such a powerful figure to account?

There has been some comment on what background makes for the ideal head of a large (aero) engineering company – engineer, finance man or marketer. In this context, it is worth noting that Muilenburg is an engineer (holding a bachelor's degree in aerospace engineering and an honorary doctor of science degree from Iowa State University, as well as a master's degree in aeronautics and astronautics from the University of Washington).

As someone with a family heritage in British aircraft design and manufacturing (and who flew for many years from Shorts' spiritual home at Rochester, Kent), I was troubled to read of Bombardier's decision at the beginning of May to sell its aerostructures business (Shorts Aircraft as we know it) in Belfast. Bombardier bought the business in 1989, however the workforce there has already halved over the last five years. It presently makes structures for Airbus. One hopes this vestige of UK aero-engineering skills is sustained.

Paul Smiddy - Editor

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News Round Up

THE NEED FOR APTITUDE ASSESSMENT

In a special report on Training & Development, *Flight Global* recently reported:

“There seemed to be a problem among many new pilots – and even among some who had accumulated some airline experience: they could assimilate enough aviation knowledge to pass exams, but did not understand it well enough to apply it in an operating environment. According to Andy O’Shea, Ryanair head of training and chairman of ATPG, one of the principal factors enabling unsuitable candidates to get through the system on minimum standards, and still end up with a licence, is failure to undergo a pre-course aptitude assessment.”

Not an issue then for those who have undergone our own pre-course assessment.

IS YOUR GARDEN BIG ENOUGH?

And do you want to open it up for public access? The Science Museum is seeking UK partners to publicly display three significant aircraft from its national collection. A Trident, Comet and Constellation are being made available for loan in order to increase access to objects from the Science Museum’s collection for audiences across the UK.



Wing of the Constellation aircraft in storage at the National Collection Centre © The Board of Trustees of the Science Museum

The Hawker Siddeley HS 121 Trident 3B (G-AWZM) was acquired from British Airways in 1986 after flying 22,956 hours, covering nearly 12 million miles since it first flew in 1971. This aircraft is the only complete Trident held in a UK national museum collection.



Tail of the Trident aircraft in storage at the National Collection Centre © The Board of Trustees of the Science Museum

The De Havilland DH 106 Comet 4B (G-APYD) is one of five complete Comet aircraft in the UK and the only one with a full civilian history. This aircraft entered service in 1959, flying 16 million miles and performing 18,586 landings before joining the collection in 1979.



The Lockheed 749 Constellation (N7777G) is the only complete Constellation in the UK. It was flown on KLM's long-haul passenger routes from 1947, before being converted to include freight service and operating from Alaska.



Lockheed 749 'Constellation' serial no. 2553, built September 1947. This Constellation of Trans World Airlines (TWA) is pictured at the Science Museum's Wroughton airfield in Wiltshire.

This aircraft was used by the Rolling Stones during the band's tour of the Far East in 1973, later joining the Science Museum’s collection in 1983.

But hurry – potential UK display partners for the aircraft should apply by 10 June 2019.

GA ADVOCATE

The Department of Transport is currently recruiting a new “champion” for General Aviation to replace former MP Byron Davies. Whilst he was effectively working several days a month on the role of advising the Department on the GA perspective, the new role will only be for 2 days a month, at the princely remuneration of £350 a day. Where the editor lives (in the sticks) one cannot hire a plumber for that!

By way of perspective it is perhaps worth noting that members of the House of Lords currently receive £305 per day, simply for signing in.

HAA

Past Master Rick Peacock -Edwards has handed over the presidency of the Historic Aircraft Association to the former MP and Liveryman Sir Gerald Howarth. Rick moves to Vice-President, and PM Wally Epton remains Chairman.



MAN DOWN, BUT NOT OUT

Upper Freeman Sam Rutherford appears to have been lucky to escape with his life when the Piper Malibu which he was ferrying across the Atlantic crashed into a mountain in North Labrador. According to reports, Sam was not the handling pilot at the time. The handling pilot was killed.

THE ORDER OF ST JOHN



Our Honorary Treasurer, Mr Nicholas Goulding, was recently gazetted as being appointed Commander of the Order of St. John by Her Majesty Queen Elizabeth II, specifically as Commander of the St John of Jerusalem Eye Hospital.

The Most Venerable Order of the Hospital of St John of Jerusalem is a Royal Order of Chivalry first constituted as such by Royal Charter from Queen Victoria in 1888. Currently Queen Elizabeth II is the Sovereign Head of The Order of St John. The St John of Jerusalem Eye Hospital Group, of which Nick is the Treasurer and Secretary, is the only charitable provider of expert eye care in the West Bank, Gaza and East Jerusalem, treating patients regardless of ethnicity, religion or ability to pay.

The Rev Mark Perry was also invited to join the Honourable Order last year, an invitation of which he is rightly proud.

Padre Mark is a Freeman of the Company and, as RAF Chaplain, serves RAF Northolt and the Defence Medical Rehabilitation Centre at Headley Court. The Venerable (Air Vice-Marshal) Jonathan Chaffey CB QHC, Chaplain in Chief of the Royal Air Force, said, "It is a

real pleasure to offer the warmest congratulations of the RAF Chaplains' Branch to Padre Mark Perry on his appointment to the Order of St John."



AIRFIELD UPDATE

Langar (home of the British Parachuting Association) was sold in January 2019 to the owner of Tollerton/Nottingham City Aerodrome. Its 373 acres went for only £3.25 million.

Manston is being examined by the Planning Inspectorate until 9 July 2019. Old Sarum is awaiting the outcome of its appeal to the Planning Inspectorate, due 18th February. Tandridge District Council has recognized Redhill as an important employment site in its draft local plan. Reigate and Banstead Borough Council's proposal for housing on part of the site had been rejected by the Planning Inspectorate because of the high risk of water flooding. Retford/Gamston is earmarked for a Garden Village for 2500 dwellings; public consultation has recently concluded. Wellesbourne is awaiting the outcome of the Appeal by tenants with the Council having earmarked £1.125 million for a CPO. Aylesbury Thame Council has removed Kemble from its plans for housing and endorsed its current use, the Planning Inspectorate having strengthened the wording for aviation.

Colerne has now closed and will be sold in 2031. At Brawdy a proposal for mixed use development has been submitted by the DIO. Halton Airfield is not included in Aylesbury Vale District Council's local plan for development (although the other side of the road is). Chalgrove is in the local plan of South Oxfordshire for housing with a new runway for Martin Baker's operations. (with thanks to AOPA)

Marshall Aerospace announced in May that it would be relocating from its Cambridge Airport site, where it employs 1,200 staff. The parent group, much encouraged by Cambridge's council, intends to redevelop the airport for housing. The Aerospace division is looking at Cranfield, Duxford and Wyton as potential new location. It would appear all those three would require substantial new hangarage to meet Marshall's needs, and Duxford's runway looks a mite too short (1500m vs 1965m at Cambridge).



Happy Eaters - Flying Club lunch

GLIDING SCHOLARSHIP PROGRESS

One of last year's scholars, Kieran Shingler, is now an Air Cadet at 632 Volunteer Gliding Squadron at RAF Tern Hill, and went solo in April.

A NEW COMPANY GLOBE

This globe was presented to the Company by Liveryman Peter Benmax. It represents many of the various types of aircraft/aviation that our members are involved with worldwide and is on display at Air Pilots House.



Ruth Cundy receiving her Freedom of the City prior to her Livery

INTER-LIVERY SHOOTING COMPETITION

Upper Freeman Captain Andy Bunn again ably assembled a team for this annual event which was held at Holland & Holland's shooting grounds near Rickmansworth.

The level of interest is such that the event now has to be held over two days. For the first time ever, the Air Pilots managed to field two teams. Other team members comprised James Alexander, Keith Chandler, Jenny Baker-Carr, David Abrahams, John Price, and the Hon Editor. We came joint 44th and 53rd with

scores of 252 and 236 out of a possible 408. Unsurprisingly the best team was the Gunmakers Court team with a score of 335. As a (former) chartered accountant, it gave the Hon Editor particular pleasure to trounce that Worshipful Company!



*John Price,
Team Captain Andy
Bunn, and David
Abrahams*



Keith Chandler (aka Dead-Eye Dick)



The team at a well-earned lunch



*At the recent Royal Aero Club
Awards, Charlotte Vere (Baroness
Vere, Parliamentary Under-
Secretary for Transport) presents
Liveryman Sebastian Pooley
with a "certificate of
appreciation"*



CLK glass floor

A round up of
the Immediate Past
Master's last
Masterly duties



Tram ride

HongKong Obs



Master's cocktail party on the helipad

*The Master and Chairman at the
Government Flying Services*



Master's Message

By **Malcolm GF White OBE**

To misquote Donald Rumsfeld: there are things we know we know. But there are also the unknowns and the ones we don't know. Well that captures our feelings from the six weeks since I was installed as Master, and V as Mistress. Together we have shared a busy and fulfilling time and we have treasured the warm welcome, advice and support that we have received from so many. Thank you all.

From the start V and I had hoped to be involved in as many activities and events as possible: in short to listen and learn and to represent our Honourable Company. I won't catalogue everything as the list is too long, but our first week started with the Lord Mayor's Dinner for Masters at Mansion House and ended with the United Guilds' Service at St. Paul's Cathedral, followed by a delightful lunch in Stationers' Hall. One week in which we met many Livery colleagues and had to answer the question: "How long have you been Master"? "Five days". Well, as The Master Farmer put it to me: "That makes you the youngest in the room". A welcome compliment as by that stage I was beginning to feel like an OAP – Old Air Pilot. I will come back to that.

An audience with the Grand Master followed. Led by Immediate Past Master Colin Cox, the meeting was both a

privilege and illuminating. Our Grand Master has kindly agreed to open Air Pilots' House formally in September. More detail on that will follow once our Learned Clerk and his team have finished hanging the pictures and sorting the Archive. Air Pilots' House is a splendid place – you should visit as what the team has delivered is special. In slightly more relaxed surroundings we had a lovely day with the Air Pilots' Flying Club at White Waltham where we could enjoy the surroundings of an airfield, and the sight of some splendid aircraft.

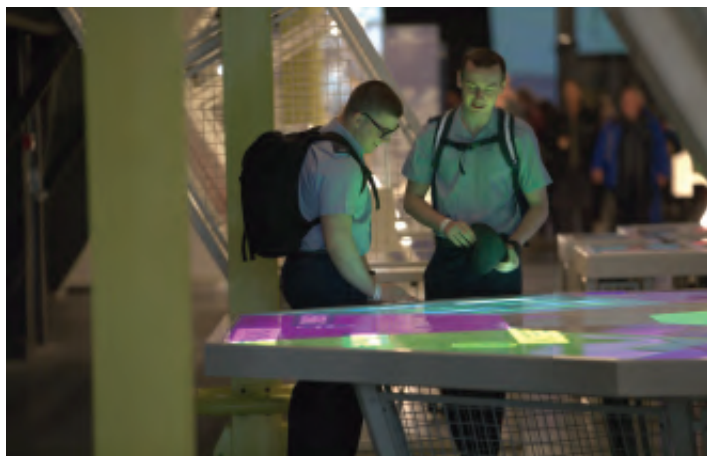
V attended her first Consorts' lunch, which coincidentally was held in the Royal Air Force Club, where she has previous. And while V was holding her Balti and Bubbly lunch, I left to join the Young Aviators' Dinner shared between the Air League and Air Pilots. For me, this was a defining event. And reminded me that one of our roles is to inspire and help enable the next generation to fly. We do this through our bursary and scholarship schemes, and we recognise excellence through our Trophy and Awards Committee which also serves to inspire. But I wonder if we could do more.

The Cobham lecture given by Wing Commander Rob Caine was an outstanding evening. A review of his talk



is to be found elsewhere in this edition. Since the Lecture, Paul Tacon and I have received many messages on the quality of Rob's talk and the vision which he presented on behalf of his team on the way ahead for training military pilots. I will also reflect that Rob commands an affiliated unit – one through which Past Master Roger Gault and I first became engaged with the then Guild. This is a fine example of an active relationship with those responsible for delivering pilots to fly the Typhoon and Lightning II. And to follow up, Air Pilots are due to Visit RAF Valley on the 30th of May.

At our Livery Dinner I offered my thoughts on who we are, what we offer and what we can do. From my



perspective we are both independent yet well informed; we have a wealth of experience in our membership and as a Livery we enjoy a global presence which is probably unique. So let me turn to our Regions. I feel that feedback and input from our Regions is vital as it keeps us aware and informed. The Hong Kong Region has provided a very good report in this edition of Air Pilot which I hope you will read. I encourage each region to do the same in the future.

Equally, our purview is broad, and the business of what we do in the industry of aviation is at the heart of our day to day life. This is perhaps not appreciated by all, but the work of our Head Office, the Director of Aviation Affairs, our committees, and the energy and commitment of all involved is to be applauded. The time taken to arrange visits led by David Curgenvin, events organised by Past Master Chris Ford and the report to us all in our Journal edited so well by Paul Smiddy are but examples.



As I write I look ahead to our visit to HMS Prince of Wales and presenting our Certificate of Affiliation on behalf of the Company. Past Master Tudor Owen, who made it happen, will be there. Then to the 601 Squadron Reception for 50 Livery Companies to be held at The RAF Museum, and in July our own Air Pilots' Livery Visit and lunch. There is much more, but enough is enough. So let me close with some thoughts:

The Company of Air Pilots has a Strategic Plan and works to an in-year business plan. We are in a good financial position; we have our own home, a strong CEO, Secretariat, GP&F, and a broad Court.

Following the Young Aviators' dinner the future of our Young Membership is an area which I would like to explore. Terms like GYM (Guild Young Members); YAP (Young Air Pilots) haven't worked – but this group represent and are members of our Company. And while I am an OAP, I hope to move on and report following our meeting with a few Young Members to be held in June.

Finally, communication, feedback and input are essential in any walk of life. In our case the pathways are through Air Pilots' House, our journal, and more simply by staying in touch. But if you have something specific to convey to me then please e-mail me at master@airpilots.org or write to me at Air Pilots House. I cannot promise an immediate response, but each and every input will add to our understanding, inform the way ahead, and eventually I will reply!

"Our Way is by the Heavens'," we are a modern, relevant and an active Livery. We embrace private, commercial, military flying and the unmanned community; and I suggest that space could be next? So together we should endeavour to continue to address the challenges and opportunities ahead, just as we have in the past.

Closing question: If a school leaver can secure a Government loan to attend university, then why not offer the same to those who seek to learn to pilot (and navigate) aircraft?

It is a privilege to represent our Company as your Master and Mistress. Thank you.



From the Desk of the Director Aviation Affairs

Liveryman John Turner

SAFETY LESSONS?

The recent fire and destruction of significant parts of Notre Dame reminded me of a similar fire in 1984 at York Minster. Reportedly, the Notre Dame fire was started by an electrical short-circuit near ongoing restoration work; the cause of the York Minister fire was never positively established but an electrical fault was one of the possibilities. In 1992, Windsor Castle was extensively damaged by a fire that was electrical in origin, except that this time experts examining its art work pressed a spotlight up against a 30 feet (90 metre) high curtain, starting a fire, which quickly spread and affected 100 rooms including a major part of the State Apartments.

What has this to do with aviation? Were the lessons from the fire in York Minster reported and shared to help others keep their ancient buildings safe? Was 1992 too early for people to consider Risk Assessing before embarking on an 'out of the ordinary' activity?

We may not be able to claim that aviation is always an exemplar of learning, sharing and remembering, but we do strive for continuous safety improvement; a well-run Safety Management Systems supports the questioning and re-examination of what was previously considered ("we've always done it this way") safe to achieve just that result. Apart from the regulators, many organisations, including in UK the Flight Safety Committee, British Air Display Association, Historic Aircraft Association, Light Aircraft Association and the General Aviation Safety Council work hard to spread the lessons from others' experience. Regulation of commercial aviation imposes a mandatory framework of pilot initial and on-going training and assessment; most areas of commercial aviation also have an enviably low accident rate. In contrast, General Aviation safety evenings, seminars and symposia are usually voluntary and there

is some suspicion that the people who are most need of the learning on offer are precisely those that do not attend. Perhaps flight safety refresher training should be mandatory for all pilots, not just an 'optional extra'?

DRONES

On the day after Easter, The Times¹ reported that the UK will help to pre-position drones across the world, so that they are ready to respond to humanitarian disasters. The next day, Fortune Magazine² reported that Wing Aviation (an offshoot of Google) had been granted air carrier certification for commercial drone flights in advance of starting drone deliveries in mountainous southwest Virginia, USA; local elected officials were said to be "very excited to be the birthplace of drone delivery in the United States." The day after that, UPI reported³ that a small white drone at Raleigh's WakeMed Hospital in North Carolina, USA was daily delivering samples, including blood, between the hospital's surgical centre and the primary testing lab on campus; eventually, they hope to transport life-saving products like blood to more rural locations. Once associated almost exclusively with war-fighting and destruction, the drone is now perceived increasingly as a tool that assists in both emergency and domestic situations. (WakeMed Hospital's drone flights are conducted in collaboration with United Parcel Service).

For commercial drone operations, as with manned aviation, we might expect the regulatory framework (and commercial and legal pressures) to sustain high levels of safety. How can the enormous number of private drone fliers be helped or persuaded to do the same? The learning of lessons from previous accidents (and remembering those lessons as they fade into history) sits at the heart of flight safety programmes. The UK Air Accident Investigation Branch (AAIB), have been investigating

accidents to un-manned air systems (UAS) of over 150 kg since 2015. Now, having been informed of 36 drone accidents since February 2015, they have announced⁴ they will also investigate accidents to smaller UAS in order to:

- Increase AAIB knowledge of UAS, to help it prepare for an accident involving a serious injury, fatality or a serious mid-air collision.
- Allow AAIB to identify possible trends that might inform the regulations, change operational restrictions or training requirements.
- Enable AAIB to inform UAS manufacturers of potential design issues.

Unlike regulators and manufacturers, the AAIB can conduct wholly independent investigations, make their findings public and make safety recommendations intended to prevent recurrence. AAIB also uses its own small UAS to survey aircraft (and UAS) crash sites.

TECHNICAL COMMITTEE UPDATE

Our Technical Committee receives reports from many other committees and continues to cover the following far-ranging Working Group activities:

- True North Heading Reference (to explore and promote the safety benefits of global aviation converting to TRUE heading reference)
- Human Factors – Fatigue (to explore and highlight the shortfalls in regulation and fatigue risk management implementation)
- Addressing 'skill fade' – a low-cost Skill-Refresher (to examine the potential benefits of a tool to quickly and simply refresh instrument scanning and monitoring skills)
- UK Flight Instructors
- GNSS Spoofing (to examine GNSS signal denial/spoofing evidence and the potential to certify technical solutions to sustain short term navigation accuracy during GNSS outage)

At the next meeting on May 21st we aim to focus specifically on two subjects:

- Airspace. To include airport availability and airspace access, as well as our

response to a UK CAA call for evidence on 'Electronic Conspicuity'⁵ and a Department of Transport consultation on 'Aviation 2050 – the future of UK aviation'⁶.

- Drones. To include agenda includes airports, drone pilot licencing /registration, FAA approval of commercial BVLS approvals as well as

'Airmanship & the Drone operator'. As so often find in aviation, there is some overlap, if not interdependency, of these two areas!

Progressing the 'Airmanship and the Drone operator' topic is likely to be a major challenge. To the optimistic, it may also be an opportunity for The Air Pilots to assist pilots of all persuasions towards

to a common understanding of how we improve safety in the aviation environment to the benefit of everyone, whether pilot, passenger or over-flown.

FULL CIRCLE

That brings us back to the earlier point; what can we do to encourage everyone to attend flight safety training/refreshers?

¹ Drone fleet will be sent to save lives in disaster zones. The Times – April 22 2019, 12:01pm – Kate Devlin, Chief Political correspondent. <https://www.thetimes.co.uk/article/drone-fleet-will-be-sent-to-save-lives-in-disaster-zones-d8gdl29ps?shareToken=0ad29e74338dc0e481fe3d61e4154419>

² Google Offshoot's Drones Get the FAA's Go-Ahead to Make Local Deliveries. Fortune magazine – April 23 2019 – Alan Levin and Bloomberg. <http://fortune.com/2019/04/23/google-delivery-drones/>

³ N.C. hospital delivering blood with drones in pioneering medical program. UPI US News – April 24 2019 6:25pm – Daniel Uria. https://www.upi.com/Top_News/US/2019/04/24/NC-hospital-delivering-blood-with-drones-in-pioneering-medical-program/9951555887212/

⁴ Air Accidents Investigation Branch – Annual Safety Review 2018 – published 18 April 2019. <https://www.gov.uk/aaib-reports/annual-safety-review-2018>

⁵ <https://consultations.caa.co.uk/corporate-communications/e-conspicuity-solutions/>

⁶ <https://www.gov.uk/government/consultations/aviation-2050-the-future-of-uk-aviation>

GAZETTE

APPROVED BY THE COURT 16 MAY 2019

ADMISSIONS

As Upper Freeman

Harry APIAFI
Henry Adriaan DE BEER (HK)
Ameen Dagher Fahad BUDAGHER (OS)
Justin William Scott HART (HK)
Samantha Joanne LEWIS (HK)
Andrew MIZZI (HK)
Tiku Vivak Prunal PATIDAR (HK)
Jeremy Russell ROBERTSON (AUS)
William Min VOIGT (HK)
Dominic ZOLTOWSKI

As Freeman

John Robin Maxwell HORE
Ronald Albert HUME (NA)
Steven Frederick JOHNSON (AUS)

As Associate

Christian Michael BRINI (AUS)
Sze Long CHAN (AUS)
Regan Ash CHRISTOPHER (AUS)
Robert CLARK
Chantal DIDENKO (AUS)
Callum John Karl HODGSON (AUS)
Angelo LAPETINA (OS)
Kin Wing LO (AUS)
Lai Hong TSE (AUS)
Samuel James TURNER

REINSTATEMENT

As Upper Freeman

Frank Hamilton ROACH (NZ)

As Associate

Ben ROURKE

ACKNOWLEDGED BY THE COURT

16 MAY 2019

REGRADE

To Livery

Christine Anne McGEE
Anthony Francis CRILLY
Zoë Catriona Alice GELL

As Upper Freeman

Glen Anthony ROSS (NZ)

DECEASED

John BURLEY (NA)
Denis BURRELL
Basil MARSHALL
Alan JAMES (AUS)

RESIGNATIONS

Christopher ADAMS
Mike BECKER (AUS)
David BENNETT (NZ)

John DENNIS (AUS)
Ben DURNFORD (AUS)
Khalid HANNA BASHARA (OS)
Edwin KWONG (HK)
Hogan LOH (HK)
Kenneth LYNDON-DYKES
Paul MORGAN (AUS)
Matthew MUIR (NZ)
Kirk MYERS
Peter PRASS (HK)
Arild RAMBERG (OS)
Peter RICHARDSON
Karl VETTE (HK)
Peter VACHER
James WIEBE (HK)
Richard YATES (AUS)
Owen ZUPP (AUS)

FORFEIT ALL BENEFITS

Robert BENTATA
William DE BRUYN (OS)
Yasmeen FRAIDDOON (OS)
Lee McCONNELL
Douglas MOULE
David NOTT
Steven POZERSKIS
Simon THOMPSON
Barry WALDRON (OS)

The 2019 Livery Dinner

By the Editor

We were blessed, again, to hold this at the magnificent Drapers Hall. The new Liverymen stood to be acclaimed, but there was a special round of applause for our very own Ruth Cundy; a terrific and very public way of our being able to thank her for her many years of service to the Company.

Warden Legat introduced the guests. These included: HRH Prince Michael of Kent KCVO, Sir Roger Bone, (President of the Air League), Phil Hagon (Master Security Professional and 33 years a policeman with the Met, rising to the rank of commander), Col John Bryant of the Army Air Corps (ex Commandant of the Army Aviation Centre at Middle Wallop), Prof David Johnson (Immediate Past Master Engineer), Prof Jonathan Cooper (newly elected President of the RAEs), Captain Stephen Moorhouse (Commanding Officer of HMS Prince of Wales, but recently, and at very short notice, to be shifted to HMS Queen Elizabeth), Col Lee Wingfield (Air Attaché at the US Embassy in London), Sqn Ldr (formerly Air Cdre) Ken McCann (OC ULAS, in the company of two of his Acting Pilot Officers) and Wg Cdr Colin Gale (OC London Wing Air Cadets).

After a typically sumptuous dinner, Grace was sung by most, mumbled by a few; the Loving Cup did the rounds. The Master, Air Commodore Malcolm White, then

told us of his recent visit to HMS Prince of Wales (all 7 decks of her), and gave thanks to Stephen Moorhouse for that visit.

Having invited his former boss, Air Chief Marshal Sir Richard Johns, Malcolm was clearly still somewhat in awe of the former CAS, and hoped that the inevitable debrief would include coffee this time, even if hats were absent. He went on to recall the first Livery Dinner he attended: flying a Harrier aircraft into London City Airport, changing there into his mess kit, and flying back to Laarbruch the following day. Difficult to imagine that happening today!

The core of the Master's speech was that aviation is a global industry which seeks to deliver: the security of our country, through air defence; facilitates the global reach for British businesses; and provides "fun for all of us" in enabling us to explore the planet. He noted that the global demand for pilots is huge – 80,000 over the next decade. To facilitate this he believed the Air Pilots need to play our part in democratizing both flight deck and support roles. *"We need a coalition to take children from the class room to flying and supporting aircraft in the skies. And this needs determination, energy and ultimately money."*

Introducing our guest speaker, Maggie Appleton MBE, he noted that her father was an armourer on the Lancaster in

WWII. Following her appointment as CEO of the RAF Museum, Maggie has become a welcome member of our Honourable Company. Maggie and her Museum team often create and witness that moment when a child is inspired to fly. *"The Museum helps to light that match, which then ignites a fire."*

He proposed the toast – "Inspire to Fly" Maggie took the floor, and kept the audience rapt as she outlined the history and progress of her museums (remember that there is the Cosford site in addition to the one at the former RAF Hendon). The London site opened its major transformation to mark the Centenary of the RAF in 2018 with a new emphasis on storytelling and engagement.

With over 25 years' experience in the museums and cultural sector, it was clear that Maggie, a social historian by training, is passionate about the difference that museums can make to people's lives.

She pondered how a museum – albeit one of the UK's national museums and the RAF's museum to boot – could be really relevant for the gathering of forward thinking, technologically advanced company of air pilots gathered here this evening? *"For me though, museums are places of inspiration, places where our curiosity is inspired and where we can learn and have the space to question and challenge. Museums can be a powerful force for*

The Clerk tells about-to-be Liverymen the rules of the game



The Master, Past Master and Wardens ahead of the clothing ceremony





The Beadle clothes Ruth Cundy



The Master congratulates Major Taliku on receiving his MAP certificate



The Master with the new Liverymen



The Master with the new MAP holders

good; one of the few organisations that still hold the public trust in these times of fake news – and they have the power to change lives.”

The organisation welcomed just short of 1m people to the two museums last year as they marked the Centenary of the RAF (up 39% on the previous year), but this is viewed as a baseline, setting firm foundations for the future. But note that a staggering 3m Londoners visited the first ever airshow at Hendon. She noted that c 70% of visitors today have no connection with the RAF – they “walk through our doors for a good day out”.

“Rather than wringing our hands because they don’t understand us – or appreciate us as deeply as (we feel) they ought to, we see that as a massive opportunity to connect the general public into our vision and story through interaction and discussion. Through engaging

in our museum, from our pre-school little swift’s activity sessions, to hands on, immersive interactivity for everyone who enters our space.”

The two museums clearly have a key role in extending STEM outreach with a military aviation slant – with a side benefit of stimulating inter-generational communication. “We plan work across all our young persons’ platforms in the next ten years – work experience, youth forums and apprenticeships – to extend this love of learning while developing a major intergenerational programme to foster learning and understanding between the large numbers of retired aerospace workers in the W Midlands.”

Perhaps risking Company members emptying the contents of their attics, and dispatching the assortment of memorabilia (in some eyes, rubbish in



The Master (with the Immediate Past Master) greets ACM Sir Richard Johns



The US Air Attaché explains the nuances of US military strategy to Su Ingle

others perhaps!) in her direction, Maggie noted “We need to fill a today’s shaped hole in our collection”. That day, two of her team were at RAF Akrotiri to witness and record the first operational deployment of the F35.

She fervently believes that museums are connected and are relevant to all of us: “we do reflect on the past, but for most of us the point of that reflection is to inform the present and help us ponder on future opportunities and solutions.”

In this respect The RAF Museum and this Honourable Company of Air Pilots are joined at the hip. “Your Master has

used the words – “onwards and upwards” but more recently has reduced this to “crack on”. I agree – we should crack on, and we should do it together and in partnership with others.”

She concluded in proposing a toast to ‘The Honourable Company of Air Pilots, may it flourish root and branch for ever’. Stirrup cups were then downed and another successful Livery Dinner was concluded.

The Sisterhood congratulate Ruth



Carol Cooper keeps PM Hugh Field amused

HRH Prince Michael of Kent in conversation with PM Dorothy Saul-Pooley



Assistants Chris Palmer and John Denyer congratulate new Liveryman Zoe Gell

New liveryman Iain Murning in full tartan fig



Early History of the Guild in Australia

By Liveryman Ron Austin

The then Guild started activities in Australia in 1968. During his trips to London, Jim Cowan, a navigator with Qantas, who was a Guild member, initiated discussions on the possibility of forming an overseas branch of the Guild in Australia. He met the Learned Clerk for an exploratory meeting at the Naval and Military Club in Melbourne. Attending this Dinner were representatives of Australia’s domestic airlines. These comprised Captains Frank Fisher, Don Winch, Ken Fox and “Dusty” Lane, together with myself as a representative of the Pilots Union.

The case to establish the Branch was presented by Jim Cowan and his proposal was supported by the Clerk. By the end of the dinner, primed with good food

and wine, the Australians had formed themselves into a steering committee, and planned a recruiting drive.

Once established, the administration for the Branch was moved to Sydney. There were many reasons for this decision. Qantas had offered us use of their facilities and many Qantas pilots and navigators were already members in the UK. The many details of this initial project could be discussed live at the London office. As we grew in numbers, we later appreciated the advantage of this close friendship in having our copies of the Guild Magazine “safe handed” by the crews to Sydney.

The committee increased in size, and responsibilities allocated, particularly the role of arranging our social events in all

States. These social events were the glue which bound the Aussies together – at that time in the early 70’s we had concessional travel interstate for lunches and dinners. We also had our own colonial version of the “garden party” held at country aerodromes with all manner of now vintage aircraft flown in to share.

The Branch ran at full steam for many years but inevitably, with the effect of members aging and the withdrawal of airline concessional travel, the membership is difficult to maintain.

We are lucky that enthusiasts spread widely across the nation continue to uphold the Honourable Company’s good name within our industry.

The Jon Egging Trust Ball

By Assistant Richie Piper

There cannot be a much better place for aviators to dine than under the wings of Concorde. Such an opportunity occurred on Friday 8th March in support of the Jon Egging Trust (JET) at their Celebration and Fundraising Dinner. The Chairman of JET, Liveryman Keith Baldwin, invited Warden John Towell with his wife Linda, and (then) Liveryman Richie Piper accompanied by Gill, to join him at the event.

Concorde G-BOAF, aircraft number 216 and known as the Last Concorde, is now housed in a purpose-built venue after being sat outside for so long after its final flight. Aerospace Bristol truly provides a memorial experience to preserve the magic of Concorde for future generations whilst providing special locations for events. Alpha Fox will be known to many members of the Air Pilots, especially those who signed the interior panel after it's last flight.

The Jon Egging Trust was set up in 2012 in memory of Red Arrows pilot Jon Egging (Red 4) who tragically lost his life on 20th August 2011 whilst completing a display at the Bournemouth Air Festival. His widow Dr Emma Egging and mother Dawn were determined to realise his dream of helping young people facing difficulties

in life to overcome adversity, identify their strengths and work towards their ambitions. The Trust helps to build their confidence and aspirations, developing life and work skills; enabling them to be the best they can be.

JET has great support from the RAF and utilises their resources to challenge and improve the lives of young people that go through the programme. The Red Arrows play a key part of that support together with many other RAF units and locations, together with numerous corporate partners working in 8 regions throughout the UK. All partners, both military and civilian have the invaluable support of more than 500 volunteers, and together they helped 10,000 children last year. An impressive achievement when you consider that in the first year the Trust started with just 10 young people in Lincolnshire!

The evening started by being greeted by CEO Emma and Chairman Keith before looking inside Concorde Alpha Fox. There was then a champagne reception sponsored by BAe Systems under the aircraft before Mike Ling (Lingy), one of the longest serving members of the Red Arrows, called us to dinner. Lingy is well known as being Red 10 for many years and called back to be Red 3 last year.



Cobham were the main sponsor of the dinner and Lingy (who joined the Air Pilots last year) was due to be sitting with us on our table but such was the call on his time as MC, he had to grab a bite on the go whilst ensuring all ran smoothly. However, we were privileged to sit with Jon's mother Dawn and brother Luke to share a very enjoyable evening.

The use of continually varying lighting (including red runway centre lights) with the tables set out under Concorde's impressive structure is rather special. This was enhanced by being amongst people who were part of Jon's career and carry on his desire to help others. Good food and company added to the occasion, with the chance to catch up with many

Richard & Gill Piper with John & Linda Towell



friends. The auctions were well supported with Lingy extracting the maximum cash in his inimitable style. The evening raised an impressive £20,000 towards the charity.

Patron Air Marshall Stu Atha formally kicked off the dinner and welcomed guests explaining the importance of the Trusts work and the need for further support. Underlining the commitment of the RAF, Chief of the Air Staff, Air Chief Marshal Sir Stephen Hillier presented the team award to NATS, which was collected by Jem Dunn, Director of

Airports for NATS. As a demonstration of the effectiveness of JET's work, a Blue Skies 3 student and JET Youth Ambassador both called Josh who admitted to troubled pasts, spoke eloquently of what they gained from JET - no mean feat for a youngster to address 293 people! Squadron Leader Martin Pert, Red 1 and leader of the Red Arrows, spoke about their long standing involvement with the trust. JET Youth Ambassador Josh introduced the nominations for the volunteer of the year awards, with Cobham Executive VP and



retired senior RAF commander Air Marshal Greg Bagwell, presenting the Volunteer Award to FS Davison and Sgt Picken. Dr Emma Egging spoke of the achievements of JET this year and ambitions for the future and including the news of a new Patron for JET, Air Vice Marshal Harv Smyth making an impressive trio with Stu Atha and Professor Brian Cox.

Harv Smyth adds a further connection to the Air Pilots as he was OC IV(Army Cooperation) Squadron (one of our Affiliated units) and Jon was a QFI on his squadron. It was Jon's first tour on the Harrier but he had previously conducted a 'creamie' tour as an Instructor, and so very quickly got up to speed on the front line. They flew together extensively as a pair whilst on Operation Herrick in Afghanistan, operating from Kandahar Air Base from Dec 2008 to May 2009 - Jon and Harv flew multiple missions together over the Helmand Valley where they conducted danger-close Close Air Support on a near daily basis to protect and save ground troops' lives (mostly British, but also Danish, Canadian and American). Harv also flew with Jon onboard HMS Illustrious (another Air Pilots Affiliated unit) as part of the squadron's requalification for carrier operations, and one of his abiding memories of Jon was watching him land a Harrier perfectly on the deck despite the North Sea being a rather feisty sea state 5.

Finally at 1.00 am a rather special event in aid of a very special cause ended.



The Trust's work explained



Visit to RAF Marham

Home of the Lightning Force 3rd April 2019

Liveryman Group Captain Tom Eeles

The last time I spent any time at RAF Marham was way back in 1971, when I brought in a Buccaneer to be on display as part of a Royal Visit by Her Royal Highness Princess Margaret. Fast forward now to 2019 and fifty members of the Honourable Company were privileged to visit RAF Marham, the home of the joint RAF/RN F35 Lightning Force on 3rd April. We were directed to park on arrival in the 'Black Top Car Park', perversely a green field, and make our way up to the Community Centre, where we were welcomed by the indefatigable Warrant Officer Mo Howard, the Station Engagement Officer, who was to be our guide and escort throughout the day. As soon as all stragglers had been rounded up the Station Commander, Group Captain Ian Townsend, gave an introductory talk focussing on recent activity and developments at Marham and in the RAF as a whole. He observed that it was an exciting and challenging time, with the RAF investing in many new platforms such as F35 and growing quickly. Nevertheless, with the Service's overall personnel numbers capped and with the smallest ever number of combat air squadrons there were difficult challenges to be faced. The last two years at Marham had seen the transition from Tornado GR4 to Lightning F35B. This

was the first time a front line aircraft had been taken out of service whilst still engaged actively on deployed war fighting against a determined enemy since World War 2. Despite the inevitable turbulence 96% of those personnel moving on were able to move to their preferred new role. He enthused about the F35, with its sensor fusion capability and its low observable qualities. He remarked that it flew every day and all the systems worked as advertised. It also contained a very significant UK industrial input with its ejection seat, weapons and lift fan technology. He believed it to be the most capable combat air system anywhere in the world. He outlined the involvement of the Royal Navy, which he described as very much a harmonious team effort. For example, the current commanding officer of 617 Squadron, Wing Commander John Bucher, would in due course be replaced by a Royal Navy Commander, and a similar arrangement would take place when 809 NAS reformed as the second front line squadron. He noted that 617 Squadron was expected to embark on HMS Queen Elizabeth for the first time in October this year.

He handed over to Warrant Officer Mo Howard, who outlined the enormous amount of activity that was taking place

at Marham. To prepare for F35 one of the 5 1930s vintage hangars had been demolished (no mean task) to make way for the F35 maintenance facility building and another was soon destined to go the same way. A new F35 Lightning Operations Centre had been constructed, sadly taking up some of the Station's golf course, the secondary runway had been returned to full use, Vertical Landing Pads were being constructed and the main runway had been resurfaced and its significant midway hump removed. New buildings to house 617 Squadron and the Operational Conversion Unit were under construction and work on the Integrated Training Centre had been completed and this was now being utilised. On the personnel side, with 3500 in uniform, 1200 contractors and 5000 dependants Marham's strength was 8% of the RAF's total. The Station was one of Norfolk's largest employers, dispensing £102m a year in wages and contributing £250k a year to charity. Industrial partners on site included BAE Systems, Rolls Royce, Lockheed Martin and Pratt and Whitney.

The Tornado force, consisting finally of 9 and 31 Squadrons, had formally stood down only three days before our visit, so the only front line squadron at Marham

WO Howard describes the Victor gate guardian's history



An F35b in STOVL mode





WO Howard describing the F35's amazing capabilities

was 617. The F35's weapons currently included Paveway 4 Precision Guided Munition, ASRAAM, AMRAAM and soon the Meteor AAM and Spear 3, a long range PGM that gave enhanced capability over current weapon systems. There are a number of other units based at Marham in addition to the Lightning Force, No 2 ISR Squadron consisted of intelligence analysts, 93 Expeditionary Armament Squadron was responsible for storage, generation and deployment of high readiness weapons for the whole of the RAF, the RAF Regiment was represented by HQ 3 Force Protection Wing and 2620 Squadron RAux AF Ops Support squadron.

On conclusion of these initial briefings the party split into two groups, one visiting the Station's Aviation Heritage Centre and the other taking a bus tour around the extensive site to see the new infrastructure. The Heritage Centre, located in the redundant Roman Catholic church building and managed by a group of retired RAF volunteers, is outside the security perimeter and open to the public. It features a comprehensive display of photographs, artefacts and memorabilia covering the history of RAF Marham, from its first use as an airfield in 1916 as a base for RFC anti Zeppelin patrols right up to the present day. It was developed as a major bomber base in the 1930s, it was used extensively

by Bomber Command throughout WW2 and continued after the war as a base for the RAF's Boeing B29 Washingtons. The Valiant and Victor V bombers were based here, both types being re-roled as AAR tankers. The Tornado arrived in 1982 and the majority of the displays and artefacts reflected its service at Marham. The Station crest, featuring a blue bull, signifies aggressive deterrence. The colour blue was chosen to commemorate the RAF's first nuclear weapon, carried by the Valiant, known as Blue Danube.

Both groups rejoined for lunch in the Officers' Mess, where Liveryman David Curvengen formally thanked the Station Commander for allowing us to visit and presented him with a cheque for the Station's charities. We then moved on to look at the F35B Lightning in close detail. After leaving car key fobs, mobile phones, ipads, Apple watches, cameras and pace makers in the coach we were taken to the brand new maintenance building which was as clean and sparkling as a hospital operating theatre, where six F35s were inside. It is only when you get close that you realise how big and high off the ground the F35 is. Lieutenant Commander Andrew Hogg, 617 Squadron's Executive Officer, assisted by one of the other 617 Squadron aircrew who was one of the squadron's four first tourists, showed us

around. There is no sign of a traditional instrument, not even an E2 compass, in the fairly compact all glass cockpit. The lack of a HUD is surprising until you realise that all information relating to aircraft operation is displayed in the helmet. Look down between your feet and you see the world outside, not the cockpit floor. The helmet, which is individually tailored for each pilot, originally cost in the region of £1/2m, but the cost has now reduced to around £385k. Not an item to be dropped by mistake on the hardstanding or flight deck after getting out from a sweaty sortie. The F35 has a large weapons bay from which most weapons can be released, but there is a facility to carry stores on wing pylons. There was no sign of any of these on the six aircraft. Our first tourist was asked how long it had taken to reach his first squadron. He admitted to seven years after graduating from officer training, a far cry from the 13 months it took your correspondent (but I was taught to fly during officer training). We came away with the impression that the F35 is indeed a most impressive war plane with phenomenal capabilities but an eye watering price. When asked about the make up of the total buy of 138 F35s, we were told that 40 of the STOVL (B variant) model had so far been bought, but no decision was yet known as to whether the rest would be B models or possibly the conventional A model used by the USAF.

After leaving the building the party split again to tour the site and visit the Heritage Centre. It was obvious on the tour that a huge investment is being made in impressively modern infrastructure to support the F35, with much construction work still continuing. To someone used to walking out to his jet in whatever weather it was intriguing to see the roofed, open shelters for aircraft, somewhat similar to rural bus shelters, which were being constructed for everyday operations. The Integrated Training Centre is complete and the Operational Conversion Unit complex looked to be nearly complete. Some of



The Station Commander welcomes the Company

the hardened operations buildings (PBFs) had been demolished, no easy task as they were designed not to be. The contractor had to devise a new method involving injection of chemicals into the structure to decompose the building from inside. We also passed the old Cold War relic of the Special Storage Area for nuclear weapons, guarded by a double perimeter fence, numerous alarm systems and at the time housed thirty armed RAF Police. Now no longer in use it is likely to be developed into something more useful for the 21st century. Nearby was the new Lightning Operations Centre for the F35, recently opened by Her Majesty the Queen. Evident on the route were signs of the Tornado GR4's departure from active service in the shape of RB199 turbo fans and Tornado drop tanks that



An F35b at RLAT

were awaiting disposal.

Was there any F35 flying going on? Yes, we heard a lot of jet noise during various times on the visit and we saw one getting airborne that afternoon as we gathered at the Victor and Tornado Gate Guardians just prior to departure. When asked how much live flying the aircrew were getting, we were told that this was about 10 hours a month, which given the early phase of the aircraft's introduction to service seems quite good. Much work is clearly done in the synthetic training devices and simulators, there being no escape from 'the box' even when on deployment, as there will be transportable synthetic training devices that will go with the squadrons.

In summary, this was a truly fascinating

and impressive visit. It was wonderful to see the enthusiasm of all involved with the F35, clearly it is a world leader in combat air and it puts the RAF and RN at the forefront of offensive, low observable war fighting capability. The Company's grateful thanks go to the Station Commander and his team for allowing us such a valuable insight into this brand new defence system. It was also particularly gratifying for your correspondent to find that three of the senior staff at Marham had once been his students, the Station Commander on his basic flying training course at Linton on Ouse in 1993, and OC Engineering Wing and OC 9 Squadron from my days as an instructor on Cambridge University Air Squadron.

The F35A version in conventional flight



The 2019 Cobham Lecture

Cognitive Fighter Pilot Training for the Next Generation

Given by Wg Cdr Rob Caine, OC IV(R) Sqn, RAF Valley

By the Editor, Photos via Wg Cdr Caine

Rob outlined the objectives of 4 FTS (which also includes his sister squadron, XXV) “to deliver world leading fighter pilots when the front line wants and needs them”. The ambitions of the leaders in Anglesey could scarcely be higher – for Valley to become the “Oxford or Cambridge” of fighter pilot training. Rob’s credentials for his current role could scarcely be improved upon – GR1 at Bruggen, through to GR4 OCU QFI, CWI at 19 Sqn, and project pilot on the Hawk T2, and so on.

Rob made it quite clear that producing aircrew fit for fifth generation fighters such as the F35 requires a somewhat more cerebral approach to instructing than of old. This starts with a more individual approach to each student (a cynic might say current course sizes make this somewhat easier!). The aim is to “provide problems in a tactical environment that our students can learn from”. The increased use of psychometric exercises, and the psychology of learning which has been an increasing focus of work at CFS in recent years (ask Warden Goodwyn for details) has resulted in the development of cognitive teaching styles to develop “elite meta cognitive skills”. 4FTS has also recently begun to work with the Elite Performance School at nearby Bangor University; the EPS has some prestigious clients including English Cricket and the British Lions. Together with the espousal of some of Dave Brailsford’s incremental approach to improvements at Team Sky, it leaves 4 FTS at the forefront of flying skills training.

The old style of the Military Flying Training System left a big gap in piloting skills developed on the analogue Tucano and Hawk T1, from which students struggled at the Typhoon OCU. It took



Valley is also used by the Reds mainly for the use of its sims, and was the scene of the Red's crash in March 2018

12-16 months to bring them up to fast jet standards. Under the new MFTS structure the Hawk T2 cockpit has been designed to replicate that of the Typhoon. With that slightly wicked grin familiar to RAF students of all eras, Rob noted that in the T2 he can “max out students (and instructors) on a regular basis”. The student can be immersed in a simulated war picture in his cockpit, whether that be in a sim, or a flying airframe. By the end of the IV(AC) Sqn element, the students are capable of detecting and engaging airborne threats, carrying out Air Interdiction missions and conducting Close Air Support. All this whilst operating as a pair and being pitted against modern adversary systems. Courses are currently running at around 6 students of whom one or two will be from overseas air forces. It was made quite clear that no slack was cut for the latter just because English was not their native tongue. Students have 100 hours

of flying time, supplemented by another 100 in synthetic trainers. As Company members who have been on previous visits to the Moran Building at Valley can attest, these allow students to become immersed in multi-aircraft war scenarios with ease. Like the Typhoon the T2 is very much a HOTAS aircraft and its use will quickly become second nature on the course.

Rob stressed that much of the value of a training sortie derives from the debrief. The T2 and the Valley facilities allow for a much more extended debrief, such that these ‘Generation Y’ students are now showing their mission videos, warts and all, to each other to benefit from their mistakes. We were treated to a short video that showed an ACM training sortie go very wrong! In Rob’s view he and XXV Sqn now “essentially do also the first half of the Typhoon OCU syllabus” – taking a load off the staff on 29 Sqn at Coningsby, where resources, I

gather, are much strained.

There are 28 Hawks for the 40 instructors and 42 students – with 230 engineers to support them. The number of the latter is increasing, implying that serviceability is an issue, and it is clear that more airframes are needed. Hence one course has been despatched to 100 Sqn at RAF Leeming to carry out its studies on the Hawk T1. This squadron's primary role is aggressor operations in combat training, and also the development of Army or Air Force JTACs. That this sub-optimal solution has become necessary is a testament to the stress on airframe numbers at Valley. Rob underlined that students deployed to Leeming are in the top decile of their cohort – creamies or skimmies in RAF parlance.

Valley, as many pilots will attest, provides ever-changing and testing weather – Rob views this as an asset. He looks to increase the number of QFIs on his complement, and has begun to see his 'feeder aircraft' – the Texan – in the circuit at Valley. When its graduates begin to arrive at IV Sqn Rob believes the course will be able to be shortened by c 10% (due primarily to students' familiarity with glass cockpits).

In a short Q&A session Rob averred that he believed that 4FTS was up there at the top of global fighter pilot training academies, with the Israelis as the team to beat. The average age of his students – on arrival at Valley – is 26, which shows some of the strains of holding periods for trainees within MFTS currently.

Whilst inevitably some of the terminology will have left some of our guests from other Companies gasping, Rob's talk was superbly delivered and very interesting. It whetted the appetites of Company members present for our visit to Valley on May 29th. Let us hope the rather spectacular storm clouds shown in one of Rob's slides have disappeared by then!

Valley's Hawk T2s in action



A regional report from Hong Kong

By HK Regional Vice Chairman - Captain Pat Voigt

Following our March 2018 AGM, which saw the election of Captain Locky Lawford as Chairman, the Hong Kong Region has undergone an extremely successful root and branch overhaul. This began with a review and subsequent rationalisation of our membership and financial status, swiftly spreading to re-engagement with various local government agencies, an expansion of our Youth Flying Scholarship Scheme to provide broader youth involvement and a dramatic increase in social events.

With some additions and a realignment of his General Committee, Locky has overseen a much re-energised team, which has enthusiastically thrown itself into the various sub-sections of our Region.

By the time of publication, primarily as a result of this enthusiasm, accompanied by a desire to strengthen our membership with like-minded pilots, we have seen an unprecedented forty plus new members join our region since March 2018. This commendable figure represents in excess of a tenfold increase over previous years. There are a significant number of younger pilots within these new members, which bodes well for the future of our Region. The calibre of many new members is extremely high, including an ex-Royal Australian Navy/Air Force test pilot and recently retired base training captain, also both Cathay Pacific Chief Pilots and several senior corporate jet captains.

The first year of Locky's tenure saw our social events increase dramatically, with twelve being held overall. Our revamped social team is headed by Captain Michael Dreghorn, and it has worked hard to ensure that a good proportion of events are specifically aimed at our new joiners and younger members. As a result, the membership has had the opportunity to enjoy several cocktail parties, a BBQ, a Tram party, two Bremont watch events, a fully catered box at the Jockey Club for horse racing, and two formal dinners, which leads nicely onto a brief mention

of the previous Master, Captain Colin Cox's Annual Visit to our region in November.

The Master's Visit proved to be very timely, since it allowed us to further strengthen our connections with the Civil Aviation Department (CAD), the Hong Kong Observatory (HKO) and the Government Flying Service (GFS). On that note, we must state that as a region we are justifiably proud that the 2018 Prince Philip Helicopter Rescue Award was presented to the Hong Government Flying Service at the T&A banquet in London last October. With his input and diplomacy during the visits to these three establishments, the Master, and indeed his Mistress, certainly earned the right to relax as our guests at our varied social events.

Our newly formed Technical & Safety team is headed by Ms. Valerie Stait, who as well as being a Senior First Officer with Cathay Pacific has recently gained a Master's Degree in Aviation Human Factors, making her ideally suited to this role. She has already found herself forging ties with the CAD but is also working closely with other safety related bodies within the Asia region.

A significant sub-section of our region is the Youth Flying Scholarship Scheme (YFS), headed by Chairman Jeremy

Russel, which through donations and external sponsorship provides the opportunity for two candidates to receive twenty hours powered flying experience annually. Well over two thousand applications are received, with a rigorous and lengthy selection process undergone to identify the two strongest candidates. The 2018 successful cadets, Darling Li and Will Lee, have recently undertaken their training in Scotland and this year's selection process has just been completed.

An innovative programme to expand our youth involvement is currently being designed. This will encompass a wide range of workshops and lectures intended to teach such disciplines as interview technique, social interaction, personal attire and presentation, which in turn will be of use to the attendees both within and outside the aviation field. Whilst somewhat still in the embryonic stage, a regional section of the Young Members is also under development.

In conclusion, the Hong Region has sustained a thorough spring-clean, which has strengthened it immeasurably. Accompanied by the motivation and enthusiasm of both the GC and all members, our region is in a very healthy position and with the increasingly younger demographic, has great potential to flourish root and branch for the foreseeable future and beyond.

Darwing Li and Will Lee during their YFS cadetships at Tayside



Ethiopian Airlines 737-MAX Crash

Testing the certification process

By Liveryman Howard Wheeldon

With Boeing having now confirmed that it has completed the development of software fixes to the 737 MAX automated flight control system that the Chicago-based company says “will ensure that accidents like these will never happen again”, it is clear that remains a long way to go before this latest version of Boeing’s best-selling narrow bodied airplane will be allowed back into the skies.

Having also been found wanting in the original certification process, the US Federal Aviation Authority (FAA) will tread very carefully through the necessary re-certification process required for the Boeing ‘fix’. The company will have its work cut out over the coming months restoring lost confidence of airlines and pilots. 737 Max pilots will need further training in respect of the proposed software fix, and the ability to override the MCAS system in an emergency. Perhaps the largest job of all will be restoring confidence of the flying public that that the 737 Max is now safe to fly. The task ahead of restoring confidence in the 737 Max airplane is clearly a formidable one, and there can, despite the effort that will be put in by the

company, be no guarantee of absolute success. That Boeing has been humbled and that in hindsight, the FAA failed in its duty of care as regulator through the original certification process and immediately following the Ethiopian crash, is also unarguable.

It is rare for an aircraft type to be grounded almost immediately following a crash or specific incident but in the case of Ethiopian Airlines Flight 302 that crashed on the 10th March killing all 157 people on board it was quickly apparent to a number of global aviation regulators that grounding the plane was necessary. Sadly, this was not immediately apparent to the FAA.

With evidence quickly pointing to either malfunction or software issues relating to the MCAS (Manoeuvring Characteristics Augmentation System) and for which Boeing was already engaged in designing a fix, it didn’t take long for social media to work out that the fault that caused the Ethiopian airlines flight bore similar characteristics to that of a Lion Air 737-MAX crash in Indonesia last November that killed 189 people. Thus, grounding the aircraft was not just an option but one that was

absolutely necessary. And while the FAA initially disagreed with fellow regulators within days, following pressure from the Senate and even from President Trump, it fell into line with other global regulators. At the time of writing all 737-MAX aircraft delivered to global airline fleets remain grounded and look set to remain that way for maybe the next three to four months, or at least until regulators can be satisfied not only that the aircraft is safe to fly following completion of the proposed software fix on all 737 Max aircraft manufactured so far, but also that pilots are content and that they have received the necessary additional training that Boeing will provide.

Boeing’s proposed software solution to the anti-stall MCAS system is based on ensuring that, before the system can be automatically activated, information provided by both AoA sensors MUST be in agreement with each other, and also that pilots would in any event be able to automatically override the system by pulling hard on the stick.

Preliminary detail provided by air accident investigators examining black box data from the Ethiopian Air 737-MAX plane suggests that the MCAS system appeared to have been automatically switched on because of information received from just one of the two AoA sensors fitted on each aircraft.

Boeing emphasises that there was always an option to override MCAS, both electrically or manually, through pilots flipping switches in the cockpit, however it appears that in the case of both Flight 302 and the earlier Lion Air 737-MAX crash, either because the aircraft lacked optional safety warning features, or 737 Max pilots employed by both airlines had not been made aware that they could override MCAS, they were unable to pull back on the control column to bring the nose up.

Boeing has already given evidence relating to MCAS to a Congressional hearing looking into safety aspects of the 737-MAX and how the certification process was carried out. Even before having received official data that might explain the crash of the second Boeing



737-MAX airplane in the space of six months, European Union Aviation Safety Agency (EASA) regulators together with those from the Civil Aviation Administration in China were the first to order a grounding of the 737-MAX on the grounds that they were merely following normal procedure. Such a move, unprecedented as it was, quickly proved to be the correct course of action. Other air safety regulators including Canadian, Australian, Indonesian, Singaporean and United Arab Emirates quickly followed and as previously alluded, these should have raised loud alarm bells rather a lot faster with the Federal Aviation Authority (FAA) than they actually did. The initial FAA stance was based on a proposition that with no official grounds, information or data available, grounding all Boeing 737-MAX planes was premature.

In hindsight, it is reasonable to assume that the initial FAA view allowing the 737-MAX plane to continue flying was a very bad mistake exposing the regulator as it did, not only to social, print and broadcast media frenzy and ridicule but also to anger, disbelief and finally, condemnation from the US Government itself.

With confidence in the FAA having fallen to a new low and in the weeks and months ahead, with the regulator needing to face big questions on the increasingly serious issue of how it conducted the 737-MAX certification process I suspect that what will emerge from this will be a major stepping up of rules governing the certification process for all new airplanes. Airlines and passengers alike will rightly welcome this if the process that governed the 737 MAX is deemed to have failed.

By the time the FAA finally reluctantly agreed to ban the all 737-MAX variants some 387 of the planes had been delivered to a total 59 global airline operators.

The clock in relation to airline costs and aircraft grounding has been ticking ever since, and with Boeing announcing an initial first quarter \$1 billion of costs relating to the 737 MAX issue, a

considerable fall in both revenue and earnings, and having abandoned the traditional revenue and earnings guidance given to analysts for the year ahead, we may expect more sizable cost elements to be added as the year progresses.

Over the past few weeks Boeing has seen billions of dollars wiped from its shares as analysts weighed this potentially huge cost of the two separate accidents, the grounding of the type and the potential loss of confidence, possible cancellation of orders by airlines that currently have in excess of 5,000 737-MAX airplanes on order, I sense that whilst initial reputational damage and the cost burden will huge, Boeing will survive this crisis intact.

True, while it is pleasing that the company has the relevant software fixes required, the ultimate cost of the two tragic 737 MAX crashes on Boeing remains to be seen. Law suits are almost bound to follow and the cost to airlines that have been forced to put already delivered aircraft into store or whose aircraft will be seriously delayed is, at this stage, all but impossible to even speculate. With 74 737-MAX aircraft having been delivered to US airlines, it is welcome that Boeing has confirmed a software fix solution which, according to the company, will take around an hour to retrofit on each aircraft, but that should not be taken as a belief that 737 MAX aircraft will be flying again anytime soon, as I suspect industry regulators will require much additional process to ensure that the proposed solution will ensure incidents such as this never occur again.

In respect of possible future order cancellations I am less concerned than some, believing that while the company will be pressurised to answer some serious questions, I do not envisage many airlines will seek to walk away for the 737 MAX. So far only one airline has talked of cancelling orders. Citing lost confidence by passengers, the Indonesian airline Garuda indicated that it may well seek to cancel the remaining 49 737-MAX planes from an order for 50 jets that are still on order with Boeing.

Truth be told, order cancellations following serious aircraft accidents and groundings are extremely rare, and while the grounding by the FAA of the McDonnell Douglas DC-10 aircraft in 1979 following a crash may well have had some impact on future sales, the impact of several crashes involving Boeing 727 planes in the 1960's had little impact on sales.

Changing orders midstream is a hugely costly affair for both airline and aircraft manufacturer alike. Having already paid handsome deposits at the time of ordering on heavily discounted list prices and also made specific agreements with the aircraft manufacturer in respect of layout and passenger related systems requirements, it takes a lot to cancel an aircraft order. Also, there are huge implications on the airlines themselves having geared up for training, technical support and maintenance costs and particularly in relation to engines.

Editor's note: An earlier version of this article first appeared in Aerospace magazine, and this version is reproduced here with the kind permission of its editor, Tim Robinson.



The 57th meeting of the Air Pilots Lunch Club

The Westland Wasp – its development and history

by Wing Commander (rtd), Dr. Terry Martin

By the Editor

Major Domo PM Chris Ford destroyed his gavel (again!) in bringing the rabble assembled in the Sovereign's Room to order. We were all admonished that in future bookings for lunch must be made in advance. It's a good job he had no cane to hand...

Our speaker today had a particularly interesting background. After qualifying as a doctor Terry spent 7 years in RAF soon specialising in aeromedical patient transfers. Thereafter he served sixteen years in the RAF Reserves, whilst developing a career as a consultant anaesthetist in A&E medicine. Unsurprisingly with this background he was one of the first trauma specialists to be involved in the emergence of helimed facilities in the UK, particularly in the South West region. Having been a qualified pilot throughout this time, he became stung with affection for the Westland Wasp, the subject of his talk.

And so to the Wasp – the naval version of the Westland Scout. It was developed to operate off the terrifyingly small flight deck at the rear of a Leander Class frigate. His description of the pilot role of a Royal New Zealand Navy example in winter would not have secured any volunteers from the audience. The flight

deck of the Tribal class was even more cramped.

Terry went back through the archives of helicopter development starting with the Cierva type 611 as flown by the famous Bert Hinkler at Hamble in 1927. Avro provided the fuselages, which were sent to the then-beautiful Old Sarum. Cierva was subsumed into Saunders-Roe (Saro), and in 1951 the piston-engined Skeeter was developed, of which the British Army boldly ordered 64. The development of the Wasp/Scout was started as a private venture in 1957; its first flight (with a Nimbus engine) was in 1959, when Westland acquired Saro. An original PS31 version had suckers on the skids to prevent slippage across decks. In the event the Navy went for long oleos and a canted wheel system ("it can take all sorts of punishment").

On Armistice Day 1953 the first Wasp flight was formed for HMS Leander, and by 1968 22 warships were so equipped. Its role was ASW as a MATCH (Medium range Anti-sub Torpedo carrying Helicopter), whose operations were directed by radar guidance from a Wessex or Sea King. The aircraft were then modified to carry the Nord AS12M air to surface wire-guided missiles. It offered

a payload of 225 kgs. Carriage of a nuclear torpedo meant solo operation, and all extras stripped to save weight, giving an endurance of 2 hours or so.

Terry took some pride in recounting the part a Wasp played in the destruction of the Argentinian submarine, Santa Fe, at Grytviken in the Falklands War. The audience was left in no doubt of Terry's all-embracing knowledge of the Wasp's military history. He now owns XT787, which was born in January 1967. It had endured relatively few hours in its military career, until Terry acquired it in 2012. It is now one of four Wasps with current C of As. Terry flies it on the UK display circuit, although its direct operating costs gave some aircraft owners in the audience indigestion.

Terry's talk was tailed by some reminiscences from Mike Ginn, who had been in the audience. Mike, who graduated from Cranwell in 1956, was at one time senior TP at Boscombe Down on helicopters, and had been much involved in Wasp development.

An unusual and interesting talk from Terry, who survived some arm-twisting at the end from our Master into why he was not (yet) a member of the Company.



A window on British history - a visit by members to the Old Bailey

By Assistant **Richie Piper**

One of the pleasures of being an Air Pilot is the interesting places we get a chance to visit. This includes historic locations in London as part of our Livery status. The Old Bailey is such a location, being owned and managed by City of London Corporation. Whilst the public can queue and visit trials, they do not have the access with which we were provided. One particular difference is that the public are not allowed to take any electronic devices into the building but as guests entering via the Lord Mayor's entrance, we were allowed to keep our phones. However, there is a very important condition, no photos are allowed to be taken in the Courts or cells. The penalty for transgressing can be up to 2 years in prison. As you would expect of pilots, our group obtained a clearance that it was OK to take photos wherever we went when outside the Courts and cells!

Our host for the visit was Sheriff Liz Green, one of the two Sheriffs, and being the non-Aldermanic Sheriff, is not the one that may go on to be Lord Mayor. Liz provided a warm welcome to our group of 23 people and together with her assistant Nick, provided a very informative and enjoyable tour around the Old Bailey. After going through airport-style security checks, we gathered in the City Lands Room for tea and coffee. Liz introduced the role of Sheriff and the process of election, encouraging all Liveryman to exercise their right to attend the shrieval election, which is held as close to 24th June as possible.

Liz explained the role of Sherriff - to support the Lord Mayor including attending functions in their stead and, in particular, look after Her Majesty's Judges at the Old Bailey. This includes hosting Judges at lunch together with other guests. This duty often means staying overnight at the Old Bailey. Liz commented that this sometimes means she is the only person in the Old Bailey but with the security measures, it is never

a concern. Liz had never seen any ghosts but further research has revealed there is said to be an Old Bailey ghost, which appears when travesties of justice occur. The black-cloaked figure is believed to be the spirit of a man who was wrongly accused of being a highwayman, who was hanged and buried in lime on the site where the court now stands. We hope Liz continues to be undisturbed!

Liz is a keen supporter and promoter of Livery companies, being a third-generation member of the Worshipful Company of Framework Knitters. Her mother was also Master of the Worshipful Company of Farmers thus meaning they were the first mother and daughter to both be Master of a City Livery Company. The insight Liz's work at the Old Bailey has given her means she also keen to support causes aiding those less fortunate. I recommend looking at her Twitter feed (@LizGreenWCFK).

We then started the tour down the corridor with the Sheriff's office and accommodation to the Judges Dining Room for further explanations and a group photo.

Many have heard of the Old Bailey but perhaps don't know its current status and history. The location has long been a site of prisons, and scenes of trials and executions. These executions proved a major public attraction drawing crowds of over 20,000 and the wealthy used to book rooms in the Magpie and Stump pub to get a better view. In 1807, 28 people were crushed to death after a pie-seller's stall overturned. A secret tunnel was subsequently created between the prison and St Sepulchre's church opposite, to allow the chaplain to minister to the condemned man without having to force his way through the crowds. In 1868 public hangings were abolished due to civil unrest.

The Old Bailey is actually officially the Central Criminal Court, the name it gained in 1834. However it is popularly known as the Old Bailey from the road it



Great Hall with scripture

sits on, which comes from the fact it follows the line of the City of London's fortified wall (or bailey). Earlier in the day a fellow Liveryman had kindly invited me to a lunch held by the Pickwick Bicycle Club. This is the oldest bicycle club in the world and was formed in 1870 when Charles Dickens was publishing Pickwick Papers in weekly instalments in newspapers, and the club adopted this as a theme. Charles Dickens was a junior reporter at the Old Bailey early in his career, and the tales he heard sometimes inspired his own fiction. This included a report of convicted thief Thomas Knight, deported to New South Wales, who then returned to England — just like Magwitch in Great Expectations.

The present Old Bailey building dates from 1902 but it was officially opened on 27 February 1907. It was designed by E. W. Mountford and built on the site of the infamous Newgate Prison, which was demolished to allow the court buildings to be constructed. King Edward VII opened the courthouse and a lift was installed for his use. However he walked up the main steps with the rest of the party.

Between 1968 and 1972, a new South Block was built to accommodate more modern courts. There are presently 18 courts in use. Court 19 is now used variously as a press overflow facility, as a registration room for first-day jurors or as a holding area for serving jurors. Liz explained that the layout of the newer Courts was more suitable for modern trials than the older Courts, which with their listed status, means they cannot be adapted.

The Old Bailey is a very busy place with 2,500 people passing through each day including judges, jurors, lawyers, press,

staff and court attendees (and presumably prisoners – Ed!). To get the people to the right place and time, especially those held in the cells to the correct court is quite an undertaking. A butlers system of buttons and lights helps the process in the corridors under the Courts.

Court No 1 is perhaps the most famous courtroom in the land and has seen the trials of Dr Crippen, the Yorkshire Ripper, and the Notting Hill necrophiliac John Christie, as well as the Nazi propagandist William – “Lord Haw-Haw” – Joyce. The infamous Kray twins also appeared when Ronnie cheerfully told the judge, “If I wasn’t here, I could be having tea with Judy Garland.” The Jeremy Thorpe trial was a major draw in No1 Court, where special measures had to be taken to cope with press demand for places. Jeremy Thorpe used to bring his own cushion to sit on when attending Court.

When we visited, No 1 Court was set up for the London Bridge attack inquest. Due to the amount of CCTV evidence, this has meant a lot of technical equipment had been installed including large TV screens to review evidence. This was a sobering reminder of the serious and sensitive work of the Old Bailey. No2 Court is used for high security trials such as those of terrorists.

Liz also explained that the central Judges seat is reserved for the Lord Mayor and only they can sit there. The Judges therefore use a seat to one side when they are presiding.

An architectural highlight was visiting the Great Hall featuring marble pillars, paintings, statues and lunettes depicting various scenes, monarchs and those who have been important in the development of the law. The famous dome echoes that

of nearby St Pauls and is surmounted by the 22 ton Lady Justice who, unlike other similar statues, is not blindfolded to represent blind justice. The view of the inside of the dome with the rest of the Great Hall is stunning.

It is here that a plaque commemorates a trial from which the principle of jurors giving a verdict according to their convictions was established. In this trial, the jury would not follow the Judge’s direction to convict Penn and Mead of preaching to an unlawful assembly. Even after imprisoning the jury for two days without food and water, they still would not comply. The judge had to accept their verdict but fined the jury in any case. A court case by one of the jurors Edward Bushell followed, and this resulted in the jury being allowed to vote with their conscience, which is the fundamental part of the Rule of Law.

The newer part of the Old Bailey is more workmanlike and 70s in style. It had just opened when in 1973 an IRA car bomb exploded killing one person and injuring over 200 people. Above one of the arches a shard of glass, embedded over 6 inches in the wall, acts as a reminder of this cowardly attack.

Entering Court 5 allowed Liz to explain how the layout works more effectively. The witness box provides a more effective way for anonymity to be preserved with screens so that only the judge, lawyers and jurors can see the witness. The defendant’s box or “bar” is also more secure with Perspex screens creating a box to protect the Court. This is not so in the older Courts like No 1 where building listing prevents higher safety screens. On one occasion a defendant managed to hurl the water jug at the Judge – achieving a rather

impressive hit at a range of over 20 feet!

After the cells were cleared, defendants being taken to other locations overnight, and a small delay for a staff briefing, we descended to the cells ourselves. We first viewed the remains of a Roman wall with the old foundations of Newgate prison on top. There are many sites where Roman remains can be viewed in this area including a nearby Roman house in the basement of a 1970s office block. The River Fleet can also be viewed from a manhole in the boiler room.

The cells themselves are very sombre and functional with bolted down furniture in the interview rooms, where lawyers meet with clients, and just a bench in the cells. The presence of many “Affray” buttons to call for assistance was a further reminder of the sober business of the Old Bailey. We were cautioned to not close the cell doors as the keys to release us are not kept onsite and there would be a considerable delay to effect our rescue!

At the conclusion of the visit, the Master, Malcom White, warmly thanked Sheriff Liz for an enlightening and privileged visit to the Old Bailey. Past Master Chris Spurrier also handed Liz a donation to the Sheriffs’ & Recorder’s Fund. In true Air Pilots fashion, the party then retired to a local restaurant for supper and much fellowship. May I thank PM Chris Ford for arranging the visit, PM Chris Spurrier for coordinating things on the day and especially Sheriff Liz Green for her hospitality and kindness.

Group in the Judge's dining room



Sheriff Liz explaining in the Great Hall



Inside the famous dome.



Book Review

The British Overseas Airways Corporation - a history

By Graham M. Simons *Airworld*, 2019

Reviewed by the Editor



Managing an airline in the period covered by this book (the Thirties through to the Seventies) was broadly like riding a unicorn on steroids – few comparators to guide your way, and all the while cresting the wave of technological innovation. As a guide to the pace of change, although both were bombers, the first flight of the Vulcan was only eight years after the first flight of the Lancaster! BOAC, morphing from Imperial Airways and mutating into British Airways, was habitually the British flag carrier; hence the theme of this book is the fractious inter-relationship between management and the UK government of the time. Procurement decisions invariably had to pass through the elongated alimentary tract of various Whitehall departments, and it is little wonder that BOAC was frequently severely disadvantaged relative to international competitors, particularly the North American airlines. Who operated on a more standalone, commercial basis.

The book starts with the airline

encumbered with clearly inadequate equipment such as the Tudor – British manufacturers had to focus on design and development of bombers to the detriment of evolving post-war airliner designs for far longer than their US rivals. Then BOAC was hampered by the febrile post-war political situation at home, and its potential market continued to be adversely affected by the shrinking of the British Empire.

When more modern equipment such as the Britannia finally arrived, we are given a frightening exposition of its arrival into service, with flame-outs a major worry for pilots and passengers alike. Simons goes on to give an extensive exposition of the merits of the Comet, particularly in Mk 4 form. Whilst the later VC10 garnered a great deal of affection from both pilots and passengers, the author sets out firstly why its procurement was disastrous, and secondly why it did not harvest wider commercial success. He is similarly clinical in detailing the account of the protracted Anglo-French negotiations regarding the development

of Concorde. The recent anniversary of its first flight has stimulated some rather rose-tinted views about this admittedly stupendously beautiful (and mould-breaking) aircraft. But Simons sets out why it was never destined to be a commercial success, particularly after all nations save the UK and France shied away from buying it, and proceeded to ban overland supersonic flight; with rising fuel costs being the final nail in its coffin.

One of the strengths of this book is the fabulous illustrations. Many are credited to the author himself; the remainder are credited to no-one at all – most strange. The text is authoritative, but at the expense of being far too long. The pace is laboured, press releases and official documents are quoted in their entirety (why?). A full passenger list is given of the first commercial Comet passenger flight, for goodness' sake! Accident reports are quoted with too much extraneous info. Typos are commonplace (c. 1 per page): overall, editing seems an afterthought.

The sources are too often Hansard and annual reports. Financial information from the latter are described in a way that does not sit easily with a 21st C non-financial person. Overall the author chooses detail without prioritising the salient information – there are too many trees, and the wood has become invisible. The tone of the book is unrelentingly bone dry: there is not a single first person narrative story in it – a massive missed opportunity, particularly given that many ex-BOAC employees would have been available for interview.

In conclusion, useful as a book of record, but hard work.

