April 2025 ISSUE 68

AIR PILOT

INSIDE

COURT ELECTIONS
GETTING INTO A FLAP
SEEKING JUST CULTURE

THE HONOURABLE COMPANY OF AIR PILOTS
incorporating Air Navigators

PATRON:
His Majesty The King

MASTER:
John Denyer Esq BSc(Hons) FInstP FRAeS

CLERK:
Paul J Tacon BA FCIS

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

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DIARY

Applications for Visits and Events
Details and application forms for Company events and visits are now available only online – either on the website or via links in the electronic newsletter and events bulletins.

APRIL 2025

6th	APFC Freddie Stringer Lunch	White Waltham
10th	GP&F	APH
13th	APFC Start of Season Lunch	White Waltham
23rd	Luncheon Club	RAF Club
23rd	Cobham Lecture	RAF Club
29th	ACEC	APH

MAY 2025

8th	GP&F	APH
8th	Court	Cutlers' Hall
22nd	Livery Dinner	Drapers' Hall

JUNE 2025

12th	GP&F	APH
12th	New Members Briefing	APH
21st	Master's Garden Party	East Worldham, Hants
25th	T&A Committee	APH

Cover photos: Republic P-47 Thunderbolt at Sywell, photographed by Associate Tilly Watts; Ornithopter testing Canada (James Delaurier)

Guidelines for submissions to *Air Pilot*
Please submit contributions as follows:
- Text in word document, including your name below the title of the piece;
- Photos as separate attachments, not embedded in emails;
- All images to be sent as jpeg files with a file size of at least 2MB;
- Attachments totalling more than 15MB to be sent via WeTransfer only.

A MESSAGE FROM YOUR EDITOR...

In February, several airlines had to divert services between Australia and New Zealand because the Chinese navy was discovered to be conducting unannounced live-firing exercises in the international waters of the Tasman Sea. Under international law there is nothing to prevent any navy from carrying out such exercises in international waters – even within a country's economic exclusion zone as the Chinese were, close to Australia. Nor is there any apparent requirement, other than that of polite custom, to notify nearby countries and those operating the sea and air links between them of the nature, timing or extent of those exercises.

In the same month, military and civilian operators were avoiding potential falling-debris zones under the paths of space launches from Space-X's Texas site, and with good reason, after one of the launchers failed and broke up. The added peril there is that the danger zone for debris in question, if it has come from a spacecraft which veered from its planned trajectory before accidentally or deliberately experiencing unpremeditated explosive dismantling, may be widespread and unpredictable. The chances of such disruption are increasing dramatically with the exponential increase in the numbers of space craft being launched by commercial operators such as Starlink, which are putting constellations consisting of thousands of satellites into orbit each year.

There is a clear responsibility on operators, civilian and military, to take all reasonable steps to avoid exposing their customers and personnel to predictable danger. There is, too, a moral responsibility on those countries or corporations launching trials weapons or spacecraft to avoid placing others in avoidable danger – but is there also a responsibility on them to minimise inconvenience to others as well? If an airline faces extra costs (including those of compensating its passengers) because it has to delay, cancel or re-route a service as a result of the choices made by another commercial entity, should that entity bear the responsibility?

In the real world, the chances of that working where both airline and disruptor are commercial organisations might be slim at best, but where the disruptor is a government (or, increasingly, a well-armed rebel group) they are probably non-existent, even were a supranational body like the United Nations to try to create at least a code of conduct. Perhaps the answer lies instead in those constellations of satellites providing constant real-time, open-source tracking of military activity, to help airlines plan to avoid overflying it…

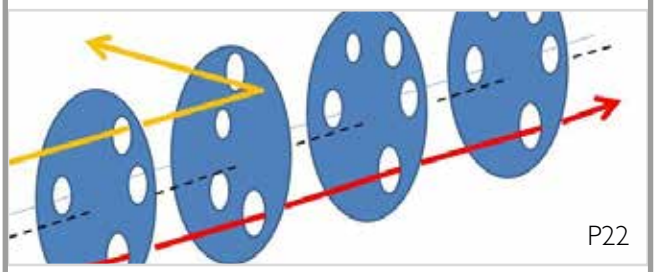
Allan Winn - Editor

IN THIS ISSUE...

NEWS

REPORTS

P10



P22

REVIEWS

NEWS ROUNDUP

SKILLS COUNCIL PRESENTATIONS

By PM Roger Gault

The Livery Companies Skills Council (LCSC), of which I was elected Chairman in July 2024, provides a catalyst for collaborative action across the Livery in support of skills. Each year the LCSC, together with City and Guilds and the Construction Liveries Group, hosts a Master Certificate Awards Ceremony. The MCAS was established by the Construction Liveries Group to recognise excellence and promote career progression from Apprentice to Master level. The scheme now is run as a partnership between C&G and the participating Livery Companies.

Awards winners and Livery representatives

PM Gault (2nd left) with The Lord Mayor, Alderman Alastair King; Sheriff David Chalk; and Tony Ward, Chair of the Construction Liveries Group

From its humble beginnings in 2001, it has grown into a major event that takes place annually in Mansion House. This year the Lord Mayor, Lady Mayoress, Baroness Garden, Sheriff Chalk, Alderman Gowman, and 28 Livery Masters/Prime Wardens were present.

City & Guilds presented 23 Diplomas of Membership of the City and Guilds of London Institute (MCGI) and Livery prizes which honour outstanding achievements from students who have taken or taught City & Guilds qualifications in the trade of a Livery Company. A total of 66 Master/Journeyman/Apprentice certificates were presented by 19 Livery Masters/Prime Wardens. □

DAWN TO DUSK COMPETITION AWARDS

By Assistant Seb Pooley

On 6th February, the Royal Air Force Club played host to 70 guests for the 54th International Dawn to Dusk Competition Presentation Dinner. The competition, which was conceived by our late Patron, HRH Prince Philip, the Duke of Edinburgh along with Norman Jones, the then Chairman of the Tiger Club, celebrated its 60th year in 2024. I was delighted to receive and read out a letter of congratulations to the judges and competitors on behalf of our current Patron, His Majesty the King, which was warmly greeted by all present.

The competition is open to all pilots and all aircraft types. You pick a theme or objective for your flight, plan it, fly it and submit a log to a team of expert judges. Last year saw 15 entries compete for the prestigious Duke of Edinburgh trophy, the same number as in 2023 and joint highest number since 2004. Fourteen of the entries were from the UK along with one from Italy, the first time a team from there has taken part.

The themes were fascinating and varied, including a tour of Roman history in the UK from Dover to Inverness in a

Van's RV-8 (the winning entry), flying a Cessna 172 across the UK and northern France 'drawing' the outline of a Red Arrows BAE Systems Hawk in celebration of the team's 60 anniversary, flying the River Tweed from source to sea in a Skyranger microlight and visiting England's most extreme landmarks and celebrating the longest day with a D-Day aerial adventure. The organisers were very pleased to have an entry from members of the Tiger Club, father and son, Nick and Matthew Fairhead flying a de Havilland DH82A Tiger Moth.

ITALIAN ENTRY

The Italian entry celebrated the remarkable *Il Raid Barraca de 1921** and we were delighted to welcome Danilo Melandri and Fabrizio Magnatantini and their partners to the Club. As with every guest who steps through the Club's doors for the first time, they were overwhelmed with the rich history of the building. Thanks to the connections of Assistant Kat Hodge and Liveryman *Tenente Colonello* Angelo Lapetina with the Italian Air Force, I was able to read out a letter of congratulations from Major Maurizio Lanzilotto, the current Commander of 10 Squadron under which 91 Flight (Barraca's famous former squadron of aces) now sits.

BERLIN AIRLIFT COMMEMORATED

Finally, one of the most memorable entries was called A Berlin Adventure and saw John Whitlock, at the age of 99, flown to Berlin to celebrate the 75th anniversary of the

Dawn-to-Dusk guests, 99-year-old John Whitlock at top right

Berlin Airlift in which he had taken part. He was given a standing ovation by the room.

Many entries include a fundraising aspect and this year a record amount of over £13,000 was raised for a number of charities including the Kent, Surrey and Sussex Air Ambulance, Help for Heroes, Glossop Centre Stage Dance Academy, the Book Trust, Veterans Operating Base, Aerobility and Giraffes on Tour.

GUEST OF HONOUR

The Guest of Honour for the evening was then-Master, now IPM, Richie Piper, accompanied by Gill, who kindly presented the awards to the deserving winners. The IPM was delighted to see the Consolidated PBY-5A Catalina, in which he has a share, take part in the competition.

The competition has many connections with our Honourable Company. Many members, including Past Masters, will have fond memories of taking part. All the judges are now members: Assistants Sebastian Pooley and Katharine Hodge, Liveryman Peter Benmax and Freemen Ian Seager and Tim Dawson.

The winners Kate Turner and Derek Pake with Assistant Pooley and IPM Piper

ENTER IN 2025

Information on taking part in this year's competition, which closes on 30th September, is at **www.pooleys.com/dawn-to-dusk/**. The website includes full details of last year's entries as well as information on winning entries going back to 1964. You can click on some of the highlighted entries to see the logs submitted.

It is the perfect opportunity to further your flying, to expand your horizons and gives you the excuse you need to have the flying adventure you have always wanted. Why not give it a go!

* The first *Coppa Baracca*, (held in memory of Italian ace Francesco Baracca from 1921 to 1925), based in Ravenna, was presented as "the world's greatest aviation day" and involved covering 1,000km in a single day. □

PROMOTIONS TEAM UPDATE

By Assistant Glen Fricker

On 18th January a team of around a dozen Honourable Company members met at The University of West London, Ealing, for an aviation careers event hosted by Sky pad. It was a great success for us, with particular thanks due to Liveryman Will Wright, Associate Becky Kwo and Assistant Pete Taylor for their part in running a "breakout" workshop, aimed at helping wannabe pilots to develop the skills of putting together a CV and succeeding at an Airline Interview. We'll be doing much more of that over the coming year.

The Air Pilots team at Guildhall on Day One: Assistants Capts Pete Taylor, Glen Fricker, Chris McGee, Young Air Pilot Freeman James Hamilton and Warden-Elect Steve Durrell.

The Livery Schools Careers showcase was at Guildhall over two days, 3rd and 4th February. On the 3rd five of us were descended upon by some 1,500 primary school children, aged between 10 and 12; on the 4th it was the turn of 1,600 secondary pupils, aged between 12 and 16. Our aim was just to "sow the seed" and hopefully generate some interest from the children in eventually giving some consideration to a career in aviation.

Youngsters crowd around the Air Pilots stand

We have also managed to squeeze in a couple of schools visits, either in person or via Zoom. My sincere thanks to all the volunteers on the promotions team – there's always room for some more! Please contact the Air Pilots office if you're interested. □

NEW STELIOS FOUNDATION SCHOLARSHIPS

The Stelios Philanthropic Foundation – the charitable foundation established by easyJet founder Sir Stelios Haji-Ioannou – has agreed the funding of three new Company scholarships beginning in this year. The funding will cover two full PPL scholarships for 45 flying hours each and one Flight Instructor scholarship for up to 30h of flying training and 125h of ground school training. The Foundation is also in continuing discussions on other ways in which it can support the Company's activities, especially those of the Young Air Pilots. □

INTER-LIVERY SKIING

By Upper Freeman Sam Rutherford

To your ski poles, cleared for take-off! Despite a smaller team in 2025, we hung on to our stalwarts — though we did have to bid *adieu* to Liveryman Caro Gough-Cooper (our secret weapon) and thus fell just shy of a Women's result, despite the valiant efforts of Associate Annie Cleve and Freeman Bea de Smit (we need a minimum of three skiers for a team result).

Reunited for one last hurrah in Morzine, the weather gods smiled upon us with perfect timing for both Thursday's seeding run and Friday's Giant Slalom showdown. Associate Alex Reynier, Upper Freeman Will Fanshawe, Freeman Ian Palmer and I managed to fend off fierce

Ski-lift! Company skiers Alex Reynier, Annie Cleve, Bea De Smet, Will Fanshawe, Sam Rutherford, Ian Palmer

competition from the Mercers and the Vintners (slogan: 'Piste again') to snag silver overall—though the Coopers, our persistent nemeses, swiped gold once more. We also achieved an 'age-related' bronze, and with significantly less grey hair than the others on the podium - so the future is looking bright!

Gold and silver medals abound (Sam Rutherford)

Next year, the epic battle moves to Mayrhofen, Austria, on 14th-16th January. The nearest main airport is Innsbruck, but we have an agreement to use Kufstein-Langkampfen LOIK (800m grass) if clear of snow. I'm on the lookout for fast women (pun intended), and men. If you're reading this, consider yourself drafted. If you can zoom on those planks, your Company needs you. □

Bea de Smet crosses the finish line

GAZETTE APPROVED BY THE COURT 13 MARCH 2025

ADMISSIONS

As Upper Freeman

Neil CATTON-WRETHAM
David Fraser CHAMBERS
Ho Yin CHENG (HK)
Stephen Robert Hung Ying LAM (HK)
Mark Oliver MAYATT-SIMMONS
Jamie Scott ROWLANDS (HK)
Graeme Thomas SMITH

As Freeman

Edwin BOON (NA)
Ian John Norman GEE
Michael Andrew HANSEN (AUS)
Alec David LETCHFIELD
Russell William MASON
Dr Catherine RUDDICK

As Associate

Angela Collette DONNELLY
Priyan PATEL

ACKNOWLEDGED BY THE COURT 13 March 2025

RESIGNATIONS

Jack BERKIN
Rupert COOK
Karen EDIE
Toby HEIERMANN
Christopher HIRST
Malcolm HUNT
Ron KARO (OS)
Shaun KENNY (OS)
Andrew MILLS
John O'DONNELL
Andrew PRICE
Alan ROBINSON
Neil SIERENS
Jonathan SPITERI TERRIBILE (OS)
Peter WOLFE (NA)

DECEASED

Buck BROOKSBANK (AUS)
Albert HANLEY-BROWNE
Koke KILLIAN (HK)
Richard MODEL
Robin SHERWIN-SMITH

MASTER'S MESSAGE

By The Master, John Denyer

As is always the case for an incoming Master, I find myself writing my first message while still Master-Elect in order to meet the print deadline. Nevertheless, there is no shortage of things to cover!

It is a huge honour to be elected as Master of this great Company. Kate and I are immensely grateful for the trust put in us by those whose votes have got us here. I joined the Company in 1987 and when I look back at the leadership and achievements of the 38 Masters since then, I am left in part with a sense of apprehension about what I am embarking upon, but also excitement to be given the chance to follow in their footsteps and take us onwards.

I must thank our IPM Richie Piper and his consort Gill for their sterling work over the last year. They leave the Company in great shape by whichever way you choose to measure it, and I look forward to Richie's continued support as IPM over the coming year. I also wish to thank the Learned Clerk and his team for their hard work through the year. Masters come and go, but Paul, Angie, Anna, Eloise, and James provide the "corporate memory" that makes the things that we all value and enjoy actually happen. I have particularly benefitted from their experience and advice as I have prepared for my big year.

LOOKING AHEAD

Every Master has a theme for their year. Like those before me I see my role principally as an ambassadorial one, representing the Air Pilots and its members to the City, the other Livery Companies and the many sections of the aviation community to which we belong. My plans are about consolidation – building on what we have to make the Company even more successful as it moves towards its centenary year in 2029. These are exactly the ambitions I set out at the hustings when I stood for Warden in 2021

MEMBERSHIP

Firstly, I want to build our membership. As I talk to pilots in the airlines, GA and military, not all of them have heard of us and those who have may not appreciate that the Company has much to offer them. I envision a future where pilots *aspire* to join us. I strongly support the ongoing work of our Young Air Pilots in raising the Company profile to ensure that we attract more pilots in their age range, which is so important in maintaining a healthy demographic. Moreover, and many before me have said this, if each of us could aim to introduce two new members each year, it would have a transformative effect on the Company. Big is good, as our income is derived largely from members' subscriptions.

I also encourage Freemen and Upper Freemen to consider becoming a Liveryman. The prestige attached to the role reflects its status as an important element of Livery Company membership. As well as attending our annual Livery Dinner, you would be eligible to stand for election to the Court, to vote in the Election of Sheriffs and to attend the election of the Lord Mayor - a spectacular ceremony in Guildhall.

REPUTATION

My second ambition is to enhance our reputation. I want us to be the "first port of call" on aviation matters, quoted regularly by the press and approached by Government and other bodies for our informed and unbiassed advice. With members from all branches of aviation and our connection to the City of London, we have a unique perspective and, more importantly, an independence among aviation organisations. We should therefore have an influential voice. We already do a lot, much of it through our International Technical Forum.

Enhancing the Company's reputation through activities like the Green Aviation is a key priority

The Green Aviation event that we hosted jointly with the Scientific Instrument Makers in my first year as Warden is an excellent example. It brought together Government, the City of London, investors, airlines, pilots and technologists to highlight what all parties need to achieve to meet the demanding targets agreed by government. Distinguished guests included the Aviation Minister, Chair of the CAA, the Lord Mayor, a Sheriff-elect and Masters of other Livery Companies. We should aspire to more such profile-raising activities. I have been speaking with the Master Fueller over the last year as there is a clear overlap of our Companies' interests.

CHARITY

Thirdly, I want to re-emphasise the importance of charitable giving which has, since medieval times, been a pillar of the work of all Livery Companies. Our Air Pilots Trust, the Air Safety Trust and the Benevolent Fund are the focus for the Company's charitable giving. Between them, they support many of the important things we do such as our vibrant scholarships programme to give the next generation a leg-up into a career in aviation. We are grateful for the generosity of our many members that enables these good things to happen but there is always room for more. I believe that regular donation should be spread more widely and not just an activity for some members. A broader cross-section of regular donors would lead to a more predictable revenue stream that could transform the Company's own charities and scholarships, as well as enabling us to join our fellow Livery Companies in supporting other worthy causes from time to time.

Members are encouraged to help with activities like our scholarships programme

Each Master nominates a favourite charity for their year. Over the last two years, members have raised significant funding for the London Air Ambulance, the charity selected by both IPM Piper and PM Legat. I have chosen two charities for my year, one aviation-related and global, the other addressing pressing social needs here in London. The Mission Aviation Fellowship (MAF) is the world's largest humanitarian air operator. For over 75 years it has been flying light aircraft over jungles, mountains, swamps and deserts. It enables more than 1,400 aid and development organisations to deliver medical care, emergency relief and long-term development. Its pilots transport relief workers, doctors, pastors, schoolbooks, food and medicines.

My other charity is Centrepoint, the UK's leading youth homelessness charity supporting some 14,000 young people every year. Homelessness should not exist to this extent in the capital of one of the world's richest economies and I am moved by the number of young people I see sleeping rough on London's streets. I want to do something to assist with Centrepoint's essential work.

Mission Aviation Fellowship is one of the Master's two charities

So, while I have plans for the Company, they are not revolutionary but intended to encourage more of what we already do really well. Indeed, in my time on the Court I have been constantly impressed by just how much "stuff" our members are involved in. For example, our amazing scholarships programme, our fantastic visits and events, the three charities, the Luncheon and Flying Clubs, our Cobham and Tymms lectures, schools gliding days, our technical groups, the career events, aptitude testing and much more besides. Even though I was aware of their existence I keep discovering the scale of effort behind further activities! Thank you to all who volunteer for Company service and, if you want to help, even in a small activity like joining a sifting panel for the scholarships, you will find it very rewarding.

COURT ELECTIONS

Following the Court elections, I am delighted to welcome Martin Blaze and Su Ingle as our newly elected Assistants to the Court. I also congratulate DJ Gibbs, Pete Taylor and Mark Tousey on their re-election and acknowledge the contribution of Pat Voigt who is stepping down this year. I am especially pleased to welcome Steve Durrell as our new Warden. It is reassuring to see a healthy balance maintained between GA, military and commercial aviation among those on their way, or aspiring, to become Master: that has always seemed to me to be one of the great strengths of this organisation. To those unsuccessful in this year's elections, these positions are hotly competed, as befits a vibrant and active company like ours, so please do stand again. It can take several attempts to achieve your goal; I know!

In conclusion, I am excited to serve as the 74th Master of the Honourable Company of Air Pilots. Kate and I look forward to a busy year and my strategy is to get involved in everything that I possibly can to represent the Company as widely as possible in the City and beyond! □

PROFILE: NEW MASTER JOHN DENYER

The Master and Mistress Kate

It was little surprise that John developed an early fascination with aircraft. His school lessons in Egham near Heathrow were often interrupted by the roar of departing first-generation jets. When his father occasionally worked Saturdays, John would go with him to his first-floor office on the Bath Road overlooking Heathrow's northerly runway and watch the aircraft. Family trips to Farnborough Air Show through the 1960s further deepened his interest. While John was at Strodes Grammar School in January 1970 a friend's father, a Pan Am manager, took the two boys after school to see up-close the first Boeing 747 to land at Heathrow.

During school holidays, John worked on a family friend's farm in Wiltshire, earning enough to fund gliding at nearby Keevil Airfield. When he had finished helping milk the cows, feeding and mucking-out he would cycle to the airfield to learn on a Slingsby T21C initially and, when solo, on a Slingsby Swallow.

John read physics at the University of Surrey and, after specialising in quantum physics in his final year, came away with a first. A career in aerospace beckoned and he started work as a scientist at RAE Farnborough.

NIGHT VISION

John joined a small team at Farnborough developing a cockpit lighting system compatible with night-vision goggles (NVGs), a new technology of which RAE had just taken delivery of the first two pairs in the UK. Incompatibility between lighting and the goggles was an issue in the USA where they had been in use for a while. The RAE team devised a solution using blue-green filters to block the red end of the cockpit lighting spectrum which could dazzle the NVGs. Retrofitting the many different light sources in a cockpit was a challenge, but this innovation was to have significant implications for military aviation. To further understand the practical applications of his work, John spent some 150h as a flight trials observer at low level at night in the back of every in-service military helicopter type. He even got a couple of daytime low-level sorties in a Hawker Hunter T7 with one of the test pilots with whom he had become friends.

When the Falklands war broke in 1982, the MoD issued an urgent operational requirement to install the new cockpit lighting on a range of aircraft and John worked 24/7 at several RAF bases doing this on frontline aircraft before they departed south. Once the deployment was under way, he flew to Ascension Island to continue the work on Lockheed C130K, Avro Vulcan, Handley Page Victor, and helicopters as they transited south by ship.

PIVOTAL MOMENT

A pivotal event occurred that year, setting John on a course that would ultimately lead him to where he is today. His boss at RAE, Freddy Stringer, then a Warden in GAPAN, arranged for John to receive 10h of flying training at White Waltham to enable him to better understand the workload of his test pilot colleagues. Three weeks and 6½ flying hours later he flew his first solo and, after completing his 10h, the bug had bitten him! Self-funding the rest of his training, he gained his PPL six months later in March 1983.

Being awarded the Sir Barnes Wallis Medal by Grand Master HRH Prince Philip

JOINING GAPAN

Freddy was also instrumental in recognising John's NVG work during the Falklands war through the award of GAPAN's Sir Barnes Wallis Medal, presented to him in Mansion House by Grand Master The Duke of Edinburgh in 1983. John joined GAPAN as an apprentice in 1987 under Master Robert Pooley. Master Frank Dell admitted him as a Freeman in 1988, and he was clothed with the Livery by Master Rod Fulton in 1998. He was elected Assistant in 2012. John is not the first family member with a connection to the Livery. His five-times great grandfather, also John Denyer, was admitted as a Freeman to the Clothworkers on 1st March 1758 and worked in Bucklersbury, EC4. His son Francis followed him as an apprentice in 1764.

In 1990, John was selected for a policy role in a team of five exploring the privatisation of MoD's research establishments. Following this challenge he was "rewarded" with six months at the Joint Service Defence College in Greenwich. This course proved formative, exposing him to high-profile speakers, and providing immersive experiences that included briefings and visits to all aspects of UK defence activity across air, land and sea, as well as the civil agencies. It even included a visit to the Russian 6th Motor Rifle Brigade in former East Berlin, the first

British staff course ever to do so. These experiences broadened his understanding of defence and foreign policy and gave him insight into the geopolitical aspects of military operations.

Dwarfed by the Shuttle Endeavour

In 1992, John was posted to the Defence Staff in the Washington Embassy where he met PM Peacock-Edwards for the first time! His role focussed on avionics and command, control and intelligence collaboration with the US. He managed several high-profile projects, including organising a Two-Star fact-finding visit to Charleston AFB to assess the Boeing C17 for the RAF and a visit to check out the Grumman offering for RAF's Airborne Stand-off Radar contract. Grumman, keen to impress, gave the UK team its "Gold VIP" (access all areas) tour of Cape Canaveral, which it then operated for NASA. This included seeing Space Shuttle *Endeavour* on pad 39B awaiting launch for the first Hubble repair mission, which was an unforgettable experience.

John and Kate enjoying the Tiger Moth

BOSCOMBE DOWN

Returning to the UK in 1995, John joined the Defence Evaluation and Research Agency (DERA) as Deputy Director of its Aircraft Test and Evaluation business at Boscombe Down. After this role, in which his responsibilities included managing the airfield and aircraft fleet, DERA's CEO asked him to project-manage the privatisation of DERA, turning it into QinetiQ in 2001.

In 2001 John was appointed as QinetiQ's Ranges Director where he led a 1,500-stong team providing test, evaluation and training for the RAF, Navy and Army from the secure and highly instrumented environment of its 23 sea, land and air ranges and airfields across the UK. He planned and implemented a major restructuring programme and extensive overhaul of health, safety and security procedures. He was on the team that negotiated a £multi-billion 30-year contract with MOD to operate the ranges and Boscombe Down, which proved crucial to QinetiQ's Stock Exchange flotation in 2006. Following that negotiation success, he was appointed director for two very large contracts, including the Combined Aerial Target Service bid to provide aerial targets for military training, awarded in 2006, for which he won the Public/Private Finance "Best deal" award.

In 2010 John chose a change of direction and left QinetiQ to start his own consultancy to help smaller companies secure government contracts, offering his expertise in defence and aerospace contracting. He and his wife, Kate, who also worked for the company, enjoyed success with this business before deciding in 2015 to retire early.

EARLY RETIREMENT

In retirement John focused on two passions, aviation and music. He became more active in the Air Pilots, serving as secretary and then chairman of the Environment Committee, and later as chairman of the trustees of the Gladys Cobham Trust. He serves on the International Technical Forum and the Flying Club committee, of which he was also secretary for some years. Elected Warden in 2021, he oversaw the Air Pilots' Green Aviation Event jointly with the Scientific Instrument Makers and led the five-yearly review of the Company's strategic plan. Music had been a part of John's life since his student days, and he became a freelance keyboard player working in all popular genres. Currently engaged with a soul/funk/R&B band he performs regularly in London and across the south of England. He maintains his scientific interests and is a Fellow of both the Institute of Physics and the RAeS.

The Master of the keyboard!

John part-owns a de Havilland Tiger Moth and Chipmunk and shares this passion with Kate, who held her own PPL and usually flies with him. After graduating from Southampton, Kate joined a British Rail fast-track management scheme but has spent most of her career since in defence and aerospace. With their similar backgrounds she has strongly supported John throughout his service on the Court. They live with their cat in a converted hop kiln in a hill-top hamlet in the South Downs National Park in Hampshire. Their shared interests include skiing, cycling and travelling. They have three grown-up daughters and are closely involved as organisers and volunteers in most village activities. □

PROFILE: NEW WARDEN CAPT STEVE DURRELL

Steve's involvement in aviation began at the age of four, when his father, who worked for BP at Heathrow Airport, took him to the Pan Am hangar next to where Terminal 4 now stands. With security then not being what it is today, the two of them were given permission to have a look around a Lockheed Super Constellation which was parked outside on the ramp, culminating in a look on the flight deck. This was his 'spark' moment for all things aviation, in particular, becoming a pilot.

His early years at school were spent pursuing sports and hobbies including fishing, swimming and, most importantly, building and flying model aircraft. For a variety of reasons, he was unable to enter the industry from school and joined the Post Office as an apprentice engineer. Within a year, he had saved enough money to start his PPL at Biggin Hill with the Metropolitan Police Flying Club, joining as an associate member through a friend of his. A number of years followed, working several jobs from sweeping out hangars, cleaning other people's aircraft and working in night clubs to pay for his own flight training via the old 'self-improver' route.

Steve working with the Promotions Team

Unlike most of his friends and colleagues, he did not become a PPL instructor to gain the required hours. Instead, he headed for the USA for six weeks every year and crammed in as many hours as he could afford in a rented Cessna 150 touring the States and Bahamas, spending most of what he had earned that year.

By 1982 he was close to the required flight time and had converted his mother's garden shed into his classroom and started the self study for the written exams. A year later, commencing his flying training at Oxford culminated in the issue of a freshly minted, frozen ATPL.

With no commercial work available at the time, he picked up a job towing gliders at Lasham, followed a few months later with a change to dropping parachutists at Headcorn. By 1985, the market had started to move, and he secured a job flying courier documents on a single-crew overnight operation out of Luton, initially on a Partenavia then on to the Piper Navajo.

Another year on, and with the job market gathering pace, he found himself with an offer from Dan Air to fill the right-hand seat of its Hawker Siddeley 748 turboprops. The following year, having proved himself, he was offered a step up to the right-hand seat on the BAe146.

In airline days

In 1988, with turboprop and four-engine jet time in his log book, his ambition of a career with British Airways was now in reach. That year, he joined BA as a First Officer on the Boeing 757, a year later becoming dual-rated on the 757 and 767, flying both short and longhaul.

In 2000, his seniority number entered the frame for a Command course on the Airbus A320. With BA acquiring most of the single-aisle Airbus variants, he found himself during the following years in command of A318s on New York trips out of London City and the A319, A320 and A321 out of Heathrow around Europe. In 2011, the call of widebody long-haul command beckoned so a move to the Boeing 777 followed, flying both the 200 and 300 series all over the world.

After 45 years of flying, he retired from BA three years ago, having accumulated not only 30,000h but also immense experience in the worlds of both commercial and general aviation. He is still engaged in the GA arena and flies a Piper Arrow based at White Waltham. He is married to Jackie who works in operations at White Waltham and has a son, Adam: both are licence-holders and instructors, making hands on aviation very much a family business.

During his 14 years with Air Pilots, he has been involved with the pilot assessment team and also sits on the ACEC committee, currently as deputy chair and has just completed a five-year term of office as the promotions team co-ordinator. His passion for all things aviation is undiminished and Steve is truly honoured to be elected as a Warden. □

ASSISTANT ELECTIONS

By The Editor

The recent Court elections saw the appointment of two new Assistants, Martin Blaze and Su Ingle, and the re-election of three serving Assistants, DJ Gibbs, Pete Taylor and Mark Tousey.

NEW ASSISTANTS

Martin Blaze MBA CEng FRAeS joined the Company in 2012 and was clothed in the Livery in 2022. Having retired from being a senior executive in the field of aircraft engineering (he is a former Managing Director at BAE Systems) he says he now has the time, drive and enthusiasm to use his experience in flying, engineering and management to further the objectives of the Air Pilots in the very dynamic world of aviation. He owns and operates three aircraft, has a broad spectrum of flying qualifications, and has been supporting the Company's gliding days, especially by taking his vintage aircraft to them to give youngsters a broader experience of aviation.

Susan (Su) Ingle BSc (Hons) has been a member of the Company since 2013, and a Liveryman since 2018. She is a media and communications consultant with extensive experience in TV and radio broadcasting in the UK and New Zealand, and in providing media training to members of the RAF, Royal Navy and other organisations. She was a member of the Company's Public Relations Committee from 2011-2013, has worked since 2011 with several Masters on speech-writing and presentation, and has been a member of the Space Technical Group since 2020. In addition to continuing with those activities, she hopes to assist the Court and Company in presenting positively the excellent work of the Air Pilots, particularly in the aviation sector and also more widely. In addition, she wants to encourage and guide the next generation of pilots by offering training and support to help them achieve even greater success in job interviews.

RE-ELECTED ASSISTANTS:

David-John ('DJ') Gibbs BEng (Hons) MRAeS cfs was elected as an Assistant for the first time in 2022. He joined the Company as an Upper Freeman in 2016, and the Livery in 2020. A serving RAF pilot, he is an Examiner and Standards QFI at the Central Flying School, an instructor on ex-military piston and jet aircraft and BGA gliding instructor. He is Chair of the Flying Instructors Working Group, Deputy Chair of the International Technical Forum, Member of the Interview Panel for the FI Professional Development Bursary and assists on the Aptitude Testing Programme.

Capt Peter Taylor BSc Joined the Company in Hong Kong as an Upper Freeman in 2018 and became a Liveryman in 2021. A retired airline pilot, he was first elected as an Assistant in 2022, since when he has worked on the Pilot Aptitude Testing team, Aviation Careers and Education Committee, Promotions Team, Airspace Innovation Technical Research Group and the Air Pilots Youth Gliding team.

Mark Tousey BSBA MBA was elected as an Assistant for the first time in 2022, having joined the Company as a Freeman in 2012 and the Livery in 2016. A company director, he was appointed as a Trustee of the Air Safety Trust in 2022. In 2023 he established the HCAP Aerospace Scholarship Foundation Inc, a US charitable foundation, where he serves as chairman, to provide scholarships in the North American Region. In 2024, he was appointed a Director of Air Pilots Property Ltd. □

REGIONAL REPORTS

Regional Report: Hong Kong

By Liveryman Rob Jones, Regional Chairman

Hong Kong International Airport (HKIA) has changed considerably in the past few years. With the construction of a new runway, new taxiways, new arrivals, departures and approaches, our home base feels very unfamiliar. Adding to this, two new factors have considerably compounded the complexity of operating here - departures and arrivals over terrain and GPS interference - which have led to an increase in safety-related incidents.

NEW THREE-RUNWAY SYSTEM

HKIA has recently expanded its capacity with the commissioning of a new three-runway system (3RS) in November 2024.

The 3RS is designed to accommodate up to 120million passengers and 10million tonnes of cargo annually by 2035, not only boosting capacity but also introducing new safety challenges. The integration of the new runway required a complete redesign of the airspace to allow for increased traffic and separation whilst remaining within the confines of the border with China. A host of new SIDs and STARs has been created. Of particular note are the departures from the 07 runways which navigate around Tai Mo Shan which stands at 3,140ft and is less than 13 nautical miles from the threshold. A host of new taxiways around the now-operational 07 centre runway has led to taxiway incursions and misunderstandings from both aircrew and ATC.

GPS INTERFERENCE

Until recently Hong Kong carriers have experienced GPS jamming only whilst overflying and arriving into other countries. Now we have our own to deal with. This certainly caught local operators by surprise, particularly when on a RNP 1 SID which requires GPS for safe navigation around Tai Mo Shan. The GPS interference resulted in false EPGWS warnings, which definitely woke the crew up! Of concern is how frequent and random the periods of interference are. Local crews are now up to speed on actions to take, but how about foreign carriers? Will we need to see the return to conventional aids?

HIGH TERRAIN

HKIA is located in a region with challenging terrain, including several high peaks on Lantau Island and the New Territories whose proximity necessitates strict adherence to established flight paths and approach procedures. With the redesign of airspace, several new SIDs from the 07 runways that circumnavigate the terrain have been published. However, these routes are predicated on the aircraft having at least two working engines. Hong Kong has no engine-out procedure or chart for these departures, so it's up to each individual company to decide on the course of action to be taken should an engine failure occur, and try to communicate that to ATC whilst managing the failure.

The central one of HKIA's three runways is between these two towers (R Piper)

The Region has spoken regularly with local ATC about how it will manage the simultaneous departures should an aircraft suffer an engine failure. We have been assured that the controllers will know what is meant by: "We're following company engine-out procedure." How that translates into effective deconfliction remains to be seen. What is certain is that we have no idea what other carriers intend to do should they suffer an engine failure on climb out.

ILS 25R

As the Hong Kong pleasant winter slowly wains, the prevailing winds will turn south westerly and runways 25 L/R & C will be in regular use and the temperature will rocket to the mid-30s. Because ILS 25R's extended centreline is incredibly close to the peak of Tai Mo Shan it has a strict RNAV transition leading to the approach. It's common for ATC to vector aircraft onto the transition, then clear aircraft for the RNAV Transition only, prior to the next controller clearing them to intercept the ILS after the waypoint TOPUN. It's not uncommon for crews to misunderstand this clearance and believe they're cleared for the full approach, whose extended glideslope is already steeper at 3.1°, resulting in high rates of descent close to the ground. ATC closely monitors aircraft on the approach for the strict altitude compliance required and it's not uncommon for aircraft to be sent around. Thermal activity and turbulence compound the problem, with aircraft autopilots overcorrecting for a strong updraft and causing the aircraft to dip below the safe published altitudes.

Despite all this, through advanced technology, rigorous training, and robust safety protocols, HKIA continues to uphold its commitment to being one of the safest airports in the world. □

Regional Report: Australia

By Liveryman Adrian Young, Chairman

Twelve months ago, I was honoured to assume the role of Chair, tasked with driving a strategy focused on three key pillars—Engage, Inspire, and Support. The Council has worked diligently to align our initiatives with this strategy, delivering tangible outcomes that strengthen our impact and relevance.

In November and December, our Aviation Careers and Education team, supported by Flight Standards and UPRT Australia, awarded six scholarships to assist pilots. A sincere thank you to Upper Freemen Cameron Marchant, Ben Mackney, and Shane Tobin for their generosity in making this possible.

Looking ahead, our Annual General Meeting (AGM) will have been held on 11th March 2025 in Sydney at Qantas Head Office, Mascot. This will be our first in-person AGM in years, with virtual access for those unable to attend.

Reflecting on the past year, Air Pilots in Australia have continued to grow, delivering on our strategic pillars—Engage, Inspire, and Support. There's still work to do, but the future looks bright, and we look forward to building on this momentum together.

STOP PRESS – AUSTRALIAN EDUCATION TRUST UPDATE!

Great news! The Australian Tax Office has officially approved tax-deductible donations for our Education Trust—a milestone achievement thanks to Liveryman Rob Dicker's tireless efforts. More details will follow for those wishing to contribute.

Over the past year, the Council has successfully executed initiatives that reinforce our strategic direction:

- **Launched Young Air Pilots Australia (YAPA)** to engage and develop the next generation of aviation professionals;
- **Expanded our digital presence**, particularly on LinkedIn, enhancing visibility and engagement with members and industry stakeholders;
- **Increased scholarship funding by over $AUS50,000**, adding new partnerships and broadening accessibility;
- **Strengthened communications**, ensuring consistent member engagement;
- **Reinvigorated regional Working Groups**, expanding representation in New South Wales, Western Australia, and Northern Territory;
- **Introduced member-focused webinars** with high-profile industry speakers;
- **Established MOUs with key industry organisations**, fostering collaboration and professional development; **Delivering Impact Across Key Portfolios**.

Our various working groups across Australia continued their great work, including the revitalisation of the NSW Working Group, setting a strong foundation for future initiatives. Expansion into Western Australia and the Northern Territory ensures our strategic presence in these critical regions. The Queensland and South Australian Working Groups continue to strengthen their member support and engagement.

Our strategic collaborations included a Memorandum of Understanding with Royal Melbourne Institute of Technology (RMIT), enhancing scholarship, internship, and research opportunities, and a formalised relationship with the Australian Women Pilots' Association, reinforcing our commitment to diversity and industry partnerships.

ADVOCACY AND TECHNICAL LEADERSHIP

Our Technical and Air Safety Committee has been instrumental in providing expert, unbiased perspectives on regulatory and industry matters. The committee's work at Australia's Safeskies and PACDEFF has reinforced our influence in key safety and technical discussions.

MEMBERSHIP ENGAGEMENT AND RECOGNITION

The Master's visit to Australia, supported by the Council, provided a valuable platform to engage directly with members across the country. The visit and Master's support strengthened our connections with various Australian government agencies and bodies.

Our new webinar series, featuring high-profile speakers such as Red Bull Air Race Champion Matt Hall, delivered exceptional value, engaging members on topics ranging from UPRT and pilot mental health to career development.

The Trophies and Awards Committee upheld the tradition of recognising excellence in aviation, with Master Air Pilot's Certificates, the Australian Bicentennial Award, and the Captain John Ashton Award presented.

GROWTH AND REFLECTION

Our strategic efforts have contributed to membership growth to over 300.

FORWARD MOMENTUM

The Council has demonstrated unwavering commitment in delivering on our strategy, ensuring that the Australian Region remains relevant, influential, and valuable to its members. Our focus remains on reinforcing our strategic pillars while identifying new opportunities to enhance engagement and support. □

UPDATE: YOUNG AIR PILOTS

By Freeman Dominic Registe, Chairman

As is customary at this time of the year, a change of Master within the Company affords me the privileged position of now being able to properly thank IPM Richie Piper for his remarkable support, and to warmly welcome Master John Denyer to his role. Whilst without question change can often foster both anticipation and apprehension in equal measures, there is much to celebrate, reflect on and look forward to.

It also represents the ideal opportunity to confirm that I will have stood down from my role as Young Air Pilots Chair by the time of publication. Connecting, supporting and promoting the next generation of aviators as Young Air Pilots Chair over the past three-years has been an honour, and one that I will certainly never forget. Uniting and integrating pilots from all areas of aviation to create an unrivalled network of knowledge, experience and opportunities was always the core objective, and at the heart of this work was always the Young Air Pilots Committee.

NEW CHAIR AND COMMITTEE

Chris Barrott is the new YAP Chairman

It therefore gives me great pleasure to announce that Associate Chris Barrott will be the new Young Air Pilots Chair. A keen glider pilot, former PPL Scholar and now Boeing 737 pilot for TUI, Chris is exceptionally well placed to support the Company and, naturally, the YAP membership going forwards. Strong individuals form the foundations of strong teams, and I am incredibly excited by the new YAP Committee that has been assembled for the upcoming Air Pilots year. Without doubt remarkable things will be possible with all of you in the fold and I look forward to an even stronger Young Air Pilots community in the process.

I would also like to express my particular thanks to Upper Freeman Ben Akhurst and Associate Sorcha Didier, who will also be standing down from their roles within the YAP Committee. Their hard work and dedication behind the scenes have been remarkable and I have no doubt they will continue to positively contribute to the Air Pilots and wider aviation on numerous fronts.

The success of the Company's scholarship programme also continues to push new bounds, with a record number of PPL (777) and Gliding (350) scholarship applications received. Young Air Pilots supported the initial sifting stage in record capacity this year and with final interviews at Air Pilots House to follow in the coming weeks, the opportunity to support the next generation of aviators continues. It is abundantly clear just how much of a positive influence Company scholarships can have in terms of shaping future aviation careers, and with news that more scholarships will be provided, this campaign than ever before, it is an incredibly exciting time.

Young Air Pilots get to do interesting things – Associate Tilly Watts' fine picture of a Republic P-47 Thunderbolt at Sywell

A NEW FLYINGSTART

It also gives me great pleasure to also announce that FlyingSTART, a Young Air Pilots-led project, is now firmly online. The website **www.flying-start.org** is an initiative created by the Company to support all future pilots into aviation, not just Company members. With the dedicated support of numerous governing bodies, airlines, charities and Air Pilots members, an updated, modern and informative website is now available for all. With preliminary metrics already indicating that FlyingSTART is rapidly becoming the 'go-to' place for aspiring aviators aiming to enter the industry, please do forward the **www.flying-start.org** url on to anyone who you think may benefit from using it.

With a number of exciting inaugural YAP social events already earmarked in the calendar and some annual favourites nearing confirmation, I very much look forward to seeing you at a YAP event soon! □

CELEBRATING 90 YEARS OF NZ AIRLINES

by John King

The locality of Inchbonnie probably doesn't loom large in the average New Zealander's consciousness, let alone in worldwide terms. Situated near the north bank of the Taramakau River on the South Island's West Coast, Inchbonnie once boasted a school and a railway station. These days it's dwindled to a couple of houses, a critical stopbank system, a lonely railway flag-station and one of those small but useful hydro powerhouses found dotted around Westland, unnoticed and having no impact on the environment. Inchbonnie, however, also once boasted a scheduled airline service: in fact, it is the place where New Zealand's first licensed airline initiated the sequence of services unbroken to the present day.

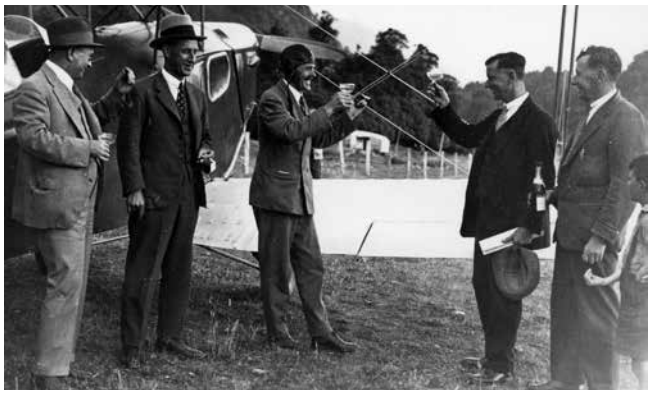
Civil aviation had restarted with the aero clubs from 1928, and from then into the early 1930s several airlines were established, none of them surviving for long. Aviation was, however, starting to come under the increasing regulation from which it has never recovered, and in 1934 the Transport Licensing (Commercial Aircraft Services) Act came into force. The first two airlines to gain licences were East Coast Airways Ltd and Air Travel (NZ) Ltd, in that order, and both planning to operate de Havilland airliners. The smaller Air Travel was closer to starting, having already ordered its first aircraft, DH83 Fox Moth ZK-ADI, and was the first to begin operations.

SERVING SOUTH WESTLAND

Air Travel had its base at Hokitika to serve South Westland. The company was organised by Capt J C (Bert) Mercer, who had learnt to fly at Sockburn, on the southern outskirts of Christchurch, with the Canterbury Aviation Company and served as there an instructor during the rest of World War One. Bert Mercer later flew with Rodolph Wigley's Timaru-based New Zealand Aero Transport Company until that succumbed to the general collapse of the country's civil aviation in 1923. Five years later he was appointed the Canterbury Aero Club's instructor and commercial pilot, back at Sockburn (which had been renamed Wigram) and flying DH60 Moths.

Some of his pupils came from the West Coast and introduced Mercer to that region, roadless south of Fox Glacier and with great potential for an air service. He encouraged the establishment of airstrips to service the isolated settlements and farmsteads, one of which was near Inchbonnie, on the property of Randall Topliss, himself a Great War fighter pilot veteran.

On Tuesday 18th December 1934 Bert Mercer flew



The first NZ airline service: from left, passengers Worrall and Christie and pilot Mercer

DH83 ZK-ADI from Hokitika to the aerodrome still being developed a couple of miles from the settlement and railway halt of Inchbonnie. There he picked up two passengers, Hume Christie and the airline's chairman of directors Harry Worrall, ferried by road the couple of miles from where they had alighted from the morning express train from Christchurch, and flew them to Hokitika for a brief stop and on to Franz Josef in 55min. After a celebratory glass of bubbly and afternoon tea at the hotel, they flew back to Inchbonnie in plenty of time to catch the mixed goods train back to Christchurch.

This was the first time anybody had been able to travel from Christchurch to Franz Josef and back in one day (although with the stop-and-go characteristics of a mixed train, their arrival home would have been well into the early hours of Wednesday morning). As well as pioneering the aerial tourist aspect of aviation to the glaciers, Air Travel with its five de Havilland biplanes—by 1938 the fleet had grown to three DH83 Fox Moths and two DH90A Dragonflies—served the remote and isolated South Westland. For more than 30 years, until the Haast Pass road was finally pushed through, that pioneering air service was a vital link to the rest of the country.

The original airliner, Fox Moth ZK-ADI, overhead Inchbonnie 90 years after its first airline service

ANNIVERSARY CELEBRATION

Thus were born New Zealand's airline services which have continued unbroken to this day. The 90th anniversary of the occasion was deemed worth celebrating, and on 18th December 2024 an estimated 300 people, including descendants of local residents, those original passengers and landowner, plus the entire roll of Lake Brunner School, gathered at the roadside of the site of the original aerodrome. The Rev Dr Richard Waugh, the Company's honorary New Zealand chaplain and aviation historian, gave a good summary of the history of the airfield and the airline, backed by Greymouth mayor Tania Gibson, and Bishop of Auckland Steve Lowe blessed the unveiled memorial plaque and interpretation board.

The Inchbonnie celebration, supported by local bodies and organisations, was particularly noteworthy in having the presence of ZK-ADI, that original Fox Moth, which made a series of flypasts over the public occasion. It's unlikely that any other country anywhere has the original airliner that started its aviation endeavours still airworthy and active 90 years later. It was followed after the event by Rob Mackley's immaculately restored Lockheed 10A Electra, a brilliant sight and sound.

Richard Waugh addresses the commemorative audience

The old aerodrome, long disused and recontoured to aid drainage in a region of high rainfall, was unsuitable for operations, but a 500m temporary airstrip had been established near the refurbished railway flag-halt and saw several local aeroplanes drop in to support the occasion. They were joined by the DH82A Tiger Moth ZK-BEF of Darren Luff from Whanganui, who that afternoon, in company with Tom Williams flying the Greymouth Aero Club's Savannah S ZK-SUA, flew from Inchbonnie to Franz Josef and back to Greymouth, re-enacting that flight of exactly 90 years earlier—and in a de Havilland biplane.

It should be noted that the weather, which had dumped 200mm of rain on the West Coast during the previous few days, co-operated and was eminently suitable for open-cockpit flying. It made a fitting end to an already memorable day. □

NORTH AMERICA REPORT:

By Upper Freeman Patricia Jones-Bowman

An ornithopter is a purely flapping wing aircraft, the flapping wings provide all of the thrust required and almost all of the lift. There are no propellers, no fixed wings and no other thrust or lift producers of any kind.

Unassisted, sustained flight in an ornithopter has not yet been achieved. Previous full-size ornithopters have been assisted by being towed or winched aloft or had an auxiliary motor installed to provide extra thrust ie they have not relied on the flapping wing alone.

Ornithopter C-GPTR is not assisted in any way and relies solely on the flapping wings to provide the lift and thrust required. Its design was based on the proof-of-concept model that successfully flew following 25 years of flapping flight research by Professor James Delaurier and Jeremy Harris. It was built in 1995 in the wind tunnel laboratory at the University of Toronto Institute for Aerospace Studies [UTIAS] by Prof Delaurier and his graduate students. I was lucky enough to be the first test pilot (1995 -2001 inclusive) and did all the prototype testing including the first lift-offs!

THE HEART OF THE BEAST

The heart of any ornithopter is jointly formed by the wing, the flapping kinematics and the flapping mechanism. C-GPTR's wing is of composite construction, aeroelasticly tailored to both twist and bend under air loads. It has a 'shearflexing' trailing edge designed by Prof Delaurier, which allows the double-surface wing to twist without wrinkling the skin.

The flapping mechanism, designed by Jeremy Harris, consists of a scotch yoke attached to the engine/gearbox and to the wing centre-section. This converts the rotary motion of the engine into the reciprocating vertical motion of the centre-section. Up-and-down vertical movement of the centre-section causes the wings to rotate around their pivots in a flapping motion.

Ailerons are difficult to incorporate into a flapping wing so there are none. PTR uses the rudder to produce yaw which leads to a roll via yaw/roll coupling for turning. A data acquisition system and ballistic parachute were also installed. By Autumn 1996 it was ready for flight testing.

We held many brainstorming sessions to discuss the upcoming flight test procedure. Since no manned ornithopter has ever sustained flight, there were no

TESTING ORNITHOPTER C-GPTR

'ornithopter testing' reports, data, records or books of any kind to consult. We, in fact, were 'writing the book' ourselves. We were about to venture into the unknown and we were all enormously excited.

On 3rd October 1996, PTR was transported to Downsview Airport, Ontario and the testing began. Our objective for this, our first test, was to determine whether PTR would move forward under its own power. We didn't really know!

The proof-of-concept model had been hand-launched into flight and never went through a ground take-off stage, so we simply didn't know whether the wing would produce enough thrust to break free and start moving! If it didn't, a major re-design would be necessary. If it did, then we could continue…to the runway… to the sky?

INSIDE TESTING

It was too windy to do the test outside so PTR was pushed to the back of the huge, wartime hangar, turned around and pointed towards the hangar doors (left open, just in case). I climbed into the cockpit and closed the canopy. With my helmet on and the canopy closed, all is silent, I can no longer hear the chatter of the lab crew and I am in my own little world.

I look out at the left wing; it starts to move slowly, the engine catches and I adjust the throttle. The wings settle into an idle flapping frequency of 0.5hz and everyone is beaming. Flapping always has this effect on us.

Now I must wait while the engine warms up and the lab crew set up the data acquisition system and video cameras. The instruments are fluctuating wildly, the result of the varying loads imposed during each flapping cycle; every reading must be averaged. I'm being bounced around a little even at this low flapping frequency. I ride the rhythm, up and forward, down with a 'thunk' and back, up and forward.

The signal to "GO" jolts me out of my daydreaming. The calculations predict that PTR will break free and start to move forward at 0.7hz flapping frequency.

Easing the throttle forward, I transmitted a running commentary to the lab crew. "0.55hz, 0.6hz, 0.7, still not moving, certainly being tossed around now, quite difficult to keep the stick centred, instruments fluctuating, 0.75hz, still nothing, 0.8hz"

Suddenly PTR broke free and started to move, picking up speed at a surprising rate! A milestone in ornithopter technology! The nosewheel steering was, however, very sensitive. "Too twitchy" I thought and had to work at keeping straight. The pitching and heaving of the fuselage also posed a problem. As I am bounced around, the stick goes with me causing control inputs that I did not intend and must constantly correct for.

The ornithopter at rest outside the test hangar (All photos except in-flight by James Delaurier)

After merrily flapping our way along the length of the hangar, I throttled back to idle and, amid popping flashbulbs and cheering lab crew, PTR rolled to a triumphant stop 20ft from the hangar doors.

We were distinctly pleased with ourselves and PTR following this episode and immediately made plans to start testing on the runway at the first sign of good weather. With no ailerons and a large average dihedral (taken over the whole flapping cycle), PTR has no crosswind capability and is definitely a 'no-wind' aircraft. All the testing is carried out at dawn when the wind is calm - we call it 'Dawn Patrol'.

TWO-YEAR WAIT

We didn't know then that it would be two years before our next milestone would be achieved. We settled down into a routine. Testing would begin as early as possible each summer and continue until winter set in. Our 'hibernation' period each winter was spent repairing the damage to PTR, redesigning and modifying.

We started with low-speed taxi tests and progressed to high-speed tests, acceleration tests, braking tests, roll control tests and every other test that we could think of and we encountered several problems along the way. Some were expected. Others (the lively ones) were unexpected surprises. Two cars carrying the engineers and

The wings flap up…

…and the wings flap down

radio and video cameras drive on the taxiway beside the runway during each test.

Once every second, the flapping [and the varying lift] causes the fuselage to pitch from what is normally considered to be an extreme 'climb' attitude to an extreme 'dive' attitude and the wings flap from far above the horizon to far below. This destroys a pilot's normal visual references of aircraft attitude making it difficult for me to determine whether PTR was on the ground or 2ft above it, or whether one wheel was lifting etc. We decided that the engineers would give me a running commentary and after the first few tests, we developed a 'rapid radio code' there being no time for embellishments!

SUDDEN DISINTEGRATION

The first year's testing ended with the sudden disintegration of the right wingtip during a run at 25mph. A major modification to the design was carried out during the winter. High-speed bouncing brought the second year's testing to an abrupt end, causing a flattened nosewheel, sheared rivets and fuselage damage. We had reached an impasse.

The year had been spent gradually increasing speed to check the handling characteristics of PTR at 50mph [the predicted take-off speed] and working on a take-off technique that would minimize the pitching and heaving of the fuselage. We had discovered that a take-off in an ornithopter can't be done in the usual way, by centralizing the stick, accelerating to lift-off speed then rotating, because the pitching and heaving causes bouncing. I, too, get bounced around in the cockpit and control becomes more difficult with increasing speed.

A NEW YEAR

The following year, we started a long series of take-off tests, experimenting with different stick positions, speeds and flapping frequencies. Too much 'stick forward' resulted in wheelbarrowing and nosewheel damage. Too much 'stick back' caused severe test-ending bouncing.

A computer simulation was written which showed the stick position to be critical and that precise stick/elevator positions would have to be held accurately at various points in the take-off run. An elevator position indicator was needed, and one was designed, built and installed on the instrument panel - a lovely instrument, the centre of my universe! It consists of a vertical column of coloured LEDs: green for various defined positions of 'stick forward/elevator down, red for 'stick back/elevator up' and yellow for 'stick/elevator neutral'.

Now I could accurately place the stick in any desired position and radio the lab crew that I was "holding 1 green or 2 red" etc. Maintaining that position while being tossed around the cockpit is, however, another matter.

Testing resumed at dawn on 19th September 1998. The speed was increased on each run in an effort to attain the 50mph lift-off speed. Very quickly 46mph was reached but at this point we ran into the 'Bounce Barrier'. No matter what we did, at 46mph, PTR would start to bounce wildly, and acceleration would cease.

Finally, new calculations showed that PTR would have to be held firmly on the ground until 50mph was reached then abruptly lifted off to an altitude that would avoid re-contacting the ground. This might be more difficult than

It flies! A still from video showing the craft airborne (briefly) under its own power (Daphne Schiff)

it sounds! The lift varies dramatically during the flapping cycle, increasing on the downstroke and decreasing on the upstroke. When airborne, PTR might follow a somewhat undulating flightpath.

On 8th November we decided to try this technique. I eased in full throttle and held the stick forward until the LED indicator read '2 green'. PTR leapt forward, accelerating straight through the 46mph barrier, finally steadying at 51mph - our fastest speed so far, and sufficient for an attempted lift-off!

Thoroughly pleased, we launched into the next test with the objective of conducting a stable and controlled take-off run up to and including an intentional lift-off at the predicted lift-off speed. At 50mph I brought the stick back firmly and we rose into the air, Our first lift-off! There was no time to properly savour this feat since it was immediately followed by three ungainly bounces, one of which sheared off the nose wheel. Finally, we rose once more, like Phoenix from the ashes, in a magnificent 'Airliner' style take-off before landing and coming to a rapid stop on the loudly screeching sheared-off nosewheel strut. Our second milestone – an unassisted take-off in an ornithopter - had been achieved!

The damage to the forward fuselage was significant so, having achieved what we believe to be a world first for piloted ornithopters, we retreated into our usual winter's hibernation period of 'research and rebuild'.

THE FINALE

Testing resumed in August 1999. We hoped that this would be the year we would finally achieve sustained flight. The modifications to PTR had drastically increased the gross weight and the predicted lift-off speed had to be increased to 57mph. We spent August and September practicing lift-offs while waiting for the perfect weather.

On 15th October the wind was calm, and we met at dawn. We didn't know if PTR would reach 57mph and I wondered what would happen if it did! The pitching and heaving of the fuselage become increasingly severe at speeds above 40mph and it becomes increasingly difficult to control.

We completed the checklists and for the first time, we armed the ballistic chute. All was ready. The lab crew gave the signal to go. As I increased throttle I transmitted my usual patter.

"Throttle forward, stick 2 green; Initial pitching quite heavy, 20mph, 30mph, flapping frequency 1.0, increased to 1.1; 40mph, flapping frequency increased to 1.2; 50mph", I was being bounced around severely. PTR was very difficult to control.

Patricia Jones-Bowman in the cockpit

"52mph, 56 mph, never been this fast before, one more second to lift-off!"

Suddenly we were rolling rapidly and continuously from side to side. "What's this?" I thought: "Something's obviously happened... no word from lab crew... throttle back... wait and see...veering off to the right...have to fly it back to the centre line...increase throttle... rudder... it's not responding... we're going over... inverted!... we're down... stopped... it's still flapping, even upside down... turn the engine off. The lab crew are radioing: "Are you OK, are you OK?" "Yes." Cockpit crushed though...can't get out... petrol is leaking... puddle's quite large... I'll have to wait for lab crew... mustn't make a spark.

And so, at 56mph, on the point of lift-off, we had suffered a major structural failure. The right vertical struts buckled in compression and snapped in two. The right wing floated briefly then thrashed and partially disintegrated. The left wing was still flapping and producing lift which caused PTR to roll rapidly inverted. The whole episode, from when the struts failed to when I was hanging upside down from my seatbelt took 5sec. The lab crew had no time to warn me.

EPILOGUE:

We looked at the crash video many times over the next month and determined the cause of the failure. The damage to PTR was severe but we were determined to continue with Project Ornithopter. That winter's hibernation period of 'research and rebuild' was busier than usual but we knew we would again 'meet at dawn'. The ornithopter was rebuilt and we resumed testing in the summer of 2001. I resigned from the project that August to work on my own ornithopter design, *Nightingale*. □

CHALLENGING TIMES FOR SAFETY AND REPORTING

From the Desk of the DAA, PM Nick Goodwyn

The aviation safety system of systems has been established and developed over decades and has achieved enviable and essential levels of safety and risk management, particularly in commercial air transport. Such attainments can be eroded or even collapse within short time scales by either unintentional, antipathetic or, worse, maleficent acts.

The aviation industry has been saddened by the death in February 2025 of Professor James Reason CBE, a British psychologist and one of the most influential figures in the study of human factors and aviation safety. His research profoundly impacted how the aviation industry approaches human error and risk management, highlighting the importance of understanding human

The late Dr James Reason

factors in accidents. In his groundbreaking 1990 book, *Human Error*, Reason introduced the Swiss Cheese Model, illustrating how human errors can lead to catastrophic incidents when multiple layers of defence in a complex socio-technical system fail. This model has become a cornerstone of aviation safety, enabling organisations, institutions, and companies to develop significantly safer operations and systems.

Many Air Pilots will be familiar with the Swiss Cheese model of accident causation which likens human system defences to a series of slices of randomly-holed Swiss cheese arranged vertically and parallel to each other with gaps in-between each slice.

Reason hypothesised that most accidents can be traced to one or more of four levels of failure:

- Organisational influences;
- Unsafe supervision;
- Preconditions for unsafe acts;
- The unsafe acts themselves.

In the Swiss Cheese model, an organisation's defences against failure are modelled as a series of barriers, represented as slices of the cheese. The holes in the cheese slices represent individual weaknesses in individual parts of the system, and are continually varying in size and position in all slices. The system as a whole produces failures when holes in all of the slices momentarily align, permitting "a trajectory of accident opportunity", so that a hazard passes through holes in all of the defences, leading to an accident.

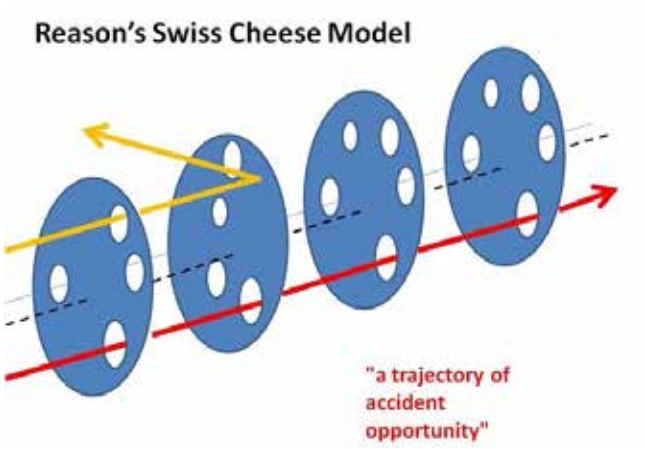
In the context of aviation, the cause of most accidents can be traced back to one of the four layers of failure and these are:

- **Organisational influences**. The airline or flight club may have been applying cost-cutting policies that in the end would create a weakness in this layer. Proper regulation by authorities is key to making sure that such practices are swiftly dealt with;
- **Improper and insufficient supervision or training**. Just like any industry, proper training and supervision has vital importance in aviation. Providing sufficient training for future pilots and making sure that they get high-quality supervision is one way to ensure that there are no holes in this layer;
- **Preconditions for unsafe acts**. Any system where people are involved there will be factors such as fatigue, stress, lack of concentration and these can cause errors in this layer. So it is crucial for pilots to develop strategies to deal with such issues as well as for airline companies to keep a track of pilots' mental and physical health;
- **The unsafe acts themselves**. This is by far the most important layer, which is the way that the actual problem is dealt with and errors regarding this process.

Each of these layers creates a risk for the whole system and when weaknesses in all of the layers align, we end up with a hazardous situation. For example, imagine there is an improperly trained and stressed-out pilot who is working for a poorly organised company and combine that with seriously bad weather; it is very easy to say that what we have here is a disaster waiting to happen.

JUST CULTURE

A further cornerstone of effective safety management has been the evolution and integration of Just Culture and 'open reporting'. One key to the successful implementation of safety regulation is to attain a



The Swiss Cheese model: "Some holes can be active failures and others are latent conditions. Some latent conditions may be poor design, procedures, poor ethical behaviours and decisions." (with acknowledgement to Skybrary)

Just Culture reporting environment within aviation organisations, regulators and investigation authorities. The aim of a Just Culture is to promote continuous learning from previous mistakes and to encourage pilots to openly and freely share essential safety related information. This effective reporting culture depends on how those organisations are able to handle blame and punishment.

Only a very small proportion of human actions that are unsafe are deliberate (eg criminal activity, substance abuse, use of controlled substances, reckless noncompliance, sabotage, etc) deserve sanctions of appropriate severity. A blanket amnesty on all unsafe acts would lack credibility in the eyes of employees and could be seen to oppose natural justice. A 'no-blame' culture *per se* is therefore neither feasible nor desirable. What is needed is a Just Culture, described by Reason as: "…an atmosphere of trust in which people are encouraged, even rewarded, for providing essential safety-related information - but in which they are also clear about where the line must be drawn between acceptable and unacceptable behaviour."

LEARNING THROUGH INVESTIGATION

There is also a need to learn through safety investigation so as to take appropriate action to prevent the repetition of such events. In addition, it is important that even apparently minor occurrences are investigated, in order to prevent the occurrence of major accidents. Safety analysis and investigation is a necessary and effective means of improving safety, by learning the appropriate lessons from safety occurrences and adopting preventative actions. Therefore, it is important that an environment exists where occurrences are reported, and the appropriate processes are in place for investigation and for the development of necessary preventative actions such as re-training, improved supervision etc.

Under Just Culture conditions, individuals are not blamed for 'honest errors' but are held accountable for wilful violations and gross negligence. People are less willing to inform the organisation about their own errors and other safety problems or hazards if they are afraid of being punished or prosecuted. Such lack of trust of employees prevents the management from being properly informed of the actual risks.

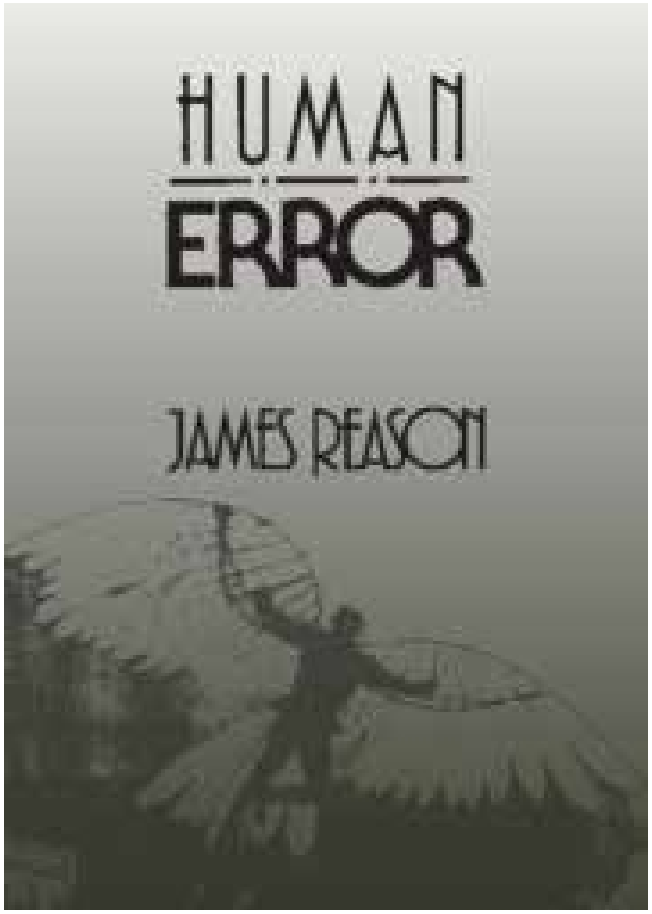
Of course, a person who breaks the law or breaches a regulation or company procedure through a deliberate act or gross negligence cannot expect immunity from prosecution. However, if the offence was unpremeditated and unintentional, and would not have come to light except for the report, he/she should be protected from punishment or prosecution.

UNPROFESSIONAL REPORTING

Decades of such leading-edge safety systems thinking is at risk with some of the recent somewhat unprofessional reporting, instantaneous narrative and misrepresentation resulting from accidents such as the collision between American Airlines Bombardier CRJ700 Flight 5342 and a US Army Sikorsky UH-60 Blackhawk over the Potomac river in Washington DC and the Delta Airlines Bombardier CRJ900 Flight 4819 inversion at Toronto Pearson International Airport.

Notably, this was preceded by the resignation of the FAA Chief Administrator, Michael Whitaker on the Presidential inauguration day in January 2025. The subsequent accidents precipitated a Presidential memorandum calling for an immediate assessment of aviation safety, saying that the collision "…tragically underscores the need to elevate safety and competence as the priority of the FAA. I am further ordering the Secretary of Transportation and the Administrator of the FAA to review all hiring decisions and changes to safety protocols made during the prior four years, and to take such corrective action as necessary to achieve uncompromised aviation safety, including the replacement of any individuals who do not meet qualification standards."

In a recent interview, the Secretary of Transportation has claimed that pilots should lose their licences if they had made errors that resulted in an incident, already circumventing the National Transportation Safety Board (NTSB) by saying that some of the recent safety events involving US airlines could be pinned on pilot error. Questioned on whether he still shared that view, which he had expressed following a further near-miss at Chicago Midway International airport, he said: "Hell, yes." While the Secretary of Transportation noted that all the incidents related in the interview were unique, he stated: "But I do think, not all of them, and again, not exclusively, not 100%, but a majority of the errors probably go to the pilots."



Reason's Human Error was a ground-breaking book in this area

This would not be the first time that members of the administration or other industry commentators would conclude an accident investigation before the NTSB has done its work.

The Air Pilots has a strong record of advocating for impartial and thorough investigation of accidents and of resisting speculation and pre-supposition of cause until such investigations are concluded and also for strongly supporting non-punitive and just culture. It must continue to do so in increasingly challenging times.

IATA STATISTICS

In this context, the International Air Transport Association (IATA) recently released its Annual Safety Report for 2024. The figures contained within the report reveal that, overall, the air transport industry remained one of the safest forms of transport and demonstrated a trajectory of improvement on the five-year rolling average figures. However, safety for 2024 did not emulate the unprecedented low levels recorded in 2023, which turned out to be the safest year ever on record for commercial airline travel.

In 2024, IATA reported an accident rate of 1.13/million flights, which equated to one accident/880,000 flights. While this figure was an improvement over the five-year average of 1.25/million flights, it was worse than the 1.09/million figure recorded in 2023. In 2024, there were seven fatal airline accidents across 40.6million commercial flights. This compares to just a single fatal accident recorded in 2023 and the five-year average of five fatal accidents per year.

There were 244 onboard fatalities in 2024 (a figure that includes both passengers and crew members) compared with the 72 fatalities reported in 2023 and the five-year average figure of 144. Fatality risk remained low at 0.06/million flights, below the five-year average of 0.10/million but notably double the 0.03/million figure which was reported in 2023.

Willie Walsh, IATA's Director General states "Even with recent high profile aviation accidents, it is important to remember that accidents are extremely rare… Moreover, the long-term story of aviation safety is one of continuous improvement. A decade ago, the five-year average (2011-2015) was one accident for every 456,000 flights. Today, the five-year average (2020-2024) is one accident for every 810,000 flights."

Tail strikes and runway excursions were the most frequently reported accidents in 2024. This, states IATA, "…underscores the importance of take-off and landing safety measures." Notably, there were no controlled-flight-into-terrain (CFIT) accidents during 2024.

Meanwhile, the downing of two aircraft in conflict zones (Azerbaijan Airlines Embraer 190 in Kazakhstan with 38 fatalities in December 2024 and New Way Cargo Airlines Ilyushin Il-76 in Sudan in October 2024 with five fatalities) contributed 43 of the fatalities reported in 2024 – around 18% of the total.

Accidents and incidents relating to conflict zones are considered security-related events and are not included in the IATA report. However, along with growing incidents of Global Navigation Satellite System (GNSS) interference they are a top concern for aviation safety, requiring urgent global coordination, says IATA.

This year has already started badly for the aviation sector: with two notable fatal accidents within the first four weeks of the year (American Eagle in Washington DC, and Jeju Air Boeing 737 in Muan, Korea), the fatality figure has already surpassed that for 2024 with nine months of the year still remaining.

This is the time to advocate, promote and reinforce the importance of decades of good safety management and impartial and fair reporting and an area that the Air Pilots will continue to focus on seeking stability in unprecedented and turbulent times. □

https://www.iata.org/contentassets/c81222d96c9a4e0bb4ff6ced0126f0bb/iata-annual-review-2024.pdf

BURSARY REPORT

By John Bacon

Having just retired from lifelong career flying with airlines, I wanted to continue to fly, as I had held an instructor rating from the 1980s which I had intermittently renewed during my years of airline flying. I decided that I wanted to put something back into the industry that had served me so well throughout my life.

I have a diabetic son who was struggling to get a medical certificate to learn to fly. This became my aim in life: to help people with difficulties to learn to fly by assisting them to overcome their individual circumstances and achieve a PPL.

Back to school…

It became obvious from an early stage that simply gaining a PPL was not going to be enough for many of the students I was working with. I needed to offer more. I looked at the cost of upgrading my instructor rating to cover training for night and IRR instructor privileges, but unfortunately this proved prohibitive on my pension. It was then that a colleague suggested that I apply for a bursary to help finance the proposed upgrade.

WHY ME?

I argued: "Why would somebody want to give me, a retired airline pilot, a bursary? Surely this money would be better spent on bringing younger people into flying?" It was pointed out to me that I had something very important to offer, a lifetime of experience flying many types of aircraft all over the world.

So, I turned to the Honourable Company of Air Pilots. After a quick phone call to confirm that I could apply and would be considered, I filled in the application form. I was amazed when just a few days later I received an email from Angie Rodriguez offering me a bursary to pursue the instructor's course.

After a long chat with Alan Newton, the Senior Instructor, I selected On Track Aviation at Wellesbourne Mountford, which I knew from past experience was a leading UK training organisation. My instructor for the course was Alec Trevett, who I had previously met as a speaker at the old GASCO safety evenings; again, Alec was the consummate professional.

…and off to work as an FI

BACK TO THE BOOKS

It was an uphill struggle for me getting back into the 'books' after four years away from the airlines but it slowly started to come back to me. The flying I found slightly easier, as I had remained in practice, instructing, and it was great that the aircraft we used was the trusty Piper Warrior PA28, a type that I fly regularly.

The training course took a week to complete with the test scheduled for Friday 28th January. This day dawned to storm Eowyn, whose low cloud base and strong winds ended my hopes of testing that day. However the test was rescheduled for 31st January with Peter Thompson, a great examiner who put me at ease straight away and, whilst conducting the test in a thoroughly professional manner, gave me many great insights and tips.

John's own Robin DR400

I have now started night and IRR training and really enjoy the new challenge. My first night rating student has just completed the course, which really brought me sense of accomplishment. I would just like to say "thank you" to Angie and the Honourable Company of Air Pilots, and to Alan Newton and his team at On Track Aviation. □

BOOK REVIEW: *AIR COMMODORE SIR FRANK WHITTLE*

Reviewed by The Editor

The story of Frank Whittle's struggles as a young RAF engineer and pilot to get his superiors to accept and support his vision of powering an aircraft through the thrust developed by a jet turbine is, of course, not new, and has been told in countless articles and previous books (notably John Golley's earlier biography). The distinguishing feature of this latest publishing venture is the extent to which the author has been granted access to – and drawn from – the collections of Whittle archive held by Churchill and Peterhouse Colleges, Cambridge, both of which granted him Visiting Fellowships in order for him to do his research for the book.

The rise of the humble-born Frank to become Air Commodore Sir Frank, OM, CBE - and, amongst many other honours and appointments, Liveryman of this Company – is one which should inspire coming generations, not only for the breadth of his accomplishments but also for the dogged determination to overcome the obstacles put in his path either deliberately or unwittingly by others and even on occasion by his own personality.

For Air Pilots doggedly pursuing the self-improver route to career success, that must be especially relevant. He had acquired some technical skills from his father, who owned a small engineering business which prospered during the First World War but then faltered, and satisfied an early interest in aviation by building and flying model aeroplanes.

APPRENTICESHIP

Far from initially being able to enter the RAF even as an apprentice mechanic (as a small, light teenager he failed the physical examination), Whittle built his physical stamina to enable him to be accepted, on his second attempt, as a 'boy apprentice' at RAF College Cranwell. There, his prominent role in the model aeroplane club and an appointment as an Orderly to the CO, combined with excellent examination results (6th out of 600 apprentices) and a stroke of good fortune when, ironically, one of those above him failed his physical examination, helped Whittle become one of five apprentices accepted for Officer Cadet training.

That led to his becoming an accomplished – and perhaps too-confident – pilot, but even at this stage (in 1928) he had hand-written a 49-page thesis on future developments in aircraft design, which led in turn to his first, unsuccessful, meeting with the Air Ministry and his successful filing of a patent application on *Improvements Relating to the Design of Aircraft and Other Related Vehicles*. That patent contained the essence of all his following jet engine work, and could therefore be seen as the founding document of aircraft gas turbine propulsion.

The bulk of the book concentrates on the successes and failures along the way of Whittle's dream becoming the dominant force in modern aircraft propulsion, but also the ultimate denial of the accompanying dream of his company, Power Jets Ltd, becoming the dominant force in the manufacture and commercial success of the jet engine. That the latter dream would ever become reality was always unlikely - after all, as a serving RAF officer he had handed the rights to his work over to the government early on, and Power Jets would never have had the resources to compete with or supersede the existing propulsion giants which eventually improved, productionised and commercialised the Whittle engine. The disappointments and frustrations of that inevitable process (albeit cushioned by a substantial grant from the Royal Commission on Awards to Investors) are well covered, as are his ultimately disappointing post-war civilian roles and the public acclamation which finally came his way.

HOMEWORK

It is clear that the author has done his homework in the university colleges Whittle archives, with some 87 documents, letters and reports referenced in the text, many of them quoted from at length or summarised, though it would have been interesting to see some of them – such as letters between Whittle and de Havilland engine designer Frank Halford – reproduced in full in facsimile rather than as quoted extracts. The appendices to the book contain a list of the 27 patents held by Whittle (including one relating to his post-engine-design foray into the world of oil-well drilling using submersible turbines). Less admirable is the lamentably limited index, which lists (albeit with multiple page numbers for most)

just 40 topics or individuals, no fewer than three of these being cross refences to the different names of Whittle's second wife.

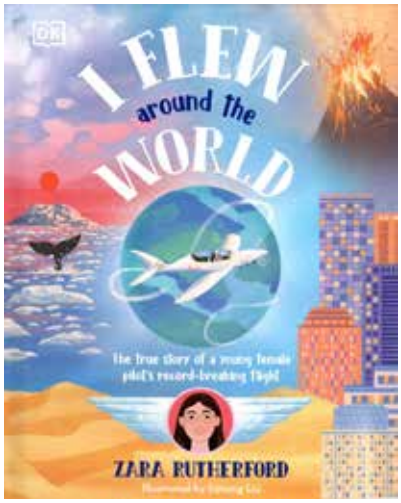
The illustrations are likewise a mixed bag, with limited focus on Whittle's private and personal life and much more on his work. Even there, the seminal diagrams showing the basic thermal cycle and outline design of Whittle's proposed engine, from the initial patent application, are reproduced in the body of the text as well in the full facsimile of the application in the appendices – but in the former, the captions give no explanation of the annotations in the diagrams, so would be of little use to anybody not already familiar with them.

Overall, however, this is a book well deserving a place on any aviation person's bookshelf, and we must be thankful that Liveryman Ian Whittle has encouraged and supported the author's efforts in creating this illuminating record of his father's life. □

Air Commodore Sir Frank Whittle: The Man who Invented the Turbo-Jet, by Robert L Evans: published by Air World Books/Pen & Sword (**www.pen-and-sword.co.uk**); 200pp; ISBN 978 1 03611 180 9

BOOK REVIEW: *I FLEW AROUND THE WORLD*

Reviewed by The Editor



Associate Zara Rutherford made headlines back in 2021/2 when she became the youngest female pilot (at 19) to circumnavigate the world by air, and the youngest of all to do so in a microlight (until she was beaten at that by her younger brother Mack…). Now she has written a book based on her record-breaking flight, aimed firmly at a younger audience.

Even in the simplified form in which it appears here, the story of Zara's flight remains a compelling one – perhaps made the more powerful by its being condensed into a comparatively small number of words. She covers all the complications of the planning and execution of the flight, and of the weather-induced delays which stretched that flight out to 139 days.

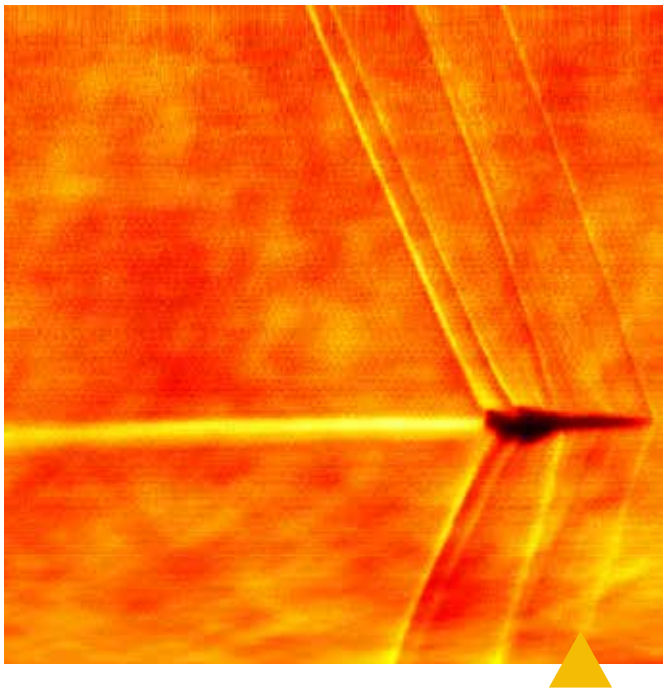
Although the chronicle of her flight is the glue that holds the book together, that story is interwoven with clear and uncomplicated descriptions and explanations of aviation terms and principles, and discussions of the geography she flew over and the wildlife she saw *en route*. In this way she addresses issues of ecology and climate-related developments such as wildfires and their effects on aviation. There is also a section on early aviation history and the stories of pioneer female aviators.

It's all presented in short, individual paragraphs scattered around the pages, rather than as a contiguous narrative – ideal for the often-limited attention spans of the intended audience. The layout is dominated by bold, child-friendly illustrations drawn by artist Jiatong Liu, interspersed with photographs taken by Zara during her flight, presented as if images on a mobile phone screen to differentiate them from the drawings. All credit to Zara and her publisher: there's a clear table of contents at the front, and a useful index at the back, along with a short glossary of some of the technical terms which are not already explained in the body of the book. All in all, this is a great little book for any youngster who's developing an interest in aviation – or one who just needs some inspiration. □

I Flew Around The World, By Zara Rutherford; published by Dorling Kindersley (**www.dk.com/uk/**); hardback, 64pp; ISBN 978-0-2416-6231-1; £12.99

INTO THE OVERSHOOT

A round-up of less-formal items which have caught the Editor's eye



SILENT SONIC BOOM

On 28th January Boom Supersonic's XB-1 demonstrator became the first independently-developed civil aircraft to go supersonic, and the first civil aircraft to fly beyond the speed of sound since Concorde G-BOAF's final flight on 23rd November 2003. Flying from the Mojave Air & Space Port in California, the XB-1 reached an altitude of 35,290ft before accelerating to Mach 1.122 (652ktas or 750mph). This Schlieren image of the XB-1 flying supersonically was taken on 10th February by NASA using special ground-based telescopes, with the aircraft passing in front of the sun. The company reports that, by careful adjustment of altitude and speed to achieve refraction of shockwaves within the atmosphere, no audible sonic boom reached the ground. (NASA/Boom Supersonic) □

MISSING *AIR PILOTS* FOUND

The appeal in the December issue of *Air Pilot* for missing copies of the magazine brought offers from three members: Past Masters Colin Cox and Wally Epton, and Liveryman John Robinson. This posed a diplomatic problem for the Archivist - which offer to accept? An amicable solution has been found, with John's offer being accepted. Archivist Peter Elliott offers grateful thanks to all three would-be donors. □

FLAT-OUT PANCAKES

On a beautiful spring morning teams from many of the London Livery Companies gathered in the Guildhall Courtyard for the annual pancake races organised by the Worshipful Company of Poulters, *writes Warden Dave Singleton*. The Air Pilots fielded a team of seasoned athletes (well, three seasoned and one athlete) to compete in the four categories.

Master-Elect John Denyer ran in the Masters and Prime Wardens category; Office Administrator Anna Sykes in the Ladies category; PM Robin Keegan, Liveryman's category and Warden Dave Singleton entered in the novelty (fancy dress) category. Competition was fierce and some good-natured gamesmanship, of which Stephen Potter would have been proud, was employed as the teams raced through a series of heats culminating in the finals.

The team put in a fine performance with the Master-Elect gaining a very credible third place in the final of the Masters race: however, the star of the day was Anna, who won the Ladies final having left the other competitors trailing in her wake. (Angie Rodriguez) □