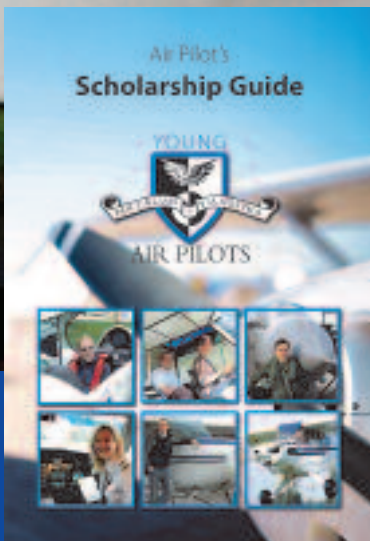


FEBRUARY 2021 ISSUE 43



AIR PILOT



INSIDE

THE MAX IS BACK

But Have Lessons Been Learnt?

Scholarships and Training Report



THE HONOURABLE COMPANY OF AIR PILOTS

incorporating Air Navigators

PATRON:

His Royal Highness
The Prince Philip
Duke of Edinburgh KG KT

GRAND MASTER:

His Royal Highness
The Prince Andrew
Duke of York KG GCVO

MASTER:

Captain John P Towell FRAeS

CLERK:

Paul J Tacon BA FCIS

Incorporated by Royal Charter.

A Livery Company of the City of London.

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Except where specifically stated, none of the material in this issue is
to be taken as expressing the opinion of the Court of the Company.

DIARY



All physical events have been postponed until further notice. Some meetings will take place through video-conferencing. For the latest situation please visit the calendar page of the Company's website:

<https://www.airpilots.org/members-pages/company-calendar/>

Guidelines for submissions to Air Pilot

Please submit contributions as follows:

- Text in word document, including your name below the title of the piece;
- No embedded photos;
- All images to be sent as jpeg files with a file size of at least 2 MB;
- More than 2 images to be sent via a Dropbox file, rather than an e-mail attachment.

Access the Company's website
via this QR code,



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Cover photos: The return to service of the Boeing 737 MAX with airlines including our North American Regional Report subject West Jet after a near-two-year grounding gives the Editor a pause for thoughts about how such episodes can be avoided in the future, **p3**. (Boeing). An update on the Company's scholarships begins on **p17**.



A MESSAGE FROM YOUR EDITOR...



THE MAXIMUM STRETCH

The welcome approval for return to service for the Boeing 737 MAX signals the closing of one sorry chapter of personal suffering for the victims of its crashes, and commercial pain for the manufacturer and its customer airlines. It is not, however, the end of the saga, for questions

remain on how to ensure that it never gets repeated. Has the time come for a universal international agreement on what constitutes a significant change in an aircraft's specification? When does it automatically become a new type for certification purposes, such that pilot or engineer ratings for earlier models cannot be 'grandfathered' across to the new machine?

The problem with the 737 MAX seems to have been not so much the incorporation of a particular and undisclosed bit of software (or its inexplicable reliance on a single sensor) as the weaponising of common type ratings with earlier variants as part of the sales process. It seems some Boeing managers feared that the cost and complexity of having to put an airline's pilots through a full conversion course in transitioning from the 737 NG to the MAX could open up its selection process to the Airbus competitor. If you're going to have to do conversion training whichever you choose, why stick with your previous supplier? But if the new aircraft has engines that are some 25% more powerful, a bigger payload and longer range, shouldn't your pilots have more of a conversion onto it than a bit of computer desk time?

There is no universal, simple go/no-go test for the degree of change that would mandate simulator or line conversion – nor can there be a universal specification for every conversion training required. There could, however, be a universal approach to the factors to be considered when setting the certification and conversion requirements for a new aircraft. Perhaps, a certain percentage of increase in power or dimensions; a change in primary instrument displays or major controls; a change from hydraulic to electric control boosters.

The argument that a change in specification or function can be made invisible to pilots by increasingly sophisticated control systems has been shown to be flawed by the 737 MAX episode. It has also underlined – as if the point hadn't already been made by incidents such as Qantas QF32 engine failure out of Singapore in 2009 – the need for pilots to understand not only how each aircraft's systems work, but how they are configured, so those crews have a better chance of being able to work around a system failure. If an aircraft (or even just one of its control systems) is materially different from its predecessor, the pilots who will rely on it deserve to be fully trained on it, and that decision should be made, consistently across the world, by regulators, not manufacturers' marketing departments.

Allan Winn - Editor

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NEWS ROUNDUP

BRITISH NORMANDY MEMORIAL UPDATE

By Liveryman Steven Dean

For the June 2020 edition of *Air Pilot*, I wrote about the British Normandy Memorial, a national memorial being built in France to commemorate the 22,442 men and women under British command who died on D-Day, 6th June 1944, and during the subsequent Normandy campaign.

Readers will be pleased to learn that despite the effects of the pandemic, we completed the main construction of the Memorial in October 2020; only 18 months after work started on site. Across the 22ha (55-acre) site it took 3,700 tonnes of stone to complete the work. In addition to the commemorative elements of the Memorial, there are also more functional components, such as a large car park and toilet block. However, it is important to note that the site remains closed to the public as we move on from the main construction phase. Preparations to receive visitors include sorting out maps, information panels and even an App to help visitors navigate around the site, and also to share some of the stories from D-Day. Beyond remembrance, education is also a very important aspect of the project, and the next phase focuses on teaching future generations so that we do not repeat the mistakes of previous ones. Learning from others' mistakes is, of course, dear to the heart of all aviators.

In early December, our year ended on a high when the Memorial won the prestigious FIDIC (International Federation of Consulting Engineers) construction Project

of the Year award¹. FIDIC is an international organisation based in Switzerland, and founded in 1913. The judges considered the overall scope of the project, the international and collaborative teamwork we harnessed and the particular challenges we faced, including how FIDIC in particular helped navigate those challenges. They also considered how our project supported the FIDIC values of quality, integrity and sustainability.

Other shortlisted finalists included: the 140km Çerkezköy-Kapıkule Section of Halkalı-Kapıkule Railway project in Turkey; the new Jamaican Houses of Parliament; and the International Thermonuclear Experimental Reactor (ITER) in France. The most important audience is of course our veterans, but external recognition is the icing on the cake.

The Normandy Memorial Trust aims to open the memorial to the public sometime during spring 2021, and then to hold a formal opening ceremony around the 77th anniversary of D-Day on 6th June. Updates will be posted over the coming months on the website, www.normandymemorialtrust.org/, which also contains details of how you can become a Guardian and contribute to the future upkeep of the Memorial to ensure that it remains in the best condition for generations to come.

I hope that when the Covid-induced travel restrictions finally lift, very many of you will come to visit this splendid Memorial which commemorates the heroes to whom we owe so much. □

¹<https://fidic.org/node/31012>



AIR PILOTS FUNDS COVID SCREENS

Alongside initiatives in which Company Members have been involved, such as the NHS Spitfire project, through its charitable trusts the Company has been directly involved in funding a response to the Covid-19 pandemic, by helping Mission Aviation Fellowship protect its pilots and passengers.

For 75 years, Mission Aviation Fellowship (MAF) has overcome mountains, natural disasters, civil wars and more to address human suffering by transporting aid personnel to remote and impoverished communities in the developing world. Each year, hundreds of aid organisations rely on these flights to carry their personnel and life-transforming cargo to people in deep human need.

However, Covid-19 presented MAF with challenges on a previously unrealised scale. Never before have the organisation's teams all had to adapt to simultaneous travel lockdowns across multiple locations, while seeing a surge in need for their services.

RESPONDING TO COVID-19

In order for its flights to continue serving remote communities across the African and Asian Pacific regions, MAF established a Crisis Management Team which quickly identified three clear objectives in responding to the need:

1. Protection of Staff. All international staff visits and home assignments were suspended. In consultation with regional directors, staff who fell into high-risk categories due to underlying health conditions were evacuated;
2. Maintaining of Flight Operations. In the countries in which it operates MAF has worked hard to develop good relationships with local regulators and governments. Consequently, in many of these countries its flights are considered an essential service. This meant that although strict regulations were implemented, it was, on a case-by-case basis, able to perform some medical and emergency flights.
3. Protection of Beneficiaries. Measures were implemented to ensure that flights did not inadvertently transmit Covid-19 to the communities that MAF seeks to serve. Measures included sourcing and use of PPE, sanitising of aircraft and the design and construction of protective crew/passenger screens.

PROTECTIVE CREW SCREENS

With the support of the Honourable Company of Air Pilots, MAF's engineering team based at Mareeba in Queensland, Australia was able to design and build prototypes, and arrange for the manufacture, of crew safety screens for MAF's GippsAero GA8 and Cessna 208 aircraft. The project cost a total of £4,506, which was covered entirely by funding shared equally between the Air Safety Trust and the Air Pilots Trust. □



The lightweight, flexible screens provide protection for pilots and passengers without significant alteration to the airframe



HONOURS FOR THE NHS SPITFIRE PROJECT

Good news at the turn of the year was that Liveryman John Romain and his wife Amanda – whose NHS Spitfire Project was the cover subject of August 2020's *Air Pilot* – had both been awarded MBEs in the New Year's Honours list, for "...services to charity and to aircraft restoration, particularly during the Covid-19 response."

In acknowledgment, John and Amanda say: "We are very pleased, and honoured, to have been awarded MBEs in the

(George L Romain)



New Year's Honours list. The NHS Spitfire Project, born out of a family discussion, has been a tremendous endeavour, and one which encapsulated many emotions for us. Like many endeavours, such as this, there is a great team behind it. The awards are due to the consolidated efforts of that team, without whom the project would not have been possible. It not only made considerable monetary funds for the NHS Charities, but brought pleasure, smiles and happiness to thousands of key workers, patients, and staff at the 255 hospitals we covered during unprecedented times.

"The stories on the 'Just Giving' page linked to the 7,000 names now carried on the Spitfire, have brought another visible appreciation of the project. We have been incredibly humbled by the public response and delighted that so many thousands appreciated and benefited from the "Thank you" that the Spitfire carried across the United Kingdom."

John reports that the NHS Spitfire Project is far from over, and that plans are developing for overhead visits to many more hospitals and other NHS sites in the coming months. Perhaps the team may eventually be granted permission to include central London on one of those flights – a significant challenge when the aircraft is a single-engined machine on a permit to fly... □

GAZETTE APPROVED BY THE COURT 21st JANUARY 2021

ADMISSIONS

As Upper Freeman

Allan William BLIGH (AUS)
Ian Anthony Cameron COUSLAND (HK)
Bogdan Petrisor FILIP (NA)
James Kenneth HAUGEN (HK)
Michael Richard JONES
Peter Michael McGOWAN (OS)
Patrick Noel PROUDFOOT (HK)
Paul Christopher Julian STONE

As Freeman

John Alexander SUMMERS (AUS)

As Associate

Elainor CARTER
Abigail CROFT
Thomas HANDY

ACKNOWLEDGED BY THE COURT 21st JANUARY 2021

REINSTATEMENT

Garry John HUNT
David John LONERAGAN (HK)

REGRADE

To Livery

Peter Edwin BAILEY
Donald Michael PRITCHARD

Mark Edgar McCULLINS

Ian Craig MORRISON

DECEASED

Clive COMPTON
Colin COUSTON
Hugh FIELD (Past Master)
Bertie VIGRASS

RESIGNATIONS

Stephen BALDWIN
John ELLIOTT (NA)
David HAMMOND
Kenneth PAYNE
David POWELL
Christopher STRINGER (OS)



MASTER'S MESSAGE

Captain John Towell

In early December, after nearly a year of uncertainty, fear and change there was a real sense that the tide was

turning. Many were looking forward to the New Year with renewed hope in the expectation that vaccines would be transformative. The Covid-19 Vaccine from Astra Zeneca has the potential to make a significant difference to the aviation industry. The story is a great triumph for the UK-government funded research by Oxford University and Astra Zeneca leading to the development of an effective, well tolerated, and simple to administer vaccine. Tens of thousands of clinical trial volunteers, including Immediate Past Master Malcolm White, helped over several months in the development. The vaccine is delivered at cost by AstraZeneca and is far cheaper than others.

Sadly, news about vaccines was followed by another setback with more contagious virus mutations causing a rapid increase in rate of infections. Much more restrictive lockdowns scuppered Christmas celebrations and family reunions. New International travel restrictions stranded thousands of HGV drivers for days in Kent. Many tired of hearing about "level playing fields" if the UK wished to become more competitive with no mention that state funding to German and French industries runs at far higher levels than in the UK. Thankfully, the tiresome game concluded on Christmas Eve with the announcement of an agreement on trade between the UK and the EU. The EU (Future Relationship) Bill was approved by the Houses of Commons, followed by approval in the House of Lords, and Royal Assent, all on Wednesday 30th December. The Astra Zeneca Covid-19 vaccine was approved for use by the Medicines & Healthcare products Regulatory Agency on the same day along with the publication of the New Year Honours list with the well-deserved awards of MBE to Liveryman John Romain and his wife Amanda for their work with the NHS Spitfire project. A momentous day!

It is a relief to the nation that there is some closure, and now is the time to learn how best to do business with our friends, trading partners and allies worldwide. There will be changes to regulation, licensing of aviation, travel and defence which will take time to fully understand. We will learn if the EU intends to be pragmatic or hostile with aviation which will shape the national direction of travel.

From the earliest days of the Company in 1929 Air Pilots have been committed to work positively with government



Adelaide Dinner: The Master attends via video link.

and regulators towards the most effective solutions for the good of aviation and pilots. The world of aviation has changed rapidly in the last few years and organisations that seek the ear of government or regulators must also evolve to remain relevant. To influence it is important to be realistic, recognise the direction of change, and seek to be part of the solution: simply pointing the finger at problems will achieve little. Whilst proud of our history, Air Pilots have evolved to remain relevant in 2021 with a wide range of pilot experience. We engage as a wise, diverse, experienced and rounded working Company with voices including elder statesmen, pilots working in airlines, the military, corporate, general aviation, and other areas which include student pilots. Whatever the new relationship with our European trading partners it is imperative for the UK to reset and renew industries like aviation. I have made the Transport Secretary and the Aviation Minister aware that Air Pilots are keen to support that process and we have a meeting scheduled with the Aviation Minister in January. The government faced enormous challenges during 2020 with the twin issues of a major pandemic and negotiations with the EU. Now that an agreement has been enacted in law it is time to move on at speed in a positive direction. The aviation and aerospace industries urgently need clear policy and support from government to recover and reset. At this time of change there are great opportunities to invest for the future. It is vitally important that we have a strong aviation industry to support our worldwide trading opportunities. The £2bn taxpayer-backed loan to British Airways announced on 1st January is a good start. There are several other levers that government might use to good effect. Zero rating VAT for flight training would be an excellent decision. Airlines are under enormous financial

pressure and zero-rating VAT for flight training could help them survive the period of most difficulty which will come when operations restart after a long period of hibernation. This critical period will involve huge training costs whilst revenue is very weak and with rapidly depleting reserves. The UK has the potential to once again become a centre of excellence for pilot training, zero rating VAT for pilot training would be a major positive influence. More should be done to support those looking for their first job in the right-hand seat. Apprenticeships for first officers could be a game changer for the airline industry by developing high standard committed pilots for a sensible cost and help social mobility. Air Pilots are recognised subject-matter experts in the field of apprenticeships for pilots. Air Passenger Duty is damaging to UK airlines and diverts revenue to airlines in the EU by encouraging passengers to transit through their hubs to avoid APD.

For aspiring commercial pilots these are most challenging times and employment opportunities will depend upon the demand for air travel. It is very difficult to predict the recovery of aviation, those considering self-funding their training face difficult decisions. I attended a presentation by Liveryman Chris Tarry, a highly respected aviation analyst, entitled "Beyond the Bleak Midwinter", looking at the recovery of the aviation industry, which I found extremely interesting and informative. I am delighted and grateful to Chris for writing his article for Air Pilot which might help those making career decisions.

Some training providers encourage aspirants by presenting a view that self-funding trainees might expect to find First Officer vacancies on qualification. On the other hand, BALPA cautions against any self-funding for commercial pilot licences. A recent paper "To train or not to train" by Young Member Becky Kwo, Assistant Steve Durrell and Assistant Dave Singleton looks at the various options and highlights the pros and cons to help those making career decisions. The Young Air Pilots group is also a great source of excellent advice.

It was an honour to see Peter Lloyd and his wife Jan at the Sydney dinner which I attended by Zoom, and to thank Peter for his wonderful contribution to the Company over so many years. On behalf of all Air Pilots, I congratulate Peter on his recent 100th Birthday, marked in style with a parachute jump.

When this journal is published, we will know the result of the Warden election held at the January Court. I am confident that the Company will be in good hands whoever is elected: Assistants Simon Brailsford, John Denyer, Stephen Durrell, and Elizabeth Walkinshaw are all excellent candidates. The new Warden will likely become the new Master in March 2025. The election for Court


Assistants takes place in February. I do not yet know who the applicants will be, but I urge all Freemen and Liverymen to vote in this important election. The Court benefits from passion and energy combined with a range of experience, background and age.

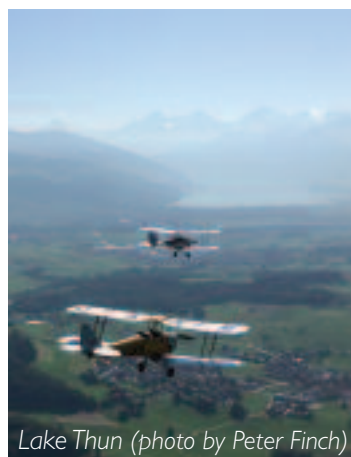
The Annual Ceremony of Installation of the new Master, Warden and Court Assistants follows the Annual General Meeting in Merchant Taylors' Hall on March 15th. We very much hope that these events will go ahead as usual. If not, we will conduct them remotely.

This will be my last Message as Master: it has been a great privilege to serve the Company during this most challenging time, and I am very grateful that I was given the opportunity. Before my year in the chair my ambition was to re-invigorate the Company through the support and development of Young Members. We have made great progress: I am very proud of the excellent start we have made, but of course this is a journey that will take some years. I am very grateful to so many, from every part of the Company, who have helped to make a real difference. There are far too many to name individually, but I thank you all. It has been a real team effort made possible by the wonderful support from Paul Tacon, the Learned Clerk at the centre of the Company with Eloise, Angie, Anna, and James.

Linda and I wish Sqn Ldr Nick Goodwyn, and his wife Lenka every success in the coming year. We thank them for all they have done for us during this challenging time and we will support them to the best of our ability. My predecessor, IPM Malcolm White, and his wife Vanessa, have been a great source of help, advice, and kindness. We cannot thank them enough.

In conclusion, I would like to thank Linda for her constant support, hard work and understanding throughout the year. We send our best wishes to every member of the Honourable Company of Air Pilots for the year ahead, wherever in the world they may be. I am confident that there are exciting times ahead and that the Company will have a positive year under Nick's sound guidance with

Lenka by his side. Blue skies ahead! 



(The Master points out that the caption to the photo of him with his sister Mary in the December issue undersold their years of service: John and Mary had a combined 50 years on the 747 alone – Ed)



PAST MASTER HUGH FIELD

Obituary by The Editor

Past Master Hugh Field, who has died at the age of 91, was a member of the Company for some 68 years, and played an active role in its affairs for much of that time.

Hugh Oliver Field ("HOF") grew up in Llandudno and moved to London at the age of 16 in 1945 to study at the Chelsea College of Aeronautical and Automobile Engineering. He began his career with D Napier & Sons, and studying part-time for a degree which let him learn to fly with the University of London Air Squadron, and from there to join the RAF in 1950.

Having trained at Oakington and South Cerney, he converted to the Gloster Meteor at Driffield, and stayed close to that type for much of his career. With the RAF critically short of jet flying instructors, Hugh was one of the first who went straight from training onto an instructors' course. The story goes that he arrived at instructor training still with his cadet markings on his uniform as he hadn't officially become a pilot officer and his Squadron leader told him to put some stripes on his arm as he "...wasn't having a cadet teaching pilots how to fly".

After squadron service which included a Middle East posting and a central role in the Queen's Coronation Flypast in 1953, he graduated from the Empire Test Pilots School in 1956. By 1959 he was Unit Test Pilot at 33 Maintenance Unit at RAF Lyneham, as recounted in his last article – on flying the unique prone-pilot Gloster Meteor – in the February 2021 issue of *Aeroplane*, published just a few days before his death. A ground posting saw him in the Directorate of Flight Safety, where he started his writing career with his *Wing Commander Spry* column in the RAF training magazine *Air Clues*.

After a further flying tour, Hugh left the RAF in 1967, and joined CSE Aviation at Kidlington near Oxford as Flight Manager, supporting Handley Page Jetstream sales. He helped Bill Lear with UK certification of the Learjet and was test pilot for the Edgley Optica in the late '70s/early '80s. He also flew the Varsity and other aircraft from Duxford and the Shuttleworth collection.

In 1969 he joined *Flight International* as Assistant, then Associate, Editor, with particular responsibility for general aviation. In this role, he significantly improved the magazine's coverage, and often flew its aeroplane – a Beech Baron and then a Piper Seneca – both as staff transport and as aerial camera platforms for *Flight's* photographers.

He left *Flight International* in 1979 to be Principal of the new Cranfield Airline College, but when that establishment failed to prosper, in 1981 Hugh joined the public relations department at British Aerospace Hatfield, where he enthusiastically promoted (and ferociously defended the virtue of) the BAe 146. He left BAe in 1991 but continued working as a consultant and author.

He and his son Chris took part as a father and son team in the Famous Grouse Air Rally in 1979 flying Tony Haigh-Thomas' Hornet Moth G-ADLY, winning their class.

Overall Hugh flew over 200 unique types of aircraft: he always said the Hunter was his favourite aeroplane to fly, but in his RAF times he also sampled Javelins, Canberras, Vampires, Gannet, Avro 707B, Seahawk, Venom, Gnat, a raft of propeller types including a Mosquito target tug and his first helicopter was a Whirlwind. In his Flight days he flew the SAAB Viggen and many civil types, and the RAF let him fly the Harrier and Jaguar.

Since joining GAPAN in 1952, Hugh was an active and contributing member of the Company. In 1971 he became Chairman of the Technical Committee, at that time concentrating on light-aviation ATC matters, especially in the London Terminal Area. When the Technical Committee was re-organised in 1973, Hugh became Chairman of the General Aviation Committee. He served his year as Master in 1980-81, and in 1993 was appointed Editor of the then-Guild News, a role he filled for 10 years and for which he was awarded the Company's Award of Merit in 1998. He joined the Trophies & Awards Committee in 2012.

In 1956 Hugh married Joan, who predeceased him in 2016. He is survived by son Chris and three grandchildren: their daughter Jane died in 2001. From the many tributes to Hugh, these words from PM Rick Peacock-Edwards are an apposite summary: "Hugh was one of the nicest people that I have had the pleasure and privilege to know. Through his relaxed manner, he had that enviable ability to make you feel at ease. He was always interested and interesting; he had an infectious smile and humour, and he was full of warmth. I always valued his words and thoughts. He will be greatly missed." □



(Above) Hugh receives the Sir Alan Cobham Memorial Awards from the Grand Master, T&A Dinner 1999; (Right) Hugh and PM Duncan Simpson fly the Harrier

REGIONAL REPORTS

Australia Region

A PERSONAL VIEW



By Upper Freeman Rob Dicker, Chairman, Australia Region



In early November I hopped on a commercial flight for the first time in about a year. It was a reasonably short, uneventful flight, from Sydney to Adelaide, but the fact that I could do it meant that Covid was pretty much under control, the NSW/SA border was open and there was no requirement to quarantine. Looking pretty good! The reason for my travel to Adelaide was to attend the South Australia Working Group Annual Dinner where I would also be presenting the Australian Bi-Centennial Award to Greg Hood, Chief Commissioner and CEO of the Australian Transport Safety Bureau (ATSB), as well as some certificates to several of our young members who had received scholarships.

It was a great evening. The SAWG under its Chairman, Paul Dare, did a great job of organising the event, particularly on the IT side, to make it possible for the Master to join us via video link and witness the presentation of awards and certificates, give an address and then propose the toast to the award winners. The Master kindly joined in the spirit of the event by dressing up in his dinner jacket and regalia as well as having a glass of port to hand, all at 10 in the morning, his time.

Guests at the Spot Landing Competition, Aldinga, S Australia



I flew home the following morning but the annual Spot Landing Competition, held at the Aldinga airfield, was still able to go ahead and was won by our young member Ellen Franklin, whose name will now appear alongside some notable past winners of the competition.

The Queensland Working Group held its annual dinner that evening and once again the Master was able to attend, virtually, with the aid of video technology. Regrettably, I could not travel to Queensland without quarantining because I had spent some time in Sydney, a Covid hotspot! On the Sunday morning South Australia announced that, after many months without a Covid case in the State, a woman had tested positive and a little while later that State was also in lockdown! Fortunately, as it turned out, it was only for a few days but had that announcement been a few days earlier all our plans would have been in disarray.

Adelaide Dinner: Greg Hood, Bi-Centennial Trophy



Adelaide Dinner: Scholarship recipients L-R Ellen Franklin, Regan Christopher, Adam Swallow, Vlad Zelezarov





Brisbane Dinner guests included QWG Chairman Tony Adler and Secretary John Howie

The following Friday we were able to hold another event in Sydney where I was able to present the Grand Master's Australian Medal to Captain Susan McHaffie and the Master's Trophy for the Australian Region to Mike Cleaver. Once again the Master was able to join us via video link and address those gathered for the occasion. So with superb timing we were able to hold three events whilst dodging potentially disruptive Covid bullets and importantly, recognise excellence and outstanding achievement by our award recipients.

All of our Australian award recipients have had inspiring careers and I commend their award citations to you. Whilst I'm sure none of them set out with the goal of winning an award, all took advantage of the opportunities that came their way for the ultimate benefit of aviation.

In the middle of that week, on 16th November, the Queensland and Northern Territory Aerial Service (now simply Qantas) celebrated a very low-key Centenary. In any other year I'm sure it would have been a much bigger event. Even though Qantas has its origins in Queensland it has been headquartered in Sydney for many years, so the day ended with a flypast of the Sydney Harbour Bridge and a virtual blowing out of candles projected onto the bridge pylons. See qantas.com/travelinsider for the video.)

A month later I attended another centenary event in Canberra, this time to celebrate the 100th birthday of our

*Sydney Dinner:
Mike Cleaver - Chairman's Trophy
for the Australia Region*



*Sydney Dinner:
Capt Sue MaHaffie - Grand
Master's Australian Medal*



Peter Lloyd parachutes onto the lawn of Parliament House, Canberra, the day before his 100th birthday.

oldest member, G A "Peter" Lloyd AC OBE. Peter is a living witness to the amazing development of aerospace over his lifetime as well as being a significant participant in those events. Peter was a foundation member of the Australian Region as well as being Chairman of the Region, amongst the many roles that he has held.

As has become his habit, Peter celebrated this milestone birthday with a tandem parachute jump from 15,000ft onto the lawns of Parliament House, Canberra. At the cocktail reception held on his birthday Peter showed that in spite of his age, his mind is still as sharp as ever. One word of advice to those assembled: "You can get a lot of free drinks if you make it to my age".



Looking ahead to 2021 we will be celebrating the centenary of the Royal Australian Air Force. The first flight of an Australian military aircraft, part of the Australian Flying Corps, took place on 1st March 1914 at Point Cook.

However, the formation of the Australian Air Force had to wait until 31st March 1921 when it was proclaimed in the Australian Government Gazette. Later in the year, on 13th August, following receipt of approval from the King, the Governor General signed an order authorising the use of 'Royal' making this the start date for the use of the Royal Australian Air Force name. You can see more at

airforce2021.airforce.gov.au.

Regrettably, just before Christmas there was another, relatively small by world standards, Covid outbreak in Sydney which has led to localised lockdowns, tightening of restrictions and border closures. On again, off again border closures must be a real nightmare for airlines trying to re-establish a reliable schedule! For many, Christmas and New Year will have been a very different affair this year. However, provided the vaccine does its job there should be plenty to look forward to in 2021. □

Hong Kong Region

By Liveryman Pat Voigt, Chairman, Hong Kong Region

REGIONAL 2020 WRAP-UP

As I reflect on my first nine months or so as Regional Chairman, it is safe to say that it has not proved to be the tenure that I had hoped for, since not only aviation but all aspects of life have been dramatically affected by the varying global reactions to the virus.

As our articles in previous Journals have hopefully conveyed, in addition to the offer of individual Peer Support we have endeavoured to provide support and encouragement to our members through a variety of social events. I felt it appropriate therefore, to draw 2020 to a close with a few never-before-seen photographs of the region's year.



Air Pilots pay tribute to the fallen at the Hong Kong Cenotaph on Remembrance Day



Upper Freeman Josh Tuppen & Chairman Pat Voigt pair up for the inaugural Regional Golf Open at Kiawah Island Golf Resort, South Carolina, otherwise known as the Simulator in Sheung Wan, Hong Kong



Upper Freeman Brendan Roscoe takes the salute at an impromptu Battle of Britain Cockers 'P'

Presentation to Upper Freeman and outgoing Youth Flying Scholarships Chairman Captain Peter Taylor prior to his departure from Hong Kong in December



THE RETURN OF CORPORATE JET FLYING IN CHINA

By Liveryman Locky Lawford

In recent times the global changes on aviation have affected all sectors in this very diverse marketplace. My experiences are those that I have seen first-hand flying corporate jets, particularly in China. As ever, the only constant in corporate aviation is change...

Obviously the first thing to undergo on arrival in China is 14 days' quarantine, locked in your room in a Government-approved hotel: conditions in these hotels can vary dramatically, depending on the range of contacts that your boss has. For us to fly within China between the different provinces, we have to fill out an online app for each particular province's health regulations, which generates an individual health QR code that you have to provide at both airport security and hotel check-in. Needless to say these requirements are always changing.

Regional airline flying is now back up to where it was pre-Covid, with a super busy air space system and all the airliner's full of passengers.

I have just completed my 8th Covid PCR test: the compensation for this quick brain-tickling test is the fact that no restrictions are placed on us for relaxation, fitness regimes and, of course, access to bars and restaurants.

The bottom line is that life is pretty much back to normal here in China flying Corporate jets - so far...□

Locky Lawford completes his very short Christmas walk-round in Shanghai



North America Region

By Liveryman Alistair Beaton, Chairman, North America Region



My report this month is on West Jet, in which I have had the kind assistance of Captain Scott Wilson, West Jet's Vice President - Operations. Scott is a life-long aviation enthusiast and has worked in flight safety and airline quality assurance for thirty plus years,

specifically in relation to flight training, regional, domestic and international airline operations.

Scott joined West Jet in 2001 and was promoted to Captain on the Boeing 737 in 2003. Having worked as an instructor, Scott joined West Jet's training department in Calgary, Alberta, which led to roles with increasing responsibilities including Approved Check Pilot, Flight Standards Pilot and Manager, Flight Operations QA then to

Chief Pilot in 2006.

Today, Scott directly oversees West Jet's growing operations network (pre-Covid) of more than 100 destinations and 700 daily flights across North and Central America, the Caribbean, Europe and the UK.

The amazing story of West Jet Airlines Ltd started in 1994, when this low-cost Western Canada regional airline was founded by four enthusiastic pilot entrepreneurs based in Calgary, Alberta. The mission was to provide a low-cost alternative to the existing Canadian flag carrier. The business model was based on the very successful South West Airlines and Morris Air in the USA. Restricting the type of aircraft operated to the Boeing 737 kept the costs of maintenance, spare parts and pilot training relatively low and predictable.

Operations commenced in February 1996 with three Boeing 737-200s and 225 employees. The initial destinations from its Calgary base included Edmonton; Vancouver; Kelowna and Winnipeg. In less than a year, friendly service and great airfares allowed West Jet to expand services to Regina and Saskatoon in Saskatchewan and to Victoria, British Columbia. Those same friendly service and great airfares have since allowed West Jet to expand into Canada's second largest airline.

In 1999 the company went public, and the western cities of Thunder Bay, Grand Prairie and Prince George were added to its route map. With the amalgamation of Canadian Airlines into Air Canada in the year 2000, West Jet took the opportunity to expand its operations into central and Eastern Canada. In 2001 further routes were added in Western Canada and London, Ontario and finally Canada's largest City, Toronto were added in 2002. The phenomenal growth of air travel and West Jet's network continued in 2003 to include Montreal; Halifax, Nova Scotia; St John and Gandar, Newfoundland.

In 2003 West Jet commenced a six-year contract providing aircraft and crew for charter flights on behalf of Montreal based Air Transat, taking holidaymakers to destinations in the Caribbean and Mexico. After that agreement ended in 2009, West Jet expanded its own operations to these familiar destinations.

Cross-border flights to the USA commenced in 2004 and in December 2005 the long-speculated introduction of ETOPS flying between Vancouver and Honolulu and Maui in Hawaii began. A scheduled service to Nassau, Bahamas was introduced in 2006, West Jet's first scheduled service outside of the USA /Canada. The following year it added seven new international seasonal flights to Saint Lucia, Jamaica, Dominican Republic, Mexico and Kona in Hawaii. In 2008 there was further expansion both domestically and internationally and the following year new seasonal destinations were added including Turks and Caicos Islands, St Martin, Freeport, Bahamas, Miami, Cuba and Bermuda. By 2010 West Jet had 71 destinations on its route map. Of course, all of this rapid expansion required West Jet to build its fleet of aircraft to include the 'Next Generation' Boeing 737s 600/700/800s. These were ETOPS capable and had better passenger load and fuel economy than the trusty old B737-200. In 2010 it also wet-leased two Boeing 757 aircraft for expanded service between Calgary, Edmonton and Honolulu, Maui.

West Jet's first European service from St John's



West Jet's fleet includes the Boeing 787 (above) and 737 MAX, now returned to service.



Newfoundland to Dublin, Ireland commenced on a seasonal basis June to October 2014 using the 737-700. The airline then took delivery of four 767-300ER aircraft and launched transatlantic services to London Gatwick, Glasgow and Dublin in 2016. These aircraft have now been passed onto Amazon for cargo operations and have been replaced by the new 787-9 Dreamliner.

Since 2017 West Jet has transitioned to some degree to a full-service airline, while still keeping in mind that the "Lowest Cost Wins". The Full Service includes Business Class and a Premium Economy on the Dreamliner and the option of a Premium Service on some B737s. In turn it has also launched an 'Ultra-Low Cost' subsidiary using the B737-800 and a regional airline subsidiary called Encore using the Dash 8 Q400. On 21st January it returned its Boeing 737 MAX fleet to service after the March 2019 grounding.

Covid-19 has had a serious impact on aviation in Canada and West Jet is no exception, with many aircraft placed in storage and pilots furloughed. Urgently required are international agreements on quarantine and Covid testing to get the industry moving forward

With vaccines now being rolled out, we trust that in 2021, a sense of normality will return, especially for our fellow pilots and colleagues in the aviation business and in particular I wish West Jet a very successful 2021. ▣



FROM THE DESK OF THE DIRECTOR AVIATION AFFAIRS

Will a post-pandemic world learn from aviation?

By Liveryman John Turner

"SAFETY IS NO ACCIDENT"

The iceberg illustrates how knowing about the 90% that sits underwater is as important as understanding the 10% above the surface. Reviewing accidents alone will never achieve an acceptable level of safety; you need to know much more. In aviation and elsewhere, this approach has been instrumental in reducing accident rates. Low-level safety issues only become visible when people report them, which only happens when people have the confidence to report issues upwards, including their own errors, without fear of retribution for honest mistakes. This is the essence of 'just culture' – which can be enormously difficult for management to create but easy to destroy.

The best aviation organisations also strive to learn from others, and to sustain their own open and honest reporting culture so all 'near misses' are reported, recorded and investigated just as assiduously as incidents and accidents, after which the safety lessons are disseminated as widely as possible. In aviation, we learn from our own and others' mistakes. World statistics for 2017, when there were no fatal passenger commercial jet crashes (and only two turboprops), illustrated the power of this approach.

Different countries have responded differently to Covid-19, inevitably experiencing different outcomes as a result. More recently, the availability of vaccines has produced another range of responses. Only an epidemiologist could comment on the efficacy of these choices but countries that previously experienced coronavirus in the form of SARS in 2002-03 or MERS in 2012-13 do seem to have dealt with Covid-19 more successfully. Were governments and people of countries that SARS and MERS hardly touched too complacent in believing that Covid-19 would fizzle out before they were affected?

Right now, energies are best deployed combatting the current pandemic but at some point it will be over. Despite fewer fatalities to date, Covid-19 is set to become

the worst pandemic since the 'Spanish' flu in 1918. In the century between, the world has faced a string of other devastating diseases including Ebola, SARS and several other flu pandemics. We should assume there will be more.



Aviation's lesson is to learn from the past, by examining and understanding the failures and successes, but especially the failures to avoid repeats, and be safer in the future. But this is a global issue and, Anton Chekov said, "There is no national science, just as there is no national multiplication table; what is national is no longer science." WHO will collect and correlate the data on the Covid-19 successes and failures around the world, then analyse the data dispassionately and share the results?

WILL AVIATION LEARN?

The pandemic's severe impact on aviation has been widely reported. For those forced out of employment it has been devastating. Student pilots have watched the prospect of employment in their chosen career all but vanish.

Now, there are insights emerging into the challenges for those still flying. For example, an increase in level busts could be attributed to the lighter operating weights occasioned by reduced passenger numbers, combined with low platform altitudes that now 'arrive' much sooner than crews are accustomed to. Similarly, with more direct routing on offer and crews flying much less frequently, there has been an increase in the number of missed approaches with crews finding themselves inadvertently and unexpectedly too high and too close. At the same time, crews becoming increasingly conscious of their own lack of recency/currency are endeavouring to delay autopilot engagement on climb-out (and to disengage the autopilot earlier on approach) to increase the period of hand flying. Some operators have stopped crews flying visual approaches to reduce the time pressure on less-current pilots. Pilots have been remarking on skill fade and increasing loss of confidence, especially for those whose skill base was lower to start with.

In these 'unusual times' we should pause to consider whether our well-established training and recurrence programmes, that proved effective in times of high workload, still produce and sustain the skills we need. Regardless of how long or how deep the Covid-19 hiatus lasts, every pilot on the flight deck must possess the skill to operate and manage the complex integrated systems in today's airliners, as well as the mental and manual flying skills to cope with any unforeseen event. We should not assume that a training regime that once appeared adequate remains so in these changed circumstances. □





YOUNG AIR PILOT UPDATE

By Freeman William Wright – YAP Committee Chair

As this will be the final Young Air Pilots update before a new court is elected, I think it prudent to attempt to summarise the entire year. This year has seen a step-change in the world of young members within the company. Conversations are now being had across the Company to the benefit of those whom I represent, and it would be close to impossible for anyone to measure the output of those discussions. Needless to say, I am buoyed by this wave of proactivity and positivity. Long may it continue.

MENTORING

The YAP Committee has supported the Company in an update to the Mentoring programme ably driven by YM Mentoring Lead, Becky Kwo. A number of new mentors have been brought on board and successfully trained. A social media drive for awareness of the benefits of mentoring has led to a number of Young Members using the programme. Supporting young aviators in any way we can has been, and will continue to be, a key objective for us. (mentoring@airpilots.org)

CAREER DEVELOPMENT AND TRAINING

Support has continued in the form of training days in 2020: 'The New Normal' and 'Level Up' were both run entirely online and well attended with a range of speakers. The focus was on skills and mindset to help guide those who find themselves without jobs through what is undoubtedly a challenging time to enter aviation. This programme will continue throughout 2021 as we hope to see our industry bounce back and our members returning to that which they are most passionate about, flying.

(careerdevelopment@airpilots.org)

EVENTS AND VISITS

As can be imagined, this year has not been as fruitful as others for events and visits. That being said, I have been

Embracing social media was a major development in 2020 - a snapshot of the Company Christmas Social on 17th December



impressed by the ability of both the YAP Committee and the Company itself to adapt to the challenges faced. Embracing Zoom has been the cornerstone, allowing us to maintain contact with one another. The introduction of the Virtual Coffee Morning series utilised this platform and it has been a great success, engaging Air Pilots across the membership. A recent highlight was the inaugural YAP Festive Social held online on 29th December. Without incriminating anyone, a good time was had by all, and expect this to become an annual event.

SCHOLARSHIPS

We have supported Liveryman Steve Dean who is producing a PPL reference handbook for future PPL scholars (see p17 – Ed). We have also been working on the automation of the gliding scholarships application process.

OTHER POINTS OF NOTE

Outreach activities have meant supporting a new audience of budding young aviation professionals. This has occurred in two main forums: social media and promotions. With regard to the former, a great deal of credit should go initially to Georgie Millington and then to Toby Eden who have both worked very hard on bolstering the YAP following. To the latter, we have supported Assistant Steve Durrell and his team with online Careers Events, improving the stand offering and delivering presentations to UAS and aviation-related university degree cohorts alike.

In establishing structure, process and procedure within the YAP Committee, we have sought to champion the use of Microsoft Teams in the Company and, through the good work of Rob Mackenzie, have successfully integrated it into our ways of working. This has dovetailed well with establishing collaborative dynamic working patterns across the regions where we have regular contact. Ben Akhurst (Hong Kong) and Ellen Franklin (Australia) have been instrumental in this.

Overall, I hope you read this with a sense of great achievement for the YAP over the past year. There is still a great deal to be given by the Young Members and we look to the future with an overriding sense of optimism. Finally, as this will be the final edition of Air Pilot before the outgoing Master departs, it would be remiss of me not to mention Capt John Towell. It has been an absolute pleasure to work alongside John on the development of Young Members within the company. This is the start of a long journey, but the foundations have been well and truly set with John's unwavering support. Thank you. The entire Young Air Pilots Committee and I wish you and Linda all the best for the future. ▣

SCHOLARSHIPS & TRAINING UPDATE

Although the Company's Scholarships programme was forced into abeyance in 2020, Air Pilot has managed to catch up with several previous scholarship winners and report on their progress. We also have news of a new guide for future scholarship applicants, and a report from one Young Air Pilot who, somewhat unexpectedly, has been able to turn the Covid crisis to his advantage.

AIR PILOT'S PPL SCHOLARSHIP GUIDE

By Liveryman Steven Dean

For a number of years now, I have been a member of the interview and selection panel for the Air Pilots PPL Scholarships awards.

The selection process for the winners of the annual scholarships is involved, and it is carried out by a dedicated team of helpers. Each year, well over 400 applications arrive at the Air Pilots office, where the sifting starts to find the successful candidates for one of the seven or so PPL training awards. Although this is a well-practised system, the team is always looking for ways to improve it, and as there were no awards in 2020, we used our time together instead to refine the selection process. We also developed a guidebook to help the winners prepare for their course more effectively.

Dedicated volunteer sifters work in pairs for many hours assessing and ranking between 30 and 40 candidates each. After another round of sifting by the interview panel, approximately 30 of these top-ranked applicants will be called forward for interview. Throughout the process we are always trying to identify the best candidates.

Opportunity, social mobility, and diversity are important differentiators when it comes to assessing the applicant's 'need' for the award. Ultimately, we are looking for candidates to demonstrate real passion for aviation. The winners are usually informed in late April or early May.

SCHOLARSHIP GUIDE

Over the past few years, we have noticed that some of the winners make similar mistakes when they enter flying training, such as starting their course too late to complete it in the time allowed - they must complete their training by a specified date in early October. Others don't make enough allowance for the events that can impact their training and are familiar to experienced aircrew, such as bad weather or aircraft unserviceability. This is despite

being explicitly briefed on matters like these during their time at Air Pilots House attending interviews.

This year we are trying a new approach. We have written a guide that will be issued in hard copy to each successful scholar. The aim is that this useful A5-sized book provides a planning guide for students

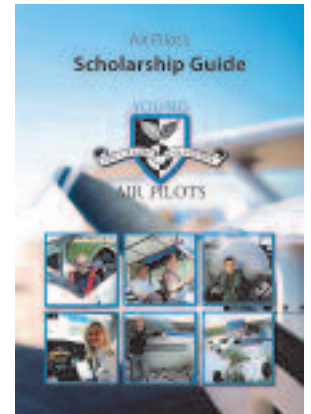
before they start training and remains a useful reference work as they go through their courses, and on to further flying; and that it remains relevant for many years. One thing it does not do is usurp any of the advice their instructors or schools will give, as that would be quite wrong.

Originally, we expected the guide to be a booklet of just a few pages, but it has grown to over 30, covering a wide range of information for fledgling aviators. The Guide is divided into six main sections:

COMMITMENT: This section spells out exactly what the Company expects from the scholars in return for financing their flying training, worth about £10,000. It sets out timing limitations, reporting requirements, and highlights where to find CAA syllabus and regulatory information.

PLANNING AND PREPARATION: In this part, we give clear guidance to the trainees on how to plan their summer flying activity. It covers the timing, scheduling and sequencing of training events, and gives advice on the appropriate clothing to wear around aeroplanes - something which is obvious after one or two training sorties.

COMMON CHALLENGES: This is about the common challenges faced by PPL students, which the uninitiated may not be aware of, and how to address them. Subjects covered include: weather; the time it takes to complete a training sortie; and aircraft and instructor availability, amongst other things.



TOP TIPS: In this section of the book, there is helpful information for the student to maximise training benefits, covering planning, continuity, and armchair flying as well as practicing skills such as radio calls and emergency drills. It also points students towards the Air Pilot's mentoring programme if they need help or advice.

NEXT STEPS: In addition to the flying training, scholars receive a five year membership of the Air Pilots as part of their prize. This section points them towards joining in our wider activities, and especially those of the Young Air Pilots.

USEFUL INFORMATION. The final section of the guide contains a number of useful aides-memoires to copy and

keep, perhaps in the student's kneeboard. These include basic information such as the phonetic alphabet, and more advanced information that will be more useful once they have completed their PPL training.

We hope that in future, students will be better informed from the outset, and that those who might have struggled with the planning and organisation, through unfamiliarity, will now be much better equipped to approach their training courses. By helping the students in this way they will be better ambassadors for the Company, and their sponsors, and hopefully become better pilots and members of our great community.



STEVE BIRCHALL

After being the very fortunate winner of the Sir Adrian Swire FI Scholarship In 2014, I enjoyed a fantastic 3 years as a part-time flying instructor. As my hours crept up, a few other opportunities started to open for me, and I ended

up joining Flight Calibration Services, flying the multi-engined Piper PA-31 and Austrian-built Diamond DA62 - the latter much larger than the familiar DA42 TwinStar and based upon the DA50 SuperStar. These calibration operations took me worldwide, hand-flying light twins in some places I'll likely never get to go to again. It was a real adventure but, in time, I realised I wanted something closer to home.

Airlines were not necessarily an objective for me when I first started flying. I think it's vital that we keep as many avenues open as possible in our early careers. However, when the opportunity to join Boeing 737-equipped low-cost airline jet2.com came up, I took it with both hands.

Without experience on larger aircraft, the entry method for me was the Pilot Apprenticeship. I spent nine months learning about the company from top to bottom, getting involved with all of the different HQ teams, including a short stint as cabin crew, and also working in the crew room. It's a fantastic company, and I was incredibly lucky to join when I did. Now I'm rated on the 737 - base training back in October was probably the highlight of my time flying so far! □



TIFFANY SCOTT

After completing my modular training and obtaining a F-ATPL in 2014 I wondered what my next steps would be in the world of aviation. Having spent some time watching from an office window

commercial traffic arrive and depart, I soon realised I missed being up in the skies. This is when I took my first steps into instructing, completing my FI training alongside work and teaching part time whilst not in the office! At first, I saw instructing as stepping stone into the front seats of a commercial jet, but soon fell in love with the freedom, joy and prospects of training and shaping future aviators.

Approaching 30, my priorities in life were beginning to adjust and I had been instructing full time for a year. I loved the flexibility and lifestyle I had around a job I loved, but craved to progress and improve my own skills and experience. With some advice from colleagues, I was fortunate enough to successfully apply for and receive a continued professional development bursary. Thanks to the Honourable Company of Air Pilots I was able to gain additional privileges and experience to maintain an established position within a growing ATO whilst balancing my home family life. With the support of the bursary I was able to complete the instrument rating instructor qualification. This has since not only enabled me to teach instrument training on a variety of SEP aircraft, but also allowing me to teach at a more advanced level and to students on advanced training courses. I have recently moved ATOs: where previously I was teaching students throughout their modular training at both PPL and CPL levels, I am now delivering training to integrated students. □

ALEX STIFF

During lockdown I, like many others in aviation, was trying to figure out just what to do with my career. 2020, the year I thought I might get my first chance with an airline, just did not happen and with this dream on hold for the foreseeable future, I turned to my Flight Instructor rating, something I had already held and used for 18 months.

I thoroughly enjoy working as an instructor but with the average PPL instructor being just about able to afford a pot noodle for their lunch, I never saw it as a long-term career path. As with so many others, Covid-19 changed my outlook on the aviation industry, but also how my career may pan out. I started to look at flight instructor progression and how this could lead to a successful career as an instructor. From all the various additional ratings you could add to an FI rating the IRI (Instrument Rating Instructor) qualification seemed to be the most useful in terms of progression, being able to then go on to Multi Engine instructing and eventually the Multi Engine IR. So there it was, I was now set on gaining this qualification and felt more positive about the future.

A family friend and Company member recommended I look at the Company's Continued Professional Development Bursary which I subsequently applied for and was awarded in the Autumn.

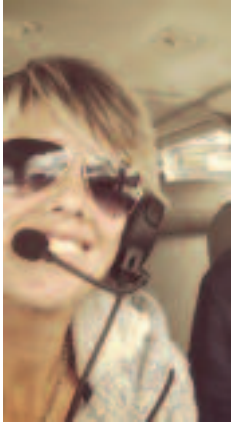
The school where I worked was able to provide IRI training which was handy, and I completed this 5- hour course in a couple of weeks in September. The IRI course was a far bigger challenge than first anticipated. It is only 5 hours of flying, which we completed in a PA-28, however the course also entails 25 hours of ground school, including interpreting approach plates and looking through many of the various EASA, ICAO and CAA documents to help us better understand the relevant rules and regulations. Having only recently completed my own IR before this, I only had 20 odd hours of Instrument Flight time so suddenly finding myself having to teach it to someone else was indeed a steep learning curve but exciting for sure.



Since completing the IRI course I have more recently, been lucky enough to teach my first student the IR(R) course or IMC rating to some. This for now is all I can teach as I will need 200 hours IFR time before I can teach the full IR. Nevertheless, the IR(R) is a fantastic course to teach and there were plenty of new experiences and aspects different from PPL training that one must contend with. We completed the IR(R) course in a Piper Warrior; often with fairly basic and old equipment which comes with its own challenges. Icing is something else you must consider, especially in winter and in Scotland! But it does give one that first taste of what it is like to work as a commercial instructor; and it is truly rewarding when your student completes the course and passes their Skill Test with complements from the examiner.

I would highly recommend to anyone thinking about a career in aviation to consider a role as a flight instructor; and anyone who is already an instructor to apply for this bursary to aid their progression in their profession. Regarding my own progression I intend to continue teaching the IR(R), building my IFR hours with the aim of gaining a Multi Engine Instructor rating allowing me to teach the ME IR, after which there are endless possibilities of ratings and qualifications to add to an FI rating and even the possibility of becoming an examiner. ▣

HELEN OWTON



My father was a pilot with a PPL so I feel that flying is in my DNA. When my father died, I was 11 years old, but my mother bought me the book *Jonathan Livingstone Seagull* which connected my thirst for a challenge with flying. Before I started learning to fly, I had been looking towards the skies but never realised just how much I was missing. Now I wish to share this dream with others.

I undertook my pilot training via the modular route, completing my PPL, ATPL ground school exams, night rating, IR(R), MEP CPL/IR, and FIC with an aim to teach others how to obtain a PPL. I self-funded all my training while working and balancing other life demands. Last year, I

applied to the Honourable Company of Air Pilots for a Bursary for a Continued Development of Career Flying Instructors to help fund my FI Night Rating privilege.

I was delighted to receive the funding, which meant that I could complete my commercial pilot training at Central Flight Training, Tatenhill Aerodrome, Burton on Trent (www.centralflighttraining.com). The training involved two hours of ground school tuition and a flight lasting approximately 1hr 30min. This bursary has contributed to me advancing towards becoming a well-respected member of the flying instructor community and I am looking forward to helping students obtain their night ratings: there is something magical and thrilling about flying at night. Given my life experience, my background in psychology and teaching, I feel well equipped and motivated to continue developing my skills as a Flying Instructor and helping to produce future pilots. ▣





FELIX CHARLESWORTH

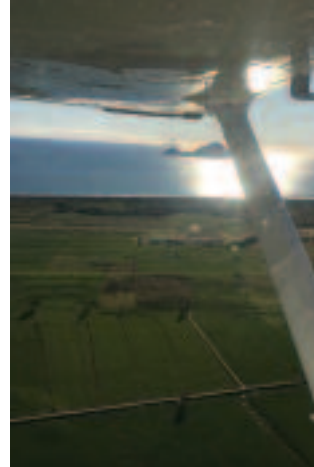
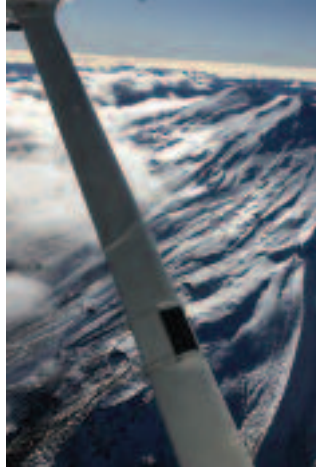
When I arrived in New Zealand it was only to do the basic section of my training which takes you from zero hours up to around 85 hours of single engine VFR flight: this was supposed to take about three months to complete.

However, a pesky virus got in the way and led to me spending a life-changing ten months there: instead of returning to the UK in April with 85 hours and no licence, I came back in October with a Commercial Pilots Licence.

The lifestyle in New Zealand did surprise me, as the pace seems much slower and more relaxed than the comparative hubbub of the UK. I was based at L3 Airline Academy just outside the city of Hamilton on the North Island about 1½ hours south of Auckland and around an hour away from each coast: this put so much at our doorstep. One way to summarise the landscape of New Zealand to someone who has never been there is to picture all the key landscapes of Europe: the Alps; the Italian Lakes; the French Riviera; the German forests; and the British rolling hills. You can experience every one of these wonderful landscapes within a few hours' drive in New Zealand...

The basic training stage was in Garmin 1000-equipped Cessna 172s, which were great fun to fly - and familiar to me, having achieved my PPL in a Cessna 152... This phase is full of opportunity for solo navigation flights to some truly brilliant places such as Whakatane, an uncontrolled airfield on the east coast of the North island from which you can make out White Island, the volcano that erupted in December 2019. My personal favourite is a route that allowed me to orbit the summit of Mount Ruapehu, an active volcano, at 10,500 feet. This route took me on controlled VFR climbing to 10,000 feet through radar-controlled airspace which gave an outstanding view. Basic training climaxes in the qualifying cross country which was the first time that you really feel like a pilot, as you have the aircraft for the whole day, conduct full-stop landings solo and stop for lunch at an airfield often with a friend who is doing the same route as you. My cross country took me north to Kerikeri then back down to Whangarei airfield which is set on a headland that makes it feel like landing on a tiny island.

Once you complete Progress Test 1 (PT1) you move on to single-engine IFR phase which took me to Napier at 9,000ft over mountains: because of the mountain ranges surrounding Napier, only a procedural service was given, which was a great experience in a radar-dominated world,



having to think on your feet and understand the old-school procedures. After seven IFR lessons in the Cessna you get to move on to the Diamond DA42 which was a privilege to fly. I was very fortunate to get a DA42 for the entire day to compensate for an hour shortfall and to take the aircraft on a trip back up to Whangarei where I went on my cross country, but this time I returned IFR. From Whangarei we went to Tauranga and stopped to stretch our legs, grab a bite to eat and play a spot of pool! After lunch we went to Whakatane and practised asymmetric NDB approaches before heading back to Hamilton to land. The trip took the whole day leaving at 9am and arriving back at 5pm with 5 hours airborne!

The instrument phase ends after the passing of Progress Test 2 (PT2) which is essentially an IR skill test with slightly more relaxed parameters. Once this is done you progress in to three VFR profiles for your CPL. The CPL test consists of a navigation leg followed by a diversion to an airfield for circuit variants and then limited-panel IFR and stalls to finish. Everything is examined until you get back to the briefing room when you can finally relax after 2½ hours of examined flying. Putting on my fresh two-striped epaulettes after passing is one of the proudest moments in my life, with friends coming up and congratulating you. One of the best elements of the course in New Zealand is the inclusivity of all the pilots: no matter what phase you are in everyone knows everyone.

After the CPL skill test was passed we went on to Upset Prevention and Recovery Training (UPRT) which was flown in an Alpha 160A which is a New Zealand-built development of the Robin 2160. What struck me most about the UPRT flights was not the loops or barrel rolls but the sense that I was an equal and competent member of the cockpit rather than a student being taught. This feeling brought with it the realisation of how far I have come in the ten months that I was in New Zealand, progressing from my first out-of-circuit solo in another country to gaining my CPL. It was the perfect way to round off my time in New Zealand and left me enthused for the remainder of my training and whatever follows it. □





BEYOND THE BLEAK MIDWINTER

By Liveryman Chris Tarry

At times since March 2020 various analysts and other commentators have suggested that the aviation industry faces an existential threat: Chris Tarry - Principal of aviation consultancy CTAIRA - takes issue with that perspective and offers his view of the future.

The more accurate assessment is that although an existential threat may well be the case for a number of individual companies currently operating in the industry, it is not the case for the industry itself, as demand will in the first instance recover, albeit at different rates, and then grow beyond that.

At least over the medium term a change in the shape, size and structure of the supply side is inevitable and the associated 'shake out' has yet to run its course. Just as in the case of the virus itself, the second wave will prove to be wider spread and involve greater numbers. Whilst we at CTAIRA have a list of those companies that we consider most likely to fail, it would be invidious to publish it here.



(London Gatwick)

Given the multitude of local regulations, including constraints and particular circumstances, generalisations are perhaps even more dangerous than ever. Whilst it might be of some interest to learn that the most recent IATA forecasts suggest a loss for the industry in 2020 of some \$US118bn and \$37bn in 2021, the reality is that it is of far greater interest to take a view of what is going on at a company and market level. It is the differences here that will determine the nature and pace of the recovery, the future shape, size and structure of the industry, and its financial performance. As with anything, there needs to be a sense of balance and reasonableness in everything from the assumptions and judgements made on the suggested outcomes from modelling - given that much of historical data and the associated relationships, at least for some time, are unlikely to be of much use. Models tend to work

because the cells are linked up, but the extent to which the outcomes reflect reality depends on the validity of the assumptions. Even then the greater focus is on comparing 'scenarios' with considerable use of the 'what if' term.

FRAMEWORK FOR ANALYSIS

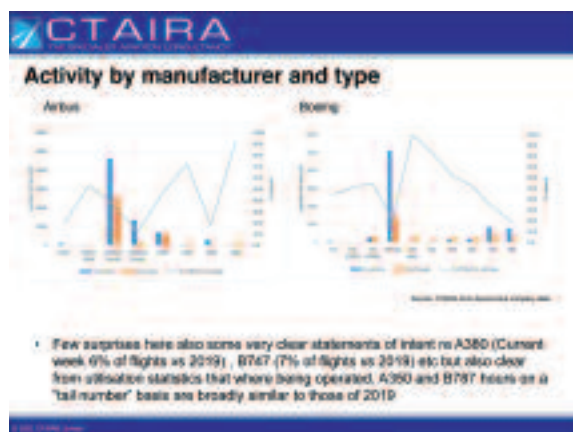
To guide our analysis of - and perspectives on - the future we have established a framework which we use for detailed analysis. This includes the six constraints and four 'business states' which we believe will have an impact on the restart phase. Beyond that we feel these will determine the speed of the industry's recovery towards pre-Covid levels of activity and then further growth. The constraints fall into three broad categories.

In the first category we include: closed markets both in terms of international and intra-national borders: other travel restrictions, chiefly around quarantine but particularly around short notice changes and the resulting uncertainty. There should be no doubt that the outcomes from putting in place quarantine regimes are effectively identical to those of formal market closures.

In the second category we have put those constraints which relate to behaviours and the economy and, in particular, passenger confidence. This is unlikely to fully recover in the absence of both internationally accepted testing and a vaccine, and will be positively correlated with at least the perception that the 'freedom to travel' has been restored. In terms of the economy, once the freedom to travel has returned, it will be the particular circumstances of individuals and businesses - and chiefly the impacts upon income, and in aggregate the level and rate of growth of GDP - that will determine the speed of the recovery and the level of demand. Inevitably there is, and will continue to be, a wide variation.

In the third category the constraints are supply-side related and relate to cash and available capacity. Whilst there was a dash for 'survival capital' in the first and second quarters of 2020, the ongoing state of hibernation for much of the industry - and a materially weaker-than-expected northern hemisphere summer followed by a far more difficult winter - means that access to affordable capital will determine not only whether particular airlines survive, but more broadly the pace and breadth of the recovery when essentially unconstrained travel is again possible. Beyond this, changes on the supply side as airlines have reduced the size of their fleets (and, as a result, networks and frequencies) will, in

the absence of new entrants, determine, at least initially, the extent to which fundamental, underlying or latent demand in the recovery phase can be accommodated. Indeed, some of the network changes will be structural, where reductions in fleet sizes have given the opportunity for some airlines to put an end to profitless 'have metal, will fly' strategies and to, in part at least, 'reset the economics'.



STATES OF ACTIVITY

Our snapshot of the position of the supply side has identified the four activity states which also reinforce why analysis and evaluation at both market and company level is a necessity. Investment and lending decisions are taken in respect of a particular company, the environment it operates in, the strategy management is purporting to follow and the probability that it can be implemented to produce the expected/forecast outcomes. Even now there are some clear examples of management illusion, if not delusion, that are evident across the wider sector; in respect of the position of and the outlook for their companies. That reinforces the need to take a cautious view on the extent to which management expectations will coincide with reality.

The four current states are:

- Effective or actual hibernation: a state that is widespread in international markets for passenger airlines/ activities but where a number of airlines are operating services to carry freight. This latter outcome is a feature long haul markets and particularly to/from Asian exporting countries;
- Restart then loss of momentum: a state where there has initially been both a recovery in passenger confidence coinciding with a relaxation in restrictions but subsequently an increase in reported infections whether or not accompanied by new restrictions. This has resulted in a tendency towards, if not a second phase of, hibernation, which is something that has been particularly evident in the intra-Europe short haul market;

- Restart followed by a period of steady state/modest recovery: the US market provides a good example of this, and although there have been a number of occasions where the base in the domestic market has effectively reset, it has most recently regained the trend that had its origins in early July 2020 (albeit not in an uninterrupted straight line);
- Restart and then accelerating recovery: a state that is evident for a number of airlines operating in large domestic markets, but by no means all as in a number there are restrictions on internal travel in place. In addition to China (where in some recent months domestic volumes have been above those in 2019) Russia (Aeroflot - domestic), Brazil (GOL – domestic), Turkey (Turkish Airlines and Pegasus) and India are amongst a number of countries whose airlines have also exhibited these market trends. This pattern has also been observed internationally in the 'US-Mexico' and 'US – rest of Latin America' markets where the principal impetus has been VFR (visiting friends and relations) traffic.

Whilst it will be only after the constraints in the first group are lifted that the restart and recovery phases might begin and where it remains unclear and as a result impossible to determine when this might occur but where it will be on a country-by-country basis. Here, the absence of an internationally agreed set of testing standards remains a major impediment to early return of international air travel and the associated economic and societal benefits, and we believe that testing will also be required in conjunction with the mass vaccination programmes that are now beginning.

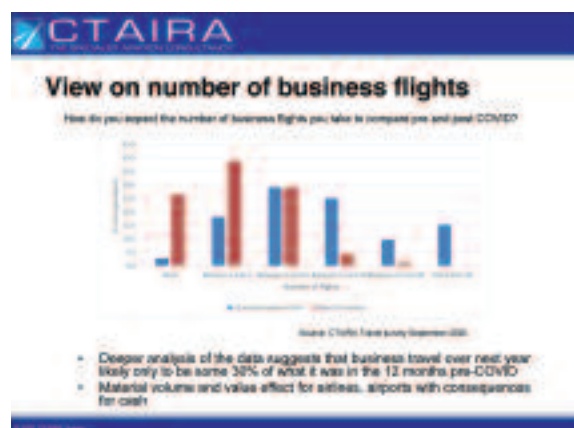
LOWER TRAFFIC AND REVENUES

There is no doubting the multiplier effects of the airline industry, not only through the aviation sector but also more generally to the economies and particularly those that are tourism dependent. Despite our earlier comments it is sometimes important to quantify outcomes at an industry or global level, and here we estimate that over the period 2020-2024, compared with previous forecasts, airline revenues in aggregate will be some \$1.7trn lower. To put this into context, in nominal dollar terms this is equivalent to the GDP of Canada. This is before the significant multiplier effects are taken into account including the loss of the spending power of tourists who fly to their destinations. In this respect it is particularly instructive to look at the impacts in some tourist destinations. In Majorca, for example, the data suggest that hoteliers had no revenue between March and June 2020, and between July and September; perhaps the most important period financially, they received no more

than 13% of what they had in the corresponding period in 2019. For countries that have closed their borders, the position is even more stark. The data for Phuket in Thailand clearly illustrate the importance of international tourists which as a group in a normal year account for some 73% of the visitors and 88% of the expenditure as well as providing some 55% of the passengers at the airport. Against this background, with no domestic visitors reported to be in Phuket in April and May, total tourist expenditure for 2020 was just 3% of what it was in 2019. There are many more examples of similar - and in some cases worse - outcomes than these.

What then of the future? Our current view of the near and medium term is that in the first instance it is reasonable to conclude that the necessary, and at least some of the sufficient, conditions for a broader restart and sustainable recovery (vaccination, testing and removal of restrictions) may at least begin to be in place by the start of the IATA Summer 2021 season. The structure of traffic at a market and airline level will be a material determinant on the pace of the actual recovery. Our view is that VFR and leisure traffic will be key components, and that business traffic may well only reach some 30% of previous levels over the first 12 months of the recovery - something that will have significant consequences for revenues.

The time taken for individual economies to bounce back, and then grow again, will have a material and differentiated impact on pace of recovery and the associated revenues. We expect the Asian economies both to bounce back the quickest and then grow beyond 2019 levels of activity. Conversely, given the economic outlook for the UK where by 2024-25 it will rank in 25th position out of the EU27+UK, it is likely to take until at least then for short haul traffic to recover to pre-Covid levels - and indeed beyond this time for long haul. What is also inevitable is that for any given level of economic activity, the volume and value of traffic will be lower, notwithstanding the reductions in capacity.



In terms of the structure of the supply side, there are clearly opportunities for new market entrants with new models, particularly in dislocated markets with a low cost of entry. There is also a need for a number of small countries to consider 'virtual airlines' as the only affordable way to provide required connectivity and economic and societal benefit. Elsewhere we also expect a greater share of point-to-point traffic, particularly in international markets given that unless 'demand aggregators' fully restore schedules, the attractiveness of connecting services significantly declines. For the hub-and-spoke airline the need is even more to strike the balance between the network offer and the associated operating economics: this is something that will also have an impact on what now constitutes the 'ideal' aircraft size. We also expect a more concentrated industry and a move back towards (sustainably profitable) demand-side economics and away from supply-side determination.

BUILD BACK BETTER

One of the main messages from the IATA's AGM in November was that: 'Aviation is the business of freedom': however, until at least a number of the current constraints are lifted, it clearly cannot fulfil this role. Another theme at the meeting was that there is a need to '...build back better'. Whilst we are moving closer to the time when the industry can begin to function again, the issue - for perhaps more airlines than we, or perhaps they, would like to think - is still how they survive against a background of very little revenue but retaining the ability to restart when the opportunity arises. Indeed this also applies across much of what is an integrated system for products and services that support airlines in moving freight and passengers. Inevitably there will be a need for additional government support, for without it the traditional capital markets are unlikely to be willing or able to provide the support required for the size of the industry necessary to deliver the economic and societal benefit even allowing for the contribution of new entrants. Whilst at least in some ways the future airline industry and wider aviation sector will be different from that which existed before March 2020, the one certainty is that demand will not only recover but will also grow beyond that point. The only real issue and difference, given the interplay of the key, mainly externally determined, factors, is the timing at a market and company level. That reinforces the message why generalisations are perhaps even more dangerous than usual - after all, it is often said that the devil is always in the detail. □

A LITTLE HELP FOR A FRIEND

By Upper Freeman Iain Tulloch



In 1969 I was married on a snowy February day in the Highlands, complete with sword, wings, and Flying Officer's uniform. Three weeks later my first operational posting came through. It was a 13-month unaccompanied tour in Sharjah flying the Wessex with 78 Sqn. My late wife was not amused

- "Apoplectic" would be an understatement. Had the sword still been available she would probably have expected me to attack the MOD with it. She headed to her parents in Australia for the duration. The euphoric first weeks of marriage morphed into its first ice age. Therein lies the motive for the story that follows. It begins in the week between Christmas and New Year.

There was a fortnight's break from duty around Christmas time. One morning, rather early, I was awoken by Dave Willies, one of my FTS course at Acklington. He began telling me an unlikely story about having flown from the UK in an Auster as part of an air race. My first reaction was to laugh this off, and I commiserated with him for being posted to Sharjah for Christmas. He insisted it was true and offered to take me to see the Auster parked in our hangar. There it was, a 1944 Auster J1N, G-ARGT, the slowest aircraft in the 1969 London to Australia air race. The race was handicapped, so the Auster had been the first to leave UK, waved off by no less than Sir Francis Chichester, of Gipsy Moth fame. The aeroplane was as old as I was. The owner, a private pilot from Yorkshire, had heard that vintage Austers fetched a good price in Australia. He had hired David to accompany him as a well-trained RAF pilot.

Once over the Channel the owner decided that he didn't like flying over the sea. As David wryly observed, that hardly looked promising for a trip to Australia. After bad weather in France he departed, leaving David to carry on. By the time he reached Sharjah, David had experienced many setbacks, including glandular fever. He was looking for help and knew that I had experience with the Gipsy Major engine, which was the same as that in the Chipmunk. His faith in my technical ability was touching.

RAPID DECISION

My mind began to work overtime. If I took some extra leave in addition to the Christmas stand-down, this aircraft would get me to Australia to see my wife for a few days. Dave was delighted with the idea of some company. It was still breakfast time in the mess. I prepared a leave application form in my room, took it to my squadron commander at breakfast, and persuaded him to sign it. I believe he thought it was just another joke. That afternoon we were on our way after an engineering check A.

We left Sharjah en route to an airfield called Jiwani, on the western edge of Pakistan near the Iranian border. This aerodrome was without lights or navigation aids, but at least it was near the coast. Gooseneck flares would be lit just prior to our ETA.

As we left the last of the Arabian Peninsula and looked into the emptiness that was the Indian Ocean I remember wondering what on earth I was doing. Here we were over the sea for some hours in an old single-engined aircraft with a single E2B compass, a single VHF crystallised radio, a single ADF and some RAF maps. Our cruising speed was



*The star of an unexpected adventure
(A J Jackson Collection at Brooklands Museum)*

less than 90 mph and our emergency fuel supply consisted of a jerrycan in the cabin with a length of hose to siphon the petrol into a fuel cap just outside the pilot's door. It was a clear sky and soon I was accustoming myself to checking the DG against the compass every 5 minutes. Apart from some ships beneath us we saw nothing for a couple of hours. At least we knew that to turn left would bring us to land. Finally we began to see something solid to

our left and eventually a few goosenecks were visible in the dusk. There were not many other lights about. It was difficult to pick out the runway, but it was good to touch terra firma again.

We refuelled at Jiwani from buckets of petrol poured into a conical filler lined with chamois leather as a filter. Night fell and the next stop was Karachi, a very different airfield indeed. Our night take-off from Jiwani was by the aid of four gooseneck flares according to my logbook. How they were arranged I cannot remember, but we got off the ground without hitting anything. A little over three hours later the lights of Karachi airport looked like Las Vegas compared to our point of departure.



ENTER A FRIEND

The next day at Karachi we met another Auster, G-AOHF, piloted by Richard [aerial surveyor Richard Rudd – Ed], an experienced Australian bush pilot. He was earning his keep distributing first day covers at all the landing places on the route. (The main reason for the air race was to commemorate the first airmail service between Britain and Australia 50 years before.) Richard was quite a character and, being a bush pilot, he had been wise enough to carry a whole load of aircraft spares. Our own supply of such items was pitiful to put it mildly. For some reason, probably a faulty ADF, he requested that for our next leg to Ahmedabad we fly in formation. The route took us over a featureless desert, the Rann of Kutch, where Indian and Pakistani forces had been fighting in the recent past.

Shortly after take-off it became obvious that flying in close formation was not going to work: We had no common frequency apart from the airfield approach so it needed frantic hand signals to indicate to him that we were not inclined to continue with the experiment - the hand signals probably looked as if we were swatting a swarm of locusts inside our cockpit. We pressed on to Ahmedabad in a reasonably straight line.

Clearing customs at Ahmedabad having arrived from Karachi was a long drawn-out affair. All the British training in rigorous bureaucracy was plain to see in India. By the time the process was finished we fully expected that our Aussie friend would have landed. But there was no sign of him even an hour after his ETA. By that time we had decided to insist that emergency procedures be initiated. In the control tower was an ancient HF radio which was the link to Bombay, from where we gathered search and rescue procedures were co-ordinated. Almost all our communications were unreadable as there was continuous static noise. Whether we would ever have managed to instigate a search and rescue mission in the Rann of Kutch remains unclear. Some considerable time after his fuel would have run out our man appeared looking a little disheveled. He had landed in the desert after the cable controlling his left aileron had come off a pulley just above his head. The immediate effect was to cause the aircraft to roll to one side which must have given him quite a fright. Somehow he managed to land the aircraft operating the loose cable with one hand and moving the other aileron with the joystick. At any rate he was safe and sound and we would meet again en route. As he was not racing he was usually behind us. Given that we were usually delayed by unserviceability and he had all the spares, this was good news.

I had taken my little Canon Dial 35mm camera with me and by Ahmedabad I had run out of film. I expected to be able to buy a new one at the airport. Much nodding of heads seemed promising at first but I soon realised that this gesture in India means "no". I enquired what the population of Ahmedabad was and was given an answer in the low millions. As we were still waiting for our Aussie friend someone offered to go into town and look for a 35mm film. He found a colour film which stipulated that it had to be developed and printed in the Soviet Union. It was that or nothing so I paid him and loaded it in the camera. When I finally returned to the UK I discovered that by sending it via Cyprus it could be developed. I am still waiting for the pictures.

ENGINE TROUBLES

Our next stop was Bhopal, where we again needed some technical assistance with the engine. It was beginning to run rough in the cruise and I suspected that there was something wrong with the carburettor. India was hot and Yorkshire is cold. One of the problems with aircraft carburettors in northern climes is icing and I found that the

air intake was wired into the hot air position which was not ideal for the conditions. However there was another more complicated problem which involved the ignition timing. We needed to adjust this for smoother running but the technique of doing so was above my pay grade. An Indian engineer bursting with enthusiasm appeared. In his hands was a handwritten set of notes complete with his coloured pencil drawings of the Gipsy Major engine. It was the equivalent of a book of hours penned by a medieval monk. With the aid of a wooden stick inserted in the cylinder through the plug hole he determined TDC to establish where the piston was in relation to the magneto contacts. I was tempted to christen him Merlin after the wizard of King Arthur's round table. The engine ran much better after his intervention. We were happy to depart with a few dollars less and a smooth-running engine. Nagpur was our next stop followed by Jamshedpur.

One of the delays we experienced at each stop in India was the procedure of clearing customs. Even though we had arrived from another airfield within the country we were unable to persuade the local customs officers not to bother. They insisted on declarations of health, passport details, lists of goods carried etc etc. All this took time especially when multiple copies of the same document were specified. The worst administrative experience of all was in Calcutta where at least 6 copies of the general declaration were required. Each one had to be filled in separately by hand. The inevitable delay was the more annoying because we were trying to take off before a typical advection fog came in off the sea mid-morning. The Auster was not adequately equipped for instrument flying and neither of us had a civilian instrument rating. We made it just before the fog rolled in.

Crossing the sea from Calcutta to Burma was a similar exercise to the leg from Sharjah to Jiwani. We landed at Akyab, a sleepy little place on the coast just south of the border with Bangladesh. Our next destination was Rangoon and the officials seemed quite content to let us proceed to the capital. We had to climb over a range of hills before reaching the valley of the Irrawady and at the highest point the engine began to run a little rough. We were able to throttle back in the descent to Rangoon but decided that once there we would need another check of the timing. The great golden dome of Rangoon's main pagoda gleamed in the sunlight ahead of us. It was an impressive sight. Less impressive was my landing at Rangoon. There was a crosswind and on touching down I completed a ground loop. As there was a taxiway to the

main apron just in front of me I turned on to it and proceeded as though nothing had happened. There was no comment from the control tower. The Burmese are very polite people.

GO TO JAIL

However our reception from Customs and Immigration was not so polite. Customs and Interrogation would be a more appropriate description. Why had we landed at Akyab without permission, where were our visas, what was our business in Burma??? Our answer was that we were on the air race which had arranged block visas for all the competitors. Their reply was that the block visa had expired and that all competitors had passed through. It appeared that with the delays to our aircraft we were now in last place. Another complication was that we were wearing our RAF-issue flying suits. The next charge was that we were military spies. Things began to get serious when we were put under arrest and escorted to Rangoon jail. Images of emaciated Allied prisoners being tortured by sadistic Japanese guards flashed across my mind. We refused to surrender our passports and insisted that the British embassy be contacted.

The Burmese jailers could not have been more civil. It was New Year's Eve 1969 and in broken English they kept apologising for the stupidity of the military regime. Would we like something to eat? It would have been churlish to refuse and it was a long time since we had eaten. With no great expectations we said "yes". In what seemed no time a dish of the best brown rice I have ever tasted appeared. A little later we were advised that the embassy had sent an administrator to the jail to intercede for us. He was sent packing by the officer in charge as not being of sufficient status to negotiate with him. Shortly after midnight we were released into embassy arrest after an air attaché had been dispatched to negotiate this. He was not in a very good mood.

When we arrived at the embassy we found out why. The embassy New Year party was in full swing with a mixture of cocktail dresses, black ties, and mess dress. We were a little out of place in our flying suits. There was a lot of champagne around and we felt like celebrating properly. It was New Year's Day and we had just been released from Rangoon jail. We enjoyed the party and did not retire early. After the holiday on New Year's Day we were keen to get away and the embassy would be delighted to see the back of us. But yet again we needed technical assistance. As luck

would have it our Aussie friend had arrived to distribute his first day covers in Rangoon. We also located three young engineers working for Burma Airlines, which operated a fleet of DC-3s. They had been trained at Airwork Services in Perth, where I had learnt to fly. They were full of praise for the training they had received and their treatment in Scotland. Once again they diagnosed that the problem was with the magnetos. Unfortunately they had no spares. They discovered that some cog wheels in the magnetos were worn beyond limits. These wheels were made of a sort of bakelite fibre and should have been modified to metal wheels long before. Our Aussie saved the day as he had two spare magnetos on board. We bought them from him and our Burmese engineers replaced our unmodified examples.

As we worked on the aircraft we were always under armed guard. We agreed an hourly rate for the engineers but as we would be paying in dollars we needed to arrange how to pass them on without being noticed. The engineers could be searched and if they were found with dollars it could be a problem. In the end the boys were too frightened to accept any payment from us. We felt bad. One of the young engineers, called Myint, had a girlfriend in UK. He asked me if I would take a letter for him and post it outside Burma. I agreed without question. Just before we left I enquired about the letter which he had still not given me. He had changed his mind because he thought it too dangerous to be caught with an uncensored letter addressed overseas.

Our next stop was Mergui and then Ko Phuket, the last landing in Burma. We refuelled around dusk and decided to press on to Penang, our next destination. The meteorological facilities at Phuket were very basic and we could get little more than the actual and forecast weather at Penang from a teleprinter. But for obvious reasons we were keen to leave the military dictatorship behind.

After about an hour's flying the night sky started to brighten up with flashes of lightning. A tropical thunderstorm is no place to be in a light aircraft. At night with no onboard radar you can easily stumble into one and thoroughly frighten yourself. From the lightning flashes it looked as though a line of storms was lying across our track to Penang. It was time to seek help. Luckily RAAF Butterworth, an Australian air force base in Malaysia, lay to the left of our track. We requested radar assistance to track the thunderstorms and permission to land if we could not avoid them. Once they knew we were both RAF pilots accustomed to ground-controlled radar approaches

they could not have been more helpful. We did not need much convincing to divert to Butterworth. We spent a comfortable night in the officers' mess, happy to be free of constant surveillance. A 15-minute flight to Penang the next morning enabled us to refuel with Avgas and then proceed via Kuala Lumpur to Singapore.

BAIL-OUT

By this time it was obvious that I would never get to Australia in the Auster before my leave ran out. If I was to have any time in Melbourne I would need to fly there in something considerably faster. In Butterworth I learnt that the RAAF had a regular schedule from Singapore to Australia using C-130 Hercules. This seemed the only way to go especially as RAF aircrew were entitled to indulgence flights with RAAF, and it took me no time to organise one.

Dave accepted that I would have to jump ship, and he arrived in Melbourne some weeks later.

Our route to Melbourne involved a night stop in Darwin for crew rest and refuelling.

Having arrived in Melbourne I found that my visit was completely unexpected. I had sent my wife an airmail from Calcutta but it never arrived. The longest I could afford to stay was two days before being AWOL. My late wife was not impressed by the way I had organised things. Why had I taken so long to get there and what did I mean by leaving after two days? Why had I not phoned from somewhere en route? (I did not have her parents' number and internet was 20 years away.) I decided that perhaps it was better to tell the whole story another day. We spent many happy years together afterwards! □



A NEW THRUST IN SPACE EXPLOITATION

By Chuong Van Dang

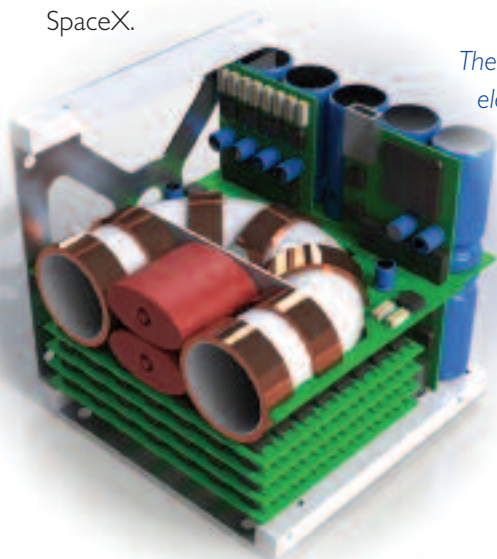
This article is based on a presentation given last December to the Space Working Group by UK space-tech company Magdrive, for which the author handles marketing and operations.

The number of satellites being launched into Earth's orbit is increasing at a phenomenal rate. As satellites get smaller, they are getting easier to build and launch. From a total of 385 small satellites launched in 2019, it is expected that over 6,000 will be launched in 2023, including SpaceX's Starlink and Amazon's Project Kuiper machines – and the UK government has set a target that the UK's global share of the space market should be at least 10% by 2030.

While industries such as commercial aviation have been hugely affected by the global Covid pandemic, the skies above Earth's atmosphere appear to be immune, as there is still a healthy appetite for better global telecommunication services and geo-mapping solutions. Similarly, investors are looking at space-tech companies as astute long-term investments with big pay-outs as we enter a new space age.

UK start-up, Magdrive is one prime example which is developing the next generation of electrical propulsion for small satellites, giving thrust performances comparable to chemical thrusters at a fraction of their size, with the efficiencies of an electrical system.

"As satellites are evolving to be smaller and agile, the development of propulsion technology to serve them effectively has not kept up," says Dr Thomas Clayson, CTO and co-founder of Magdrive. Magdrive has just closed £1.5million in seed funding from investors including Founders Fund, which was the first institutional investor in SpaceX.



The horseshoe-shaped electromagnetic coils lie at the heart of the Magdrive concept



Thomas Clayson and Mark Stokes

Current state-of-the-art thrusters such as Ion and Hall-effect plasma thrusters are aimed at reducing the required propellant mass, thus lowering launch costs. However, in doing so they sacrifice much-needed thrust, resulting in slow deployment and limited capabilities to rendezvous with or avoid other satellites. Because of these limitations, electric propulsion is used only occasionally, and rarely for low Earth orbit, which is the current area of huge growth for smallsats and constellation networks.

"The combination of high thrust and high specific impulse delivered by the Magdrive's thruster are a generational leap ahead of any other propulsion systems," says Clayson. "Other similar-sized electric propulsion systems will typically produce less than 10 millinewton (10mN) of thrust, whereas Magdrive is looking to provide a colossal 100mN, providing small spacecraft with increased agility and control, sufficient for close-proximity operations and obstacle avoidance. Meanwhile chemical propulsion isn't going to get any better without ground-breaking advances in chemistry. Hydrazine has a maximum specific impulse* of less than 230s, whereas the Magdrive will operate with over 2000s, reducing the fuel required by a factor of ten."

The Magdrive thruster consists of several magnetic coils, arranged to create a magnetic chamber. These coils confine and direct the hot plasma exhaust, provided by pulsed plasma injectors. The unique element is the efficiency with which the Magdrive manipulates the magnetic fields to direct the plasma to provide thrust. The high temperature (over 100,000 Kelvin) of the plasma guarantees high efficiencies and specific impulses, while the high plasma

density creates a high thrust.

The Magdrive draws power from solar panels, charging up an onboard energy storage system over a duration of around 10 minutes. This is then discharged over a few seconds to achieve a high thrust burn. Output power is up to 2kW, but input power can be as low as a few hundreds of mW.

Clayson explains that: "There is going to be an exponential growth in satellites orbiting the Earth, which leads to the big issue of space junk and collisions. The risk of potential collisions is escalating. Though we have a collision-detection tracker, the system will soon become overwhelmed by the huge increase in traffic. Last-minute collision detections will become common. Current propulsion systems cannot achieve the high thrusts needed for a last-minute avoidance and doing this often means that a lot of fuel is used up just on avoiding junk. A Magdrive will be able to perform this manoeuvre, time and time again when needed. We expect to be able to do over 10 million pulses, which translates to about 10,000 burns. This is easily sufficient to propel a small spacecraft to Mars."

Satellites are just the start for Magdrive: CEO Mark Stokes has much greater ambitions.

"We want to open up the space industry to completely new types of missions that were not possible before without resorting to much larger, expensive and heavier chemical thrusters. Fast and affordable interplanetary space, operations in Very Low Earth orbit, and laying the foundation for orbital manufacturing are all within reach."

"We plan to scale up our technology to power larger manned spacecraft once in orbit, to long distance destinations such as the Moon and Mars. Our system would present a much more affordable option than a chemical or nuclear solution, due to the huge reduction in launch costs, which will equate to around 90% reduction in fuel load costs."

These are exciting times for the UK space industry. □

** Specific impulse = the amount of thrust in Newtons per kilogramme of propellant, normalised to Earth's gravity, so Newton-seconds/kg or lb-sec/lb, which simplifies to "seconds"*

www.magdrivespace.com

The ten small satellites successfully air-launched by Virgin Orbit from its 747 on 17th January are typical of those which Magdrive hopes to power (Virgin Orbit)



BOOK REVIEW

CLOSE CALL: RAF CLOSE AIR SUPPORT IN THE MEDITERRANEAN VOL 1

By Vic Flintham

Reviewed by PM Chris Hodgkinson

Published by Crécy; ISBN 9781902109640; £22.95

Initially intrigued by a reference in his uncle's war diaries to 'Rover David', the author, Freeman Vic Flintham, was told that it was the callsign for a system which allowed the direction of RAF fighter-bombers onto appropriate targets during World War Two.

Originally intended as a brief excursion into the role of Air Observation Post (AOP) squadrons in Italy working with fighter 'cab-ranks' (use the first in line rather than pre-assign targets before take-off), the book just grew the more he researched. Thus, after six years, 250,000 words and around 200 photos, there will be two volumes. As you can no doubt realise, it is an incredibly researched and detailed analysis of the development of close air support, and definitely an excellent book for aficionados and for reference.

This close support for the Army by the RAF evolved during World War Two from practically nothing to being fully integrated. Vol 1 traces the development starting with the last year of World War One, through the doldrums of the inter-war years to the point where the RAF was heavily criticised because of its apparent absence during the evacuation of France through Dunkirk. The rise and subsequent demise of Army Co-operation Command is covered in detail. This was followed by the systematic cover in East Africa and various campaigns in the Western Desert through to truly effective support at El Alamein. It concludes with the problems of providing support to amphibious landings in Operation Torch (the allied invasion of French North Africa in late 1942), and culminating with the first cab-ranks at the Battle of el Hamma in Central Tunisia in February 1943.

Vol II *Close Call: Sicily to Victory in Italy* is currently due to be published in October 2021. It will address continuous improvements throughout the war in Italy and southern France, including the challenges of air support for the further four amphibious landings in Sicily, Salerno, Anzio



and the French Riviera, together with Monte Cassino and the battles for the Gothic Line – Field Marshal Kesselring's major line of defence along the Apennine Mountains. It also covers the Rover system and the part played by the Air Observation Post (AOP) squadrons.

The author is a Freeman, who after a career in NHS management, learnt to fly at Booker at the age of 60. He has researched and authored numerous books, pamphlets and articles on British military aviation for many years. □

INTO THE OVERSHOOT

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

The many enthusiasts for the Boeing 747 will surely be pleased that our cover aircraft from the October 2020 issue – the BOAC-liveried G-BYGC – avoided the scrapman, and is now preserved at Bro Tathan (the old MoD St Athan airfield). Other British Airways 747s found homes at Dunsfold (G-CIVW in the Chatham Dockyard livery and G-BNLY in the Landor scheme) and Cotswold Airport (G-CIVB in the Negus livery).



G-BYGC arrives at its new home at Bro Tathan (British Airways)



The Lancaster in the RAF Museum at Hendon



The Lancaster Challenge medal

LANCASTER CHALLENGE

The RAF Museum has launched the Lancaster Challenge; asking participants to complete 80K, 150K or even 500K and raise money for the museum. Whether you need to walk off the Christmas calories or get outdoors to beat the lockdown blues, you can walk, run, hike, swim, cycle or row your way to the finish line. You will then be rewarded with a medal after the challenge closes on May 17 (the anniversary of the historic Dambusters Raid). Online registration is now open at [rafmuseum.org](https://www.rafmuseum.org); entry costs £20 per person and all proceeds will go towards supporting the RAF Museum. Limited edition T-shirts are also available to purchase when registering online. These cost £14 but if you raise £80 or more for the museum you will receive your shirt for free.

SANTA UNINJURED IN POWERED PARACHUTE CRASH

Perhaps this 'Santa' should have relied on reindeer rather than horsepower? In mid-December a man dressed as Father Christmas crashed his powered parachute into power lines in the town of Rio Linda, near Sacramento, California. According to local media reports, he was an experienced pilot and was taking off from a school yard to deliver candy canes to children in his community. The unnamed pilot was uninjured but some 200 residents lost power while he was extracted from the wires.

