SEPTEMBER 2015
17 5th General Purposes and Finance Committee Meeting  Cobham House
17 3rd Court Meeting  Cobham House
22 Luncheon Club  RAF Club
22 Sir Frederick Tymms Lecture  Royal Aeronautical Society
24 New Members Briefing  Cobham House
29 Election of Lord Mayor  Guildhall

OCTOBER 2015
15 6th General Purposes and Finance Committee Meeting  Cobham House
22 Benevolent Fund Board of Trustees Meeting  Cobham House
29 Trophies and Awards Banquet  Guildhall

NOVEMBER 2015
13 Silent Change  Guildhall
14 Lord Mayor's Show  Guildhall
16 Lord Mayor's Banquet  Guildhall
19 7th General Purposes and Finance Committee Meeting  Cobham House
19 4th Court Meeting  Cutlers' Hall
19 Scholarships Presentation  Cutlers' Hall

DECEMBER 2015
17 New Members' Briefing  Cobham House
17 8th General Purposes and Finance Committee Meeting  Cobham House
17 Carol Service  St Michael's Cornhill
17 Christmas Supper  The Counting House
18 Office closes

VISITS PROGRAMME
Please see the flyers accompanying this issue of Air Pilot or contact Liveryman David Curgenven at visits@airpilots.org.
These flyers can also be downloaded from the Company's website.
Please check on Company website for visits that are to be confirmed.

FLYING CLUB EVENTS
AUGUST
4 Visit, eGo aircraft
15 Lunch by the Sea, Sandown
19 Visit Medway Restoration Company, Rochester
25 Picnic, Popham
28 Lunch, Calais
SEPTEMBER
16 Terrace lunch, Frensham Ponds
25 Lunch, Deauville
OCTOBER
4 AGM and lunch, White Waltham
11 End of Season Lunch, White Waltham

GOLF CLUB EVENTS
Please check on Company website for latest information

Cover photo: Two recently restored Spitfire Mk 1s, showing the camouflage pattern current at the time of the Dunkirk evacuation, when Spitfires were first committed to combat over France. This year marks the 75th anniversary of the Dunkirk Evacuation and the Battle of Britain. These aircraft were restored by Liveryman John Romain’s Aircraft Restoration Company. One of them was shot down over Dunkirk, and recovered some years ago from the sand to be put back in the air and is now for sale. Photo courtesy John Dibbs
A message from your Editor...

It was the narrowest of margins some 75 years ago, when the Battle of Britain was fought over the length of the United Kingdom. Although the majority of the action took place over the south and east of the country we should not forget that there was fighting in the air as far north as Scotland. My father, appointed in July 1940 as CO of 263 Fighter Squadron based at Grangemouth near Edinburgh, was champing at the bit to get down south. However, in addition to his 13 Hurricanes, the 6 Whirlwind fighters he had were the only aircraft in the whole of the RAF potentially capable of inflicting damage to armoured fighting vehicles with their 20mm cannon, so it was hardly surprising that Dowding told him he would only be sent south in the event of the invasion taking place. Desperate times indeed. Past Master Michael Fopp’s father was also heavily involved in the Battle, flying Hurricanes with 17 Squadron from Debden, so at least two of us in the Company have a connection with those frantic days 75 years ago; doubtless there are more. I commend Michael Fopp’s thoughtful article in this issue, Reflections on the Battle of Britain 75 Years on. On more current topics there are 2 articles of interest, one from North America on the shortage of commercial pilots and another reproduced by the kind permission of BALPA on illusions of safety, both subjects which concern us as professional aviators. That redoubtable Liveryman Dr John McAdam reports on a visit to the Gloster Jet Age Museum and Liveryman Paul Smiddy reports on the Livery Dinner. A particularly noteworthy visit to Biggin Hill took place on 26 June, where we were entertained by Liveryman Peter Greenyer of Shipping and Aviation Ltd, who allowed us to fly in his fleet of vintage aircraft, a wonderful experience. A report on this visit is in this issue. My attempt to get airborne in the very rare Rearwin Sportster – how many of you have heard of it? – was frustrated by the aircraft’s obstinate refusal to start. Never mind, maybe next year. With the Garden Party, another glorious summer event at Peter and Polly Vacher’s grass airfield, now behind us it is a quiet period ahead until Trophies and Awards. Enjoy the rest of the summer, but remember what was going on in the skies above us 75 years ago.

LIVERYMAN TOM EELES
HONORARY EDITOR
ASSISTANT JOHN ROBINSON’S BOOK

Assistant John Robinson has recently written a book about his life in aviation. The book is titled 'Life of Flying' and is available from the author. Produced in soft back format, it describes John's long career as a pilot and flying instructor in the RAF and his subsequent career in civil aviation. Of great interest are John's early experiences as a Canberra pilot, flying in support of the British nuclear test programme, when the RAF flew across the globe in aircraft with minimal navigation aids in remote regions such as the Pacific. John describes his time as a flying instructor with great enthusiasm, he served at RAF Church Fenton, RAF Little Rissington on CFS where he led the Red Pelicans aerobatic team and at the RAF College Cranwell. He was involved with instructing HRH Prince Charles and also led the Poachers aerobatic team. Moving on into the civil world, after a time as a flight examiner he became involved with business aviation and spent many years flying business jets into a wide variety of locations. He first joined the Company, in those days the Guild, in 1975. The book, which has many well produced colour photographs as illustrations, is a fascinating story which covers many diverse aviation activities which are unlikely to be experienced today. Liveryman Air Marshal Sir Ian Macfadyen, who was a member of the Poachers team, has written the forward, and concludes as follows - 'Rarely has anyone had such a varied flying career over so long a span of time. JBR has been admired and loved by many for his infectious enthusiasm, his approach to life and the friendship he has shown to all. I commend this book to those who love flying or who have an interest in aviation.' Whilst not on sale to the general public it is available from the author for a donation to the Master's charity of the year, the suggested minimum being £10. The author will have signed copies available at any of the Company events he attends in the months ahead.

THE MASTER’S COURT LUNCHEON, 16 MAY

The Master, Squadron Leader Chris Ford, and his consort Sue Jones, hosted a luncheon for members of the Court and Company staff at Oaksey Park on 16 May. It was a glorious early summer's day with warm sunshine and puffy cumulus clouds floating past in a gentle breeze. Some braver souls flew in but the majority arrived by car. The Salon Orchestra of the Central Band of the Royal Air Force entertained the diners with a selection of light music and an excellent lunch was served in a marquee at tables named after many of the airfields that existed in this area of the Cotswolds, many now sadly no longer in existence. The Master's waistcoat was a particularly noteworthy sartorial item! Many thanks go to the Master and Sue for organising such a delightful event.

VISIT TO THE GURKHA MUSEUM

Visit to the Gurkha Museum, 19 May. Sue Jones reports: The Gurkha Museum, located at the Peninsula Barracks in Winchester, hosted a most memorable visit for 10 ladies on Thursday 19 May. I had chosen the Museum as the first of 4 visits I am organising during Chris' year as Master. It is very special to me as my late Mother was a Volunteer at the Museum for over 20 years and, when time permits, I help with stewarding at some of the exhibitions they hold during the year.

We were welcomed at 1030 with coffee and biscuits in the Gallery by Gavin Edgerley-Harris, the Curator. The Gallery is a wonderful room which houses many fine paintings (some by the famous artist Cuno), silverware, artefacts and medals associated with the Gurkhas (originally spelt and pronounced 'Goorkha').

This year sees the Gurkhas celebrating 'Gurkha 200' - and Gavin presented a truly fascinating and educational account of their long history in British service since 1815. He showed us a short film which explained the tough and arduous selection process in the villages and hills of Nepal, as well as the training, which the young men have to pass if they are to be accepted. The mighty Kukri, of which there are many fine examples in the Museum, was clearly a weapon to avoid. The ladies soon appreciated why both the Japanese in WW2 and later the Argentinians, in the Falklands, feared the Gurkhas so much.

After Gavin's talk we made our way down to the Museum, which covers 2 floors of the building. There are so many wonderful displays and artefacts but the most poignant section had to be the one dedicated to the men of the Brigade who had won the VC - no fewer than 26: 13

News Round Up
to British officers and 13 to native Gurkhas. When you read the citations you realise just how brave and fearless these men were – and still are.

Pre-lunch drinks and photos followed and then it was time to sit down to a delicious 2-course lunch back in The Gallery. The curry was so tasty that everyone returned for more!

During my official 'thank you' to Gavin and the Museum I expressed our sincere relief that all the families of the Museum's Nepalese staff were safe following the devastating earthquakes in Nepal – and that our thoughts and prayers were with them all.

It is a great honour for a young man to be recruited into the Gurkhas and be part of the British Army. It was indeed a great honour for the ladies to be hosted by Gavin and the Museum. A truly fascinating and memorable day. We wish them every success for Gurkha 200.

The ladies at the Gurkha museum

AND ANOTHER BOOK REVIEW

Warden Chris Spurrier writes: From Essex to Everywhere. An Airline Pilot’s Life by Captain David Willmott. This book is a salutary reminder of how unstable an airline pilot’s life could be in the 20th century – indeed, still can be today. In 1952 Captain Willmott was conscripted for National Service into the RAF, where he learnt to fly. Many of the aircraft he flew in those early days are now either museum pieces or long forgotten. The Airspeed Oxford, for instance, on which he was introduced to multi-engined flying in 1953. National Service complete, Captain Willmott was released into the wilds of the commercial world to obtain his CPL, training on an Auster and completing his flight test in a Chipmunk. In those years things were rather different to what we now consider normal. His first job was with an air taxi company where, in a Miles Messenger, with a flight check but no training, he flew passengers to the Le Mans 24-hour race using only a set of road maps. Later, and having obtained an instrument rating, airline flying became a possibility and he joined Air Charter Ltd. There he flew the Bristol Freighter, operating car air ferry services from Southend to France. Incredible as it now seems, there was no legal requirement for co-pilots on cargo flights to have type ratings, so Captain Willmott just read the manuals. This was to become a bit of a theme through most of his subsequent career, with many flights performed with little or no instruction. Flights to Europe, Africa and Australia quickly became regular entries in his log book while his spare time was used studying for his SCPL and ATPL examinations. The following years saw a bewildering number of types, places, airlines and irregular jobs too numerous to detail but, as an example, at one stage flying Sam Speigel and his team around the Middle East during the filming of Lawrence of Arabia. There were, of course, a fair number of “interesting” occurrences, as was common in those days. One in particular, involving loss of power after the aeroplane had been left standing in the sun, reminded your author that there are still things in aviation he’s not experienced. The book also details flights with extraordinarily long duty days and some rather unpleasant experiences.

Propellers to jets and back, single and multi-engined types, flying for big airlines and small companies from Saudi Arabia to the Caribbean, this book details a career spanning many years, many employers and much interesting flying. It is also a cautionary tale for those aspiring to a career in civil aviation. Although Captain Willmott comes across as an excellent and dedicated pilot who loves flight and loved his job, his time in aviation could not be called a stable and settled career. For those of us who were fortunate to have a one-company “career for life” it seems very much less than ordinary. Always interesting, often surprising, sometimes worrying this book is certainly worth reading, especially for anyone looking to self-fund into our profession.

HELEN MUIR PRIZE AND HONOURABLE COMPANY TROPHY

Past Master Arthur Thorning reports that Cranfield University has awarded the Helen Muir Prize and Honourable Company Trophy to Jeremy Robinson for his work on aviation human factors at a graduation ceremony on 25 June. Jeremy Robinson graduated with an MSc in Safety and Human Factors in Aviation. In an abstract of his study, provided by his supervisor, he found that pilot opinion of handling qualities and the workload required to compensate for any deficiencies is still a vital, but largely subjective, part of aircraft development. In his research, 12 test pilots took part, using a fixed base, high definition flight simulator to examine the relation between handling qualities, workload and heart rate variability across 2 tasks and 3 increments of time delay. The experiment validated previous work on handling qualities and subjective workload assessment, although there were disparities found in the methods used by different test pilots to assign handling quality ratings. Heart rate variability should not be used as an objective measure of pilot workload due to the large spread of results; should greater accuracy of measurement be attained heart rate variability could potentially be used as a measure of pilot workload in handling qualities assessment.

BENEVOLENT FUND TRUSTEE

There will be a vacancy for a new trustee of the Benevolent Fund in March 2016. The trustees meet four times each year, usually at 1130. They are responsible for monitoring the financial state of the Fund and ensuring that qualifying beneficiaries receive appropriate assistance. Trustees are also responsible, when funds permit, for allocating grants to scholarships, other educational purposes and to aviation-related charities. Any member who wishes to be considered for this position is invited to apply to the Chairman via the Company Office via email office@airpilots.org

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The Master’s Message

SQUADRON LEADER CHRISTOPHER FORD

The summer is now well and truly upon us. I hope you have had an opportunity to take to the skies, enjoy the ever-changing countryside and reap the well-earned benefits and pleasures of being an aviator. I recently attended the Flying Club’s annual visit to Oaksey Park where, with a perfectly manicured site and the sun shining, 16 club members flew-in and 40 enjoined in a very pleasant lunch at the clubhouse. It was a great pleasure to be able to award my 'Elmer Trophy’ to John and Diana Davy for winning the spot landing competition prior to The Court Luncheon there some 6 weeks previously - and to enjoy 10 minutes airborne whilst we waited for everyone to arrive.

I can confidently report that we are well on the way to standing up the new Technical Committee (TC), which should allow us to focus our activities more effectively on specific topics, as well as continue open-ended debate where appropriate. There has been a very good response from the membership to populate both the TC and the Co-ordination Panel (CP), including 2 overseas representatives for the TC. For those of you 'down-under' in Australia and New Zealand this new format (Working Groups (WG's)) is designed to enable you to take a much more active part in your Company and add an antipodean voice to the international debate in which we try to engage. Please come forward and 'do your bit' to help enhance our reputation on the international aviation scene. To all our members, who harbour strong, well reasoned views and ideas about pressing topics, please be assured that the CP are keen to hear from you and utilise your expertise, where possible, to enhance the knowledge of the WGs as they brainstorm a topic for debate or discussion. Although we are a City of London Livery Company, we enjoy a truly global reach and a wealth of experience throughout the regions, which we need to embrace. When I attend City functions a number of Masters of other Livery Companies remark on our Regional work and express their regret that they do not have similar worldwide links.

In June this year the third annual Flight Safety Foundation European Advisory Committee Safety Forum was hosted by EUROCONTROL. It focused solely on Automation and Safety. Some of the findings and conclusion are unsurprising. The whole Forum is now available on SKYbrary and makes for interesting reading. Naturally it throws open a few topics for debate, namely that the advanced technology designed to reduce workload and improve situation awareness has created new challenges, notably complacency, automation dependency and lack of understanding. Furthermore it states the obvious fact that pilots must be competent and confident in the management of the operational safety of their aeroplane throughout the various levels and combinations of availability of automated systems during both automation-assisted and manual flight path management. BUT what is the answer? Do you know, can you help and are you prepared to come up with ideas and training solutions? For the full details of the Forum do visit the following link:


and then consider what the way ahead is to be.

As some of you will know, anniversaries were the theme of my Livery Dinner speech and I shall mention a few in this message. It was a privilege to be invited, as your Master, to attend the 800th Anniversary of Magna Carta at Runnymede on 15 June. In the presence of Her Majesty The Queen and other members of The Royal Family, the assembled 4000 people witnessed the celebrations which were so well organised by Surrey County Council and the National Trust. We were reminded by the principal speakers, namely the Master of the Rolls, the Prime Minister and the Archbishop of Canterbury, that our freedom and rights were established all those years ago on the meadow that is now Runnymede, that all men are equal under the law and that many other nations base their constitutions upon those clauses drawn up by the then Archbishop of Canterbury, Stephen Langton, and sealed by King John with his Barons in an attempt to prevent a civil war. After the addresses there was a rededication of the Memorial, first erected by the American Bar Association in 1957 to highlight the close bond between the American Constitution and Magna Carta. The proceedings were closed with a fly-past by a Spitfire, which neatly leads me to the next part of my Message.

This year finds us commemorating the 75th anniversary of The Battle of Britain. RAF Northolt (now in its 100th year), a famous Battle of Britain airfield still in military use, will host a dinner on 17 September in the 1 remaining WWII hangar at which there will be 'a few of the Few’ attending. This will probably be the last major occasion at which it will be possible to meet the veterans of this heroic defence of our nation. Money raised from this event, organised by the RAF Museum, will be given to the RAF Benevolent Fund. I have been invited to represent our Company at the Service of Thanksgiving and Rededication to celebrate these 75 years at Westminster Abbey on 20 September. I also attended the Battle of Britain Memorial Service at
Capel-le-Ferne, a most modest, though inspiring, monument which captivates the spirit and endeavour of the young fighter pilots who defied the odds so bravely to save our freedom, so hard fought for over previous centuries. The new Wing building, opened recently by Her Majesty the Queen and the Duke of Edinburgh, has an amazing array of interactive displays including a video titled 'The Scramble Experience', shown across the whole internal wall of the building. It is also possible to call up the personal history of any of the Few using a video screen. Combined with the wall, on which all the names of those who flew in the Battle are inscribed, it is a most impressive memorial. It is well worth a visit and commands a wonderful view over the Channel. I commend to you the article on the Battle of Britain by Past Master Michael Fopp, which appears in the following pages I hope you enjoy it as much as I have and that it enables you to get a feel for just how hard our brave young men fought to maintain our freedom. What would our country, or indeed the world, be like now had we lost the Battle in 1940?

Thirty years ago, from December 1984 until early 1986, the Hercules Squadrons from RAF Lyneham were heavily involved in providing famine relief in Ethiopia on Operation Bushel. The famine, brought into all our homes by Michael Buerk's moving report from Korem, was the result of 3 years of drought and exacerbated by a separatist war in the northern regions. The world was moved to react to Bob Geldof's 'Band Aid' appeal and the RAF found itself operating cheek to cheek with Air Forces from the world over. Based at the International Airport in Addis Ababa and utilizing the most rudimentary of facilities, RAF aircraft were to make many journeys each day for over 14 months. Much grain was initially moved from the coastal port of Assab to the airstrips 'up country' - Aksum, Makele and Gondar to name but 3. However this was still not enough to support the many people in the very remote and inaccessible region to the north of Addis Ababa.

In January 1985, British officials sought out and recce'd drop zones (DZs) for the aircraft to use to deliver grain to the many thousands who could not travel to the main aid centers. The safety team for each DZ would be ferried daily to the location by a Polish Air Force Hip helicopter, clear the area of people and animals, mark out the DZ of 100ft by 2000ft, with dayglow panels and establish 2-way comms with the aircraft. The grain was 'free dropped' on wooden pallets over the ramp of the aircraft, flying with the gear down at a height of between 35-50ft above the ground! Initially there were problems with the sacks splitting and spreading their contents all over the DZs but this was overcome by triple bagging the grain, eventually achieving a 98% chance of all the tonnage delivered remaining intact! The DZs were usually very confined and always surrounded by people who, having heard there would be a drop, had travelled for days from their villages to quietly and patiently wait until the drop was complete before being allocated a ration and returning home. One consequence of us triple bagging the grain was to reduce the amount of 'lost grain' which the less fortunate ones, at the back of the queue, could recover from the DZ after we had departed each evening!

Airdrop crews would normally spend 3 weeks away from Lyneham and conduct air drops daily as weather and serviceability allowed. I was on LXX Squadron at the time and my crew operated out of Addis during March and April 1985. Initially we dropped at a DZ called Bere Mudaito, just 1770ft. amsl. in the lowlands about 300 miles to the north of Addis. This was not too arduous for Aircrew or Air Despatchers alike and we would be tasked for 3 or 4 sorties delivering about 35,000lbs of grain on each sortie. We were later to be tasked to 3 more DZs - Rabel, Merenya and Shilafat. These were closer to Addis BUT more alarmingly at elevations of between 8300ft. and 9100ft. amsl. This was to be far more testing for us as the TAS was much greater than usual and the performance of the aircraft slightly less impressive. Instead of nice flat areas we found ourselves dropping in valleys and bowls which necessitated descending curved approaches often at just 50-100ft. above the ground and with a very short run-in which to get down to drop height. It was also very much harder for the Air Despatchers, as they were man-handling the pallets and ensuring timely delivery in a much rarified atmosphere! As these DZs were closer to Addis we could achieve 4 sorties a day. BUT on one day we did push ourselves to the limit and conducted 5 sorties to Merenya - and then wondered why we all collapsed with exhaustion at the end of 6hrs 5mins, most of it at in excess of 11000ft, unpressurised and all of it manually flying in quite demanding conditions! During our detachment our crew delivered one and a quarter million pounds of grain to help in some way to alleviate the drought of "Biblical proportions". This was in no way possible without the superhuman efforts of all movements staff, air despatchers and engineers involved, working in a climate and at altitudes seldom routinely experienced. This type of operation required careful planning, accurate flying and a readiness to react correctly to inflight emergencies. At least one of the crews suffered a bird strike with an eagle just 50ft above the ground whilst running in to drop their stores. For the outstanding contribution to the Famine Relief during Operation Bushel, RAF Lyneham was awarded the Wilkinson Sword of Peace in 1985.

Till my next message, I wish you all safe flying and would encourage extra vigilance with lookout and consideration for other airspace users. There have been 94 incidents reported to The UK AirProx Board so far this year (1st Jan- 30th Jun) from all facets of aviation. Some of which are conflicts in glider launch sites but many are simply late sightings of the other traffic and occurred even in the best of weather! Good pre-flight planning and flight safety must be paramount.
The Livery Dinner

The 57th Livery Dinner, and in my humble opinion, one of the best of recent years. Holding it in the stunning surroundings of Drapers’ Hall was a good start. The multitude of members and guests overcame the not inconsiderable hurdle of singing Grace, after which the four newly clothed liverymen were introduced.

In his lugubrious style Warden Malcolm White introduced the illustrious guests: Maggie Appleton, Chief Executive of the RAF Museum (“and my wife’s boss”); Colonel Green, of our affiliated unit, the Army Air Corps; Martin Broadhurst, in his second week as President of the RAeS; Sir Roger Vickers, Master Barber Surgeon, with Her Majesty and Her Majesty’s Army on his client list; His Honour Judge Richard Marks, Common Serjeant of London (yet Manchester United supporter); Sir Roger Bone, lifelong career diplomat, but President of the Air League since last Autumn; Anthony Carter-Clout, Master Ironmonger, with a career in finance at the MoD before ironmongery beckoned; and lastly Paul Heygate, Master Baker.

Introducing our principal guest, ACM Sir Andy Pulford, the Master noted that Andy was commissioned in 1977. His 25 years in the Support Helicopter Force had given him more than 5000 flying hours, (making him the first CAS with a helicopter background) and he had enjoyed exchange postings with the Royal Navy and the RAAF.

Sir Andy started with a finely judged allusion to the impact of budget constraints, and joshed that he enjoyed seeing some of his senior personnel clothed in fur (he can only have been referring to AM Sir Baz North)! In this year of significant anniversaries, he praised the WW1 exhibition at Hendon. Noting that at a recent 100th anniversary celebration of 17 Sqn at Edwards AFB, a F35 stood alongside a Sopwith Camel (and a Spitfire) “machinery changes, personnel do not” – the modern RAF continues to draw great succour from its heritage. The comradeship at the reunion of 18 Sqn, one of his former commands, was remarkable, and he outlined some highlights of its very distinguished career. Its activity since 2004 “touches the heroism of WW1” with 16 DFCs being earned together with one AFC.

His organisation was now busier than a year ago, with its fleets stretched around the globe. Together with the Royal Navy, the RAF was doing its very best to counter terrorism. Although many personnel were in harm’s way, Sir Andy reassured the audience that “we are having fun”. He concluded a confidently delivered speech by reassuring us that he continued to value highly the relationship with the Company.
ADMISSIONS

As Upper Freeman
Captain Taghrid AKASHEH (OS)
Captain Dhafer ALABBASI (OS)
Captain Yasmeen FRAIDOON (OS)
Dr Andrew Gilbert FRY (AUS)
Donald Michael PRITCHARD
Captain Bader STEITYEH (OS)
Flight Lieutenant Oliver Richard SUCKLING
Captain Jonathan Paul WALKER
Squadron Leader (ret’d) Edwin Dale WEBB (NZ)
Captain Ammar YOUSEF (OS)
Owen Phillip ZUPP (AUS)

As Associate
Jackie Chun-Yu CHAN (HK)
Bobby Sean GALLAGHER
Cameron RUCKLEY
Holly Elizabeth SIMS
Luca SPANGHERO

ACCEPTANCE OF NOMINATED ADMISSION

Upper Freeman
Tom Dunne (NA)

RESIGNATIONS

Ken CARVOSSO
Patrick CAVANAGH (HK)
Roy St Claire FINCH
Christopher GOWERS
Frank LEESON
Graham WALLER

FORFEIT ALL BENEFITS

Charles BLAKEY
Reflections on the Battle of Britain - 75 years on

PAST MASTER MICHAEL A FOPP, PHOTOS COURTESY JARROD COTTER, JOHN DIBBS AND THE AUTHOR

All countries are defined by their history. Their national character, their self-belief, their sense of their place in the World and their opinions of themselves are formed by the deeds and behaviour of their predecessors. It is the same for organisations and, particularly, the military. The Army has its campaigns over centuries and the Royal Navy has its proud tradition of ‘ruling the waves’. The Royal Air Force was only 22 years old when its defining moment came and its image and reputation was sealed forever by the immortal words of the then Prime Minister when he spoke both to Parliament and the people of “The Few”.

In this year of the last major anniversary when survivors of the Battle of Britain will be able to accept the homage due to them, it is not only appropriate to mark their great achievement, but also to review the accepted wisdom of that short period of time during the summer of 1940, when our Island stood alone. The official dates of the battle, as designated by the Ministry, set it between July and October, but for those who fought these dates are arbitrary - if you are being shot at your last thoughts are not on whether you are in a named battle or not! In fact, the first thing to remember is that the Battle of Britain was unique in three specific ways; it was the first battle in history to be named before it began; the first to be declared won before it was over; and the first to be fought between two opposing forces entirely in the air.

Most of us know that it is one of the most prolifically recorded battles in the history of warfare and that the number of books, articles and words written about it would deplete the most verdant of forests. I have studied it since I was a boy and discovered that my father had flown Hurricanes with 17 Squadron in France and during the battle. I have curated the, then, Battle of Britain Museum and latterly the Royal Air Force museums at Hendon and Cosford. I was fortunate to know many of the survivors when they were in their prime and to have been privileged to spend time with them and to discuss the battle with them. These are my reflections on the things I have learned, the opinions I have formed and the lesser-known facts I have unearthed over the past half century. It is not the story of the battle, neither is it a treatise on equipment or tactics, it is a reflection on the battle by someone who has studied it closely, but I am by no means attempting to be a definitive expert on the subject. However, in the spirit of reflecting all these years later, let me ask the following question.

Did We Win The Battle of Britain?

Well, in the past 75 years it would certainly seem that we have given ourselves the accolade of ‘defeating’ the Germans. I suppose it depends on how you define the word “win”, so let’s look at the evidence. Hitler’s Germany was a formidable war machine, but the society he built around him was fatally flawed at the outset because of his diabolical paranoia and Aryan beliefs. He created a society where everyone fitted in to a stereotype and anyone who didn’t was excluded, or worse. The result was a ‘shoot the messenger’ culture where the only way to be safe was to say what your superiors wanted to hear. The best example of this is the whole Luftwaffe intelligence picture of the Royal Air Force compiled before the battle. In this, “Studie Bleu”, the RAF was categorised as being led by officers with little experience and tied rigidly to their bases. RAF aircraft and pilot numbers were grossly underestimated and an overall opinion was expressed that the Luftwaffe was superior in every respect. On our side we overestimated the Luftwaffe’s size and capabilities, but this gave senior planners in the RAF the opportunity to not only develop unique, and secret,
strategies for defence (the famous ‘Dowding System’), but also to lobby and convince decision-makers that expansion and greater production was absolutely necessary. Our ability to over-estimate turned out to be as decisive as Germany’s wishful thinking in underestimating its enemy. Who was going to tell the High Command in Germany that the Luftwaffe was going to find it difficult to obtain air supremacy when the Commander-in-Chief himself (Goering) had promised the Fuehrer that he would smash England with his air force in a couple of weeks? The Third Reich had created a culture of sycophants and ‘yes-men’ only interested in their own well-being and advancement. In England it could not have been more different. Three times during the battle attempts were made to retire Dowding, yet his pre-war work on the system of defence made him (and Keith Park) the very best people to oversee the defence of the UK. Unlike his German counterparts, Dowding had no reason to fear being unpopular - he already was. He had written formally to his boss, knowing full-well that his letter would reach the highest levels in Government, that the Prime Minister’s promise to the French regarding aircraft would mean the threat of invasion becoming a reality. His advice was taken and the steps he advocated led, directly, to sufficient aircraft being based on home shores when France was evacuated at Dunkirk. At the height of the battle itself the meddling of the High Command in the day-to-day tactical operations of the Luftwaffe led to two important changes in the way in which the Germans conducted the battle. When the two most senior Luftwaffe wing commanders complained to Goering they witnessed him flying into a temper and accusing them of cowardice and defeatism. When attempting to placate them by asking how he could help them implement his ridiculous order to close-escort the bombers, Adolf Galland asked him to equip his Wing with Spitfires! Until his dying day Galland would exclaim that he could never understand how he got away with such insubordination.

History proclaims that our invention of radar was the key to our success. Firstly we did not invent radar and secondly the Germans were well ahead with the technology before the war began. What the RAF did, under the leadership of Dowding and Park, was to perfect an early warning system which was so sophisticated that it enabled reasonably precise positioning of our defending fighters after, first, determining what the enemy was up to.

The Germans were well aware of our technology and the radar masts, all along the East coast, were obvious to them. But their knowledge of the system underpinning this technology was all but non-existent and this led to the RAF having a force-multiplier which was a significant advantage in the battle. The Germans had entered the war three years, at least, before they were ready and Hitler’s megalomania and major territorial successes had given his armed forces a false sense of security. His Luftwaffe was not equipped with strategic weapons in 1940, neither was his bomber force capable of being protected for more than ten minutes over London by his best fighter. The Luftwaffe was so self-confident that they do not seem to have even bothered to test their twin-engined Bf110 against their single engined Bf109; had they done so they would have found that the, so called “destroyer fighter” was going to be no match for the RAF’s Hurricanes and Spitfires. Dunkirk had already shown them how effective the RAF’s fighters were and by the time of the battle significant further improvements had been made to both types which gave them even greater performance. These modifications to the aircraft were yet one example of an overall attitude amongst the British which was not shared by the Germans. The Germans, militarily, (bolstered by their own propaganda), had been successful in everything they had attempted for so long that they were both tired and complacent. Their fighting morale was high, but to such an extent that they found it difficult to cope with failure and even more difficult to communicate that failure to their superiors. The German civilians had no great fear of suffering for they had been told that, “no enemy plane will bomb the Reich” by Goering himself. Their lives were good and the majority believed in their ordered, disciplined and enthusiastically led dictatorship.

The British, on the other hand, had witnessed appeasement and kowtowing to a country, a mere 22 years before, they had defeated in the “War to End All Wars”. Whilst they had no appetite for yet another war so quickly, when they were thrust in to it following the invasion of Poland in September 1939, they threw themselves in to it with hard work, determination and vigour. No other country, except the Soviet Union in the latter years of the War, enlisted virtually all the working-age population regardless of age, class, gender or background. From the very start the attitude was
dictated by Churchill when he said "We will fight them on the beaches....". People from all walks of life volunteered to do their day job and another task. The Air Transport Auxiliary was formed and took women pilots - albeit to fly simple aircraft at first, but eventually to fly anything and to be the first government employees on equal pay. The factory workers stood 12 hour shifts and by the middle of the battle were producing three times more fighters than the Germans - a fact it took the enemy some months to appreciate! The network of early warning, set up by Dowding and Park, could not have existed, or flourished, during the battle without the tireless work of General Post Office engineers working 24 hours a day to ensure telephoines were reliable. The Empire and Commonwealth sent men and materiel immediately and made their safe-haven lands available for our training. Churchill and Roosevelt struck a deal which provided ships, guns, 100 octane aviation fuel (which added 10 knots to the speed of our fighters) and food. In characteristic style Roosevelt told his isolationists "when your neighbour's barn is burning down you lend him your fire hose".

In Germany Hitler made pacts with Stalin, Mussolini, Tojo and other dubious members of the disgruntled less-than-free world in the hope that he would secure his country the natural resources and gold it needed to fuel his outrageous ambitions. His friends were few and far between and most times were loyal only to preserve what independence they had won against the threat of aggression. His population was content that his rhetoric would leave them the ultimate rulers of Europe and wealthier for it. Their, almost universal, acquiescence to the treatment of the Jews and other 'undesirable' minorities left them with such a sense of superiority that they felt they could not lose a single battle once France had fallen. A dangerous complacency at home left the front line exposed to criticism whenever there was a suggestion that, somehow, things were not going to plan. All we had to do, as we had done so many times before in our history, was to wait until the weather turned and the prospect of invasion became unthinkable. Just as Napoleon had done in 1804, Hitler looked at the Straights of Dover - peered through binoculars at the White Cliffs and envisaged himself strutting down Whitehall.

Literally, above all this a battle raged - in the full view of the populace below. Young men with an average age of 21 piloted their Messerschmitts, Spitfires and Hurricanes with skill, determination, fear and passion. Their purpose was to employ all the skills they had been trained for, to follow the orders of their superiors and to support their mates in battle. The fear of letting a colleague down was almost as bad as the fear of death itself. It was like this for both sides, the Germans were as skilful as the multi-

The document showing the state of aircraft in Fighter Command, at 1800hrs on 1st September 1940. The small number of cannon armed Whirlwinds is highlighted.
national Royal Air Force they were up against. Their weakness was their interfering leadership and the lack of suitable long range escorts for their determined, but beleaguered, bomber crews. Ours was a shortage of experienced pilots (our aircraft production far-outstripped the Germans at nearly 3 to 1) and an extraordinary willingness of high commanders to listen to a Squadron Leader who advocated an inappropriate change of tactics at the very height of the battle and would then not be told “No”. I counted Douglas Bader a good friend, but was always astounded that he and Leigh-Mallory would try to force Dowding and Park in to changing strategy at such a crucial time. My father, based at Debden, used to become quite animated when he recalled returning to his airfield and finding it had been heavily bombed, a fact he blamed on 12 Group failing to provide the protection necessary. But, which society would stand a better protection necessary. But, they sought the advice of experienced pilots many were so heavily indoctrinated after years of the totalitarian cult of personality, that they really believed the rubbish they gave as a reply. The Stuka, for example, was an even match for the Spitfire or Hurricane according to its greatest proponent, Hans Ulrich Rudel - a claim he made until he died some years after the war. Many of the lessons learned by the Luftwaffe were also learned by the Royal Air Force. Indeed the German tactics proved so superior that we adopted them piecemeal, squadron by squadron, as our own were realised to be outdated and dangerous. Their lack of a long-range fighter was only really rectified by us when the P51 Mustang was developed later, but why they never used drop tanks during the battle remains a mystery seeing as how they had the shackles on their aircraft and the tanks sitting in storage at home. Their bomber force was formidable and the RAF was no match for its accuracy and navigational ability for some years after. That is not to say that Bomber Command was sitting on its hands during the battle. More bomber crews were lost during the battle than fighter boys. Later, on one raid to Nuremberg, Bomber Command lost more men in one night than were lost in the whole of the Battle of Britain. Our memories of the summer of 1940 are formed by the legend which followed Churchill's historic speech “Never in the field of human conflict ...”". They are illustrated by the unique and beautifully artistic shape of the Spitfire and they conjure up that most exciting super hero - the young, handsome man, fighting a dangerous battle of life and death, against supreme odds and all for the freedom of a little island being threatened by an all-conquering villain who, in due course, is realised to have controlled one of the most odious regimes in human history. Is it any wonder that the Battle of Britain is still celebrated all these years later? It is right that we honour “The Few”; it is right that we celebrate a victory against tyranny when we stood alone; it is right that we even suggest that we saved the World from a fate which is difficult to contemplate. But let us also remember that for the ordinary man or woman in the street the factors that led to our holding off the Germans long enough to make it impossible for them to do to us what they had done to the rest of Europe, were in part a question of luck, in part a result of the meddling and mistakes made by our enemy and in part by the foresight of a few people who realised the threat in time for something to be done about it. More importantly, we did not lose the battle because our society had something the Germans had lost - openness, tolerance, a work-ethic and a willingness to listen. Traits suppressed in Nazi Germany, but ones, I hope, still define our country today and of which we should be proud. Unlike the German people we had not given over our basic freedoms to the State and so, we fought alone against huge odds. Of course we won the Battle of Britain, but we were helped enormously by the Germans' pre-ordained sleepwalk into oblivion, the moment they threw in their lot with an Austrian Corporal who, for the moment, told them what they wanted to hear. The Battle of Britain is, indeed, a warning from history. Dr Michael A Fopp Past Master of the Company Director General of the Royal Air Force Museum for 22 years Son of a Battle of Britain Pilot who served a full career in the Post-War Royal Air Force Commercial/Instrument-Rated pilot for 35 years
The Honourable Company of Air Pilots Flying Club visits to the Jet Age Museum, Gloucester

LIVERYMAN DR JOHN McADAM

A very enthusiastic group of Flying Club members accepted an invitation from Gloucester Airport to visit their newly established aviation museum. For the writer this was a very nostalgic day in many ways as, post National Service with the Royal Air Force 90 Group Ground Signals at Bletchley Park, my mis-spent youth was spent with GCHQ Cheltenham. My free time was spent at this very airfield, which then was called Staverton and I recall a very envious tale. A friend of mine worked for nearby Smith's Industries, which had a company Flying Club and gave a very generous subsidy to any staff member who wished to learn to fly. This subsidy was so generous that it was cheaper for them to learn to fly than it was for them to go to BSM in Cheltenham and learn to drive a motor car.

I flew the hundred miles with fellow club member Captain Ian Whittle in his Piper Archer, G-JOYZ, from Fairoaks in Chobham, Surrey, which was where I trained and gained my PPL licence in May 1971. We enjoyed a very pleasant flight at a max altitude of 4,000 agl, with only slight turbulence en route. Nostalgia again appeared before me as we were directed straight into Gloucester Airport on runway 27, which on finals took us directly over the 'Doughnut' of GCHQ, Benhall Farm, part of my mis-spent youth.

We were very well received by Darren Lewington and his very welcoming staff of volunteer aviation engineers at the Jet Age Museum. This aviation museum dates from its inaugural meeting at Cheltenham in 1986 and is unique in that it specializes in aircraft that were built at the Gloster Aircraft Works and their earliest models are extremely well preserved aircraft like the Gloster Gamecock. For those pedantic souls interested in a 'Pub Quiz', please note the spelling of the name. It was originally spelt as in the county/city name of Gloucester so they decided on the change of spelling, but not the pronunciation. The history of the exhibits of the Jet Age Museum goes back to pre WW2 days with the total re-build of the Gloster Gamecock biplane. This design was improved giving birth to the Gloster Gladiator, which gained fame during the WW2 defence of Malta, where there were three Gloster Gladiators named 'Faith, Hope and Charity'.

The Jet Age museum dates from 1986, when a public meeting was called in nearby Cheltenham to gauge interest in setting up a museum devoted to the county’s world-class aviation heritage. By August the fourteen strong steering group had adopted the name Gloucester Aviation Collection and produced a feasibility study for a new building at Staverton, some eight years after the closure of the Sky Fame museum. The group was registered as a charity the following year.

The first aircraft, a Meteor T7 WL360, arrived from RAF Locking on loan from the Ministry of Defence. A new feasibility study was published, featuring a striking architect-designed £1.2 million building with the rebuilt Gloster control tower in the centre. A friends organisation was now in being and work began on a replica 1925-vintage Gloster Gamecock, Royal Air Force biplane fighter. A second Gloster jet arrived in 1993, a Gloster Javelin FAW9 XH903, which had recently been the gate guardian at RAF Innsworth, also on loan from the MoD. As I gazed in wonder at this beautiful aircraft, my memory bank took me back to those halcyon days when I served as a young Executive Officer with GCHQ at Cheltenham in the mid-1950. I lived in 'Digs' in the lodger's room which was usually at the top of the house, situated at the upper end of the Old Bath Road, just below the Cheltenham Ladies College sanatorium. My house just happened to be on the glide path for final approach into...
Gloucester Airport. The Gloster Javelin was then at the advanced stage of development and was conducting night flying exercises which seemed to take it within inches of my house roof as my bed walked across the room with me in it whenever the Gloster Javelin passed overhead. More aircraft arrived in 1995; a Hunter F5 WP190, bought by a member for restoration, and the forward fuselage of Buccaneer S2B XV165. More vintage aircraft followed such as the Meteor F8 WH364, donated by one of the museum’s patrons, closely followed by Canberra TT18 (formerly B2) and a host of components for Typhoon, Gladiator and Albemarle as archive material. My final exhibit visit was standing on the flight deck of a Trident 3 and touching the small lever that operated the ‘wing leading edge slats’ whose premature retraction brought down the Trident 3 at Staines in the mid-1960s, a very emotional moment, as I remember it well.

The acquisition policy was then refined, with priority given to aircraft owned by the museum and with significant Gloucestershire connections. The aim would be to build a core collection of ‘Gloster’ aircraft. The Gloster Meteor T7 WF784, the RAF Quedgeley gate guardian, was bought with a grant from the Tewkesbury Borough Council so that the Meteor T7 WL360 could be returned to the MoD. In 1997, the name Jet Age Museum was adopted, commemorating the role of the Gloster Aircraft Company in designing and building the first British jet aircraft. It was when the Gloster E28/39 became briefly airborne at Brockworth aerodrome on 8th April 1941 that Britain’s jet age began.
NORTH AMERICA REGION
Where have all the Pilots gone?

Editor's Note. This thought provoking article has been provided by the North American Region. Doubtless parallels can be found to this issue in other regions, including the UK.

Think back to general aviation’s halcyon days in the mid-1970s. Cessna was building 3,000-plus 172s every year. Airports all over the country were like my home field, El Monte, California: Two large flying schools and a couple of smaller ones kept two pilot examiners on that airport busy giving check rides. Nice new two-seat trainers rented for about $20 or $30 an hour, with $10 for the flight instructor. There was a two or three month wait for an airplane tiedown spot on the open ramp, and people waited more than a year for a T-hangar. Many military pilots were getting out of the service. There were way more aviators than there were jobs available for them.

That abundant pilot supply made the US unique in the world, and our aviation industry had grown used to it. The airlines could pick and choose among hundreds of well-qualified applicants. You didn’t have a chance of getting hired unless you had about 5,000 hours of flight time and a four-year college degree, and significant experience in large airplanes helped.

At this same time, foreign countries had no major general aviation base like America’s, and their airlines - JAL, Lufthansa, etc., were sending pilots to the US for ab initio training: They arrived here with zero flight time, and - having acquired US Commercial, Instrument, and Multiengine pilot certificates - departed for brief transition training in their home countries followed by copilot or flight engineer jobs in big jets at their national airlines.

Now we jump ahead to the year 2014. At El Monte, there are two small flight schools and no pilot examiners on the field. The few careworn training airplanes are 30 or 40 years old and well over the ten thousand flight hour mark, interspersed with even fewer new simple four-seaters whose quarter-million-dollar acquisition prices have driven rental rates up into the $150-per-hour range. Whereas I used to have 15 full time flight instructors, today if you’d like a flying lesson they’ll call in a part-timer at $50 an hour. There were nearly 40 Designated Pilot Examiners in the Van Nuys General Aviation District when I moved there in about 1980; today it’s called the Flight Standards District, but the demand for pilot certification check rides has dropped so low that fewer than 10 examiners easily handle the load. At most general aviation airports in the US there are numerous empty tiedowns available, and many T-hangars are being rented out for non-aviation uses. The cost of training for the former airline pilot entry level job “ticket,” a Commercial Pilot certificate with Instrument and Multiengine ratings, has grown to $100,000 or more.

Some pundits who take a quick look at the statistics (including, unfortunately, the Government Accountability Office in a recent report to Congress) will tell you that there are lots of pilots coming out of US schools with Commercial-Instrument-Multi qualifications. But a close look reveals that more than 80 percent of those people are from foreign countries, supported by foreign funds, destined for airline jobs in their home countries, and will never enter the US pilot job market. At one large non-university-affiliated flight school, among more than 100 trainees, only 3 were US citizens preparing for airline careers in this country.

Meanwhile, airline aviation is struggling out of a period driven by deregulation and years of economic recession and upheaval. Mergers, bankruptcies, extended furloughs (airline-ese for layoffs), pay and work rules concessions, loss of pensions, labor actions, grueling schedules, and other problems have taken the luster off of airline flying as a career. In February 2009, Colgan Airways Flight 3407, operating under a code share agreement with Continental Airlines, crashed at Buffalo, New York, killing 50 people. In the aftermath of that accident (whose chief probable causes included improper stall recovery procedures and pilot fatigue) a group representing the families of the people who died applied heavy pressure on Congress to implement changes that - they hoped - would prevent such accidents in the future.

This resulted in the passage of Public Law 111-216, whose primary thrust was to force the Federal Aviation Administration to implement regulatory changes in minimum qualifications for airline copilots. Under the “old” rules, copilots (“first officers” or “FOs” in airline-ese) needed a Commercial Pilot certificate with Instrument and Multiengine ratings - obtainable in 300 or less hours of flight time - followed by completion of the airline’s training, and a proficiency check ride. The new rules require FOs to have Airline Transport Pilot (ATP) certificates and a minimum of 1,500 hours of flight time. Additional stringent requirements were added to the ATP qualification process, including training in advanced flight simulators and high altitude operations. Unfortunately, the public law and resulting regulatory changes did little to directly address the probable causes of the Colgan crash - but they suddenly opened a 1,000-hour-plus gap between the old and new minimum flight hour requirements, with no quick way to fill it. The additional training and flight time resulted in such massive cost increases that many pilots already in the pipeline for airline careers abandoned their goal because they could see no way of paying off the training costs in a reasonable period, considering entry level airline pay scales.

In short, America’s built-in supply of qualified airline pilot candidates is drying up.

As of this writing (in late 2014), although the shortage has not reached the major trunk carriers, regional airlines are no longer looking at “in” baskets full of qualified pilot resumes. Instead, one regional is offering a $15,000 “signing bonus” for ATP-qualified pilots who will come to work for them. The airline will
enroll flight instructors early in their careers (well below the 1,500 hour threshold) in its health and travel benefits programs in exchange for a commitment to come to work when they accumulate the requisite number of hours. Other, similar incentive programs are in place or appearing throughout the regional airline industry in an attempt to attract pilots from a diminishing pool.

Contract air feeder carriers that provide overnight package transportation for integrators such as UPS and FedEx between major hub airports and smaller communities, and Scheduled Commuter operators (governed by Part 135 of the Federal Aviation Regulations) providing passenger air service (including government-subsidized contract Essential Air Service) to small communities, are the hardest hit, because pilots who meet their minimum hiring requirements are eligible, or nearly eligible, for jobs flying passenger jets at the regional airlines - which, as already mentioned, are desperate for pilots and offer better long-term career prospects. As a result, the feeder and Scheduled Commuter operators are so short of pilots that they are canceling flights and parking airplanes. These companies are often the first rung on the ladder leading to a major airline flying career, and theirs is an environment in which pilots gain invaluable experience of scheduled operations on dark and stormy nights - dealing with load and weather issues, airplane and air traffic control problems, instrument flying and management of cockpit priorities - a much richer flying atmosphere than grinding around the traffic pattern in clear weather giving flight instruction, or towing a banner. Loss of these jobs drains the pipeline of seasoned pilot candidates for the regional carriers - a problem today which will eventually reach up to touch the country's trunk airlines.

So: Where does the industry go from here?

There has been some talk of a federally subsidized aviation academy, possibly in cooperation with large university flight training programs, but in the current economic climate, and considering stringencies in the FAA's funding base, it does not appear likely that the program will get financial support. The Air Line Pilots Association, a union representing a number of major and regional airlines' pilots, indicated in a recent editorial that the issue would be resolved if the airlines would just pay their pilots more money but the problem can't be solved that easily.

Market pressures will eventually level the playing field. However, it will be a protracted and multi-faceted process. The first problem is that the gestation period between a new pilot starting flight training, and reaching the 1,500 hour experience threshold, is between five and ten years - depending chiefly upon how often the trainee can fly and how quickly he or she can spend money. Thus, if wages were so significantly increased as to precipitate a major influx of career-minded student pilots, the results would not begin to be felt for at least five years. Secondly, the increased cost of pilot wages will force air carriers to re-think the economic viability of their routes. In the case of the package express integrators, some of the shorter air feeder routes' packages will sacrifice a few hours of early delivery and travel by truck, instead of airplane, to and from the hub airports. For the Part 135 Scheduled Commuters (who typically operate airplanes with nine or fewer passenger seats, flown by a single pilot), the less profitable routes - including, inevitably, some Essential Air Service-subsidized routes - will be dropped and those communities will lose airline service. For the regional airlines, again, the leanest routes will be canceled or combined with other routes to reduce demand for air crews, and in each case the airplanes will be parked or sold.

Various industry associations, companies, and individuals are seeking relief in the form of exemptions from the regulations, rule changes, or changes in the Public Law - but these processes move very slowly and stand a strong chance of being rejected unless they include compelling features supporting public interest and maintenance or improvement of safety standards.

In summary, we'll wind up with higher transportation costs, less service, and - over a period of years - a gradual increase in the pilot supply as more people are attracted by the improved wages and operating conditions - but it won't happen this year, or next year!

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1 GAO Report to Requesters: Aviation Workforce: Current and Future Availability of Airline Pilots; February 2014
3 There are limited provisions for reduction in the 1,500 hour total flight time requirement in exchange for certain costly, university-based integrated college degree/flight training programs, or military flight training. See 14CFR61.160.
4 Late note: As of early 2015, major trunk airlines are beginning to have "no shows" in their new-hire pilot training classes - something unheard of in previous decades, when a training class date at a major airline was a rare and precious item.
5 While these airlines decline to be mentioned by name, their incentive programs are well known throughout the air carrier industry.
6 Technically, 14CFR135.
7 Requirements for the single-pilot Scheduled Commuter operators' captains are the same as for regional and major airline copilots: 1,500 hours and an ATP certificate. For the Part 135 cargo carriers, the minimum is 1,200 hours with a Commercial-Instrument-Multiengine certificate - but that is only 300 hours below the minimum for the regionals.
A beautifully clear Saturday afternoon at the end of May saw Captain Neil Jeffers, Chief Pilot of the London Air Ambulance Service, once again hosting a visit by our members and their guests to the unit’s operational base atop the Royal London Hospital in Whitechapel.

With thanks to Liverymen John Davy and David Curgenven for co-ordinating the visit, sixteen of us were given a thoroughly interesting briefing on the work of the London Air Ambulance Unit having already had the privilege of a visit to the helipad and getting ‘up close and personal’ to G-EHMS.

For those of us more familiar with fixed wing aircraft, the equipment of choice for London’s emergency medical service is the McDonnell Douglas MD902 Explorer powered by two P&W206E turboshaft engines. One interesting aspect of this particular helicopter is that it has no tail rotor (NOTAR); anti-torque, directional control and yaw stability being provided respectively by a fan driven directly from the main transmission, the circulation control tailboom, the thruster and the horizontal and vertical stabilizers.

Much has already been written about London’s Air Ambulance operations in the August 2012 edition of this magazine by Captain Jeffers himself but, almost three years on, that article is perhaps worthy of an update.

This charitable service operates from a dedicated helipad, similar to those in use on North Sea oil rigs, on top of the ‘new’ Royal London Hospital. Being 320 feet above sea level, this is one of the highest rooftop helipads in Europe. At the time of writing only one helicopter is in use but fund raising for a second helicopter has seen almost £4m raised towards a target of £6m. This will secure the purchase of a second MD902 Explorer, sourced from Italy, with sufficient surplus to ensure operational costs can be met for its foreseeable operational life.

The singleton helicopter operates during daylight hours transiting from RAF Northolt where it is hangared. The emergency medical service continues through the night with rapid response vehicles. The two instrument rated pilots, unique to this service, allow an IFR capability should the need occur to transfer a patient, such as a burns victim, to a specialist centre outside London. This also enables them to recover to Northolt at the end of the day’s operations whatever the weather, taking advantage of Northolt’s ILS/SRA/PAR capability.

The main driver behind the service is to deliver a medical team which, at all times, consists of a Senior Trauma Doctor and a specially trained paramedic to the scene of the incident as quickly and safely as
possible. This enables medical interventions, usually found only in an hospital emergency department, could be conducted. Such procedures would include delivering anaesthetic and conducting roadside invasive surgery. Another paramedic monitors emergency calls in Ambulance Control to triage approximately 5,000 calls a day as to what might be suitable for the HEMS. The helicopter will typically be called to those considered life-threatening such as shootings, stabbings, falls from buildings, patients struck by trains, trapped under vehicles etc.

One major technological advance comes about as a result of innovative use of Apple's iPad. Missions come through on the iPad from the Control Centre via a bespoke app which defines where to go through distance and bearing. That information is then plugged into the GPS and the co-pilot navigates to the safest place to land. Operating in Class 'D' airspace the helicopter is not restricted to heli-routes and has Category 'A' priority flying in a straight line anywhere within the 600 square miles inside the M25. Average flying time per sector in 2014 was 6.7 minutes and the team are able to get to any location in London within ten minutes. Endurance is one hour and fuel is uplifted on an ad-hoc basis.

Reaction time from 'Scramble' aims to be within three minutes and our group on the day were indeed scrambled off the helipad to witness a 'Shout' as the four member emergency response team got airborne to attend to a casualty. Retiring for a presentation over tea and biscuits, one of our number recalls an interesting titbit of information gleaned being that, the Royal London has hand sanitisers outside the lifts but these are invariably found to be empty as the local alcoholics come in and drink the contents. Also during the briefing we gleaned that a particularly good tip was to try and avoid areas of London with the postcodes of N1, E14, NW10 around about 1:00 am in the month of October, particularly if you're male. Some gruesome photographs of stabbings were shown at the briefing as if to emphasise this point.

We are indebted to Neil Jeffers for his time and a most interesting tour of the London Air Ambulance facility. By the time this article is published Captain Jeffers will have made good an offer to host another visit, this time specifically for the Ladies and we hope to read more in the next issue of Air Pilot. In the meantime, if anyone is interested in following up on the activities of the London Air Ambulance Service and indeed would like to make a contribution to the fundraising for the second helicopter, the website to go to is: https://londonsairambulance.co.uk/2nd-helicopter.
Illusions of Safety - the Rise of Safety Management Systems

DR ROB HUNTER, HEAD OF FLIGHT SAFETY, BALPA

One of the most significant changes in the management of risk in the aviation industry is the increasing reliance on safety management systems (SMS). In their elemental form, these 'systems' consist of a tailored risk assessment undertaken by the organisation that generates the risk. This assessment relies on the identification of hazards and then the gathering of, and interpretation of risk data. Mitigations for the risks identified are put in place, so that a more or less, defined level of safety is maintained. Hence, SMS is a kind of over-engineered common sense. The regulatory oversight of a SMS generally involves the inspection of practices and documents held by the organisations that are taken to be the evidence that the procedures are being applied in practice. SMS - in so far as they are tailored to particular hazards - are generally contrasted with rule sets that determine what may be allowed (prescription), or may not (proscription).

All of these types of rules are often misleadingly referred to as 'prescriptive' regulation or even more misleadingly as 'one-size-fits-all regulation' as, in practice, these rules are rather more discriminating. There may be different rules for different levels of risk, such as commercial versus private aviation and so, in practice, the rules are typically 'a-number-of-sizes-fits-all'. The number-of-sizes-fits-all approach generally has a desired level of safety that is prescribed by a body that is independent of the operator. However, the SMS approach may have a desired level of safety that is, in effect, determined by the operator; an example is the risk assessment for the overflight of conflict zones. However, there are also regulations that appear to have an independently determined level of safety but they are written in a way that is open to interpretation, that they are, in effect, also determined by the operator. Examples are fatigue risk management rules where key terms have no precise meaning and fundamentally there is no definition of 'how tired is too tired to fly'. It is possible that the vague language of such regulations is by intention rather than accident. Regulators may be fearful of producing rules that leave operators hamstrung for years, yet otherwise regulators have to regulate; writing rules that place a firm requirement to actively do something nebulous can seem like a good compromise.

LOWEST COMMON SAFETY DEMONINATOR

As part of the growing adoption of the SMS method; levels of safety are actually, or covertly, commonly at the discretion of the operator. One of the drivers for the move towards this concept of self-determination of risk is the bluntness of independently-described levels of safety as a safety instrument. For example, the motorway speed limit does not mean that all cars travelling at the maximum speed limit have an equivalent level of safety, because among many other factors that determine safety at speed, cars with modern braking systems have shorter stopping distances. In this regard, a better level-of-safety-based maximum speed limit might be the maximum speed at which it has been demonstrated that the vehicle can stop within say 300m. However, despite the fettering limitations of the independently-described safety limit, this approach taken in setting speed limits, blood alcohol limits, aircraft weight limits and so on, can be a pragmatic cost effective approach to safety assurance.

Moreover, having the level of safety determined by the operator is not without its problems. In assessing overflight risks on 17 July last year some airlines considered it safe to fly over Eastern Ukraine, others did not. The shooting down of MH17 has thrown into stark relief the variable output of the SMS method, yet there are many more features of the SMS method that deserve our critical attention.

CRITICAL EVALUATION

In this article I preferentially focus on some of the problems of SMS, as elsewhere these systems are heavily and largely unquestioningly promoted. SMS are here to stay and I believe that it does not serve the flight safety agenda to have the SMS arena filled with too many cheer leaders and not enough critics. To make SMS work participants in the SMS need to be able to critically evaluate the design and operation of their SMS.

In principle, the SMS method is sound, in so far that the system has the ambition of identifying and managing all hazards appropriately. However, in practice, SMS do not generally consider that the SMS itself could be a hazard. The factors that may turn a SMS into a house of cards generally arise from conflicting interests in the human designer/s of the SMS. Such human factors can act at individual and organisational levels in both the operator and the regulator.

An individual, such as a manager, can contrive the design of the system to serve their own needs or the design can be contrived to suppress the reports of individuals who may be fearful of the consequences of their reporting action. For example, some pilots say that they are fearful of reporting fatigue because they will become embroiled in company investigations that have a quasi-disciplinary tone. It is less fatiguing to put up with fatigue than to report it. An example of the likely scale of under reporting was illustrated following a Freedom of Information (FOI) request to the Civil Aviation Authority (CAA) in 2012. The request had been to ask for the numbers of occasions on which pilots had reported involuntarily falling asleep in the cockpit; such occurrences are required in law to be reported to the CAA. The response revealed that there had been two such reports in a 30-year
period. Working from models of sleepiness and knowing pilot rosters, it is likely that this actually occurs at least every day (if not every hour, indeed, in the window of circadian low, in the early hours of the UK morning, this could be happening more or less continuously). Notwithstanding the socio-political disincentives to fatigue reporting, micro-sleeps of less than two minutes generally occur without awareness and additionally drowsiness with associated performance decrement can also be without subjective awareness.

At the organisational level, the fundamental conflict is between productivity and safety. Statements such as 'safety is our number one priority' and 'if you think safety is expensive try having an accident' are aimed at having us think that this conflict is unlikely to be anything more than a theoretical possibility. However, these statements warrant closer consideration because 'trying to have an accident' in so far as it can mean running a greater risk of having an accident, has a different meaning to 'having an accident'. For a small airline, at current fatal accident rates, if the airline were to maintain an industry average level of safety it may not see a fatal accident for 80 years or so. Hence, if the airline CEO did think that safety was expensive and that, by reducing the airline's spend on safety, so to speak, try having an accident, the CEO could well find that, by halving the safety budget, the airline would still not see the attributable accident for decades, by which time the CEO would be long gone.

Hence, if you think safety is expensive, you could well find that it was true and that, from the point of view of the financial survival of the airline, trying to have an accident was a great idea because it was still unlikely to actually happen, yet you get all the immediate benefits of the cost saving. The management guru Drucker's famous statement was: 'The first duty of an organisation is to survive'. In this regard, claims by some operators that 'safety is our number one priority' may be disingenuous. If spending on safety would put an airline out of business, it is generally better to save the money today, so that tomorrow you can think about being safe.

**BEYOND PRESCRIPTIVE REGULATIONS**

So-called prescriptive regulation is frequently portrayed as being the first form of safety assurance and that the 'new' systems of safety management are a superior evolution in safety assurance. The part truth of this is that safety management in the aviation industry has concentrated on accidents that have occurred and on making recommendations to ensure that they do not happen again. Now that accident rates are so low, it is reasonable in order to seek further safety improvement, to concentrate on safety process which is a forte of the SMS method.

However, the effectiveness of this approach is difficult to measure and there is plenty of evidence of safety failures in SMS-rich environments. In this regard, the shift in regulatory strategy towards SMS is much more experimental than is commonly portrayed. Notwithstanding this, there are many cases in which originally-existing forms of self-managed risk assessment and mitigation, an SMS by any another name, which failed often in some very public catastrophic way, was then replaced by a number-of-sizes-fits-all regulation at the behest of Government. In this way the trend towards SMS may be not an evolution but a reversion.

An illustration of this is the Plimsoll load line on ships. Prior to the 1876 Merchant Shipping Act, ship owners were judged to be best placed to determine how heavily loaded their ships would be. Seamen and ship's captains that attempted to refuse to go to sea in overloaded ships were coerced into doing so. Despite the losses of overloaded ships at sea, it was argued that safety was the paramount interest of ship owners and, on this basis, regulation was unwarranted interference. The MP, Samuel Plimsoll, campained against fierce commercial interest to obtain a load line on ships. At first this load line, known as the Norwood line, was to be determined by the ship owners. This self-determination of risk that could so obviously be biased by the commercial interests of the ship owners was ridiculed at the time. One ship's captain famously snipped that he would paint the line on the funnel of his ship! It was the combination of the sustained efforts of Plimsoll, the continuing loss of merchant seamen's lives at sea and the political pressure of public sentiment that led to the load line position being determined by an independent body. The expression "You've got to draw the line somewhere" was coined during the Plimsoll parliamentary debates that were extensively covered in the media of the day.

**WHO KNOWS BEST?**

SMS that identify the wrong expert to design and populate the system hazards, risks and mitigations are vulnerable. Although managers are commonly held to best know the risk, this may not be the case in reality. In fact, it may be the worker in the field that has the best appreciation of a particular risk. Sometimes the person who is well placed to assess the risk may not be best placed to manage that risk. For example, in the moments before their death, drivers killed by falling asleep at the wheel generally know that they are sleepy but still continue to drive. This is because their fatigue impairs their ability to appreciate the risk. It can also be the case that the person who best knows the risk is also the most able to conceal the risk should they be so minded.

SMS have a component of Board level accountability and this can be a good thing. The Board are seen as the owners of the risk because they generate the risk and because they have some jeopardy for the risk. However, the Board does not have as much jeopardy as the occupants of the aircraft who may be killed if the aircraft were to crash. The problem with having the risk owner (the airline Board) as being someone different from the person that has the substantive jeopardy for the risk (the crew and passengers) is that it facilitates the creation of a system.
which is, in effect, not an SMS but a 'BMS' – a blame management system. This is because the principal risk for a Board is not that they are killed in one of their aircraft, but whether they are blamed for someone else being killed in their aircraft. A blame management system may not have safety as its primary goal because its primary goal is the prevention of blame.

OWNED SCIENCE
The SMS method is vulnerable to the problem of 'owned science'. Earlier I likened SMS to 'over-engineered common sense'. The 'engineering' is largely the application of scientific method to the gathering and interpretation of data. A principle of scientific work is that of peer review. This is a system which exposes conclusions to greater scrutiny and, through careful description of the methods involved, allows reproduction of the experiment and verification of findings. In situations where organisations are commissioning science to support an industrial practice of high commercial value, because they own this data, they can conceal or choose not to study what is not in their interest to expose and promote what is in their interest.

SMS may reasonably allow operators to take into account their 'operational experience' to support new safety practices or amend old safety practices of no proven value. However, 'operational experience', where it is allowed to be relied upon in regulation, is generally not defined. Rather than having some firm statistical basis, it may amount to little more than anecdote, a feeling that something has been gotten away with so far, so it must be safe. Worse still, a feeling that something has been got away with so far, so it must be too safe.

The SMS method is also vulnerable to a form of reverse engineering in which the SMS designer, having already decided a set of outcomes that are desired, contrives a process that apparently leads to an unbiased finding of the desired outcome. For example, managers that are required to provide metrics of their own performance will generally know which metrics will make them look good and which metrics will make them look bad. SMS are strongly promoted by regulators. The regulators stand to gain from the SMS approach because the approach transfers some responsibility from the regulator to the airlines. This is potentially an important regulatory human factor. Regulators that mandate an explicit quantifiable level of safety are potentially liable if that level proves insufficient to prevent an accident. SMS can appeal to regulators because the SMS as a blame management system puts regulators at arm's length from accidents. Further regulatory self-interest is met, in so far that there may be an overall cost reduction to the regulator if there is a move towards getting the regulated bodies to take ownership of more of the risk.

In practice, the regulatory strategy for oversight can be to audit the airlines' SMS. If this is taken to be a more process-based task, then the auditors can be administrative staff rather than more expensive technical staff. This is not to say that regulators should not seek the most economical method of regulating. Rather, it is to argue there is a potential vulnerability that this economic interest may compromise the quality of the regulatory practice.

DIMINISHING TECHNICAL RESOURCES
A potential disadvantage of a shift in the balance of administrative and technical capability is that the technical resource of the regulator as an asset for the industry may diminish and the airlines may then have greater potential to mislead a less expert regulator. Additionally, SMS, if properly executed, may place less economic burden on the regulator and more on the industry. The vulnerability is that, if an operator is financially challenged, it may produce an 'economical' SMS that may be no more than a copy-and-paste of written material that talks the talk but does not walk the walk of any substantive safety practice.

The uncertainty of interpretation of regulation and the 'system' part of safety, management can work together to belie the common sense that an SMS really is and turn it into something of such impenetrable techno-bureaucratic complexity that it becomes an area of specialisation that requires an expert. Airlines can outsource this expertise to an SMS commercial consultancy. In this regard marketable features of such a product, such as the protection of the Board (the customer) from blame and the claim that the SMS can allow a greater level of productivity for a given level of safety compliance, become potentially biasing factors that undermine the intent of the SMS.

A further disadvantage is the formation of commercial bandwagons. Here the vulnerability is that the commercial providers overemphasise the need for their service such that safety resource is misappropriated within the industry because airline managers have been persuaded that their greatest risk lies in the area promoted by the commercial bandwagoners. Because the effectiveness of an SMS depends so much on the will of the operator, we can see how a SMS may make safe operators safer and other operators less safe. Conflicting interest is a fly in the ointment of SMS. The control of such conflicts is too often assumed to be sufficiently safeguarded by vague, easily coerced, aspirational factors such as 'trust' and 'safety culture'. In general, not only might trust-based SMS not work if there are conflicting interests, they might make things much worse. If instead of policing traffic speeds, we relied on drivers' self-reports of their speeding violations, not only might we expect drivers to not report their speeding but also that they might speed more often. SMS, if not sufficiently safeguarded against conflicting interest, can be a naïve approach that may undermine flight safety.

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Visit to London Biggin Hill Airport

THE EDITOR

The last time I was at Biggin Hill was in 1955, when I was taken out of school for the day by an uncle who commanded 615 Squadron RAuxAF. It was the first time I flew in a jet, being strapped into a Meteor T7 probably quite illegally, and it was wonderful. So it was with some nostalgia the I touched down again in Liveryman Paul Smiddy's Glastar on 25th June for the Company visit to London Biggin Hill Airport. After a reflective visit to the Battle of Britain Memorial Chapel, hopefully now saved from demolition, we were briefed on the role and future of Biggin Hill by the airport's Chief Executive, Will Curtis. The airport has had another very successful year and its value is well recognised in the local community. Business aviation clearly needs a dedicated London Gateway, currently provided by Farnborough, Northolt and Biggin Hill. Last year Biggin had 100,000 business aviation movements, a 4% increase, in addition to providing facilities for General Aviation and providing training resources for the growing need for aviation technicians. To encourage a new generation of engineers a technical college is to be established at Biggin Hill, assisted with a grant of £11.5m from the Bromley Council, hopefully using the listed RAF buildings which are currently vacant, thereby restoring the historic frontage of the site. The aim is to train some 3000 technicians over the next 30 years. There are also plans to build a hotel on site and to provide service centres for aircraft manufacturers. The aim was not to increase the number of flights using Biggin but to offer more engineering related opportunities, whilst retaining the same General Aviation access. Will Curtis made some interesting and not always complimentary comparisons to Northolt, a military airfield, doubtless the Master will have taken note as an ex Northolt habitue.

After an excellent buffet lunch we were taken across the airfield to Hangar 513, the headquarters of Shipping and Airlines Ltd, by Liveryman Peter Greenyer, the company's Managing Director. Shipping and Airlines is the premier light aircraft maintenance facility in the southeast of England. It has EASA part 145 approved engineers and also FAA licensed engineers for work on N registered aircraft so can offer a wide range of work. There is a Grumman AA5B Tiger 4 seater, fully IFR equipped, available for hire. The Company also specialises in restoration of vintage and classic aircraft. Its eclectic fleet of 1930s aircraft consists

The visitors, the hosts and the Shipping and Airlines fleet of vintage aircraft

The interior of the Battle of Britain Memorial Chapel.

Liveryman Peter Greenyer is presented with the Company plaque by the Master

The Master in the cockpit of the DH Dragonfly
of a De Havilland Dragonfly, a De Havilland Hornet Moth, a Miles Messenger, a Civilian Coupe, and from the USA a Curtiss Wright Travelair, a Piper C4 Cub and Rearwin Sportster. All these were parked outside the hangar for us, guided by Peter Greenyer who talked about the history of each aircraft as we inspected them. Then it was time to sample them in the air, a truly wonderful experience on a perfect English summer's afternoon. Your editor chose the Rearwin Sportster on the basis that it was a very rare bird to have in one's log book and no-one else had signed up for it. Unfortunately, despite the valiant attempts of two prop-swingers in the hot sunshine, it absolutely refused to start, despite having been flown in the morning. Nevertheless, I was not to be disappointed as I flew in the wonderful art deco comfort of the Dragonfly, surely the most beautiful aircraft from De Havilland, a company that never built an ugly aircraft. I also sampled the more austere comfort of the Miles Messenger, imagining what it must have been like for General Montgomery, who used one as a personal transport towards the end of World War 2. Whilst waiting for their flights some of the visitors sampled the World War 1 fighter simulator, attempting to shoot down a German fighter. It is rumoured that the German fighter succeeded in shooting down one individual! The proceeds of the flights, costing £30, and goes in the simulator at £5, will go to the Master's chosen charity for this year. It was a truly memorable visit and great thanks are due to Will Curtiss and Peter Greenyer for hosting us so brilliantly at Biggin Hill, and to David Curgenven and Graham Powell for making all the visit arrangements. It is gratifying to know the Biggin Hill, which played such an important part in the Battle of Britain 75 years ago, has a strong and assured future.