Dates for the Diary 2015

Sunday 4th January
Snowball Meet - Bicester
Coincides with Bicester Heritage Brunch and Open Day

Saturday 31st January
Winter restoration workshop visit. Snitterfield and Bericote Farm.
Contact Steve Slater for more details.

Saturday 14th February
Valentine Rally - Sywell

Saturday 7th March
Annual Dinner and Awards Evening
Littlebury Hotel, Bicester

Sunday 22nd March
Spring Meeting - Turweston

Saturday 18th April
Daffodil Rally - Fenland

Saturday 2nd May - Monday 4th May
Yorkshire Tour
VAC/IAC joint event

Sunday 15th June
Wellesbourne Wings and Wheels

July / August
West Country Tour t.b.c
In association with Aeronca Club, more details in the Spring Issue

Saturday 19th / Sunday 20th September
Sackville Farm - Members event
Combined with the balloon meeting

Saturday 10th October
AGM and Autumn Fly-In
TBA

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Vintage and Classic

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VAC

The Journal of the Vintage Aircraft Club

VAC Honorary President D.F.Ogilvy. OBE FRAeS

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Vintage & Classic

Winter 2014

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The aim of the Vintage Aircraft Club is to provide a focal body for owners, pilots and enthusiasts of vintage and classic light aircraft by arranging fly-ins and other events for the benefit of its members.

The Vintage Aircraft Club is affiliated to the Light Aircraft Association and supports the General Aviation Awareness Council.

Chairman's Notes

With the aircraft safely tucked away or securely tied down, the December magazine is always the time we can look back at the year past and equally, look ahead to the future flying season. Of course for many, including myself, a highlight was 'VAC 50' at Popham, perhaps the best birthday party the club could have hoped for. I know I said it in my last Chairman's notes, but I make no excuse for saying it again. **THANK YOU** to so many people, for making VAC's 50th anniversary year such a stupendous success!

Not quite as sunny, and definitely more blowy, was the Club AGM at Wellesbourne. I suspect that we set another first for as an excuse for a delayed start to an AGM, as a number of us were still out on the airfield tying our aircraft down! (The subsequent into-wind departure set a new STOL record for Peter Wright and I in the Cub, followed by what was later described as a geo-stationary climb-out!).

Back to the AGM though, and our 2015 calendar of events was of course an important agenda item. Based on member feedback, we are continuing to try to spread events across a wider range of venues including a couple of weekend tours, one up to Yorkshire and one taking us into the West Country . In each case we will be sharing our fun and their local knowledge with local members of the VAC, the International Auster Club and the Aeronca Club. They should make exciting additions to our calendar, more in the next magazine as plans come together!

You might notice that the Sackville Farm Barbeque date is a little earlier than we normally plan. The reason for that is we hope to combine our event with a hot-air balloon fly-out, which might even mean some members may wish to stay over on Saturday to sample a late-evening or early Sunday balloon flight. More on that as plans develop.

Finally as I started. A few BIG thank-yous. First of all to Paul Loveday, for his hard work on the magazine and elsewhere. Paul is standing aside as vice-chairman this year, but has agreed to continue both with the magazine and to take on the role as membership secretary. Peter Wright has agreed to assume the role of Vice Chairman and we have another new volunteer, Robb Metcalfe, who has agreed to take over the Safety Officer role from Dave Norris.

John Broad is also standing down from the VAC committee after more than a decade as Chairman, Vice-Chairman and finally Membership Secretary. The words 'thank you' seem inadequate! Thanks of course, are also well due to Sandy Fage, who has kept the club and the committee on an even keel as Secretary and Treasurer.

I also would like to pay tribute to two people who have avoided joining the committee, but who have transformed the club's presence at events. Cathy Silk and Vron Tanner ably aided by Dave Phillips, John Broad and other members, have revolutionised the clubs merchandise offering and, as well as making a significant contribution to club funds, their display and stand has become a major focal point for members new and old. Thank you all!

We also enjoyed some fun at Wellesbourne, with the Cub sprouting wing strut broomsticks and some of the committee donning Halloween headgear to ensure that All-Hallows did not go un-noticed, but for me and many others, one of the highlights was Ron Webster's ground-running of his latest home-built radial engine. Check-out our Facebook page for a video of this remarkable engineering feat in action. Who says AGMs are dull?

Steve Slater

MEMBERS NOTICES

Annual Dinner and Awards

With this issue you will find both the nomination form for the prestigious VAC Awards, and the Menu for the Annual Dinner. Please give some serious consideration to who should be the recipient of an award and return the completed for to Rob Stobo by the required. Date. The awards will as usual and where possible be presented at the dinner .

VAC Ground Events

The club will be having the following ground events with full details to be notified via email

January 2015 - RAF Upper Heyford

February 2015 - Secret Restoration Hangar "somewhere in the Midlands"

For details of all VAC events contact Steve Slater

Members Blog

Ron Smith a regular contributor to this magazine has an interesting blog which he shares with his fellow enthusiast brother Jim. This site is well worth a visit. www.ronandjimsmith.comwebsite

Other events

The following events have also been notified to the club.

May 2nd - 4th - Bonjour Bodmin Deux (Aeronca Club)
May 3rd - Abingdon Air Show
May 29th - 31st Aero Expo - Sywell
June 20th - 21st Air Britain Fly-In North Weald
July 11th - US Classics - Shobdon (Aeronca Club)
August Steak-Out - Stoke Golding
August 15th - US Classics - Shobdon (VPAC)
September 19th - 20th US Classics - Old Buckenham (VPAC)

New Members.

We welcome the following new members to the Vintage Aircraft Club.

S. Farrant	Godalming	R. Grainger	Northampton
A. Hall-Carpenter	Ipswich	J. Pollard	Harpenden
		T. Short	Friskney

Front Cover :- Isaacs Fury G-BWWN / K8303 departing Stoke Golding

Rear Cover :- Piper J-3C-65 Cub G-BROR departing Turweston

Sackville Farm Barbecue - 4th October 2014

Sackville Farm team always produce the most superb food and this year was no exception, all expertly cooked by Tim Wilkinson with potatoes, salads etc provided by the rest of the team. The only difference this year to previous years was the weather!

As the VAC have done in the past, the BBQ date is either the Saturday or the Sunday of the weekend at the start of October with a decision needing to be made around the Wednesday before to enable the Sackville team to get prepared. An idea of expected numbers planning to attend is also provided around this time and for this year there was a fine list of about 50 people and some 40 aircraft.

Unusually for this late in the year, that weekend had a large number of other interesting events planned although most were on the Sunday. As people registered their interest in the BBQ they were also saying they could only make the Saturday, which somewhat limited the decision process. Checking the weather earlier that week suggested a cold front would pass through on the Friday evening and be clear of Sackville by the morning and so the Saturday was set. As with anything to do with the weather in the UK this is not quite how it turned out as the cold front bumped into the huge high pressure area that had been giving several days of glorious sunshine and that had stopped moving east. Now, that shouldn't have deterred people from driving up as it is worth attending the BBQ as a social occasion as well as to enjoy the fine food. Around a dozen people did drive in and really enjoyed the superb hospitality of the Sackville team.

Cathy Silk & Veronica Tanner drove over from the Coventry area with all the VAC merchandise and were looking forward to meeting all those who would be there and to sell some of the super goods. Lots of gifts available as Christmas presents and you can of course contact them to buy by mail order. I had the VAC gazebo to use as the focus of the club activities.

The first to arrive from Old Warden in the award winning and immaculate Piper Cub was Bob Willies. The machine looked superb with the bright yellow paintwork gleaming in the sun contrasting against the shining wet leaves of the hedge behind. Soon the wonderful noise of a big radial aircraft engine could be heard and, as we all came out to look, the Nan-Chang CJ6 G-BXZB flown by Bob Davy flew across the overhead and into the downwind leg for, what we thought, was a landing. He actually powered through finals to a delightful barrel roll with display smoke and climb away but then flew back to White Waltham. I received an email later from Bob saying "We flew up but you had all gone!" I found this rather amusing as I had taken a couple of snapshots of his aircraft, which I emailed back to him.

This does raise an important point regarding fly-ins generally and that is that someone has to be the first to arrive. If you fly over and don't spot any other aircraft then it is quite likely that you might be the first. Obviously at larger aerodromes where many aircraft are based there will be other aircraft parked around but at smaller strips this may not be the case. We think a PA28 flew up from White Waltham as well but also didn't come down to see what was going on.

The afternoon sunshine was superb with almost unlimited visibility, just perfect for sitting outside the Sackville Farm clubhouse enjoying the company of fellow aviators. The thanks of the VAC go to Tim and his friends for all their work in putting on the event and providing all the superb food.

The Sunday proved to be a glorious sunny day for all those other events that were on; just goes to prove that you cannot be everywhere at the same time!

Plans are being made for the VAC Sackville Farm BBQ to be the same weekend as the balloon meeting they have at the airfield for next year. Keep an eye out for the calendar of events and put this one in your new diary or iPad thingy!

John L Broad

Nanchang flight test

Flying a warbird is a dream of many a school kid and a lucky few carry it on into adulthood by joining up. However not all of us are cut out to be Top Guns (Pop Guns maybe) and the only way ever to fly one is to buy one. Or more likely a share in one. What you get your hands on is going to be a function of wallet size and which country you live in - the USA ideally - but without a doubt the best value bangs-per-buck warbird on the market has to be the Nanchang CJ6A. For 1/20th of the purchase price of a P51 and with running costs to match (1/20th I mean!!!,) the good old 'Chang is nevertheless capable of 186mph flat out, 230mph going downhill, and can loop and roll from straight and level. Another entry-level warbird, the T6 or Harvard is at least twice as much to own and run but the performance is almost identical - I recently flew a formation display with one including a formation loop so you'll just have to take my word for it. The CJ6A doesn't have a tail wheel like the T6, but its got bags of everything else. Looks? I prefer my one. The CJ6A is still a relatively rare sight in UK skies but across the water in the USA, Australia and New Zealand there are hundreds - they even get their own parking place at Oshkosh. In the UK five there are currently on the register - two at White Waltham, one at Booker, one at Redhill and one in France.

Spitfire Rivets.

But what exactly is a Nanchang CJ6 - a Chinese Yak? It looks like one and we jokingly refer to it as a 'Wok' notwithstanding its actually a different beast altogether. The CJ6A shares less than 10% commonality with the Yak52 and is much more like the Yak18T - they are distant cousins. It has an alloy wing and fuselage and is held together with nearly as many flush rivets as a Spitfire. The wings have detachable outer panels - on the ground that is - with a very pronounced washout which gives another pointer to the 'Chang's pretty decent cruise speed. With the aircraft going flat out the outer wing sections are at zero angle of attack so producing little or no lift and induced drag. And then there's the full retractable main gear; its design started life on a Mig15 jet fighter and consists of a light but beefy aluminium casting with a trailing link - when tucked away its considerably neater than a Yak 52 and the third reason why the 'Chang is so much faster. Flying controls are fabric-covered. At the front end is a license-built derivative of the Ivcheno/ Veyedenev A14, the daddy of the M14 you will find in latter day Yaks, Sukhois and the Pitts 12. In China its known as the Huosai 6A and it's lightly supercharged 10 litre, 9 cylinders produce 285hp - not a lot is it?! Some people in the USA have tried to tune the engine to produce a lot more - up to 400hp in fact - but with mixed results. Whack the throttle fully open on a cold day with high pressure and there's a reasonable chance you'll blow the pots off. Here in the UK we've given up on the CAA ever letting us bolt the more powerful M14 Russian engines on the front but in the USA there are plenty with them on as its a simple mod and they're good for 200mph in the cruise. That's Mk1 Hurricane/ Mk1 Spitfire territory.

Just An Aeroplane

Is the 'Chang difficult to fly? Certainly not, so just like a Hurricane or early-mark Spitfire then. Yes really, the Spitfire is a doddle (I've twice flown a Mark 9) and is only mildly tricky on or near the ground, so just like a 'Chang then?! Its a cliche, but if you can taxi either then you can probably fly them. With the Chang the issue is that the nose wheel castors - call it a nose-dragger if you like - and is steered by differential brakes .... which, ahem, are operated by deflecting the rudder pedal in the direction you wish to go and then squeezing the bicycle brake lever on the control column. Did I mention that the brakes are air-driven and fade like a bastard just when you need them most? Hmmmm. Shall we go for a quick training flight to find out what its like? As you walk up to it you notice that the Chang is quite tall, it has to be to keep that long propeller off the ground. I climb up the side of it using the neat little step at the trailing edge of the wing (I took the springs out so that it retracts in flight ie slipperier) and the recessed hand hold under the rear canopy. I push the button in at the front lower left corner of the front canopy and slide it back - if I've got time I pause and take a big sniff of 50 years of leather, oil, petrol, display smoke (and probably occasional puke.) Its niiiiiice! Then I lean over to the rear right of the cockpit and start priming with the single action kigas plunger. Its warm today so 6 shots should do it. Then I slide down the wing on my backside, walk the long way round to the front to get the pitot cover and start pulling the prop through. This is to get any oil which may have collected in the bottom cylinders and prime fuel into them at the same time. Round we go and up again to the cockpit, pull out the parachute and strap it on (don't strap a 'chute on inside a cockpit because you might loop through a restraining strap and won't be able to bale out.) Then climb in and strap in. On my left is the air valve: turn it all the way open then minus a quarter turn so the valve is free and... more in a minute. Just above my knees at the base of the panel are a long line of switches: flick the first five up from left to right and the radio one too. I'm 'Chang 2' of the Chang Gang display team today so Im waiting for 'Chang 1' to check in (his name is actually Lee, or Godzilla, but don't call him that to his face.) 'Chang check in' he says. I say 'two,' then I see him over to my right making a twirling finger in the air, which means 'start.' I reach to my right and operate a big push-pull mechanical fuel pump lever as with my left hand I switch the mags on, and lean over to push the start and boost buttons on the left of the panel with my right hand as the dissimilar lengths of my fore fingers and middle fingers mean I can't do it with my left hand (its ok, I'm from a village - my sister is also my cousin.) Oh and between my knees the stick is held with the brake pedal depressed. Interesting huh? After a couple of blades the prop fires and with my third hand I reach to the right and behind to squeeze that kigas primer a couple of times until the engine is running smoothly... and relax. Warming up an old radial takes time - in the winter months I wouldn't even bother to strap in before starting the engine due to the lengthy warm up. After start checks consist of switching on a few more services above my knees, making sure the air gills are closed to speed up engine warming, and checking the smoke system - the on/off button is on the top the stick, gun-button style (I told you we were Pop Guns.) When activated it squirts what is in essence baby oil through diesel injectors into the exhaust stubs. This rubber-rotting liquid is nevertheless environmentally friendly, especially to the display pilots. In the old days they used diesel or bunker oil - let's just say for one reason or another they tended not to make old bones. This eco stuff also costs £2.50 a litre, even at the industrial scale with which we use it.

With the cylinder head at 120c and oil at 30c we can taxi - release the brake lever, open up the throttle slooooowly and this 1.4 ton bird gets under way, the trailing link gear soaking up White Waltham's grassy bumps. To change direction I stamp on the rudder then squeeeze the brake lever while opening up the throttle. I don't have a problem with steering but I've known some students take literally hours to get to grips with it. Once bumping down the runway it gets much easier, that tall tail almost immediately effective once the aircraft accelerates. After we line up I give Chang 1 the thumbs up and he then repeats the twirling action so we both spool up the engines to around half power with the brakes applied. Then he taps the front of his crash hat twice then an exaggerated nod as we simultaneously open to full throttle and release the brakes. Lee then backs off the throttle a little to give me a chance to adjust mine to stay in position. A steady left foot pressure is needed to counter torque and at 100kmh I pull back on the stick to raise the nose wheel perhaps 6 inches off the runway, and hold that position. And hold, and hold, and hold. At 130kmh the main wheels finally unstick and the old girl gently claws her was into the sky at just over 1000fpm after a ground roll of at 400 metres. Chang 1 raises his fist then pumps it down, which means raise the gear. This is done with a gear knob at the left of the main panel - push the knob in at the end of it and then lift it to the top detent. This accompanied by a whoosh of compressed air emanating from under the panel and sounds not unlike the old busses I used to go to school in, in the '70s. Something was pneumatic on them too although I don't know what bit.

Tea And Medals

With Waltham receding into the distance behind us Chang 1 calls 'manual 1 go" and we swap to a discreet frequency so that he can direct the aerobatics. It may all look and sound like a load of boy scout bo***cks but the calls and hand signals have evolved from the military over decades and really are the most efficient and fool proof way to conduct formation flying. The antithesis of it is when people don't really know what they are doing or haven't learned the patter its amazing how quickly things can unravel. For example what if you change to a discreet frequency but there's already someone on it and you can't get a word in edgeways. The answer is to 'collect' back on the previous frequency or go to 'manual 2,' whatever you briefed during the walk through. We are now level at 2500ft and still at max continuous power of 2250 rpm and 7.1 'bananas' of manifold pressure (we never were quite sure of the units and it doesn't matter as long as you know the numbers.) The ASI is nudging 280kmh, trueing out at 160kts as we translate into a shallow dive, losing another 1000ft and the speed creeping up to 340kmh (180kts, 210mph) before Chang 1 calls 'smoke on go' and starts a 3.5g pull. I'm on the right because I'm naturally

'handed' that way and if I'm lazy on the rudder I gently drift out of position rather than drift towards the other Chang. Plenty of left rudder on the way through vertical and then as we reach the top I start to slide back a couple of feet so pull tighter and inside Chang 1, which has the rather weird effect of shortening the distance I travel and so he magically comes back into position again down the back of the loop. We complete the loop and carry on up again, but as the nose gets to 60 degrees Chang 1 calls 'rolling' and we roll onto our backs then out of the loop at 90 degrees to the entry direction. There follows a series of breaks, crosses and re-joins, culminating in a pull up in front of the 'crowd' (actually a rectangular wood west of Reading in Berkshire.) As he calls 'roll smoke go' we switch on our smoke as we roll away from each other and onto our backs then out of the clover in a dive to 'miss' each other at the bottom (its quite important to know who's going to be missing who beforehand) to hopefully produce a 1000ft wide smoke heart. We are more a novelty act for posh parties and small shows rather a deadly serious military style team and so are not averse to the odd gimmick eg we perform an admirable 'cock and balls' if requested, and have stuck various substances into the smoke system including blue dye which only dyed the trees behind us when we ground ran it. And initially we tried using old cooking oil from a Chinese takeaway to produce the smell of Chinese cooking - unfortunately all it did was to block the tank's filter and cake the fuselage with skanky old lard which Lee took several weeks to remove while I watched.

Back To Base

We return from the training area at 2000rpm and 6.8 bananas and 145 kts TAS burning 60 litres per hour, down from the 75 LPH we were using during the display. We hoon into the circuit pulling a fair bit of G and bank to use the energy without closing the throttle - you mustn't end up with the prop driving the engine because its geared and might drop a tooth or worse. Somewhere near the end of downwind the speed finally gets back to 200kmh for the gear, followed by 170kmh for the split flap. On finals we check 'green, red, blue' for gear, prop and mixture and fly down to 150kmh. It doesn't go around unless you keep the speed at 150kmh or above on approach, get the gear up early and then make sure there's enough room between you and the ground to raise the flaps without sinking onto it. Go below 150kmh and you'll be on the back of the drag curve so don't, until you commit to land. The landing itself is sooo easy, just like a standard light aircraft but with a bit more sink if you let it develop, the trailing link soaking up all manner of abuse, from the pilot or the surface he's landing on.

After landing you have to wait until the cylinder temp falls below 150c before switching everything off the other way around to turning it on and then killing the engine with the mags. And don't forget to close the air gills on the way out and make sure you turned the air off or next time you fly you'll need to call into the local diving centre to get some bottled air on the way to the airfield.

What do they cost? A 'project' in the USA can be had for as little as US$50,000 but then you'll need another US$15,000-20,000 for a basic prep to flying condition. In the UK you'll need another US$10,000 or so to ship it and some taxes on top. Unfortunately you can't get a Chang in a container so it travels as deck cargo and that's the main reason for its rarity in Europe - expect to pay £60,000 and up for one here. Its not cheap but compared to anything else that has real teeth you just can't do any better.

General characteristics seats: 2
Length: 8.46 m (27 ft 9 in)
Wingspan: 10.22 m (33 ft 6 in)
Height: 3.3 m (10 ft 8 in)
Empty weight: 1,095 kg (2,414 lb)
Max. take-off weight: 1,400 kg (3,086 lb)

Powerplant: 1 × Huosai HS6A (different variants use different types) radial engine, 213 kW (285 hp)

Performance
Vne Never exceed speed: 370 km/h (206 kts, 230 mph)
Maximum level speed: 300 km/h (162 kts, 185 mph)
Range no reserve: 700 km (372 nmi, 425 mi)
Service ceiling: >6,250+ m (20,500+ ft)

Armament
2 x 7.62mm machine guns
Weapons stations and hardpoints under the wings Bombs
Rocket launchers

History

Just after World War II and with the world order changed forever, the Russians decided to share technology to empower their red friends, the Chinese. All sorts of military equipment was sent over, including aircraft, tanks, cars and even motorbikes. For example the CJ750 motorbike was built until quite recently alongside the CJ6 and is in fact a Chinese copy of a Russian copy of the German R71 infantry bike of WW2 fame (you know, the war films with the bike and side car with a machine gun in it.) Likewise the Russians sent the Yak 18a design across - not the big beefy 4-seater Yak 18T of today but a squiffy little tail dragger, itself based on the UT2 trainer of WW2. The Chinese licenced-built these as the Nanchang CJ5 but quickly tired of its wheezy performance and realised that they would have to up their game to train a new generation of pilots destined for jet fighters. They came up with the CJ6 with 260hp in 1961 and then the CJ6A with 285 hp shortly thereafter. Its flat runway manners and slipperiness coming back in were ideal as a trainer for the underpowered jets of the era and several Air Forces also used the Chang as a Counter Insurgency (COIN) and light patrol aircraft with all manner of guns, rockets and bomblets - there is currently some footage on the net of North Korea live firing rockets for the entertainment of Kim Jong Un.

Bob Davey

Celebrating 50 years since the design of the Taylor Titch by F1 Air Racing in Spain

The design of the Taylor JT.2 Titch also shares the same year, and therefore 50th anniversary, as the formation of our Club. John Taylor submitted the drawings for the Titch as an entry to the 1964 Norman Jones (Rollason Aircraft and Engines Ltd) sponsored Midget Racer Design Competition. The competition was set up to encourage British subjects to design a sporting Midget Racer aircraft which could also be flown and used by an average Club pilot. By November 1964 the entries were judged and John Taylor's Titch design was awarded second place; a team of young design engineers employed by the British Aircraft Corporation (BAC) at Luton took first place with the Beta.

I bought Titch G-AYZH in April 2013 from Terry Gardner who had taken-on the plans-build project in 2001 after its two previous owners had failed to complete the aircraft first registered in 1972. Terry completed Zulu Hotel in April 2007 and flew her out of Wolverhampton (Halfpenny Green) for six years until he needed the hangar space for his soon to be completed Cassutt racer. As you can imagine, there is no dual to solo check-ride with a single-seater so a little time was spent taxying around the airfield, getting used to the controls and cockpit environment until I felt confident enough to open the throttle and get airborne. From the first leap into the Wolverhampton skies the Titch was an absolute delight to fly; predictable, manoeuvrable, vice-free and just great fun. Although a little apprehensive approaching for my first landing, I needn't have been, the flare and landing were progressive and smooth with stick forces and movement harmonising with the decreasing speed. Next stop was her new home at Hinton where I was confident enough with the landing characteristics to use the 500 metre grass strip.

The Taylor Titch had limited success as a racer in the 1970's and 80's but Zulu Hotel certainly looked the part with her bright yellow paintwork, teardrop sliding canopy and carbon fibre spinner and instrument panel. Unfortunately Formula One air racing had reached its pinnacle in UK by the mid 1980's and until this year no pylon racing had taken place for over fifteen years. I was therefore intrigued to see an article in one of the online aviation newsletters promoting a Formula One air race scheduled to take place at Lleida International Airport (LEDA) in Spain on 1st June 2014. I sent the organisers my best wishes by email and also suggested that if they had any vintage support races in future years, I might be able to participate with the Titch. To my surprise I got a swift reply from Air Race F1 CEO Jeff Zaltman, inviting me down to Lleida with the Titch; in a later telephone call he explained that the bright yellow little aeroplane would look good on camera as all the other faster racers went past it!

To cut a long story short I started out from Hinton-in-the-Hedges on Saturday 24th May 2014, setting course for Goodwood to refuel before crossing the Channel direct to Deauville LFRG. During the run-up to the trip I had spent some time deliberating on the route down to Spain but with a 38.5 litre fuel tank every time I factored in various winds, the whole route structure, fuel stops and diversions had to be changed. I looked at so many combinations and permutations that I researched just about every airfield in France and eventually settled on taking my old RAF 140Nm Nav Rule (which was one sector in still air) and planning on the hoof. Several ex Search And Rescue (SAR) pilot friends questioned my wisdom of not taking the shortest Channel crossing but the Titch hadn't missed a beat in the year I had owned her so it was a calculated risk which I was prepared to accept. At Goodwood I donned my lifejacket and ensured that my McMurdo sponsored Personal Locator Beacon (PLB) was attached to me and close to hand. Crossing the Channel in good weather was my primary objective for the whole trip as I don't have an artificial horizon, just a slip ball and card compass. The weather was perfect, I didn't tell the Titch she was over the sea (a trick I learnt with the Auster) and we set course for Deauville. A few minutes here to relax after an extremely hectic build-up to the trip, take stock and have a look around - I noticed the newly applied red race number 22 contrasting nicely against the yellow wing. With France now in sight, for me the part of the trip which could easily have been a stopper, was almost behind us and Catch-22, which was Custard's new race name, delicately felt her way onto French tarmac for the first time.


Outbound Le Harve heading for Deauville

From Deauville I had planned to do one more sector before sunset to Cholet LFOU; however, Catch-22 thought differently and however much I swung the prop she did not want to hot-start. Eventually the O-200 relented and settled down to her usual rasping burble from the short-stub exhausts and after this twenty minute unforeseen delay we set off south with the setting sun just above the starboard wing. A quick calculation indicated that it would be dark at Cholet so I diverted to Le Mans LFRM and spent the night there, setting off again on Sunday morning for Angouleme LFBU, about 20Nm east of Cognac, for yet another refuel. The most common reason for delay through France was waiting for someone to exchange the use of their Total fuel card for cash, and with this accomplished at Angouleme we were on our way to the next fuel stop at Arcachon LFCH, about 20Nm southwest of Bordeaux. From here the intention was to fly along the coast towards San Sebastian in Spain before setting course inland for Pamplona LEPP, nestling amongst 5,000ft mountains. The Flight Plan was filed to reflect this but passing abeam Biarritz I was told the weather on the Spanish side of the Pyrenees was worsening and although Pamplona was still VFR at this moment, San Sebastian was not. A decision had to be made, not only quickly but had to be the correct one as fuel was going to be tight. The choice was to continue to Pamplona amongst the mountains without an in-range diversion and worsening weather, or return to France and divert to Biarritz LFBZ. Either way the weather was not good but at least Biarritz was not surrounded by mountains so quite an easy decision. Catch-22 was going to have to spend the night outside on the apron at Biarritz as there is no hangarage; I secured her as best I could using sand filled tie-down bags and ropes provided by the Handling Agent before walking over to the airport hotel with the few clothes and wash bag I had stowed in the locker behind my head.

The following morning I peered nervously through my hotel room curtains but the view didn't fill me with joy. It was still raining with a 400ft cloud-base and the TAFs suggested this would not clear until early afternoon. This enforced delay gave me the opportunity to email Pamplona to inform them of my intention to try to get there later and pick up fuel before finally departing for Lleida. Their reply was not one that I had expected and was very unwelcome; fuel was not available to me without a Carnet between San Sebastian and Lleida and cash would not be acceptable. I couldn't risk getting stuck in Pamplona and decided that the forecast tailwinds were such that if I flew a direct track over the Pyrenees I could make it to Lleida without stopping. By early afternoon the weather cleared as forecast to blue skies and light winds so we set off, eventually climbing to 8,500ft, serenely winding our way amongst the snow capped mountains, leaning out the mixture to save precious fuel on this critical sector. Clear of the mountains, the open plains rolled out in front of us and thoughts of a Lleida and a cold beer for the first time overrode thoughts of forced landings and having to use my McMurdo PLB.

Unsure of exactly how much fuel I had approaching Lleida, I elected to join high in the overhead instead of my usual run and break, only to later discover that I had ten litres remaining, which is more than a quarter of a tank for the Titch and much more than I had anticipated. I was the first racer to fly in; the three American aircraft had been shipped over in a container and the five French aircraft flying in had been delayed by weather on the eastern side of France. A few hours later Des Hart with Cassutt G-BOMB arrived and a couple of hours after that we were joined by the French contingent.

Prior to the race weekend we spent time qualifying at Lleida for our International Formula 1 race license, presented to us on successful completion of training by IF1 President Steve Senegal, over from the States for the occasion. All the aircraft also had to pass scrutineering before being allowed to take part in practise races and despite her trip down, Catch-22 was one of the few aircraft that didn't need working on before being allowed to race. Race day on Sunday 1st June soon came around and the weather was beautiful, light winds, blue skies with the odd fluffy white cloud. Starting on the back of the grid in the Silver race allowed me the privilege of leading the pack out to the runway for the start. We followed the race control truck out to the grid like a string of waddling ducklings, weaving side to side striving for some forward vision. Once all the racers were in position, green flag up, full power against the brakes and wait for the green to drop.

Eyeing up the next pylon

We were off, with Catch-22 at the back but not too far behind #55 Patrick Gajan in his CP80. After a lap I was catching him, after two laps I was with him and after three laps was in a position to ease out to the right and overtake him. Flying at 160mph, wing-tip to wing-tip, ten metres above the ground concentrates the mind and all this whilst also being overtaken by the faster racers creating a lot of turbulence in their wake. We managed to hold our place to the chequered flag, providing some excitement at the back of the pack for the estimated 10,000 spectators.

The Silver race was won by Des Hart in his Cassutt so he moved up to Gold for the final race. This was won by #6, Frenchman, Christian Guilie in his self designed, self built and self raced Arletty II at a lap average of 238mph, easily beating his three America based Reno-racing rivals. The three podium finishers of each race, as is traditional, wasted a lot of bubbly on the rostrum where we were all presented with Lleida 2014 Race Pilot medals.

It was a privilege to be allowed to race the Titch with the other ten pilots, everyone got on fantastically well with each other and the great camaraderie and professionalism will ensure that this race series continues and grows in future years, rivalling Formula One at Reno. All good things must come to an end and a relatively early night meant that I was ready to leave the hotel at 07:30 the next morning to fly Catch-22 back home. The weather was forecast to be good with a ridge of high pressure over the Pyrenees, through France and into the UK. I elected to take advantage of westerly tailwinds because of the fuel problem in Spain and fly northeast direct to Perpignan LFMP to refuel. Climbing to 10,000ft over and between the mountains, the Titch seemed perfectly happy and once again didn't miss a beat despite her race the previous day. After Perpignan we had to stop four more times for fuel on the way home, calling in at Souillac LFSL, Loudun LFDL, Deauville LFRG and Shoreham EGKA, before arriving back at Hinton just as the sun was beginning to set, twelve and a quarter hours after first taxying out of Lleida.

A wonderful ten day adventure; flying every day, covering more than 1,500Nm, either at 10,00ft over mountains, or at ten metres above the ground during the race. A wonderful group of people to be associated with and a wonderful little aeroplane in which to do the trip, fifty years after John Taylor first submitted her design. She was never going to win a race but I still maintain that Catch-22 the Titch was the sweetest natured and cutest little aeroplane down there and, we didn't come last.

Trevor Jarvis

Race Medal


About to coast in at Shoreham

LAA Rally - Sywell

The LAA Rally was once again a resounding success for the VAC, and the club thanks must go to all those who helped set it and run the stall. Our thanks to Dudley Pattison for allotting the club space in his home built section alongside some very interesting projects currently under construction.

Special mention must be made of those stalwarts of VAC merchandising who made no small contribution to the success of the weekend. Cathy Silk, Veronica Tanner and Jean Slater.

As is usual the LAA have made a visual record of the event for which Neil Wilson the PR Guru of the LAA was to be found interviewing Cathy and Veronica.

All members will be pleased to note that a number of awards presented at the LAA Rally went to VAC members.

These are listed here.

Dudley Pattison	G-ZIRA Z-1RA StummelFlitzer	AIR SQUADRON TROPHY BEST PLANS BUILT AIRCRAFT
Steve Martin	G-BWOB Luscombe 8F Silvaire	JOHN RANDALL TROPHY BEST VINTAGE AIRCRAFT
Bob Willies	G-NCUB Piper J3C Cub	ROY MILLS TROPHY BEST CLASSIC AIRCRAFT
Bob Willies	G-NCUB Piper J3C Cub	JIM EMPSON TROPHY BEST FABRIC PIPER
David Beale	G-HEKL Percival Mew Gull	THE POOLEY SWORD BEST REPLICA AIRCRAFT
Phil Humphrey	Pietenpol Air Camper	COMMENDATION CERTIFICATE PART BUILT

The RAF History of de-Havilland Canada DHC.1 Chipmunk
C1/0550 – WK 514 (G-BBMO)

Having flown the Chipmunk whilst serving in the Royal Air Force, I had some familiarity with its history and role as a basic training aircraft within that organization. It came as a surprise therefore, on joining the Mike Oscar Group, to discover that, whilst G-BBMO was being flown in its RAF livery as WK514, the markings and colour scheme weren't immediately recognizable as those associated with a RAF flying training unit. It was, therefore, intriguing to learn that the 'silver with blue flash' colour scheme and markings had nothing to do with any 'training' organization but, rather, faithfully reproduced the livery of the aircraft during its service within Fighter Command in the 1950s. Additionally, being familiar with the use of rank pennants within the RAF, it was interesting to note the unusually large pennant on either side of the engine cowling (RAF rank pennants on aircraft are more generally somewhat smaller and located closer to the cockpit). However, on realizing that this was the rank pennant of an Air Commodore - rare on any aircraft and, as far as can be ascertained, completely unique on a Chipmunk – it seemed obvious and important that we discover the precise identity of the Air Commodore concerned.

Having learned the very sad news that the individual who had previously researched and gathered details of the aircrafts' history had passed away - as, it would appear, had the results of his research efforts with him – I felt that… in deference to the memory of his involvement with the aircraft and group, with a good deal of self-interest as well as a sense that it might prove interesting to the group as a whole, I would set about trying to unearth the story behind the aircraft for which we act as the present custodians. In so doing, I have garnered an appreciation and sense of privilege at being involved with jointly owning and operating this, it transpires, rather uniquely historic aircraft.

I very much hope that you will find the following pages interesting, enjoyable and – even if for some perhaps more than others – informative. In places I have ventured 'off-piste' into a broader contextual viewpoint; introducing narrative about the unit that the aircraft served on or other more general facts rather than just the straightforward history of the aircraft itself. Principally, this represents my attempt at providing a more interesting and colourful backdrop to the straightforward backstory of the aircraft given some of the fascinating information unearthed during the research process.

In the final analysis, it is hoped that the information that follows may perhaps enable you to derive an even greater degree of pleasure from flying the aircraft through a fuller appreciation of its' remarkable history.

DHC-1 'Chipmunk' - Background

The first original design of the de Havilland of Canada (DHC) Aircraft Company, the DHC-1 'Chipmunk' was a replacement for the long-serving DH82C Tiger Moth. The design team for the aircraft was led by Wsiewolod Jakimiuk ('Jaki' to his colleagues) a Pole who had been responsible for the design of two very successful Polish fighters – the Panstwowe Zaklady Lotnicze (PZL) 24 and PZL 50 – but had fled from his homeland in September 1939 at the start of hostilities. Making his way to England, he joined the de Havilland Aircraft Company and worked on modifications for the Mosquito before being moved to Downsview in Canada.

The prototype aircraft (CF-DIO-X) was first flown – by de-Havilland test pilot Pat Fillingham - at Downsview, near Toronto, on the 22nd May 1946 (the first UK built Chipmunk was also flown by Pat Fillingham on 26 August 1949). Having been called the 'Jakimiuk' throughout the design and development phase, the aircraft was given the name (by then Managing Director of DHC, Phil Garrett) of a creature admired for its 'friendly, energetic and agile' nature... the Chipmunk; as with the naming of all subsequent DHC aircraft, the Chipmunk is an animal indigenous to Canada.

Designed and built to possess 'full fighter characteristics', the aircraft has been described as being 'just like a Spitfire to fly but with a lot less power' – a mere 145hp from a straight-four Gipsy Major compared to around 6 times that from a V12 Merlin! – due to the fact that control harmonization and handling characteristics are considered similar. The current continued use of two T.Mk10s by the Battle of Britain Memorial Flight (BBMF) for pilot training serves as a testament to this.

DHC built a total of 217 Chipmunk aircraft at Downsview (the last in 1956). Two of these aircraft (G-AKDN [Can. 11] and G-AJVD [Can. 10]) were produced for the parent Company in England and subsequently loaned to the Aeroplane and Armament Experimental Establishment (A&AEE) at RAF Boscombe Down, Salisbury in the Summer of 1948 for evaluation purposes.

As a result of the favourable evaluation that the aircraft received from A&AEE – under Specification 8/48 – a fully aerobatic version of the aircraft (the T.Mk10) was ordered as an ab-initio trainer for the RAF; subsequently, aircraft ordered under Air Ministry contracts were also allocated to both the Royal Navy and the Army Air Corps. Initial UK production of the Chipmunk was carried out at de Havilland Hatfield, (a total of 101 T.Mk10s, including civilian aircraft G-ALWB, and 20 T.Mk20s for the Danish Air Force) but with space at Hatfield limited by production of the 'Comet' airliner, production of the Chipmunk was moved to the de Havilland Broughton (pronounced – "Brufton") plant at Hawarden (pronounced – "Harden") Aerodrome, Cheshire.

Initially intended to be 750, the Air Ministry settled on an order for 740 Chipmunk T.Mk10 aircraft under six separate contracts. The first RAF Chipmunk – C1-0001 - WB549 was delivered to Oxford University Air Squadron in February 1950; thereafter, all 17 University Air Squadrons replaced their Tiger Moths with Chipmunks. Additionally, a number of RAF Basic Flying Training Schools and Volunteer Reserve Flying Schools were also equipped with Chipmunks in the early 1950s for initial and refresher training of National Service pilots.

Under an agreement between de Havilland and the *Oficinas Gerais de Material Aeronáutico* (OGMA) of Portugal, 10 Chipmunks - manufactured at DH Broughton for use by the then Portuguese *Aeronáutica Militar* (AM, Army Aviation) - were subsequently disassembled, shipped and then re-assembled in Portugal by OGMA. A further 66 aircraft (Initial requirement for 60 aircraft was increased to 66 to make up for aircraft losses caused by accidents) were manufactured under-licence by OGMA between 1955 and 1961. Together, these aircraft were in operation with *Força Aérea Portuguesa* (FAP, Portuguese Air Force) until their replacement in 1989.

Civilian versions of the RAF T.Mk10, designated the Mk 22, became available in large numbers from the late 1950s. Additionally a heavily modified version of the aircraft - specifically designed for crop spraying, and designated the Mk 23 - was produced by Farm Aviation Services in the UK; a small number of similar conversions were carried out in Australia. Several Chipmunks have been modified over the years, most notably perhaps Art Scholl's Super Chipmunk N13A (Can. 23 - ex RCAF 18001) which was completely re-modeled for performance in air shows (a 260HP Lycoming engine replacing the 145HP Gipsy Major).

A total of 1283 Chipmunk aircraft were produced… 217 in Canada, 66 under-license in Portugal and 1000 [sometimes misquoted as 1014] in the UK. Worldwide, the type has had many users including: Burma, Ceylon, Chile, Colombia, Denmark, Egypt, Iraq, Ireland, Jordan, Lebanon, Malaya, Saudi Arabia, Syria, Thailand and Uruguay. By the mid 90's most military Chipmunks worldwide had been retired from service but widespread affection for this long-serving and much-loved aircraft has ensured that many continue to fly on today in private ownership.

Nick Coley

From the Hangar Troll

You may have notice that as of the AGM I have handed the reins of Vice Chairman to Peter Wright, and have taken on the role of Membership Secretary.

I will still continue to produce the magazine and I look forward to receiving your reports etc during 2015. So please keep them coming.

You will also noticed that there have been one or two changes in the make-up of your committee. These can be found inside the front cover.

As the festive season draws near let me wish you and yours a very Happy and Peaceful Christmas, followed by a great New Year in 2015.

Air experience in a Nanchang CJ-6 and formation flying

At the VAC AGM one of our younger members, Michael Miklos, got a rare chance to sample the Nanchang CJ-6. Lucky man!

The start of an amazing discovery to an absolutely awesome flight, getting into the cockpit which has tandem seats and with a bubble shaped canopy giving superb visibility. Considering it's an old design I was impressed the engine started first time. A Radial engine sounds grand with what seems like a musical humming. When on the ground the feeling compared to a home medics massager, must be like a expensive luxury massager.

The flying controls feel like ultimate power is definitely in your hands, and it is a pleasure, but the CJ-6 wants to fly you. The throttle is identical to that found in a MIG 15. The aircraft is so stable, smooth, robust, reliable and comfortable.

It is interesting and unique to hear the pneumatics out loud when the gears or flaps are engaged and it became cool when the air was released, this does not happen with typical aircraft.

Formation flying with a Piper Cub is very engaging, we were doing 74mph and CJ-6 stall speed is about 68mph. Cub was at max RPM and full forward trim at 75mph. After this we broke away from formation and did some combat manoeuvres. We then used the legendary Cub with Stephen and Peter as a slow moving target! When doing wide loops it's like a warbird and was one thrill of a ride.

This aircraft is fully aerobatic and we did some skilful manoeuvres, doing a 4g stunt was alright, the eye-sockets did not come out! When the aircraft was at certain a angle with the smoke system (baby oil) going it looked like someone was having a lot of cigars inside, typical my camera went flat and spare battery was in the car. The smoke was outstanding, at one moment it looked like a transonic vapour due to the air just starting to break away from wing root.

Flying low and at extremely fast speed in this machine is exhilarating and is similar to a Spitfire. Many times was at an enjoyable rapid speed of about 186mph but it was the way it was so swift in acceleration compared to a lot of aircraft. One time we flew over a private airstrip at speed of a Jaguar E -Type leaving deep smoke rising off the ground!

Had a surprise of flying to the clouds which we did at a medium rate of climb, when we got above the clouds it was such a beautiful sight and I was on cloud 9, the clouds looked like floating snowballs. Diving to get back below the clouds the aircraft felt like a tank, an awesome experience.

I'm so thankful to pilot Bob Davy for this once in a life time opportunity. Bob gave me some very interesting and valuable information whilst in flight too.

The whole experience was tremendously unforgettable, words cannot describe the full sensation. In the car to go home I was speechless with the feelings of ultimate performance and my pilot's skill.

Michael Miklos

INTERNET DRONE

Confession time! My literary efforts for 2014 started with a 'posting' (I believe is the term) on an Interweb discussion forum. As if that were not embarrassment enough, an anonymous forum reader – in the lingo a 'forumite' – promptly suggested that the offending wordage might bear repetition in *Vintage and Classic.*

Previous web discussion had concerned the 1980s operations of Duxford's first pleasure flying contractor, Russavia Limited. This was of course the eponymous enterprise of Captain Mike Russell and his great cast of supporting volunteers. Recollections of Mike's BAC Drone were clearly evoking some interest, therefore I added the following:

Oh dear! I'm about to join the ranks of those who log a one-off flight in a rare type - and then become a self-appointed ***'legend in their own lunchtime'*** by writing it up. However, I did volunteer to jot a few lines on flying the one-time Russavia BAC Drone…

The Drone had always interested me through its local connections at the pre-war Ely Aero Club. No less a luminary than John W.R. Taylor wrote a *Plane of the Month* about it in one of the large format *Model Aircraft* magazines of the early 60s. JWRT depicted with his own Box Brownie photo the tricycle undercarriage then fitted to G-AEDB. In 1986 I had helped Mike Russell by spraying in some fabric repairs to the wing root ends. Surgery had taken place to probe the always troublesome wing fold arrangement. During that work I had long looks around the aeroplane to inform a decision on whether to fly it if Mike's offer ever came good. He made so many such offers that the chances seemed reassuringly slim!

The sunny Sunday of 6th July 1986 must have been one of Russavia's best ever days. The Tiger Moth G-MOTH, joyriding Rapide G-AGTM, DH2/Gunbus replica G-BFVH, Chipmunk G-BCIW and Drone were all active. Meanwhile I was coming and going in G-AGTO, giving Auster rides to some of the associated helpers. Mike in the Drone shared Duxford's regular 'Feeding the Lions' display slot with, of all disparate things, The Fighter Collection's first Thunderbolt. Then Peter Kirk from Derby (who was really the maestro of looking after G-AEDB) hopped in via a running change. Twenty minutes later I was bounced with the same opportunity!

I ended up flying for 40 mins, this long because I was unsure how to get down from the 3,000 ft to which I had eventually ascended. No longer because the 'fuel depth gauge' seemed to be sinking significantly.

My first impression while taxying was of enormous wings sprouting from behind and above either shoulder, not being familiar with a glider layout. The Drone responded well to rudder while turning into wind to await a Green from the Tower, but having paused the little wheels became stuck fast against a slight bump in the grass. Full chat plus slackening the harness and rocking bodily fore and aft proved just enough to get mobile again, but did precious little for self-confidence.

Takeoff, on the other hand, restored it. Easing the power buzzily through the gate -up from 'Tortoise' to 'Hare' - produced quite reasonable acceleration. While wondering whether the tail should be raised, my dilemma was solved by noticing that the Drone had lifted off and was climbing away happily at 53 mph. This I could not believe, having been conditioned to expect very marginal performance. In fact the upwind end of the aerodrome was passed at much the same height as I was used to from Auster flying with 3 POB. My light-ish 21 yr old weight was no advantage as it had needed to be supplemented for CG by a lead cushion.

Level at a giddy 2,500 ft, soon to be an involuntary 3,000 ft in thermal activity, the overall Drone experience was very pleasant indeed, like something out of a Harald Penrose book. There was splendid visibility and a genteel airflow around the cockpit compared to the full-on blast of the Tiger Moth with which I was familiar. Just a slightly queasy feeling from the rather poor windscreen optics. VNE if I recall was 70 mph and the cruise a good 60. Indicated RPM while cruising was 1150 so there must have been some ratio issue with the indication. The near 40 ft of wing felt a bit heavy and ponderous when disturbed by turbulence but the aeroplane turned on a sixpence with only a little rudder needed for a balanced turn.

On the downside were the dratted 'Z' type shoulder straps, obviously an addition, which slipped off the shoulders and then down each upper arm, restricting my movement. I didn't stall it as I was nervous of the Bristol Cherub stopping with the throttle closed and not much inertia in the prop. Presumably from an engine airscoop on the side of the pylon came fearsome 'slurping' and spitting noises in my left ear whenever power was reduced towards idle. I therefore kept a nervous hand on the throttle (insufficient friction) and the other on the stick as I didn't dare let go to fiddle with the bungee pitch trim device.

Ambling downhill took an age with the engine not fully throttled and an eye on VNE. Safely over the M11 motorway the throttle could at last be closed ready for the life-changing experience of landing. Mike had said "don't flare it" but I couldn't stop myself and ballooned slightly, like a big control line stunt model when over-controlled. While sorting this out I was also dealing with a crosswind component which had blown up while I was away. However, I was completely caught out by the further effect of rudder as I kicked it straight and countered insufficiently with into-wind aileron… and the into-wind wing rose! Despite a good basic training I had not up to that moment fully understood the interaction between the control inputs required for a crosswind landing. I trickled on power, flew up the runway and landed shamefacedly using my new-found knowledge.

All this with no gliding experience, next to no briefing and possibly no valid licence! Or it may have been only late that 'Self Launching Motor Glider' on a PPL ceased to mean what it said.

G-AEDB was acquired in 2012 by Martin Honeychurch. Like his late restorer colleague Ben Cooper, Martin has a real empathy for aeroplanes of the pre-war Hanworth Air Park. For sure we have not seen (nor heard!) the last of The Drone!

Mark Miller

Around and About with Paul Morton

Once again the British weather paid havoc with Air Shows, What with gales and squally showers at Sywell it put pay to the WW1 display and both Lancaster's appearing, but a great thank you should go to those aviators who did fill the gaps under some what extreme conditions to make it a great day for the public with fast jets and no less than two P-51 Mustangs, Spitfire and the Red Arrows.

One of the display highlights was the Duxford based Fighter Collections restored Gloster Gladiator N5903/G-GLAD which was originally built in 1939 and was restored back to flying condition in May 2013

Head turner once again was Aero Antiques Curtiss-Wright Travel Air Mystery Ship G-TATR built in 2012 the crowed were wowed by its sheer speed along the crowed line

One of the show organisers Matthew Bonnington cranks up 1946 vintage SNCAN SV-4c Stampe G-ASHS which moved into the static line up along side other classic aircraft which were displayed.

Seen just after it had deposited hundreds of poppies during a minute silence for those who were injured and lost their lives in WW1 over the crowed at the start of the show TJ652/G-AMVD Auster 5 which had a previous serial of TJ565 show super airmanship by its pilot as conditions were challenging for this 1944 veteran

Once again on my travels, , all taken at Wolverhampton Airport at their Wing & Wheels Bank Holiday event.

A real classic in the form of De Havilland DH-89A Dragon Rapide G-AHAG in her 1960s Scillonia Air-ways livery.

The Heston based aircraft has been on a 30 year restoration project and was well worth the wait.

Nigel Musgrave on a super clear morning arrived over the welsh mountains from his Mona base in Auster J/1N Alpha G-AHCL to Halfpenny Green

He left on Sunday lunch time in his 1946 built aircraft when the British weather started to change for the worst.

Baxterly based rare bird to the Fly-In was Hatz CB-1 G-HATZ Piloted and owned by Sam Rollason.

He has kept her American registration along with its UK markings that she was imported with and Sam has owned the aircraft for 17 years.

A nice trio of Texans were present with Tattenhill based G-BSBG/20310 in RCAF markings along with G-TDJN/313048 from Gloucester Airport in USAAF markings and G-BUKY/52-8543 in US Navy livery which is a new resident at Halfpenny Green from Duxford .

I only went to LAA Rally at Sywell on the Friday but it was so windy.

Looking more vintage than they are, a great line up with G-BDFB Currie Wot (Built 1991) G-ZIRA Stummelflitzer (Built 2008) and G-BUCO Pietenpol Air Camper (Built 1992) but all making a nice line up of aeroplanes.

Not a contender for a Concours d' Elegance with a paint job sadly lacking but a fine specimen of the type was G -AVDV Piper PA-22 Carribbean with its tail wheel mod.

The original aircraft had a nose wheel configuration when built in 1956

Seen here at the Cotswold Airport Vintage Fly-In one of the most immaculate examples of the type still flying, was Dawn and Graham Wasey with their 1972 built Robin DR400/140 G-BALF

From Derby 1960 built Piper PA-22-150 Caribbean G-ARFB was a welcome visitor to the event owned by a consortium of pilots from the west midlands.

Flying the flag for the International Auster Club was Kev Hale in his military marked Auster AOP-6 TW536/G-BNGE always a welcome sight at many a Fly-In around the UK

Amongst the many visitors to the AGM at Wellesbourne were this superb looking Luscombe 8E Silvaire Deluxe,

and this immaculate Piper J-5A Cub Cruiser, one of only a small number on the British register.

Our current British Light Vintage Aircraft Heritage

Looking at the current stock of surviving light vintage aircraft which are either still flying or preserved for static viewing in aviation museums, we can be thankful that there are still some excellent examples of classic types to be seen from past years. In these following pages, I am featuring some examples of these venerable aircraft for which detailed histories have been made in past Air Britain publications or can be accessed on the Internet via the likes of Wikipedia or other web-sites.

In the 1920s and 1930s the British aviation industry together with the U.S.A. led the world with their light aeroplane designs, which were used for home markets as well as being exported to all corners of the globe. In this respect Geoffrey de Havilland was very much a market-leader with his popular aircraft accepted both by the flying fraternity in the U.K. and in many foreign countries worldwide during a growing interest in private flying. Since de Havilland introduced the DH60 Moth in 1925 and the later advent of the de Havilland Gipsy 1 engine, by 1929 the largest proportion of all light aircraft registered in the U.K. were Moths of one sort or another. This was exemplified by many long distance flight records being broken by pilots, such as Francis Chichester (later Sir), Jean Batten, and Amy Johnson amongst others, many of whom used DH60 Moth marks. The DH60 Moth in its various guises proved to be very successful in an expanding market worldwide with flying clubs and even air forces using this proven, well-built and economical aeroplane. Luckily we are still able to see this and other prime examples of the Moth family, such as the Hornet, Puss, Leopard and Fox Moths that emanated from the de Havilland factory, which have been lovingly cared for by either the owners or a band of specialist restorers who help keep these vintage specimens airworthy.

In recent years, The De Havilland Support Ltd has been set up as a Type Design Organisation for vintage de Havilland aircraft, including the Beagle B121 Pup and the Scottish Aviation Bulldog series, which can assist owners to maintain their aircraft.

DH60 Moth (Finmere 25.6.89)

One such company which has been especially prominent in this bsiness is The Antique Aeroplane Company run by Ron Souch. Many fine examples of our best preserved British vintage light aircraft have appeared over many years from their workshops, presenting meticulous authentic details to the original aircraft, finished to an extremely high standard of excellence. Although Moths are a particular speciality for Ron, for which he has an immediate love, included such types as the Leopoldov L.7 Colobri G-AYKS, B.A.Swallow G-AEVZ, Avro 638 Club Cadet G-ACHP, Porterfield Collegiate G-APZL and Rapide G-ACZE amongst others. Truly a real champion of our surviving British vintage light aircraft stock, someone we can only value very highly.

Other notable restorers and companies which have done good work include Cliff Lovell, The Newbury Aeroplane Company, Hungerford, Skysport Engineering at Sandy, John Pothecary at Shoreham/ Salisbury, Personal Plane Services, Booker and Air Atlantic at Coventry, all in different ways responsible for helping to maintain our slowly diminishing collection of current vintage light aircraft. Of course many projects can take several years to reach fruition and access to parts may nowadays even be non-existent, necessitating complete fabrication of replacements involving a lengthy, dedicated and costly time scale. British engines such as de Havilland Gipsy's, Blackburn Cirrus used in many aeroplanes, even if available on the original machine still often need spare parts, whilst others like the rare Armstrong Siddeley Genet 11a on the Robinson Redwing and the Pobjoy Niagara, or alternative Pobjoy Cataract on the Comper Swift must prove a headache for restorers.

Shoreham May.2000

Another major problem to overcome in the case of mainly wooden airframes used by Miles and Percival aircraft in the past is the deterioration of original glued structures which when discovered in the early 1960's led to the loss of a good number of Miles Messengers, Geminis, Percival Proctors and some Moth Minors in this country and abroad due to stricter controls being introduced to counteract these effects. Now any rebuild of any wooden structures using modern glues is a major undertaking and lengthy process which needs strict inspection by the authorities. Apart from approval of a completed renovation by the CAA in the form of a Certificate of Airworthiness, some aircraft like the Dart Kitten or B.A.Swallow can gain a Permit to Fly via the L.A.A. (Light Aircraft Association) which involves a less arduous, although still very thorough inspection.

B.A.Swallow II

The B.A.Swallow II evolved from an original licence production of the very popular German Klemm L.25 monoplane. The one shown here is one of only three examples which survive, orginally built by the British Aircraft Manufacturing Company Ltd. at Hanworth. This model is with a Pobjoy Niagara II engine, shown at Shoreham attending P.F.A's.Fly-In-Spring 1990.

Amongst other aircraft manufacturing companies in the 1930's, Percival and Miles Aircraft (originally Phillips & Powis) produced popular designs such as the Gull Four and Six and the M2 Hawk and M2F Hawk Major. These sold moderately well at that time when civil aviation was beginning to expand, the Gulls were often used for long distance record breaking flights by such notable pilots as Kingsford-Smith (London/Australia), Edgar Percival, Jean Batten and Amy Johnson, whilst the Hawks with their open cockpits were more suited for use by flying clubs. The Percival Q6 which first flew in 1937 was a clean looking, twin engine, six-seat monoplane with a cruise speed of 175 mph. This sold in small numbers, totalling 27 including 7 used by the R.A.F. for communication duties. Later most of our civilian aircraft were impressed in 1939 for military service during W.W.2. After many years restoration work having being done in the Isle of Man, where it had lain dismantled for a long time, G-AFFD is a long-term, part-time project at Seething, Norfolk. Problems include outer wing and aileron attachments and the main spar amongst others, so that return to airworthiness may take some considerable time still. Luckily complete aircraft plans are available in this case.

Kemble Messenger G-AJOE - AB Fly-In 2.7.2011

Miles were responsible for a prolific number of designs of which the Hawk, Messenger and Gemini were some of the most successful light aircraft produced. It is a shame that Hawk Major G-ADMW is currently languishing in the RAF Museum's Reserve Store at Stafford gathering dust, having been repainted as DG590, then dismantled and donated to the RAF Museum either by John Gunner, it's previous owner or his family. This type was never really representative of a Miles aircraft type used by the RAF, rather the Magister which was built in significant numbers (1293). This could perhaps be an alternative if a redundant specimen were to be offered by someone. It begs the question will DMW ever be a renovation project for the R.A.F. Museum? It could have been a restoration possibility to flying condition again for either a dedicated individual or an organisation like the Shuttleworth Collection or The Real Aeroplane Company, if practical and affordable and handled by the likes of a company such as Ron Souche's Antique Aeroplane Company. Attempts to try and contact either John Gunner or any family member have so far proved in vain.

Messengers and Geminis were of course to be seen at various rallies, air races, fly-ins and breakfast patrols before the influx of foreign imports, predominately from the U.S.A. in the 1960's. Some notable pilots participating in air races at that time were Fred Dunkerley, Ron Paine, A.J. Spiller and Percy Blamire often seen perhaps at the King's Cup, held at Coventry or elsewhere.

The DH84 Dragon, first flown in 1933 and carrying 6 passengers with their

baggage, proved to be economical on fuel and was accepted by many civil as well as military operators. I was fortunate to experience unexpectedly my first viewing of a DH Dragon in June1951 when G-ACIT showing a dark red fuselage with silver wings flew into Heston Airport, with a contingent of four other aircraft from Denham Airfield for B.O.A.C.'s Sports Festival (part of the Festival Of Britain celebrations)-see "Aviation World - Summer 2010 ". Later in the 1950's Dragons G-ACIT and G-ADDI owned by Air Navigation & Trading Ltd. were employed for joy -riding flights taking off from Southport Sands.

G-AKEX shown at N.Weald 09.6.2012

The example shown opposite owned then by the Beagle Aircraft Co. was at the W.S.Shackleton Sales Weekend at Sywell 15.4.62 and is now on static display at the Science Museum Collection at Wroughton, near Swindon.


Sywell 15.4.62 G-ACIT

The attractive looking DH94 Moth Minor first flew in 1937 and proved very successful as a more modern low wing replacement design for earlier moth biplane series, albeit with somewhat lower power. Possibly only as few as four survive today in the U.K, although only one now is still airworthy. G-AFOJ can be seen as a preserved example at the excellent De Havilland Museum at Colney, Hertfordshire.

PFA Rally Wroughton 3.7.93

Percival Proctors were manufactured in the hundreds from 1939 during WW2 as a development of the attractive-looking Vega Gull. Due to the problems associated with glued wooden structures in the 1960's, few examples exist today, however it is encouraging to hear that two Proctors, HTE and KEX are currently being rebuilt at Great Oakley in Essex full-time, by group member and master wood worker John Tregilgas and may well appear on the U.K. register sometime around 2014 or later to join our diminished stock. G-ANVY (ex SE-CEA) and NPP are also expected to be renovated in due course later.

Luckily, you can still occasionally see the remaining two-three Thruxton Jackaroos (from an original 19 converted Tiger Moths), appearing at a Moth Club fly-in somewhere. In the late 1950's, Thruxton Aircraft was set up to convert several surplus, ex R.A.F. DH Tiger Moths to an enclosed cabin configuration seating 4 persons. As well as production at Thruxton, some was done by Rollason Aircraft & Engines at Croydon where a good supply ofstored, redundant Tiger Moth airframes and wings were kept, which I well remember seeing in the late 1950's. Later some aircraft were converted back to Tiger Moth standard for personal reasons of the owners.

Auster aircraft still remain a part of our aviation heritage ever since the early introduction of the Taylorcraft Plus A-D models introduced from America in the late 1930's, the founding of Taylorcraft Aeroplanes (England) Ltd and the name change to Auster in 1946 when the war ended. Some good examples exist of the Taylorcraft Plus D, Autocrat, Aiglet, Autocar, AOP6 and the Alpha amongst others which often can be seen at Auster Club events in the U.K. In 1960 Auster were taken over, together with Miles Aircraft by the new Beagle Aircraft Company, which unfortunately was dissolved in 1969.

First flown in1935, the DH90 Dragonfly was a luxury touring aircraft for four persons and a pilot with similar features to the DH89 Dragon Rapide, although somewhat smaller and using some new construction methods. Dragonfly G -AEDT was displayed frequently at the DH Moth Club Rally at Woburn Abbey and other venues until 1998 when it was sold abroad to New Zealand as ZK-AYR. A total of 67 were built, of which only one G-AEDU now remains in this country, seen exhibited here in 2011 at the Goodwood Festival of Speed.


G-AEDU Goodwood 01.7.11

The long term rebuild of the GA ST-12 Monospar VH-UTH has been proceeding well at Winthorpe, although the lack of any general aviation drawings means it can only be exhibited as a static display at Newark Air Museum as the sole example of this mark. This machine was first returned to the U.K. in 1962 after being fitted with an additional long-range fuel tank for the flight and was seen at various U.K. locations before its arrival at Newark The aircraft is representative of well over 100 Monospars, first built at Croydon and then Hanworth Air Park when larger premises were opened there in 1935. Monospar aeroplanes evolved from the ideas of a Swiss engineer Helmut J. Stieger who created new techniques of designing cantilever wings.


Monospar VH-UTH

Although very little still remains of our once great aircraft manufacturing industry, created to a large extent by the U.K. being heavily involved in two world wars, we can be thankful that these vintage aircraft survivors can be seen at various air displays, fly-ins and aviation museums, bearing testament to a creative aeronautical heritage which fortunately still lives on in these magnificent, preserved specimens and represent some of our best light aircraft designs of yesteryear.

Lawrence Hole

Summary:

Type First flew production nos. nos. still preserved in the U.K.

DH60 Moth	1925	over 1500	about 18 (various marks)	
Percival Gull	1932	48	1	EZJ
Percival Q6	1937	27	1	FFD
Miles M2 Hawk Major	1934	64	2	DWT, DMW
Miles M38 Messenger	1942	80	5	JOE, JWB,KBO,KIN, KVZ
Miles M65 Gemini	1945	170	3	KKB, KKH, KHP
DH84 Dragon	1932	202	2	CIT, ECAN
DH94 Moth Minor	1937	ca.140	4	FNI, FOB ,FOJ ,FPN
Percival Proctor	1939	almost 1500	7	LJF, NXR, KIU (HTE, KEX, NPP, NVY)
Thruxton Jackaroo	1957	19	3	OIR, NZT, PAJ ?
Auster (orig.Taylorcraft)	1939	over 840	?	Still a moderate number
BA Swallow	1933	135	3	DPS, FCL, FGE
Monospar	1932	45	1	VH-UTH
DH90 Dragonfly	1935	67	1	EDU

A weekend in Guernsey - did the earth move for you?

To get three days off work in the summer season is a rare occurrence. For those three days to include the weekend and with a weather forecast good enough for Austering is even rarer. The weather was forecast to be best in the southwest and as we had previously flown to Alderney and Jersey in TBU the 1947 Terrier 2, for this trip we chose Guernsey as our seaside destination.

Guernsey Airport.

Anyone thinking of flying to the Channel Islands for the first time but are a little uncertain of what to expect, then I hope the following notes are helpful, whilst also offering a few words of caution.

I usually start to look at the Met Office website surface pressure charts no sooner than three days in advance - the forecast always seems to change dramatically if earlier than this - checking for any fronts that might be lurking mid-Atlantic and any troughs likely to prove problematic along the route. It is all very well getting down to the Channel Islands but it is even better to know what weather to expect during your stay and for the return flight. Make sure you have a look at an up to date Pooley's - or online - as procedures tend to change since your last visit. For this flight the Channel Islands Class A airspace had changed. As in the past, a flight plan and a General Aviation Report (GAR) for Immigration/Customs and the Terrorism Act 2000 would be needed.

Filing the flight plan soon becomes run-of-the-mill after completing a few, or commercial software such as Sky Demon will produce the plan for you for a subscription fee. I use the AFPEx account from NATS, which is free to use and doesn't take long to set up and become a registered user. If you want to file your return plan at the same time as the outbound, this can be done up to 120 hours in advance: in section 18 (other information) just add DOF/yymmdd, meaning Date Of Flight in year, month, day format. A VFR flight plan can and should be very simple and guidance for its completion can be found online at websites such as CAA docs CAP694. It is permissible to write VFR in the Level/Altitude box and DCT (Direct) to a coasting-out waypoint such as VRP NEEDLES. The next point I used was DCT VRP CASQUETS, then DCT VRP NORTH EAST, followed by DCT. Also in section 18 you will need to give the estimated elapsed time to the French border in hours and minutes since departure: EET/LFRR0115.

A GAR form should be submitted to the destination airport in advance and this can be done online for free through the AOPA website. The handling agent or airport security will invariably ask for another copy of the GAR to be completed on arrival so I always print-out and carry with me a few extra completed copies which saves you from having to fill in forms when you could be at your hotel having a G&T. There is never any harm in making a phone call to air traffic and the handling agent the day before or the day of departure, just to check if they have any information or last minute changes which you haven't picked up. To know where you are likely to be parking means that you can plan where to touchdown for the shortest taxying distance.

With a final check of the latest TAFs and METARs, especially important for the Channel Islands, which are highly likely to be quickly engulfed in mist or fog, it's time to put on the lifejacket and climb aboard. It wasn't long before we were departing Hinton and heading south with the intention of coasting-out at Hengistbury Head VRP. Once steady in the cruise I noted times for take-off and 50 North, ready to pass to London Information after asking them to activate my flight plan. Climbing to FL60 ready for the crossing I called Bournemouth for zone transit, only to be told to standby. Getting closer to the zone I called again only to be told to standby again, so rather than orbit awaiting clearance I descended to below 2,000 feet, repositioning between Bournemouth and Southampton to coast-out under the Solent CTA at Lymington. It was not until approaching the coast that Bournemouth finally called me back on the radio but I no longer needed a service from them and changed back to London Info', passing them a revised estimate for 50N. The CTA and airway above us had a base of 3,500 feet so I eased up to 3,000 feet and was fairly happy to maintain this as my crossing altitude. At least down at this height the outside air temperature was perhaps six degrees warmer but the visibility was not as good.

The sea crossing was about fifty minutes and the Gipsy settled into her 2150 RPM economical cruise, giving about 75 knots with the fine pitch prop. As in the past, once set up, I left the engine alone when out to sea and concentrated on accurate navigation so as not to cover any more track miles than necessary. About half way, it was becoming one of those goldfish-bowl type flying days, the hazy cloud mixing with the horizon and the sea, not ideal. There was plenty of shipping in the Channel, which is always comforting, and the ETA for 50N had come forwards a few minutes, meaning the tailwind was a little stronger than forecast, which was also good. I was still in radio contact with London Information so requested the latest Guernsey weather just in case I needed to divert to the Isle of Wight.

About ten minutes before arriving at the Channel Islands control zone boundary was the time to call them for zone clearance under Special VFR ....then.....pop...BANG..."what the....". The signs were all there for carb icing but having either missed or ignored them it was only a matter of time before I got the symptoms. Warm moist air mass, constant throttle position at an economical cruise power, no regular carb heat applications; I deserved the scare that snapped me to my senses. Although the Gipsy immediately cleared itself after its quick ice-lolly, the carb heat was selected on more than off for the rest of the trip (RAF Chipmunks with Gipsy engines used to have their carb heat permanently wire locked to hot).

We had crossed 50N and I hadn't contacted Jersey Zone for entry, I quickly said goodbye to London Info and switched frequencies but couldn't raise them for a few minutes. When we did make radio contact I gave them a good listening to, accepting their "friendly reminder" about getting clearance before entering the zone. Cleared to Guernsey not above 2,000 feet we continued over the sea, abeam the Casquets Lighthouse VRP, religiously applying carb heat every ten minutes. Once over the island, our clearance was to join right base for runway 27, number two to a passenger aircraft that I could see on finals.

We initially followed air traffic instructions after landing until the ASG marshaller took over for parking. He then continued to look after us, arranging, amongst other things, concrete tie-downs for the two nights of our stay. I must therefore confess to feeling slightly embarrassed as the Gipsy nonchalantly dripped black oil onto their spotless new concrete apron. Wearing our hi-vis jackets, we were taken to the ASG office, arranging to refuel and pay our bills on departure, and handed over a copy of the GAR form, which I knew they would want.


WW2 Gun emplacement

The car hire desk was inside the Arrivals hall, only a five-minute walk away, and it was here, away from the jet noise and drone of the Trislanders and Islanders, that I first became aware of the earthquake. "Did you hear it?" asked the lady behind the car rental desk. I asked when it had happened and worked out that it would have been about the time we had landed. Often an Auster bounce - yes - but a magnitude of 4.2 on the Richter scale would have been a hard one even for me. Checking on the internet later, we discovered that the earthquake, with it's epicentre about nine miles west of Jersey, occurred at 12:54 and I'm pleased to report that my landing was at 12:44, so not me on this occasion. This was the first earthquake in the Channel Islands for almost a hundred years and I wasn't even aware it had happened, probably thinking the rumble was a jet taking off whilst we were standing with the handling agent on the apron.

A hire car for three days was found on the internet for less than £55, enabling us to discover the whole of the island during our short stay. The hotel recommended to us was the Fleur du Jardin, having a lively bar and restaurant, both frequented by the locals which is always a good sign. As is true of all the south and westerly isles off the UK, when any weather comes through, it arrives very quickly and is usually on the deck as advection fog. A weather front passed through as forecast on


Right Base for 27

Saturday afternoon and by Sunday morning conditions were classic post -cold-front with clear blue skies and unlimited visibility, just right for the return Channel crossing later that day.

Driving past the airport - en route for more sight seeing - seemed an ideal opportunity to call in and refuel TBU, file a flight plan and pay the landing and parking fees. Doing this now gave us the rest of the day to enjoy the island without having to think about the pre-flight chores and would allow a quick getaway if needed. Later on, whilst sitting outside for lunch, the westerly wind was noticeably stronger than that given on the TAF but would hopefully reduce later in the day as the forecast ridge of high pressure became dominant.

Time to fly home and the wind was still blowing at about 20 kits, no real cause for alarm as it was straight down runway 27 but the problem was going to be taxying-out with the standard Auster brakes and massive Terrier fin and rudder that turned the aeroplane into a weather vane whilst on the ground. I phoned tower and asked if they would be happy for someone from ASG handling to wing-walk out with us until lined-up on the runway centreline. They gave the go ahead and arranged for the Ops vehicle and driver with a radio to accompany us and the wing-walker; he knew the drill, having recently accompanied Spitfires and Mustangs out to the runway. Lined-up awaiting take off clearance, an airliner taxying in reported windshear on finals, a warning for us to expect a possible bumpy departure. Cleared for take off with a turn out to the north not above 2,000 feet we were on our way home.


The Needles VRP

The visibility was excellent and from the Casquets, heading towards the Needles VRP, it was just possible to make out the south coast of England. Despite the obvious lack of moisture in the air, I set my co-pilot the task of calling for carb heat every ten minutes, whereupon I applied it for a minute each time, which seemed to keep up morale in the right hand seat. As expected, the Gipsy behaved faultlessly on the way home despite the headwind component giving us a longer time over the sea.

If you haven't flown a vintage aeroplane across the sea before I hope this has given some encouragement to do so, whilst also noting the risks and procedures. The aeroplanes do not know they are over water and if you fly them regularly over land for a few hours at a time, there should be very little difference other than wearing a lifejacket. I remember from my early days of touring, when a trip across to the Isle of Wight seemed a long way over water, so perhaps a trip to Bembridge or Sandown might make for a good trial run. Have fun and don't forget to claim back the outbound fuel duty at 37.7 pence per litre.

Trevor Jarvis

THE DANGERS OF HIGH-VISIBILITY CLOTHING

We all are aware that the majority of aerodromes require that personnel wear Hi-Vis Jackets when airside. However, the implementation of this safety requirement can cause serious safety issues.

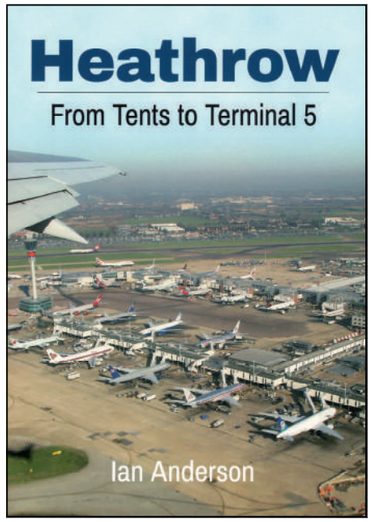
The jackets are made of nylon or similar man-made fibre and, as we all know, such materials generate a lot of static electricity just by being worn. One of the major causes of fuel fires is static electricity, that's why we earth our aircraft before refueling, yet we still see pilots and refuelers, refueling aircraft wearing their Hi-Vis Jackets. By all means wear your jacket when walking around the airfield but take it off before approaching the refuelling area and definitely before commencing refueling. (Firemen and refueling staff wear non-static producing H-Vis jackets, or they should.)

Take it off also before flight. They fold up small and can easily be tucked away in any aircraft, so there is no need to fly wearing one. If you do wear one in flight and have a fire the nylon will not only burn but will melt into your skin exacerbating any burns considerably. If you've ever seen the effects of nylon burns on a human body you'll not want them on yours.

It also pays to wear natural fibre clothing when flying for the same reason.

Robb Metcalfe
Club Safety Officer

Book Review



Heathrow

From Tents to Terminal 5

Ian Anderson

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Although architectural design is not one of my strong subjects I did find the subject matter of this book to be both interesting and enlightening. As I lived, up until leaving home to get married, fairly close to Heathrow and have always had an interest in aviation the development of much of the earlier life of the airport was something I was aware of even if I did not take much notice unless it affected the pursuance of my hobby.

The book charts the Heathrow from its very beginnings, starting with its connection to the first Ordnance Survey Line across Hounslow Heath with its end at Kings Arbour at Heathrow. The location of the nearby airfields is also covered along with a description of the land taken into use for the new airport.

The book then goes forward to bring the story right up to date with mixed runway operations, the introduction of the A380 and the possibility of the construction of a third runway.

The development of the buildings and their methods of construction give the reader an insight into the requirements of the aircraft operator and the problems faced in meeting these criteria. The changes in the sizes and capacity of these new types of aircraft all have to be taken into consideration prior to construction. The dimensions and the quantities of materials used reveal just how much has gone into making this a world class airport.

The book follows the development of Heathrow not only by decades but by the introduction of new airlines with their varied types of aircraft, and their hangarage requirements to enable all types of maintenance. Similarly the development of access by means of both private and public transport, including the underground rail links from central London and the Heathrow Express from Paddington.

The coverage of both the RAF Battle of Britain static displays and Royal Aeronautical Society garden party of 1954 were an unexpected part of the book, along with the 50th Anniversary Fly-Past is also covered along with a listing of the aircraft taking part.

The book ends with a series of appendices which cover a range of subjects from how the dimensions of the runways from 1959 to the present changed, to a listing of airlines and airliners operated by decade.

This was a book which I was not sure about when I received it, but on reading I found it to be very informative and easy to understand despite my lack of knowledge of the construction industry, and I gained an insight into how and why an airport I visited regularly during my younger years developed.

Also covered are the possibilities of sighting a third London Airport at Maplin, and the final selection of Stansted in Essex.

The book is well illustrated with line drawings, black and white, and colour photographs the reproductions of which are very good.

The line drawings showing both various areas of the airport the construction of a number of the buildings. The photographs cover such areas as the first arrivals of various aircraft such as the Tu.104, and construction of some of the buildings. Some of the aerial views are obviously taken from departing aircraft whereas others portray views of the airport charting its changes and not normally seen by the traveller .

Paul Loveday

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