

SAILPLANE & GLIDING

VOL. 66 NO.3

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Want to be stretched to the limit of your comfort zone and hone skills? You can't beat the Chilean Andes, writes **Alan Swan**



MEMBER OF THE ROYAL AERO CLUB AND THE
FEDERATION AERONAUTIQUE INTERNATIONALE



 **THE MAGAZINE OF
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COVER STORY

This photograph was taken near New Tempe airport, South Africa, at the beginning of the year during one of Dick Bradley's Soaring Safaris (Kees Van Schaick)

DEADLINES

Aug/Sept 15

Articles, Letters, Club News:
Display advertisements:
Classifieds:

5 June
22 June
7 July

Oct/Nov 15

Articles, Letters, Club News:
Display advertisements:
Classifieds:

7 Aug
21 Aug
8 Sept

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> The 2015 BGA Waypoint List has been published and contains 1277 WPs, an increase of 12 over last year. Due to the new Southend Control Zone, the following have been removed: CTM (Chatham), CVY (Canvey), DAE (Danbury E, replaced by a new point Danbury N), SOM (Southminster), and SPY (Sheppey). In other areas, HB7 (HusBos Finish E) has been replaced by a new HB4, and WIT (Wittering Tower) has been removed because this is an active RAF airfield and there is no longer a gliding club at this site. There are 19 new points, referenced to Canterbury (1), Exeter (7), Ipswich (1), Lasham (1), Leicester (1), Newcastle (1), Oxford (2), Plymouth (1), Ullapool (2), Yeovil (2). There are 12 more minor updates in other areas. The list can be downloaded from www.spsys.demon.co.uk/turningpoints.htm

> If you've not seen the promo for the Jaguar XE, filmed at Lasham last year with Sarah Kelman flying a DG-1000, then do visit <https://vimeo.com/120351163> Part of a series of short films examining the shared philosophies between distinguished Jaguar designers and engineers and some truly inspirational people, Sarah took Studio Director, Jaguar Design, Wayne Burgess on his first glider flight, before getting to drive the Jaguar XE herself.

> English versions are now available of the two-part documentary featuring stunning images from the Wave Mountain Project (reported in Feb/March 15). Klaus Ohlmann flew a Stemme S10 VT motorglider over Everest in February 2014 as part of a research expedition to measure air quality, local wind conditions and survey glaciers around Everest using unique 3D cameras. See www.dw.de/from-straussberg-to-mount-everest-two-part-documentary/a-18324776

> A dedicated website has been launched by the Future Airspace Strategy VFR Implementation Group (FASVIG). See www.fasvig.org

> Phil Jeffery now holds the National Open Class 750km triangle speed record, with a flight in his Ventus 2ct (18m) on 24 January from New Tempe, S Africa (151.96km/h). John Williams' 9 February flight in his Antares from Portmoak (*An eternal triangle*, p16, April/May 15) makes John holder of the UK Open and 20m class 400km and 500km triangle speed records (121.66km/h).

> Belgium glider pilot Bert Schmelzer declared a 1,000km FAI triangle on 18 April. He flew his Discus 2ct from Blaubeuren, Germany. Congratulations also to Japan's Takeshi Saito on his 750km FAI O/R in a Discus BT on 10 May. Sea breezes and airfields on river beds make long distances tricky to fly in Japan.



< Congratulations to Peter Bennett (16), Liam Vile (19) and Matthew Williamson (28), who have all been awarded Philip Wills Memorial Fund (PWWF) scholarships in 2015 to help with their training for Basic Instructor ratings. James Hood (22), who is already an Ass Cat instructor, received a PWWF Scholarship in 2014 and has recently completed his NPPL. PWWF Trustee Dick Dixon presented their awards at Devon & Somerset GC.

An evening to celebrate

CONGRATULATIONS to the glider pilots presented with Royal Aero Club awards at a ceremony at the RAF Club, London, in May. Receiving recognition for their outstanding achievements in aviation were: Alex Harris (London), presented with the RAeC President's Breitling trophy; the British

Glidering Team, awarded the RAeC Prince of Wales Cup; Steve Jones (Lasham) received a RAeC Gold Medal; BGA Chief Executive Pete Stratten (BGA) was awarded a RAeC Silver medal; and a RAeC Certificate of Merit each was presented to Hugh Woodsend (Cotswold) and to John Bradley (Wyvern).



Glider pilots were well represented at the RAeC awards ceremony (hereandnowphotography.com)

Inspiring a generation at Hus Bos

THE second Youth Aviation Day and Fly-in takes place at Hus Bos on 7 June, 10-4pm. The not-for-profit event is aimed at raising funds for Aerobility and the Air Ambulance. It is also geared towards "Inspiring a generation" from across Leicestershire and the country, with Air Cadets, Scouts, Fire Cadets, Police Cadets, disabled groups, universities, schools and youth groups attending the event.

Supported by major national aviation

organisations such as British Airways, Land Rover, BBMF, Red Duo and many others, the event will feature a range of activities and also a few surprises, including the potential for the odd celebrity!

The BGA simulator will be making an appearance, along with a 737 Mobile Simulator from British Airways. For more information and to find out how to get involved, visit www.youthaviation.co.uk or social media channels.



One of last year's entries from a glider pilot

■ **MORE than 400 original works of art will be on display in London's Mall Galleries, at the Guild of Aviation Artist's 45th Open Annual Exhibition, from 20-26 July.**

As previously reported, a new prize is being introduced at exhibition. The Margaret Kahn Trophy, together with a £100 cash award and certificate, will be awarded for the best gliding related oil painting. The trophy was sponsored by Lasham's Wally Kahn MBE (who died on 15 March) to commemorate his late wife's outstanding gliding and cloudscape paintings (see p33).

Public opening times are 10-5pm on Tuesday to Saturday, with late opening until 8pm on the Thursday. Sunday hours are 10-12.30pm. For more information, see www.gava.org.uk

DUXFORD GA EVENT TELLS STORY SO FAR

A JOINT Government/CAA GA event took place at Duxford on 28 March attended by around 300 people, *reports BGA Chief Executive Pete Stratten*. Efficiently facilitated throughout by CAA CEO Andrew Haines, who is clearly committed to doing the right thing for GA, speakers from Government, EASA and the CAA took to the stage throughout the day to highlight changes being made to improve how GA is regulated.

Patrick Ky, EASA Executive Director emphasised the need for EASA to take a step back from rulemaking and to take a strategic approach based on risk. It is clear that Patrick is committed to improving proportionality and flexibility in the way GA is regulated. The slow pace of change at EASA is a key challenge.

Patricia Hayes, DfT Director of Aviation, presented the government's GA Strategy document resulting from a process that started with the Red Tape Challenge and sets out how government will support GA going forward. Patricia noted unbroken consensus across government and regulators that proportionate and cool-

headed decision making based on risk is the way forward. In recognising the challenges of protecting airfields from developers, there is little government can do directly, but the strategy recognises the issue and Patricia identified the need for GA to engage effectively with local enterprise partnerships.

Tony Rapson and Rachel Gardner of the CAA's GA Unit presented an update on progress to date, imminent consultations and plans for the near future. Tony is a leading light within the EASA GA work streams mentioned earlier by Patrick Ky.

CAA CEO Andrew Haines noted concerns he's heard expressed that commercial air transport is given priority in airspace matters, and emphasised his commitment to ensuring that the airspace change process is reviewed and made more transparent. The Future Airspace Strategy VFR Implementation Group (FASVIG) is led by joint chairmen John Brady and Tim Hardy, who between them provided a lively session introducing a programme which offers numerous smart proposals that will go a long way towards ensuring GA can thrive in an airspace environment under increasing pressure by commercial interests. CAA Group Director Mark Swan took questions on the subject of airspace change that many believe threatens to undo the great work otherwise under way by the CAA.

Grant Shapps was the final presenter of the day. It was his ministerial GA Red Tape Challenge of a couple of years ago that provided impetus and applied influence for change. Grant pointed out that there is still a lot to do, but work under way at the CAA and initiatives such as the governments GA Strategy mean that change will continue. Grant reminded everyone of the need to keep working on the significant challenge of protecting airfields within the national planning policy framework that doesn't address GA needs. In noting the value of working together in partnerships, Grant went on to emphasise the importance and effectiveness of individual GA organisations lobbying on behalf of their pilots. Andrew Haines then thanked everyone involved and closed the event which was well presented, informative, open and interesting. The work to turn words into action continues!

DATES

NATIONALS, REGIONALS AND OTHERS

Standard Class Nationals	Hus Bos	23-31/5/15
15 Metre Class Nationals	Hus Bos	23-31/5/15
Competition Enterprise	Sutton Bank	4-11/7/15
Club Class Nationals	Bicester	11-19/7/15
Europeans	Osceny, Hungary	12-25/7/15
(18m, Open, 20m two-seater Classes)		
Open Class Nationals	Cambridge	1-9/8/15
FAI 20m two-seater Nationals	Cambridge	1-9/8/15
1st 13.5m Class Worlds	Pociunai, Lithuania	1-15/8/15
Women's Worlds	Arnborg, Denmark	1-14/8/15
Europeans	Rieti, Italy	2-15/8/15
(Standard, 15m, Club Classes)		
18 Metre Class Nationals	Lasham	15-23/8/15
Junior Championships	Aston Down	22-30/8/15
Two-Seater Competition	Pocklington	23-30/8/15
UK Mountain Soaring Champs	Aboyne	6-12/9/15
Junior Worlds	Narromine, Australia	1-12/12/15
Glider aerobatic competitions		
Dan Smith	Dunstable	5-6/4/15
Aerobatic nationals	Saltby	20-24/5/15
Pocklington	Pocklington	23-25/7/15
World Glider Aerobatic Champs	Zbraslavice, Czech	5-14/8/15
Saltby Open	Saltby	28-30/8/15

SHENINGTON REGIONALS

20-28/6/15

BOOKER REGIONALS

27/6 - 5/7/15

BIDFORD REGIONALS

18-26/7/15

HUS BOS CHALLENGE CUP

18-26/7/15

DUNSTABLE REGIONALS

25/7 - 2/8/15

NORTHERN REGIONALS

1-9/8/15

BICESTER REGIONALS

1-9/8/15

LASHAM REGIONALS

15-23/8/15

COTSWOLD REGIONALS

22-30/8/15

INTER-SERVICES REGIONALS

29/8-6/9/15

■ **BGA Club Management Conference, 21 November, 2015 at Warwick University**

SAILPLANE & GLIDING



Andy Davis
Competition flying



Paul Whitehead
SLMG



Howard Torode
Airworthiness



Derren Francis
Tugging



Mike Fox
Instructing



Dr Peter Saundby
Medical



Andy Holmes
Winch operating



John Williams
Airspace



Alison Randle
Development



Bruce Stephenson
Vintage gliding

S&G is privileged to be able to call on the advice of some of gliding's leading experts. If you have a question for our experts on any of the subjects listed above, contact the editor (details p3).

EXPERT ADVISERS

Experiencing joy of flight

I'M A disabled former Army Air Corps soldier and, when I was discharged with my injuries, I thought my flying days were over – until last year, when I decided to go back to my flying roots in gliding (I first soloed in December 1991). I went for a trial flight with Dartmoor Gliding Society in May 2014, which led to me deciding to try to solo again. There were some worries, both from my instructors and I, as to how my legs would cope with using the rudder pedals, especially when recovering from spins. However, I was able to work the K-13's pedals just fine and, in late December, I transitioned to the K-8 (I have since found that there are aircraft I can't fly, due to the pain they cause in my legs caused by the pivoting rudder pedals).

This photo was taken on 11 April, on my third solo soaring flight of more than an hour (38 solo flights in total). I'm in a K-8, at around 3,000ft ASL, climbing at '10-up', with Dartmoor in the background behind me. I hope it shows just what it means to me to be able to fly on my own again, after 16 years of thinking I'd never fly again, and I'd be really honoured if you wanted to use it in the magazine to show other pilots the freedom that flying can give to disabled people.

Chris Jones, Dartmoor GS



Chris Jones is pictured less than 10 minutes into his third solo flight of more than an hour. He says: "It's a shame it's not a video because I was laughing out loud!"

IS THERE AN ARGUMENT FOR GROUND EFFECT?

I WAS reading the latest issue of S&G (April/May 2015) and was struck by the two accounts of flying gliders in ground effect and the apparent uncertainty of whether this practice increased the range that a glider could fly from a given height. Mark Dalton, in his article (*What goes up...*, p28), asks why this question has not been settled a long time ago. I believe that it already has been.

I recall an article that I read back in the late 1980s when I was visiting California and picked up a copy of *Soaring*. In it there was an article that dealt with the question of whether it is better to dive into ground effect to reach a specific landing field or whether to fly at best L/D, taking into account the conditions, the height and the

distance to go.

After a small amount of research on the internet, I found a published thesis by the then Captain N Jones, USAF, entitled *Glider Ground Effect Investigation*. Captain Jones was, at the time, an active soaring pilot. The thesis appears to be the basis of the article that I read in *Soaring* magazine. The thesis was prepared following a comprehensive series of flight tests using a Grob G-103 Twin II and an L-13 Blanik. The tests were conducted by Captain Jones and a number of his test pilot colleagues at Edwards Air Force Base and used the facilities of the Rogers Dry Lakebed in California.

The thesis is a comprehensive document with lots of graphs and

formulae that I don't understand, but luckily it contains a simple conclusion: "Glider pilots should NOT attempt to use ground effect to extend glide range as the small range gains given by optimum ground effect profiles are not worth the risks involved". The risks appear to be associated with ground obstructions and the necessary manoeuvring at low altitude in order to achieve the optimum flight profile. I am not aware of any other research into this aspect of our sport in the intervening years.

The fact that pilots are having to make the decision about whether to use ground effect on a miscalculated final glide or not shows that some clarification from the BGA might be helpful. It may help to prevent a future accident.

Vincent Earl, Essex GC

BGA Training Standards Manager Mike

Fox responds: *I have also read the thesis and I don't understand all the mathematics! I would like to add to your comments, based on Capt Jones' thesis and my own thoughts:*

Ground effect works. A bit. In very controlled circumstances. Capt Jones showed that, on a completely flat lake bed, pushing at precisely 0.5G, from a precise height at precise speeds to another precise height above the lake bed, you can increase the glide by a few metres distance. As soon as you pull up for a fence, you will wipe out all your advantage. If you dive to a higher than optimum speed, you will degrade your performance by increasing the profile drag. None of the above takes into account the massively increased risk of hitting some unseen wires or other object. The other problem, of course, is that if you do not make it to the end of the airfield, you will not be able to assess your landing options because you are so low down. Your only option if you do not get to your goal is probably to crash!

I think that we can glean from all the above that ground effect does not work in real life, and we should simply fly at the correct speed for the situation, monitoring the landing options as we go.

Please send letters (marked 'for publication') to the editor at editor@sailplaneandgliding.co.uk or the address on p3, including your full contact details. The deadline for the next issue is 5 June

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GP 11 Pulse

■ Polish firm Peszke, established in 2007, presented a new range of gliders – the GP series – designed for the 13.5m Class. The three models are:

GP 11 PULSE – with fixed undercarriage, flapless wing, best L/D of 39:1. Designed for early solo/club use.

GP12 FLEX – with retractable undercarriage, full span flaperons, optional water-ballast, L/D 41.

GP 14 VELO – the different wing profile improves L/D to 43. Optional S (slimmer) fuselage gives L/D of 45.

The GP12 and GP14 models come with an electric self-launch option (15kW engine with 4kWh battery, offering approximately three 1,500ft climbs or a single climb plus 100km flight).

Four GP14S gliders have been entered in the first 13.5m World Championships in August, including one to be flown by World No 1 Sebastian Kawa.

All models have a GRS ballistic recovery system, tail tanks for CofG balance and data loggers as standard. The GP12 and GP14 models have electric flaps and trimmers and electric retractable landing gear as options.

The company has US distribution but, as yet, no UK agent. The full range is expected to be in serial production around November, with prices ranging from about €40k for the GP11 through to €75k for the GP14S with self-launch capability. www.peszke.com



■ Schneider DFS 108-14 SG-38 suspended above the Allianz stand

S&G reports on the highlights of Europe's biggest aviation fair, held in Friedrichshafen in April

AERO 2015



Schempp-Hirth's new Ventus 3 and (below) Discus 2c with FES

Photo: Steve Morgan

■ Schempp-Hirth was displaying its Arcus M, Discus 2c (FES) and – star of the show – the Ventus 3. Hanging from the ceiling, the Ventus 3 had wings fresh from the mould, while the fuselage is a mock-up being used to implement and test ongoing improvements.

The multi-part wing was completely redeveloped, with design advice from Dr Werner Würz, who was involved in the design of the Arcus. The wing has multiple, separately fillable and drainable water tanks and new mechanically operated valves cover a wide wing load range. Aerodynamic improvements of the redesigned fuselage are integrated bug wiper garages and a revised ventilation system with optimised air inlet and outlet.

Managing Director Ralf Holighaus said around 30 people of different shapes and sizes had been in the cockpit to ensure a comfortable fit. Recognising that 'one size doesn't fit all', the glider will be offered in two editions. The 'performance' edition will provide upscale levels of comfort, while the 'sport' edition is reduced to essentials with ergonomic cockpit layout and two sustainer engine options: the turbo and the new FES system. The 'performance' edition will also be available as self-launcher with an improved and more powerful engine.

CEO Tilo Holighaus said: "We are optimistic that the prototype will perform its maiden flight this year. With its new wing geometry and other improvements, we are looking forward to building a glider with



amazing handling that will be fun to fly."

A 15m version of the Ventus 3 is planned. Prices have yet to be set.

The Discus 2c will fly in the summer as a demonstrator. Schempp-Hirth's Bernd Weber said: "It's interesting for clubs and we have taken orders at the fair. It's a different way to fly a glider, switching from full sailplane to full power. The FES battery weighs 32kg and total extra weight is 45kg. It gives a range of 45 minutes."

The Discus 2c will not be available as retrofit, due to the amount of certification involved. The engine cost is €25,000 plus VAT, incl battery unit. Weight is below 50kg. You can replace FES with a cover, but would need ballast in the back to balance.

The first Ventus 2cxa was due to fly shortly after AERO, with Bernd flying the 2cxa in German championships this summer.

And what of the Quintus? The intention is to continue with the concept of 23m, but it is not yet certified.

www.schempp-hirth.com
www.southernsailplanes.com



> **SAILPLANE & GLIDING**
JUNE/JULY 15

> **FEATURE**
AERO 2015



Clockwise from top left: the ASG 29es; Schleicher designer Michael Greiner, right, with Paul Anklam, designer of the electric engine and starter of the ASG 29es; ASG 32mi model illustrates the option to add colour to your sailplane; the ASG 32 EL



■ Schleicher's stand featured an ASG 32 EL, ASG 29es and model of ASG 32Mi.

Designer Michael Greiner (the G in ASG) reported that the ASG 32 had a good season in Finland last year after first flights. Type testing continues. With the fuselage as long as possible (while still fitting a trailer), a small tail to reduce drag and retractable steerable tail wheel, the ASG 32 has shown good results after a season. Michael said: "After two hard landings, we're confident the design is good for practical use! Setting is great for short landing and airbrakes slope forwards so don't get sucked out if you forget them."

Talking about the electric system of the ASG 29Es, Michael said: "We wanted a 100km/20-minute range. The advantage of electric is that it's easy to handle, starts by windmilling, and there's less noise and vibration. It's very important to me that there is the same power independent of altitude. We partnered with universities and battery companies. The new battery cells are more tolerant to a range of temperature."

The ASG 29Es was due to fly shortly

after AERO, with plans for it to be available in autumn 2017.

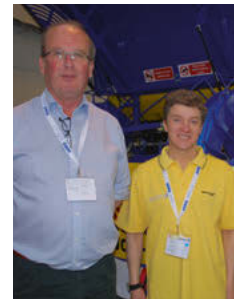
Paul Anklam is the man behind the electric engine and starter of the ASG 29Es. He says it's simple for the user to switch between pure sailplane and motorglider and is more comfortable in flight. Paul said: "We wanted to simplify the system, for example for club flying where the pilot may not be used to the type. Existing systems are not always easy to use. This improves safety as it is easy and comfortable to use. Number 3 is on display and the first ones are under permit to fly." Certification is due in the summer. Order now for availability in 18 months.
Pure sailplane = €127,500
Electric = €160,500
Self launch = €183,000

The ASG 32Mi is being flown at Wasserkuppe Flying School. The model displayed by Schleicher indicates that it is available in different colours (another invention by Michael Greiner). Traditionally higher temperatures prove a problem, hence white. Now you can choose red, orange or yellow - whole glider or flashes.
www.alexander-schleicher.de

■ Blanik Aircraft CZ was established last year as a subsidiary of Blanik Ltd, which remains the holder of all Blanik type certificates. It has introduced the L23NG (New Generation). Improvements over the original L23 Super-Blanik include new winglets and improved tailplane aerodynamics, giving improved performance (best L/D 31 @ 92km/h). The anticipated cost for this aluminium airframe two-seater is around €60k and it is expected to be available from next year. Blanik also announced a 6,000 hours life extension for the original L13.

www.blanik.aero

■ It's been quite a year for Skylaunch, with an MoD order for 25 ATC winches. Ten have been delivered so far and the 12th Evo winch was on show at AERO. All will be delivered by August. Soon the same diesel model will be towed to the Italian Air Force's gliding centre at Guidonia, near Rome. (See *Military matters*, pp30-33, June/July 11.)



Skylaunch Managing Director Adam Greaves (pictured above, left, with Mike Groves) was delighted to report that the company had now also cracked the German market. "Prospective customers are now approaching us," he said.

Mike Groves confirmed that a Skylaunch winch is involved in filming at Pinewood in May (see p5, April/May 15). He said: "We're working with a couple of special effects companies and are hoping to be introduced to the other big FX players."
www.skylaunch.co.uk

■ Jonker Sailplanes showed its JS1 Revolution evo, with a new 18m wingtip. Starting price of €98,000 euros, without instruments or jet.
www.jonkersailplanes.co.za



> TURN TO P10 FOR MORE AERO NEWS



■ Stemme launched its new S12 Twin Voyager. It looks superficially like the S10, but has new wing geometry and improved winglets. An increase in span to 25m (S10 is 23m) increases glide ratio to 53:1. The S12 also has water ballast capability, new avionics and a Dynon autopilot (which can be disconnected when soaring). It can taxi with wings folded and has a bigger luggage compartment compared with the S10. c€300k. www.stemme.info

■ Trig Avionics displayed its range of transponders and 8.33 VHF radios, now with dual control (retrofit available). At just 33mm high, Trig's new TY96 and TY97 radios may be a good replacement for radios such as the Garmin SL40 in motorgliders. A 'say again' function allows instant playback of your last transmission. Trig is also involved with Project Eva (Eva stands for Electronic Visibility via ADS-B). The NATS/EASA project aims to improve the safety of traffic and visibility to each other and to air traffic control. A range of devices (shown below) will enable GA aircraft not equipped with a transponder to both transmit and receive ADS-B position information. Trig's UK Marketing Manager, Jon Roper (below), said: "Flight trials start in May. By next year there should be clarity on what is coming to the market." www.trig-avionics.com



> AERO 2015 PHOTOGRAPHY BY
SUSAN NEWBY/PAUL MORRISON



■ HpH displayed its Shark MS (Self Launch), Shark SJ (Jet), Shark eS (FES) and Twin Shark. The Shark MS at AERO was shown with optional luxury leather interior.

Fifteen days after being unveiled at AERO, the Shark eS had its maiden flight. This Shark was next flown by Martin Pekar, who flew it in its first competition (in the Czech Republic), finishing the day fourth out of 19 pilots, flying 340km at 124km/h.

The Shark eS will begin coming in to the UK in just over 12 months. The price is the same as for the Shark Jet - £105,000 for a complete outfit, including instrumentation (LX9000/Becker/Winter-type), Cobra trailer, all rigging aids and including VAT. www.hphUK.co.uk

■ DG presented the DG-1001 Club WL (WL for 18m winglets). A basic trainer with fixed wheel, DG has supplied 19 DG-1001 Clubs to the US Air Force, six to the Indonesian Air Force and eight for Australian Air Cadets. Ten are currently being built for the Brazilian Air Force. A tour of UK clubs is planned for the summer. The DG-1001 Club WL on display featured an anti-collision prototype - a ring of LEDs around the nose hook (see pic on p12). DG had looked for a solution that could be seen from many positions and could be available to retrofit. It has its own switch and connects to FLARM. LEDs blink once every five seconds, increasing to continuous blinking if there is danger of collision. Also on display was an anti-collision prototype that fits the canopy of any single-seater. No prices are available yet for these prototypes. www.dg-flugzeugbau.de www.mcleanaviation.co.uk



'IT'S HUGE!'

UK glider pilots share their personal experiences from this year's AERO

SUMMARISING AERO 2015 in Friedrichshafen is like summarising Proust, namely impossible, *writes John McCullagh*. It was enormous. The car park was conveniently 50m from the entrance, but the gliding hall itself was Silver C distance. Bravely I strode past all sorts of interesting stands, including rows of cute pod-like gyrocopters, to the object of my desire, the Ventus 3, which Schempp-Hirth had tantalisingly hung from the ceiling. It is due to fly this year, but I couldn't persuade them to guess when production will start. It has new 18m wings and a new fuselage in two sizes, which will take an electric-starting piston engine or an FES (Front Electric Sustainer). They also had the fuselage of a Discus 2c, also with an FES. Unless it was going to fly-by-wire, this also needed some more work.

FES was everywhere. The pioneers, LAK, were showing it on their new 21m version of the 17b. It is much cheaper than a Ventus and looks a quality product, but I suggested they would sell more if they changed their name to Schmidt. HpH was also there with an FES version of the 304 Shark. Meanwhile, in the 13.5m Class, the Silent 2, the Albastar and soon the Peszke GP14 have FES variants.

The original folding front propeller company, Stemme, was showing off its new 25m Twin Voyager S12. "How much?" I enquired, in case my lottery tickets came good. €310,000 plus VAT was the answer. It is due to be on tour in the UK in the summer.

The other two big German manufacturers had more modest announcements at the show. Schleicher was showing the ASG 29es; the turbo now has an electric starter. You could also dream about the 31 and the 32 on its stand. Next door the DG stand had a 1001WL, meaning 18m tips and upturned winglets to improve handling and performance. Apparently the LS10 has quietly been dropped. It was just too long in arriving.

Whenever you asked if a new feature could be added, every salesman looked skywards and growled: "Certification!" M&D, who sell the JS1 in Europe, described the bizarre, even Byzantine, behaviour of EASA

during the certification of the jet. M&D thinks it is almost there, but the bureaucrats may just keep inventing new hurdles.

"Wouldn't it be nice to have a slot for a SD card?" I asked Funke, "so I could load new frequencies on a radio." "Yes," they sighed, "development would cost €10,000 – certification would cost €100,000." On the subject of certification, Blanik claims to have a rebuild scheme for its L13 gliders and even a new generation L23 glider eventually.

Allstar had its 20m SZD54 Perkoz two-seater on show. Increasing crash protection to the latest standards had delayed it since it first appeared in 2000, but it is now at last being sold. As a trainer, it is claimed to be better behaved than the Puchacz. At 41.8:1 at 102kts, it is good enough for cross-country and it is fully aerobatic. Anyone for an inverted Cuban eight? They will be visiting British airfields this summer.

The vintage section had a 1941 Horten flying wing on show. They say that they are going to fly it again. I refused to volunteer as the test pilot and so I rapidly did another Silver distance back to the car park.



■ 2015 was my third visit to AERO and the second 'gliding year' show that I've been to, *writes Oxford GC Chairman Paul Morrison*. (Ed: traditionally every other year – the 'odd' year – is

a 'gliding' year.). It still comes as a shock to a UK visitor used to much smaller shows to come face to face with 10 halls of the latest that the GA aviation industry has to offer, including a complete hall devoted to gliding.

It's fair to say that, with a few notable exceptions, the majority of the GA companies present were showcasing two-seat composite aircraft in the Ultralight, LSA or microlight class that all look very similar. Sadly there seems to be no change in the situation that, whilst such aircraft as the Shark and Savage Club can be flown in 17+ countries, the UK is not one of

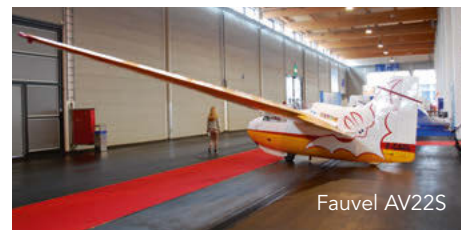


■ The 20m version of Allstar's SZD54-2 Perkoz was certified in January. There are plans for it to tour the UK this summer. <http://szd.com.pl>



Horten H.IV

■ Flying wings was the theme of this year's Vintage Glider Club display, which featured a Fauvel AV36, Fauvel AV22S (two-seater, six built and three flying) and the Horten H.IV owned by Felix Kracht Stiftung. The aim is to fly this again, but work is still needed on the outer wings. "They are from magnesium plates and it's difficult to find someone with the experience needed," said German VGC member Gere Tischler. "Flight tests may be this year, but who will be chosen to make the first flight?" Of the three models on display, the AV36 is the most well-known flying wing. It's a home build and there are quite a few in Germany and France. UK pilot Graham Saw has one, which is in the Shuttleworth Collection, Bedfordshire. www.vintagegliderclub.org



Fauvel AV22S

■ **FUTURE AERO DATES:**
20-23 APRIL, 2016
26-29 APRIL, 2017 (This will be the next year that the majority of glider manufacturers will exhibit at Friedrichshafen)

> TURN TO P12 FOR MORE AERO NEWS



■ The ALISPORT stand attracted a good deal of attention at AERO 2015, where the Silent 2 Electro and our range of Idrovario propellers were shown to good effect, writes Allan Arthurs of *Gliderguider.net*. Electric powered aircraft was a notable theme. There were several notable technology exhibits from big players like Siemens and Airbus, and also some new announcements of applications for the FES system by Schempp-Hirth (Discus-2) and HpH (Shark). However, the Silent 2 Electro remains the only FES-equipped self-launching sailplane in production!



Above: Bright LEDs surround the nose hook of the DG 1001 Club WL and (left) Strobe light in the nose of the vertical fin of Schleicher's ASG 32

■ I was attending my second AERO Expo and it was great to see the number of new machines coming to the market, writes Lasham's Steven Morgan. There is also a distinct blurring of lines between gliders, SLMG and ultralights now and the use of new technology such as electric, hybrid or jet power mixed with the traditional piston models. The new Ventus 3 looks particularly impressive and I'm sure we'll see this at the top of the competition winners charts in the near future.

them. So what was new for glider pilots? Unfortunately, I was left with the distinct impression that whilst the microlight/ultralight end of the GA sector is flourishing, with a lot of innovation to encourage participation, the gliding industry is polarising. At the high end we have the high performance sailplanes, such as the JS1, the Arcus, the ASG 32 and, of course, the new Ventus 3. At the other end there are the new ultralight self-launchers, such as the Silent 2 and the new GP Gliders 'Pulse'. Sadly there seems to be very little in between and, with the exception of the lovely new DG-1001 Club WL (€92K and 18-month wait!) and the SZD Perkoz, there is still no elusive K-13 replacement.

It was also evident that the days of the pure sailplane are numbered, with every manufacturer having a sustainer of some sort on show. HpH had a Jet Shark, the traditional self-launcher and the new FES on display. Schempp-Hirth had, amongst others, an Arcus M and Alexander Schleicher had an ASG 29Es and ASG 32EL in pride of place. As the above suffixes suggest, electric power was much in evidence and it's notable how much smaller and simpler an electric pop-up engine is compared with its predecessors.

One key development that may have gone unnoticed by many was there in glorious Technicolor on the Alexander Schleicher stand – a red and white ASG 32. A few weeks earlier and this may have been dismissed as an April fool, but with a new technology that allows GRP to be cured at much higher temperatures than before, it seems that the days of the pure white sailplane may be numbered.

It's probably fair to say that one of the most eagerly anticipated items was the debut of the Schempp-Hirth Ventus 3 and, suspended from the roof of the Messe, it certainly had a stunning presence and illustrates how far gliding has come and why, rightly so at AERO, gliding is seen as the pinnacle of sport aviation.



■ As far as new gliders are concerned, it seems that the established manufacturers are clearly targeting the top end of the market, developing high performance sustainers with price tags of well over £100,000, writes Oxford's Barry Taylor. DG Flugzeugbau had the DG-

1001 Club on display, which has an 18m span and fixed undercarriage. It had a ring of painfully bright LEDs around the nose hook (we were advised to look away before they were switched on). The LEDs can be linked to the FLARM output so that detection of another aircraft in the proximity will automatically trigger the LEDs to flash at an eye-catching rate.

Air Avionics were showing a modular 8.33KHz radio that provides the option of combining a radio and transponder in a single 57mm instrument. The black and white display was bright and clear and looked as though it would provide good sunlight readability. The radio includes audio equalisation for improving the sound quality and GPS-based frequency selection to provide a list of nearby airports or airspaces. An SD card slot on the front of the unit can be used for updating the database. The unit is currently undergoing testing and is expected to be available later this year.



■ As expected, there were several high-end ships with impressive performance figures and a price tag to suit, but very nice to have a close look at, writes Oxford's Jon Christensen. The merger of pure glider and a glider with some form of power continues, with electric and jet becoming standard options on many.

There was a Rotax 912 conversion for the Grob 109b, which has potential if it becomes available to give a nice motorglider a useful boost in power with a modern engine.

One thing I found of particular interest was an aircraft with a prototype hybrid mod for the Rotax 912 engine. An electric motor provides a 40HP boost for several minutes, enough to enhance short take-off/rapid climb performance, and to provide an element of safety should the main engine quit. The battery can recharge in flight from spare engine power in cruise.

Electric power has certainly become more common in fixed-wing GA too. Siemens had a stand there showing off a new record-setting motor pushing over ~260KW (~350HP) continuously that weighs just 50kg.

Unfortunately whilst electric propulsion offers power for relatively short periods of time (typically < 1 hr) I still haven't seen an electric-powered aircraft with the range required to satisfy me that solely electric powered GA is really viable yet.



Gordon Macdonald tries the Silent 2 Electro for size at AERO (Allan Arthurs)

BGA Chief Technical Officer Gordon Macdonald's favourite products and concepts, seen at AERO:

● **Flush fitting LED very bright strobes.**

Schleicher had a two-foot-long one mounted in the leading edge of a ASG 32 fin (out of the pilot's sight line). DG had a LED strobe light around its DG-1000 nosehook that reacts to FLARM warnings to enhance being seen by other gliders when they are on a constant relative bearing (most likely scenario for collision).

● **Many ballistic parachute systems (well proven in the microlight/ultralight world) that would be very easy to retrofit on gliders like a K-13.**

These are lighter than two personal parachutes. This way, older or less able people are ensured a viable escape plan in the event of a mid-air collision. The system is fairly cheap when compared to the cost of two new personal parachutes and the six-monthly repack costs. Certification in EASA gliders could be a challenge.

● **FAI 13.5m class gliders.** Both Silent and Peszke presented their gliders. The Silent is well proven and the planned Peszke GP14 is being flown by Sebastian Kawa in the next worlds. They all look very impressive and the entirely prepreg autoclave built GP14 is a substantial technology step (and increase in production tooling cost) in the world of sailplane manufacturer (it will be interesting to see approved repair schemes for it). But there is no cross-border certification for any of these sub-EASA gliders. For instance, in the UK you cannot have a new production glider that is not EASA approved that weighs more than 80kg. Put an engine in it (like the Silent has with the FES) and you can legally fly it up to 300kg in the UK. Every country has different rules. The rest of Europe appears to have found a work around under national rules. It will be interesting to see if any of the manufacturers try and certify their gliders to

CS22 within EASA.

● **Avionics hardware and software is very impressive and changing rapidly.** There appear to be two different approaches. The first option is integrated hardware and software that gives you everything from ASI/vario to moving map, or simple touch bright touchscreen tablet in the panel (both systems require Back up certified ASI/Altimeter). Personally, I cannot reach my instrument panel easily with my fingers so that would rule out the tablet version. I remain sceptical about betting your life that uncertified cloud flying instruments in any system are to be trusted.

● **Akefliegs German universities continue to innovate and bring along interesting flying prototypes to test various theories.** To me the most impressive this year were electric propulsion concepts and a high performance side-by-side two-seater built to research training in side by side training (like a T-49 Capstan!).

● **SZD 54-2 Perkocz is now EASA certified.** I thought this would be a 20m Puchacz, but in reality it is an entirely new glider that bears little resemblance (apart from the shape of the front cockpit and U/C layout) to the old Puchacz. They are very proud of the crashworthiness of this glider and plan a UK tour of it shortly.

● **Ventus 3 was the talk of the show.** Beautifully presented hanging from the ceiling, it was hard for me to tell it apart from the Ventus 2cxa. Like all modern gliders, the devil is in the fine detail that we were not able to see. A number of people claimed to have ordered a Ventus 3 and seem confident this will seriously give the JS1 and ASG 29 gliders an even harder time in comps. Time will tell.

● **ASG 29 electric start engine.** Not sure if this an upgrade option, but certainly an improvement on dive starts in my opinion.

● **ASG 32 can be painted totally orange.** Presented by Schleicher is a 20m two-seater glider, motorglider or sustainer that can be all electric. All very impressive, especially the flush strobes, but, for the first time since the PIK 20, this glider can be painted an entirely a different colour. It longer has to be white. Orange being the Schleicher colour of choice, but others on request.

● **FES appears to be an option** in HpH Shark, PZL Allstar, Schempp-Hirth and LAK gliders now.

● **Hybrid motorglider.** Airbus-sponsored hybrid motorglider. A very interesting concept of a side-by-side two-seater



Gordon Macdonald took the opportunity for meetings on behalf of the BGA:

- Sailplane manufacturers and EASA about ongoing airworthiness issues on existing gliders/motorgliders.
- FES to discuss training requirements of inspectors for maintaining their engines.
- Schleicher and EASA to discuss ageing glue issues and their electric motorglider.
- DG to discuss an ongoing AD on the DG-1000t and how to legally fit various DG products after the glider has been built.
- HpH to look at and discuss BGA approved maintenance on its jet engine.
- PZL Allstar to discuss life extension programmes to be performed by BGA inspectors on the Junior and Puchacz, as there are a number in the UK near the end of their current lives. Also, why so many BGA inspectors struggle with communicating with PSZ Allstar about its product support.
- Blanik aircraft to discuss cost effective methods to return to service any Blaniks not yet scrapped in UK.
- EASA presentations: question and answer sessions on wide-ranging issues of airworthiness, licensing and airspace.



■ **J&AS' J-6 Fregata touring motorglider.** It's a single-seat, 12.55m V-tailed aircraft with engine mounted directly behind the cockpit. Available in kit form at "affordable" price. www.aero-design.eu



■ **Warsaw University presented its AOS-71 multi-function two-seat motorglider concept. One has been built – by ZS Jezow (PW-6U and PW-5) – but it has not yet flown.**



■ **Another Akaflieg project is the AK-8, currently in flight testing. Its design is influenced by the Horten flying wing.**

Gordon Macdonald realises a childhood dream of seeing the SB10 29m supership (below)



✂ motorglider with a fin-mounted electric motor powered by batteries charged with a very efficient on-board engine.

● **PSR pulse jet is now an EASA approved engine** and appears very close to having the installations approved in many legacy gliders like LS6,8, ASW 20, 27, 29 and JS1.

● **Grob109B retro fit of Rotax 912.** It is lighter, more powerful, can use mogas and has full spares back from Rotax. In view of the fact the RAF has bought up a lot of the brand new (no longer produced) major spares for the original Grob engine (but plenty of refurbished spares still available), this could be an attractive mod in years to come. The G109A already has an approved mod (STC) for the fitting of a Rotax 912. Not yet EASA approved on the Grob 109B, but working towards it.

● **Oratex 6000.** There was a stand demonstrating how to use this fabric, which looks identical to modelling type fabrics. This is a revolution in the certified world of fabric covering (it has been around for a while on homebuilt aircraft). Glue on, heat shrink and fly. No painting and available in many colours. It has many EASA approved STCs to be used on EASA aircraft (it is standard fit on new build Robin Aircraft). They claim to have STCs for Schleicher gliders and SF25. It is significantly lighter than conventional fabric coverings due to not having to be doped and painted. The downside is that the price and tooling is not cheap and its longevity is a little unproven compared with the older fabric systems. For workshops that do not have paint facility this will be of great interest.

Of personal interest to Gordon:

● **SB10.** This 1971 built one-off Akaflieg research 29m supership has been refurbished and looked immaculate. I have wanted to see this glider since I was 14. Having seen how

busy the cockpit is, with all three separate levers (multiple flap levers, combined with a flap brake system and separate airbrake lever), I am not sure I actually want to fly it single crew!

● **FS24 Phönix-T built in 1962 was the first production GRP glider.** This particular example is finished to a standard that is better than most current production gliders. It was refurbished by Lindner LTB, who supply all Grob sailplane support.

● **Horten flying wing replica** has stunning workmanship and a headfirst prone cockpit. Do not fly if you are afraid of heights!

● **K-11 motorglider restoration.** Again, stunning workmanship, the quality of which I have never seen in the UK.

● **Carplane.** Interesting concept (but nearly ready for first flight) of two fuselages separated by a small centre section and the outer wings fold into the space between the two cockpits.

● **Diesel aircraft engines.** Many different types and independent manufacturers are near certification. Some of these really can challenge the Rotax 912 and much bigger gas guzzling Lycoming and Continental engines.

● **Rotary engines.** As used for many years by Schleicher (K-21M and ASH 26), these engines appear to offer by far the best power to weight ratio in the small piston market. There were a few very lightweight and powerful engines offered by different manufacturers. These engines, in theory, are so simple and light I am surprised they have not become more popular.

● **Almost no British innovation!** With the exception of Trig (radios and transponders) and SkyDemon (VFR flight map software), there was little in the way of eye-catching UK innovation, or products. In the short term this is sad, in the long term really bad for UK aircraft and sailplane manufacturing hopes.

Many years of legacy, non-proportional and expensive regulation has stifled UK innovation to the point that it is almost impossible to bring a high-performance aircraft to market in the UK.

The rest of Europe has a far better culture of proportional regulation, allowing innovative ideas to be tested and then putting those successful and safe ideas into production.

The UK light aircraft and sailplane industry is still very broken and its UK regulators have a lot to learn at national level, rather than constantly blaming EASA.

THE SOARING ENGINE VOL 1

IF YOU have any aspiration of one day becoming a master of soaring, then the first of three volumes of G Dale's *The Soaring Engine* should be on your reading list. G has begun in Volume 1 by covering the main formats that we all use to soar: ridge and thermal, being used in both flatland and mountain soaring environments.

Many of you will know G well, but for those unfamiliar with him, he is a seasoned professional soaring instructor and coach, GB team member and wearer of disgustingly bright trousers. He has an almost unrivalled knowledge base and experience of most soaring environments on the planet, and this he manages – very effectively – to impart within the main sections of this book, using clear simple diagrams and thought provoking questions and answers.

From his own experiences, G sets out and builds effective models of a subject, always starting with the basics, then fills and grows the model with further theory. In the book's easy, conversational style, G discusses the practical application of that knowledge, putting it into a context most of us will clearly understand. It helpfully explained a

few phenomena that I knew happened, but didn't know why!

The book also provides useful and memorable rule sets on what to do and, more importantly, what not to do to keep you soaring effectively, efficiently – and safely – when close to the ground.

However, the real gem of *The Soaring Engine* is the feeling that the subject matter covered is not a theoretical idea of what should be covered in the perfect soaring book, but rather a collated set of lesson plans and white board illustrations. Plans that have been used and honed over many years of soaring and cross-country instruction for soaring pilots of all abilities to digest and discuss. It isn't glossy, or filled with beautiful photos, it's a workbook – practical, essential, and real.

Volume 1 of *The Soaring Engine* is an extremely worthwhile read aimed towards the student (aren't we all?), but useful to the teacher. I look forward to reading the next two instalments.

Jez Hood, Lasham GS

■ Volumes 2 and 3 are planned for 2016 and 2017 respectively.



The Soaring Engine, volume one by G Dale

Paperback; 154 pages

RRP: £33 plus p&p, from www.thesoaringengine.co.uk. Or pick up direct from G, as he is always around gliding sites (especially Lasham)!
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LEARNING HOW TO GO FASTER **Q & As**

Articles on going faster and further prompted some questions, which Tony Cronshaw puts to club coach Kevin Atkinson



Tony Cronshaw is an Ass Cat instructor at Cambridge Gliding Centre with over 1,000 hours gliding. His enthusiasm for helping the next generation of pilots includes running courses for visitors and members, and leading CGC's recruitment and retention sub-committee

THREE articles published in 2014 (S&G Aug/Sept, Oct/Nov, Dec/Jan) highlighted opportunities for up-and-coming pilots to increase their task speeds and task distances. Tony Cronshaw follows up readers' questions with Kevin Atkinson, BGA lead on club coaching.

TONY: *One reader asks if MacCready speed-to-fly (MC STF) could be replaced by the simple strategy of always cruising at "best glide"?*

KEVIN: Whilst it might feel good conserving height and cruising at "best glide" (max L/D), this will undermine our goal of making the fastest possible progress on a cross-country. For example, a glider such as a Pegasus or Discus, in conditions of 3.5kts average climbs (for the thermal as a whole), should cruise at MC STF of 70-75kts, not 50-55kts best glide.

TONY: *Why is it better to fly faster and inevitably burn more height on the way to the next thermal?*

KEVIN: Let's look at a numerical example (figure 1). This compares a Discus cruising through neutral air at MC STF of 74kts (pilot 'A') with an identical Discus cruising at best glide (pilot 'B'). When we crunch the numbers from the polars, we see that 'A' arrives at the thermal lower than 'B', but

thanks to climbing at an average of 3.5kt, 'A' more than regains height. 'A' is actually 281ft higher than 'B' by the time 'B' joins the thermal, equating to 14 per cent faster than 'B'.

However, if we assume a down-wash between thermals, say one-fifth of the average climb rate (0.7kt of downwash), a revised calculation shows 'A' will be 388ft above 'B', equating to 20 per cent faster over this part of the flight.

TONY: *Given the advantage is just a few hundred feet, how important is this for the newcomer?*

KEVIN: There can be more to gain than just the increased task speed, which the racing pilot values so highly. The reason is that the changed timing of joining the next thermal will change our chances of connecting with lift or not. Depending on the conditions at the time, thermals may consist of a series of bubbles, each of limited height, or of taller columns extending further down. Either way, there will be a cut-off point below the thermal: If we arrive too late, we won't be able to connect with the lift. Arriving earlier and connecting will be a significant tactical advantage.

TONY: *That chimes anecdotally: It's not unusual to try joining underneath a*

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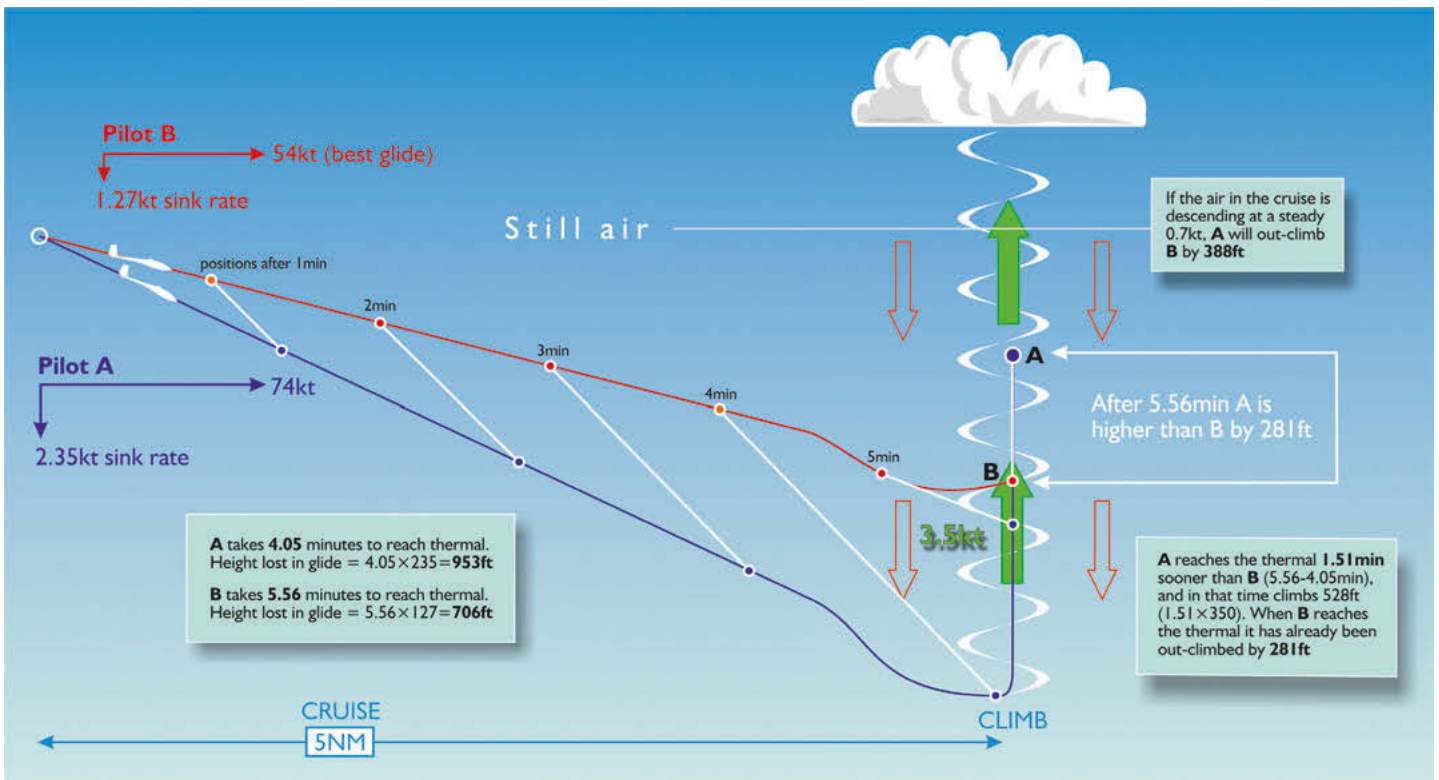


Figure 1
(Illustration by Steve Longland)

circling glider, but lift can't be found.

KEVIN: The cut-off at the base of a thermal will be very sudden due to the toroidal structure of the thermal (another story for another day). The established glider climbs away, leaving the would-be joiner forced to look elsewhere, using up further precious height in the process.

Note also that 'A' will trade speed for height on entering lift, helping the glider penetrate up into the thermal, enhancing the chances of connecting and centring the lift. This tactic is less effective for the slower 'B'.

TONY: *The next question concerns a technique described by Comte/Reichmann [1]: Can the MC STF calculation be based on the "climb rate expected once INITIALLY ESTABLISHED in the next climb", rather than using the AVERAGE climb rate expected for the whole of the next thermal?*

KEVIN: Comte's technique is to leave the top of a thermal so that the FINAL climb rate matches the expected INITIAL climb rate of the next thermal, and select this value for the MC STF calculation. This demands advanced skills to predict the next initial climb rate, including judging where the glider will join the thermal, and how lift will vary at different heights in the thermal column.

This technique requires advanced skills and considerable experience, so is less relevant to newcomers, but potentially of interest to advanced/competition pilots.

TONY: *Next, a question about how to keep things simple and where to get started: Which parts of the techniques discussed in the three articles would you suggest the newcomer focuses on initially?*

KEVIN: As we said in the first article, using a precisely derived STF value is actually less important in increasing task speed than using the right flying tactics.

My top tactical tip would be "DON'T STOP TO CLIMB IN WEAK THERMALS UNLESS YOU'RE IN TROUBLE!" because rejecting weak thermals will yield an enormous improvement on task speed in situations where we can press on and reach a stronger climb ahead. Newcomers tend to ignore this tactic, stopping to climb in weak lift, which wastes a lot of valuable time when the sky is booming elsewhere.

My second tactical tip would be to choose a route between thermals weaving anywhere within +/- 30 degrees of track to exploit areas/lines of energy and avoid blue holes. Making a bee-line straight on track, but with little prospect of energy, is a recipe for losing height and being forced to stop to take additional climbs, which wastes time: ☹️

REJECTING WEAK THERMALS WILL YIELD AN ENORMOUS IMPROVEMENT ON TASK SPEED IN SITUATIONS WHERE WE CAN PRESS ON AND REACH A STRONGER CLIMB AHEAD



Kevin Atkinson is the club coach lead for the BGA Aim Higher initiative (www.glidering.co.uk/bgainfo/aimhigher.htm). With more than 7,500 military jet hours (Tiger Moths to Typhoon), Kevin started gliding at age 13 at Ouse GC (now York), flying his first solo on his 16th. Kevin has over 3,500 hours gliding, including competing in UK national and regional competitions

■ In the next issue, *Ask the Coach* focuses on exploiting thermals: spotting the clues to success

✎ This could have been avoided by better routing.

TONY: Finally, regarding block speeds, can you recommend a simple rule-of-thumb to help newcomers find and use block speeds?

KEVIN: To quickly recap, the second article explained why sudden “dolphin” speed modulations should be avoided, particularly for “glass” ships flown quickly and ballasted: Sudden manoeuvring wastes a lot of energy and, furthermore, we are likely to overshoot lift and find ourselves slow in sink, which again is highly inefficient. Block speeds allow us to avoid sudden/inefficient speed changes.

Before we talk about block speed values, remember that the best pilots give priority to observing the sky ahead and then make decisions on gently modulating the speed and choosing the best route. These observations and judgements are PREDICTORS of the conditions ahead, whereas our onboard instruments and flight computer reflect the CURRENT or HISTORICAL air. It’s very important to spot when conditions ahead are different from those behind us, and make decisions accordingly. We must not fall into the trap

of using historical STF readouts from our instruments, which will be inappropriate for different conditions ahead.

To illustrate this, let’s consider how to select block speeds by observation and judgement alone. Assuming a 2.5kt average climb rate is expected over the whole of the next climb, a rule-of-thumb for the block speed would be approximately 10-15kts above best glide (but faster if stronger lift is expected). On the other hand, if we are gliding along a line of energy (zero/reduced sink, or actual lift), then a rule-of-thumb for block speed would be around best glide. Next, in the situation where we are getting low and need to stretch our glide to reach lift, a rule-of-thumb block speed would be best glide plus one-third of the headwind speed. Finally, when we are thermalling, an approximate thermalling STF would be several kts above the 1g stall speed – assuming a typical “glass” glider.

Try using these four values. Together with the right flying tactics, you will be surprised how much faster, and how much further, you can go.

[1] *Cross Country Soaring* by Helmut Reichmann (p59)

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ARCUS TAKES TO

Frank Jeynes finally gets to fly his Arcus T 'G-RKUS' whose journey to the UK he shared with S&G readers in the April/May issue

TODAY is 28 March and, at last, the wings are going on. It seems an age since I collected the glider from Schempp-Hirth on 16 January and then took it to Southern Sailplanes for an ARC. And what a beautiful profile the new wing section is, looking much like the wings of the Albatross, but with a higher aspect ratio.

Hardly a comparison with the Arcus, but it reminds me of the first time I went gliding, in 1982, at an ex-RAF airfield, Pershore. There the hangar doors were pulled back to reveal a K-7 – what a fantastic looking aircraft I thought! But then the doors were slid back further to reveal another glider, the one I would be flying in, an open cockpit side-by-side T-21. It was quite an experience for my first glider flight, being winch launched on a single-strand cable to 800ft in January, when the temperature was below freezing. I was shivering at the top of the

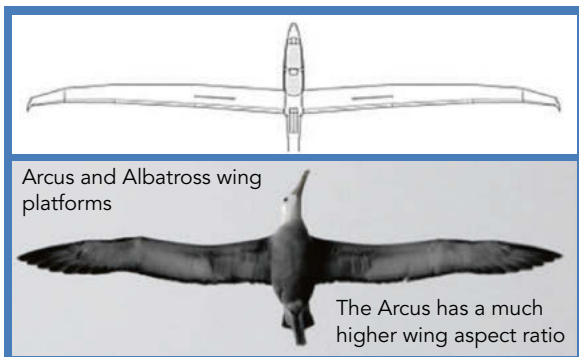
launch, I said from the cold. And when I got home my wife asked, am I going again?!

Needless to say, and 33 years later, I am privileged to be the owner of an Arcus T, a development from the very successful Duo Discus.

I have been lucky enough to own and fly a number of single-seaters, the last an ASG 29e, but having been a member of two consecutive Duo syndicates at Bidford I have found two-seater flying far more enjoyable. And then that thing called age creeps up on us all, hence the Arcus.

What do I think of it? Most importantly I found it is the most delightful and pleasurable glider to fly of the entire 50-plus types that I have flown. It was well worth the wait and cost. The frustrating thing about cost is the variable exchange rate. At the time, my final total cost (Arcus and extras, trailer, instruments, delivery and CAA) was about £195k, but today it's around £8/10k lower – but manufacturer prices never go down!

However, from the moment you sit in the



Arcus and Albatross wing platforms

The Arcus has a much higher wing aspect ratio



THE SKIES

cockpit, the ergonomics seem to just wrap themselves around you and there is the sense of comfort that would be enjoyed for long cross-country flights. There are even arm rests which cover the rear rudder pedals, so no more being kicked in the elbows.

In flight, the controls are surprisingly light and beautifully harmonised, even the rudder seemed lighter to use and takes a little while to get used to. I was tending to use too much during my first flight, as I was reminded by David Findon, our club chairman, in the back seat.

What is also surprising is how smooth the glider flies through its six flap settings and how well it maintains height with very little lift. When we did find lift, it climbed remarkably well, particularly when using the +2 setting when conditions allowed.

On approach you do have to be careful because the three paddle airbrakes, if fully deployed, are so powerful. To maintain airspeed the nose has to be lowered significantly, consequently there is a very

high rate of descent. Using just half airbrake during my first three approaches and landings was easily sufficient; practising with full airbrake higher up gave an exceptionally high sink rate, off the variometer scale, with a very nose-down attitude to maintain speed.

Then there are various other small improvements, which contribute to making flying the Arcus that much more enjoyable. Such as a single engine control switch, much easier and better sited water dropping lever (no more skinning of the little finger), and bigger side pockets, but the trim lever is still a little green, round knob. In my last Duo we changed it (pre-EASA) for a Ventus flap lever knob, which was much better – its rounded shape fitted comfortably in the hand.

Finally, the instruments. Schempp-Hirth, through computer graphics, did a wonderful job fitting everything supplied by John Delafield into the uplifting panel. The Zeus with the EOS vario is, I understand, user-friendly. I'm still reading the instruction manuals!

Facing page: wings are going on

Top row: the wings are on at last; club chairman David Findon (back seat) checks out Frank's Arcus

Bottom row: if all else fails, read the instructions!; on the way to the first flight



Frank Jaynes started gliding in a T-21 in January 1982 at RAF Pershore. He has 4,000+ hours and all three Diamonds. Frank has flown 50+ types of glider. He has a PPL A with TMG, and is a Full Cat instructor and in his third term as CFI, with Bidford Gliding and Flying Club, where the Arcus is based

UNRAVELLING SMALL PRINT

Jim Crawford delves into the murky depths of insurance speak in a bid to secure suitable European breakdown cover



Make sure you know your requirements for breakdown and accident cover

I WAS ABOUT TO LEAP FROM THE PINNACLE OF IGNORANT BLISS INTO THE MURKY DEPTHS OF INSURANCE SPEAK, WITHIN WHICH I FOUND MANY DEMONS

EARLY this year my motorhome insurance and recovery package came up for renewal. At the same time, preparations started for a Poland out-and-return shuttle to deliver a glider to the refinishing factory and to return with my syndicate LS4 suitably gleaming in a new suit of clothes. The impending trip and the addition of a towbar to the motorhome prompted me to read the detail of the cover document. Delving into 24 pages of fine print quickly made me aware that the usual half

interested scan wasn't going to be enough and that I was about to leap from the pinnacle of ignorant bliss into the murky depths of insurance speak, within which I found many demons.

The car breakdown market has a number of cover providers and the services they supply can vary in subtle ways. Many, many pages of policy documents later and needing a lie down in a darkened room, I have come to the conclusion that the devil is in the detail of the policy document and summaries readily available online simply don't give enough information for our niche market. I do not propose to describe all the policies I've read; that would

generate a very long and intensely boring article and induce nightmarish flashbacks. Rather I shall highlight the tricky bits and hope I can shed a little light on the subject by means of examples. Beware, however, all interpretations are my own, may not be correct or complete, and any suggestion that I know what I'm doing is an illusion. None of this constitutes a recommendation for any particular supplier or product; it is merely my recent experience.

The most important and legally required insurance is for third party liabilities to be covered. Depending on the particular policy, this insurance may be reduced to the

legal minimum requirements for countries in Europe, or may be extended in entirety for use within the EU (and often includes Scandinavian countries and Switzerland). My comprehensive vehicle insurance includes European cover, so to complete the package I wanted Europe-wide breakdown and accident recovery for both the towing vehicle and trailer. This should provide 24-hour English speaking assistance, as my fluency in most European languages is limited to absolute essentials – like ordering a beer.

The first check before trawling through accident and recovery policies is to remind yourself exactly what cover you may already have through your glider insurance. In my case, this is organised by my syndicate partner through Sydney Charles Aviation Services and looks like a standard European area policy. It is probably very similar to ones from other brokers. There are no limits in the policy document regarding trailer size or age. Liability to third parties is covered for both glider and trailer, the glider and trailer insured values and their reasonable recovery costs. However, "The Insurers shall not be liable for wear and tear, deterioration or mechanical breakdown". So no breakdown cover or 24-hour assistance.

For most accident and breakdown recovery policies, the length of the trailer is the common show-stopper; they have a typical trailer limit of seven or eight metres. This has been explained as a misinterpretation of the Road Traffic Act limits on URAS (gliderpilot.net), but when my car broke down earlier this year I took the opportunity to ask the recovery driver what he would have done if I'd had a glider trailer on tow. His response was that he would just hook it on the back of the recovery truck and off we would go. If, however, the trailer wasn't mobile, another issue arises that sheds some light on the length problem. The standard recovery truck can accommodate vehicles up to about eight metres. Longer loads require a bigger truck and a differently qualified driver, both of which will be

considerably more expensive and could be construed as 'specialist equipment'. More on this later. Perhaps the recovery services are limiting their liability by restricting the trailer length?

Whilst researching policies I discovered that some providers had different policies depending on how you access their services. A rather messy example of this is the RAC. If you were to enter through the RAC website (RAC European Breakdown Cover) then you would immediately discover a seven-metre trailer limit. If, however, you go to the Caravan and Camping Club site, you will find RAC Arrival, which explicitly has no limits on trailer length. Rather bizarrely, the Arrival policy states "Separate Terms and Conditions are issued for Annual European Cover which should be read in conjunction with these Terms in this booklet. If there is a conflict between these Terms and the RAC European Cover Terms, then these Terms will prevail". Which begs the question why didn't they just write a standalone and complete Arrival document to avoid having to continuously compare the two?

Other useful features of Arrival include no restrictions on the age of vehicle or trailer and the inclusion of non-proprietary trailers. I believe that this is the only policy I've seen that would cover a home-built trailer. Another plus: "If, however, your vehicle and/or towed non-motorised vehicle cannot be recovered by normal trailer or transporter and specialist equipment is required, RAC will arrange recovery and the use of any specialist equipment at no extra cost to you, up to an overall limit of £2,500 per membership year (eg the towed non-motorised vehicle is rendered untowable due to incidents such as a broken axle or towbar, etc)." There are very few recovery policies that cover the use of specialist equipment like this.

It should be noted that: "Membership does not cover – vehicle recovery following a road traffic accident, fire, theft, act of vandalism, or any other incident covered by a policy of motor insurance. However, if requested by you, RAC may arrange recovery of your vehicle following a road traffic accident, fire, theft or act of vandalism but you will be liable for payment of the associated cost of such recovery, including specialist equipment charges if applicable". So this is only breakdown, not accident cover. However, your glider insurance may cover trailer recovery costs and your car insurance, if comprehensive, may cover the vehicle recovery costs after an accident.

If that is the case, then all the boxes are ticked in that the RAC supplies the 24-hour recovery assistance, but charges you a fee which you reclaim from the vehicle and glider insurance.

A policy which ticks most of the boxes is provided by Saga, although there is the restriction that the main driver/policyholder must be over 50, a requirement I comfortably exceed. Extra occasional named drivers can be added and they need only be over 30. Full European cover is provided for both breakdown and accident, although not including the cost of specialist equipment for recovery: "Your caravan or trailer will have the same cover as the insured vehicle when being towed by the insured vehicle provided:

1. it conforms to The Motor Vehicles (Constructions and Use) Regulations 1986, as amended or replaced from time to time; and 2. fits to a standard 50mm towball; and 3. is of a proprietary make."

There are two suppliers who have had good reviews on URAS and I include them here:

- ADAC; the German recovery business, seems to get good reviews, but, although a summary page and sign-up form are available in English on the web, the policy documents are not available as an English translation so I couldn't check the all-important details. German speakers could find it worth a look.

- Adrian Flux also gets good reviews, but when I contacted them they couldn't satisfy the requirements. They tried very hard and I received several calls during the day from various brokers, but they never managed to overcome the length problem.

So, to summarise the important details to be teased from any policy you may consider:

- Length, could be a show-stopper.
- Width, height and weight, where specified, are unlikely to be a problem with a glider trailer.
- Propriety manufacture may be specified, in which case no home builds.
- Maintenance state is often defined and a serviceable spare tyre required.
- Age may be specified for vehicle and/or trailer; one policy would not accept our 20-year-old trailer.
- Breakdown and/or accident cover: know your requirements.
- Geographic limits: not usually a problem with comprehensive cover, but worth checking.

THE DEVIL IS IN THE DETAIL OF THE POLICY DOCUMENT AND SUMMARIES READILY AVAILABLE ONLINE SIMPLY DON'T GIVE ENOUGH INFORMATION FOR OUR NICHE MARKET



■ Excellent guidance is available on the BGA website: www.gliding.co.uk/bgainfo/Lawsandrules/March%2015/Trailers.pdf



Jim Crawford started gliding with the Air Cadets, achieving his A&B badges in 1967 and his power Flying Scholarship the following year. Retiring from 20 years flying as science crew on the Met Office research aircraft in 2010, he is a BGA inspector and a member of Windrushers Gliding Club at Bicester, where he has an LS4 and a Topsy Nipper. Jim has Gold, two Diamonds and a Sports Aerobatic Badge

DISPELLING NEW COURSE MYTHS

Two recently qualified instructors describe the new BGA modular instructor course

MIKE FOX, BGA TRAINING STANDARDS MANAGER, SAYS...

ALTHOUGH the modular course was originally born of the need for EASA-compliance, it was a chance to introduce some improvements and good practice from elsewhere. More thorough briefings, before climbing into the glider at the launch-point, should allow student pilots to take better advantage of their time in the air; and specific attention to airmanship (Threat and Error Management) should help make their flying safer.

We formatted the syllabus to resemble the PPL pattern, but the underlying structure retains everything good from our long-evolved gliding methods.

We felt it important that trainees be able to do much of their training at their home clubs, so the B module forms a major part of the new course. It isn't just preparation for instructor training, as it was before: it IS the instructor training. There are seminars for experienced instructors who wish to coach this part of the course.

IT WOULD BE LOVELY TO HAVE EVERYTHING ON A PLATE: COMPLETE BRIEFING NOTES, COMPREHENSIVE PATTERN. BUT WORKING IT OUT FOR YOURSELF IS A GREAT PART OF THE TRAINING

RUMOUR has it that the new BGA instructor course is complex, costly and bureaucratic, *writes Tim Freearde (Windrushers GC)*. I thought it was dead brilliant!

Basic Instructor flying never appealed to me: I wanted to teach keen students to fly, and BI friends had become disillusioned with trial lessons. So I leapt at the chance to train directly for, effectively, an Ass Cat rating. I had to learn to fly from the back seat, but it didn't take long to get the hang of craning my neck to see the tug, and I soon had more testing things to occupy my attention.

Before you begin formal training, a coach tests that your flying is up to scratch. I was apprehensive, but this was actually a great confidence booster. Most trainees have no trouble with the stick-and-rudder skills, but you need to be able to fly well enough that, when your workload is increased by instruction, you still fly safely and professionally.

Once the training was under way, the challenges were to plan a sortie that was clear to the student and made good use of time aloft, demonstrate and instruct clearly, fault find – and still get back to the airfield in a tidy fashion. But mistakes are permitted, and it was rather liberating to be allowed to make so many errors during training – provided they were safe ones.

Most of the new modular course is a series of flying exercises and briefings, typically done with coaches at your home club. This B module is preceded by a weekend in the classroom on teaching techniques (the A module); and, about halfway through, a weekend of theory and flying (C module) checks on your progress. The course finishes with a week's intensive flying and ground school with senior coaches (D module), and a

flight test with an examiner.

The airborne exercises were, in retrospect, quite straightforward and could be crossed off surprisingly quickly. What took time was the ground preparation. For many exercises there's a pattern to be learned, and for others you can save being tongue-tied in the air by devising your own. There are books to read, confusions to untangle, briefings to plan; and you have to retake the Bronze exams.

In some ways it would be lovely to have everything on a plate: complete briefing notes, comprehensive pattern. But working it out for yourself is a great part of the training. What are the important bits of a given briefing? How much should you say, and in what order? How can you phrase a commentary clearly and concisely enough to fit the glider's antics? You begin your instructor training as a passive trainee, but graduate with the independence to cope with unseen situations.

For diary reasons, my training spanned a year, which is too long: you'll speed through the instructor syllabus in a few days on the airfield, but it takes only a week or so before you've forgotten. It's the homework, rather than the air time, that sets the schedule. But don't be fooled: this is a major undertaking, in both the effort that you'll put in and the changes that it'll make to you as a pilot.

Pete Goodchild (Yorkshire GC) writes:

ANYONE wishing to become an instructor needs to be committed and driven: it is a rollercoaster ride, but you will develop personally and become a much better glider pilot.

I had barely qualified as a Basic Instructor when John Carter (JC), my DCFI, asked if I would consider further training. I was keen to develop my instructing and agreed. Soon I was on an A module led by Mike Fox.

Even though I teach for a living, I soon realised I didn't know enough about the theory of flight, or even how to teach a basic gliding exercise! I took plenty of useful notes on the gliding syllabus, the order in which to teach it, different briefing types, and TEM



Tim Freegarde (back seat) successfully completed the new BGA modular instructor training course

(Threat and Error Management).

Back at YGC, JC encouraged me to book my C and D modules, which set a clear focus and timescale lasting from February to August, but added the pressure to get through everything in time. JC and I jointly planned each phase of my training, which we divided up according to the modules: Part 1: B before C, C; Part 2: B before D, then D. We got out our diaries and arranged flying, evenings in the briefing room and invaluable practice in the club's simulator before getting airborne.

I started with the patter for basic exercises like the straight glide and turning, and religiously tried to learn them parrot-fashion, which I found a real challenge. I then realised I needed to marry them up to what had to be taught in the air! I read the theory and planned the briefings. JC started each exercise with a demo so I could see the big picture, then I did the brief so I had a much clearer idea of both the theory and the exercise. My first few flights were the most stressful I have had: flying, talking, handling the controls, staying within range, oh lookout! I forgot even simple things, like the undercarriage or trimming. JC was always calm, measured and uncritical and let me learn by experience what pitfalls awaited the would-be instructor.

On the C module, we briefed on slow flight and test flew a glider before converting a 'student' on to the new type. I took the glider through a range of flight conditions

and, as the day was thermic, covered thermalling and airmanship as well.

When I was cleared on to the D module, JC was as relieved as me: I was his first trainee for the new rating. We unpicked the remaining briefings, and JC worked me hard on the additional exercises, progressively cranking up the pressure. We flew more flights with 'students', and looked at logbook reading, airfield layout and met issues.

Mornings of the five-day D module were spent on briefings and lectures on advanced instructing. In the afternoons we winched and aerotowed the K-13s, and concentrated on the approach, landing, ballooning and taking control. Over the last two days I had a whole range from *ab-initio* to post-solo pilots, and a national champion who was told to take a check flight! By Friday afternoon I was drained – but I passed.

Back at YGC three weeks later, my final flight test began with a brief on stalling, HASSLL checks and how to DI a glider. I then taught the aerotow and stalling, thermalling techniques and airmanship, before demonstrating spins and recovery. By now I was flagging, but after some tea and cake the senior regional examiner took me into the briefing room and said three words that made it all worthwhile: "You have passed!".

PETE & TIM'S TOP TIPS:

- Find an experienced, committed coach
- Book all courses as soon as possible
- Read and digest paperwork thoroughly
- Plan a schedule for B module exercises
- Learn the patter by heart
- Keep on top of bookwork
- Be prepared to study hard!



Tim Freegarde started gliding at Bicester years ago with Oxford University GC. He flies an LS4 and has an NPPL

TYPICAL MODULAR INSTRUCTOR TRAINING PROFILE

Prerequisites	100 hours and 200 launches P1. Silver badge
B module	10-15 days, 30 flights
Overall duration	6-9 months
Total flights	50
Total cost	£2,000-£3,000



Pete Goodchild has around 200 hours gliding and 300 hours in motorgliders and light aircraft. He is an instructor, tug pilot and now flies a PIK 20D at Sutton Bank



■ If you would like your previously-unpublished photographs to be considered for inclusion in Gliding Gallery, send them to: editor@sailplaneandgliding.co.uk or upload to: www.sailplaneandgliding.co.uk/dropbox



This page clockwise from top:
Climbing in wave over Kinross during Kent GC's expedition to Portmoak at the end of March. The Arcus t was being flown by Les Connolly and Mike Kemp (Les Connolly)

Taken near New Tempe airport, South Africa, at the beginning of the year during one of Dick Bradley's Soaring Safaris (Kees Van Schaick)

Facing page, clockwise from top:
Stuart Black from Borders GC in his DG-300 over Loch Leven during a recent visit to Portmoak

Cairngorm GC's Puchacz FYA on winch launch at Feshiebridge. The winch is smoking in the middle of photograph (Iain Marshall)

North of Sisteron (France) is the high mountain of Pic de Bure and the range of mountains there block the poorer weather from moving south. Hence Sisteron and the Durance Valley has its own lovely micro climate, good for gliding. This photograph was taken by Kev Atkinson, pushing north on 4 April 2015 from Sisteron in G-SINK with Angus Watson. Freezing cloud can be seen pouring over the ridge



ALL LINED UP TO JOIN THE CLUB

Mark Dalton says that pride comes before a fall as he lands to discover the hard way why sometimes the only way is up



Mark Dalton flying his ASW 20B over Kingaroy Valley

In flying I have learned that carelessness and overconfidence are usually far more dangerous than deliberately accepted risks. - Wilbur Wright in a letter to his father, September 1900

WHAT COULD POSSIBLY GO WRONG? I TURNED BASE, BLISSFULLY IGNORANT OF THE IMPENDING PSYCHOLOGICAL DISASTER

THERE are many wise sayings in aviation. For example, ‘there are old pilots and there are bold pilots, but there are no old, bold pilots’. Then there is another one that has become relevant to myself recently: ‘there are only two groups of glider pilots: those who have landed with their wheel up, and those who are going to land with their wheel up’.

This is a story of how I moved from the latter group to the former.

Several weeks ago, at morning briefing, we were discussing accidents, incidents and their

causes and someone brought up the concept of a ‘perfect storm’ of occurrences which lead to unwanted incidents. That is to say, a series of seemingly unrelated events which, when taken together, lead to an aviation incident.

“Like a Swiss cheese,” said someone.

“What do you mean?” said another.

“You know. The cheese with holes in it.”

“Oh, Gruyere. No, wait – E mental.”

“You mean Emmental,” said the first, pompously.

“Whatever,” said the other.

You see, we are an erudite lot in Queensland. Anyway, the point was that if you put a few slices of this holey cheese together and move them around a bit, then eventually all the holes will line up and you can stick a knitting needle through all the holes without going through the cheese itself. At least I think that is the principle.

It may have nothing to do with knitting needles, but it follows that, given the right (wrong) set of circumstances, the slices all move around, the holes line up and an accident is more likely to happen. Like sticking yourself with the knitting needle.

As I sat through the rest of the briefing, I thought to myself that in almost 2,000 hours of flying, I had never been a victim of the ‘holey cheese’ principle. The holes just hadn’t lined up for me, I thought piously, probably

because I was a safe and cautious pilot and because I was, well, just better than the other slapdash, so-called pilots, sitting round the table. It will probably never happen to me, I thought. Cheese, or no cheese. What was that saying about pride coming before a fall?

Six hours later, I landed with my wheel up.

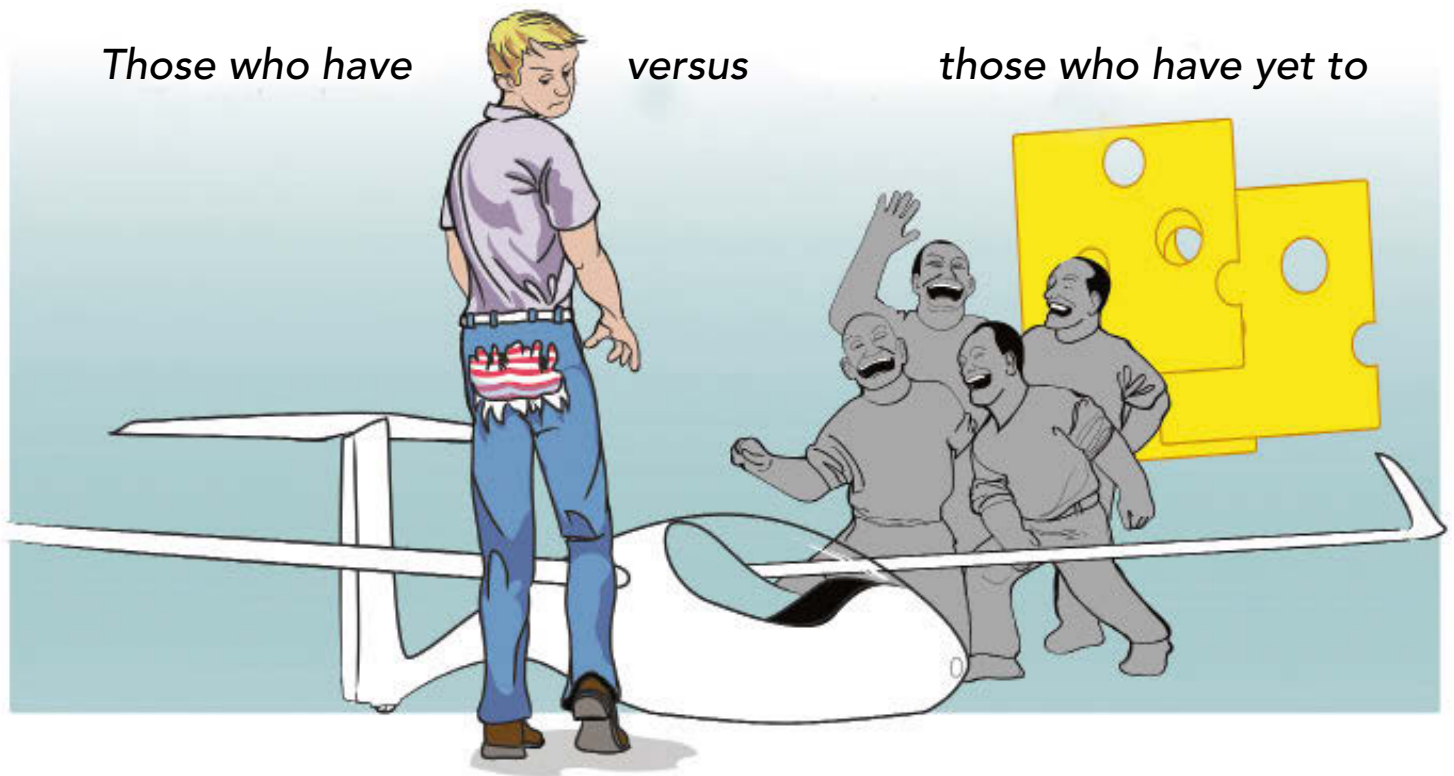
It happened like this: I had set myself a task of around 260km from Kingaroy going west out on to the downs (very large, very flat, very landable). I was in a bit of a hurry (hole number one), so was keen to set off on task as soon as possible. This made me more interested in starting the task, rather than checking that I had raised my undercarriage after the aerotow. It also meant that there was nobody else with me to notice that the wheel was still down (hole number two).

On task, for some reason I did not appreciate the unusually loud wind noise as a result of the wheel being down (hole number three) and after completing the task (with my wheel down), while flying the downwind leg I found it only of passing interest that there was less wind noise after I had (as I thought) lowered the wheel (hole four). At that time I was a little low and had misjudged my position in the circuit a little so that I had to decide whether to continue my circuit, or cut it short by either choosing the cross strip or turning base leg early. My workload was therefore high and, as a result of all this, I did not think it necessary to visually check that I had the gear lever in the correct position (hole number five). After all, up until that point, I had done 1,157 landings in gliders with not a hint of a wheels-up landing. What could possibly go wrong?

I turned base, blissfully ignorant of the impending psychological disaster.

The grass was long and lush due to recent rains in the Kingaroy Valley, so the landing itself was smooth, if a bit shorter than usual. The worst thing was the shame of it all. And the fact that I had to enlist the help of four grinning pilots to lift the glider so that I could get the wheel down and move it off the strip. Oh, the ignominy of it. I was mortified.

Every country has its own set of downwind



checks in preparation for landing, but they are all similar in certain respects. They all include a 'U' for undercarriage, in amongst a 'pot pourri' of varying lengths of other, less meaningful letters. In fact, in my view, the downwind checks could usefully be shortened to 'WUS' (water, undercarriage, security), because if you don't dump your water, lower your wheel, or make sure the straps are tight and all loose objects out of the way and/or stowed, you risk damaging your glider or yourself. All the rest of it (trim, flaps, lookout, etc) are merely part of normal operations and should happen automatically anyway.

In Australian slang (and according to that learned tome, the 'Urban Dictionary') a wus is 'a person afraid to act or not up to the task because of fear', as in 'he was too frightened to climb the ladder – what a wus!' So, in Australia at least, the mnemonic would not be difficult to remember.

So why was it, I ask myself, that knowing full well that lowering the undercarriage is a vital part of a satisfactory landing that I did not, in fact, do it?

Well here's the thing: I thought I had done it! As far as I was concerned, I had completed my downwind checks correctly. And I was convinced of this, because I had gone through them methodically and moved the gear lever to the other position. So convinced was I, that I ignored the loss of

wind noise and its obvious significance.

A couple of weeks later, my good friend and colleague was completing a 1,500km one-way flight from Kingaroy in Queensland to Benalla in Victoria (see *Gliding International* or *Gliding Australia* for full report). On turning base leg, this extremely experienced glider and airline pilot realised that he was operating the flap lever and not, as he had intended, the brake lever! The consequences could have been fatal. Or at the very least could have involved high-speed contact with the ground at unusual angles.

Where were the holes in his Swiss cheese? Tiredness? Overconfidence? Loss of concentration after a hugely successful record-breaking flight? A combination of the above? And the 'holes' were only plugged at the last minute because he remembered to visually check the position of the two levers. One tiny action between him and potential disaster.

I do know one thing. I have placed two large stickers, one either end of the gear lever slot in my beautiful ASW 20B. One says 'UP' and the other 'DOWN'. On each and every downwind leg from now on, I am going to say out loud 'gear DOWN' and then visually check that it is, in fact, in the correct position next to its sticker.

And if you think it won't happen to you, just remember: 'There are only two groups of glider pilots, etc...'

Cartoon by Matt Wright,
Devon & Somerset GC



Mark Dalton is previously from London Gliding Club, but now in Oz (better conditions!) flying from Kingaroy Soaring Club, Queensland. He says that you tend not to get your glider out of the hangar unless a 300km is possible (which is most of the time!). Mark flies an ASW 20BL and has 1,750 hours, a Gold badge and two Diamonds ("Missed the height by 40 metres, dammit!")

JUNIORS READY FOR SUMMER



Peter Hibbard reports on the final round of the UK Juniors Winter Series, held at Shenington GC from 17-19 April



Above: Dan Welch flies his Christian Eagle in a display over the airfield
Top: Pete Hibbard flying his SHK in formation with a Chipmunk flown by Tim Treadaway (Clement Allen)

THE third and final round of this season's Winter Series saw the juniors head to Shenington Gliding Club in Oxfordshire looking to get in some cross-country flying as a pre-season preparation weekend. More than 50 juniors descended on the club, bringing with them 25 aircraft for a three-day weekend of flying.

Friday morning started off bright and early. Met man/tasksetter, Andy Cockerell, uttered the most famous sentence in gliding: "Grid before briefing." At our 10am brief he described a task and cross-section with strong

winds and a mostly overcast sky. Tasks were kept short, but it was a good time for pre-season fettling and getting back into thermalling.

Dan Welch and Charlie Taylor went off in the Arcus for the afternoon, dashing downwind on to the Malverns then into Nymphsfield, later returning in Dan's Christian Eagle. Miles Bailey brought his Capstan over, towed from Bicester by the CR42 Icarus, to

give people an insight into a more vintage high performance cross-country two-seat glider. Other two-seaters, including a Nimbus 4DM flown by Graham Paul, two Duo Discus (disci?) flown by Ed Foxon and

the Shenington syndicate, were available for coaching throughout the day.

Saturday had a lot more promise in it than Friday, and walking into briefing in the morning, we could see three tasks on the board and a hand-drawn cross-section showing strong climbs, but with strong winds again to match. The tasks (novice 135km, inter 150km and pundit 202.5km) each had a long into-wind leg into the 20-25kt easterly. Out at the launch point a full competition grid was formed with three tugs standing by for first launch.

Most opted to fly the pundit task, circumnavigating the Brize Norton Zone, with the Juniors British team leading the board. The first turn at Bletchley was only 50km, but a strong headwind made it take more than an hour for most. Three landouts showed how punishing those into-wind legs had been. Alex Harris landed only 2km short after a long 70km into-wind leg from the last turn.

Former Junior World's Silver medallist Jon Meyer brought the Duo Discus 802 out and was joined by Paul Armstrong in his Janus and Ed Foxon with his Duo Discus to give cross-country coaching. Congratulations go to Chris Bowden, who managed to get his Silver distance with a 50km into-wind leg, completing his Silver.

Saturday evening we had a BBQ and



debrief, looking at maggot traces of the British team pilots to see what could be learnt from their day. Afterwards, and after a close inspection of the weather and a chance on met roulette, all retired to the bar to be joined by Ben Hughes (recently back from his Australian tour), Ali Bridges, Ben Langrick and Clement Allen, who provided piano and guitar accompaniment to the singing that went on till the early hours.

Sunday started with high-level overcast. A film crew from Ruskin University that had been filming and flying the previous day showed us the fruits of their evening's work, a video that had all the best highlights of Saturday's flying.

The cross-section for the day wasn't optimistic. Daddy Davis (Andy) was on hand for coaching in 802 and decided to make the most of the day by setting up some field landing practices. He gave a theory lesson on field landing techniques, looking at weather and field conditions. An area was marked out and the Duos were used to land in a strong 90-degree crosswind over a simulated 4ft fence, with scoring by Andy and the other coaches.

By 5pm and after a mass of practice finishes and practice field landings, people towed their gliders back to the trailers and de-rigged. Goodbyes were said as pilots and crews prepared to drive back to each corner

of the country.

Thank you to Tim Treadaway for his tugging skills (as well as showing us his landing skills in a Chipmunk), Rowan Griffin, Lucy Wooten and the rest of the Shenington team for letting us invade their airfield for the weekend and all their support.

Thanks also to the pilots of the Icarus 'G-KTOW', who not only did aerotows, but also worked as a camera ship alongside Robin May in his RV7 to help the film crew get the shots they wanted. Thanks also to Miles Bailey, Julia Robson, Ed Foxon, Paul Armstrong, Graham Paul, Jon Meyer, Andy Davis, Colin Field and the Shenington Duo Syndicate for their aircraft, time and coaching skills.

After the epic Scottish Winter wave in October, followed by the flour bombing bonanza at Denbigh in February, the final round of the Winter Series at sunny Shenington has left the juniors ready to get their cross-country hats on ready for the British summer.

This year the overall Winter Series of UK Junior Gliding title goes to Jake Brattle. For anyone who knows Jake, he is someone who is always there to help, no questions asked. He gets fully involved with the series, has shown great dedication to UKJG this winter and has also worked hard to develop his own flying skills. Well done Jake!

Clockwise from top left: Miles Bailey lands the Capstan after an aerotow from Bicester; Tom Russell aerotows his Standard Cirrus behind the Chipmunk; Lewis Bricknell flies a Discus; Alex O'Keefe shows off his fully functioning oxygen system from the 1940s (Clement Allen)



The overall Winter Series of UK Junior Gliding title goes to Jake Brattle

■ **The next UKJG event is the Junior Championships in August. If anyone would like any information of how to get involved with UKJG check out www.juniorgliding.co.uk**

> WALLY KAHN

Mike Bird recalls a friend of 55 years, who focused his business acumen on securing a home for gliding at Lasham

IF YOU stand near the middle of St Paul's Cathedral you will see carved in stone *Si Monumentum Requirit, Circumspice* (If you seek his memorial, look around you) in honour of its architect Christopher Wren. If we paid Wally Kahn the same honour for half a century of leading the campaign to secure the former World War Two fighter and fighter-bomber base in perpetuity for gliding, you would have to stand in the middle of

the main runway at Lasham and risk being mown down silently by a glider or, with more auditory warning, a Boeing 737 arriving or departing at the ATC maintenance facility.

Visiting gliding enthusiasts from abroad usually agree that Lasham is the most impressive soaring operation in the world. Other sites may have more beautiful scenery, stronger lift and higher cloudbases, but for all-round effectiveness and the scale of its launching and training Lasham is probably unbeatable. This is not some vast government-run, quasi-military enterprise of the kind British pilots witnessed when flying in competitions in Eastern Europe countries before the Berlin Wall came down in 1989, but a club owned and run by its members – amateur aviators in the best sense, flying for the sheer love of it.

To look at the opposite economic model over the decades, most gliding operations in the USA have been small and barely-profitable private businesses run by dedicated but harassed individuals, whose economic survival depends in many cases on the whims of the owners of the airport on which they are based, with often shaky tenure. Private jets are a much more attractive clientele; sales of aviation fuel make real money. It is capitalism red in tooth and claw for the little glider-business; not getting devoured alive is a daily priority.

(One of the heroic exceptions to the dependency of US glider operations on the goodwill of commercial or municipal airport owners is Tom Knauff, who with Doris Grove in Pennsylvania owns and operates Ridge Soaring Gliderport in Julian, Pennsylvania, which has been their life for an astonishing 40 years. To say that running such a business takes stamina is the understatement of all time.)

With over 700 members, Lasham enjoys

economies of scale and a good financial structure; it is therefore not a minnow in a pool of pikes. The society does not merely own a 500-acre gliding field, but earns rent from tenants, including ATC, an airliner-maintenance business that is one of the largest employers in the area.

Which is where Walter Anselm Henry Kahn comes in. Wally was a businessman who knew how to market what the public wanted. His triumvirate consisted of a lawyer (Pat Garnett), an accountant (the late Mike Gee) and himself, an ace salesman and negotiator.

Thinking of Wally I can't help but be reminded of the legendary businessmen, lawyers and accountants who secured the Dunstable Downs site for the London Gliding Club during the 1930s. They had to negotiate with local bank managers (remember them?) and canny Bedfordshire farmers in the depression years. Wally's team from 1951 had to contend with the might of the Ministry of Defence and other powerful players.

The story of how that team secured Lasham by 1999, after decades of relentless application of effort and skill, has been well told elsewhere and I won't re-tell it here, especially as I was, for most of my life, at The Other Place. But do get a copy of Wally's book *A Glider Pilot Bold* and read the chapters on this stunning acquisition. The *Daily Telegraph* obituary (Wally Kahn 1926-2015) is also a solid account of his achievements in a long life.

My most abiding memory of Wally Kahn is exactly 50 years old. In June 1965 the World Gliding Championships were held at RAF South Cerney. After a deceptively brilliant practice week during which even lead-sleds like the South African Beatty-Johl BJ-2 were made to feel at home, whizzing round southern England at jaw-dropping speeds, the weather turned truly British just in time for the opening ceremony. Icy winds and leaden skies greeted the UK's Aviation Minister, Roy Jenkins, as he walked on to the field to meet each of the visiting teams. Roy (or "Woy" to the satirists) was a civilised and



Wally Kahn with Roy Jenkins at the 1965 World Gliding Championships, at RAF South Cerney

**WALLY WAS A
BUSINESSMAN
WHO KNEW
HOW TO
MARKET WHAT
THE PUBLIC
WANTED**



benign gentleman, who did his best to look as though he was enjoying this chore.

As the Minister approached the Eire contingent, a tall, dark and handsome honorary Irishman with the *nom de guerre* of Seamus O'Caihan stepped forward with something much more welcoming than the usual perfunctory handshake – a bottle of John Jameson Irish whiskey and a paper cup. The Minister's face lit up and he accepted the offering with alacrity. The bored and shivering press photographers suddenly had their moment: something interesting and worth photographing had happened after all.

Leave aside the mystery of how he ended up as manager of the Irish team without a Celtic bone in his large frame – this was pure Wally: the charm, the style, the chutzpah, the eye for an opportunity and his keen awareness of how this particular Minister would react. Imagine how embarrassingly flat that gesture by Wally would have fallen if the politician had declined and scurried away with pursed lips, unwilling to be photographed drinking hard liquor in public on a serious international occasion! But Wally knew his man.

I had by then worked closely with Wally for five years, though he was based at his beloved Lasham, while I flew at Dunstable. The contents page of *Sailplane & Gliding* from August 1960 bore the names of the four-man editorial committee: Philip Wills, Godfrey Harwood, Wally Kahn and Mike Bird. Every two months at Artillery Mansions (popularly

known as “Bang-Bang Buildings”) in London's Victoria St we met to evaluate the most recently-published issue and to look at promising material and possible new authors for future issues. Not a bad little committee, I thought then and, as the sole survivor of the quartet, still think now.

“No good deed goes unpunished!”

I was once taught by an American professional fund-raiser the not-so-gentle art of extracting blood from stones in the fledgling days of the Social Democratic Party in the early 1980s, which was the very same time Lasham was doing battle to secure its site: his motto was “No good deed goes unpunished!”. Whereas normally we Brits decorously wait 12 months after receiving a modest donation from a supporter, we found the Yanks would wait less than 12 weeks before piling in with a request – well, really an exercise in moral and emotional blackmail – for more, and even more yet.

Wally could be unkind, to put it mildly, about people who had funds, but wouldn't donate. I'll leave it at that. When David Ince gave his touching eulogy at Wally's funeral he described Wally as “controversial”. In the little book of euphemisms that I am compiling, “controversial” in a funeral address means the departed made enemies. Well, to get anything done in this world you need to risk being controversial.

■ Wally's wife Margaret, who died in 1996, was a highly competent painter of gliders in flight, but an absolutely magical depicter of clouds. The less solid something is, the more difficult it is to capture; I know because I have taken up drawing at art classes at age 80. The gliders were put in the frame by Margaret chiefly to draw the eye, but also to indicate the massive grandeur of those cu-nims, which were the real star attraction in her paintings. The painting shown here, my favourite, is of Wally's Skylark 3, competition number 4, against towering cumulus.

Margaret's daughter by a previous marriage, Christine (Dean), looked after Wally for his last nine years in the Old Vicarage in Long Sutton. In addition to being grandpa to six youngsters, I am, like Wally, a step-granddad – and a step-great-granddad too, and well understand Wally's pride in Christine's children – Charlotte an equine vet and Suzy a consultant in paediatric intensive care – and Christine's grandchildren Noah and Scarlet.

THIS WAS PURE WALLY: THE CHARM, THE STYLE, THE CHUTZPAH, THE EYE FOR AN OPPORTUNITY AND HIS KEEN AWARENESS OF HOW THIS PARTICULAR MINISTER WOULD REACT



Trial flight test course students in 2002 with Ian Dandie and George Ross at Portmoak

HOW LECTURES COME TO LIFE

Students and a gliding club learn from a practical course, as Matthew Stickland reports



Course student Steven Blair gives the thumbs up to another successful flight

LAST year the 500th student from the Department of Mechanical and Aerospace Engineering at the University of Strathclyde took part in the flight test/experience course (FTC) at the Scottish Gliding Centre at Portmoak.

The genesis of the course dates back to 2001 when I was in the process of implementing a new course, Aero-Mechanical Engineering, at the University of Strathclyde. The course was to be accredited as an Aeronautical Engineering degree by the Royal Aeronautical Society and therefore required some form of flight test/experience as part of the course. I had started to learn to fly at the same time and, as my flying abilities improved and I found that I could fly and talk at the same time, I had a number of conversations with George Ross in the back about how our students might benefit from flight experience in a K-21 at Portmoak.

I discussed my ideas with George Ross

and Kevin Hook and, as they were both very supportive, I approached the board to see if the SGU would help. The board agreed to let me run a trial course so I buckled down to write the syllabus.

The syllabus is loosely based around the types of flights undertaken by other universities in the National Flying Laboratory Jetstream aircraft from Cranfield University. I was concerned that the limited flight instrumentation available in the K-21s might restrict the test possibilities but, even with these limitations, a comprehensive course was developed with the emphasis being on giving the students an understanding of how an aircraft is flown and behaves rather than on just taking data.

The trial course was run at the beginning of September 2002, over three days, with four of our fourth year Mechanical Engineering with Aeronautics students acting as guinea pigs. The trial course found a number of slight issues with the organisation and syllabus but, with slight modification, the first actual flight test course ran in 2003. Since that first course ran, about 50 students have taken part each

year over the summer at the end of the second year of their studies.

During their second year, the students use the K-21 as the basis for a number of calculations. They calculate the stall speed at 1g and 2g, the parasite drag coefficient, C_{D0} , and induced drag factor, k , maximum L/D, the rate of descent with full airbrakes, the never exceed speed, V_{NE} , the neutral point stick fixed and free, and the range of static margins for the aircraft. The flight tests attempt to verify the results of these calculations.

Because of the large number of students who need to take part, two courses are run each week with five students per course. The courses are residential and last two and a half days, changing over Wednesday lunch time. After completing the requisite paperwork for their three-month temporary club membership, the students are given a thorough safety brief and, once this is complete, the flying begins. There are four flights planned for each student which, depending on the weather conditions, are planned to be aerotowed, typically, to between 3,000-4,000ft depending on cloudbase.

The syllabus for the four flights is;

● **Flight 1: Demonstration of aircraft controls.** The first flight demonstrates the aircraft controls and instruments to the student. The effects of adverse yaw and how to coordinate turns are demonstrated.

● **Flight 2: The stall.** The second flight is to investigate the stall and stall recovery. The indications of an approaching stall and the change in the effects of the controls are demonstrated in a gradual straight and level 1g stall. To show that the aircraft can stall at any speed, the aircraft is stalled 2g. During the flight the students record, on a kneeboard data sheet, the indicated air speed (IAS) at which the aircraft stalls at 1g and 2g.

● **Flight 3: Performance.** During flight 3, the aircraft is flown at constant speed while the students record the time to descend 100ft, the indicated airspeed and the stick position for two different airspeeds. On the approach, the time to descend 100ft with full airbrakes is measured. These measurements allow the parasite drag coefficient, induced drag factor and neutral point of the aircraft to be determined.

● **Flight 4: Dynamic stability.** To demonstrate the dynamic stability in pitch, speed stability, of the K-21, the aircraft is flown through phugoid oscillations at 60kts and 45kts. To initiate these oscillations, the pilot trims the aircraft to 60kts and notes the stick position and then initiates a 30°



climb. For the stick fixed phugoid, the stick is returned to the 60kts position and held rigidly in place. For stick free, the stick is released and the elevator allowed to float free. Usually the 60kts phugoids are stable, but the 45kts phugoids, which are below the minimum drag speed, are unstable and lead to a divergence in the oscillation. During each phugoid the student records the maximum and minimum IAS and makes a subjective assessment of whether or not the oscillation is stable, neutral or unstable.

Dynamic stability in roll and yaw is demonstrated by initiating a spiral divergence and by deflecting and then releasing full rudder.

During all flights, students are encouraged to take control and fly the aircraft as much as possible.

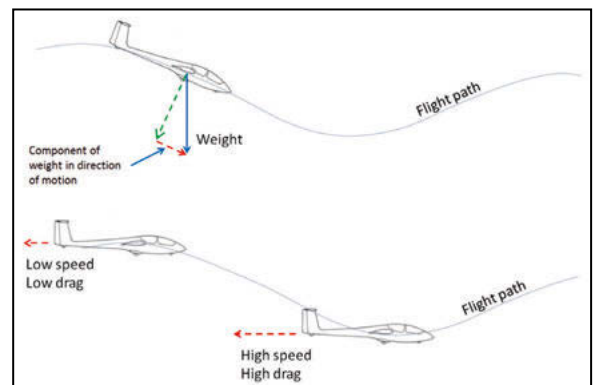
Analysis of results

At the start of the third year of their course, students take the data recorded during their flight tests and compare the results with their theoretical calculations. Depending on the meteorological conditions during each flight and the age/condition of the aircraft the results may, or may not, agree with their calculations. Differences in the results force students to consider the uncertainties that may have existed during the recording of their data.

The results of the dynamic stability flight are used in the third year of the course, where students are introduced to the

Above: Students have to be restrained from taking too many videos and photos when armed with their mobile phones and can now be found strapping GoPro cameras to various different parts of their bodies to record their experience

Below: phugoid oscillation (a phugoid is an aircraft movement)



THE EMPHASIS IS ON GIVING STUDENTS AN UNDERSTANDING OF HOW AN AIRCRAFT IS FLOWN AND BEHAVES RATHER THAN ON JUST TAKING DATA

IT WAS GREAT TO FEEL FIRST-HAND WHAT THE GLIDER WAS LIKE TO CONTROL, BY CHANGING THE AERODYNAMIC ASPECTS OF THE AIRCRAFT; SOMETHING UNIVERSITY LECTURES CANNOT COME CLOSE TO



Students can enjoy some spectacular scenery flying at Portmoak!

■ For further information and a more technical discussion, see: "A novel method for the provision of flight experience and flight testing for undergraduate aeronautical engineers at the University of Strathclyde" Stickland M.T., Scanlon T.J., *Aeronautical Journal* Vol 108, No. 1084, pp. 315-318 (2004)

✎ equations of motion of an aircraft and flight simulation. The K-21 is simulated and the results of simulations of pitching, rolling and yawing motions compared with the results of the dynamic stability flights.

Summary

The Strathclyde FTC run in collaboration with the SGU has surpassed all expectations. As a learning experience it cannot be beaten as it gives students first-hand experience of flying and comparing experimental data with the results of numerical simulations. There is also the experience of being in an aviation environment, where students learn about meteorology, NOTAMS, airworthiness and aircraft maintenance.

Strathclyde FTC from the Scottish Gliding Union's perspective

The SGU and its instructors have enjoyed the experience of working with the university and its students over the years, providing an opportunity to do something more than the usual instructing drills, *writes Portmoak*

CFI Gerry Marshall.

The course instructor must be sure that flights are repeated accurately over the week for all students so that results can stand reasonable comparison. Additionally, the students may have never flown in an unpowered craft and the instructor must be sensitive to some fears and anxieties, making sure that students are well briefed to be able to record their information, whilst understanding what the aircraft

is doing at the same time. Time is also made to give them practical hands-on experience to supplement the course work, which helps to make it even more interesting for them. The students are always welcome on the field and are interested in the practical side of flying. They are encouraged to take part fully in launching and retrieving aircraft.

At Portmoak, these courses have become as standard a part of the year as other welcome visitors from England, Wales, Ireland, or even further afield, who visit us every year. We look forward to continuing this into the future.

Strathclyde FTC from a student's perspective

The flight test course (FTC) I did as part of second year 'Aerodynamic Performance'

was the best part of any class I did in my undergraduate degree, *writes Alasdair Mackenzie, BEng Aeromechanical engineering 2014.*

One thing that made the FTC unique is that it showed the practical application of university lectures, something that no other class did to anywhere near the same level. We learnt in depth about the aerodynamic aspects of the K-21 glider during the university year, through lectures and coursework, and having the FTC at the end was something to look forward to. Learning to fly is something I've always wanted to do, and to do it as part of my university degree was excellent! It was great to feel first-hand what the glider was like to control by changing the aerodynamic aspects of the aircraft; something university lectures cannot come close to.

The instructors were very experienced glider pilots, who showed us what the gliders could do, doing loops and other acrobatic manoeuvres. Having four fellow student friends to share these experiences with was great, as we could discuss what happened in the previous flight. We had to carry out some basic calculations on a few flights, to verify the work we had carried out in university before the course started. These included sink rates and stall speeds. Again, this was very interesting comparing experimental and theoretical results first-hand.

When teaching us, the pilots were very patient and encouraging, and by the end of day three I was managing to keep inside a thermal, gaining altitude. This was a very exciting experience and a great end to the course. Going on the course has encouraged me to continue gliding and has rekindled my passion for flying. In conclusion, the course was one of the best experiences in my degree and very worthwhile, as I think there is a lack of practical engineering aspects to our course.

Conclusion

The course meets, if not surpasses, all expectations we had when it was initially developed. The students find the course to be an educational experience, as well as a lot of fun. The flying and theoretical work complement each other and reinforce the students' knowledge of flight mechanics and aerodynamics. We are dependent on the SGU supporting this course and the willingness of instructors and tug pilots to give up their valuable time to help us. However, talking to the instructors, they also find taking part an educational and rewarding experience.

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Above: Aerotow over Santiago (photographs: RAFGSA)

Main photograph: Flying past Aconcagua, which at 22,837ft is the highest point in the Southern Hemisphere



AWE-INS

Want to be stretched to the limit of your comfort zone and hone skills? You can't beat the Chilean Andes, writes Alan Swan

IN FEBRUARY this year, a team of five members from the RAFGSA went to fly out in Chile with the Chilean Air Force. To understand some of the challenges that would confront us, we did a one-day course at the Centre of Aviation Medicine at RAF Henlow. Here the staff showed us several of the visual and spatial challenges we would face and how we could cope with them. We completed runs in their disorientation chamber to help cement the theory lessons. They also explained to us about flying whilst on oxygen and what the symptoms were if it failed. Again there was a practical element, where we were given a flight simulator to fly whilst they gradually reduced our oxygen levels. They gave a very interesting presentation on the different oxygen systems and were quite relieved when they realised we would be using a partial pressure demand system with a full face mask. (They were not very complimentary about some of the systems that glider pilots use, as they do not deliver the required oxygen saturation levels.)

Although Chile is not a hugely popular destination with UK pilots, more and more are making the trip and experiencing the gliding, which is quite special. As we arrived, the Chilean leg of the Grand Prix Series had just finished and several gliders were being packed into containers for the trip back to Europe. All the gliders we were flying were Chilean military aircraft, consisting of four Janus Cs and a Nimbus 3 DT. Aircraft instruments were metric, so this added to the challenge. The airfield of Vitacura is located right next to a dual carriageway and in a built-up area so the options on the aerotow, with only 2,400ft of runway, in case of a power failure were quite limited. However, behind the powerful Cessna 'Bird Dog' this was quickly over. A typical day ☼

A photograph showing a glider wing in flight against a blue sky with scattered white clouds. Below the wing, a rugged, brownish mountain range stretches across the horizon. The foreground is dominated by large, light-colored rock formations.

SPIRING



✎ would involve the team arriving at the airfield at about 11am. We would have an extensive met brief that would explain to us the complexities of the Chilean weather, particularly the various inversions and different systems as we climb up through the atmosphere. One of our instructors, Alphonso, had designed the models used by their met office to predict the thermal activity, so was always able to add more detail. Often we would have to break through the first inversion if the temperature was high enough. At the inversion, the thermals would become very broken as there would be a change in the wind direction. The first inversion would be around 10-12,000ft. As the valleys are very deep in the Andes, it takes time for the sun to get into the valleys and start generating the thermodynamic lift we would be using, so our take-off time was around 2pm.

Once we were dropped on the local hill – the Manquehue, which was 4,000ft high – we would start our climb on the lower hills and ridges up to about 10,000ft before deciding, depending on the conditions, whether we would either stay outside, along the lower ridges up to around 12,000ft, or go inside to climb higher up into the real Andes. Some of the ridges were incredibly long and flying along them at ever increasing speeds and still climbing was exhilarating.

Lift in excess of 10kts was quite routine on the good days. If we went inside and climbed into the high mountains we would often finish up at over 15,000ft, which with the performance of the aircraft would often result in final glides of over 100km. Vitacura has a single narrow strip so circuit and landing discipline had to be strict, ensuring that you cleared the runway after your landing roll. The approach over the dual carriageway dodging the overhead signs was also different.

Across the two weeks we had variable conditions, but luckily we managed to get into the high mountains on about half of the flights. Some days the mountains were obscured by cloud or an inversion would limit the height of our climbs. All of our flying was done with Chilean Air Force Reservist gliding instructors, which allowed us to explore much further with their expert knowledge.

The flying in the Andes was spectacular, but also extremely challenging. After a few days we were summoned to a brief by their chief instructor, el Flaco, as we appeared to be making similar errors. Most of the thermals are attached, that is they are generated on the ridges and their bases are attached to the feature. This meant that the normal technique

for centring was not appropriate. When you entered the thermal you always turn into wind and nimble back into the thermal. If you turned downwind you would end up in the disturbed air behind the thermal.

Although we all had experience of gliding in the Alps this was very much another step up. Another illusion that caught us all out was the sloping plain with no real horizon. This meant we all had a tendency to accelerate when we were heading east away from the mountains and then slowing down as we turned west towards the mountains. We were also counselled on our tendency to pull back when in lift, also a no-no, we had to maintain our attitude at all times. The mountain thermals are very tight so to increase the rotation rate we always flew with some top rudder to increase the turn rate, ie with the string pointing at the top wing.

We used a combination of thermals and ridge lift to climb to height and the instructors we flew with seemed to know exactly where the next lift would be. They also knew the minimum heights to cross the valleys, which was very important when you were trying to tiptoe into the higher mountains. With the strong lift came strong sink and sometimes it would be quite alarming how quickly you lose height when crossing some of the valleys. Above 12,000ft we also had to fly with an oxygen mask fitted, which added to the work load.

We would often fly along some incredibly dramatic cliff faces, soaring with Condors and Eagles. Once all the gliders were airborne the instructors would talk on the radio, in Spanish of course, to relay where conditions were



best, thus modifying our weather forecast based plan. The weather in the mountains is incredibly dynamic and can change quickly. We had days when we started with clear sky only for it to over convect and produce thunderstorms with hail showers. The Janus has quite a critical wing that does not like rain so we were keen to avoid any of the showers.

The best flight for me was the last day when I was first to launch Nimbus 3 DT. Wow, I want one, there is nothing that beats span! Conditions were good, so we quickly found ourselves on oxygen climbing through 12,000ft on to the Espanoles Ridge. ☺

Above: High in Andes the snow clings to the steep slopes

Far left: Dropped on the local hill, the 4,000ft high Manquehue

Below left: Flying above 12,000ft with an oxygen mask fitted adds to the work load

(Photographs: RAFGSA)

■ **Club de Planeadores de Vitacura is the civilian gliding club of Santiago, Chile, and welcomes visitors**
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SOME OF THE RIDGES WERE INCREDIBLY LONG AND FLYING ALONG THEM AT EVER INCREASING SPEEDS AND STILL CLIMBING WAS EXHILARATING



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The team at Chile (RAFGSA)

FLIGHTS OF UP TO 200KM TO THE NORTH AND SOUTH BARELY SCRATCHED THE SURFACE OF WHAT MUST BE ONE THE BEST PLACES TO GO GLIDING

✈️ Arturo then directed that we head inside past Lagunes and step across several large valleys, passing Pyramid rock, a truly colossal mountain with vertical slab sides.

As we went higher into the Andes, the scenery changed flying over several glaciers; we were heading towards Tupungato at 21,520ft on the Argentinean border. To approach the really big mountains there are very specific routes with some precise height gates often just below cloudbase. Although we did not reach the top, we did get on to its shoulder at 20,000ft and looked across into Argentina.

Next to Tupungato we looked into the adjacent active volcano caldera with bubbling sulphur pools. A sight Arturo said that it has only been seen by only 30 Chilean pilots due to its remoteness. We then headed south along the border over some truly enormous open-cast copper mines before moving outside at Blanca and starting to track north back towards Vitacura. We flew along the ridges skirting the edge of Santiago, returning back to Vitacura after five hours and over 400km; a truly magnificent flight.

During the two weeks we were there we flew on every day of the 10 flying days, although some days were better than others. We managed to get into the high mountains on about half of them and on the others we were frustrated by either a low cloudbase of 10,000ft, or the stubbornness of the inversion. Although it was always hot and over 30°C, some days were overcast and one day we did not manage to get anywhere and stayed local to the airfield. The longest flight that day was just over an hour. As our time progressed, we quickly started to learn the names of the mountains and where we would find the lift, but I was always grateful to have a very experienced Chilean instructor in the back seat.

Flying in the Andes requires many years of experience, so if you do choose to make the trip make sure you get some local instruction.

Although we were hosted by the Chilean Air Force, there is also a very active civilian club at Vitacura who would be happy to see you. They have an incredible simulator based around a Blanik cockpit, but configurable to any type, which has a wraparound screen driven by three projectors. They apologised for the graphics as they were currently using only Google Maps Plus, as they were waiting for the last satellite pass to upgrade the graphics!

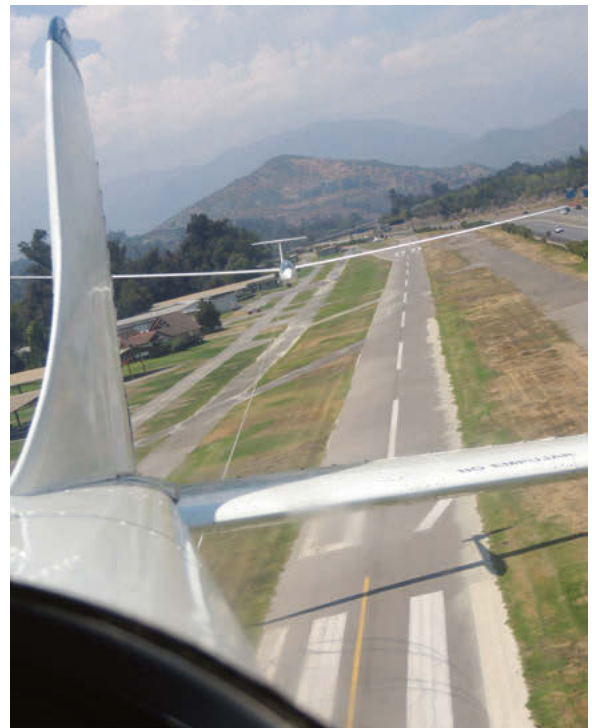
When we went flying, we quickly got into a routine and our technique became more efficient and honed to the local conditions. The amount of direction from the rear cockpit became a lot less and rather than control being taken it was a case of offering it to have a break and take some photos. We changed instructors quite regularly and each had slightly different things they liked, but mostly it was just competent flying. On the good days, it seemed quite odd at first to reject 8kts climbs as there was better ahead. Flying through some of the turbulent air it was quite interesting to see how much the wings flexed.

Chile is a massively long country of about 3,500km, so our flights of up to 200km to the north and south barely scratched the surface of what must be one the best places to go gliding. The people in Chile are very friendly and it being in the Southern hemisphere means you go there in our winter and get a sun tan.

One of the objectives of our trip was that we would be stretched to the edge of our comfort zone, which happened on day one; after that it just got more challenging. If you're looking for somewhere to hone your skills and experience some fantastic gliding, then maybe Chile is for you.



Alan Swan is an Ass Cat with the Wrekin Gliding Club at Cosford. He has flown in the Alps and from several sites in England. With 500hrs gliding, he is currently working towards the final leg of his Gold - the height gain



It takes time for the sun to get into the valleys and start generating thermodynamic lift, so take-off time was around 2pm (RAFGSA)

SIGNALLING THE WAY TO SUCCESS

Communication is key for deaf pilot Will Davidson as he achieves his goal of learning to fly



A mirror attached in the canopy allowed Will to see the instructor's face and lip read to an extent

ON THE GROUND, THE KEY THING WAS TO HAVE A REALLY FULL BRIEFING BEFORE THE FLIGHT TO MAKE SURE I UNDERSTOOD WHAT WE WOULD BE DOING DURING THE FLIGHT

LEARNING to fly is something I have always dreamt of doing, but I lost my hearing five years ago due to a rare condition (Neurofibromatosis Type 2) that caused tumours to grow on my hearing nerves. I finally achieved my goal when I went solo last July.

I had been learning to fly at the Bath, Wilts & North Dorset Gliding Club for nearly a year. The club and its instructors have been incredibly supportive throughout.

Communication was always going to be the key problem. Working with the club and my instructors we came up with a system, which we adapted and developed as we all got more experience in the air.

On the ground, the key thing was to have a really full briefing before to make sure I understood what we would be doing during the flight. Here I could ask any questions and make sure I understood what I would be

doing. The most important thing was not to pretend I understood when I did not (which I was not very good at, at first).

In the aircraft, I had a mirror that had been made for me by one of the club members that was attached in the canopy; this allowed me to see the instructor's face and lip read to an extent. We also came up with hand movements that would allow the instructor to communicate with me. If at any point the instructor needed to take control they would move the stick from side to side or knock on the rear instrument panel, this meant if they wanted to demo something they could take control and show me how it was done, then hand back control so I could try the manoeuvre.

While this worked well and I could follow basic commands, I couldn't follow a long explanation if I hadn't done something correctly or the instructor was trying to explain something in detail. We overcame this by ensuring that we had a proper debrief

once we had landed so I could understand what changes needed to be or, if in the air, the instructor would demonstrate the manoeuvre again.

The club structure works by having different instructors on different weekends and, while this is a great way of getting to know more members, it makes training a greater challenge, having to go through all the ways of communications. It was really key to have a small core group of instructors and especially having John Hull as mentor. John flew with me regularly, but not all the time so I also experienced other types of training. He was able to help other instructors understand how to fly with me and he really pushed my training along.

The club as a whole has been hugely supportive of me all the way from chairman and CFI to ordinary members. Gliding is what matters to us all, not whether a member is deaf.

It was an incredible moment when John said he wasn't getting into the glider and that I was now ready to go solo – something I will never forget.

John Hull, instructor and mentor, adds:

I have been gliding for over 40 years now and an instructor for well over 30 of those. In that time I have taken many people of all ages and abilities on their first flights, including quite a few of those with severe disabilities. Will was, however, the first deaf person that I had flown with and I was incredibly lucky to be one of the duty instructors on the day that he came for a glider flight at The Park.

At the time I assumed it was to be a standard introductory lesson, but it quickly became apparent that Will was very capable and easy to get on with. I was really pleased that he enjoyed himself so much that he wanted to learn to fly – surely this is one of the joys of spending so many hours instructing? I'm not sure if I volunteered, or was volunteered, to be the lead instructor for Will, but I readily took on the task.

I had no idea of how to teach Will to

an effective level, so I posted a question on *gliderpilot.net* (thank you to everyone who replied) and also spoke to my nephew, who runs a rehabilitation centre for the deaf.

Many emails ensued between helpers, myself and Will and by the end of the week we had come up with a series of simple hand signals that Will could see in a mirror.

Pointing of index fingers to indicate direction and speed were preceded by a tap of the panel to get attention.

Other hand signals included:

- Two fingers pointing at eyes then direction (left/right/up/down) – look this way (for an object/nearby aircraft)
- One finger jabbing forward or off to one side – head this way
- Double tap of instrument panel or a waggle of the control column – you have control/I have control
- Thumb up – correct/good: two thumbs up – well done!
- Circular motion of vertical index finger (in the horizontal plane) – circle left/right
- Tilting (angular) movement of hand clockwise/anti-clockwise – more left/right bank

Of course I also had involuntary signals, ranging from a wry smile with eyes closed while gently nodding my head meant “Why is he doing that?” to (thankfully rarely) my eyes popping out on stalks, mouth wide open and tongue trying to part company from my mouth (read silent scream) meant “No – not like that!!!”

The first mirror Will used was mounted on a single, large, sucker that was prone to falling off because the Puchacz canopy has a compound curve in the wrong place! The Mk II mirror mount proved far more successful, a mini-tripod with suckers on each foot. Even this had a habit of coming partially unstuck, especially when the canopy got misted up, but spectacularly so when, having demonstrated a spin to the left (suckers in compression), I gave control to Will to do (the briefed) spin to the right, all the suckers gave up the ghost! Will instinctively tried to catch the accursed mirror as it flew across the cockpit and I took control. Unfortunately Will didn't realise what I was doing and confusion reigned for a couple of seconds!

I always prepared Will for each flight with a very thorough briefing, what we were going to do, what I wanted him to do and when, what to expect, etc. Each flight was always followed up by a comprehensive de-brief, this slowed the launch rate, but the other students understood and were very patient.

When flying, if I had to take control and

re-explain, I'd try to hand back control as soon as possible, but sometimes that was impractical. I occasionally forgot that Will was deaf; teaching approach and landings had to be handled with care as, if Will saw me instinctively mouth some advice, his attention would be drawn to the mirror and forget to fly the glider. I had to clamp my mouth shut, take control (if justified) and talk him through the error when safely on the ground.

Perhaps the best thing was to use my syndicate's Venture motorglider for initial lessons, something I'm rarely able to do if I am a duty instructor, showing him how to plan the circuit, approach and land (especially over the trees at The Park). Also how to handle a launch failure and stalling. I had to be careful in using the Venture for some of the exercises as we must avoid doing circuits in powered aircraft at The Park so, where possible, circuits and landings were engine off (I always did the landing bit!).

To cut a long story short, after a bit of a tussle with the CAA medical branch, Will managed to get a certificate to say he could fly solo (with a couple of restrictions such as remaining clear of controlled airspace) and things came together on the 26 July 2014. A bit of underhand planning ensued and Mike Thorne (club chairman) and I became duty instructors for the day. We knew Will was ready to go solo and the day was perfect. Will's dad (Martin) was also ready for his first solo; Mike had flown Martin on his first flight and sent him solo. Within the space of a couple of launches, I had sent Will solo too (has any other club achieved this goal?).

I seldom get emotional these days, but sending Will off on his first solo flight was an incredibly heart-warming experience for me and one that I will never forget. I hasten to add that I was not Will's sole instructor, I simply do not believe that it would have been right for him if I had been, but I always kept abreast of his progress and briefed those who flew with him where possible, talking to them afterwards. My sincere thanks go out to my fellow instructors at The Park, especially Mark Hawkins (CFI) for letting me take the lead on this incredible adventure.

Both Will and Martin have now progressed on to the club's Astir 77. I wish them all the very best.



John Hull is a Full Cat instructor, tug and motor glider pilot with 3,100 hours. He is also a BGA Regional Safety Officer and chief engineer with over 40 years in the aviation industry



Will Davidson, 26, is trusts and corporate fundraising officer at DeafPlus. He went solo at Bath, Wilts & N Dorset on 26 July 2014

■ See also *Soaring above all disabilities*, pp28-31, S&G Dec 11/Jan 12

■ Further information and advice on all forms of disabled gliding can be found on the BGA website

STANDING THE TEST OF TIME

S&G's armchair pilot, Anthony Edwards, wonders if his theory of best speed to fly has been overlooked in the years following its first publication 50 years ago

IT IS now 50 years since S&G published my original article *The Arm-Chair Pilot* on the theory of best speed to fly (October 1964), but I have the impression that in the gliding literature the beautiful theory that it outlined is sometimes lost beneath a welter of explanations as to why in practice it is necessary to depart from it.

This is, of course, a characteristic of any mathematical theory. If we drop a feather from the Leaning Tower of Pisa we don't expect it to obey Newton's law of gravitation without modification, but neither do we abandon the law in explaining its descent. In speed-flying a host of practical considerations must be taken into account, especially with modern gliders where the achieved average

speed is not critically dependent on slavishly following the calculated best speed to fly and violent changes of speed are wasteful of energy.

First, a little history. For the simple model of a climb in a thermal of constant strength followed by a glide in still air back down to the original height, the best speed to fly was known in Germany in 1939 before the Second World War and published in England by Philip Wills in 1940. It has been suggested that the full solution incorporating sinking air between thermals may have been known in Poland by then, but I have not seen any direct evidence. Be that as it may, it was independently published in the June 1947 *Sailplane & Glider* (sic) by two Cambridge University members, George Pirie, a graduate who had flown with Cambridge University Gliding Club, and Ernest Dewing, an undergraduate who flew at Dunstable after graduating. They both noticed, Pirie by direct argument and Dewing with mathematics, that the solution involved adding the average rate of climb in the thermal to the instantaneous rate of sink being experienced in the glide in order to find the corresponding best speed to fly.

I corresponded with both Pirie and Dewing in 1980-81, then living in New Zealand and Canada respectively. Pirie learnt the basic theory from Wills when they met at the Cambridge University GC Easter camp at Huish (Wiltshire) in 1939, at which he crashed the home-built H17, breaking both legs – and his skull – but only 'missed the Easter Term'. Dewing came up to Cambridge in 1945 with a gliding "A" from an ATC course, but had neither time nor money to join the gliding club. After graduating in 1948 he tried again at Dunstable and in 1950 with the Surrey Club. He wrote 'since the treatment was so elementary [he assumed] it must have been worked out before'.

It is actually unhistorical to call the average rate of climb to be used in the calculation 'the MacCready value' because Paul MacCready's brilliantly-simple

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contribution came two years later in 1949 in observing that, if the variometer has a linear scale, the addition of the two values occurring in the theory can be performed automatically by using a rotatable ring with the best speeds to fly engraved on it as computed for the particular glider. Rotating this so that the speed for best gliding angle is opposite the average thermal strength performs the addition automatically. The 'ring' is MacCready's, but the theory is Pirie and Dewing's from Cambridge. (Note that this average is the overall average, not the smoothed value over a shorter interval given by modern variometers.)

In the original *Arm-Chair Pilot* article I called the value to be used the critical value and explained, in my Rule Two 'The best speed to fly between thermals is found from the standard [Pirie-Dewing] theory, but the "average rate of climb" is to be replaced by the chosen "critical rate of climb"'. My Rule One was 'When each thermal is left at the same height, the best speed to fly between thermals is found from the standard theory, but the "average rate of climb" is to be replaced by the "anticipated rate of climb" at the bottom of the next thermal'. This rule arises because only the future is relevant to the calculation (though the past is, of course, usually a guide to the future) and only the bit of the next thermal below the highest point at which one could have reached it is relevant. Yet one still reads of the theory being introduced via average rates of climb.

It was the concept of the critical rate that was the real novelty. 'Flying between thermals, we will, of course, neglect anything

weaker than the critical rate'. Choose the critical rate as the thermal strength above which you will circle and below which you will continue on your way at the indicated best speed for the chosen rate. I later called this the Threshold Theorem because it stipulates a threshold strength above which one circles (*Proof of the Threshold Theorem*, S&G August/September 1983). The theorem may be stated thus: 'Stop to circle if and only if the thermal strength exceeds the critical value'. It is not difficult to prove that, according to the Theorem, if one breaks this rule one is wasting time.

This is, of course, all very well, but how does one choose the critical value? It is simply the thermal strength below which one will not take a thermal. How does one choose that? Experience. It depends on what you are trying to do. Just a beginner local soaring? By all means choose zero. A big distance task, but not racing? Start at 2kts, settle down, and then increase the value as you sample the day, reducing it if you get low or can see difficult conditions ahead. Racing a modern glider? Choose as high a value as you dare. With a bit of luck you will soon be running along a cloud street and the threshold theorem will still be telling you not to stop and circle!

Experience tells us how to read the sky ahead. Choose the critical rate of climb above which you would take a thermal, set that as your value and fly accordingly. If you change your mind, change the value. The speeds will look after themselves, as if on an autopilot directed by the critical rate. With the best modern high-performance gliders there's ☞

THE ORIGINAL BEST SPEED TO FLY THEORY WAS KNOWN IN GERMANY IN 1939 BEFORE THE SECOND WORLD WAR AND PUBLISHED IN ENGLAND BY PHILIP WILLS IN 1940

■ Full historical references were given at the end of my article *Why does the best-speed-to-fly construction work (with a little history thrown in)?* in S&G for June/July 1980. See also *The Paths of Soaring Flight* by Frank Irving, Imperial College Press, London, 1999. In 1985 the BGA published in-house a booklet by me, *Theory of Cross-Country Gliding* - there may still be some copies around.

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I BELIEVE WE ARE ON THE POINT OF ANOTHER BREAKTHROUGH: INSTRUMENTS WITH SYNTHETIC VISION CAPABILITY TO PLOT THE OPTIMUM COURSE AHEAD

↳ much more to it than that of course, but don't forget the many older gliders still flying for which the theory is still as relevant as ever.

But do forget about the average rate of climb.

Anthony sent his article to Justin Wills. Here are some abstracts from their correspondence about it:

Anthony to Justin

I don't really associate you with speed-to-fly theory, but does the attached article *The Arm-Chair Pilot* make any sense? Some recent articles in S&G still seem to be emphasizing the average rate of climb. I thought I had made that obsolete 50 years ago.

Justin to Anthony

Many thanks for your draft on speeds to fly. One problem is that language has changed, possibly due to your influence: average climb rate is no longer the average climb rate for the whole thermal, but now refers to the average over the most recent 20 seconds!

This is the 'average' readout on all modern variors thanks to Raouf Ismail and his successor Dave Ellis at Cambridge Instruments, who were influenced by your writing.

You are, of course, quite right about the critical rate of climb. As this is based on a guess about the next thermal, all top pilots now avoid slavish following of the speed ring, and use block speeds based on their estimate of the day (and time of day) which they modify slightly for sinking or rising air. The decision of when to leave a thermal is made empirically based on the sky and terrain ahead. Pilots always fly faster at height rather than when they are low.

Recent S&G articles did not cover the substantial change in pilot technique resulting from modern airfoils, which allow much higher wingloadings to be used with still adequate climbing performance. Even in the weakest weather I always fly my Antares with 120kg of water (ie

half full), which produces max L/D at 65kts, so cruise on a weak day is 75kts. Thanks to modern total energy, I spend most of my time working out optimum routeing in the general direction I want to go whilst trying

to ensure that if I get low it will be in an area where I can expect to find above-average lift. At last year's 18 Metre Nationals, the winner on one 400km day averaged 140km/h, whilst his average rate of climb for the flight (where he stopped and circled) was little over 3kts.

I believe we are on the point of another breakthrough: instruments with synthetic vision capability to plot the optimum course ahead. This will lead to even higher wingloadings and the attendant launching problems (definitely not EuroFOX territory) and certification issues (imagine spin-testing a glider with 250kg water in one wing and none in the other) so short production runs for these specialist aircraft (costing 350,000+ euros) and Permits to Fly.

Overall, I fear the effect will make gliding less cohesive, but with the possibility that the Vintage (thanks to my brother Chris) and the new ultralight groups (which avoid EASA regulations) may prove the most popular and fun. Last summer I flew the Silent Electro and was impressed: performance approaching an LS4, good cockpit and handling, very simple electric self-launch, and wings light enough to carry on one's own. The new 463?

Anthony to Justin

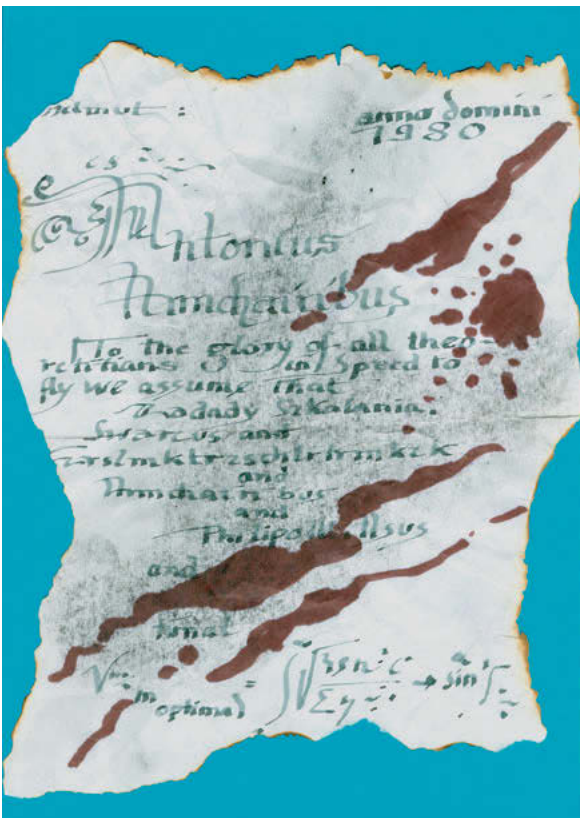
I take the point about 'average rates of climb' and also I think I should stress in the article that whatever top pilots in top machines are doing, the basic theory is a necessary skill for flying wood and the early plastic generation.

It will be no bad thing for gliding to have a bigger spectrum. I've often felt the need for a 'dinghy class' for the young and impecunious to cut their teeth on. One could have so much fun with a T-21 and a Swallow.

It's not only my article that is 50 years old, so is my Swallow (1964).

Justin to Anthony

As you say, the basic theory is still right. It was subsequently added to in Reichmann's 1978 book (page 107 onwards) to cover dolphin flight. In this he illustrates five models, which have now, with experience of modern airfoils and high wingloadings, led pilots to a sixth model: we have found thermals usually improve with height, right up to cloudbase. Since competition pilots have to remain in sight of the ground, they tend to speed up in their final turn, gaining energy whilst losing height to give them a better view ahead. They are now flying much faster than the speed ring indicates, but since the gliding angles are so flat they are losing very little whilst storing the energy for the



Anthony Edwards received this singed document from Helmut Reichmann, who, in 1987, said he had turned his attention away from 'the old stone-age time of speed to fly theory'

next pull-up to keep close to cloudbase. They also gain by not accelerating when already in sink, having predicted it.

When mountain soaring, I often pull up in sink as I approach the next spur which I know will be lifting, so that the aircraft is already climbing as it enters the rising air, and I start accelerating as soon as the lift peaks. This is combined with a turn into the rocks above the spur whilst slowing down, and away from the rocks as I speed up. Similar techniques are used under cloud streets.

Finally, when confronted with a gap it is usually best to store energy (speed/height) under the penultimate cloud (ridge) rather than the last, which is often weaker.

Regarding fun, I am not sure about a 'dinghy class' for young and impecunious. One can now buy extremely high performance gliders (by Swallow standards) for very little (under £15,000), which represents about half a graduate's starting salary, whereas the Swallow cost at least a full year's similar salary back in 1963. Overall, I think young pilots are well catered for compared with our time. It will be interesting to see how they decide to develop the sport in the face of technology and commercialism, which could alter the skills suite to include designing better algorithms.

Anthony to Justin

As a matter of fact, Reichmann gave me a copy of his PhD and we corresponded at length after he wrote to S&G in 1979. We met at the 1980 BGA meeting, and my last letter to him was shortly after, when I asked him for more information about the pre-war Polish theorists.

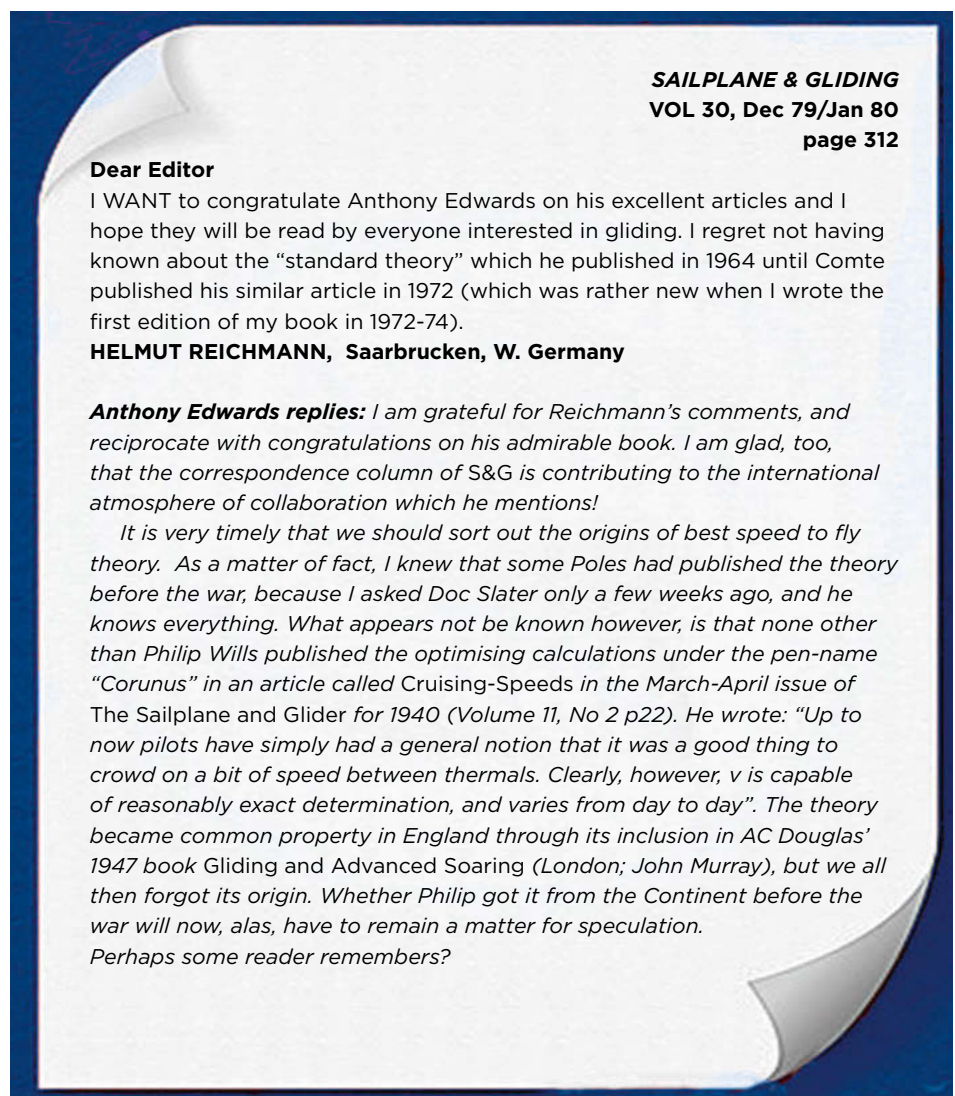
He did not then reply, but after a reminder from me in 1987 he wrote apologising that he had turned his attention away from 'the old stone-age time of speed to fly theory' and enclosing a stone-age document with singed edges. (See facing page.)

Then he lost his life, alas.

PS I must have told you before that I once asked your father (Philip Wills) what had changed when his competition ability started to wane. He said that he lost the ability to read the sky ahead so accurately. I well remember watching him at the Mynd, seemingly just wandering about, but evidently sensing just where to wander.

Justin to Anthony

I hope S&G publishes all the material you have; I admired Helmut Reichmann



SAILPLANE & GLIDING
VOL 30, Dec 79/Jan 80
page 312

Dear Editor

I WANT to congratulate Anthony Edwards on his excellent articles and I hope they will be read by everyone interested in gliding. I regret not having known about the "standard theory" which he published in 1964 until Comte published his similar article in 1972 (which was rather new when I wrote the first edition of my book in 1972-74).

HELMUT REICHMANN, Saarbrücken, W. Germany

Anthony Edwards replies: *I am grateful for Reichmann's comments, and reciprocate with congratulations on his admirable book. I am glad, too, that the correspondence column of S&G is contributing to the international atmosphere of collaboration which he mentions!*

It is very timely that we should sort out the origins of best speed to fly theory. As a matter of fact, I knew that some Poles had published the theory before the war, because I asked Doc Slater only a few weeks ago, and he knows everything. What appears not be known however, is that none other than Philip Wills published the optimising calculations under the pen-name "Corunus" in an article called Cruising-Speeds in the March-April issue of The Sailplane and Glider for 1940 (Volume 11, No 2 p22). He wrote: "Up to now pilots have simply had a general notion that it was a good thing to crowd on a bit of speed between thermals. Clearly, however, v is capable of reasonably exact determination, and varies from day to day". The theory became common property in England through its inclusion in AC Douglas' 1947 book Gliding and Advanced Soaring (London; John Murray), but we all then forgot its origin. Whether Philip got it from the Continent before the war will now, alas, have to remain a matter for speculation. Perhaps some reader remembers?

enormously, he combined incredible ability with such charm and sense of humour.

Incidentally, I was unaware of your conversation with my father about waning competition ability. I know that in the 1958 WGC in Poland, where he flew a Skylark 2 in the new Standard Class, he felt he was too slow in spotting changed conditions ahead, and his ability to recover was limited by the reduced performance of a smaller glider. However, he continued to win Open Class contests for another eight years.

In my own case, I simply lost interest in what was being measured in modern contests. I think this is really saying I lost the mental focus on the key elements of successful current competition flying. Fortunately I still love the flying for its own sake, the places, the people, the aesthetics, the amusing situations and the wonder of it all. I detect you feel the same in your Swallow.

The letter above was published in the Dec 79/Jan 80 issue of S&G



Anthony Edwards has been a regular contributor to S&G since August 1957. He was chairman of the magazine committee for many years in succession to Philip Wills (whilst there still was a committee). Anthony was chairman of CUGC and then president until it morphed into CGC in 1996. He says he is no good at speed flying, but handy with a bungee!

■ In all these areas of activity, Alison Randle will draw on either the volunteer members of the Development Committee who have relevant experience or our Expert Panel. This panel includes those with agricultural experience, law, accountancy, IT and more general management. We are always interested to expand this panel so if you have relevant experience, please get in touch via the BGA Office. Generally the commitment is confined to responding on a project basis to an issue for a particular club, or the development of some particular tools. We tailor commitment to the time you have available. It is very rewarding to contribute to the health of our amazing sport.



Dave Latimer, chairman
Development Committee
dave.latimer@blueyonder.co.uk

WORK FOR THE FUTURE

IMPROVING trial lesson conversion has long been a point of controversy or, at best, differing opinions. Whilst the conversion rate remains around 1 per cent for our sport as a whole, some clubs manage as high as 10 per cent. There is strong evidence that this is achieved by being open, friendly and by truly treating their trial lessons as prospective members. Within the Development Committee we plan to share good practise with those clubs who are receptive. We are looking at tools to help clubs understand their current performance in this area using techniques such as online customer surveys and independent secret shopper services.

It is all very well recruiting new members, but how can we better retain them? Are clubs providing the level of service that people expect these days? It takes a particular enthusiasm to hang around a cold airfield for a day when the return is just one or two short flights. Some clubs are being very successful at matching supply of instruction and demand through booking systems. Others provide mentoring services to spot disillusioned members, identify the issue and resolve it.

WAYS WE CAN WE HELP EACH OTHER

WHAT does the BGA Development Committee (BGA DC) do and, more importantly, what help do we need? This article is written to communicate, but also, hopefully, to stimulate a response and some offers of support.

Reactive club support

Planning threats such as windfarms are passed from the BGA Office to Alison Randle, our professional Development Officer. She will make contact with the clubs and provide support as necessary. If the club has a Non-Official Aerodrome Safeguarding Plan in place they should have already been made aware of the planning application. For others it may be an unexpected and sometimes unpleasant surprise. Often the only support required from the BGA DC will be some encouragement that they are on the right track and a letter of backing from the BGA. For more complex planning applications, or for clubs lacking in expertise in these areas, more technical support can be provided.

Funding generally means lack of funding. Provided it is not a complete crisis, this will normally involve helping clubs develop some sort of plan which moves them to a more sustainable future. We can use our network to help provide input into this.

The committee has extensive experience with rates and rateable value and has assisted several clubs to reduce these.

Occasionally clubs experience management difficulties due to internal issues and the BGA DC has facilitated

meetings to try to find a common ground from which to move forward.

Sport development

Non-official aerodrome safeguarding is a mechanism for highlighting to local planners proposals that may impact a club and thus ensuring the club is notified such plans are being considered so they may respond. The committee is available to help clubs with this type of safeguarding.

As well as a wealth of sample policies and guidance, we also provide child protection support training, drawing the skills and expertise of our child support leader, Karon Matten. We are also seeking support for help on how clubs deal with vulnerable adults.

The BGA DC gets involved in consultations with external parties. Lately the most significant of these has been taking part in the forum organised by HMRC to consider changes to the Community Amateur Sport Club (CASC) regulations.

The annual club management conference is organised by BGA DC. This event now includes sections for CFIs and treasurers. We try to balance disseminating latest news with providing an opportunity to share and discuss interesting practises from clubs. It is also an excellent networking event.

The BGA website includes a great resource of sample documents, policies and guidance for a broad range of club management topics. Spurred on by the creation of the new BGA website, we have reviewed and rationalised many of these documents.

Site security and purchase is a key priority for BGA DC and the clubs themselves. Establishing site security can provide a real long term foundation for a healthy, growing club.

Grant Funding has successfully helped clubs with site purchase, improved facilities, fleet enhancements and other less obvious things such as buying FLARM. A successful grant is based on quality project planning and most grant providers will expect to see a full business case to support the application. Again BGA DC will provide support for this as required.

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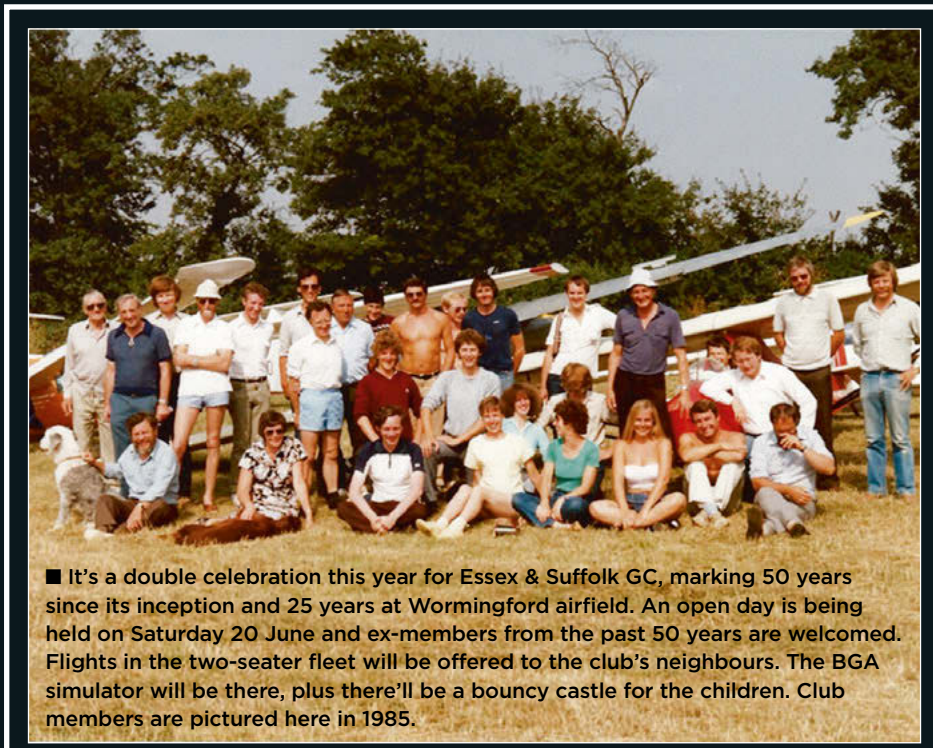
This page clockwise from top left:
Amy Sentence and Julie Starling doing a little wave pathfinding at Borders

Oliver Dudley-Heidkamp is congratulated by Andy Perkins after going solo on his 14th birthday at the Upward Bound Trust (Gary Newbrook)

Mike Clarke at the official opening of the Wally Kahn hangar at Lasham, with Wally's daughter Christine Dean and grandson Noah (Paul Haliday)

The peak of Snowdon just breaking through, the cloud rolling down the lee face of Snowdonia was simply breathtaking. Taken by Dan Welch and Matthew Williamson during a North Hill expedition to the Long Mynd

All 16 Sea Cadets passed the Bronze Wing Aviation Course held at SCTC Weymouth and RNAS Yeovilton in February. An intensive week included lessons on meteorology, navigation, air law, principles of flight and human factors, plus two days with the Royal Navy's 727 Squadron. Unfortunately they were not able to fly due to high crosswinds, but have all been invited back for air experience flights at either RNAS Yeovilton or the gliding squadron at Lee on Solent in June



■ It's a double celebration this year for Essex & Suffolk GC, marking 50 years since its inception and 25 years at Wormingford airfield. An open day is being held on Saturday 20 June and ex-members from the past 50 years are welcomed. Flights in the two-seater fleet will be offered to the club's neighbours. The BGA simulator will be there, plus there'll be a bouncy castle for the children. Club members are pictured here in 1985.





This page clockwise from top:
This year's March expedit to Talgarth was one of Seahawk's best ever (Jake Matthews)

The Countrywise team with Paul Heiney spent a day at Camphill filming, and this is due to be shown in a prime-time slot on ITV on Christmas Day

Bath, Wilts & N Dorset members receive awards during the annual safety evening

A cracking day for bungee launching at the Mynd on 11 April (Mike Greenwood)

Imperial College Gliding Club held its 85th Annual Dinner at Imperial College on 17 March, with 40 students and alumni attending. Pictured here with the club's ASW 24 '96' (Elinor Merkier)

A Western came to Weston for Oxford's start of season party

■ Our thanks to all the photographers and to our *Club News* contributors for sending these in. If you'd like to submit your previously-unpublished photographs for possible inclusion somewhere in *S&G*, please email them to: editor@sailplaneandgliding.co.uk or upload to: www.sailplaneandgliding.co.uk/dropbox



CLUB NEWS

BANBURY (HINTON IN THE HEDGES)
WWW.BANBURYGLIDING.COM
5204355N 00118784W

IT has been a slow start to our soaring season with very few reasonable and cross-country flights. Our K-13 has been off-line with a rather longer than usual annual inspection because of the glue problems, but now it is returned ready for the season. Luckily we have been able to borrow a Capstan from Bicester for the last few months, thanks to Dave Bullock, to keep us flying and to run a couple of courses. Looking forward to some good warm spring weather to improve the flight statistics!

David Sibthorp

BANNERDOWN (RAF KEEVIL)
WWW.BANNERDOWN.CO.UK
511858N 0020631W

OUR juniors, Aden and Charlotte, are to be congratulated after receiving Royal Aero Club bursaries. Well done to Frank Soowamber on his well-earned RAF commission. And finally, many congratulations to Olivia Llewellyn on her solo through the Air Scouts.

Ian Harris

BATH, WILTS & NORTH DORSET (THE PARK)
WWW.BWND.CO.UK
510742N 0021445W

WE held our annual safety evening under the aegis of Dick Dixon, and useful advice was given relating to safe winching, tug upsets, rigging errors and collision avoidance, with a FLARM contribution from Alastair McGregor. Trophies were presented to Alastair, Stuart North, Tim Fletcher and Harry Gribble (who also got a bursary), while Mick Longhurst made off with the coveted 'almost did it' award. In the workshop, Nick Bowers has the two-seaters in hand and a list of eight K-6s for inspection following the recent alert. On the field, our burgeoning badger membership are busy digging latrines! Congratulations to Martin Dawson, new solo.

Chris Basham

BIDFORD (BIDFORD)
WWW.BIDFORDGLIDINGANDFLYING
CLUB.CO.UK 520803N 0015103W

THANKS to the efforts of Chris Morris, we have obtained a grant for five FLARM units and two radios. This month we have an advanced soaring coarse lead by Kevin Atkinson, combined with our task week. On 25 May we have our "Wings & Wheels" event.

Our new Scout tug is hard at work, with tug pilot training and tail wheel conversions.

Mike Pope

BLACK MOUNTAINS (TALGARTH)
WWW.BLACKMOUNTAINSGLIDING.CO.UK
515848N 0031215W

WE are now well into our seven-day-a-week operation after a good spring season. World Champion Andy Davis gave us a superb lecture on cross-country flying techniques and all of us were enthused by it, especially his "ignore all the cockpit gizmos and look out at the sky" approach. But the biggest smile of the day was reserved for our departing CFI Martin Langford, who had a chance to fly Andy's superb JS1 Revelation. A fitting choice.... Martin has been CFI at Talgarth for many years and his enthusiasm, energy and charm (yeah, really!) has made BMGC a safer and much more fun place to glide. We will miss him, but look forward to supporting Mike Entwistle, who took over the role at Easter.

Robbie Robertson

BOOKER (WYCOMBE AIR PARK)
WWW.BOOKERGLIDING.CO.UK
513642N 0004830W

BY THE time this is read, our Klippeneck expedition will be well under way. The spring expedition to Talgarth and Shobdon finished with far better weather for the second part. We welcome our new seasonal staff instructor, Matt Graeme-McMurdoch, and our two tuggies, Tom Fox and Lucas Siecz. The Easter Egg Aerobatics competition, rarely held at Easter, was won once again by a cadet – this year by George Hunter, who also completed his aerobatic badge. David Lowe and Matt Porter also gained their Bronze badges at the end of this year's first Bronze course. Preparations for our new-style full regional competition are well up to speed; there may just still be one or two entries still available.

Roger Neal

BORDERS (MILFIELD)
WWW.BORDERSGLIDING.CO.UK
553514N 0020510W

OUR first flying week of 2015, with Darlton visiting, has been nothing short of fantastic; soaring every day and wave climbs up to FL100. Well done to Will, who got his two hours and one-hour Bronze legs. Thanks to the Darlton crew, who made the week. For our wave weeks later this year, the TRA-G has now been made available during the

week under an ACN, allowing climbs up to FL245. The Northumbria wave box is now one area rather than two. Thanks to George Brown for organising this. At our AGM in March: Stuart Black, Freddy Moffat and Simon Glover joined the committee, while the prizes went to: Stuart Black, Andy Bardgett, Freddy Moffat and Mike Rose/Adam Wilson.

Rich Abercrombie

BOWLAND FOREST (CHIPPING)
WWW.BFGC.CO.UK
535301N 0023714W

WE have a varied programme of lectures and club weeks arranged this season and hope to build on last year's successful cross-country initiative. In addition, our members have a number of expeditions organised, both in the UK and abroad. Following a successful grant application to Sport England, we are now fitting FLARM to all our club aircraft. Meanwhile, our dedicated ground staff is putting down 120 tons of stone to firm up landing areas and paths to improve the airfield. Finally, we welcome Steve Robinson as our new CFI and thank Phil Punt for looking after us so well over the past five years.

Keith Clarke

BRISTOL & GLOS (NYMPFIELD)
WWW.BGGC.CO.UK
514251N 0021701W

THE 2015 Master Class coaching weeks will be 9-17 May: Chris Rollings, and 30 May-7 June: Andy Davis. A farewell lunch was held instead of a funeral for former chairman, Bob Cunningham, who died in March. We bought the Cambridge Supacat and it is being renovated and will be online soon. We gave a flight to a BBC Radio Gloucester journalist, reporting on our cadet scheme, and five 2015 cadets were chosen. Andy Turner did his first BI duty, and Jake Brattle and Christophe Mutricy continued their FI training. Trevor Stuart has been leading ridge flying in what has been a great start to the year. Andrew Shearn took over from Graham Bowser as the parachutes organiser.

Bernard Smyth

BUCKMINSTER (SALTBY)
WWW.BUCKMINSTERGC.CO.UK
524912N 04228W

THE big news is that, with a loan from The Philip Wills Trust, we have been able to purchase a EuroFOX. We are hoping to be operating by the end of June. This means

First solos for (left to right): Martin Dawson with **Bath, Wilts & N Dorset** instructor Phil Gascoigne; Steven Hitchen (left) at **Burn** being congratulated by chairman Tony Flannery; Mervyn McKenna (right) at **Aston Down** with instructor Doug Gardner (Darren Edge)



that our trusty Robin G-TUGZ will be surplus to requirements. The club is hoping to be back to a seven-day operation by the time this comes out. You're welcome to come and make use of our hard runway. The club hosted a film crew from Woodcut Media, who wanted footage of aerotowing for the H2 series *Defenders of the Skies*. Aerobatic ace Robbie Rizk gave an excellent presentation to the BGA Sporting conference. And lastly Andrew Cluskey topped the BGA Ladder on 27 March with 323km.

Martin Hands

BURN (BURN)
WWW.BURNGLIDINGCLUB.CO.UK
 534445N 0010504W

THE club is negotiating to extend the lease of Burn Airfield with its new landlords, Selby District Council, which recently purchased the land from a government agency. A further update on this will be available in the near future and we hope that as a result we will have improved security of tenure. We are also actively involved in the consultations over the airspace changes proposed for Leeds Bradford Airport to ensure that we will not be affected adversely. One of the club K-21 gliders is away for a complete refurbishment and is expected back at the club in April. Finally, we congratulate Steven Hitchen on going solo over the Easter weekend.

Chris Cooper

CAIRNGORM (FESHIEBRIDGE)
WWW.GLIDING.ORG
 570613N 0035330W

OUR treasurer Nick Norman was faced with an interesting problem while manoeuvring the gigantic ASH wingspan in and out of the hangar yard. Either the wings had to be flexed (and they are very flexible) or the last tree in the hedge had to go! Oh well, we can do with the extra firewood I suppose. The cold highland weather gave way to warmth and sunshine just in time for the Easter weekend, with temperatures nudging 20°C. Wave up to 10,000ft on the Saturday (average flight duration 1hr 26min) and blue thermals on the Sunday. Welcome to Feshie!

Phil Hawkins

CAMBRIDGE (GRANSDEN LODGE)
WWW.CAMGLIDING.UK
 521041N 0000653W

LOADS of activity over the winter has provided a new caravan park, track

improvement, removal of several skip loads of rubbish from the vehicle storage hut, the start of work to refurbish our clubhouse and completion of fleet annual maintenance, so we are in great shape for the new season. Huge thanks to everyone involved. We had some excitement in January when what looked like an old bomb was found on the airfield. This eventually turned out to be the nose cone of a WW2 practice bomb! Iain Baker and team are working hard on preparations for the 20m and two-seat national competitions in July and, with three days to go before the close date, Mike Smith took the Kelman Clock winter season trophy with a 304km flight.

Peter Wilson

COTSWOLD (ASTON DOWN)
WWW.COTSWOLDGLIDING.CO.UK
 514228N 0020750W

OUR new private owner hangar is nearing completion and should be occupied before this report is published. This spring we have given the airfield a tidy up, with hedges cut and the club hangar roof guttering repaired. We welcome Gerry Holden as our new CFI. Gerry has recently joined us from Portsmouth Naval Club following a house move to the Cotswolds. Preparations are well in hand for the Junior Nationals in August and already we appear to have a full entry list. Since our large airfield allows it, we are also running a Cotswold Regionals concurrently, for which places are still available. I apologise to David Chapman, our safety officer, for the error in his name in my last report. Finally we send our condolences to Gill, our office manager, for her recent bereavement.

Frank Birlison

CRANWELL (RAF CRANWELL)
WWW.CRANWELLGC.CO.UK
 530231N 0002936W

THE beginning of spring has given us a few soaring days, but has not been too exciting! Some club members have been to Sisteron throughout the Easter period and no doubt delighted in the joys of mountain flying. The new SF27C is kept busy and the number of aerotows has increased, as well as its use for nav training and field selection practice. Generally, there is little else to report currently, except we hope that the weather improves or at least equals last year.

Zeb Zamo

DARLTON (DARLTON)
WWW.DARLTONGLIDINGCLUB.CO.UK
 531444N 0005132W

THE better weather means an increase in flying since February. The EuroFOX and aerotows have proved to be invaluable in this year's annual flying checks for members. The servicing of the club's aircraft and mandatory checks on the K-8 and K-13s have just about been completed by our inspectors and volunteer members. Martyn Cobham, our junior pilot, has progressed from the black hand gang and is now re-wiring the Skylaunch winch under the watchful eyes of our electrical/electronic engineers. We have good news from our landlords; they have agreed to extend our lease to 25 years; congratulations to our negotiation team, just the paperwork to sort out now. Congratulations to Robert Starling on being issued with his Ass Cat instructor rating.

Barry Patterson

DARTMOOR (BRENTOR)
WWW.DARTMOORGLIDING.CO.UK
 503517N 0040850W

WITH the addition of a second ASW 20 and a third Astir to the private fleet, we are developing the tools for some potent flying. Lots of spring activity has taken place, including the reflooring of the launchpoint and clubhouse corridor by Richard Roberts, whose father's company provided the carpet for the clubhouse 20 years ago. CFI Don Puttock's introductory pilot training effort has resulted in Roger Appleboom, Pete Howarth and Fred Marks being added to the cadre. We held a well attended pub social at the end of February and have been pleased to welcome back Trevor Taylor after a prolonged illness. Our first solo of the year has also taken place: Pete Harvey won the accolade on 23 March.

Martin Cropper

DEESIDE (ABOYNE)
WWW.DEESIDGLIDINGCLUB.CO.UK
 570430N 0025005W

DAVID Innes and Mike Law both have their motorglider instructors rating; David also soared in Northerly Wave above the clouds to view the eclipse in March (see p64). Tom Crawford's K-7 failed its mandatory glue failure inspection. We are rolling out a programme to install FLARM in all club gliders and tugs.

Glen Douglas



(Left to right): **Dartmoor's** Pete Harvey is congratulated by Martin Cropper on going solo; Wellington School continues its association with **Devon & Somerset** with 14-year-olds flying on Saturday mornings; Alan Bateman after his first solo, with Eddie Leach, deputy CFI for **Essex & Suffolk**



DENBIGH (LLEWENI PARC)
WWW.DENBIGHGLIDING.CO.UK
531239N 0032312W

SPRING has sprung and, at the time of writing, the wave season is only just getting under way. The weather gods seem now to be seeking revenge for the successful Juniors Winter Series weekend in February. Although we have not had any exciting wave so far, every local ridge flight seems to find that tantalising hint of it. We're sure the wave will kick in soon!

Clare Witter Holland

DERBY & LANCS (CAMPHILL)
WWW.DLGC.ORG.UK
531818N 0014353W

BY the time this appears we should have our new aircraft workshop and vehicle garage, and a new launchpoint bus has arrived. The 20th Camphill Vintage Rally and 5th Capstan reunion starts on 21 June, and a reminder to the Mynd that the Wooden Plate still resides at Camphill. Our Saturday evening talks saw Rob Faulkner telling us about his time as a Navy pilot. We have been delighted to see Deputy CFI John McKenzie flying after a two-year illness. The Countrywise team with Paul Heiney spent a day filming our activities, to be shown on ITV on Christmas Day. We have received a grant from Sport England to equip our club fleet with PowerFLARM.

Dave Salmon

DEVON AND SOMERSET (NORTH HILL)
WWW.DSGC.CO.UK
505107N 0031639W

CONGRATULATIONS to James Hood for gaining his NPPL in Rotax Falke, with help from the Philip Wills Memorial Fund Scholarship. Wellington School have continued their association with DSGC this year with a group of 14-year-olds flying on Saturday mornings. There have been early season mini-club expeditions to Parham, Talgarth, Mendip and Nympsfield – great hospitality from all. Our Pawnee is back on-line after the AD work for the tailplane by Ian Mitchell, and is being used in earnest. A large number of members said goodbye to Les Hill (winch) after his long illness. Les was a much-loved hardworking member of the club. The club fleet is now FLARM-equipped following the successful National Lottery Sport England grant; work is now ongoing to build the simulator.

Jill Harmer

DORSET (EYRES FIELD)
WWW.DORSETGLIDINGCLUB.CO.UK/DGC
504233N 0021310W

WE are looking forward to some soaring now that the weather has improved, and the usual folk have been beavering away to get all our club fleet ready. Barry is progressing well re-covering the wings of K-8 'FOR', and John Halford and Alan Coatsworth are busy working on K-13 'CHW'. We hope to have the same interest in our air experience flights and one-day courses that we had last year, and to encourage more people to join as full flying members, so that they can enjoy learning to glide while flying over the wonderful Jurassic Coast. Open days have been planned in April and May, and on 31 August, with task week from 25 July - 2 August.

Colin Weyman

DUMFRIES & GALLOWAY (FALGUNZEON)
WWW.DUMFRIESGLIDING.110MB.COM
545638N 0034424W

ONCE again bad weather and wind have stopped flying, but maintenance, our AGM and other jobs have kept us busy. We are now looking forward to the first week in August and our flying week. A new website on the BGAs find a club website now helps other pilots to see where we are, and our site too. All our pilots are looking forward to a good 2015 for their flying.

Wendy McIver

EDENSOARING (SKELLING FARM)
WWW.EDENSOARING.CO.UK
544152N 0023506W

WITH the added capacity of our second K-13 we are busier than ever, but without many of the frustrations of previous years. Our new BIs and IFPs are getting into their roles and providing flying experiences for many visitors. This leaves the other K-13 and instructors to swiftly provide site checks and get visiting pilots into the air quickly. Ab-initio training is again progressing well and serves our long-term aim of having a secure local membership base. This year we have introduced an incentive scheme for flying achievements for both local members and visitors – come and enjoy some inspired flying. We may also run our visiting pilots "no daily membership fees" incentive again in July and August, keep checking the website for information.

John Castle

ESSEX (RIDGEWELL)
WWW.ESSEXGLIDING.ORG
520253N 0003330E

FIRST of all apologies to Alan Cherry for saying he did some cross-country tuition; this was in error and caused some embarrassment and amusement in the club. After some 15 years I will no longer be reporting club news, with Cathy Dellar taking over. We have visited The Long Mynd for a weekend and have had some very good flying in wave. In respect of the American Air Force being stationed at Ridgewell during WW2, we are being visited by the son of one of those who flew from here. We are all looking forward to this visit very much. We are working hard to open Ridgewell from its winter sleep and to prepare it for the (we hope) brilliant season to come.

Peter Perry

ESSEX & SUFFOLK (WORMINGFORD)
WWW.ESGC.CO.UK
515630N 0004723E

ESSEX & Suffolk Gliding Club has ended its long drought of new solo pilots. Well done to Alan Bateman, who was sent solo by Eddie Leach. Club members have been carrying out remedial work on a number of the club glider trailers under the wise direction of the club technical officer, Mike Haynes. A keen bunch of early cross-country pilots have been aiming to get the trailers ready for the soaring season as, although they are enthusiastic, they are also wise enough to anticipate the inevitable land outs and attendant retrieves. Hard work has been done and thanks should go to Norbert Eschle, Richard Hayhoe and Andreas Rieder. In addition to supervising, Mike Haynes also carried out a lot of the work.

Adrian Tills

FENLAND (RAF MARHAM)
WWW.FENLANDGC.CO.UK
523854N 0003302E

FRIDAY, 27 March the base was closed for RAF staff to do various activities, including gliding. Thanks to a team of members we were able to fly 27 RAF personnel, including the station commander, group captain Harvey Smyth, who has flown Harriers and F16s, but this was his first time gliding! Thanks are due to club instructors Don Jonstone, John Roche Kelly, Jon Oakley and Sid Wright. Between 09:00 and near sunset we achieved 63 launches – the most in one day for a long

(Left to right): Looking south over Ebbw Vale on Easter Monday as Herefordshire's Phil and Diana King flew over the Brecon Beacons and Heads of the Valleys Road, South Wales; Kestrel's Noah Cooper, solo at 15; first solo for Adam Richards (left) at Usk, with instructor Brian Crow



time. Thanks are also due to Marham SATCO, Sqn Ldr Trevor Barnes, who organised the RAF flyers, winchmaster Adrian Bramwell, logmaster Bernard Hicks, Jayne Frost for catering all day, and to all other members.

John Doubleday

HEREFORDSHIRE (SHOBDON)
WWW.SHOBDONGLIDING.CO.UK
521429N 0025253W

APRIL has been doing its best to make up for a disappointing February and March and our visitors from Booker, who are here at the time of writing, have been enjoying warm sunshine with blue skies and cumulus. We were also pleased to see our regular visitors from Dunstable and look forward to more visitors in the next two months. The new airfield layout has created more space for visitors to park trailers and rig their gliders. Congratulations to Mike Hutchinson on his well-deserved BGA Diploma, awarded at the recent BGA Conference. The financial outcome of last year looks promising, with the lower cost of maintaining the EuroFOX beginning to have an effect, and we are beginning to explore new ways of growing our activities.

Diana King

HIGHLAND (EASTERTON)
WWW.HIGHGLIDE.CO.UK
573508N 0031841W

OUR AGM on 15 March was well attended and generated some useful discussion regarding eventual funding of our replacement tug. The main focus for site improvement this year will be the provision of a hard runway, which we hope to have in place by the end of the summer. We have completed a land swap with a local farmer and now have some useful additional space next to the hangars. FRTOL (radio licence) training will take place this spring. There were some good wave flights during the first two months of the year, with heights of over 10,000ft being achieved. Many of the gliders on site had FLARM fitted recently and Ian Tait has volunteered to be our FLARM guru/software update technician. Thank you, Ian.

John Thomson

IMPERIAL (LASHAM)
WWW.UNION.IC.AC.UK/RCC/GLIDING/
51112N 0010155W

ICGC held its 85th Annual Dinner at Imperial College on 17 March, with many current and former students attending. Guest speaker

Melvyn Hiscock provided the entertainment and the annual awards were presented. Members have progressed well over the winter months towards Bronze and single-seater conversions. The Easter training week took place at Lasham once again and, despite the weather, many students made good progress. Tom Arcott continues preparations for the Junior Worlds having bought a Std Cirrus 'GW'.

Guy Dutton

KENT (CHALLOCK)
WWW.KENT-GLIDING-CLUB.CO.UK
51123N 0004950E

SOME might think comedy and gliding don't really go together. We don't agree. The phrase 'you must be joking' is often heard here – especially from instructors. So we are proud to have hosted Fly a Glider for Comic Relief 2015. We launched nearly 100 people into the air (in gliders!), who had each raised at least £25 for Comic Relief. Well done to Gerry Puttick, the organiser and thanks to all club members for their support. We look forward to a good summer and good launches with our new tug and Skylaunch winch adorned with Dyneema cables. Thanks especially to Dave Beams and Tim Bartsch for working their magic on the machinery.

Mike Bowyer

KESTREL (RAF ODIHAM)
WWW.KESTREL-GLIDING.ORG.UK
511403N 0005634W

KESTREL Gliding Club has had a busy winter, during which our youth membership in particular has grown in number. Particular congratulations go to Noah Cooper, who has completed his first solo at age 15. The club also ran a cloud flying course in March.

Dave Hall

LASHAM (LASHAM)
WWW.LASHAMGLIDING.CO.UK
511112N 0010155W

OUR new hangar was recently opened by the late Wally Kahn's daughter, Christine. We have a brand new K-21 added to our fleet. The registration G-CLOL has raised a few suggestions over what the initials might stand for. Answers on a postcard please. Warmest congratulations to our three new BIs, all aged 17: Michael Harrison, Jordan Bridge and Olly Metcalfe. Our south side caravan site has been expanded with the addition of 12 more log cabins. We had a very successful

expedition to Jaca, where our Duo was left for the use of members. It moved on to Sisteron for our May expedition. Our winter soaring promotions have led to an increase in activity, with many pilots remaining current.

Mike Philpott

LINCOLNSHIRE (STRUBBY)
WWW.LINCSGLIDINGCLUB.CO.UK
531836N 0001034E

HEARTY congratulations to Phil Trevethick for victory in his two-year battle to get back to flying fitness. Phil has resolved and is looking forward to his flying. We are in negotiations with our landlords to obtain a bit more land at the western end of the runway to give us a winch run in excess of one mile. These negotiations look very positive at present. Recently, on a good 10kt launch breeze day, we took the K-13 to the very end, put our lightest pilot in and it achieved a 2,300ft winch launch. We do have clearance to 3,000ft. Our flying week commences 19 August and visitors from other clubs are welcome.

Dick Skerry

LONDON (DUNSTABLE)
WWW.LONDONGLIDINGCLUB.CO.UK
515200N 0003254W

CONGRATULATIONS to Jodie Janes, David Miller and Angus Munro on achieving their RT licenses. The pilot development course was very successful and our spring expeditions to Cerdanya and to Shobdon were blessed with good weather, including several excellent wave days. We are gearing up for our soaring course (16-22 May), and our racing week is planned for 20-28 June. As always, guest pilots are very welcome at the Dunstable regionals (25 July - 2 August) and will never have to worry about a retrieve! See www.londonglidingclub.co.uk/regionals.xml for details. Later in the summer we have a task week (15-23 August), followed by club expeditions to Llanbedr and then Talgarth.

Andrew Sampson

NORTH WALES (LLANTYSILIO)
WWW.NWGC.ORG.UK
530239N 0031315W

MARCH saw us with our AGM and our treasurer gave us welcome news that our incomings exceeded our outgoings; however, our local council has withdrawn our zero business rate concession. So a resolution was passed to try and arrange CASC status, which



(Left to right): **Staffordshire's** Graham Stanford looking pleased as he heads into wave at 5,000ft from Seighford; Lewis Bricknell has been awarded a scholarship award for NPPL training at **Hus Bos**; RAF VGS Air Cadet instructors at **Hus Bos**; the new twin and single Astirs at **Sandhill Farm**



✈ would give us certain financial advantages. CFI Keith Lewis has had to stand down – we all wish him well and are grateful to the leadership and vision he shared. Keith is a brilliant engineer and many times sorted out problems far beyond the wit of the average member. We are lucky to have founder member and ex-CFI in Ken Payne, who has stepped into the breach. We are much obliged to Ken, who has held this position three times before.

Brian Williams

**OXFORD (RAF WESTON ON THE GREEN)
WWW.OXFORD-GLIDING-CLUB.CO.UK
515249N 0011311W**

'GET off your horse and drink your milk' are words not often heard at a gliding club, but they were recently at OGC when a 'Western came to Weston' in the guise of a start of season party. Thanks go to the organisers for getting the season under way in style. We congratulate Liisi Laks and Tim Marlow on completion of their BI Course and we look forward to welcoming them to the instructor rota. To celebrate their success they bought their first property together! The Tuesday night crew continue to do their magic, as one of the club's workhorse K-13s undergoes its deep annual inspection.

Norman G Nome

**SCOTTISH GLIDING CENTRE (PORTMOAK)
WWW.SCOTTISHGLIDINGCENTRE.CO.UK
561121N 0031945W**

AT our recent AGM, Alan Boyle and his team have stood down; many thanks for their efforts. We also welcome the new board, chaired by Bob Petrie. Thanks also to Gerry Marshall, who has stood down as CFI, with Mike Carruthers taking up the reins. Congratulations to Tony Tailor (Silver height). The visitor season is well under way with Kent GC getting seven flying days out of seven, and John Williams logging over 20 hours in relatively poor conditions. The SGU is considering using 4 x 4 ATVs. This week we had a Polaris Ranger 570 on trial and it generally performed well, but further research is required before the board makes a decision.

Chris Robinson

**SEAHAWK (RNAS CULDROSE)
WWW.SEAHAWKGLIDING.CO.UK
500509N 051520W**

A GOOD few months to start the year; gliders are progressing through their ARCs and the

long-awaited return of our Super Dimona is over. Our thanks to George, Geoff and Jim for their efforts. We can now return to aerotowing and settling in our new tug pilots. Our yearly expedit to Talgarth was one of the most successful ever with ridge, thermal and, to top it off, wave to 11,000ft+. We flew on four of the five days too! Thanks to our CFI Chris for running it and BMGC and Gerry Martin for hosting us for the week.

Jordan Richards

**SHALBOURNE (RIVAR HILL)
WWW.SHALBOURNEGLIDING.CO.UK
512014N 0013239W**

SPRING has sprung and we have been making the most of every opportunity. In defiance of (British weather) tradition we enjoyed three great days on the Easter Bank Holiday weekend, with the ridge playing its part. One amorous buzzard played chicken with the Puchacz, before diving away at the last moment, only to be spotted moments later tumbling with a member of the correct species. Congratulations to Jeremy Knight and Tony Chapman for going solo, Andrew Peacock for getting off-checks, and Andrew and Jeremy for passing their Bronze exams. As ever, thanks to all those who slave tirelessly to keep us running. This year's open day will be held on Bank Holiday Monday 25 May. Thanks to everyone who volunteered.

Claire Willson

**SHENINGTON (EDGEHILL)
WWW.SHENINGTON-GLIDING.CO.UK
520507N 0012828W**

THE annual dinner went very well in February, thanks to some excellent organisation by Liz Milligan. Prizes were awarded to Alan Langlands, Tim Treadaway, Graham Paul, Bob King, Mary Meagher, Derrick Sandford, and John and Tess Whiting. At our recent AGM we had a change of personnel. Thanks go to our outgoing chairman and treasurer – Alan Langlands and Paul Fletcher – and welcome to our new officers, Andy Linfield and Christine Bell respectively. We are about to host the Juniors spring weekend, then it will be all hands on deck to complete our preparations for the regionals in June. Our midweek team has started again, and we now have courses running Monday to Friday. Expeditions are very welcome with a bit of prior notice.

Tessa Whiting

**SOUTHDOWN (PARHAM)
WWW.SOUTHDOWNGLIDING.CO.UK
505532N 0002828W**

SUMMER arrived just in time for Easter Bank Holiday Monday, complete with glorious sunshine and strong thermals. In contrast, only a few weeks earlier, there was a record attendance at Parham to fly the ridge under typical wintery conditions. Visitors came from as far away as Nympsfield, and local boys Dominic Fritche and Alex Gibbs completed their Silver duration flights. Cadet Emily Burgin and friends took an Astir fuselage along to an aviation event at Chichester Park Hotel. Among the more senior members, we now have an unofficial competition to discover the first Southdown pilots to have manned the flight deck of a commercial airliner. The current front runners are Angus Buchanan and Mike Allen in a Boeing 747 in March 1994.

Peter Holloway

**SOUTH WALES (USK)
WWW.USKGC.CO.UK
514306N 0025101W**

OUR club has flown all through the winter, even having three of our two-seaters in the air at once in February. As the weather improved, Adam Richards went solo, Chris Tooze re-soloed again after a very long lay-off, and we are continuing to train more members to drive our winch. Social activities have included a convivial goat curry evening, prepared by our chairman Ian Kennedy and followed by a Stanley Holloway recital from Colin Broome, and we were invited to a superb presentation by Andy Davis at Talgarth. In addition, a valuable club tutorial by Maureen and Rod Weaver has encouraged many early Bronze pilots to set themselves some targets for the coming summer months.

Stuart Edinborough

**STAFFORDSHIRE (SEIGHFORD)
WWW.STAFFORDSHIREGLIDING.CO.UK
524940N 0021212W**

CHECK out the latest news, gossip and forecasts at SGC with the new club blog "Staffs Gliding Adventures", courtesy of Mike Fox. February saw the arrival of the new Pawnee tug and the SF25C C2000 motorglider. Peter Gill takes the Early Bird award for 2015. March also saw a successful AGM and prize-giving, and the annual dinner was enjoyed by all. A club training week is planned for May, courtesy of deputy CFI Dave Knibbs and Paul Whitters, and most of

(Left to right): Steve Bonser in Kirby Kite at the **Upward Bound Trust**; **Wolds'** retiring chairman Roy Dell (left) receives the Allan McWhirter shield from CFI John Norman; first solos at **Yorkshire** for Chris Ogden, with Steve Thompson, and David-McKinney with instructor Albert Newbery



the Wednesday air experience slots are now booked for the season. The Pilatus B4 "CUB" is staying at the club with your correspondent and Chris Maher as the new owners.

Malcolm Taylor

THE GLIDING CENTRE (HUS BOS)
WWW.THEGLIDINGCENTRE.CO.UK
522626N 0010238W

FIRSTLY we are very proud to be hosting the exciting Youth Aviation Event on 7 June (www.youthaviation.co.uk). Over the summer it will be great to see De Montfort and Warwick University Gliding Club continuing to participate in lots of activities at The Gliding Centre. The next generation of gliding superstars are also coming through the ranks, with Lewis Bricknell along with others attaining a scholarship award for NPPL licence training. It's also been great to see our aircraft being used for cross-country and aerobatic training, including with RAF VGS Air Cadet instructors. The 'Hus Bos Challenge Cup' from the 18-26 July is a date for the diary!

Tom Peace

TRENT VALLEY (KIRTON IN LINDSAY)
WWW.TVGC.ORG.UK
532745N 0003436W

SUMMER has started well for us at TVGC. Visitor flying has been going well and plenty of cross-country flying has been taking place from March onwards. The Aim Higher week took place in May; report will be in next issue. The focus now is on the open day, which will be on 12 July. We hope to have lots of aircraft flying in to join us, a hog roast and the BBMF doing a flypast; please come along if you can. Hopefully, by the time you read this the EuroFOX will be flying and towing gliders.

Dave Bieniasz

UPWARD BOUND TRUST (HADDENHAM)
WWW.UBT.ORG.UK
514635N 0005630W

IT was an historic day here on 7 April, when Oliver Dudley-Heidkamp went solo on his 14th birthday, becoming the youngest pilot to go solo in the Trust's history. He soloed in the K-13 and later took his first flights in the K-8. Thanks go to all of the volunteers who made the day possible, and to Oliver's parents, who provided us with a BBQ followed by cake and champagne after flying. Former pupil Andy Perkins presented Oliver with his solo badge. A group went to Talgarth in April, joining our friends from Booker. We all managed to get

airborne, with the wind blowing in the right direction on to the ridge!

Chris Scutt

VALE OF WHITE HORSE (SANDHILL FARM)
WWW.SWINDONGLIDING.CO.UK
513614N 0014030W

THERE is much excitement at the club. The formalities for our newly-imported Astir Twin II were completed by the CAA on 17 March. On Friday 21st, the sun came out and certain members could control themselves no longer. Five flights were duly logged. The G103 continues to be popular. The club has also acquired a single-seat Astir. After a difficult winter it is refreshing to see the new club glass gliders in the air and to experience the optimism at Sandhill farm. VoWHGC is back in business and looking forward to a great summer's soaring.

Paul Kellett

WOLDS (POCKLINGTON)
WWW.WOLDS-GLIDING.COM
535541N 0004751W

THE annual dinner saw CFI John Norman presenting awards to Gordon Baisey, Mal Gibson, Charlie Tagg and Derrick Roddie. The Allan McWhirter Shield for service to the club went to Roy Dell, who is standing down after 10 years as chairman. His efforts, guiding the provision of our new clubhouse, a further hangar bay, a new winch and much work on safeguarding the airfield, have greatly strengthened the club – and Roy and the Fournier Rf5b syndicate are back in the air after a complete engine rebuild. In conjunction with the BAeA, we are hosting our first aerobatics competition on 23-25 July for beginners and sport classes, while entries are strong for the 30th two-seater competition in August.

George Morris

WREKIN (RAF COSFORD)
WWW.WREKINGLIDINGCLUB.CO.UK
523824N 0021820W

IN late March, we had some great flying at Cosford, with thermals and even wave being available, which many pilots made good use of! This coincided with CFI Ian Gallacher providing aerobatics instruction to nine members, many of whom are well on their way to aerobatics badges. As I write this, the club is on an expedition in the Black Mountains (Talgarth), and so far we've had two day's fabulous soaring!

Andrew Walsh

WYVERN (UPAVON)
WWW.WYVERNGLIDINGCLUB.CO.UK
511712N 0014700W

WYVERN emerges from a winter of maintenance, ready for the season. The DG-1000 has been repaired following the propeller detachment, but minus the engine which continues to subject of investigation by Solo. The instruction year started with BI qualification for Ian McFarlane and Tim Dutton, and their skills have already been put to good use. Our first ab-initio courses in early and late March were both successful. The first, for Army Servicemen, suffered poor weather; the second, for QinetiQ, enjoyed good conditions with two solos. We look forward to more courses, improved weather and the Inter-Club League. For those that may fly in – it is likely the airfield will be closed most of June and early July, due to an Army exercise.

Paul Jessop

York (Rufforth)
WWW.YORKGLIDINGCENTRE.CO.UK
5357100N 00111332W

SPRING has finally arrived and the good flying has started. We had a Bronze course run by Keith Batty with great success, next up are the cross-country lectures. Unfortunately, one of our older pilots has stopped flying due to medical reasons. We wish him luck and thank him for his contribution throughout the many years he's been flying at Rufforth. We have had a new syndicate form too – good luck to the S4 syndicate, we expect great things!

Simon Hawkin

YORKSHIRE (SUTTON BANK)
WWW.YGC.CO.UK
541338N 0011249W

WE'RE really getting cracking up here now. Plenty of flying and plenty of achievements. Congrats first to new solos Chris Ogden, Dave McKinney and Graham Taylor, but also to the bevy of Bronze legs, winch/aerotow first-timers and type conversions. Things have been moving fast in all directions. Turn your back for two minutes and a new tug hangar appears (thanks to Fred Brown), the Discus has been refinished and it looks like we'll be building another (yes another!) EuroFOX. AGM and dinner dance to come. Bring it on!

Chris Thirkell

S&G's thanks as usual to Debb Evans for editing Club News – Susan Newby, editor



> CLUB FOCUS

YORK

AT A GLANCE

Membership:

Membership
Full: £295
Family: £415
Students/under-21s: £60
Juniors (U18): £45

Launch type:

Aerotow: £28.50 to 2,000ft
Winch Launch - £6.50

Club fleet:

2 x K-13, DG-505, Astir,
SZD Junior, Venture MG
and two Pawnees

Private gliders:

21 gliders
Seven motorgliders

Instructors/Members:

15/147

Types of lift:

Wave and thermal

Operates:

Saturdays, Sundays,
Wednesdays and Fridays
in the summer.

Contact:

www.yorkglidingcentre.co.uk
01904 738694
office@yorkglidingcentre.co.uk

Long and Lat:

535634.3N 11119.1W

SITUATED in the heart of North Yorkshire, Rufforth is an excellent site for both training pilots and the experienced. Based in a prime location, we get great thermal and regular wave from the Pennines in to the west.

We have excellent runways, so we can operate all year round. With ample trailer parking and hangarage available York GC is great for winter wave expeditions. We are local to many B&Bs, but also have a large camping and caravan site.

Various courses are run, aimed at all abilities from the complete novice to Bronze courses and cross-country lectures. We also have a motorglider and plenty of instructors and examiners to

facilitate NPPL training too.

The airfield was built to take bombers during the WW2, a similar story to the dozens of airfields scattering the vale of York. We now own half, our neighbours operating microlights and gyrocopters.

York Gliding Club is proud to have produced some excellent pilots, some now flying commercially, other competing around the country and the world!

Based just outside the beautiful city of York, we often get visitors flying in for the races, or just for a visit!

We have excellent links by road, being a 15-minute drive from the A1.

Simon Hawkin



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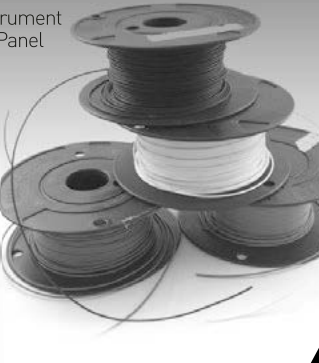
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FLYING MONUMENTS

The OSC 1937 Schleicher-built Rhönbussard has recently been awarded monument status (Alex Gilles)

Bruce Stephenson reports on a recent German approach to preserving our unique gliders

ISIT here torn between two similar, but very different, subjects, wondering which way the wind will blow me? One has a potential dark side to the longer term future of aging wooden structures, the other is a more upbeat positive and unique approach to conserving our flying past, so here goes with the latter...

Before I begin, it is worth considering

what is the long-term future of our old gliders? How will our more unique gliders be preserved for future generations as we watch our wooden fleets dwindle, many of which are left to fate?

Only recently we saw such an example, where a less than sensible decision saw a lovely wooden glider left to the mercy of Mother Nature, one that led to the total loss of the glider, which has now gone from our midst for ever. Once numerous in number within the UK, and largely taken for granted, they are now a rare breed indeed, and are on the verge of being added to the growing list of endangered species.

One godsend to the UK scene in terms of preserving our gliding past has, without doubt, been the creation of the Glider Heritage Collection (GHC) at Lasham. Recent years have highlighted the UK's desperate need for a focus on what were once considered 'dime a dozen' and, in many cases rather neglected ships, many of which have now silently moored themselves firmly in a harbour of scarcity.

As the GHC has proven, many vintage owners who were coming to the end of their flying days, wondered with growing consternation what was to become of their cherished gliders, some of which often needed time and money spent on them to get them back to full health and were gratefully donated to the Heritage Collection



D-3654, the privately-owned Weihe 50 of Gerd Hermjacob (Oerlinghausen), which has also been granted 'flying monument status' (Alex Gilles)

for a secure and positive future.

But what of a really rare glider in private hands? Where in fact do they fit in? Take the Petrel, Gull or the Viking for instance, revered by many, these gliders will invariably find some sort of caring home (often taking them from these shores forever). But how should the long-term future of really rare and significant gliders be approached?

Well, in Germany they now have a more than unique and new approach to this question, which has been largely down to the vision of fellow VGC members, Gerd Allerdisen (former president of the Deutscher Aero-Club) and Peter Ocker, who heads VGC Germany. Germany, as we all know, has no shortage of really top-class facilities for the preservation and presentation of its rich gliding heritage. With the world-renowned Wasserkuppe and its fantastic museum, not only is the long-term history of gliding there assured, it has been recently consolidated through their 'Moving Technical Monuments' scheme, or better known to many simply as 'Flying Monuments'. Although not a Federal scheme, in some governing states of Germany, technical objects can now enjoy a similar status to more common architectural structures. Typically this includes objects such as ships, locomotives, traction engines, and now more recently, aircraft (including gliders, in which Gerd and Peter were key to these negotiations).

With the aims of the scheme to preserve these significant cultural objects and increase public awareness, each application is judged on its own merits by an independent committee. Far from being limited to public trusts or clubs, even private owners can apply should they believe their glider meets the requirements to be considered of historical interest. Operating on a two-tier system, clubs can apply directly for funding, whereas private owners can submit restoration or operating costs for the glider, a large portion of which is then deducted from that individual's gross income for tax purposes.

Naturally it is not all one-way however. Owners are required to make their gliders accessible to the public, and although not limited to operate solely within the local area, the glider must be based within that state, with local authorities possibly requesting the presence of a historical object at local events, etc.

Strictly speaking, although gliders are not limited to local or state manufacture, to date only gliders of German manufacture have

been given monument status, with one of the latest additions being the German state of Hesse recently approving monument status to the OSC's (Oldtimer Segelflugclub, Wasserkuppe) 1937 Schleicher-built Rhönbussard (which is currently coming to the end of a very detailed restoration).

To date, several other gliders in Germany have also been successful in being granted 'Moving Technical Monument' status and this process represents an innovative approach to help preserve individual objects important to local and state culture.

Without an equivalent here, the fate of many of our surviving historic gliders has been down to individuals who are actively encouraged by organisations such as the VGC. It is a scheme that we here in the UK could well afford to look to. After all, the UK has often been regarded a world-leader in the field of cultural preservation, but unless individual historically important technical objects find their way into larger public and private-funded museums and institutions here, there is really little in the way of encouraging a more secure long-term future for such objects and, perhaps more importantly, help safeguard them from being sold abroad.

THIS PROCESS REPRESENTS AN INNOVATIVE APPROACH TO HELP PRESERVE INDIVIDUAL OBJECTS IMPORTANT TO LOCAL AND STATE CULTURE

■ **20th Camphill Vintage Rally and 5th Capstan Reunion, 19-26/6/15, Camphill**

■ **43rd VGC International Rally 2015, 27/7-6/8/15, Terlet, Netherlands**

■ www.vintagegliderclub.org

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MAGICAL FLIGHT FROM ABOYNE

Deeside's David Innes goes in search of the solar eclipse and experiences a truly memorable hour, flying in wave



Above and below right: Grob GBXSP soaring, engine switches are off, at 6,000ft, climbing at 4m/s – propeller feathered – handle out. “They don’t ration wave lift here,” says David Innes



David Innes is an Ass Cat instructor at Deeside Gliding Club. He has Silver C, got his Gold height in a Capstan, and Diamond height, in 1976, in a Swallow

YOU will recall the solar eclipse of Friday 20 March, where most of the UK was covered in cloud, as was the Faroe Islands, where many had gone to see a full eclipse. My wife Fiona and I decided to stay local.

The forecast for the Friday was not great in terms of cloud cover, and RASP was showing 100 per cent cloud at and after 09:00 around Aboyne. However, the tephigram also showed a split in the temperature curves around 3,000ft, with suitable winds, implying that wave may be present .

Being an optimist, I have already reserved our faithful Grob motorglider (SP), so on Thursday night it was fingers crossed and I set the alarm for 06:30. The *Today* programme eventually wakens me; I look out to the west and, as I had hoped, the wave was breaking up the overcast – I could see the gaps from 30 miles away.

I download NOTAMS and MET, feed the dogs, then it’s out to the airfield by 08:30. SP was already at the front of the hangar, so we are airborne by 09:00.

Fiona takes a few minutes to get her “flight legs”, so I am climbing on the engine

for longer than I would do when solo. By 3,000ft, the engine is cooled and shut down, and we are climbing at 6kts. Soon we are above the cloud tops, at 7,500ft, but it is obvious that the gaps could fill suddenly if the wave were to weaken, so no exploring, and no high climbs. The wave cloud over Loch Muick looks very enticing, but the wave is weaker between us and Loch Muick and the cloud has filled in the gap.

The surface wind was NW, but at height the wind is virtually north, so our beats along the wave bar are east and west. We can use my cereal box pinhole camera across the cockpit (the advantage of side-by-side seating!). The eclipse, however, is not as we imagined it. We could see the progress of the Moon across the Sun using el cheapo camera, and it gets darker, weirdly darker, like the Sun is receding. The most dominant feeling is getting cold without all that solar heating inside the greenhouse.

By 09:45 the eclipse is passing, so down we fly home, exploring the Tarland Bowl from above, and leaving the wave for others to use. We had been having so much fun we forgot to take any photographs, alas.

A truly memorable hour’s flying; gliding does not get much better than this. I’m taking bookings for the next time. Truly, Aboyne is a magical place to soar from.



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(STOP PRESS - Places may still available on G Dale's Master Class for the 29th August – 6th September)
And of course....Sid's Task week (4th -11th July)

We welcome club expeditions – our clubhouse (with bar, restaurant, lounge & bedrooms) is open throughout the year

Pilot feedback on our previous coaching weeks (see web pages for all feedback) Please contact 01453 860342: office@bggc.co.uk: website: bggc.co.uk



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BGA CLUB ANNUAL STATISTICS

1 OCTOBER 2013 TO 30 SEPTEMBER 2014



	MEMBERSHIP						FLYING						NEW PILOTS		
	Full Flying Members (Over-21)	Full Flying Members (Under-21)	Affiliated Members	Female Members	Temporary Members	Non-Flying Members	Winch Launches	Total Launches	Total Hours Flown	Solo	Bronze Endorsement	Cross-Country Endorsement			
Andreas Gliding Club	9	3	0	1	18	0	161	237	40	1	0	0			
Anglia Gliding Club	32	10	0	5	24	0	870	920	280	3	1	1			
Angus Gliding Club	10	2	0	1	7	0	150	150	28	1	1	1			
Banbury Gliding Club	46	1	0	1	137	1	0	805	399	0	1	1			
Bannerdown Gliding Club	52	13	8	5	97	1	3288	4121	1506	7	1	1			
Bath Wilts & North Dorset Gliding Club	82	7	45	4	146	25	2470	3112	1632	4	4	2			
Bicester Gliding Centre	147	41	103	20	1276	30	9856	12517	3761	15	9	6			
Bidford Gliding Centre	60	6	0	6	132	14	0	941	800	1	0	0			
Black Mountains Gliding Club	49	10	0	5	350	6	0	1955	2149	0	0	0			
Booker Gliding Club	112	12	0	7	685	22	0	3836	3690	6	6	6			
Borders Gliding Club	88	5	0	2	118	21	0	1682	1160	2	3	3			
Bowland Forest Gliding Club	89	12	0	8	291	34	2716	2716	1053	2	2	0			
Bristol & Gloucestershire Gliding Club	150	12	18	10	353	39	3208	4427	3889	10	1	1			
Buckminster Gliding Club	93	25	0	3	342	3	2939	3690	1466	1	2	0			
Burn Gliding Club	85	9	0	2	180	16	2463	3133	1067	3	1	2			
Cairngorm Gliding Club	31	4	0	6	59	2	56	614	690	0	0	0			
Cambridge Gliding Club	156	22	540	18	269	112	5512	7098	4220	4	6	7			
Channel Gliding Club	26	1	25	1	122	0	847	855	208	2	1	1			
Cotswold Gliding Club	122	38	91	8	376	62	6623	6788	2689	15	5	7			
Cranwell Gliding Club	64	7	110	8	20	4	5410	5693	1216	4	2	3			
Dartmoor Gliding Society	47	5	0	3	130	0	2111	2111	416	1	2	3			
Darlington G.C.	59	15	0	3	192	1	3285	3285	1086	3	2	0			
Deeside Gliding Club	63	7	0	7	241	38	0	1731	1975	1	0	0			
Denbigh Gliding Club	19	4	0	0	118	23	195	695	200	0	0	0			
Derby & Lancs Gliding Club	118	36	0	5	319	38	4665	4665	1096	1	5	4			
Devon & Somerset Gliding Club	140	25	15	15	367	56	4852	5691	2327	7	3	5			
Dorset Gliding Club	38	4	0	2	118	21	641	1107	367	0	0	0			
Dumfries & District Gliding Club	9	2	0	0	14	1	27	27	5	0	0	0			
East Sussex Gliding Club	81	9	0	3	259	46	1658	2548	783	4	0	0			
Eden Soaring	22	3	20	1	81	3	1540	1540	885	1	3	3			
Essex & Suffolk	100	12	0	4	427	8	4441	4492	1845	3	2	4			
Essex Gliding Club	47	6	0	8	111	10	2064	2356	676	0	1	0			
Fenland Gliding Club	39	4	0	0	14	0	1029	1272	405	0	0	0			
Four Counties Gliding Club	48	60	105	3	103	0	2626	2791	1021	4	1	0			
Fulmar Gliding Club	26	2	0	3	15	3	Highland GC			0	0	0			
Glidesport (Bidford)	15	2	0	0	314	0	0	724	1500	2	1	2			
Herefordshire Gliding Club	27	0	5	3	38	8	0	464	514	1	2	2			
Heron Gliding Club	25	17	0	2	25	2	212	740	259	2	0	0			
Highland Gliding Club	24	6	0	6	18	6	214	733	493	0	1	1			
Kent Gliding Club	101	31	3	12	272	19	2434	3023	490	5	5	4			
Kestrel Gliding Club	39	4	0	1	111	2	1064	1155	341	3	4	3			

Lakes Gliding Club	25	5	0	1	96	11	0	392	226	0	0	0
Lasham Gliding Society	589	133	48	70	624	108	17211	25345	6350	31	10	12
Lincolnshire Gliding Club	20	3	0	2	101	2	1068	1077	145	0	1	2
London Gliding Club	189	25	0	15	814	41	5981	11644	6300	14	9	10
Mendip Gliding Club	45	8	0	2	178	7	1418	1920	424	0	0	1
Midland Gliding Club	93	15	10	15	211	10	5250	5406	2580	1	4	3
Motorglide (Wellesbourne)	5	0	0	2	16	0	0	120	150	0	0	0
Motorglider Club (Hinton)	7	0	3	0	0	0	0	150	125	0	0	0
Needwood Forest Gliding Club	19	1	0	1	131	16	918	918	353	0	0	0
Nene Valley Gliding Club	47	29	0	5	225	11	2704	2805	787	3	1	2
Norfolk Gliding Club	94	14	30	6	288	78	2355	3409	1651	0	1	1
North Devon Gliding Club	5	0	0	0	45	0	0	100	80	0	0	0
North Wales Gliding Club	27	1	0	1	100	1	1265	1265	192	1	0	0
Northumbria Gliding Club	52	11	0	3	136	3	335	1196	517	1	2	2
Oxford Gliding Club	66	12	0	8	349	23	3051	3054	1054	2	3	2
Oxfordshire Sportsflying Club	130	3	0	2	43	3	0	750	1420	0	0	0
Peterborough & Spalding Gliding Club	60	2	18	5	133	8	0	1140	815	0	3	3
Portsmouth Naval	79	6	0	3	125	12	1533	4049	1237	8	2	3
RAFSA Centre	73	7	24	9	105	0	1667	3816	1829	8	5	3
Rattlesden Gliding Club	62	9	16	7	132	18	1505	1963	861	1	1	2
Sackville	2	0	0	0	0	0	0	60	30	0	0	0
Scottish Gliding Centre	222	13	30	14	201	0	7572	8779	6735	8	9	10
Seahawk Gliding Club	20	8	0	2	2	1	946	1104	249	2	0	0
Shalbourne Soaring Society	56	3	0	2	200	3	2660	2660	937	1	0	1
Shenington Gliding Club	88	8	0	8	466	4	4326	5064	1736	7	2	2
Shropshire Soaring Group	9	0	0	0	10	3	0	96	111	0	0	0
South Wales	60	8	0	3	102	0	1111	1747	1242	3	2	1
Southdown Gliding Club	163	28	0	11	289	36	356	3826	3352	3	4	8
Staffordshire Gliding Club	80	26	60	6	162	38	3173	3858	1127	4	2	3
Stratford On Avon Gliding Club	84	15	49	4	288	14	4365	4388	1313	2	0	1
Surrey Hills Gliding Club	51	5	0	0	199	7	3540	3540	645	0	1	1
The Motor Glider Centre	7	0	0	0	1	0	0	200	150	0	0	0
The Gliding Centre	213	31	0	7	326	0	3858	6526	3329	5	4	4
Trent Valley Gliding Club	69	6	12	2	360	4	3689	4052	1154	2	1	2
Ulster Gliding Club	41	2	30	3	327	2	0	855	390	0	1	1
Upward Bound Trust Gliding Club	27	2	0	1	51	0	1213	1220	276	1	0	1
Vale of White Horse Gliding Club	26	2	0	3	144	0	0	796	506	1	0	0
Vectis Gliding Club	15	1	0	1	21	2	0	40	21	0	0	0
Welland Gliding Club	28	3	0	2	126	12	817	990	332	0	0	0
Wolds Gliding Club	122	19	20	11	535	45	5535	6777	2336	3	2	4
Wrekin Gliding Club	35	18	0	5	39	5	1185	1396	339	2	0	1
Wyvern Gliding Club	55	1	0	3	108	4	3182	3528	1107	4	1	1
York Gliding Centre	119	28	0	3	119	8	748	2337	1362	1	2	5
Yorkshire Gliding Club	156	26	272	16	594	46	790	4269	4280	3	2	2
Subtotals	6025	1031	1710	466	16811	1263	174954	245067	108782	241	153	167
Total Flying Membership	7056											
Total Club Membership	10029											
Total Participants	26840											

Note – Air Cadet new pilots not included during 2014

The British Gliding Association (established 1929) is the governing body for the sport in the UK, representing and furthering its interests in an increasingly competitive environment. Its mission statement is "to provide effective leadership and continuity of gliding and soaring in the UK". You can use the interactive map at www.gliding.co.uk/findclub/ukmap.htm to locate the club you require. University gliding clubs are listed at www.gliding.co.uk/findclub/university.htm

BGA accident/incident summaries

AIRCRAFT

Ref	Type	Damage	Date, time	Place	Age	PILOT Injury	P1 hours
144	Pirat	substantial	12/09/14, 16:05	Essex & Suffolk GC	67	none	12
Heavy landing. The pilot flew a half airbrake approach and the glider ballooned after touching down. The second landing, from about 5ft agl, was hard enough to break the fuselage just aft of the wing.							
148	Swallow	minor	22/09/14, 15:40	Scottish GU	68	none	40
Heavy landing. After a slow start to the winch launch, the pilot felt an increase in acceleration and allowed the glider to rotate into the initial climb. The winch driver, concerned that he had not seen the glider climbing thought there was a problem and cut the power. The nose skid mounts and the seat pan were damaged in the subsequent landing.							
152	Discus	minor	05/08/14, 17:15	Rieti, Italy	36	none	not reported
Competition field landing. The fields were reported to be small and the pilot braked heavily and then deliberately groundlooped the glider to avoid running into the end of the field. The underside of the nose was damaged.							
154	Astir	substantial	16/08/14, 13:30	Lasham GS	17	none	60
Groundloop during field landing on the first day of a competition. After rejecting two fields, the pilot was on final approach to his third choice field when he noticed the surface sloped across his intended landing run. A wingtip caught on the slope, groundlooping the glider after which it rolled backwards for a little while. Subsequent DIs by an experienced instructor, as well as the pilot, found no signs of damage and the glider was flown for the rest of the competition. Only after it was inspected by the UK service agent was damage discovered.							
157	ASW 28	minor	19/08/14, 14:15	Cambridge GC	54	none	not reported
After the turbo failed to start, the pilot retracted the engine while preparing for a field landing. The extra workload led to the pilot mishandling the retraction sequence and the engine retracted while the prop was still windmilling. This broke the prop stop mounting bracket, damaged the engine bay doors and cracked the prop.							
160	ASW 20	substantial	01/03/14, 12:00	London GC	69	none	744
Underside of fuselage and undercarriage damaged. The pilot set the flaps from negative to neutral before he had sufficient roll control during a downhill, but downwind, aerotow launch. He corrected the subsequent wing drop and the glider took off, but was far enough off to one side that the tug pilot released the rope. All his recent flights had been in K-21s and the pilot reached for the airbrakes, but instead retracted the undercarriage. The glider landed with the wheel up.							

2015

1	K-21	substantial	11/10/14, 16:45	Southdown GC	16	minor	1
Glider ran into fence in off airfield landing. The pilot started to fly a circuit to land in the same direction as take-off when he recalled an earlier statement from another pilot that the variable wind might mean changing the landing direction. At the end of the downwind leg, he turned around and flew a circuit to the reciprocal landing run. On the diagonal leg he realised that he would be landing downwind, but having never landed downwind before he started his approach too high and too close. Realising on approach that he wouldn't be able to stop within the relatively short airfield, the pilot turned away and landed diagonally across an adjacent stubble field. Unable to stop in time, the glider ran into a wire fence, breaking both canopies and damaging the wingtips and fuselage.							
2	SF 25C	minor	12/10/14, 14:05	Bicester GC	29/38	none/none	240
Outrigger sheared off monowheel TMG. After a slightly bounced crosswind landing on an uneven area of the airfield, the pilot flew a touch and go as planned. During the climb the duty instructor radioed that the downwind outrigger had fallen off. The TMG subsequently landed safely. An inspection revealed a substantial pre-existing crack through approx 50 per cent of the outrigger where it attached to the wing that had been missed at the DI.							
5	T-61 Venture	minor	18/10/14, 17:00	York GC	56/63	none/none	104/6
Prop strike during bounced landings. After a flying an hour-long navigation exercise, the NPPL SLMG student flew a no-airbrake approach. The aircraft bounced slightly after touching down, subsequent touchdowns were progressively worse and after the fourth landing the instructor applied full throttle to go around. After landing, the pilots discovered that the propeller tips were damaged.							
8	K-21	substantial	04/11/14, 11:30	Lasham GS	61	none	3
Fuselage cracked in front of nosewheel. The glider landed without being fully held off and, after bouncing back into the air, PIO led to several further landings. The pilot had reduced the airbrakes late on approach and reduced them further during the series of bounces.							
9	Junior	substantial	05/11/14, 14:40	Scottish GU	71	none	31
Glider crashed on top of ridge. After a few beats in steadily reducing ridge lift in light winds, the pilot intended to make one more beat before returning to the airfield. The expected lift failed to materialise and, being too far behind the ridge with insufficient height, the glider descended onto the ridge top. It then slid/groundlooped into a stone wall and wire fence, which prevented the glider from rolling over the edge and down the slope.							
11	T-61 Venture	minor	31/10/14, 15:50	East Sussex GC	22	none	101
Prop strike after landing. After an engine off landing on firm ground the pilot allowed the TMG to slow to taxi speed before restarting the engine. Just as the engine started, the aircraft ran into a soft patch of ground and stopped abruptly, tipping the TMG forward and allowing the propeller to hit the ground, cracking one of the blades.							

Incidents

143	T-61 Venture	none	09/09/14, 13:00	-	-	-	-
Engine failure at 4,600ft. Unable to restart the engine, the pilot contacted Gloster Approach, who cleared him for a straight-in approach to a runway. Investigation revealed that the single magneto had failed. The engine had run for only 10 hours since returning from the ARC renewal and an annual check that had included a mandatory magneto overhaul.							

BGA accident/incident summaries *continued*

AIRCRAFT

Ref	Type	Damage	Date, time	Place	PILOT Age	Injury
145	K-21	minor	23/08/14	-	-	-
Collision with ground equipment. While towing the glider to the launchpoint, an inexperienced wing walker allowed the port wing to impact with a parked trailer, damaging the leading edge of the wing.						
146	K-21	none	14/09/14, 13:00	-	-	-
Wing drop at the start of a winch launch.						
147	Discus	substantial	21/09/14, 16:15	-	-	-
The pilot of a taxiing RF5 allowed himself to become distracted and he let the TMG veer off the taxiway. The motor glider's monowheel ran over the wingtip of a parked Discus, breaking the spar and its wingtip scratched the glider's canopy.						
149	DG 202	none	24/08/14, 15:30	-	-	-
Undercarriage collapsed on landing. The manufacturer's optional extra down lock was subsequently fitted.						
150	n/a	--	31/08/14	-	-	-
The parachute pull handle was held in the harness by an elastic loop stitched to the strap in front of the pilot's left chest. It was further held in place by a piece of tape wrapped around the strap and through the handle, an arrangement which would have prevented the pilot from pulling the handle out. The pilot had forgotten to remove the tape.						
153	Chipmunk	none	21/09/14, 11:45	-	-	-
Tug engine failure at 1,000ft agl. After waving the glider off, the tug pilot glided back to the airfield and landed safely. A cylinder head in the Lycoming engine was found to have broken.						
155	Astir	not reported	25/08/14	-	-	-
Unspecified damage during road transport. The pilot stowed the glider as usual before returning the glider to its owner, who later reported that it had been damaged in transit.						
156	K-6	minor	26/09/14, 15:10	-	-	-
The glider ran over a rut, left by a collapsed drain, on landing.						
158	Grob Acro	minor	28/09/14, 15:30	-	-	-
Gel coat damaged after the glider ran into the back of the tow car. The glider was being towed using a short rope, with no-one on the nose, down a slight slope when the car engine stalled.						
159	DG-500	none	11/06/14	-	-	-
As the aerotow reached 2,000ft agl, the P2 started a gentle climbing turn while simultaneously opening the airbrakes instead of pulling the release. The tug pilot dropped the rope when the glider started to pull the tug's tail up.						
2015						
3	K-21	none	19/10/14, 14:30	-	-	-
When de-rigging the glider, it was discovered that the drag pins were not fitted. The glider had been rigged for five months and flown 348 flights totalling 120 hours airtime.						
4	Grob 109	none	15/10/14, 12:00	-	-	-
During a crosswind take-off, the TMG veered into wind and left the runway, crossing over a pair of winch cables before taking off. The handling pilot was inexperienced in crosswind take-offs and flying with his non-instructor syndicate partner.						
6	--	none	19/10/14, 11:00	-	-	-
Winch cable fell on tractor working in adjacent field. Although the strong wind was straight down the runway at ground level, some correction was needed to allow for the wind direction at release height. Unnoticed by the launchpoint, a pair of tractors were moving slowly from the winch end towards the launchpoint in a field next to the approx 100m wide launch strip. The winch driver informed the launchpoint that the cable had drifted and landed on one of the tractors.						
7	LS 4	--	01/11/14, 11:00	-	-	-
Failed weld in the undercarriage drive bracket meant that the undercarriage could not be retracted.						
10	ASW 19	none	18/10/14, 14:05	-	-	-
Glider flew with port aileron disconnected. The pilot connected the L'Hotellier control connections and R-clip safety pins and asked a less experienced syndicate partner to do an independent rigging check. The partner did not understand how L'Hotellier connections worked, was not sure of what he was looking for and did not realise that the port aileron was not connected. The syndicate confirmed that positive control checks were also performed.						
12	Puchacz	none	08/11/14, 11:37	-	-	-
Airbrake failure. As the pilot opened the airbrakes on approach the glider yawed and side-slipped. The pilot noticed that only the port airbrake was open, but managed to make a safe landing. Investigation revealed that the plastic gears in the wing root connecting the airbrake drive had failed.						

■ Accident report 133 (p68 April/May 15): the pilot has submitted further details that have been passed to the BGA

In a recent S&G survey, you told us that you would like to see more in-depth coverage of accidents and incidents. Edward Lockhart is now providing a little extra detail, where available, in the listings on these pages. We would also like to publish (anonymously) your stories of particular flights that have taught you a valuable flying lesson. Please send details to editor@sailplaneandgliding.co.uk or by post to the address on p3.

BGA BADGES

No.	Pilot	Club (place of flight)	Date
Diamond Goal			
2-2507	Philip Mackenzie	Four Counties (Saltby)	07/08/2014
2-2508	Samuel Prin	Portsmouth Naval/Upavon	18/04/2014
Gold Badge			
	Samuel Prin	Portsmouth Naval	18/04/2014
Gold Distance			
	Philip Mackenzie	Four Counties (Saltby)	07/08/2014
	Samuel Prin	Portsmouth Naval (Upavon)	18/04/2014
Gold Height			
	Guy Dutton	Imperial College (Portmoak)	01/02/2015
	Stuart Steel	London (La Cerdanya, Spain)	01/04/2015
Silver Badge			
	Lewis Bricknell	Gliding Centre	23/08/2014
	Piers-Rex Murray	Southdown	20/12/2014
	Michael Worthington	Kent	23/03/2015
	Jan Wozny	Lasham	15/03/2015
Silver Distance			
	Lewis Bricknell	Gliding Centre	23/08/2014
	Piers-Rex Murray	Southdown (New Tempe)	20/12/2014
	Jan Wozny	Lasham (Omarama)	15/03/2015
Silver Duration			
	Charles Taylor	Bicester	28/07/2014
	Amedeo Beretta	Bicester	12/06/2014
	Piers-Rex Murray	Southdown	23/07/2014
	Alexander Gibbs	Southdown	07/02/2015
	Michael Worthington	Kent (Portmoak)	23/03/2015
Silver Height			
	Charles Taylor	Bicester	08/08/2013
	Violet Harrington	Essex	24/07/2014
	Piers-Rex Murray	Southdown (New Tempe)	20/12/2014
	Richard Slater	York	07/03/2015
	Anthony Taylor	SGU	20/03/2015
100k Diploma p2			
	Maxwell Mingay	Southdown	21/03/2015
Cross Country Endorsement			
	Nigel Smith	RAFGSA Chiltem	03/03/2015
	Charles Taylor	Bicester	07/03/2015
	Peter Bennett	Devon & Somerset	07/03/2015
	Christopher Richardson	Lakes	01/07/2014
	Steven Jessup	Essex	28/03/2015
	Jose Pimpao	Southdown	23/03/2015

Raouf A Ismail (1940-2014)



RAOUF ISMAIL died suddenly of cardiovascular disease on 13 November, 2014. Born in 1940 near Bombay, India, Raouf lived in India and Europe until moving to England to prepare for the British education system. After five years at Rugby School, he matriculated at Jesus College, Cambridge, UK, where he earned a BS and MA in Mechanical Sciences. He then worked at Sperry Gyroscope in the UK. He emigrated to the US in 1968 and settled in the Boston area, spending the last 41 years in Concord, MA, where he lived with his family until his death. Once in the US, he worked at Transitron Electronic, and Dennison/Avery before deciding to earn an MBA at Harvard from 1974-1976.

An avid sailplane pilot from his first flights as a teen, Raouf continued flying until health issues forced him to stop in 2011. His interest in flying started while still in school. He subsequently learned to glide with the Cambridge Gliding Club while a student at Cambridge University. For many years, he was a member of the Sugarbush Soaring Association in Warren, VT, USA, where he also served as president.

All through his life, his passion for gliding never left him, and he successfully turned an avocation into a vocation. Beginning with a prize-winning paper at Cambridge University, he moved on to designing glider instruments, two of which are now housed in the National Air

and Space Museum. In 1971 he began his life as an entrepreneur and became the founder, owner, and CEO of Cambridge Aero Instruments, Inc. By 1980, CAI had manufactured more than 4,000 instruments. Following introduction of the M-NAV glide computer, he sold the gliding instrument business to David Ellis. Raouf then developed his industrial airflow sensor business as founder and CEO of Cambridge Aeroflo Inc, and, successively, as founder and CEO of Cambridge Accusense Inc.

A citizen of the world, Raouf thrived on travel, for international business, for gliding, and for pleasure with his family. He travelled to six of the seven continents, missing only Antarctica. He took an active interest in foreign affairs, through which he was an engaged member and treasurer of the Worcester Council on Foreign Affairs. He brought his ease in international settings, as well as his knowledge of French and German, to working with small business development and strategy. Raouf was a Vice Chair of the Small Business Association of New England. He later volunteered at the Senior Council of Retired Executives. He enjoyed being an active member of the Oxford and Cambridge Society of New England, serving recently as treasurer.

Raouf is survived by his wife of 43 years, Sarah, his daughter Lara, his daughter-in-law Rosa, and his granddaughters Alexa and Ariana. His sisters Suraiya and Yasmine, his cousin Usman, and their families also survive him.

Sarah Ismail

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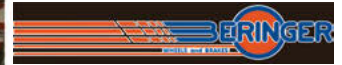
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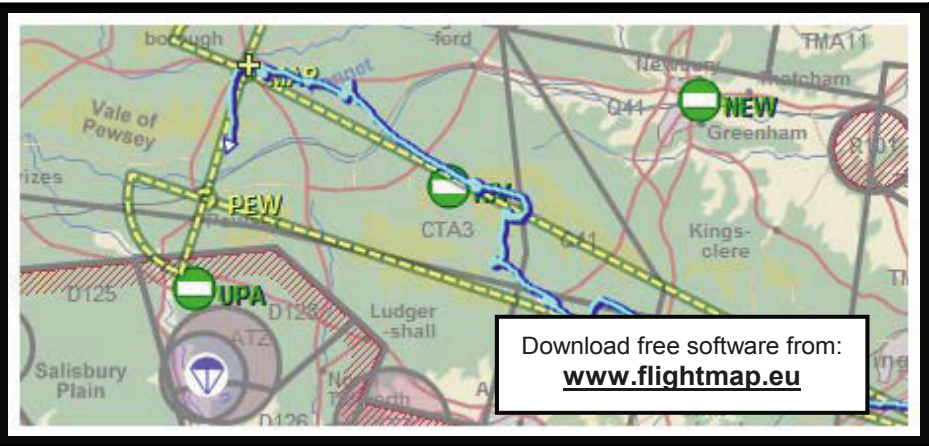
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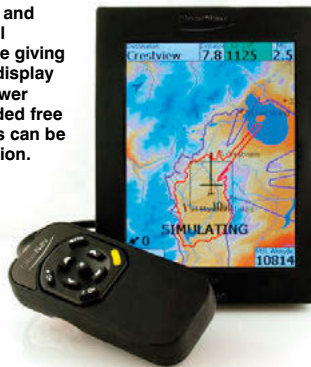
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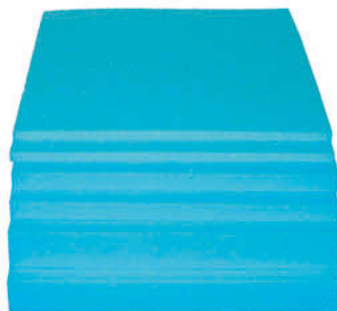
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