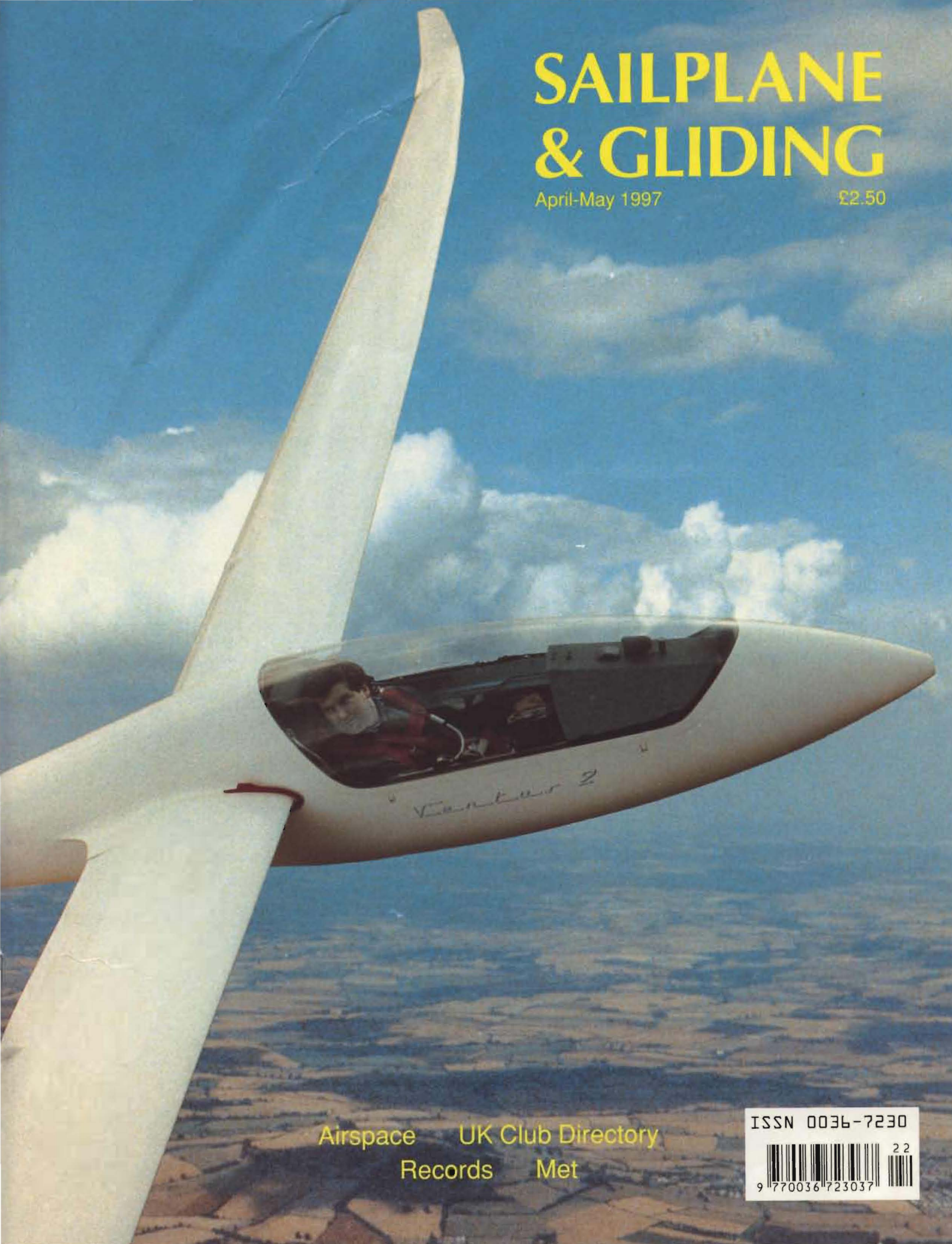


SAILPLANE & GLIDING

April-May 1997

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GENESIS

REFINEMENTS=G2



The first production version of the Genesis sailplane will be called the Genesis 2. It will include a number of improvements over that of the G1 prototype, enough so that the G2 title is more than justified. Extensive computer simulations and over 250 hours of performance flight testing, including 150 hours in competition, have resulted in the following improvements.

- ▶ The Genesis 2 will be almost 150 pounds lighter than the prototype giving its pilot the ability to adjust wing loading in a range larger than any other standard class sailplane.
- ▶ Wing airfoil aerodynamic twist was reduced by nearly 2.4 degrees which will improve our "climb" performance as well as our "cruise" performance.
- ▶ The wing tip and outer wing airfoil section on the Genesis 2 has been refined to generate more lift and less drag at both the low and high speed range.
- ▶ The Genesis 2 now has a retractable nose wheel which will help reduce drag, improve our takeoff and landing characteristics and also offer additional protection in the event of an off-field landing.
- ▶ The fuselage contour lines and fairings have been smoothed and modified to reduce airflow separation and improve overall performance.
- ▶ The leading edge radius and airfoil section on the vertical stabilizer have been changed also to help reduce total drag.
- ▶ Aileron control forces have been made lighter with improved mechanical advantage, a more optimum aileron aspect ratio, and new aileron hinge points.
- ▶ Additionally, we have repositioned the landing gear handle and trim control for better pilot ergonomics, reduced our spoiler cap size to make them easier to control, added a new canopy separation line for better visibility, and added features that allow the pilot to make easy adjustments to the CG position. We also remain the only manufacturer to offer a ballistic parachute as a standard safety feature.



Magazine of the
British Gliding Association

April-May 1997
Volume XLVIII No. 2

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Deadline dates – June-July. The main deadline for articles is March 31 with club news and letters accepted up to April 8. The deadlines for display advertisements is April 22 and classifieds May 5.

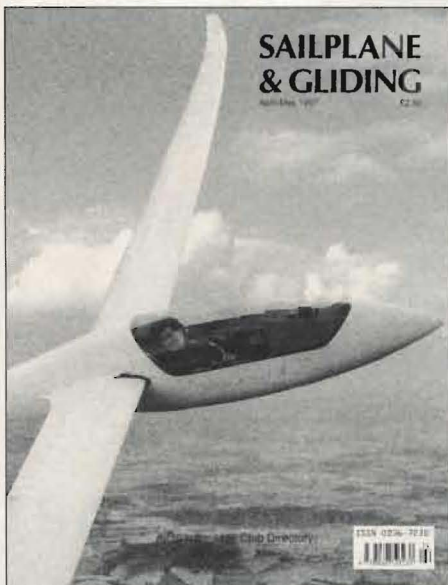
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PUBLISHER

British Gliding Association
(Barry Rolfe, BGA Administrator)
Kimberley House
Vaughan Way, Leicester. LE1 4SE
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TELEPHONE CALLS

Do make sure you have the correct number - a lot of you are wasting calls by 'phoning S&G when you want the BGA and vice versa.



Cover: Stephen Jones, at 28 years-old the youngest member of the British team, photographed by Derek Wales but not flying his Ventus 2! For the full story see Cathy Taylor's article on p87.

SAILPLANE & GLIDING

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YOUR LETTERS

WHY SET QFE?

Dear Editor,

Why do glider pilots and, apparently, micro-lighters and others, set their altimeters to QFE as part of their pre take-off checks? The glib answers are because we've always done so and because the altimeter will then indicate our height above the airfield datum, or runway take-off point. This is only useful while flying in the immediate circuit, but useless elsewhere.

I suspect that the majority of glider pilots do not reset their altimeters to regional QNH when they leave the circuit. The altimeter is then providing useless and misleading information with regard to the amount of air between the glider and the ground below, as shown on our up to date topographical chart. It can also lead to confusion about separation between yourself and other traffic transiting on QNH. The higher your airfield the bigger the error.

Would it be safer to set QNH outside the circuit and reset QFE as part of our rejoining checks? Most powered aircraft use QFE in the circuit and during instrument approaches, regional QNH while in transit below the transition altitude and 1013mb above transition. Perhaps this is too complicated for easy use in gliders, but I don't see why. In which case how about setting QNH at all times and getting used to your altimeter reading airfield height above sea level at touch down? I believe this would be safer than flying cross-country with a QFE datum referring to an airfield in the far distance. JOHN STEWART-SMITH, *Newquay, Cornwall*

HOW GLIDING HELPED A CHARITY

Dear Editor,

The trek north by glider pilots seeking the autumn wave at Aboyne last year proved profitable to Chest Heart and Stroke Scotland. As part of our campaign Deeside GC supported our effort to raise awareness and funds for our charity. A stroke patient, Bob Mearns, launched our campaign with a flight from the Deeside site. Our thanks to the club members, who were invaluable in promoting the cause, and to all the visitors who supported the event.

The key feature of the campaign was to donate money for height gains and, with the sale of seasonal Santa Bear badges, gave us £206.68 in under two months. We depend on the support of the community to help us give a wide range of services for those affected by chest, heart and stroke related illnesses.

Cornwall GC won the charity shield for the largest contribution with Al Eddie of Aboyne making the highest individual contribution. JUDITH AYLETT, *regional fund raiser, Grampian*

THE FLIGHT SAFETY QUESTIONNAIRE

Dear Editor,

In reply to the letter by John Stewart-Smith in the last issue, p7, the DRA (Centre for Human Sciences) Farnborough **did** send out a fairly comprehensive form to most gliding clubs. I received one as CFI of my club and duly filled it in to the best of my ability. We must all do what we can to promote flight safety but the replies will fall far short of the total of UK gliding clubs.

The main problem with the questionnaire was that it asked about glider flights between

ground level and 2000ft. Now it might seem a bit basic but surely if you are flying a glider and following the recommended practices, or even just circuit bashing, you would be either launching or descending to land in a field or in a circuit at your club.

For this kind of information it would be a good idea to work out where the centres of intense gliding are from the BGA annual statistics, then contact local experts to advise on the nature of the gliding - cross-country, local and training circuits etc. This could make for a more accurate study of gliding movements and a more meaningful report. It would also save the tax payer money.

I wasn't consulted, although our club had a mid-air collision between our Astir and a Cessna 150 a couple of years ago on the DRA site (not the glider pilot's fault). Neither was my wife (a gliding instructor for ten years) who works in the same building as the people who issued the report.

If anyone is planning to produce a report on air safety involving DRA gliders, or any other establishment or body, we are willing to help in any way we can and have considerable expertise in most matters pertaining to aviation.

JON KNOWLES, *CFI DRA GC, Farnborough*

ADVICE TO NEW INSTRUCTORS

Dear Editor,

After 30 years' experience of training flying instructors, I have managed to boil down my final advice to newly qualified gliding instructors to three items:-

- Always remember that you are flying for the benefit of the student.
- Never allow the student to put the aircraft into a situation from which you cannot recover safely.
- When practising emergencies, don't set up an accident.

In the flight described in "Just Another Day" in the last issue, p26, Geoff Guttery came perilously close to transgressing at least the last of those. At several times during the flight, just a slight change in circumstances or a little unexpected sink would have left him out of safe options and the result could have been a serious accident.

Full marks to Geoff for his full and frank account of what happened. He has reminded us all of the need to exercise great care in practising, so that we "never set up an accident".

JACK ALCOCK, *senior regional examiner*

Dear Editor,

I was surprised to read the reply by Chris Pullen, chairman of the BGA Instructors' Committee, to Geoff's article. I hope this article won't lead to dangerous flying, or worse still.

Having observed how Phil coped under pressure, just what was achieved? How many solo pilots could be expected to cope with a situation which involves:-

1. Being so close to the limit of the instructor's ability to cope (as briefed)?
2. By inference, a dangerously low turn with very marginal energy reserves?

I can see how certain types would find this form of checking as very attractive but I am still missing the point as to the aim of the exercise.

I suppose Phil might now feel able to ditch his choice of field at say 300ft agl and press on to the "better" one. Also, it may give some less able pilot watching this spectacle a goal to aim for. Not least, it may give a few other instructors just the licence they've always wanted to show us all how much better and braver they are than the rest.

STEVE HUNT, *Airmyn, East Yorkshire*

Geoff Guttery replies: Some sensible points are raised in these letter pages which deserve discussion. There's also a particularly stupid one which doesn't.

Like many hill sites where conditions can vary from innocuous to hellish and back again in the course of a morning, we operate a card system to make it easy to determine which pilots are allowed to fly in the conditions prevailing at a particular time.

Phil's was a check flight to progress to a yellow card, which would allow him to fly in conditions significantly more difficult than he had flown solo in up to that time.

Like it or not, pilots do sometimes make mistakes and put themselves in tight situations. Our instructors' committee assesses how pilots perform when the going gets tough before letting them loose in these more difficult conditions. We also believe that the overall safety level is raised if they can experience such traumas initially with one of us sitting there to help if needed.

All of this comes under the first of Jack's three items. The constraints are, of course, Jack's other two points. As Jack wasn't sitting on the wing I'm sure he'll accept that he doesn't know how marginal it was, or what options were available if we didn't make it back to the field. The sheep for instance didn't really have to jump over the wing; they could have ducked if they had any sense (this is a hill club type joke).

With regard to Steve's point about instructors' limits; when instructing you continually have to operate in a region beyond the P2's limit but within your own if the P2 is to make progress. This is not dangerous **provided** you honestly monitor your own performance and are prepared to say, for instance, "I'm fatigued and won't fly again today".

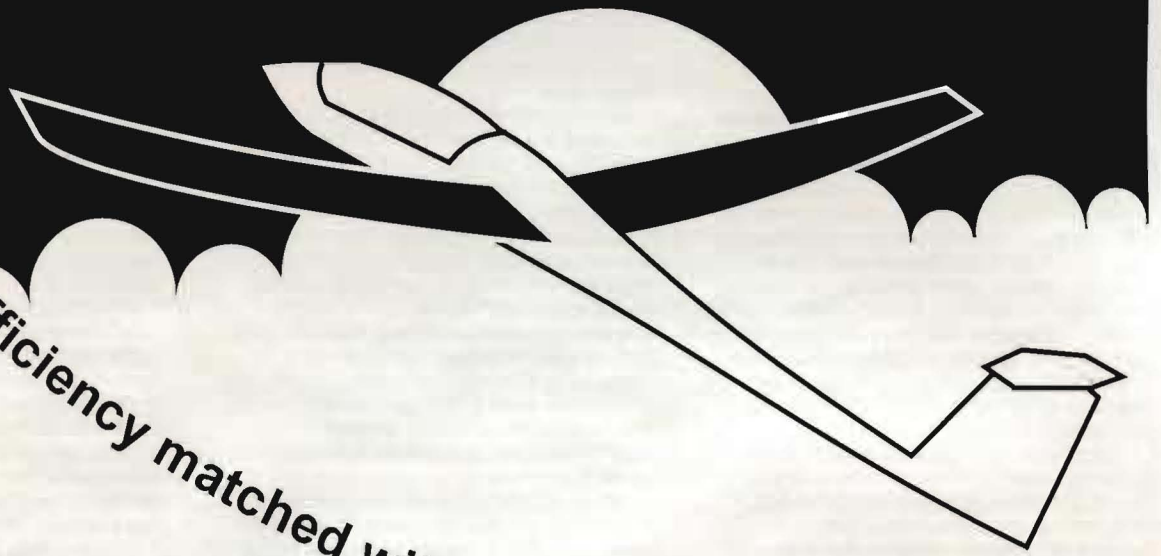
Finally, we stress to our solo pilots that they must never, ever, base their flying on what they see the two-seater doing.

COMMENTS ON THE LAST ISSUE

Dear Editor,

I'm saddened by Wendy Durham's desire to stop gliding. (See the last issue, p18.) I'm also saddened by the view that to become one of the 200 to 300 competition pilots is considered the only peak worthy of aspiration. Yet is her view exclusive to women pilots? Racing around the skies in the gliding equivalent of F1 racing cars is beyond the finances and desires of many club members. The "average" civilian club member takes 49 launches for 18.5hrs flying per annum. Assuming my club is representative of many small clubs in the country, 3% (that's one member) are interested in competition flying. Why does this fiercely macho, but small, clique of pilots hold such sway on the sport as a whole? ➔

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I'm surprised that any pilots of either sex would want to continue if they believed Neanderthal man in the shape of Mr Guttery lurks in the back of the hangar to pounce upon unsuspecting members, getting them to pay for his self-aggrandisement and gratification. An article full of "I" did this and "I" am flying to the limits of my flight envelope to see if "I" can break you is enough to prevent you from visiting his club. His students would be safer under their own supervision. You don't get this hassle in dinghy sailing which is probably as dangerous.

"Ah what about spins?" I hear. Yes what about spins? R. Kaiser was able to design a whole series of gliders, some very competitive in their time, which have delightful flying characteristics and a marked reluctance to spin. Why cannot others produce machines to the same safety standards? Or would that put all the gung-ho instructors out of work? It is a bit like having a Ferrari with Austin 7 brakes.

Most club pilots I know are not supermen or superwomen but people who enjoy the pleasure and beauty of local flying or working through the badge system. Their syndicated gliders are not regularly flown to their limits at 400ft over the centre of towns, out of consideration to other syndicate members and the public. They are responsible, not heroic.

Whilst I enjoy reading the exploits of pilots in Competition Enterprise, I have no wish to emulate them so please BGA encourage an attitude that allows the members to fulfil their own dreams, not someone else's.

JENNY STEWART, *Vectis GC*

MORE ON GLIDER INSURANCE

Dear Editor,

I was a little taken back by the almost quarter page of free advertising given to David Innes and his company in the form of a letter in the last issue, p9, but the contents were interesting and merit a response.

I happen to make my living by designing computer systems for insurance intermediaries and I am therefore aware of the technicalities and complexities of the modern insurance markets. I can support David's initial point, namely that if one chooses to place one's glider insurance through other than an experienced agent, then one may be taking a considerable risk with one's assets.

I am not quite so sure that I agree with his suggestion that the experienced agent is the one with the most experience of flying (and breaking?) gliders. I expect that David, and Terry Joint, have even more hours and kilometres in cars than they have in gliding - can we expect to see them competing with Direct Line next? I will gladly quote for a motor broking computer system for them. (Whoops - I seem to be advertising.)

I use an agent who has been placing glider insurance as his full-time occupation for 13 years and I have, of course, the utmost confidence in his professional judgment as to which underwriters are the most suitable for my glider or my club's fleet. He also happens to fly gliders and to come from a gliding family. That helps, but it is not paramount. If his quote is not quite the cheapest I am secure in the knowledge that

the quality of the insurance, and the efficiency of his service to me, will more than compensate.

It is a pity that Dominic Conway felt unable to name the agent or underwriter with whom he was unhappy. (See the December issue, 319.)

Perhaps it is time for the BGA to organise a customer satisfaction survey across our membership, allowing members to tell us the level of service they have received from the various manufacturers, suppliers, agents and repairers (as well as insurers and intermediaries). The result could be published in order of satisfaction, and we could give awards ranging from five seagulls for the best, down to a broken weak link for the poorest.

MIKE BROOK, *Sowerby Bridge, West Yorks*

David Innes replies: I accept Mike's observations about my letter. I think I was too brief with my first golden rule. It was not meant to infer that we knew more about insurance than any one else but rather that we knew more about getting gliders back in the air again faster than agents who were not glider pilot/owners.

But what a wonderful idea Mike has come up with. Of course the BGA should organise a survey. A Members' Insurance Satisfaction Index would keep us all on our toes.

WEAK LINKS TESTED

Dear Editor,

I read with interest Richard Dann's comments on weak links in the last issue, p9, in response to Chris Chapman's letter in the December issue, p321.

Richard Dann says he doesn't know if anyone has tested old weak links for reduction in breaking load. I carried out a series of tests of the three hole Slingsby weak links some time ago for the Air Training Corps. My tests were to verify tests that they had themselves carried out. In each case a number of weak links were selected from ATC schools that had achieved a significant number of launches without failure.

The weak links were pulled on a tensile testing machine at a slow rate and the breaking load recorded. The results showed a reduction in breaking load as the number of launches increased. The break out load had reduced by 10% after 1000 launches and by 20% after 5000 launches. In every case, some deformation had taken place in the weak link plate due

to creep. The supporting area of the plate each side of the hole had reduced in size with use.

I would expect that any weak link will behave in a similar way although the actual breaking loads will differ. Highly ductile material is not suitable for weak links as it deforms easily and breaks at an unknown load depending upon the shape it takes up before failure.

Richard Dann's club is to be congratulated if they have had no failures with their Tost weak link. I would like to know more about the winch they use and the gliders they launch. Their flying technique on the winch must be good too but sooner or later the weak link will break.

CHRIS RIDDELL, *Harrogate, N Yorks*

ASSOCIATION FOR WOMEN PILOTS

Dear Editor,

Many readers will know that Gerylne Macfadyen of Bristol & Gloucestershire GC has won the BGA's California in England trophy for the longest flight by a woman in Europe for the fifth time. In recognition of this, she has been awarded the British Women Pilots' Association's OP Jones cup, presented annually for a noteworthy performance in unpowered flight.

The British Women Pilots' Association is open to anyone with an interest in aviation, from gliding to professional pilots. The Association exists to enable women pilots to make contact with fellow enthusiasts in the UK and abroad by organising national and regional events, including fly-ins and visits to places of special aviation interest. They have regular newsletters and an annual gazette to keep readers in touch with the achievements of fellow members. Regional groups meet regularly, organising aviation related evenings or just to meet fellow female pilots socially.

For more information contact the membership secretary, Alex Redmond at 267c Kelvindale Road, Glasgow G12 0QU.
SUE CHASE, *hon secretary, British Women Pilots' Association*

We welcome your letters but please keep them as concise as possible and include your full name, address and tel/fax number. We reserve the right to edit and select but point out that the views expressed in letters and articles are not necessarily those held by the BGA.

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Over the last eighteen months the Airspace Committee has had many meetings with National Air Traffic Services (NATS), which became Directorate of Airspace Policy (DAP). These meetings have focused on the freedoms we have enjoyed for many years regarding flying in certain Class D Airspace and Class B Airspace.

The perception strongly held by controllers is that this is a potentially dangerous situation and must end. The sensationalised television programme reinforced their views.

Both the reconstructions of Airproxes shown had been fully investigated and in neither case was there a risk of collision. Despite no evidence that the present freedoms are unsafe DAP has imposed these new rules.

With the ever present threat of corporate liability DAP is seeking to establish a known traffic environment for all aircraft flying in controlled airspace. We will now be in the same situation as other aircraft.

We are obviously obliged to comply with the new rules for flying in all Class D Airspace. The new specified areas for flying in Class B, that is above FL245, is for a trial period of one year.

All pilots wishing to fly in any Class D Airspace or Class B Airspace areas will need to have an R/T (restricted) licence. A clearance to enter and transit Class D Airspace will need to be obtained, as is required of all other aircraft. There is to be an education process to inform ATC units of our special needs and glider's performance.

The director of Airspace Policy envisages "such a clearance to be extremely straightforward and confined to essential detail to enable the flight to continue virtually without interruption. No ATC separation is required, traffic information may be provided and pilots would remain responsible for their own separation from other aircraft."

Enclosed in this issue of S&G is an airspace briefing with maps, a Class D form with an example on how to transit the area, Class B new area maps and other advice that I hope will enable pilots to be more fully prepared before they set off on their cross-country flights. Keep it in the cockpit for ready reference.

ICAO Airspace Classification. In November 1991 the UK adopted the new system of international airspace classification developed by the International Civil Airspace Organisation. The status of a piece of airspace is denoted by a letter which will be shown on all aeronautical charts, and it is this letter rather than the title of the airspace that will determine the rules applying to it.

Eg: in the UK airways will all be Class A, but in other countries they may be Class E. In order to fly within controlled airspace, gliders will often require legal exemptions, and the availability and nature of these will vary from country to country.

Class A Controlled Airspace.

Cotswold CTA Daventry CTA
London CTR London TMA
Manchester TMA Worthing CTA

All Airways (except where they pass through a TMA, CTA or CTR of lower status).

The airspace is effectively closed to gliders, since it is subject to permanent Instrument Flight Rules, whatever the weather, and there are requirements relating to filing of flight plans, stan-

GLIDING AND UK AIRSPACE

Carr Withall, chairman of the BGA Airspace Committee, updates the airspace position. This year sees new rules for Class D and Class B Airspace

dard of equipment, pilot qualifications and adherence to ATC clearances. Gliders cannot comply with these. However, specified airways may be crossed by gliders under the provisions of Rule 21 (2) which stipulates:

1. The crossing must be carried out in the most expeditious manner and, as far as is practicable, at right angles to the airway centreline.
2. The crossing must be carried out in VMC by day.

The **UK Air Pilot** contains a map showing the crossable airways and maximum permitted crossing levels. In summary these are:

Crossable below FL245: A25, B2, B3 (NW of Manchester), B226, RI, R14, R39.

Crossable below FL95: A1, A2.

Crossable below FL55: B3 (NW of Luton). **The crossing of R8 (West of Midhurst) has been withdrawn due to one, not yet investigated, sighting of a glider by a commercial aircraft!!**

Airway G1 is crossable below FL195 to the west of A25. To the east of A25, it is crossable below FL165 and FL105 as denoted by the base of the Cotswold CTA.

Exceptionally, gliders may fly in other Class A Airspace by virtue of a Letter of Agreement or other pre-arranged permission.

Class B Controlled Airspace. The entire airspace over the UK above FL245, comprising the Upper Airspace CTA and the Hebrides Upper Control Area (UTA), is Class B Airspace. Gliders are no longer allowed to fly in this airspace without restriction. Specified areas have been agreed that can be activated by clubs using the procedure for glider operations in Class B Airspace. See briefing pamphlet.

Class C Controlled Airspace. No UK airspace currently falls in this category, though it is possible some may be so redesignated in future.

Class D Controlled Airspace. Formerly Special Rules Airspace. All Class D Airspace now requires an ATC clearance to enter and transit this airspace. Pilots will also be flying in VMC conditions. Any pilot wishing to enter it must:

1. Contact the ATC unit and pass details of aircraft's position, level and proposed track.
2. Obtain entry clearance.
3. Listen out on the frequency whilst in that airspace.
4. Comply with ATC instructions.

These rules apply to gliders in all Class D areas:-

Aberdeen CTR/CTA Belfast CTR
Belfast City CTR/CTA Birmingham
Bournemouth CTR CTR/CTA
Bristol CTR/CTA Brize Norton CTR

Cardiff CTR/CTA

Edinburgh CTR

Glasgow CTR

Liverpool CTR

London Gatwick

CTR/CTA

London Stansted

CTR/CTA

Manchester CTR/CTA

Newcastle CTR/CTA

Solent CTA

Teesside CTR/CTA

East Midlands

CTR/CTA

Leeds/Bradford

CTR/CTA

Lyneham

CTR/CTA

London City CTR

London Luton

CTR/CTA

Scottish TMA

Southampton

CTR/CTA

In the briefing pamphlet there is a form to complete if flying through Class D Airspace. This will give the BGA and DAP statistics on how many gliders have been granted clearances to continue their flights and identify any ATC units that may be unhelpful. There is **no** restriction to asking any ATC unit in Class D for clearance to fly through their area. Most are only "busy" for short periods, usually early morning and late afternoon. Much of the traffic is transiting light aircraft or flying school traffic.

The code of conduct for glider flights through Class D Airspace is still relevant as it sets out good airmanship practice.

Class E Controlled Airspace. The Belfast TMA and parts of the Scottish TMA are notified as Class E and permits all aircraft (including gliders) to fly in this area without ATC clearance subject to maintaining VMC.

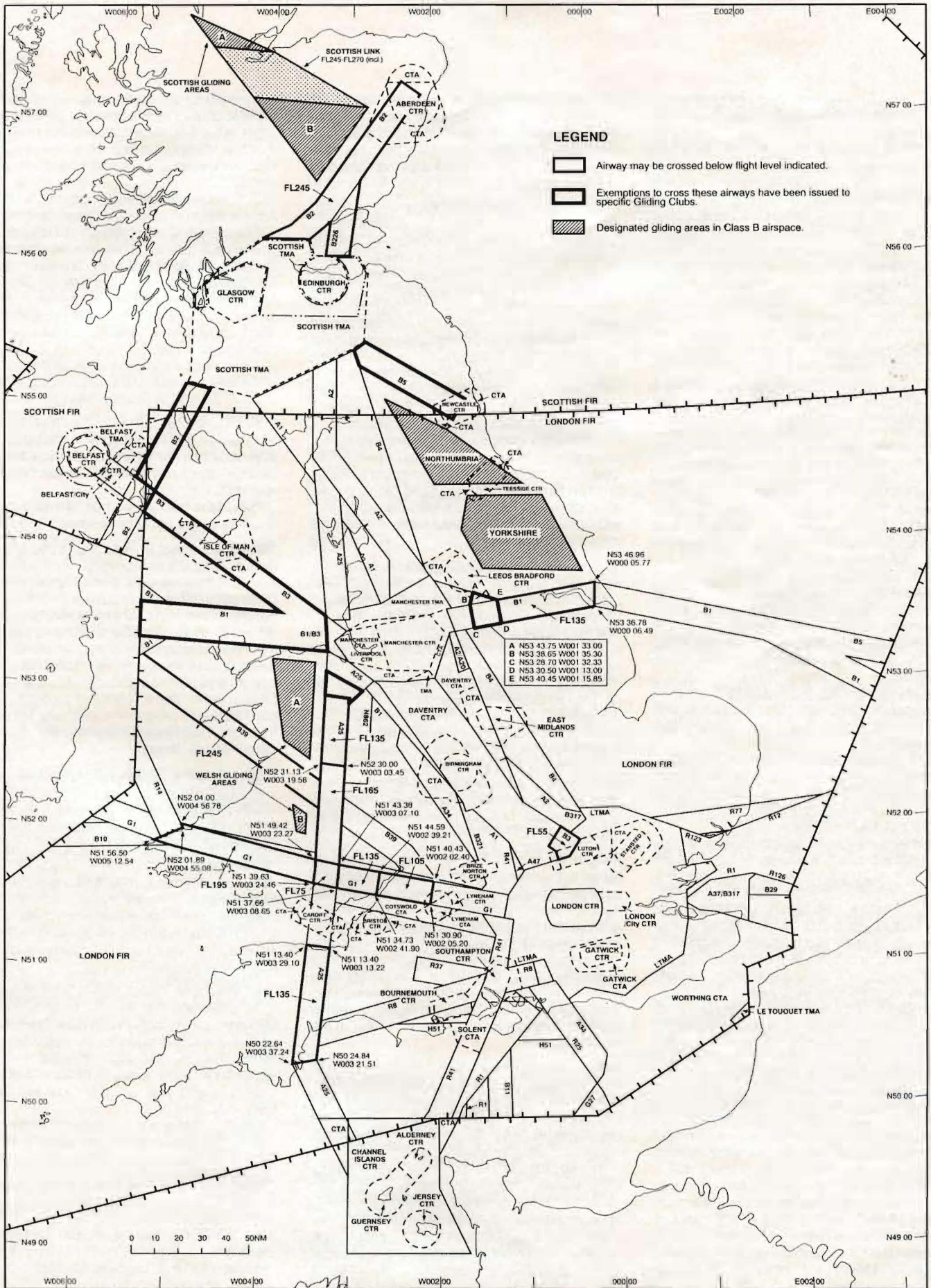
Visual Meteorological Conditions (VMC). To comply with VMC in order to cross Class A airways in accordance with Rule 21(2), a glider shall remain at least 1000ft vertically, and at least 1500m horizontally from cloud in a flight visibility of at least 8km. VMC conditions for Class D and E are that a glider shall remain at least 1000ft vertically, and at least 1500m horizontally from cloud, in a flight visibility of at least 5km.

Local Agreements. A number of local agreements exist which modify the effects of some of the airspace listed above. Letters of Agreement (LoFA) between a gliding club and a nearby airport can make airspace either more or less restrictive than described above, depending on circumstances. These arrangements are too numerous to list in full but the principal ones are:

Luton - A large segment of airspace in the north-west of the Luton SRZ is delegated to London GC, up to 3500ft in summer and on request in winter, to permit gliding operations at Dunstable. London GC should be contacted for full details.

Airway Bravo 2 - At weekends a section of this airway between Glasgow and Aberdeen may be de-regulated on request from the Scottish

Controlled areas (Airways) available for crossing by gliders



Reproduced by kind permission of the CAA.

Gliding Union to permit wave soaring from Portmoak to proceed unrestricted within the confines of the airway.

Class F Airspace. An Advisory Route (ADR) is a route used by airline type traffic but without the full protection of an airway. Although depicted only as a centreline on UK aeronautical charts it is nominally 10nm wide. Gliders may cross Class F Airspace without restriction but caution should be exercised.

Class G Airspace. This is the term given to the "open" FIR (Flight Information Region), which is the uncontrolled airspace not subject to any of the afore-going classifications.

Within Class G Airspace there are various non-ICAO types of airspace which are described below.

Aerodrome Traffic Zone (ATZ). A glider pilot wishing to enter an ATZ must first call the airfield on the notified radio frequency. An ATZ is only active during the notified hours of operation of the airfield. Many military airfields are notified as permanently active though in reality this is not the case. Nonetheless the ATZs must be regarded as active at all times.

At an airfield with an Air Traffic Control (ATC) unit, that unit is able to give or refuse permission for any aircraft to enter the ATZ and to give clearances to take-off or land.

At an airfield with an Aerodrome Flight Information Service (AFIS) or Air/Ground (A/G) service, that unit is able only to pass information from which a pilot may judge whether or not it is safe to enter the ATZ or to take-off or land, ie the unit cannot issue clearances or withhold permission.

The following categories of airfield are protected by an ATZ: government aerodromes and licensed aerodromes with one of the above types of service.

The ATZ comprises the airspace extending from ground level to 2000ft above the level of the aerodrome and within a radius of 2 or 2.5nm of the centre of the aerodrome, depending on the length of the main runway.

At airfields without ATZs, including most gliding sites, regardless of how busy they are, an itinerant aircraft may legally penetrate the airspace near and over the airfield, provided the pilot conforms to the traffic pattern or keeps clear of the circuit airspace, and observes the normal rules of good airmanship to avoid conflicts.

For landing at airfields with or without ATZs, it should be noted that any are listed in the **UK Air Pilot** as "PPR", "PPR to non-radio aircraft" or even "not available to non-radio aircraft". PPR (Prior Permission Required) means that landing permission must be obtained in advance of the flight, eg by telephone. All military airfields are effectively PPR and will not permit landings by civil aircraft except where they have been pre-arranged, or in an emergency.

Military Aerodrome Traffic Zones (MATZ). The rules applicable to the penetration of a MATZ are not mandatory for civil aircraft and the same applies to the Lakenheath Military Control Zone. However, radio contact is advised and inside every MATZ there is an ATZ, the rules of which must be observed.

A standard MATZ comprises the airspace within a 5nm radius of the centre of the airfield extending from the surface to 3000ft above air-

field elevation. In addition, projecting stubs 5nm long and 4nm wide extending from 1000ft to 3000ft above airfield elevation are aligned with the approach to the main runway at one or both ends. Some MATZ may lack stubs or form part of a combined MATZ (CMATZ).

Prohibited and Restricted Areas. A Prohibited Area (P-prefix) is prohibited to all aircraft, whereas a Restricted Area (R-prefix) permits limited access by aircraft under defined circumstances, eg landing at a nearby airfield. These areas include atomic energy establishments, security areas in Northern Ireland and sensitive military installations. Most Restricted Areas should be considered as prohibited to gliders but the following are exceptions:

The Restricted Airspace established around high security prisons is applicable only to helicopters and R105 at Highworth House, Glos. It applies only to helicopters and microlights.

R313 at Scampton exists for the purpose of protecting the Red Arrows' display training. The area is a circle of 5nm radius extending to 9500ft amsl and active only during Scampton's normal operating hours, which are weekdays and as notified by NOTAM. During these times, a glider may enter the area by permission of ATC Waddington.

Temporary Restricted Airspace. Major air displays such as Farnborough or Fairford are often protected by temporary Restricted Airspace. Local gliding clubs usually negotiate limited access routes to and from their sites to enable non-radio gliders to continue operating, but a glider equipped with suitable radio may fly in the area if it contacts the ATC unit designated by the NOTAM as the controlling authority.

Other types of temporary Restricted Airspace are effectively closed to gliders. They are established to protect Red Arrows' displays throughout the country, plus major flypast formations, over events of political significance and over the sites of major disasters. The duration and extent of the restriction can be quite short and will be published by NOTAM.

Purple Airspace. Purple Airspace is established from time to time on a temporary basis to protect Royal Flights in fixed wing aircraft. Full details are promulgated by special NOTAMs. It is important that gliding clubs receive and publish this information because gliders are not permitted to fly within Purple Airspace, even by contacting ATC. Royal Flight NOTAMs also cover royal helicopter flights. These are not protected by Purple Airspace but all pilots are required to look out for and keep well clear of the royal helicopter.

Danger Areas. The UK is covered with Danger Areas of many types, shapes and sizes. They are active part-time, permanently or when notified by NOTAM. Full details will be found in the **UK Air Pilot**, RAC Section. The chart of UK Airspace Restrictions is also useful.

The **UK Air Pilot** lists only the type of activity most likely to be encountered, but in practice various hazards may be encountered manoeuvring outside the confines of the Danger Area especially if it is a Weapons Range Danger Area.

Many Danger Areas contain areas over which flight is prohibited at times within the period of activity of the Danger Area by reason of by-

laws made under the Military Lands Act 1892 and associated legislation. It is also worth noting that the **UK Air Pilot** does not list Danger Areas with upper limits 500ft or less above the local surface, to which prohibiting bye-laws may also apply.

With these exceptions, flight through a Danger Area is not prohibited, but may be foolhardy.

For certain Danger Areas, a **Danger Area Crossing Service** is available, most notably for Salisbury Plain. All Salisbury Plain Control is on 122.75Mhz. A **Danger Area Activity Service** is available in other cases: this should be viewed as a means of establishing the state of activity of a Danger Area at a particular time, not as a clearance to cross it.

A convenient summary of these two services and the ATC units to contact is printed at the foot of the 1: 500000 series of CAA charts.

Particular care should be taken to avoid Weston on the Green (D129) which is used extensively for military paratroops training. Brize Radar on (134.3) will confirm activity status.

See in the briefing pamphlet a photograph taken during a parachute drop!!!

Other Hazardous Areas. Other types of hazard include free fall parachuting sites. There are many of these sites around the country and some operate every day and are extremely busy. Treat them as a permanently active danger and **do not** fly over them. The airspace is contained in a circle radius 1.5 or 2nm from the centre of the drop zone up to a maximum of FL150. It may not be apparent to a glider pilot, observing the drop zone in flight, whether or not there is parachuting in progress: parachutists normally free fall down to 2000ft agl and are extremely difficult to see. **Beware!**

High Intensity Radio Transmission Areas contain powerful radio emissions which may cause interference with glider radios, electric variometers, electronic barographs and loggers. In particular Fylingdales is so powerful that prolonged exposure may be injurious to health.

Areas of Intense Aerial Activity. An AIAA is airspace which is not otherwise protected by regulated airspace but where the activity of civil and/or military flying is exceptionally high or within which aircraft regularly participate in unusual manoeuvres.

Gliders may penetrate these areas but in view of the hazards, a sharp lookout is essential.

Military Low Flying System. Low flying by high performance military aircraft takes place in most parts of the UK up to 2000ft agl, with the greatest concentration between 250ft and 500ft. A chart is available denoting the system (**UK Air Pilot**, RAC Section).

Most gliding sites are notified to the MoD, which affords them the status of a Military Avoidance Zone, usually with a radius of 1.5nm.

Radar Advisory Service Area. A RASA is airspace in which pilots may, if they choose, avail themselves of the services of a radar unit. There is no requirement to do so, and a glider pilot should not assume that other aircraft are being separated from him, nor even that the radar unit is aware of the glider's presence.

The Airprox System. An Airprox may be filed by a pilot who considers his flight to have been endangered by the proximity of another aircraft. All Airproxes are investigated by the Joint Airprox Working Group (JAWG), whose deliberations are confidential so as to preserve anonymity. The purpose of a JAWG investigation is to determine what lessons can be learnt, not to take punitive action.

Prompt Airprox reporting is vital if the other aircraft is to be traced. If in radio contact with an ATC unit report to them at once, or if not possible, telephone straight after landing. Call 0800 515544 or AIS (MIL) at LATCC West Drayton on 01895 426153, who will start tracing action at once and tell the Joint Airprox Section (JAS). Follow up with a written report on form CA1094 to JAS within seven days. Always use GMT (UTC is the same) in reports.

JAS can be contacted in working hours on 01895 276121/2/5 or on fax 01895 276124.

Code of Conduct for Glider Flights Through Class D Airspace. With the ever increasing size of Class D areas the need to fly through them on cross-country flights will become greater. Pilots can ask for a clearance to fly through **any** Class D Airspace. The conduct set out below is a guide to good airmanship practice.

1. Glider pilots should plan to route their flights through Class D Airspace when it is clear that there are advantages from so doing, such as better weather and shorter track distance.
2. Flights should try to spend the minimum time in Class D Airspace. Pilots should avoid circling on or close to the runway extended centre lines, since this may well interfere with departing or arriving traffic.
3. Keep the controller informed if, for any reason, *ie* massive sink, you have to change your planned course.
4. Good lookout is vital at all times, and glider pilots should be prepared to initiate avoiding action notwithstanding their right of way priority. Gliders are not always visible on radar.
5. Competition tasks should **not** be set through Class D Airspace. Where a task leg has to be set close to Class D Airspace the ATC unit should be informed. When possible, photographic control point(s) should be established, to help ensure that gliders remain outside the airspace.

Use of Radio. A glider pilot possessing a radio operator's licence (R/T licence) is entitled to use all the available aeronautical frequencies of a 760 channel radio. This permits seeking access to the following types of airspace that may be otherwise closed to gliders - the new Class B Airspace areas, any Class D Airspace, aerodrome traffic zones, some types of permanent and temporary Restricted Airspace and some Danger Areas.

Radio cannot be used to request entry clearance into Class A Airspace (except by special arrangement) or into Purple Airspace.

All clubs have a copy of where and with whom one can take the R/T licence test. The licence will be valid for ten years.

NOTAMS. The NOTAM system has changed over the last few years. Essential flight planning information is obtainable from several different sources.

The **UK Air Pilot** AIRAC supplements are the formal method of notifying permanent changes to airspace but can only be obtained as part of a subscription to the entire **UK Air Pilot**. Airspace changes have also been announced by way of Aeronautical Information Circulars (AICs), major changes by a dedicated AIC and minor changes *via* six monthly summary AICs. A bi-monthly GASIL summary also covers minor changes.

Temporary Navigation Warnings (TNWs) are published twice weekly, giving notice of airspace warnings such as air displays, military exercises etc, and outline details of Royal Flights and Temporary Restricted Airspace.

Full details of Royal Flights are to be found in **Royal Flight NOTAMs**. A daily update of Royal Flights and temporary Restricted Airspace is obtainable on the freephone service (0500 354802). All the above are available from CAA Printing and Publishing Services (01242 235151) except Royal Flight NOTAMs from AIS Heathrow (0181 745 3464).

Airspace Changes. The latest changes are to be found in the airspace briefing pamphlet in this issue of *S & G*.

Maps. The current editions and expected dates of new editions for the 1/2 million maps are; Southern England and Wales, edition 22 with new edition 23 at the end of March; Northern England and Northern Ireland, edition 19 with new edition 20 at the end of August; Scotland, edition 17 with new edition 18 due in April.

Airspace Infringements. Last year there were a couple of well reported infringements which when investigated proved that the gliders had obtained permission to go where they went but the ATC unit had not informed the duty controller. With the requirement to obtain an R/T licence to fly within Class D Airspace, pilots will become more confident to talk to other airfields they may be flying close by.

A brief courtesy call is very welcome by most controllers and will reinforce the position that we are "professional" pilots.

If a pilot is lost there is a service to call on at any time - the **VHF AUTO TRIANGULATION SERVICE** on 121.5, the distress frequency. This service can very quickly find an aircraft as long as it is about 2000-3000ft and anywhere south and east of Manchester to the south coast.

If in doubt that you may be lost in Controlled Airspace then give them a call. They are there to help and can locate you almost instantly on 121.5.

References. The information in this article is only a brief synopsis of the airspace rules as they affect glider pilots and is believed to be accurate at the time of writing. In case of doubt authoritative references should be consulted. These are: Air Navigation Order 1989; Rules of the Air Regulations 1991; **UK Air Pilot**, RAC section. **BGA Laws and Rules**, 12th edition, May 1996, reflects the current legislation and previous editions are obsolete.

Abbreviations. CTA= Control Area, CTR= Control Zone, TMA= Terminal Manoeuvring Area (the lower limit of a CTA or TMA is an altitude or flight level above the surface, whereas a CTR extends to ground level). ✕

BRAKES CLOSED AND LOCKED? - Part 2

Since writing about the time while flying the tug I discarded a K-13 which had airbrakes open on tow (August 1995, p215), I have often heard about **and** observed this very same thing. The glider I dumped got away with it, though neither pilot realised until after they had landed that the reason they were flying in horrible sink was **open airbrakes!**

At Booker just recently an experienced instructor came badly unstuck after being released by the tug, not only because the brakes were open on tow but also because the glider came above the tug. Here again, under pressure, the pilot didn't realise **until after landing** that the brakes had come open.

At Shenington a fellow went up the winch with airbrakes open. He flew the circuit and met a bush on the approach, with airbrakes open.

At the Long Mynd some years ago an American took a bungy launch, sank down the hill with his brakes full open and ended up in a pig farm. (Took a brave crew to fetch that one back!)

At Aboyne I saw a Kestrel fly into the bank. The pilot said "All around the circuit I was in terrible sink!" The observers said "His brakes were open all around the circuit!"

Also at Aboyne, on the same day (and same runway) as the Kestrel, a two-seater's airbrakes jammed open - genuine lever failure this time, not brain failure on the part of the pilot - and the very superior instructor realised at once the problem and landed safely.

I think we need to **emphasise** that if you've got a problem glance at the wing and see if the brakes have come open. If the tug has failed to lift off normally it might not be engine trouble, it might be **your fault**. If you think it is horrible sink in the circuit, **check your brakes**.

SKYWRITING - THE HIGH-TEC WAY

How's this for willing away a neutralised Comp day or brightening up a flat club weekend? Skywriting the 90's way, environmentally friendly with no smoke involved, Lycoming-free, and all recorded and evaluate by trillions of bits and bytes.

On just such a day the German gliding clubs at Bad Nauheim, Riedelbach and Bad Homburg got out their two-seaters and the portable LX 20 data recorders and asked 17 teams of pilots to try and trace a declared shape on the logger print-out. Things progressed from fairly simple geometrical forms to outlines of aeroplanes complete with tailplane and propeller. These were downloaded on to a notebook after the flight and if the judges could not decide on a clear winner the vote of all present decided.

The real experts even managed to get around the constrictions of drawing with an unbroken line by using high angles of bank to blot out the satellite signals briefly! With only a winch launch to start from "altitude management" was the name of the game but there were no hairies and all survived. - Translated from *Aerokurier* by Alan Harris.

TAIL FEATHERS

You always hurt the one you love -

Every spring you need something new to excite you and make you look forward eagerly to the new season. Best of all is a new toy - I mean a gleaming, brand-new ship right from the factory, of course. That has happened to me,



Something new to excite you.

let's see, just six times since 1958: Skylark 3F in 1961, Dart 17 in 1966, Std Cirrus in 1972, Kestrel 19 in 1973, another Kestrel 19 in 1975, and the ASH-25 in 1988.

(That 1972 to 1975 spurt seems a bit wild. Tell us more. Ed.)

The Std Cirrus was a revelation in handling and high-speed dashes, but staying up in feeble lift and landing in small fields was a serious problem to those of us brought up on big wooden wings and barn-door airbrakes - that is to say, all of us at that time.

On my very first flight in it I failed to soar the Dunstable slopes in a perfectly adequate wind and plummeted straight to a safe landing in the vast "Pyjama field" which sprawls below the slopes of Whipnade Zoo; the only alternative to the Pyjama field would have made a great David Attenborough nature sequence on BBC television. You can supply the hushed voice yourself:

"Here, if we approach softly and do not interrupt her meal, we can observe the incisor teeth and molars of the mother Bengal tiger making short work of the crunchy outer shell so as to get at the deliciously soft and squirmy glider pilot inside, while the cubs wait eagerly for breakfast..."

Tail first is safety first

We'll leave that touching scene, and simply admit that the syndicate had a hard time with the Cirrus. One of my partners found in competition that the only way to avoid sliding into obstructions pilot first (something he was fussy about) was to do a smart 180° groundloop and slide into them tail first. This eventually broke the Cirrus and when, because of the outbreak of galloping



Soft and squirmy glider pilot.

inflation, the importer-repairer offered 20% more for the broken glider than we had paid him for it new, we grabbed the money and ran. We then bought a Kestrel 19, which was wonderful. It stayed up, went vast distances and we all adored it.

Wine, gliders and song

Two seasons later, even more galloping mid-1970s' inflation caused me to make so much money on a house sale that with the grotesque profit I bought a grand piano, 800 bottles of best French wine (in those distant days one didn't buy Australian or Californian) and a new Kestrel 19 all to myself. Not a penny was wasted by being left in the bank. When governments create rampant inflation one must convert perishable money into solid (or liquid) goods as fast as possible. Plat didn't get a degree in economics for nothing. (No, he had to bribe the examiners. Ed.)



A grand piano and 800 bottles of French wine.

Easy come, easy go

What happened after that spending spree? The wine was all consumed or, as it aged into vintage claret and therefore became much too grand for the likes of me and my gliding mates to drink, traded in for larger quantities of good but cheaper stuff. That stuff all went down my friends' throats. (When I am forced to choose between quality and quantity, I go for quantity. You know just where you stand, and besides, after a couple of drinks nobody can tell the difference.)

The grand piano is still in brilliant, powerful voice, daily testing my musical skills and the Christian patience of my neighbours.

- the one you shouldn't hurt at all

The glider, however, lasted a much shorter time than either the piano or the wine. The Kestrel had a terrible wheel brake (here come the excuses, Ed) and if the tail parachute failed

or had to be jettisoned you could find yourself suddenly yearning for the nifty 180° pirouetting talents of the Cirrus. It was in the middle of one of those sudden yearns that I ran pilot first into some shiny new barbed wire and was narrowly saved from decapitation by the divided canopy of the Kestrel. Even so my bloodied scalp could have stood in for General Custer's in a movie of his Last Stand. The farmer had poured so much whisky into me by the time the crew arrived that Mrs Platypus decided she must be the one to drive the car, necessarily breaching the tradition that the pilot should be at the wheel once his life savings are stowed in the trailer.

As we bowled down the motorway I was too drunk a passenger to notice that the funny rattle the engine had earlier been making had got worse; the two crewmen in the back did not know what was a normal sound. At 70mph¹ the connecting-rod came through the side of the



The connecting-rod came through the side of the crankcase.

crankcase of the front wheel drive Saab. The car decelerated abruptly, mercifully travelling in the now fashionable tail first mode, the trailer having pirouetted around the car. The whole shebang was wiped out on the hard shoulder in a moment that after 20 years I can see just as vividly as I can see the moment before hitting the barbed wire fence in the Kestrel. "Well well, I am going to get killed twice in one hour" was my sage but not sober observation in that split second. In fact all four of us stepped out of the wreck, shaken but unscratched. The pilot of course emerged looking a mess from his wounds of an hour earlier, but feeling stoically calm about the odd way in which Fate operates.

What remained of that Kestrel was bought and meticulously rebuilt by Britain's finest repairer, then sold to a fellow who loved it as much as I did.

(You mean he wrecked it? Ed.)

Yup, totally. Flew it into a bunch of trees. I don't think they bothered a third time. Poor thing. I feel a blues song comin' on.

(There's only one thing worse than Plat playing the blues and that is him singing the blues. Ed.)

Gimme a chord:

Ah done loved that saaaaiiplayun, yeah. But ah done treated her real bad, yeah man. Ooooooh yeahhh, reeeaaal baad, man...

"As the sun sets, we can hear the plaintive song of an ageing Platypus. It is widely believed that Platypuses cannot sing a note, and if proof

¹It's all right, Mrs Platypus is far beyond the reach of the Northamptonshire Constabulary



The lost art of letter writing.

were needed, here it is. Now we see creeping stealthily towards the lovelorn Platypus a kindly denizen of an adjoining burrow, carrying a large bucket of iced water, the only known cure for what ails the melancholy creature...

Just give me the fax, ma'am

The fax is a splendid device, much better than the telephone in so many ways. For one thing it is bringing back the lost art of letter writing, which literary people feared the telephone might destroy for ever. So long as we use plain paper faxes, both sender and recipient have a permanent record of what was written - a godsend for biographers of the future.

It has other uses for refined persons of sensitive and cultivated tastes, like what I am. A few years ago in Waikerie I was delighted to find in the bar a piano that verged on playability. There is no longer any such civilised furniture at Dunstable. (I can guess why: see previous piece. Ed.) So I faxed my secretary in London asking her to plunder the contents of my piano stool and fax back to me a generous selection of the collected works of Debussy, Chopin, Bach and Beethoven. I had forgotten that by the time she got to my office and had collected the musical masterpieces and started feeding them into the fax machine it would be 2am in South Australia - and the late night faxes come not at the Waikerie Club office but into the bedroom of Maurie Bradney, CFI and legendary Aussie pilot. In the dead of night Maurie was suddenly shaken out of a deep slumber by a telephone bell, then the seemingly endless chuntering of a gigantic, continuous roll of thermo-thingly fax paper as it spilled barcarolles, ballades and sonatas across the carpet and into the next room.

So it was a bleary-eyed and not altogether enchanted looking Maurie who at breakfast handed me a scroll that look like Julius Caesar's script



Trying to navigate my way home.

for a five hour speech to the Roman plebs. Thus it came about that I was able to while away the evening hours at the Joanna, sustained by Victoria Bitter, a tangy brew that was as sharp as the piano was flat, until I was mysteriously sent off on a gigantic task with no chance of completion, that left me wandering on foot for hours in the trackless wastes, trying to navigate my way home by the Southern Cross at midnight, but that is another story.

"Who, then, would be without such a blessing as the facsimile machine?" you ask.

Who indeed? Well, it would seem to anyone reading the advertisements in the latest S&G that some of the country's greatest and most technologically advanced clubs had no fax. I have had to telephone Lasham and Booker to ask if they had faxes, and they immediately and courteously imparted the numbers to me, no doubt as an old and special friend of their respective societies. But I won't pass the numbers on to you, in case they are supposed to be secret. Maybe they fear getting a flood of unwanted sheet music that will exhaust their entire stock of fax stationery in the small hours.

Worse still (and this has nothing to do with



Obscene Publications Squad.

music or culture of any kind, I am afraid) they may fear receiving a greeting from a crewman of mine for whom I must apologise. This individual was getting bored from umpteen consecutive days of not having to retrieve me, since I was on good competition form and getting back to (unnamed site) effortlessly each day. So he sat on the manager's Xerox machine and then faxed pictures of a naked bottom to several friends and quite a few enemies around the globe - forgetting that the fax number of the club would appear on each sheet as the otherwise untraceable and anonymous exercise in "Guess why?" and "Guess what?" emerged on to the recipients' desks. So I expect the manager got a few irate messages by return, not to mention a visit from the Scotland Yard Obscene Publications Squad.

On second thoughts, I think our finest clubs are quite right not to divulge their fax numbers. I am not going to give you mine, either, especially after what I have just written.

However you can have my e-mail address, which is, I hope, immune to such artistry. Here it is:

101660.304@compuserve.com

I welcome anything, whether serious contributions to gliding debate or scurrilous stories.

Are you sure that's a good idea? Ed.

I dunno... Let's see.

REVIEW

Glide Guides. Series 1: "The Essentials of Flying" by Les Blows (a dedicated cross-country pilot from Southdown GC with all three Diamonds). Produced by Blot Publishing and available from the BGA at £10.95, including p&p.

Series 1 is a collection of ten 5x4in plastic coated cards which are intended as an aide memoire cum reference to support and complement instructor/pupil briefings etc. A discrete note on the back of each says that they are based on the **BGA Instructors' Manual**, and as far as I can tell they are, so it would be a bit difficult to get more OK than that!

Each card provides the key points about a particular item. For example, card one is about Speed Control, and gives all the relevant information in a very simple and effective manner. Card six is about the Final Approach, card eight about the Stall.

Some of the cards have small simple drawings included, which are exactly right for what they are supposed to do, and the colour palette is restrained and remarkably effective.

It's a pity, however, that the drawing in No 3 contains an obviously freehand line, and that because of the plastic coating you probably need a special pen to write any notes on the back of the cards. Nevertheless, this is good stuff, clear, to the point, and tidily executed.

The real snag is that every few years somebody comes up with the same good idea. Not a bad thing - everything should be re-evaluated on a regular basis - but I have never seen anybody use reminder cards, or even the **Instructors' Manual**, on an airfield. Are both some secret yet homely vice? Are instructors ashamed of not knowing things? (Reynolds Numbers anyone!)

I can understand the **Manual** not being overtly referred to at the launch point because it's so obvious, but a tiny card? **Glide Guides** will be useful to instructors as a means of keeping discussions to the point, but I suspect their greatest value will be to trainees trying to remember what to do.

STEVE LONGLAND

ONE THOUSAND LS-4s

In November the thousandth LS-4 left the Rolladen-Schneider factory in Egelsbach. The LS first flew in February 1980 and then dominated the Standard Class for four years, winning two World Championships.

Its easy handling and large cockpit make it a very popular club glider on the Continent. The recent IGC decision to allow the LS-4 and DG-300 to fly in the Club Class will surely increase this popularity and extend its useful life as a competition glider. Works No. 1000, an LS-4B with automatic control connections, was sold to the Netherlands. - Translated from *Aerokurier* by Alan Harris.

Please send contributions to S&G to our Cambridge office, 281 Queen Edith's Way, Cambridge CB1 4NH, tel 01223 247725, fax 01223 413793 and not to the BGA office.

See And Be Seen

Question: What is the first thing we teach people about gliding?

Answer: The need for a thorough lookout.

The BGA instructors' patter notes start with: "Whilst flying we must maintain a good lookout. Please help us with this. Scan the full field of view, pausing from time to time, looking above and below the horizon as well as on it."

Why is this?

Because it is the most important thing we can ever teach you about learning to glide. Using the law of primacy, we therefore teach it first on the basis that you are most likely to remember the first thing you are told.

Indeed, I hope you still find that instructors comment about your standard of lookout as part of a general airmanship "check" on any flights you ever have with them. It really is important.

The trouble is, it is all too easy to forget, as it is with so many things we were taught in our early stages of learning. Perhaps we should make a conscious effort to improve our own standards of airmanship this season, with particular reference to the thoroughness of our lookout.

Most of us drive a car. Just think about the amount of time we spend looking at the instruments and the controls whilst driving. I suggest very little in comparison with the amount of time we spend looking out. How does this compare with our lookout time whilst gliding? Especially when you consider how easy cars are to see!

Consider also the amount of thought, time and money that has gone into designing the instrument layout of your car's dash panel. Needle positions on conveniently placed familiar dials are all we need. Do we think about where we place the instruments in our gliders, especially the ones we look at most frequently?

Instruments mounted on low panels buried deep in the dark cockpit drastically increase the time to find them and then for your eyes to adjust to the light intensity. More time is wasted when you look back up into the bright lights again. This time wasted becomes even more applicable to mounting instruments like GPS units on your knees. Anything you can do to reduce your head down time is worthwhile.

My message is simple. Whilst flying, spend as much time as you can looking out. It may save a life.

CHRIS PULLEN

Don't Collide - Lookout

*Here lies the body of James O'Grady,
Who died defending his right of way.
He was right, dead right, as he flew along,
But he is just as dead as if he'd been wrong.*

Why look out?

Lookout is a means to an end - the end is **don't collide**, don't have a mid-air collision, don't hit anybody.

Collision risk awareness is in two parts

1. Know about any other flying machine which

LOOKOUT - The Vital Part of Every Flight

After the fatal accident last August at Cotswold GC when a K-6CR was in collision with a K-8 it was felt necessary to again emphasise the importance of efficient lookout, hence this collection of articles. The K-8 pilot had minor injuries after baling out, but the K-6CR pilot was killed. The gliders were destroyed

The Air Accident Investigation Branch delegated a BGA accident investigation officer to assess the cause of the accident and the following are extracts from the official report.

- The weather on August 21 was fine with 4/8 cumulus cloud cover and a cloudbase of approximately 2300ft. Visibility was excellent with a clear view in excess of 30 miles.
- The pathology report indicates that the K-6CR pilot was incapacitated, or probably killed by the impact which destroyed the top section of the cockpit.
- Evidence from the report that no relevant factors were determined and the fact that the K-6CR was flown in a controlled manner, suggests that nothing was amiss with the glider or its pilot. It was likely his attention was directed away from keeping a sufficiently good lookout.
- The K-8 pilot saw the approaching K-6CR but there can be no doubt that the accident occurred due to the failure of each pilot to see the other glider in sufficient time to take avoiding action.
- Prior to take-off the pilot had said he intended to use the flight to practise using a new GPS receiver, which was seen strapped to the upper part of his right leg and, indeed, he was seen flying on a direct track back towards the airfield, consistent with following the directions of such a receiver if commanded to return to the airfield.
- When seated in the K-6CR cockpit, use or observation of this equipment would have required the pilot to look at almost 90° to his normal line of sight when looking out of the cockpit or at the flight instruments, into a relatively dark cavity when compared with the bright outside world. It therefore seems likely that for a period of time before the collision the pilot's attention may have been focused on the GPS receiver strapped to his leg, thereby denying him the opportunity to take avoiding action in sufficient time.

Safety recommendations

While the specific cause of the accident will never be known, lookout is of prime importance and stressed at all levels of instruction.

- The importance of keeping a good lookout should be reinforced by all instructors.
- Additional instruments, such as a GPS, should be positioned within the cockpit so they don't distract from keeping an adequate lookout.

might become a risk in time to take avoiding action before it actually becomes a risk.

2. Before manoeuvring know about anyone who might be in the way.

What this means

1. We always have blind spots. No one has eyes in their backside and glider seats aren't transparent anyway. So it is not enough, though essential, to look everywhere we can see.

It is vital to think of our blind spots and take every opportunity to clear them. Sometimes it will be necessary to manoeuvre purely to do this.

One should think ahead to anticipate and where possible avoid situations where conflict might arise.

2. Before turning, pulling up, diving or using airbrakes we must be sure there is no collision risk.

In most gliders it is possible to see the tailplane if one looks far enough round, and sometimes the fin. This is how far we should look before starting a turn.

Before pulling up, using airbrakes or diving

(especially from stalls and spin entries), we must look vertically. It may be necessary to precede or start the manoeuvre by turning - banking makes it easier to look up and down.

Habits

Collision avoidance and lookout must be a habitual reflex and not something done only when remembered.

The habits are in two parts:-

1. An ingrained attitude of mind that the first priority is always **don't collide**. Always be asking "Is there anyone there?"
2. Habitual actions such as looking round before turning.

The habits must be ingrained reflexes and therefore be taught and practised even before the first flight (it starts with the first pre-flight briefing) and never relaxed. We should also monitor our reflexes to ensure that our collision avoidance habits are sharp and not getting sloppy.

Rule of the road

Pilots must know the rules well enough to

apply them without hesitation. There may also be the local rules, particularly on hill sites, and make sure you know them.

It is part of the rules, and common sense, that every pilot must do everything possible to avoid collision, even when in the right.

If someone is aggressive and you give way you will be able to argue about it later. If you don't give way you may not get that chance (in this world anyway). Remember, the other pilot may think you are wrong and this may even be true.

If a pilot is habitually aggressive and dangerous word soon gets round and you will be able to deal with it on the ground.

Don't end up like James O'Grady. Don't collide!

BILL DEAN

The Blind Spot

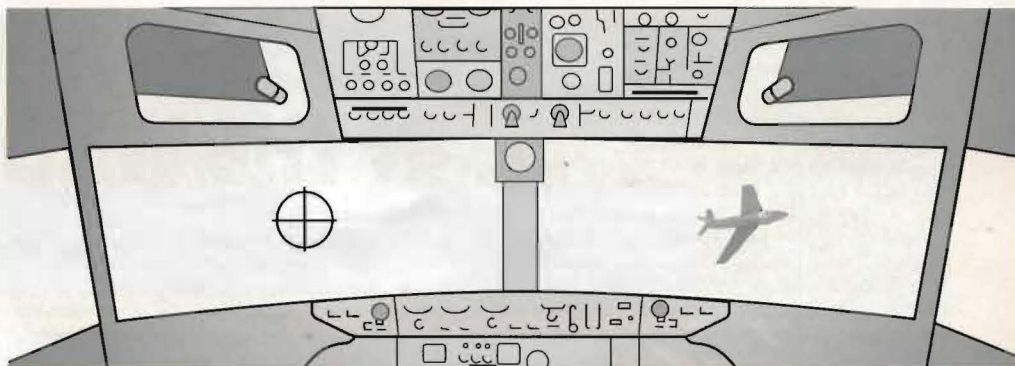
This article, reprinted by courtesy of Ansett Australia, comes to us from the Bristol & Gloucestershire GC's Severn Skies magazine and was first printed in the UK by Pilot.

Have you ever been driving along when suddenly, for no good reason, a car has pulled out in front of you?

The offending car may have either stopped or slowed and even appeared to have been waiting for you to pass. If so, after you have slammed on your brakes and delivered the appropriate invective, have you noticed the expression of complete surprise on the other driver's face as he spots your car completely filling his rear vision mirror? Conversely, have you ever been the offending driver, wondering where the car or truck came from that is so rudely blowing its horn inches from your rear bumper?

This incident stems from a physiological defect of the eye, coupled with some environmental factors, and higher level perceptive processes in the brain.

The retina of each eye contains a blind spot where the optic nerve leaves the eye. Normally



the missing piece of image is compensated for by the presence of the other eye; however, when the world is viewed with one eye closed the picture still appears complete. The blind spot only becomes apparent by default when a known image is made to fall upon it and disappear.

The diagram above, redrawn by Steve Longland, can be used to demonstrate this illusion. Close your left eye and hold the page about 30cm (12in) away.

Focus on the cross. Remain focussed on the cross as you slowly move the page closer. At about 15cm the image of the small aircraft should disappear from view.

With a little practice the image can be made to disappear and reappear at will, by quickly glancing across towards it then refocussing on

the cross. Moving the head from side to side should have the same effect.

Rather than appearing as a black hole, the higher level processes in the brain paints in a continuous background of similar texture and colour so that you perceive a blank piece of paper rather than being alerted to the lack of vision. Relating this known physiological limitation to the potential traffic accident is fairly simple.

All that is needed is for one eye to be shielded behind an obstruction and the image of the approaching vehicle to fall on the optic nerve area of the unshielded eye. Although that appears to be an unlikely combination it can happen quite easily, particularly in those cars where the strut separating front and rear doors is forward and close to the driver's head.

When the driver turns his head to look right for oncoming traffic, the right eye is shielded behind the pillar. At right angles, looking far down the road, something the size of a small truck at 100m can fall completely on the blind spot. The brain simply paints in the road to fill the void.

This problem can be simply overcome by rocking the head forward and aft while scanning, to either "unshield" an eye or reposition the image on the retina. Pillars between the flight deck windows can lead to the same phenomenon in aircraft operations. ✕



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Ln my early gliding days, now more than forty years ago, winch launch accidents were unknown (at least in my club, Cambridge University GC, if I am not looking at the past through rose-tinted spectacles). Nowadays they are a cause for concern, so what has changed?

The winches are much more powerful and reliable than they used to be and the cables much less likely to break, factors which certainly should count for safety. So have the pilots changed? Are they less talented or less teachable? I doubt it. What about the gliders? Are they inherently more dangerous and, if so, why do the airworthiness requirements permit gliders which are less safe than they used to be?

For many years I flew an Olympia 463 - Cockleshell was her name. She was the best of all gliders for mountain expeditions because she bungyed - and especially autobungyed - like a dream. Chocks away! and one was hill-scraping in the twinkling of an eye. She had an absurdly short fuselage to which her wings were attached at a crazy angle of attack. Vertical take-off was her speciality in any half-decent wind. But take her away from her mountain eyrie and launch her by winch or aerotow and strange things would start to happen.

Attached to a powerful modern winch driven by a powerful modern winch driver she would leap into the air at the "all-out" and, screaming in anguish, rotate through the wind gradient to an alarming angle with the stick hard forward. After the first 100ft or so she would recover her poise and behave normally for the rest of the launch, but one had to brief one's friends who winched her on windy days to regard the stick on its front stop as the initial neutral point.

Put her behind a tug and the story was quite different. At the slightest provocation such as a small crosswind component she would veer off sideways and demand to be released. She would not respond to full rudder applied at the outset, nor to a diligent wingtip sprinter's entreaties.

When I replaced her with an Astir people said "you must fit a tail wheel instead of a skid or you will find taking-off behind a tug difficult". I

ARE RELEASE HOOKS IN THE WRONG PLACE?

laughed, as any 463 owner would have done. An Astir with a tail skid is a doddle on take-off (I never did discover how to land one though).

In both cases with the 463 my conclusion was the same: given the other characteristics of the aircraft, the release hook was too far back. The fuselage is quite deep and placing the hook further forward would reduce the vertical moment-arm with respect to the C of G as well as increasing the horizontal one. The rotation on a winch launch would become less violent, and the tendency to follow a tug improved.

The nose hook destroys the natural balance of a glider's controls during aerotowing

Some 463 owners went to the length of having nose hooks fitted for aerotowing, but a nose hook should be a last resort because it destroys the natural balance of a glider's controls during aerotowing. Rate of roll is obviously not affected, but the restoring moment provided by a nose hook renders the rudder much less effective than usual (gliders always seem to have enough elevator - except 463s on winch launches!).

I had never thought about this until one day when aerotowing my Astir out of Duxford I noticed the lack of response for some reason and on wagging the rudder came to the erroneous conclusion that something was preventing full deflection, so I released and landed straight ahead in a field. Safely parked amongst the potatoes, I had plenty of time to work out what had happened.

In due course the Astir was replaced by an LS-4B, whose delightful handling ensures that aerotowing with a release hook a record distance aft (actually sprouting from the undercarriage) is just like free flight. Yet it is surely too far back for winching. Although there is no problem of controllability as with a 463, there is no feel, no feedback in pitch, and this, it seems to me, is part of the modern trouble.

With the older gliders you could feel the load you were putting on the machine, because of the corresponding backward load on the stick. Moreover, the silent slipperiness of the modern glider and the rapid acceleration provided by the modern winch means you can rocket through the maximum winch launch speed before your eyeball has rotated from the horizon to the ASI and your brain has registered what it is saying.

I suspect that release hooks have got as far back as they have more for the convenience of the manufacturer than the safety of the glider. Slingsby's wooden gliders like the Swallow have twin longitudinal bearers between which the

release hook is mounted. It can therefore be placed anywhere fore and aft within reason (I think it is too far forward in a Swallow, and when I next go through the bottom of mine I propose to move it back a bit).

Modern plastic ships, by contrast, tend not to have any structure forward of the main bulkhead worth attaching a hook to, so designers bolt the hook on to the bulkhead or on to the undercarriage itself. Good for strength, but is it good for aerodynamics?

Not long ago, just before Cambridge sold its K-6CR, I thought it would be fun to have a last launch in her. I dutifully noted that the maximum winch launch speed was 54kts (surprised, I read it twice) and gave the signals. I swear I must have passed 54kts before leaving the ground, and by the time I focussed on the ASI it read 72kts. Now I am an old pilot, not a bold pilot, and a BGA inspector to boot (having built a Swallow in my youth), and I don't like stressing gliders unduly, especially wooden ones past their prime. So I released, continued on my lunar trajectory until subsonic, flew a circuit, and landed.

"Ah", they said back at the launch point, "you should have pulled up more steeply". I winced. "Please ask the winch driver for a nice slow launch next time, as befits an elderly wooden glider", I said. I overheard the instruction as it was relayed: "There's one of our elderly pilots here who doesn't like our launches - give him an old-fashioned". The K-6 and I wafted happily and safely skywards, and for the rest of the morning I inquired of each pilot the height of his launch. Mine was the highest, just as it had been the slowest. Could there have been a connection?

They make me have an annual winch launch check now. A couple of years back I was going up a bit beyond the maximum winch launch speed for a K-13 wondering aloud whether I would get scolded more for breaking an operational regulation or for releasing prematurely. However, the instructor was of the view that you did not have to worry about the maximum winch launch speed because the weak link would prevent an excessive load on the glider. As an inspector I take a rather different view.

Weak links are presumably calibrated so as to ensure that if a glider is flown on a winch launch within the permitted limits of all up weight and speed then the weak link will break before the glider is overstressed. I know of no reason why this should remain true if the maximum speed is exceeded and I do not propose to find out experimentally.

The other day I took a winch launch in my LS-4 and before I had reached a height at which I regard it as prudent to be climbing steeply the ASI read 92kts. I hung on, but I certainly didn't pull back.

Perhaps they knew something in the old days. ✘

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The 6.30pm BBC weather report on Wednesday confirmed an expected slot, though Thursday, July 25, had an inauspicious start, thanks to the local gamekeeper potting rabbits until midnight and the burglar alarm sounding off at 3am, but Chris Lovell appeared early - a hopeful sign as he would only bother on a good day. I was anxious to begin as early as possible for the year before on August 14 Edwina and Andy Aveling launched at 9.15am in the Duo Discus and had reached Bicester. I went an hour later and landed 4km short of 500km after 9hrs.

Launching at 10.24am I released half a mile south of the airfield into a 10kt headwind at 1000m. The day had begun late.

It was not surprising that Booker set a 250km task for their Regionals. The Bradbury Standard Clouds of the high reflective type, when reached, reduced to Bradbury Dull Non-Reflective Duds. Thus the lakes at Reading were crossed at 11.34am when at last streets began to work 20° right of track.

Chris Lovell had said "Don't worry if you reach Leicester after your 1pm target *as the day will last.*" It was time to press on for at 30km/h I would need 17hrs flying to land at five o'clock the next morning. Last year on the same task the K-6 was so slow at Northampton a helicopter was sent up from a local TV station to investigate "a stationary" object seen by viewers.

I had the benefit of semi blue conditions allowing thermals to be close together yet well marked without the spread out of cloud that bedevilled previous attempts, yet the day always required constant work to centre in unpredictable broken thermals. The Cair Aviation XK10 vario/averager designed by Julian Ben David performed with usual sensitivity and audio accuracy, helping progress. Keeping high on a straight course seemed the best option. From Reading reaching Leicester at 1.51pm allowed a 57km/h section average. Flying an operating band between 3000 and 4000ft gave an overall first leg average of 46km/h. The 15hr flight had now reduced to 11hrs.

Recalling the first attempt to Leicester from Lasham a loud resounding crack and invisible hand shook the wooden airframe at 1400ft and I found to my surprise, after courage returned, that the controls responded perfectly and turning in lift saw a large explosion of yellow dust and the red flag of an active quarry below.

On the return second leg it was marvellous to

IT DOESN'T HAVE TO BE GLASS

Whatever the season there are always some good flights in wooden gliders as these two accounts show



Lasham pilot Adrian, triumphant after 500km in a K-6 on July 25 after 17 attempts from 1995 totalling 3680km in 86hrs. Note the tattoos on the right wrist - self-administered during the flight to record TP hieroglyphics. Adrian had his first flight with Chris Wills in 1966 and started serious gliding in 1990. He has collected a Gold badge and two Diamonds in 700hrs in his syndicate K-6E. Photo: Terry Joint.

pass over Oxford at 4000ft. The year before, struggling low, I aimed for the hot air emitted by the colleges. Spiralling away at 4kt it occurred to me that they were on holiday - so the dons managed it all by themselves. Arriving over Newbury at 4000ft at 3.38pm with an 8kt following wind in 1hr 47min, the second leg averaged 76km/h.

The flying had reduced to 9hrs and the Diamond was now possible.

Leaving Newbury racecourse stand for the third leg at 3000ft, I increased height over Oxford and Bicester with thermals conveniently marked by gliders. Northampton West was reached at 5.5pm at 4000ft with an average speed of 65.5km/h, despite local blue headwind conditions. This TP now compared favourably with feeble lift at 1800ft at 6pm the year before.

The last leg allowed the sun to shine through, the tell-tale signs of lift haze on the right running parallel to track. Climbing under cu again, I was high over Oxford onwards to find a 5kt climb average in smelly lift over Didcot chimney. Climbing from 2000 to over 5000ft, I set off with a useful tail wind of about 3kt.

"Lasham control, permission to cross over and land straight ahead if final flight is marginal" was greeted with "Charlie Echo Sierra, you are breaking up". A swift check left-right proved the wings were secure and I found lift. And wonderful it was to pass 3000ft over the one field short of Basingstoke where in 1995 I had landed after 9hrs with Lasham in clear sight against a headwind at 7.20pm.

It was now certain for the first time in the flight that I would get home. I landed at Lasham at 6.58pm with one hour soaring time in hand (you were right Chris) and a fourth leg of 116km at 61.6km/h.

The Diamond distance flight of 509km took 8hrs 34min, averaging 59.2km/h. A 750km at 60km/h would need 12hrs 30min and a 14hr soarable day plus winglets. Perhaps in Spain this season?



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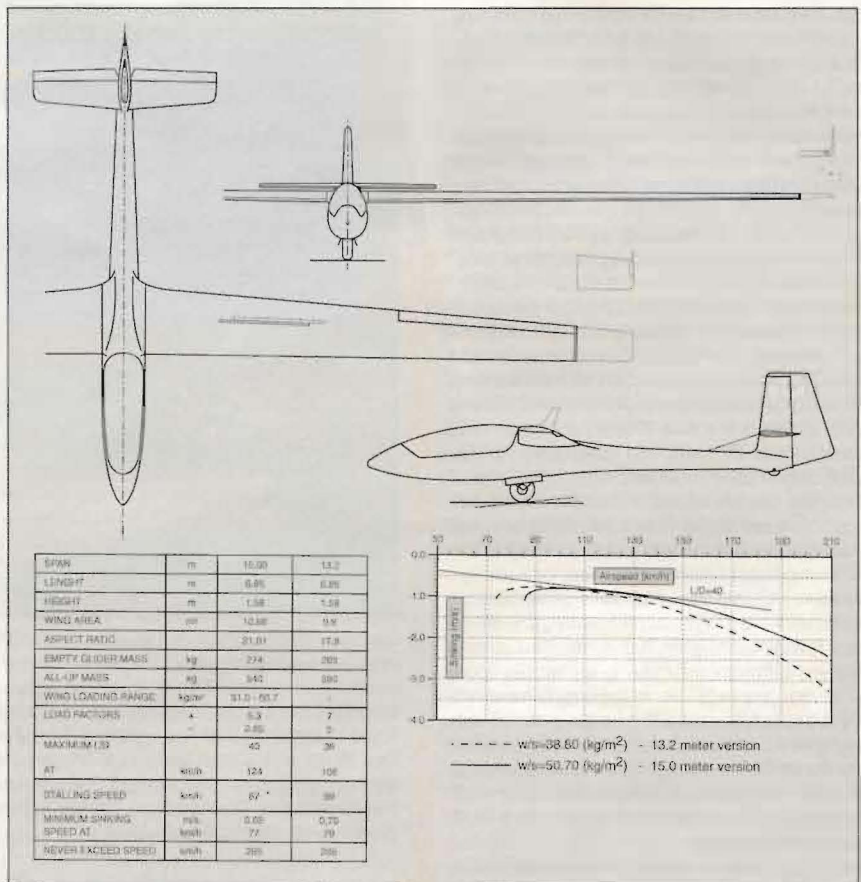
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It's no good laughing and saying its not possible. It is, I know, because I've done it! If I say the total distance was 1056km and total flight time was 16hrs 7min to give an average of just 65km/h you might start getting suspicious. All right, I give in, it was actually over two days last June 12 and 13.

On the 12th I was at the club at 7.15am and the SHK was on line by 8am and there wasn't another person in sight! I got out the towcars, fuelled them, positioned the launch bus, moved the pulley wagon and by 8.45 only one other member was rigging at the launch point. (He also did 1000km in two days but in a plastic glider.)

By 9am the Cus were already popping and so was I! Down to the hangars where the air gradually turned bluer as I questioned the motivation and parentage of almost everybody around. By 09.20 I had acquired sufficient people to launch me when one of our Wednesday people said "Mike, our instructor hasn't turned up, you're going to have to instruct us today". On your bike would be a good interpretation of my reply! "He'll be here", I added to make me feel slightly less selfish.

At 9.27 I launched. The first part of the flight was difficult with a 1900ft cloudbase and a couple of low scrapes in the first 30km. After that the rest of the flight to Norman Cross, Nympsfield, Olney and home for a total of 543km was relatively easy.

After landing just after 6pm I watched the forecast with the feeling that the second day after the front is never as good as the first. The forecast looked OK so I left the glider rigged thinking of maybe doing 200km on the Thursday.

Thursday morning after a cold night was clear with a warm sun. The forecast had said a blue day but I was again at the field early. Gary Fryer in the plastic glider was being coy about his intended task. Mainly because he wanted to beat me on the club ladder. When eventually he said he planned to repeat the 500km he did the previous day, Husbands Bosworth, Frome, Watford Gap, I thought I had better do the same.

I towed the glider leisurely down to the launch

UK 1000KM IN A WOODEN GLIDER?

Mike started gliding in 1990 at Booker and now flies at Cotswold GC. He is an assistant instructor, has two Diamonds and some 800hrs.

point at 8.45 having roused enough people the previous day to ensure activity early. I was installing drinks etc when I detected a faint hissing noise - I had punctured the tyre whilst on the runway. Not having a spare tyre or time to change the wheel I dashed into town and bought some tyre weld, the stuff you use on cars to get you home with a puncture. I had never used this before but thought if it works in a car it should be all right on a glider.

As I was injecting this into the wheel I was reading the instructions on the can. "It is important that you immediately drive at least six miles on the punctured wheel"! This was likely to be a problem. Time was pressing on - it was now 10.15 and I wasn't waiting for the tyre to go flat again, so I pulled on line and launched into a fantastic sky.

At 10.27 I was at 3200ft and called start. Fifteen minutes later I had covered 30km in a straight glide and was at 3600ft. I had been on the sunny side of a street in constant lift. Ahead of me was a small blue patch and then another street. I crossed the blue and then...nothing. I tried the sunny side, the upwind side, everywhere finding only brief bits of lift. After the great start it took me a further 20min to cover the next 10km. I swear there is a sink hole over Little Rissington; I've had trouble there before.


The radio was full of the Open Class Nationals

at Enstone doing their radio checks and I heard the director calling 10min to first launch. Now visibility at cloudbase wasn't brilliant and the thought of the area around me being full of very big wings was of some concern, especially as they might come in my direction.

I called Enstone to ask what task was being set. "A big one" was the somewhat arrogant reply. I resisted the temptation to ask why they only did a little one the previous day.

Thankfully our courses did not conflict. I only saw an ASH-25 which joined me near Badminton later in the day. The final leg from Watford Gap was the most difficult part of the two days. The lift seemed to die almost completely quite early before picking up again to give me sufficient height for a comfortable final glide.

A bit like winning an Oscar or similar I feel there are a number of people to thank. In particular Chris Ellis who now flies at the Mynd for teaching me to fly in 1990 and Mary Meagher who, after giving me a check flight for conversion from the K-8 to K-18, told me in her inimitable way "You're not a natural at this game. You'll have to work hard at it".


I took your advice Mary. 

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APRIL SHOWERS

Tom says that poets tell us April showers bring May flowers. This is a more prosaic account of clouds

If you spend the day exploring dazzling white clouds it can be a surprise to find they leave a slightly grimy deposit on parts of the shiny white sailplane. Clouds look white because they consist mainly of microscopic droplets of water which reflect the light very well. One does not see the tiny particles of grime, some of which are smaller than the wavelength of light. The billions of particles only show up when sunbeams shine through a small gap in the clouds. These "crepuscular rays" reveal the dust like a search-light beam.

The table below lists some of the sizes of nuclei in the atmosphere and the water drops found in cloud. The size of these tiny items is given in microns (1000 microns is one millimetre).

Name	Diameter (microns)	Fallspeed	Concentration
Aitken nuclei	0.1	negligible	>1000%
Large nuclei	0.2-2.0	negligible	100%
Giant nuclei	> 2.0	negligible	
Cloud droplet	10-50	1cm/sec	100%
Large droplet	> 50	27cm/sec	10%
Drizzle	> 200	> 70cm/sec (1.3kt)	
Rain	> 500	200cm/sec (3.9kt)	
Rain	1000(1mm)	650 cm/sec (12.6kt)	
Rain	5000(5mm)	900cm/sec (17.5kt)	

The fall speed of rain increases with size but wind resistance breaks up drops larger than 6mm so most rain has a terminal velocity of 18kts.

What is involved in cloud formation?

Cloud droplets usually form as soon as the humidity exceeds 100% but they need a nucleus to form on. This is because the vapour pressure over a microscopic droplet of extremely small radius is far greater than over a flat water surface. If the air was absolutely pure it would need a supersaturation of 300-400% before spontaneous condensation occurred. When there are large nuclei to form on, the initial radius is increased enough for a droplet to survive at humidities of 101%.

The atmosphere is full of tiny nuclei but only those with a diameter of 0.4 microns or more work as cloud condensation nuclei. Droplets



Photo A. A small winter cu-nim which had just dropped a carpet of snow pellets.

form first on the largest and most water soluble nuclei. There is no shortage of these.

Once formed the droplets continue to grow as vapour diffuses towards them. The concentration depends on the kind of aerosol particle and the updraft speed. With 2kts lift there may be 100% in very clean oceanic air but 1000% in polluted continental air. If the lift remains constant the concentration of droplets is determined within the first few seconds. If the lift increases more nuclei are activated and the droplets increase.

Droplets fall under the influence of gravity but while they remain very small the fall speed is negligible. When their diameter grows to about 200 microns (0.2mm) they are classed as drizzle. This falls out of cloud at 1.3kts or more.

Coalescence

Large faster falling droplets collide with smaller ones and grow by coalescence. Eventually raindrops are produced but the process is slow. It doesn't work at all if the cloud consists of droplets which all have negligible fall speeds.

Large cu have a wider variation of drop sizes than small clouds. If you go up in the core of a thermal the largest drops show up on the canopy near the cloud top. When drops fall the collision efficiency depends on the airflow round the falling drop. Some small drops may be blown aside by the bow wave but pulled in by the wake as the big drop passes.

Photo B. A large summer cu-nim showing the glaciated top where ice crystals predominate.



They do not always merge after collision; some bounce off or only stay in contact for a short time. They seem to stick better if there is an electrical field in the cloud.

Supercooling

The tiny droplets of water do not freeze as soon as the temperature falls below zero. They need an ice nucleus to freeze on and without it they can be cooled to -40°C. This is called supercooling.

Ice nuclei

The situation is transformed if ice crystals are introduced into the cloud of supercooled water droplets. The vapour pressure over ice is less than over water. At -5°C air which is 100% saturated for water is highly supersaturated for ice. The ice crystals grow rapidly at the expense of the droplets. However, ice nuclei are far less common than cloud condensation nuclei. At temperatures between -5 and -15°C there can be a million condensation nuclei for every ice nucleus.

To be effective the ice nucleus needs a lattice structure similar to that of ice. Certain clay minerals found in the soil, and also bacteria from decayed plant leaves, have a suitable lattice structure and make good ice nuclei. The best nucleus is another ice crystal and a supercooled droplet will immediately freeze on contact with it.

Forms of ice crystals

Most ice crystals have a hexagon face but the shape depends on temperature. Dendrites, a fernlike aggregation of crystals with six star like branches, are a beautiful but fragile example.

Some variations are shown in the table below.

Basic Shape		Temp range (°C)
Plates	Thin hexagonal plates	(0 to -4)
Prisms	(Needles)	(-4 to -6)
Prisms	(Hollow columns)	(-5 to -10)
Hexagonal plates		(-10 to -12)
Dendrites	(Fernlike branching)	(-12 to -16)
Hexagonal plates		(-16 to -22)
Prisms	(Hollow columns)	(-22 to -50)

The 22° halo which sometimes appears when the sun is dimmed by thin cirrostratus is due to ice prisms with the faces inclined at 60°. These

particles grow rapidly, fall as snow or ice pellets and melt into rain below the freezing level. Nearly all the rain we get comes from clouds which extend far enough above the freezing level to contain a mixture of ice and water droplets. The likelihood of rain or snow increases greatly when the cloud temperature falls below -12°C. The lower the freezing level the easier it is for a shallow cloud to produce a shower.

In summer when the freezing level over the UK may go well above 10 000ft, large cumuli form and disperse without producing a drop of rain. In winter and spring even small clouds are cold enough to give a shower. In tropical regions where the freezing level can be 15 000ft show-

er. Solid carbon dioxide (sometimes called "dry ice") has been used. A single gramme of this dropped into a cloud whose temperature is -10°C can produce 10¹¹ ice crystals before evaporating. Silver iodide also stimulates ice crystals because it works at warmer temperatures than natural nuclei.

Icing risks

There is always a risk of becoming iced up if you fly in a cloud of supercooled droplets; they are just waiting to freeze on contact with a cold aircraft. Icing appears in several forms:

Hoar frost

This forms in clear air when a very cold aircraft descends rapidly into warmer moister air. I have seen hoar frost on the under surface of a Comet wing where the very cold fuel kept the skin well below zero even though the outside air temperature was over 20°C. When wave flying the pilot's breath often produces hoar frost inside the canopy. The best way to clear this is a blast of cold dry air from outside. Scraping is seldom effective. Hoar frost is common on the upper surface of parked aircraft on a clear winter night. It is more dangerous than it looks; several powered aircraft have failed to take off because of it.

Rime

This forms when small supercooled cloud droplets collide with a freezing cold surface. The droplets form tiny ice particles which trap the air between them to give a white appearance. Rime is most likely when the droplets freeze completely on contact. It builds up on the leading edges of aerofoils and on anything which sticks out into the airflow. Old fashioned air intakes for the ASI were easily blocked. Even a tiny coating of rime spoils the performance of a sailplane. Wood and fabric wings suffer less than the much smoother GRP wings. An old Skylark 4 can carry more ice than a Libelle before there is a serious loss of performance.

Clear ice (glazed ice)

When the cloud droplets are large and temperatures are not far below zero only part of the drop freezes on contact. The rest flows back



Photo C. A springtime cumulus which became glaciated very rapidly and subsequently fell to bits.

lie with their axes horizontal. Many other optical phenomena are caused by ice crystals.

Snow flakes grow when the temperature is above -20°C. They start as very small aggregations of ice crystals and grow large as they near the freezing level. The surfaces of ice crystals become slightly sticky when the temperature rises above -5°C. Colliding crystals tend to adhere when near the freezing level so the largest snowflakes are found in the range 0 to -5°C.

Graupel and hail

Ice crystals also grow by collecting rime ice as they collide with supercooled droplets of water. Rime tends to spoil the elegant shape of crystals and they end up as rough granular lumps or cones called "Graupel" (the German word for barley). The little grains are also called soft hail or ice pellets until their diameter is 5mm or more when they are classified as hail. In winter and spring many showers consist of these small ice pellets. Photo A shows an isolated early spring cu-nim which produced a carpet of ice pellets.

Ice is important for rain making

Coalescence of cloud droplets is seldom an efficient means of making rain. The situation is transformed if ice crystals are added. The ice

particles do occur by coalescence alone without the presence of ice crystals, but it usually takes longer to produce a shower this way.

Cloud seeding

Dropping artificial ice nuclei into a cold cloud may trigger off enough ice particles to produce a

Below: Photo D. A cumulus tower starting to surge up as glaciation begins.



some distance before turning to ice. The result is a clear glaze with trails of ice stretching aft. This sticks more firmly than rime and is liable to affect the control surfaces. These may freeze solid in the short interval between straightening up near the cloud top and emerging into the clear air. Glazed ice is more common in big cu with strong lift than in stratocu layers.

Mixed ice (cloudy ice)

When the cloud holds a mixture of large and small drops with ice crystals and snowflakes too, an unpleasant combination of rime and glazed ice can develop a very rough surface on the leading edge of the wings. A high performance sailplane very soon flies worse than an ancient Dagling. Glide angles of 1:40 are degraded to nearer 1:4. You have to descend a long way below the freezing level before such ice loses its grip. Then it breaks off in large sheets. These are whisked back off the wings and tend to hit low mounted tailplanes with an alarming crack.

Freezing rain

This probably forms the most dangerous ice but is fortunately rare in England. It happens when an approaching warm front drops rain through the inversion into a sub-zero layer of air. The rain remains liquid until it hits a freezing surface lower down. Then it forms a disastrously thick glaze. Roads and runways turn into skating rinks in a few minutes.

Icing temperature

The worst temperature range for airframe icing is between zero and -12°C. Icing seldom causes much trouble when the temperature is -20°C or below. However, there is no lower limit and rime has been seen when the air was down to -60°C.

Carburettor icing can occur when the outside air is above zero. The fall of pressure inside cools the air below freezing making moist air deposit ice and block intakes.

Glaciation of clouds

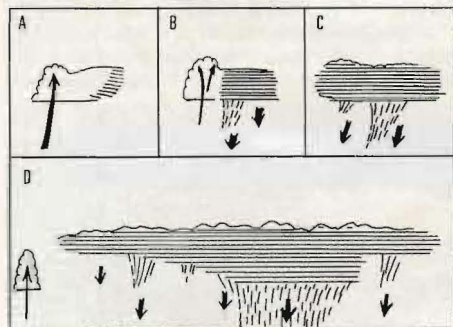


Fig 1. A to D show glaciation of a shallow cloud starting at the older (right-hand) end and working its way right through ending up as a snow shower.

When a cloud of droplets is converted into ice crystals it is said to be "glaciated". The highest concentration of ice crystals usually occurs near the cloud top. Occasionally it appears first at the older end of a shallow cloud and works its way right through. This is illustrated in Fig 1, A to D.

High ice concentrations can develop rather suddenly; numbers may increase a thousandfold in 10min. When there are several turrets of cumulus it is the older ones which contain most crystals. Research aircraft observed a cumulus tower change from water droplets to ice crystals in 15min. Glaciation smooths out the usual domes and bulges of a cumulus and the edges look rather hairy.

The very cold tops of cu-nim frequently become glaciated. Photo B shows the icy top of a big cu-nim in summer. C shows a much smaller cloud formed in spring when the freezing level was low. The whole cloud became infected with ice crystals which spread through it very fast. After dropping a brief shower it dissolved leaving nothing but a few hairy fragments behind.

Splintering of ice crystals

Laboratories have been unable to reproduce such a rapid increase in ice crystals just by cooling. When supercooled water drops meet ice crystals at temperatures between -3 and -8°C the drops freeze suddenly and eject lots of tiny ice splinters. This leads to a sort of chain reaction as each splinter forms a new ice nucleus.

Cu towers grow after glaciation

Glaciation can produce a surge of growth in a cumulus tower. One of the factors which makes a cloud more buoyant is the release of latent heat of fusion (when water turns to ice). The excess virtual temperature in a tower 2km wide may be 0.5°C. This is enough to produce 10kts of lift and set the tower rising again. See photo D. This shows the early result of glaciation which sent a tower surging up out of a heavy cumulus cloud. If the new tower is too narrow it is apt to fall to bits in a few minutes leaving just shreds of ice and snow trailing down below. Beware the sink under it. If several cu ahead show signs of glaciation it may be worth turning back before the sky becomes filled with showers.

Snow showers

In the UK snow tends to turn to rain after falling a few hundred feet below the freezing level.

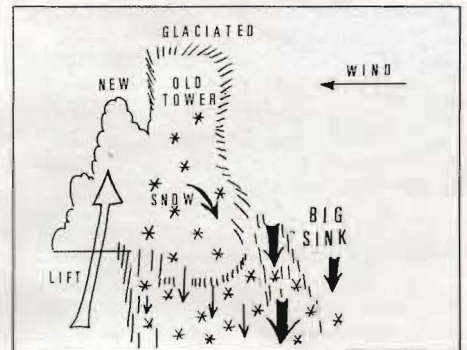


Fig 2. A snow shower rolling its way forward with good lift just ahead of the snow and very severe sink in the evaporation zone behind it.

When soaring the face of a hill the change may occur in less than 300ft. Ahead of an advancing snow shower the lift can become quite strong under the cloud and remain good right up to the edge of the falling snow.

Penetrating such a shower may give a nasty surprise. In the clear air just behind it the rate of sink can go off the clock.

This is most likely if the shower is moving through the air by growing at the front and decaying at the rear. (See Fig 2.) Decay leaves a trail of evaporating snow which chills the air. The usual sink then becomes very much stronger. Evaporation cooling is one of the factors which (in hot climates) produces microbursts.

In an English spring it just dumps you on the ground before the ice has melted off the wings. Many light snow showers from high based clouds are fairly harmless but avoid those which obscure the ground ahead.

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The resignation of Jacky "Kiki" Clairbaux has saddened a number of us. Kiki directed the pre-World Competition, Lavender Glide, and was destined to direct the World Championships this June. At the time of going to press it is my understanding that he has resigned over matters of principle, which he felt demonstrated that the bulk of the French gliding authorities were not supporting him.

Kiki is a tall, rangy, charismatic man with a wicked sense of humour which he is able to convey in several languages, especially in his "broken" English. It goes without saying that he has tremendous talents as a director.

We understand that Jaques Aboulin is the probable replacement. He is rated 39th in the "Vuillemot" unofficial world rankings and has been a member of the French team for some years. We all wish him well in what will be a very difficult and demanding task.

Our patron HRH the Duke of Edinburgh has kindly consented to meet the British team as well as the teams and crews for the Women's European and Junior European Championships, on Tuesday, June 3, at Buckingham Palace. (Is there anybody out there willing to sponsor British team uniforms?)

We hope to be meeting for team discussions in early March with the purpose of cross-pollination of ideas and arranging training periods.

At present I am still biting my nails over our representation in the Championships but today

COMPETITION UPDATE

Bob, the British team manager, tells us all he knows about the World Championships but there is still an element of doubt about the number of pilots representing the UK

(February 11) I have been assured by Roland Stuck, the deputy director of the Worlds, that we will have eight places, though we will not know for certain for another three weeks.

At the moment the intention is that Brian Spreckley, Andy Davis and Martyn Wells will fly in the Standard Class; Justin Wills, Steve Jones and Alister Kay in the 15 Metre Class and Phil Jones and Robin May in the Open Class.

You may have read in the BGA News, p105, that Roger Coote has compiled a BGA Performance Plan with a view to raising money from the Sports Lottery Fund.

I am aware just how much work has gone into this epic. If it is successful, and we have no reason to believe that it will not be, problems of team and individual funding for training and participation in all international events will become very

much simpler. Please, all of you, keep your fingers crossed!

Tenth European Women's Championships. This Comp is being held in Prievidza, Slovakia from July 19 to August 3. We will be represented by Gill Spreckley and Lucy Withall (Standard Class), Rose Johnson and Arianne Decloux (Club Class) and Janet Birch (15 Metre Class).

Fourth Junior European Championships. Musbach, nestling in the hills 50km south-east of Strasbourg, Germany, is the site of this competition taking place from August 11 to 23. Our team will consist of David Allison and Afandi Darlington, with Oliver Ward as reserve, (Standard Class) and Henry and Jay Rebbeck, with Peter Masson as reserve, (Club Class). ✉

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HOW DID THEY DO THAT?

When were you last photographed at 15 000ft? How can pilots can achieve that in-flight picture? Cathy Taylor of Photo Rescue explains how they contrived the front cover

Action pictures came into being as a result of co-operation between a glider pilot and a company called Photo Rescue whose main activity (as the name suggests) is the restoration of badly damaged photographs. Mostly these are old and often incomplete prints for which the negative has long since been lost.

The company digitises pictures at extremely high resolution to store them into a computer. The image is then manipulated to remove tears, scratches, even unwanted objects, and replace missing portions using parts of other photographs where available. The result is a photograph of very high quality with all traces of damage removed.

Early last year a glider pilot approached the company asking if pictures of glider pilots in action could be produced since they were near impossible to take safely from the air. We worked together on the requirements: lighting was all important and had to be carefully synthesised where unavailable.

The pilot, Laura Scott who flies at Sleep, spent many hours gliding with a professional grade camera around her neck (and an open clear vision panel) to accumulate a library of cloud - and ground-scapes - plus a stiff neck! Next it meant taking a number of photographs of gliders on the

ground - with and without pilots - and a collection of pictures of pilots smiling intently.

These are scanned into the computer and given a background chosen by the pilot. The composite is manipulated to fix lighting, appropriate transparency of the canopy and to remove all reflections of the ground from the glider.

The pilot is skewed as necessary to place him in the correct attitude in the cockpit, together with parachute and safety harness. The image is then transferred to film, developed and printed. The result is a photograph of a pilot clearly recognisable and flying at altitude.

This was exactly the way we produced the cover, using a collection of photographs of Steve Jones taken by Derek Wales. This meant a photographic session at Lasham with Steve climbing a ladder for Derek to get photographs at the correct angle, plus taking shots of the Ventus he will be flying in the World Championships.

To date the most common complaint has been that no glider pilot would be smiling if he encountered a photographer so close at 15 000ft.

Many thanks to Laura for the original idea. For further information on how to get your own action picture contact me on 01606-557281. ✉



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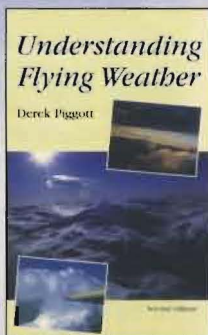
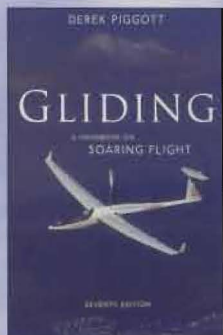
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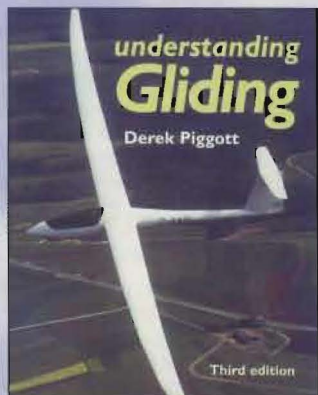
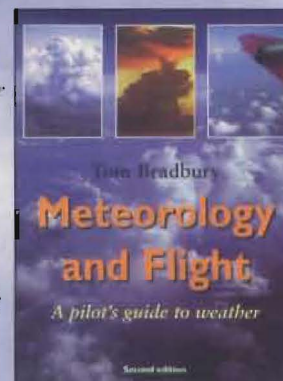
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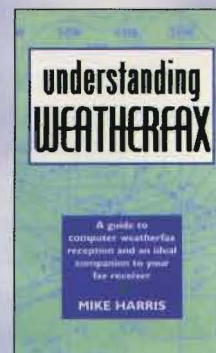
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Madge photographed after her first solo.

GOING SOLO AT 67

It has taken two years and 329 launches but I have finally done it. I have gone solo!

How did I start gliding in the first place? Moving house put us on the edge of the Wolds GC and my daughters bought gliding vouchers for my husband's birthday. When we went to make arrangements to use them, we decided it would be a good thing if he joined the club and I would go along for the ride.

My husband had always been interested in flying and I was a total greenhorn. Not only was my age some handicap - I was 65 when I started - my height (5ft) was a real problem.

There was no way I could reach the rudder pedals even though they had maximum adjustment. The problem was solved by having a cushion underneath me, a cushion behind and wearing platform shoes, the latter evoking quite a few comments I can tell you.

I can assure you it wasn't easy learning to fly. Every time I went into the air I seemed to find something else to do wrong. The instructors must have despaired but I enjoyed every minute of it. It wasn't just the flying but being with other members and doing the jobs associated with gliding. I soldiered on and here I am at 67 ready to carry on enjoying myself. As one instructor said: "If you've time to spare, spend it in the air." MADGE HULME

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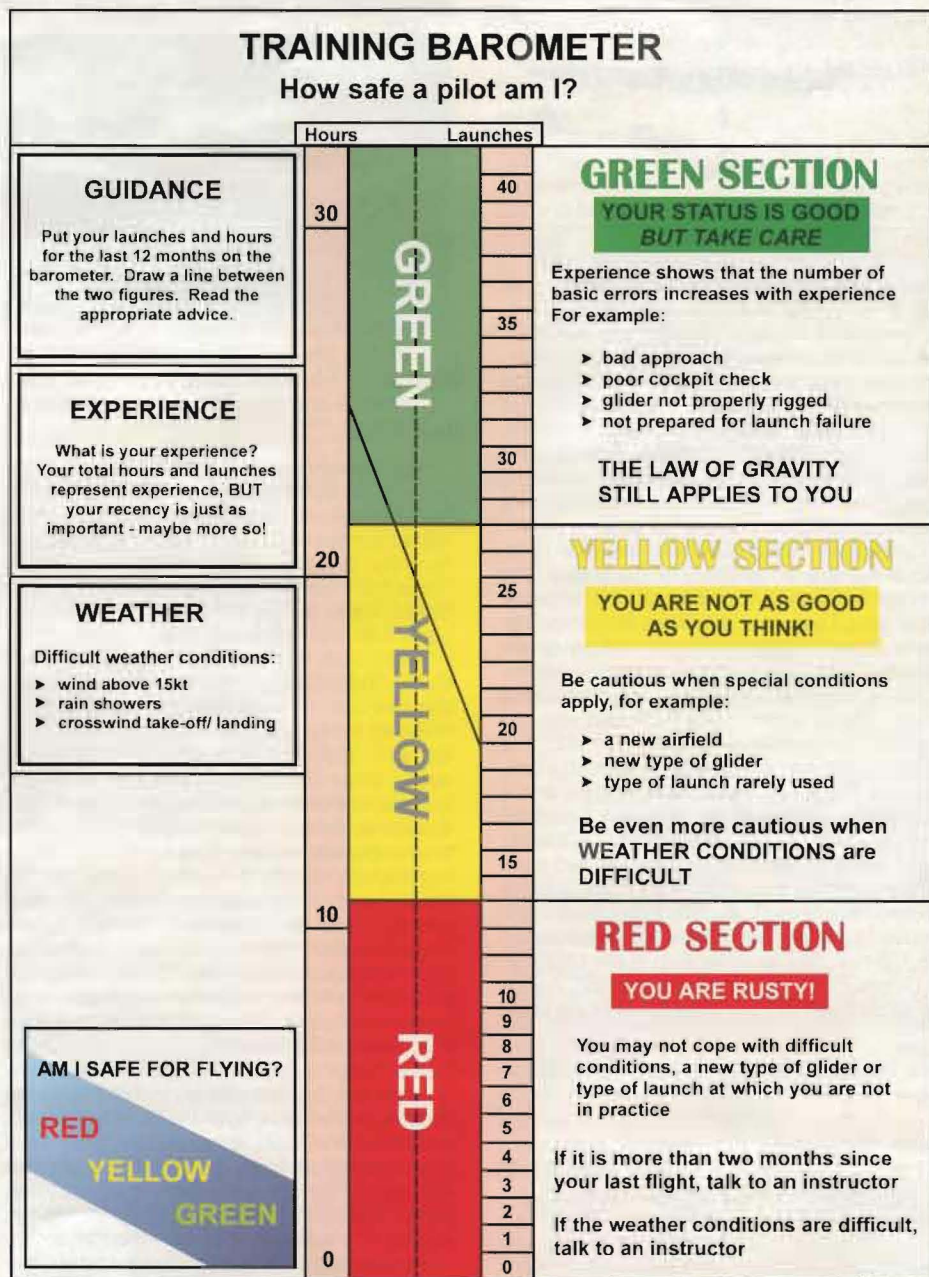
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SAFE FLYING!

This training barometer, sent to us by Bill Scull, was designed in Denmark by the then national coach, Ole Didriksen, and has also been used widely in Germany. Bill says that a problem for most pilots is doing enough flying and from accident data the levels indicated here are critical. Trying to be aware of one's limitations obviously requires a review of experience, especially at the beginning of the season, so he suggests plotting your own hours and launches.



For all practical purposes gliding began again in Europe in 1946. Some pre-war gliders were restored and near copies of the Meise, built in England as the Olympia, and the Weihe, modified and built in Yugoslavia and in France as the Air100, provided for much of early post war soaring. Neither the Olympia nor Air 100 gained in performance over the originals.

The first FAI International Competition took place at Samedan, Switzerland, in 1948 and was the first serious opportunity to fly new gliders, such as the Swiss Moswey and to go for world records. It was at Samedan that the first 100km triangle was established when Sigi Maurer flew his Moswey 3 to achieve a speed of 69.9km/h. The span of the Moswey was only 14m and the empty weight 130kg. L/D was 25 - another move towards lighter and smaller gliders.

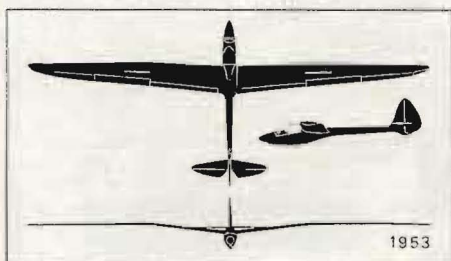


Fig 28. The 19m Yugoslav Orao claimed an L/D of 36.

For the next 15 years, until well into the 1960s, very little advance was made in glider design, although large numbers of interesting gliders were built all over the world. The Weihe of 1938 had an L/D of 29 while the Yugoslav Orao (Fig 28) of 1954 claimed 36. This was probably true as it was a specialised design with a high wing loading for the time of 25.5kg/m² and an empty weight of 356kg; not really a fun glider to fly.

In the early 1950s some very advanced gliders were designed and built in Yugoslavia. The driving force was Boris Cijan of Belgrade University. They were the Orao, the two-seater Kosava and the large and heavy but highly efficient metal Meteor. In Britain Slingsby was developing his Skylark series following the success of the Sky, in which Philip Wills had won the World Championships in Spain in 1952. The Skylark 3 became popular: it was straightforward to fly - though heavy to rig - and it was easy to maintain. In 1959 Nick Goodhart flew a goal record of 580km from Lasham to Portmoak in Scotland using thermals, two thunderstorm climbs and wave lift from the Scottish lowland mountains. In France, Breguet was also producing gliders (Figs 29 and 30). The 901 won the 1954 World Championship in the UK flown by Gerard Pierre of France and the 1956 Worlds in France flown by Paul MacCready of the USA.

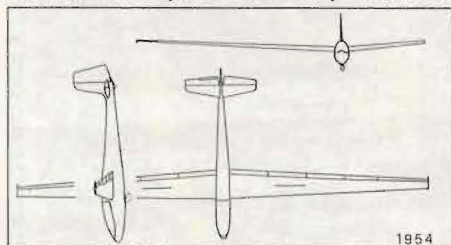


Fig 29. The 17.3m Breguet 901.

EVOLUTION OF THE HIGH PERFORMANCE GLIDER

PART 2

Ann continues her fascinating, award winning paper published in the Royal Aeronautical Society's Journal. This section, "1945 and after", is followed in the June issue with the last part covering hang gliding and paragliding plus a perceptive summing up of the future development of gliding



Fig 30. The Breguet 901 which was one of the first gliders to have flaps, a retractable undercarriage and the ability to carry waterballast (75kg).

The problem was that an L/D of 30 was reaching the limit achievable with wooden gliders because of difficulty in obtaining - and maintaining - a fair surface finish. Wood varied its shape with humidity. Dry, the surface looked like a starved horse but if damp it swelled, affecting the wing profile. Metal, usually aluminium, had disadvantages with rivet heads and sharp corners.

Pilots were learning that to fly fast between thermals there was a trade off between glide ratio and sink rate. A weight ballasted glider could fly faster for the same L/D at the price of worsening the sink rate. This paid when thermals were strong. What was needed was the ability to carry waterballast which could be easily dumped if conditions weakened and for landing. This was not practicable with wooden gliders.

Although, during the 1950s, glider performance was not noticeably increasing the cost was, so again a competition was held, by the Organisation Scientifique et Technique Internationale du Vol à Voile (OSTIV), for a simpler, cheaper glider, suitable for competition flying and limited to 15m span. It would be called the Standard Class.

The Slingsby Skylark 2 (first flight 1953) was entered but the first winner, in 1958, was the Schleicher K-6 (first flight 1955), Fig 31. It was all wood with L/D = 31. It also won the 1960 World Championships flown by Heinz Huth of West Germany. The one consistent and continuing factor was that a span of 15m was proving enough for satisfactory competition performance.

For several years, and for other purposes, development work with plastics had been going on.

Of these glass-fibre with epoxy or polyester resins seemed to offer the best opportunities to obtain the quality of surface needed. Apart from a better surface finish, span and aspect ratio could be increased, and waterballast carried without the risk of growing mushrooms (Figs 32, 33 and 34).

However, manufacturers were still reluctant to put their faith entirely in glass-fibre structures, using foam or balsa for filling and stabilising a plywood skin. This showed performance improvement and L/Ds quickly moved into the

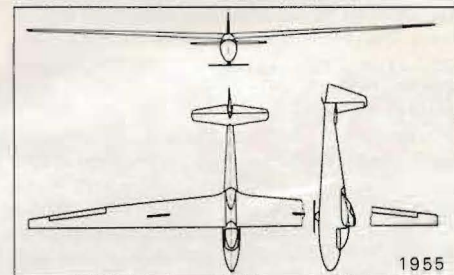


Fig 31. The Schleicher 15m K-6 was the first winner of the Standard Class competition in 1958.



Fig 32. The cockpit of the Polish Standard Class Foka with its supine pilot seating.

higher 30s at higher speeds. For example, the 15m span Edelweiss (Fig 35) claimed L/D = 36 at 95km/h compared to the traditional wood Skylark 2 with L/D = 30 at 78km/h. Sandwich construction was only an interim answer, largely because it was complicated and time consuming to build. The first almost entirely "glass" glider was the German 16m span Phoenix, designed by Nagele and Eppler. The prototype flew in 1957 but its first competition appearance was in

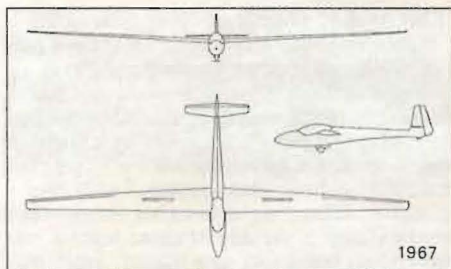


Fig 33. The 15m Glasflügel Std Libelle.



Fig 34. The Glasflügel Std Libelle of 1967 became very popular in its day, having good pilot view, retractable landing gear and pleasant handling characteristics.

1960 where it was studied with interest - and reservations. The Phoenix weighed 162kg and had an estimated L/D of 37. The structure was glass cloth, some balsa fillings and polyester resin, with design concentration on reducing parasitic drag.

It was not until the 1968 World Championships in Poland that pure glass composite gliders appeared in any numbers, one third of the total

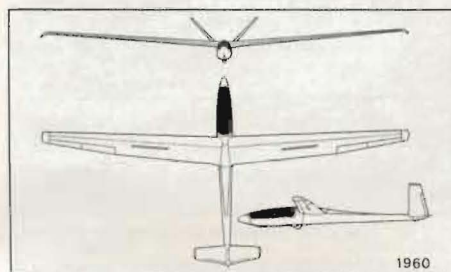


Fig 35. The 15m Cayla C-309 Edelweiss.

entry of 105 being purely or wholly glass composite. The Phoebe, production concept of the Phoenix, had 12 entries. Others were the Cirrus, L/D at 44 at 85km/h, the Diamant, L/D = 52 at 72km/h and the 15m span Elfe S-3, L/D = 37.5 at 90km/h.

Glass-fibre was clearly going to provide the longed-for jump in performance, but although it was easy to make the glider strong enough, it was more difficult to make it sufficiently stiff. Soon ailerons, tails and even wings were found to be prone to flutter, which in a few cases was disastrous.

Fortunately the arrival of carbon fibre, although costly, when strategically woven into the laminates helped to overcome this difficulty. By

the early 1970s composite/GRP gliders were well established and higher performance had arrived.

It was the Germans who immediately led the way with production GRP gliders, because their manufacturers were encouraged by government and were backed up by a flow of highly qualified young designers from the Akaflieds including Gerhard Waibel, the designer of the ASH-25, and Klaus Holighaus, responsible for the Nimbus series.

It is interesting to remember that the first 500km was flown by a single-seater glider with an L/D of 20 and the world two-seater distance and goal record today is 1390km by a glider with L/D = 60, from Vinon in France to Fez airport, Morocco. The flight took just over 13hrs. Such an achievement could not have been foreseen by the pioneers; it resulted from design direction insatiably driven over the years by the demands of prestigious biennial World Championships.

The big Open Class gliders of today are the most beautiful and performance efficient aircraft ever produced; but the best often has a downside. Few pilots can afford such expensive gliders, the average weekend pilot is not always capable of outlanding safely and so may be reluctant to fly cross-country. If the glider is broken the repair is a long and expensive process.

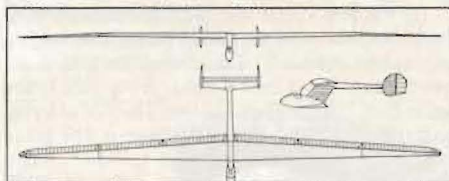


Fig 36. Dr Kuepper's 30m Austria of 1930.

Going to extremes

At this point it may be worth looking at some of the more extreme gliders made over the years where the objective was to explore the limits of performance. The first extreme glider was Kronfield's Austria of 1930, designed for him by Dr Kuepper of the Munich Akaflieg. Fig 16 and 36. It had a span of 30m, 10m more than any contemporary glider, a wing area of 35m² and an aspect ratio of 25.7.

This mammoth cantilever wing was made of wood with the full span metal framed ailerons in three parts on each wing so that they would not jam when the wing flexed. The deep I section main spar was made possible by using the high lift Göttingen 652 wing section. This provided plenty of lift but only at lower speeds.

In an effort to counter this effect the ailerons were arranged to also act as camber flaps, being raised slightly to flatten the wing section and allow faster speeds. Although the minimum sink rate of the Austria was low, as was the stall speed, some form of airbrake was needed to reduce the float. This was provided by the twin rudders which, when both pushed very hard at the same time, would both move outwards. It was just possible to obtain this airbraking when flying slowly, but almost impossible when speed was increased.

Kronfield flew the Austria in the 1932 Rhön competitions and climbed up into a cumulus out

of which he came in a spiral dive at an airspeed of 200km/h with all controls immovable. One half of a wing twisted off and Kronfield hurriedly exited to land safely by parachute. The actual glide performance of the Austria was only 25:1, about the same as a 15m span K-8 training glider of today.

Another extreme was the D-30 Cirrus, Fig 22, from the Darmstadt Akaflieg. Design began in 1933 and it flew in the 1938 International Competitions in Germany. The span was 20m (10m less than the Austria) but with the very high aspect ratio of 33.6. This was remarkable as the wing was only 14% thick, tapering to 12% at the tips. The maximum spar depth was 13.5cm and only half this at the semi-span. At this point the wing was also hinged so that the dihedral could be altered in flight. The reason for this was to research controllability with raised or lowered tips and to give better wingtip ground clearance when landing. The whole wing was quite flexible in bending but strong enough to cope with a VNE of 300km/h.

As would be expected, it was not possible to build this wing entirely in wood so a complex box spar was built of light alloys. Push rod operated airbrakes were also incorporated in the wing. The sections used were NACA 2414 with wash in at the root and NACA 4412 with wash out at the tips. Wing loading was 24kg/m² and best L/D was 37 at 77km/h. Minimum sink was 0.55m/s at 72m/h.

In July 1938 the D-30 broke the world O/R record with a 305.6km flight from Bremen to Lubeck and back, flown by Bernard Flinsch. Flinsch was killed in WW2 testing the Messerschmitt Gigant. The D-30 survived the war only to be captured by the Americans and destroyed in accordance with the policy at the time.

In 1972 the Akaflieg Braunschweig designed and built the SB-10, Fig 37. It was the largest glider so far, apart from the Austria, with a span of 29m. It was a two-seater having a wing in five sections, the centre section spar being of car-

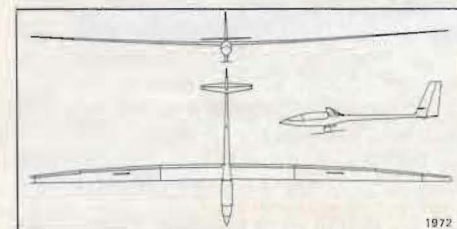


Fig 37. The 29m SB-10, the second largest glider so far.

bon fibre. The two outer portions of the wing could be detached for early test flying, leaving a span of 26m. The object was to obtain the highest possible aspect ratio to obtain the lowest induced drag, as with the Austria, to the point where the profile drag of the whole wing would equate with the induced drag.

Another extreme in 1972 was the British Sigma, Figs 38 and 39. Glass-fibre gliders had produced a real jump in performance and the search for more performance was again restarting, now to try to obtain even higher glide ratio while, at the same time, having a glider that was manageable at the slow end of the speed range.

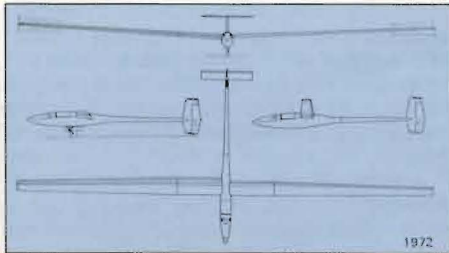


Fig 38. The British 21m Sigma high performance glider.



Fig 39. The variable geometry Sigma (a) with flaps in and aspect ratio 36.2 (16) and (b) flaps extended giving an aspect ratio of 26.8 (17).

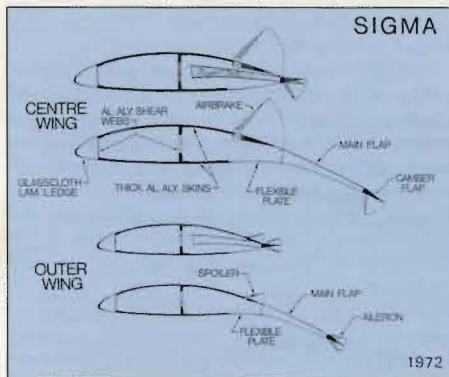


Fig 40. Sigma wing sections showing the changes in shape for climbing and cruising.

Thoughts turned to variable geometry, Fig 40 - a very high aspect ratio wing for high speed performance with a lower aspect ratio larger chord wing for slow speeds.

This was the basis on which Sigma was designed, though it was made in metal as this material would be more satisfactory for dealing with wing extension shrouds, at least on the prototype.

The span of Sigma was 21m with the aspect ratio varying from a very high 36.2 clean to 26.8 with the wing chord extended. It was a heavy glider with an empty weight of 622kg and AUW of 726kg. Sigma was very nearly successful, but the intended glide ratio approaching 60 was not



Fig 41. The 26.4m Nimbus 4 was designed by Klaus Holighaus - the ultimate performance production single-seater with an aspect ratio of 38.7 and L/D of 60. Photo: Julian Herbert.

realised as it was not possible to completely prevent air leaks through the shrouds. Measured L/D was 45, which was not enough for Sigma to go into production.

By the mid 1980s the need to devote time to searching for extreme performance was largely dissipated because production gliders, such as the Nimbus 3 and then 4 were giving glide ratios up to 60:1 - better than 1st - and the cost of trying to do better was becoming prohibitive. The glass and carbon composite Nimbus 4, Fig 41, has a 26.4m span with an aspect ratio of 38.7. Waterballast capacity is 200kg so the wing loading at take-off can be as high as 42kg/m², but for landing only 30kg/m² after water dumping. Take-off weight is a massive 750kg. With an empty weight of 340kg the payload is effectively 200kg excluding ballast.

This sort of performance is extremely satisfying for the pilot who could now fly, for example, 80km straight from a height of 5000ft at over 100km/h - a better performance than some light aeroplanes. It did not take long for pilots to realise that with this sort of available payload it would be easy to build in an "occasional" engine. Table 2 compares the characteristics of these extreme gliders.

Table 2 - Extremes

Year	Glider	Span (m)	Aspect ratio	Wing loading (kg/m ²)	Emp wt (kg)	AUW (kg)	L/D	Min sink (m/s)
1930	Austria	30	25.7	13.8	392	483	25	
1933	D-30							
	Cirrus	20.1	33.6	24	203	288	37@77	0.55@72
1972	Sigma	21	36.2	59-26.8	622	726	45@115	0.5@76
				44				
1972	SB-10	29	36.6	39	577	897	53@90	0.4@75
1985	Nimbus 4	26.4	38.7	32-42	340	750	69@110	0.48@80

Note: Sigma aspect ratio and wing loading figures are for flaps in, followed by out. The Nimbus 4 wing loading figures are for no ballast followed by maximum ballast. All except the Nimbus were one-off prototypes. The Austria was all wood, the D-30 wood with a built up alloy spar. Sigma was metal and the SB-10 glass and carbon fibre construction, as is the Nimbus.

The self sustainers

Since well before WW2 there had been gliders with added engines. These motor gliders developed in three directions: the glider with a retractable motor, usually above the centre section, which provides enough power for take-off and to fly back to base after thermals have died; the nose engine motor glider, usually a two-seater, which has become more of a long winged little aeroplane capable of some soaring and which also has a role as a trainer; thirdly, the self-sustaining motor glider. The engine, usually above the centre section and retractable, does not have enough power to take-off. The gliders are launched by winch or aerotow and the engine used if necessary to return to base to avoid a field outlanding.

With the high payload available in two-seater gliders like the Nimbus 3DM, Fig 42, and the ASH-25 such an engine could be carried as well as a passenger without loss of glider performance. Carrying both, the waterballast capacity would be reduced - unimportant for best glide - though at low speeds minimum sink and stall speed would be higher. With the engine giving the capability to land on airfields this disadvantage is very small.

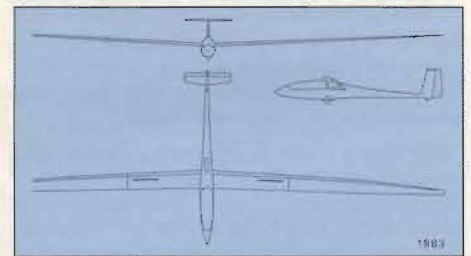


Fig 42. The 24.5m two-seater Nimbus 3DM.

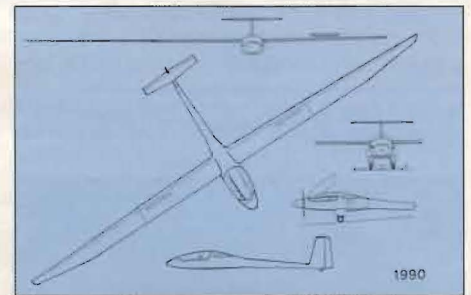


Fig 43. The 23m Stemme S-10 motor glider.

The ASH-25 has a 25m span with aspect ratio 39.3. Empty weight is 470kg and max AUW with ballast of 220kg is 750kg. The glide ratio claimed is 65:1 when flown solo, with a minimum sink rate of 0.45m/s. An ASH-25 held the 1000km triangle record flown at 157.25km/h by Hans Werner Grosse in Australia in 1988. Both the Nimbus and ASH-25 fly in World Championships as gliders with the engine immobilised.

The extreme in motor gliders at the present state of the art is the Stemme S-10, Fig 43 and 44. This is a side by side two-seater with a 100hp Limbach L-2400 EB1 engine behind the cockpit driving a retractable 1.61m variable pitch nose propeller. The two main wheels retract into the fuselage. Wing span is 23m with a wing area of 18.7m². Empty weight is 640kg and AUW 980kg. As a glider the L/D is 50 with a speed range of 75-180km/h and a VNE of 200km/h.

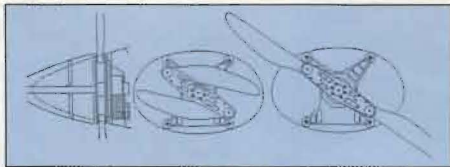


Fig 44. The Stemme centrifugal folding propeller opens automatically when the engine is started and retracts when it stops. The carbon fibre shaft connects the propeller through a 5-belt reduction drive to the Limbach engine via a free wheel clutch.



Fig 45. Wing surface finish of the Schempp-Hirth Discus.

It can circle in thermals at speeds down to 74km/h, but its performance as a "light aircraft" is impressive. It has a fuel capacity of 90 litres giving a 1300km range. With the use of thermals the effective range has been demonstrated as up to 4500km or more than 6hrs flying. A Stemme has, for example, flown from England to Berlin without refuelling cruising at 110 km/h. Needless to say, it is equipped with radio and GPS.

The Standard Class was, of course introduced and exists to provide for the less ambitious and less wealthy, but so ingrained was the pursuit of performance at any price that Standard Class gliders were also becoming faster and heavier. Compare the K-6, Fig 31, with its wing loading of 24kg/m² with the 15m Discus, Fig 45, ballasted flying weight of 500kg and wing loading of 29-59kg/m², Table 3.

Table 3 – Standard Class, span limited to 15m

Year	Glider	AR	Wing load.	Emp wt (kg)	AUW	L/D	Min sink (m/s)
1938	Orlik	14	17.8	168	263	24.5@67	
1938	Olympia Meise	15	17	160	253	24.5@64	0.67@60
1953	Skylark 2	16	23	212	308	30	0.67@71
1955	Schleicher Ka-6	18.1	24.2	185	300	31	0.65@68
1958	Mucha						
	Standard	17.8	27.4	240	350	27.8	0.73@71
1960	Foka	18.5	25.7	245	312	34@86	
1960	Edelweiss	18	30	240	380	36@95	0.69@80
1967	Std Libelle	23.6	35.7	180	290	38@85	0.64@75
1970	Std Cirrus	22.5	32.6	220	390	38.5@90	0.57@70
1971	ASW-15	20.45	28.9	210	318	37@92	0.58
1977	Glasf Hornet	23	35-42	227	400	38@100	0.59@74
1984	LS-7	23.1	32.6-50	247	486	43@95	
1986	Discus	21.3	29-50	228	525	42.2	0.59

Note: The Orlik and Meise were designed for the 1938 International Competition Class not for the official Standard Class which was introduced in the late 1950s. After 1984 Standard Class gliders could carry waterballast.

Glide performance, cost and weight were again lifting the needed pilot experience and flying skill up to the top limits of the middle level pilot, though in Championships the Standard



Olympias at the 1996 Elliott's Rally at Lasham. Photo: Colin Street.

50TH ANNIVERSARY RALLY

Fifty years ago on May 19 1947 the EoN Olympia was given its C of A and to commemorate this milestone in early post-war British gliding history an anniversary rally will be held at Lasham during the last week of May.

It will be run by members of the Lasham Vintage Glider Centre and is open primarily for anyone with an Olympia glider, but other gliders manufactured by Elliotts or vintage gliders are most welcome.

Elliott sold 157 EoN Olympias of which approximately a third were exported. We believe that half of those sold in the UK still exists, some in an airworthy condition and others in storage or under restoration. We would like to gather as many together as possible for the occasion, as it will give an opportunity for ex Olympia pilots to meet up and perhaps find the machine they used to fly or own.

We do not expect any EoN Olympias from abroad but it would be nice to know how many of the exported machines survived. Half went to India and Pakistan so it is possible some are still in existence in those countries.

For further information on the rally contact Ray Whittaker, 8 Hamilton Road, Church Crookham, Fleet, Hants GU13 0AS, tel 01252 614684.

COLIN STREET

A Sting Near The Tail



Julian Wright had landed his Discus at Le Blanc after a day's flying when he noticed a swarm of bees trying to settle on the tail without success. They then got a firmer grip on the tubulator tape under one wing. A French beekeeper came to the rescue the next morning and literally wiped them off the wing and into a hive, fortunately collecting the queen bee in the process. The persistent stragglers tried to reform so Julian disuaded them by towing the glider up and down the peritrack. The incident meant Julian lost a day's flying.

Class gliders were proving their worth. The Standard is now the biggest Class.

Nevertheless, the position today is that worldwide gliding is in numerical decline and the average age of its pilots is increasing.

Good club gliding, competent basic training and competitions all contribute to the wonderful sport that is gliding, so all is far from lost. But for it to flourish there is need to look at the future of soaring in all its aspects, because it has become very complex.

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From the BGA Annual Report: Mike Woollard, the new chairman of the Technical Committee, recorded that the BGA's unique code of voluntary airworthiness practice now applied to more than 2000 active gliders, though not all are in the UK. An ASW-27 (15m flapped) has arrived and an ASH-25b (specially modified in Germany) is due shortly and both will be evaluated by the Technical Committee. Last year 15 LS-8As arrived before this new type was certificated by the LBA. It was an unusual situation and the BGA could only give a six month permit-to-fly. The Cs of A were finally issued last October.

RECORDS

INTERNATIONAL GLIDING RECORDS (as at 14.2.97)

Height Gain 12 894m
 Absolute Altitude 14 938m
 Straight Dist 1460.8km
 Goal Dist 1254.26km

Goal /Return Dist 1646.68km
 ▲ Dist 1362.68km

Free Dist* 1434.99km
 100km ▲ 195.30km/h
 300km ▲ 169.50km/h
 500km ▲ 170.06km/h
 750km ▲ 158.41km/h
 1000km ▲ 145.33km/h
 1250km ▲ 133.24km/h

Height Gain 11 680m
 Absolute Altitude 13 489m
 Straight Dist 1383km
 Goal Dist 1383km
 Goal/Return Dist 1261.36km
 ▲ Dist 1379.35km
 100km ▲ 177.26km/h
 300km ▲ 170.90km/h
 500km ▲ 163.03km/h
 750km ▲ 161.33km/h
 1000km ▲ 157.25km/h
 1250km ▲ 143.46km/h

Height Gain 10 212m
 Absolute Altitude 12 637m
 Straight Dist 949.7km
 Free Dist 877.90km
 Goal Dist 951.43km
 Goal/Return Dist 1127.68km
 ▲ Dist 847.27km
 100km ▲ 145.49km/h
 300km ▲ 143.9km/h
 500km ▲ 133.14km/h
 750km ▲ 127.29km/h

Height Gain 8430m
 Absolute Altitude 10 809m
 Straight Dist 864.86km
 Goal Dist 864.86km
 Goal/Return Dist 673.5km
 ▲ Dist 760.4km
 100km ▲ 141.90km/h
 300km ▲ 143.17km/h
 500km ▲ 113.87km/h
 750km ▲ 121.02km/h

Height Gain 10 065m
 Absolute Altitude 11 500m
 Straight Dist 949.7km
 Goal Distance 859.20km
 Goal/ Return Dist 1127.68km
 Triangular Dist 1362.68km
 300km Goal/Return 153.3km/h
 500km Goal/Return 152.7km/h
 1000km Goal/Return 105.79km/h
 100km ▲ 166.38km/h
 300km ▲ 146.8km/h
 500km ▲ 141.3km/h
 750km ▲ 109.8km/h
 1000km ▲ 112.15km/h
 1250km ▲ 109.01km/h

Height Gain 10 545m
 Absolute Altitude 11 570m
 Straight Dist 892.1km
 Goal Dist 892.1km
 Goal/Return Dist 709.35km
 Free Dist 1008.54km
 Triangular Dist 825km
 300km Goal/Return 145.4km/h
 500km Goal/Return 136.34km/h
 100km ▲ 137.22km/h
 300km ▲ 138.37km/h
 500km ▲ 130.56km/h
 750km ▲ 114.18km/h
 ▲ Dist 1015km
 Free Dist 1015km

Height Gain 9119m
 Absolute Altitude 10 550m
 Straight Dist 949.7km
 Goal Distance 528km
 Goal & Return Distance 620.31km
 ▲ Dist 814.01km
 Free Dist* 620.31km

SINGLE-SEATERS
 P. F. Bikle, USA
 R. R. Harris, USA
 H-W Grosse, Germany
 B. L. Drake, D. N. Speight,
 S. H. Georgeson, N Zealand
 T. L. Knauff, USA
 T. L. Knauff (Nimbus 3),
 L. R. McMaster, J. C. Seymour
 K-H. Striedieck, (USA)
 R. L. Robertson, Gt Britain (in USA)
 K.H. Striedieck (in USA)
 I. Renner, Australia
 J. P. Castel, France (in Namibia)
 B. Bünzli, Switzerland (in Namibia)
 H-W. Grosse, Germany (in Australia)
 H-W. Grosse, Germany (in Australia)
 H-W. Grosse, Germany (in Australia)

MULTI-SEATERS
 S. Josefczak and J. Tarczon, Poland
 L. Edgar and H. Klieforth, USA
 G. Herbaud and J-N. Herbaud, France
 G. Herbaud and J-N Herbaud, France
 M. W. Walker and T. DeIore, N Zealand
 H-W. Grosse and H. Kohlmeier Germany (in Australia)
 E. Sommer and I. Andresen, Germany (in USA)
 H-W. Grosse & K Grosse, Germany (in Australia)
 H-W. Grosse & K. Grosse, Germany (in Australia)
 H-W. Grosse & K. Grosse, Germany (in Australia)
 H-W. Grosse & K. Grosse, Germany (in Australia)
 H-W. Grosse & H. Kohlmeier, Germany (in Australia)

SINGLE-SEATERS (WOMEN)
 Y. Loader, N Zealand
 S. Jackinteli, USA
 K. Karel, Gt Britain (in Australia)
 H. Zejdova, Czech
 J. Shaw, USA
 D. Grove, USA
 J. Shaw, USA
 S. Beatty, S Africa
 S. Beatty, S Africa
 S. Martin, Australia
 S. Beatty, S Africa

MULTI-SEATERS (WOMEN)
 A. Dankowska and M. Matelska, Poland
 M. Nutt & H. Duncan, USA
 T. Pavlova & L. Filomechkina, USSR
 I. Gorokhova & Z. Kozlova, USSR
 K. Keim, Germany & A. Orsi (in S Africa)
 K. Keim, Germany & A. Orsi (in S Africa)
 A. Orsi, Italy & K. Keim (in S Africa)
 K. Keim, Germany & A. Orsi (in S Africa)
 K. Keim, Germany & A. Orsi (in S Africa)
 K. Keim, Germany & A. Orsi (in S Africa)

BRITISH NATIONAL RECORDS (as at 14.2.97)

SINGLE-SEATERS
 D. Benton
 H. C. N. Goodhart (in USA)
 K Karel (in Australia)
 M. T. A. Sands (in USA)
 M. T. A. Sands (in USA)
 R. L. Robertson (in USA)
 M.T.A. Sands (in USA)
 M. R. Carlton (in South Africa)
 M. T. A. Sands (in USA)
 B. Cooper (in Australia)
 E. Pearson (in S Africa)
 B. J. G. Pearson (in S Africa)
 M. R. Carlton (in S Africa)
 G. E. Lee (in Australia)
 R. L. Robertson (in USA)

MULTI-SEATERS
 C.C. Rollings & B. Hicks
 C.C. Rollings & B. Hicks
 R.C. May & P. Rackham (in USA)
 R.C. May & P. Rackham (in USA)
 R. C. May & S. G. Jones (in Finland)
 C.P. Pullen & C.C. Rollings
 B. T. Spreckley & P. Jones (in Australia)
 B.T. Spreckley & M. Woolley (in South Africa)
 B.T. & O. Spreckley
 M. R. Carlton & L. Lawson (in South Africa)
 B. T. Spreckley & P. Jones (in Australia)
 M. Bird & R. Gardner (in Australia)
 B. T. Spreckley & P. Jones (in Australia)
 V. Spencer & J. West (in Spain)
 V. Spencer & J. West (in Spain)

SINGLE-SEATERS (WOMEN)
 Skylark 3e 13.1.1961
 Skylark 3e 13.1.1961
 KS-3 20.1.1980
 Jaskolka 20.6.1961
 Mosquito B 4.1.1994
 LS-3 9.1.1980
 Mosquito B 4.1.1994

SGS 1-23E 25.2.1961
 Grob-102 17.2.1986
 ASW-12 25.4.1972
 Nimbus 2 14.1.1978
 Nimbus 3 25.4.1983
 ASW-20b 2.5.1986
 Ventus A
 ASW-20b 12.5.1994
 Nimbus 3 14.12.1982
 Nimbus 3 15.11.1986
 DG-400 (sld) 9.1.1988
 ASW-22 8.1.1985
 ASW-17 3.1.1979
 ASW-17 9.12.1980

Bocian 5.11.1966
 Pratt Read 19.3.1952
 ASH-25 17.4.1992
 ASH-25 17.4.1992
 ASW-22 1.12.1989
 ASH-25 10.1.1987
 Janus C 26.7.1984
 ASH-25 8.1.1988
 ASH-25 20.1.1988
 ASH-25 10.1.1988
 ASH-25 11.1.1988
 ASH-25 10.1.1987

Nimbus 2 12.1.1988
 Astr CS 14.2.1979
 LS-3 20.1.1980
 LAK-12 8.1.1995
 Nimbus 2 2.7.1990
 Nimbus 2 28.9.1981
 Nimbus 2 5.8.1984
 ASW-20b 24.12.1990
 ASW-20b 26.12.1990
 LS-3 29.1.1979
 ASW-20b 21.12.1990

Bocian 17.10.1967
 SGS 2-32 5.3.1975
 Blanik 3.6.1967
 Blanik 3.6.1967
 ASH-25 7.1.1992
 ASH-25 5.1.1992
 ASH-25 10.1.1992
 ASH-25 6.1.1992
 ASH-25 3.1.1992
 ASH-25 5.1.1992

Nimbus 2 18.4.1980
 SGS 1-23 12.5.1955
 LS-3 20.1.1980
 Nimbus 3 23.4.1986
 Nimbus 3 7.5.1985
 Ventus A 2.5.1986
 Kestrel 19 10.5.1983
 ASW-17 24.12.1980
 Nimbus 3 7.5.1985
 LS-6e 4.1.1991
 Nimbus 2 30.11.1976
 ASW-20 28.12.1982
 Kestrel 19 5.1.1975
 ASW-20e 25.1.1989
 Ventus A 2.5.1986

DG-500 8.10.1995
 DG-500 8.10.1995
 ASH-25 6.7.1995
 ASH-25 6.7.1995
 ASH-25 11.6.1988
 ASH-25 22.7.1995
 Nimbus 3DT 7.2.1987
 ASH-25 19.11.1994
 ASH-25e 8.2.1996
 Calif A-21 27.12.1978
 Nimbus 3DT 6.2.1987
 ASH-25 3.1.1991
 Nimbus 3DT 7.2.1987
 ASH-25e 27.7.1994
 ASH-25e 27.7.1994

G. Spreckley (in S Africa) ASH-25 26.11.1994
 K. Karel (in Rhodesia) ASW-15e 16.10.1975
 K. Karel (in Rhodesia) ASW-15e 2.11.1975
 K. Karel (in Australia) LS-3 12.2.1980
 K. Karel (in Australia) LS-3 20.2.1980
 P. Hawkins (in Australia) ASW-17 17.11.1984

UNITED KINGDOM RECORDS (as at 14.2.97)

SINGLE-SEATERS

Table with 4 columns: Metric, Value, Pilot, Aircraft. Rows include Height Gain (10.065m), Absolute Altitude (11.031m), Straight Dist (827.9km), Goal Dist (579.36km), Goal/Return Dist (801.3km), and various distance goals (100km to 500km) with speeds and times.

15m CLASS

Table with 4 columns: Metric, Value, Pilot, Aircraft. Rows include Straight Dist (827.9km), Goal/Return Dist (617km), and various distance goals (100km to 200km).

STANDARD CLASS

Table with 4 columns: Metric, Value, Pilot, Aircraft. Rows include Straight Dist (718km), Goal Dist (609.9km), 300km Goal/Return (104.09km/h), and various distance goals (100km to 400km).

MULTI-SEATERS

Table with 4 columns: Metric, Value, Pilot, Aircraft. Rows include Height Gain (10.545m), Absolute Altitude (11.570m), Straight Dist (445.58km), Free Dist (1008.54km), Goal/Return Dist (542.91km), and various distance goals (100km to 300km).

SINGLE-SEATERS (WOMEN)

Table with 4 columns: Metric, Value, Pilot, Aircraft. Rows include Height Gain (7833m), Absolute Altitude (8701m), Free Dist (569.93km), Straight Dist (454km), Goal Dist (324.4km), Goal/Return Dist (386.3km), and various distance goals (100km to 300km).

MOTOR GLIDERS

SINGLE-SEATERS

Table with 4 columns: Metric, Value, Pilot, Aircraft. Rows include Height Gain (6710m), Absolute Altitude (8010m), 100km Goal (101.96km/h), 200km Goal (100.24km/h), 300km Goal (106.80km/h), and 100km Goal (85.7km/h).

Table with 4 columns: Metric, Value, Pilot, Aircraft. Rows include Height Gain (8010m), Absolute Altitude (7218m), Free Dist (755.1km), 500km Goal (111.83km/h), 100km Goal (76.2km/h), 200km Goal (66.3km/h), 100km (92.7km/h), 300km (110.65km/h), 400km (100.24km/h), and 500km (78.45km/h).

BRITISH NATIONAL MOTOR GLIDERS (AS AT 14.2.1997)

SINGLE-SEATERS

Table with 4 columns: Metric, Value, Pilot, Aircraft. Rows include Height Gain (7253.9m), Absolute Altitude (9211.3m), Straight Dist (652.7km), Free Dist (753.2km), Goal Dist (415.1km), Goal/Return Dist (646.97km), and various distance goals (100km to 500km).

MULTI-SEATERS

Table with 4 columns: Metric, Value, Pilot, Aircraft. Rows include Height Gain (8010m), Absolute Altitude (7218m), 300km Goal/Return (129.9km/h), 500km Goal/Return (104.1km/h), 100km (146.6km/h), 300km (109.2km/h), 500km (116.1km/h), and 750km (100.4km/h).

INTERNATIONAL MOTOR GLIDERS (as at 14.2.97)

SINGLE-SEATERS

Table with 4 columns: Metric, Value, Pilot, Aircraft. Rows include Height Gain (9935m), Absolute Altitude (10.408m), Straight Dist (1039.87km), Goal Dist (1039.87km), Goal/Return Dist (1220.44km), Triangular Dist (1400.19km), Free Dist (1351.16km), 100km (191.19km/h), 300km (176.99km/h), 500km (164.18km/h), 750km (155.82km/h), 1000km (155.00km/h), and 1250 (139.96km/h).

MULTI-SEATERS

Table with 4 columns: Metric, Value, Pilot, Aircraft. Rows include Height Gain (6550m), Absolute Altitude (8782m), Straight Dist (1078.07km), Goal Dist (1078.07km), Goal/Return Dist (1011.45km), Distance (1256.19km), Free Dist (1196.11km), 100km (179.53km/h), 300km (164.88km/h), 500km (171.1km/h), 750km (157.27km/h), and 1000km (144.67km/h).

SINGLE-SEATERS (WOMEN)

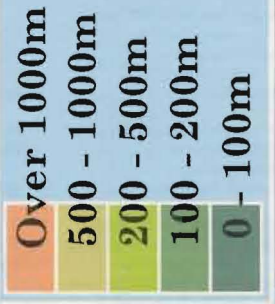
Table with 4 columns: Metric, Value, Pilot, Aircraft. Rows include Height Gain (8444m), Absolute Altitude (10.245m), Straight Dist (539.87km), Goal Distance (539.87km), Goal & Return Distance (531.11km), 100km Triangle (127.49km/h), 300km Triangle (87.53km/h), and 500km Triangle (84.94km/h).

MULTI-SEATERS (WOMEN)

Table with 4 columns: Metric, Value, Pilot, Aircraft. Rows include Gain of Height (6550m), Absolute Height (8782m), 300km Triangle (67.82km/h), and ~with up to 3TPs.

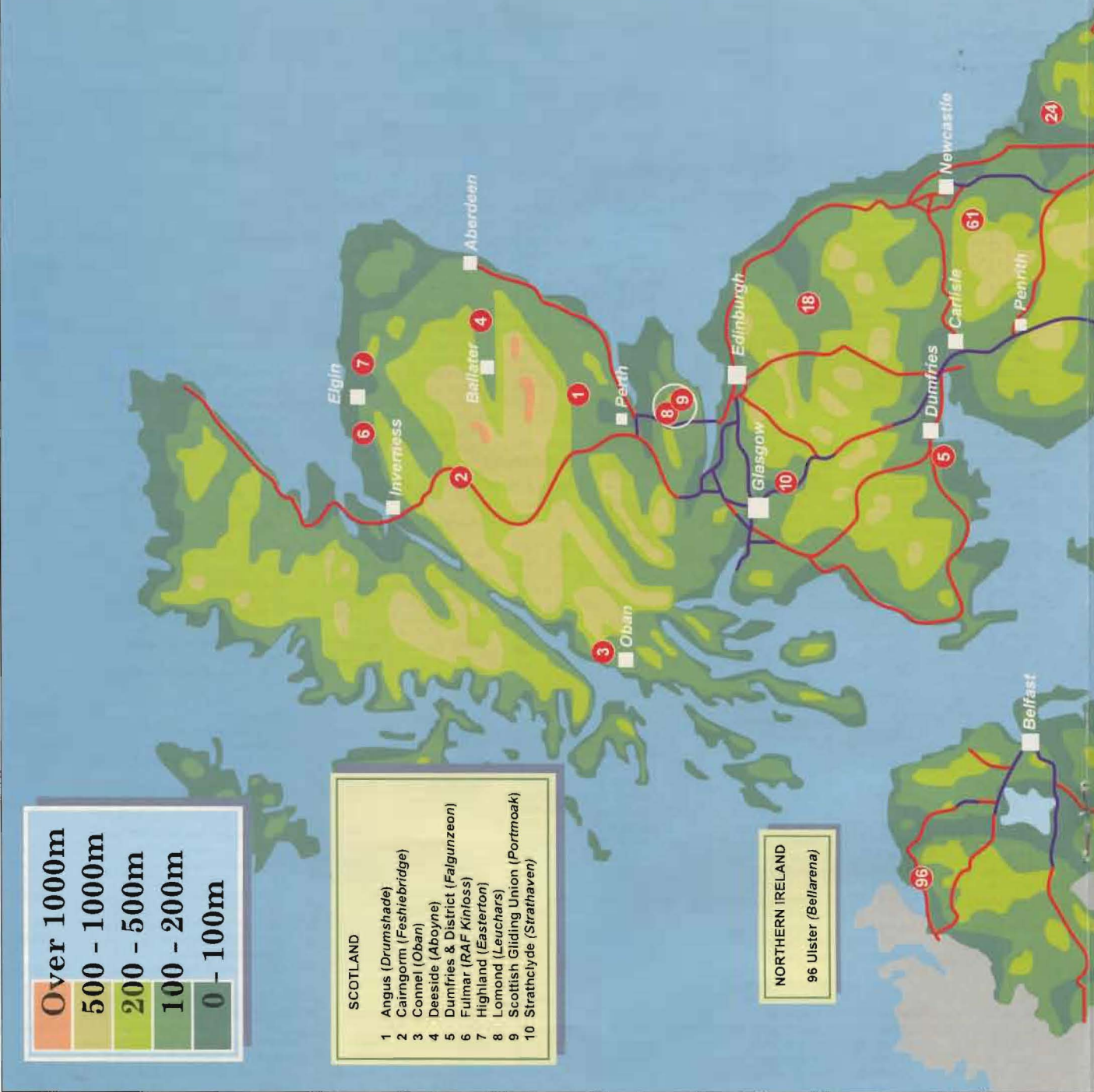
ENGLAND

- 11 Anglia (Wattisham)
- 12 Aquila (Hinton-in-the-Hedges)
- 13 Bannerdown (Keevil)
- 14 Bath, Wilts & North Dorset (Kingston Deverill)
- 15 Bicester (RAF Bicester)
- 16 Bidford Gliding Centre Ltd (Bidford)
- 17 Booker (Wycombe Air Park)
- 18 Borders (Galewood)
- 19 Bowland Forest (Chipping)
- 20 Bristol & Gloucester (Nympsfield)
- 21 Buckminster (Salisbury)
- 22 Burn (Selby)
- 23 Cambridge (Gransden Lodge)
- 24 Carlton Moor (Carlton Moor)
- 25 Channel (Waldeshare Park)
- 26 Chilterns (RAF Halton)
- 27 Cleveleys (RAF Dishforth)
- 28 Cornish (Perranporth)
- 29 Cotswold (Aston Down)
- 30 Cranwell (RAF Cranwell)
- 31 Culdrose (RN Culdrose & Predannack)
- 32 Dartmoor Gliding Society (Brentor)
- 33 Derby & Lancs (Camphill)
- 34 Devon & Somerset (North Hill)
- 35 Dorset (Hyde, Wareham)
- 36 DRA Farnborough (Odiham)
- 37 Dukeries (Gamston)
- 38 East Sussex (Ringmer)
- 39 Enstone Eagles (Enstone)
- 40 Essex (North Weald & Ridgewell)
- 41 Essex & Suffolk (Wormingford)
- 42 Fenland (RAF Marham)
- 43 Four Counties (RAF Syerston)
- 44 Herefordshire (Shobdon)
- 45 Heron (RAF Yeovilton)
- 46 Humber (RAF Scampton)
- 47 Imperial College (Lasham)
- 48 Kent (Challock)
- 49 Kestrel (Odiham [Army])
- 50 Lakes (Wainey)
- 51 Lasham Gliding Society (Alton)
- 52 Lincolnshire (Strubby, Alford)
- 53 London (Dunstable)
- 54 Marchington (Tatenhill)
- 55 Mendip (Halesland)
- 56 Midland (Long Mynd)
- 57 Nene Valley (Upwood)
- 58 Newark & Notts (Winthorpe)
- 59 Norfolk (Tibbenham)
- 60 North Devon (Eaglescott)
- 61 Northumbria (Currock Hill)
- 62 Oxford (Weston on the Green)
- 63 Oxfordshire Sport Flying (Enstone)
- 64 Peterborough & Spalding (Crowland)
- 65 Portsmouth (RN Lee on Solent)
- 66 RAE Bedford (Thurleigh)
- 67 Rattlesden (Rattlesden)
- 68 RSRE Flying Club (Pershore)
- 69 Sackville (Riseley)
- 70 Shalbourne (Rivar Hill)
- 71 Sherington (Edge Hill)
- 72 Shropshire Soaring Group (Sleep)
- 73 Southdown (Parham)
- 74 Spilsby Soaring Trust (Spilsby)
- 75 Staffordshire (Seisdon)



- SCOTLAND
- 1 Angus (Drumshade)
 - 2 Cairngorm (Feshiebridge)
 - 3 Connel (Oban)
 - 4 Deeside (Aboynae)
 - 5 Dumfries & District (Falgunzeon)
 - 6 Fulmar (RAF Kinloss)
 - 7 Highland (Easterton)
 - 8 Lomond (Leuchars)
 - 9 Scottish Gliding Union (Portmoak)
 - 10 Strathclyde (Strathaven)

- NORTHERN IRELAND
- 96 Ulster (Bellarena)



- 74 Spilsby Soaring Trust (Spilsby)
- 75 Staffordshire (Seighford)
- 76 Stratford on Avon (Snitterfield)
- 77 Surrey Hills (Kenley)
- 78 Surrey & Hants (Lasham)

- ENGLAND - continued
- 79 The Motor Glider Centre (Hinton-in-the-Hedges)
 - 80 The Soaring Centre (Hushands Bosworth)
 - 81 Trent Valley (Kirton in Lindsey)
 - 82 Upward Bound Trust (Thame)
 - 83 Vale of White Horse (Shrivenham)
 - 84 Vectis (Bembridge)
 - 85 Welland (Lyveden)
 - 86 Wolds (Pocklington)
 - 87 Wrekin (Cosford)
 - 88 Wyvern (Upavon)
 - 89 York Gliding Centre (Rufforth)
 - 90 Yorkshire (Sutton Bank)

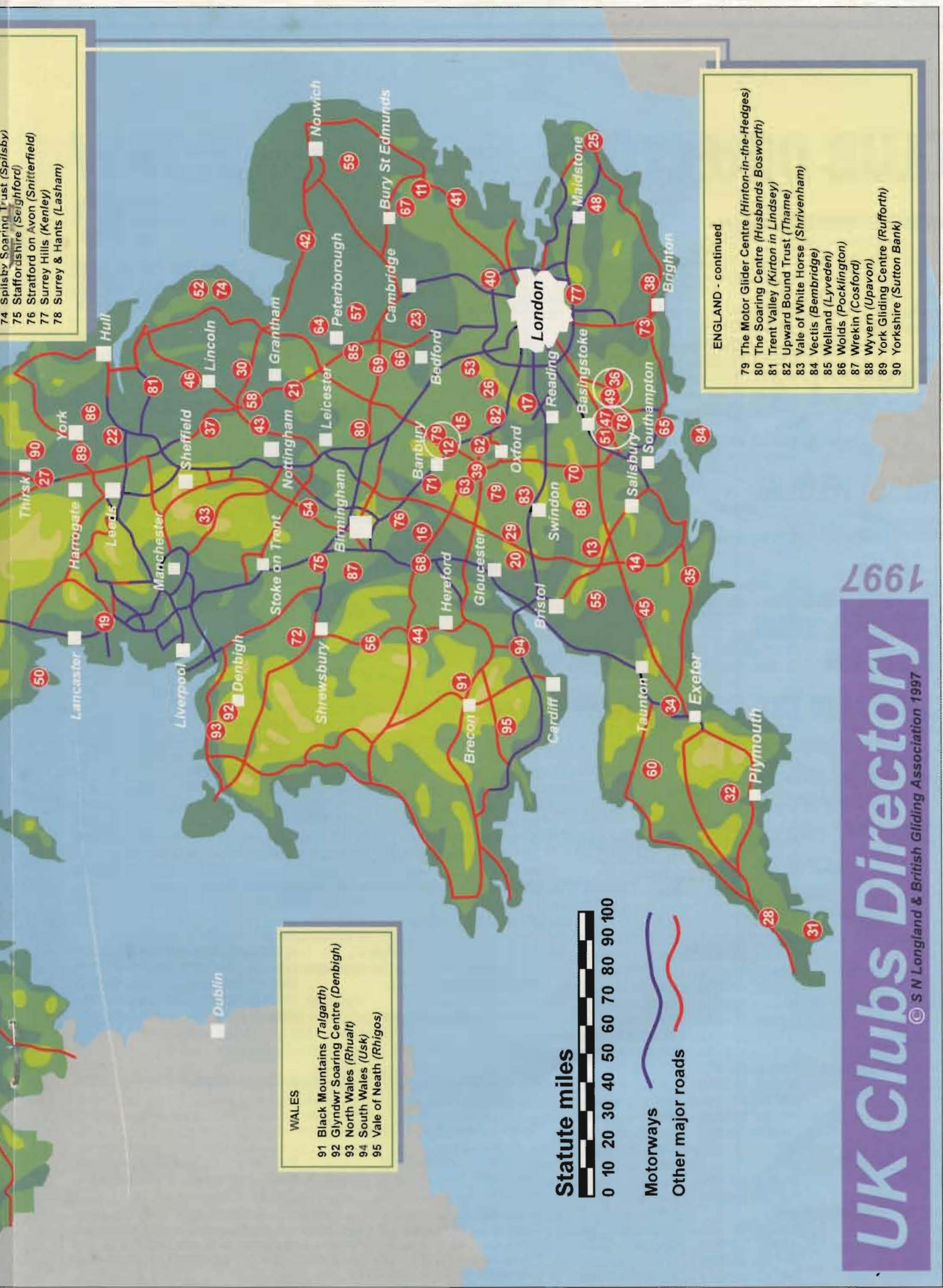
- WALES
- 91 Black Mountains (Talgarth)
 - 92 Glynwr Soaring Centre (Denbigh)
 - 93 North Wales (Rhuallt)
 - 94 South Wales (Usk)
 - 95 Vale of Neath (Rhigos)



1997

UK Clubs Directory

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UK CLUB DIRECTORY

Map and list compiled by Steve from information supplied by the BGA

Updated February 14, 1997. *Restricted membership. Tel numbers in italics represent club officials other than secretary, eg. CFI. N/K= not known.

SCOTLAND

	Clubhouse	Secretary			
1 Angus (Drumshade)*	N/K	(01241) 871400	54 Marchington (Tatenhill)	(01283) 575578	(01283) 820108
2 Cairngorm (Feshiebridge)	(01295) 811056	(01908) 562592	55 Mendip (Halesland)	(01749) 870312	(01934) 512620
3 Connel (Oban)	(01631) 71428	(01369) 81256	56 Midland (Long Mynd)	(01588) 650206	(01952) 255355
4 Deeside (Aboyne)	(013398) 85339	(01358) 789761	57 Nene Valley (Upwood)	(01860) 693479	N/K
5 Dumfries & District (Falgunzeon)	(01387) 76601	(01387) 64612	58 Newark & Notts (Winthorpe)	(01636) 707151	(01636) 704293
6 Fulmar (RAF Kinloss)*	(01309) 672161	Ext 7599	59 Norfolk (Tibenhams)	(01379) 677207	(01953) 456310
7 Highland (Easterton)	(01343) 86272	(01542) 887585	60 North Devon (Eaglescott)	(01769) 520404	N/K
8 Lomond (Leuchars)*	N/K	N/K	61 Northumbria (Currock Hill)	(01207) 561286	(01913) 862884
9 Scottish Gliding Union (Portmoak)	(01592) 840355	N/K	62 Oxford (Weston on the Green)	(01869) 343265	(01817) 561284
10 Strathclyde (Strathaven)	(01357) 20235	N/K	63 Oxfordshire Sportflying (Enstone)	(01608) 677208	N/K
			64 Peterborough & Spalding (Crowland)	(01733) 210463	(01572) 723885
			65 Portsmouth (RN Lee on Solent)*	N/K	N/K
			66 RAE Bedford (Thurleigh)	(01234) 261079	(01234) 347567
			67 Rattlesden (Rattlesden)	(01449) 737789	(01787) 237241
			68 RSRE Flying Club (Pershore)*	(01386) 552123	(01905) 821538
			69 Sackville (Riseley)	(01234) 708877	(01908) 821538
			70 Shalbourne (Rivar Hill)	(01264) 731204	(01249) 815598
			71 SHENINGTON (Edge Hill)	(01295) 688121	(01295) 251716
			72 Shropshire Soaring Group (Sleap)	(01939) 32045	N/K
			73 Southdown (Parham)	(01903) 746706	N/K
			74 Spilsby Soaring Trust (Spilsby)	(01754) 830221	
			75 Staffordshire (Seighford)	(01785) 282575	(01785) 817972
			76 Stratford on Avon (Snitterfield)	(01789) 731095	(01564) 822309
			77 Surrey Hills (Kenley)	(0187) 630091	On site
			78 Surrey & Hants (Lasham)	(01256) 381270	(01252) 874081
				(01295) 812775	N/K

ENGLAND

11 Anglia (RAF Wattisham*)	N/K	(0831) 623253	80 The Soaring Centre (Husbands Bosworth)	(01858) 880521	(01858) 434927
12 Aquila (Hinton-in-the-Hedges)	(01295) 811056	(01908) 562592	81 Trent Valley (Kirton in Lindsey)	(01652) 648777	(01652) 648297
13 Bannerdown (Keevil)*	N/K	(01249) 653928	82 Upward Bound Trust (Thame)	N/K	(01442) 61747
14 Bath, Wilts & North Dorset (Kingston Deverill)	(01985) 844095	(01380) 830986	83 Vale of White Horse (Shrivenham)	(01793) 783685	(01793) 725265
15 Bicester (RAF Bicester)*	(01869) 243030	(0589) 778458	84 Vectis (Bembridge)	N/K	(01983) 853611
16 Bidford (Bidford Airfield)	(01789) 772606	On site	85 Welland (Lyveden)	(01832) 5237	(01536) 203178
17 Booker (Wycombe Air Park)	(01494) 442501	N/K	86 Wolds (Pocklington)	(01759) 303579	(01757) 708955
18 Borders (Galewood Airfield)	(0166) 86284	(01670) 790465	87 Wrekin (Cosford)*	N/K	(01952) 610075
19 Bowland Forest (Chipping)	(01995) 61267	(01729) 824165	88 Wyvern (Upavon, [Army])*	N/K	N/K
20 Bristol & Gloucestershire (Nympsfield)	(01453) 860342	(01666) 503196	89 York Gliding Centre (Rufforth)	(01904) 738694	(01274) 583053
21 Buckminster (Saltby)	(01476) 860385	(01664) 464244	90 Yorkshire (Sutton Bank)	(01845) 597237	N/K
22 Burn (Burn Airfield)	(01757) 270296	(01757) 703601			
23 Cambridge (Gransden Lodge)	(01767) 677077	(01223) 880544	WALES		
24 Carlton Moor (Carlton Moor)	(01642) 778234	(01304) 363111	91 Black Mountains (Talgarth)	(01874) 711463	(01558) 823250
25 Channel (Waldershare Park)	(01304) 824888	(01304) 363111	92 Glyndwr Soaring Centre (Denbigh)	N/K	(01745) 813774
26 Chilterns (RAF Halton)*	(01296) 623535	N/K	93 North Wales (Rhuallt)	(01745) 582286	(01928) 575366
	Ext 6198		94 South Wales (Usk)	(01291) 690536	(01446) 711749
27 Cleveland (RAF Dishforth)*	(01423) 324053	N/K	95 Vale of Neath (Rhigos)	(01685) 811023	(01636) 637241
28 Cornish (Perranporth)	(01872) 572124	(01209) 216583			
29 Cotswold (Aston Down)	(01285) 760415	(01285) 658499	NORTHERN IRELAND		
30 Cranwell (RAF Cranwell)*	(01400) 261201	Ext 230	96 Ulster (Bellarena)	(01504) 750301	(01868) 723736
(Bus/airfield)	(0585) 836669	N/K			
31 Culdrose (RN Culdrose & Predannack)*	N/K	N/K	Service Association Contacts		
32 Dartmoor Gliding Society (Brentor)	(01822) 810712	(01822) 832281	Army Gliding Association	Roy Gaunt	(01985) 216924
33 Derby & Lancs (Camphill)	(01298) 871270	On site	RN Gliding Association	Martin Heneghan	(01329) 663375
34 Devon & Somerset (North Hill)	(01404) 841386	N/K	RAF GSA	See Bicester	
35 Dorset (Hyde)	(01929) 405599	N/K			
36 DRA Farnborough (Odiham)*	(01256) 703157	(01252) 890313			
37 Dukeries (Gamston)	(01909) 501032	N/K			
38 East Sussex (Ringmer)	(01852) 840347	(01825) 768796			
39 Enstone Eagles (Enstone)	(01608) 677535	(01865) 300518			
40 Essex (North Weald & Ridgewell)	(01818) 026663	N/K			
41 Essex & Suffolk (Wormingford)	(01206) 242596	(01473) 682279			
42 Fenland (RAF Marham)*	(01760) 337261	N/K			
43 Four Counties (RAF Syerston)*	(01636) 525300	N/K			
44 Herefordshire (Shobdon)	(01568) 708908	(01905) 28318			
45 Heron (RN Yeovilton)*	N/K	N/K			
46 Humber (RAF Scampton)*	N/K	N/K			
47 Imperial College (Lasham)	(01817) 885489				
48 Kent (Challock)	(01233) 740274	(01795) 471865			
49 Kestrel (Odiham [Army])*	N/K	N/K			
50 Lakes (Walney)	(01229) 471458	(01229) 828120			
51 Lasham Gliding Society (Alton)	(01256) 381322	On site			
52 Lincolnshire (Strubby)	(01507) 450698	(01507) 450586			
53 London (Dunstable)	(01582) 663419	(01923) 267058			

The Royal Naval Gliding & Soaring Association celebrates its 50th anniversary this year. If you or your glider have any connections with the RINGSA, Ken Stephenson (01705 345845) or Steve Barber (01962 883581) of Portsmouth Naval GC would be glad to hear from you.

WAY OFF TRACK



On being a surrogate bird

Years ago, I was soaring at about 2800ft in a K-6CR above Eagle Rock, a prominent feature of our incomparable Binevenagh ridge, when I saw a V-formation of swans crossing Benone Strand, on Ireland's north coast little more than a mile to the north-west of me.

They were determinedly flying south and were somewhat lower. I traded height for speed and flew out to intercept them, having enough tactical nous gleaned from Biggles books to come up to them from behind.

There were only 13 in the flock, Boss Swanee having five off his port wing and seven to starboard. It was before I was seriously into birding; they were probably whooper swans making their landfall after staging through Islay on passage from their Icelandic breeding grounds through Lough Foyle to their winter roost around Lough Neagh, some 30 - 40 miles further south-east.

I slotted into the vacant port wingman position of the asymmetric V, trimming back and giving a touch of airbrake to have just the right height.

The swans either didn't notice my approach - why should they if each was correctly eyeballing ahead and to one side to maintain its position in the echelon - or they were completely unconcerned.

The K-6 was flying just above the stall and was soggy as we all flew south, the swans still flapping vigorously but slowly descending on the early approach for landing in the RSPB's big Longfield reserve a few miles south on Lough Foyle's eastern shore.

Enthralled and enchanted, I flew with them for several minutes but as we approached the estuary of the River Roe I detected signs of unease in some of the birds on the starboard side about this giant interloper in their flock.

So I broke away to port and flew back towards the ridge. But it was magical experience which I

have long wanted to repeat. There have been a few other avian encounters in my 28 gliding years, the most memorable being two meetings with wedge-tailed eagles on a single flight in Oz last year and an earlier Bowland Forest incident.

Keith Emslie and I were scratching in a K-13 low on Fair Snape Fell when a buzzard shot across our nose and then held station closely for a short time on our port wingtip, fixing us with a beady eye.

A week or so ago I read an absorbing book, magically combining both aviation and ornithology and about events of which I had only vaguely heard. I commend **Father Goose**, by Canadian William Lishman, to all of you. It was Lishman who, "imprinting" himself on young goslings fresh from the egg, re-established in two flocks of Canada geese one of their species' migration routes, genetically forgotten through decades of human disturbance.

In October 1993 he led a flock of 18 from southern Ontario to Virginia; the following autumn, with colleague Joe Duff piloting a second microlight, a larger flock of 38 were taken further south into South Carolina.

Thinking that Lishman was their Dad, the geese would form up and formate on the aircraft so closely that the nearest was, literally, within the pilot's arm reach for long passages *en route*.

To his joy each following spring the flocks, without any human navaid, flew back to his farm in Ontario.

Given its propensity, like the threatened Greenland white fronts, for defecating every three minutes, the fecund and prolific Canada goose is roundly cursed and very bad news around London's Battersea Park - and for anyone happening to stand beneath an airborne flock anywhere.

But Bill Lishman's experiments have triumphantly married a branch of sporting aviation to real conservation and has resulted in the feature film *Fly Away Home*, which has its Northern Ireland premiere in a Belfast bughut in six days' time. I can't wait.

An achiever missed

Still on books, I also commend as a marvellous read **Flying with Condors**, by Judy Leden. She's the pilot who has accomplished most things worth accomplishing in three related disciplines of hang gliding, microlighting and paragliding and seen much of the globe in doing so.

Though her references to our sport are no more than two or three one-word mentions of sailplanes one can't be a bigot in these things. One has to concede she is a great achiever, a fine writer and an engaging ambassador for the cause of sporting flight. It's a great pity that real soaring didn't capture her talents and affections for itself.

Judy Leden's book is an antidote to the wails, explanations and apologies we have been reading regularly in *S&G* over the years, the latest as recently as the last issue, p18, on why so many women soaring pilots give it up after marriage, or drop out of pursuing gliding glory to become supportive soup dragons, club treasurers or whatever.

If Rhoda Partridge, to name but one, began

gliding at 40 *after* she had a family of five children and went on to gain a Gold badge and two Diamonds, why can't more other Mums organise it too?

It's the real thing

I giggled with delight when I read Peter J. Holloway's little fantasy, "Fenton's last flight", in the December issue, p325. It wasn't simply the inventive whimsy behind this *joie d'esprit* but the fact that he has his hapless hero, Fenton, swigging whiskey - note the "e" - as he flew.

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Deplorable airmanship but, golly, what good taste!

I then turned to Rhoda Partridge in the same issue, p342, and found her knocking back a good stiff whiskey - note that "e" again - after a particularly gruelling day.

At last the message seems to be getting through that the real *uisce beatha*, appreciated by proper connoisseurs and glider pilots, is triple distilled, Irish, and comes with an "e" rather than upstart and over-promoted Scotch, without an "e" and rushed to market after a mere two transits of the still.

We have the Bushmills' distillery - the world's oldest, in continuous production since 1608 when Shakespeare still had eight more plays to write - a few miles eastwards along the stunning North Antrim coast from Bellarena.

Our standard wet-weather diversionary fallback for visiting pilots is the Bushmills' tour and some generous product sampling at the end.

If this plug doesn't get me:

- a) Bushmills' sponsorship and a fat cheque to paint a tilted Black Bush bottle on the sides of my immensely long Jantar trailer and
- b) frantic inquiries for mainland clubs anxious to fix a safari to the Ulster GC

I simply don't know what will.

I'd baa the lot

How I envy members of clubs like Dunstable - busy enough to have their fields *mown* and rich enough not to have to rent out the grazing rights as an essential economic prop.

Cowpats were a fundamental fact of life on our old field we quit three years ago. Since then it's been sheep, even though we own the place - all but seven acres which belong to a neighbouring farmer and which we have incorporated into our airfield through a cashless lease.

The deal is simple and, best of all, no lawyers are involved. We get a nice flat undershoot on our westerly wind approach and an extension of our main run if needed; there is no dividing fence and he gets the grazing of the whole lot - his seven acres and our 50-plus. On it, he runs sheep and raises lambs for rioting French farmers to cremate across any handy *carrefour* from time to time.

The safety aspect is as uncomplicated as the lease; our foreshore fringe is unlevelled dune land turned into a sandy Gruyère by rabbit warrens. It is fenced off as the flying day sheep pen; our retrieve Land Rover and the woolly creatures' liking for routine - they're sheeplike, really - make it easy to herd the big flock into the pen at the start of each flying day. As long as Sailor McFarland, our diligent site officer, keeps the fence in good repair, there they remain until dusk, when they're let out to give the flying field a short back and sides during the night.

But the downside of this admirable arrangement is something else. The beasts' defecatory habits are, frankly, disgusting. Lie down flat to attach the tow rope, say, to the underbelly hook of the beamy Capstan and, as sure as God made little apples, you'll be lying in a nice fresh greenish and glutinous puddle of you-know-what.

There was a virtual deluge of the stuff for about three weeks early last summer, when the sheep used the north, opening, end of our

hangar for lee-side night shelter during an endless strong southerly. It made the approach on foot to the hangar doors both hazardous and unpleasant. An ankle deep carpet of *Ugh!* was hardly the ambience to attract casual visitors to sign up for membership.

The crap crisis provoked intense discussion in committee about the technicalities of a quickly erected and dismantled electric fence - until we learned that they are not as effective with sheep as with cows. Before we reached any conclusion the crisis passed; the winds began to vary again and the sheep spread their favours randomly all over the field once more.

So we were all pleasantly surprised when we found a blackboard notice from our CFI in the hangar mouth one weekend in August. "The sheep are to be kept in the pen overnight on August 9, 10 and 11. Farmer's orders. Harry", it read. The reason, it transpired, was that the sheep were on a diet. They had been feeding too well on the rich pasture of the flying field. A spell on the harder tack of the rabbit warrens had been prescribed - the ovine version of a spell at a health farm perhaps.

In fact, the flock's enforced confinement to the sparse and rapidly decreasing grazing of the pen was even longer.

On August 14 they were still there, looking reproachfully over the wire fence, baa-ing pitifully and all with a hint of the gaunt look of concentration camp inmates about them - but markedly slimmer than a week or so before.

But the environmental improvement on our site was delightful to behold. One could trip across the field joyously and plant one's feet at will. Keep the blighters penned and let 'em starve, I say.

Stressed out

"It is somewhat stressful being a Penguin these days..." said Sue MacGregor, the cream for the thinking man's cornflakes, on Radio 4's *Today* on February 1. It jerked me to attention. It was a particularly filthy Saturday morning but that's not unusual for early February. The stress for



Upstart seeks start up

Penguin glowed on October 19 when his granddaughter, Rachel Neill, became the Ulster GC's youngest solo pilot with a 20min K-13 flight from Bellarena followed by a landing so smooth it clearly stemmed from her genes. Her maiden solo was on the first reasonable flying day after a planned 16th birthday triumph had been clobbered by foul weather. But Penguin's glow turned to glower only a week later when he found her presumptuously trying out his 19 metre Jantar for size. "Tough luck, 'Granda'", Rachel said. "You've lost both your crew and your glider for the Dunstable Comps next year."

Penguin does not come from predictable rotten weekend weather, when he can hardly see the sea less than 50 yards away.

It comes when the blankness of his computer screen is matched only by the blankness of his mind and the Ed, back fully revived and refreshed by a winter break in tropic climes, has called and asked cheerily "Have you got anything to come?"

Another Illusion - In this issue of deceptions with our contrived cover we follow on with this trick photo from Mike Shailes of Cotswold GC which he captions "I told you it was my turn next!"



Two Loggers Approved For UK Diplomas And Records

Advice by BASIL FAIRSTON, FAI badges officer, to OOs on how to make sure this equipment isn't abused

The cheaper, separate logger units have been in use in UK competitions for several years now and have proved to be popular with both competitors and organisers. It was with some surprise and disappointment that the BGA Competitions Committee discovered that this type of logger would not be approved for FAI badge flights (Silver, Gold and Diamonds). While we lobby to get this decision changed, there are certain flight achievements that are not sanctioned by the FAI and we are therefore able to make the following announcement.

From the publication of this article, EW and Skyforce loggers are approved for the UK 100km diploma, the UK 750km diploma, UK records and British National records which are supervised by a BGA Official Observer (OO). Pilots and OOs should follow the guidance notes below.

We will continue to lobby for approval of these loggers for FAI badge flights.

Guidance for OOs on the use of non IGC approved loggers for UK diplomas and UK and British National records. Cheating is undoubtedly possible with this equipment as it is with

cameras. As an OO it is your duty to be diligent in preventing any abuse which may lead to the cheaper data loggers being disallowed for badges and records.

Badge and record claims with loggers still require a declaration. Unless the logger is of a type which allows electronic declarations, a paper declaration is required and must be sent in with the claim. Paper declarations should include the type and serial number of the logger being used. The next BGA TP list will appear with TPs numbered so you may make an electronic declaration on an EW barograph by using the TAG facility to tag the start, TPs and finish point in the correct order before you take-off.

There are security problems with EW and Skyforce data loggers, as with any equipment used for verifying badge claims and records, and we have highlighted the main issues with advice on how to deal with them:-

1. To make sure the logger flew in the glider with the pilot making the claim you must do one of the following:-

- a) Seal the logger in the glider with paper tape and remove after the flight.
- b) See the logger in the glider and observe the take-off.
- c) Start the logger and GPS. Note the time and when you download check for a continuous trace from start to landing.

2. Is the trace in the logger from that flight, from another flight or from a fictitious flight generated by a computer?

- a) Check the logged take-off and landing times against the club log.
- b) Is the wind drift in thermals correct for the prevailing wind on the day.
- c) Skyforce only. Does the GPS height trace correspond to the barograph height trace. (A separate barograph must be carried if the logger only records GPS altitude.)
- d) EW only. Is the pressure height trace plausible? This can't be loaded from a computer.
- e) You should only examine traces you have just downloaded. Any trace stored on disc should be

regarded as suspect.

3. Does the trace as downloaded show the flight was completely satisfactory?

- a) Make sure you are familiar with the software being used so you don't end up examining a trace other than the one you downloaded.
- b) If you use the pilot's computer and software, is it possible that the pilot has altered the position of a TP to put the track into sector? This is only likely if the pilot had the opportunity to download the trace and inspect it before you downloaded it. Do the TPs used by the analysis software agree with the TPs declared?

4. Will the trace as downloaded arrive at the BGA without tampering?

- a) If possible, download directly on to a floppy disc. After analysis write the flight details (pilot, glider, date) and file the name on the floppy disc and sign it, including your OO number. Then put it in a gummed envelope, seal it, sign and write your OO number over the flap edge. Then fill in the TP section of the badge or record form with a statement along the lines of "I downloaded this trace from the logger and am satisfied it relates to the claimed flight". The claim will only be accepted if the disc, envelope and claim form are signed by the same OO.
- b) EW loggers - send the .EWT file to the BGA as this is much more secure than a .DAT file which is ASCII and can be edited on most word processors.
- c) Skyforce loggers. The .DAT file produced is easily edited so it is important to seal the envelope carefully. Don't use a self stick envelope as these can be opened and resealed.

This all needs a degree of computer literacy. If you are not the right OO for the job then pass it on to someone who is.

We don't believe that cheating is a problem with badge claims. Please endeavour to ensure that we are not proved wrong.

Soaring subscription: If anyone has taken out a subscription with the BGA for *Soaring*, the USA's gliding magazine, we must remind you that as it comes surface mail it will take more than two months before your first copy arrives.

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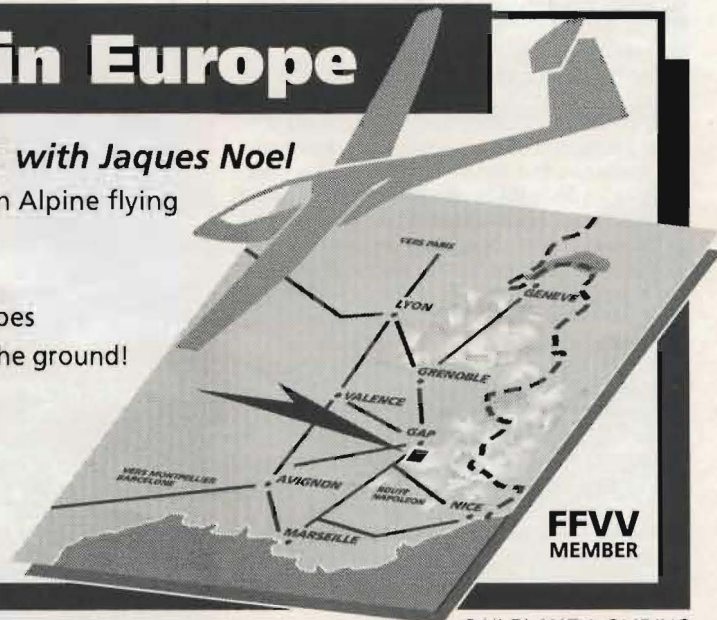
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FROM THE BGA CHAIRMAN

Dick Dixon (on the right) introduces the new national coaches and explains the workings of the BGA Instructors' Committee



Following the EGM at Husbands Bosworth on February 2, I am very pleased to tell you that Dave Bullock and Gee Dale are joining the BGA team as national coaches. I welcome them both and wish them every success. Dave will be responsible for the instructor courses and Gee for soaring courses. Chris Pullen gives up his title of honorary national coach and will continue as chairman of the BGA Instructors' Committee.



Dave (on the left) started gliding with the ATC in 1972 and has been involved in gliding full time since 1984, including time as CFI and manager of Glyndwr Soaring Group. He has 3300hrs plus 1030 power hours and is a BGA senior inspector. Gee has been a professional instructor for seven years including four years at Lasham Gliding Society running advanced and cross-country courses, CFI and general manager of Bristol & Gloucestershire GC and an instructor at Booker. He has 2500hrs gliding and 150 power hours, a Gold badge, two Diamonds and a 750km diploma.

Dave Bullock.

In the last issue, p38, I explained how the BGA Executive Committee is structured and how it works. I mentioned that in practice much of the nitty-gritty and specialist work is undertaken by sub-committees and promised to tell you a little more about how they operate.

I will start with the Instructors' Committee which is, by its nature, relatively high profile and accounts for quite a large slice of the BGA's annual budget.

The chairman is appointed by the Executive and will usually be someone who is already a member of the committee. He has overall responsibility to the Executive for the coaching operation's objectives and the day to day management of the national coaches.

Strictly speaking the committee members are appointed by the chairman, but any new chairman inevitably inherits a going concern and thus picks up where his predecessor left off. This is a good thing because it helps to ensure a degree of stability and continuity in an area where change and innovation generally need to be carefully considered and debated.

The committee consists of a senior regional examiner from eight of the geographical regions (including one from the Services) supported by regional examiners and air experience regional examiners from each region. In addition there are motor glider, aerobatic and air experience senior regional examiners making a grand total of some 36 people. This does indeed comprise a very large committee. However, it is felt that although the meetings, which are held at least twice a year, tend to be rather unwieldy, the advantages of hearing and contributing to the discussions outweighs the not inconsiderable demands on the chairman!

The committee has written Terms of Reference and is responsible for all aspects of flying in gliders and motor gliders. It defines and administers training policy, prepares and manages its budget, approves the appointment of CFIs and liaises with the CAA on such matters as the operation of gliders, motor gliders and tugs, and pilot licensing.



Gee Dale.

The committee also includes an examiners' panel comprised of regional and senior regional examiners whose responsibilities include conducting ground and flying tests to validate, upgrade or renew assistant, full, motor glider and aerobatic instructor ratings. The panel's members also have a close liaison with CFIs, instructors and club managers to pass on the latest ideas in instructing and flight safety.

It will be clear from the above that the Instructors' Committee meetings tend to be rather lengthy with extensive agendas including, on occasions, sensitive and controversial topics. It is highly desirable that there is close contact between this committee and the Executive and for this reason the chairman regularly attends the Executive Committee. Indeed, the current chairman Chris Pullen, is an elected member of the Executive.



Chris Pullen.

While the examiners' panel share out the clubs for periodic visits by prior arrangement, this does not always work out in practice. If you feel your own club is being neglected, please do get in touch with your own senior regional examiner and state your case! To help you with this I include a list of the examiners at the end.

Bearing in mind that there are about 95 gliding clubs in the UK, it is difficult for our few full time staff to get round to you all. However, I am sure you are aware that Dick Stratton, our chief technical officer, regularly visits clubs throughout the British Isles and Roger Coote, BGA development officer and an AEI RE, visited 27 in 1996.

This year we intend to take the BGA soaring courses to a number of sites and the chairman of the Instructors' Committee and national coaches will also be making club visits. As BGA chairman I aim to drop in on clubs (when invited) and will continue to do so as often as my hectic schedule allows - but only on the understanding that I can have at least one flight on each visit!

SENIOR REGIONAL EXAMINERS

Jack Alcock (Motor Glider), Bridge House, Blaisdon, Longhope, Gloucester, GL17 0AH, tel 01452 830737, fax 01452 830920.

Ben Beniston (North-East), 45 Pine Avenue, Langley Mill, Notts, tel 01773 769747.

Chris Heames (RAFSGA Air Member), 10 The Hermitage, Stamford, Lincs PE9 2RF, tel 01780 482593.

Mike Jefferyes (East Anglia), Tanglewood, Fingrith Hall Lane, Blackmore, Ingatestone, Essex, tel 01277 823066.

Donald Irving (South-East), 20 Sedgefield Close, Pound Hill, Crawley, West Sussex RH10 4XG, tel 01293 883220.

Bob Pettifer (North-West & North Wales), 36 Mounthouse Road, Formby, Liverpool L37 3LB, tel 01704 879507.

Colin Watt (Thames Valley), 25 Rooktree Way, Haynes, Beds, tel 01234 381687.

Graham Morris (South-West & South Wales), 52 Mountbatten Close, Yate, Bristol BS17 5YE, tel 01454 322606.

Terry Slater (Scotland & Borders), Cloudbank, Main Road, Lumphanan, Banchory, Kincardineshire AB31 4PX, tel 01339 883455.

Bruce Tapson (AEI), 11 Whatton Close, Sedgebrook, Grantham, Lincs NG32 2EX, tel 01949 842591.

MOTOR GLIDER TRAINING REPRIEVE

Jack Alcock, senior regional examiner for motor gliders, reports that the CAA has agreed his latest submission requesting that the final date of the exemptions which allow the BGA to conduct PPL and PPL instruction training be extended until June 30, 1999. This is the revised date for introduction of the European JAR/FCL licensing regulations.

Jack says that the European regulations concerning motor gliders are not yet finalised and he and Bill Scull will continue to press for sensible and practical terms, appropriate for UK motor glider operators.

In the meantime, Jack emphasises the need to continue our current push to qualify as many SLMG PPLs and PPL instructors as we can before the European rules come into force. Two and a quarter years now sounds like a long time to go, but it is surprising how quickly it will pass.

BGA 1000 CLUB LOTTERY

The **January** draw results are: First prize - A. Galbraith (£49) with the runners up - J.G. Allen, M. Milner, J. Edyvean, R. Davidson and H.S. Henderson - each winning £9.80. **February**: First prize - Dr A. R. Worters (£49.25) with the runners up - A. W. Doughty, S. F. Duerden, P. Berriman, H. Maddams and B. Headon - each winning £9.85.

FRENCH GLIDING

We have been asked to mention to British pilots wishing to fly in France that not all their gliding operations are part of the French GC movement and therefore do not necessarily follow a unified approach to operational and regulatory matters. With safety in mind it is suggested that pilots should always ask whether the French operator involved is a member of the FVV which is the sister organisation of the BGA.

Barry Rolfe, BGA secretary

DEVELOPMENT NEWS

An update of the latest news from Roger Coote (right), BGA development officer



The club in the community

Applications for grant aid and discretionary rate relief frequently need evidence of community benefit given by a gliding club. This sometimes creates difficulties and although many clubs generally benefit the local community, they fail to get the credit they deserve.

I have recently been asked to give guidance to a club and suggest the subject is approached along the following lines:-

1. Provision of facilities. "More flying for more people" is a useful maxim. A chance for more people to sample gliding by taking a trial lesson with trial lessons for special groups, eg Scouts and the disabled.

2. Use of the airfield. Environmental and ecological benefits of a pesticide free haven for wildlife. Environmental benefits of a large area of open space (GAAC have just produced an excellent pamphlet on "Green Airfield" policy). Protection from the military low flying system. Sharing benefits with others sports and with neighbours (Southdown GC has two point-to-point race meetings on its airfield every year and welcomes neighbours who exercise their dogs when flying is not in progress). Some clubs allow use of their clubhouse for social events.

3. Participation. Introducing the sport to a wider public. Taking part in local activities, eg prizes and static exhibitions at local fetes, cadet schemes and flying bursaries for the local youth. Affiliation with local schools, colleges and universities.

4. Commercial benefits. Bringing trade to the local shops, B&Bs, hotels, garages etc. Providing an interest and focus for tourism.

No doubt there are many ways of extending the list and I am always interested to hear of other clubs' community involvement. The message is that we are friendly and do a good job, although perhaps we should be doing more. We are just not very good at telling people about it and scoring the necessary Brownie points.

Performance plans for British gliding

To qualify for revenue funding from the Lottery Sports Fund, a Performance Plan has been prepared for consideration by the Sports Council. The plan sets out the BGA's strategy in seeking to maintain the British teams' leading position in international competitions and especially at the World Gliding Championships.

It points out that gliding is an unusual sport with little spectator appeal where the individual competitor's peak performance is generally reached at a later stage in life than in most other sports because experience and handling skills count for more than physical prowess.

Analysis of recent competition results indicates that Britain's leading role is increasingly under threat, mainly due to improved training methods and facilities used by our main competitors, particularly the French and

Germans. Their domination of gliding competitions at junior level is a warning of much stronger opposition at future world events.

The performance plan describes the development of gliding as a competitive sport and examines selection and training methods for British teams. It concludes that the present system of selection by pilots' peers is sound but with financial support there are many opportunities for improving the training programme.

An improved training strategy is recommended, based on squad training camps with junior and senior teams training together under the supervision of a director of performance.

The British teams and squads for 1997 are nominated and four years' financial projections are included in the form of annual capital and revenue budgets. If the application is successful, there should be financial help towards squad training in time for the World Championships this June.

Lottery success

Derby & Lincs GC have just been awarded £64 469 from the Lottery Sports Fund towards the cost of building a workshop at Camphill for maintaining the club winches and ground equipment.

Barclay Sports Council Volunteer Investment programme

Gliding clubs are good at managing volunteers. They have to be! This scheme offers advice and special workshops on valuing and supporting volunteers, together with cash awards of up to £1000 per club. Tel the information Hotline on 0800 363 373 for an application pack.

SAILPLANE & GLIDING

You can buy the magazine from most Gliding Clubs in Gt. Britain, alternatively send **£17.50**, postage included, for an annual subscription to the British Gliding Association, Kimberley House, Vaughan Way, Leicester. Red leather-cloth binders specially designed to take copies of the magazine and gold-blocked with the title on the spine are only available from the BGA. **Price £5.50** including post and packing. USA and all other Countries. Payable in either Sterling £17.50 (or US\$30.00) (or US \$40.00 by Air Mail) direct to the British Gliding Association.



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OPPORTUNITY FOR YOUNG PILOTS

Clubs are being asked to encourage their under 25 year-olds to enter the Junior Championships, being held at Bidford from August 25 to September 2, and where possible to allow them the use of a glider. The competition is subsidised by Mobil Oil which means no entry fees and at least five free competition aerotows.

It isn't just a contest. The pilots are offered coaching and those not entering as solo pilots will be able to learn about cross-country and competition flying *hors concours* with top competition coaches including Terry Slater and Lemmy Tanner, both members of the BGA Executive, using the BGA Duo Discus, DG-500 and Puchacz. The BGA Discus will be allocated to an entrant.

No qualifications are needed for the two-seater places other than being keen. In fact they don't have to be solo, but they are asked to get support from their club and to write to Terry Slater, at "Cloudbank", Main Road, Lump-hanan, Banchoy, Kincardineshire AB31 4PX, tel 01339 883455, giving reasons why they should be given a place. Send entries to the Competitions Committee, via the BGA office.

There is also a young pilots' soaring course at Bidford from August 18-24 which will be a practice week for the competition.

Terry says he and Lemmy (St Katherines, Aboyne, Aberdeenshire AB34 5BR, tel 01339 886551) are happy to discuss the Championships with anyone interested.

ANOTHER BONUS FOR YOUNGSTERS

The Air League Education Trust has a most-generous annual flying scholarship for those over 17 and under 22 on June 30. The winners are given up to 15hrs power flying instruction during spring and summer of 1998.

The closing date is June 30 and applications forms are from The Secretary, The Air League Education Trust, Broadway House, Tothill Street, London SW1H 9NQ, tel 0171 222 8463 fax 0171 222 8462.

LEARN HOW TO USE YOUR GPS

The Royal Institute of Navigation are holding a half day symposium - "SatNav for GA" - on April 16 at the RAF Club, 128 Piccadilly, London. For more details contact the Institute on tel 0171 591 3130, fax 0171 591 3131.

FAI SPORTING LICENCE

A reminder that the 1997 requirement for FAI sporting licences has been reintroduced. The licence, which is £10 from the BGA, is renewable annually with a current FAI stamp.

Don't forget you will need a licence this year if you are going to enter a Nationals or Regionals competition or if you have plans to attempt record breaking flights. However, competition pilots will no longer have to pay the £10 levy to each competition organising club this year.

STRUCTURE OF THE BGA

The membership structure of the BGA is made up of 82 full members with affiliated clubs as follows:- Army Gliding Association (two clubs); RAF Gliding and Soaring Association (14 clubs) and the Royal Naval Gliding and Soaring

Association (three clubs).

Operations. During the year ending 1996 (1995 figures in brackets) member clubs (civilian and services) flew 173 619 (170 023) hours and 2091 632 (2135 197) cross-country kilometres from 468 459 (453 308) launches from club sites. Club owned gliders total 520 (551) and privately owned gliders 1762 (1807).

Certificates were issued as follows:- A endorsements 705 (748), B endorsements 127 (145), Bronze badges 306 (401), Silver badges 215 (314), Gold badges 84 (85), Diamond goal 92 (116), Diamond height 74 (42) and Diamond distance 32 (35).

A certificates were applied for by 115 (137) holders of the ATC proficiency certificate.

ALPS DEFENCE APPEAL

On February 11 the BGA had received donations from the following:- J. Collier, B. Owen, J. S. McCullagh, Bath, Wilts & North Dorset GC, M. Bird, Dr N. Newton, N. Woodward, Glyn-dwr Soaring Centre, J. Birch, Eccles, C. Serle, M. Gee, P. Orchard, D. Neville, K. Stephenson, Portsmouth Naval GC, W. Roebuck, D. Lamb, S. Pugh, P. Brice, A. Hegner, P. Hawkins, K. Wilson, Southdown GC, R. Bickerton, D. S. Burton, F. Irving, P. Jessop, J. Goodwin, Staffordshire GC, N. Clements, J. Staley, K. Fujishin, N. Storer, C. Harris, Midland GC, J. Fuchs, Kent GC, F. Bick, W. Parker, D. Campbell, R. Bennett, J. Allison, D. Allison, R. Gerrard, T. Harrington, Wolds GC, L. Tanner, C. Holt, S. J. Moody, R. Woodhouse, B. Wade, B. Kennard, K. Broomer, D. Piercy, C. Lyttelton, C. and S. James, R. Chaloner, J. Duthie, R. Fack, P. Hopkins, J. Bastin, G. Metclafe, C. Nicholas, D. Triplett, E. Dent, J. Wright, A. Brown, D. Harper, A. St. Pierre, Mr. Milbank, J. Parish, G. Cole, Bedwell Hey Flying Club, J. Jones, Devon & Somerset GC, D. Hughes, Bidford GC, D. Jones, R. Young, North Wales GC, N. Hitchman, G. Bishop, R. Elliott, S.R. Greasley, C. Simpson, M. Murdoch, J. Pretty, M. Lisle, T. Debrett, C. Price, Vectis GC, Essex & Suffolk GC, J. Strzebrakowski, K. Davis, I. Rule, A. Towse, I. Seach-Allen, A. Sheard, K. Davis, P. Clarke, R. Walker, Dr J. Jackson, G. Lee, M. Garrod, M. Richardso, J. Hoskins, J. Allen, B. Meyer, The Soaring Centre, R. Gray, Essex GC, J and C. Fox, Shropshire Soaring Group, J. McLaughlin, K. Pruchnick, Dorset GC, M. F. Cumming, A. Miller, J. Alcock, S. Thompson, J. Armstrong, 196 syndicate, R. Hart, A. Reid, P. Molloy, Ulster GC, I. Barraclough, C. Jeffery, M. Morley, M. Russell, R. Walker and A. Curtis.

GLIDING CERTIFICATES

ALL THREE DIAMONDS			
No.	Name	Club	1996
518	Rebbeck, Jay	London	23.6

DIAMOND DISTANCE			
No.	Name	Club	1996
1/754	Rebbeck, Jay	London	23.6

DIAMOND GOAL			
No.	Name	Club	1996
2/2524	Ferguson, John	SGU	19.8
2/2525	Onn, Patrick	Booker	12.6
2/2526	Hancock, Christopher	Southdown	4.5
2/2527	Rebbeck, Jay	London	23.6

DIAMOND HEIGHT			
No.	Name	Club	1996
3/1369	Maddison, John	Newark & Notts	29.10
3/1370	Brittain, William	Borders (in USA)	24.10
3/1371	Conway, Dominic	Bristol & Glos	1.11
3/1372	Perry, Charles	Portsmouth Naval	23.10

GOLD BADGE			
No.	Name	Club	1996
1963	Concannon, Peter	Upward Bound	26.10
1964	Onn, Patrick	Booker	12.6
1965	Parker, William	Booker	21.10
1966	Coker, Derek	Four Counties	4.11
1967	Rebbeck, Jay	London	23.6

GOLD HEIGHT			
Name	Club	1996	
Tumbull, George	SGU	29.10	
Sale, David	Chilterns	19.10	
Latty, Keith	Borders	16.11	
Sutton, Julian	Borders	16.11	
Maddison, John	Newark & Notts	29.10	
Brittain, William	Borders (in USA)	24.10	

Storer, Nicholas	Booker	9.10	
Crowhurst, Peter	P'boro & Spalding	9.10	
Concannon, Peter	Upward Bound	26.10	
Perry, Charles	Portsmouth Naval	23.10	
Parker, William	Booker	21.10	
Manning, Mark	Norfolk	30.9	
Welch, Graham	Lakes	29.10	
Winter, Malcolm	Yorkshire	1.11	
Dollins, Phillip	Aquila	7.10	
Coker, Derek	Four Counties	4.11	
Stafford-Allen, Peter	Fenland	2.11	

GOLD DISTANCE			
Name	Club	1996	
Ferguson, John	SGU	19.8	
Onn, Patrick	Booker	12.6	
Rebbeck, Jay	London	23.6	

SILVER BADGE			
Name	Club	1996	
10 184	Starmer, Robert	Bidford	16.8
10 185	Endicott, Michael	Ex-Pat (in USA)	6.7

UK CROSS-COUNTRY DIPLOMA

Part 1			
Name	Club	1996	
Gumbrell, Ian	Bath, Wilts & N Dorset	19.8	

Stolen instruments: The following were stolen from a Piper PA34-220T Seneca 4 registered I-KKVB, parked at Venegona Inferiore Airport, Italy, between November 30 and December 1:- two COM/NAV, King KX-165 radios, No. 56402 and 56432; a VOR/GS model King KI-206 indicator, No. 65827; King KMA-71 communication station, No. 65827; ATC XPDR2 transponder, King KT-71, No. 2233; ADF, King KR-87, No. 64007; indicator ADF, King KI-227/01, No. 40506 and DME, King KN-62A, No. 28430.

If anyone has news of these instruments, would they please contact their local police or the owner, Bonini Luca on tel 0039 331 604417, fax 0039 331 604413.

Correction: We regret that the caption to Fig 4 in Ian Strachan's article in the last issue, "A Tale of Two Turning Points", p43, was left out. It should have read:- Fig 4 is the second TP a year later. Twenty seconds in the zone, five fixes at 4sec intervals. That's more like it! Saved 3min over photography. For a triangle, 6min saved on the TPs, another couple on the remote start zone. Yes, using GPS evidence does allow you to be credited with faster speeds compared to photography!

Not the Battle of Britain: As instigator and organiser of the fly-past over the Solent to which Phil Phillips made such an outstanding contribution, may I draw your attention to one error in Bill Scull's splendid appreciation to him in the last issue, p37. Our airborne tribute commemorated the 50th anniversary of D-Day - not the Battle of Britain. - Bob Pirie.

CLUB NEWS



Tom Smith of Chilterns Gliding Club after going solo.



Above: John "Griff" Griffiths of Norfolk GC who went solo at Tibenham at the age of 75. As a professional soldier, he was one of the last to fly a military glider. Below: Nene Valley GC's Guy Brook after his solo flight.



Copy and photographs for the June-July issue of S&G should be sent to the Editor, 281 Queen Edith's Way, Cambridge CB1 4NH, tel 01223 247725, fax 01223 413793, to arrive not later than April 8 and for the August-September issue to arrive not later than June 10.

GILLIAN BRYCE-SMITH February 12

ANGLIA (Wattisham Airfield)

We have moved from our old hangar and portacabin clubhouse into three hardened aircraft shelters to store private and club gliders with a pilot briefing room for our clubhouse.

At the recent AGM cups went to A Elliott, A Hill and W Hart.
M. A. T. J.

BANNERDOWN (RAF Keevil)

Last season was brought to a successful close at Aboyne where we all got above 10 000ft and flew a total of 125hrs. Steve Ayres and Simon Foster gained Diamond heights, Phil Raistrick completed his Gold and Dave Holley and Richard Mavor Gold height and 5hrs. Shelly Dawson has gone solo.

At the AGM in January the past year was declared a safe one though sullied by two trailing accidents. Trial lesson evenings continue but launch and soaring fees have been increased to cover escalating costs.

The K-21 has been restored to near new condition and looks great and the University group are refurbishing a K-7. The Dawson Piper Cub is proving an excellent tug in the absence of the Kittiwake.

Awards at the AGM went to Simon Foster, Mike Knell and Dave Holley (3). Mel Dawson was thanked for his successful term as CFI and presented with two cartoons depicting his two main sports, gliding and golf, in conflict! We have a twin drum, gas-powered winch.

D. C. F.

BATH, WILTS & NORTH DORSET (The Park)

There has been very little winter flying but plenty of work going on. Many members have been assisting Eddie Gunner to strip, rub down and repair our third Bocian which is being sent away to be re-covered.

Glider hands are changing and new syndicates being formed. A cross-country week is planned for mid-June.

J. L.

BICESTER (RAFSA Centre)

We are still eagerly awaiting the arrival of our Duo-Discus. The various RAFSA and BGA courses are well underway - volunteer RAFSA instructors are always welcome to help out on the 20 or so Service *ab-initio* courses.

We welcome our new manager, Ted Norman. The Inter-Services Regionals is from August 9-17, again directed by Ken Sparkes. Entries are welcome - contact Al Clarke on 01522 811458.
P. S.

BIDFORD (Bidford Airfield)

Last season was very successful. Our K-8/K-6 competition attracted visiting pilots; we raised a sizeable sum during our charity open day and our task week went so well we are holding two this year in June and August as well as our K-8 competition.

Frank Jeynes is now DCFI, helping CFI Don Cary. A Piper Super Cub 180 joins our Pawnee for aerotows. We are hosting the Junior Championships from August 25 and the turbo/self launching motor glider competition is being held from May 31-June 8.
R. N.

BLACK MOUNTAINS (Talgarth)

Our German friends visited again over the New Year. Pilots who braved the biting NE wind were rewarded with many wave climbs to around 8000ft with the best heights for the holiday being 15 000ft.

After many years' of dedicated service Dave Unwin has moved on to greener pastures. Our sincere thanks and best wishes to him. Our new

Three Diamonds to be had over Llewenni Parc, home of Glyndwr GC.



CLUB NEWS

tuggie starts full time operation in mid March.

An expedition to France is being planned for June and Mike Hutch has wintered in Australia. Keith Richards has been busy in the workshop - the Diamant, Blanik and IS-29 look splendid in their new livery.
J. C.

BOOKER (Wycombe Air Park)

Most of our news is about changes in our personnel. Our chairman for the last year, Bernie Morris, is standing down having retired from BA and instructor Gee Dale has become a national coach. Our thanks to them both for their work and to Dennis Glidden who stood in for Gee over the winter. Neil Foreman and Andrew Dunn are our new tuggies and cadet Richard Garner is joining the staff for the summer.

Again there will be no entry fee for our members competing in the Booker Regionals. Entries are progressing well and the recent improvement to local airspace should make it even more enjoyable. The autumn expedition to Aboyne is also well supported.
R. N.

BORDERS (Galewood Airfield)

We had some good autumn wave climbs with Gold heights for Keith Lattey and Roger Cuthbertson, and a near miss by a few 100ft by David Scales. The access road into the new site has been laid and work on the clubhouse has started. Bill Brittain had a good flight in America, with a climb to Diamond height over Lake Tahoe.
R. C.

BRISTOL & GLOUCESTERSHIRE (Nympsfield)

A new DG-505 Elan Orion has been delivered - thanks to negotiations by Geoff Lloyd with the Foundation for Sport and the Arts. Geoff was awarded the chairman's cup for his efforts over the £60 000 grant towards the fully aerobatic glider.

New staff instructor David Plant is doing the club Cs of A and planning a radio ground school.

The club is hosting the Inter-University task week again - from August 3-9.
B. F. R. S.

Below left: Devon & Somerset GC's new CFI, Ron Johns, presenting their president, Eric Shore (on the left) with the trophy he shares with Tim Gardner for their success in winning the task week. Right: Sandy Galloway (right) of the Scottish Gliding Union, being congratulated by instructor Kevin Hook after going solo on his 16th birthday.



Booker GC pilot Peter Wells, flying his Discus over Benson with a wing mounted camera, photographed their CFI Julie Angell and Keith Ford in the club's Duo Discus returning from Didcot.



Above: Chris Smith (left) and Kessack Young-Smith (second right) receiving their wings from instructors Paul Rice, CFI (right) and Andy Sanderson after going solo at Essex & Suffolk GC.



Obituary - Joy Jones

It is with great sadness that we record the death in January of Joy Jones after a long illness.

Joy was one of our longest standing members. She joined with her parents in 1951 when we were at Lulsgate. Although she gave up flying after getting her C she remained a very active associate member and for many years was a bookkeeper for the treasurer. She was also membership secretary and keeper of the flying records in the days before computers took over those roles.

She married Doug Jones in 1953 and they have two daughters. Joy was one of those rare people who enjoyed retrieves and crewed for Doug and others on many cross-countries. Joy was generous and enthusiastic and was always a willing helper. She will be greatly missed. Our sympathy goes to Doug, Lynn and Gill.

Ken Brown

BURN (Burn Airfield)

A newcomer, a privately owned Blanik, is popular with members as well as its syndicate. The white K-13 has been refurbished and is looking splendid in its red and white livery.

Geoff Stainthorpe has gone solo and Stan Kochanowski made the first outlanding of the year in his Javelot, finding the muddiest field in England, as the retrieve crew and the clubhouse carpet will testify.

John Stirk is retiring as chairman bringing to an end one of the longest terms of office in the club history. John has done a sterling job over the last decade and half, leaving his successor, Derek Wilson, a hard act to follow.

Pat Stirk produced and directed a somewhat modified version of "Babes in the Wood", giving us an hilarious and enjoyable evening.

A. J.

Obituary - Colin Wheat

It is with sadness we announce the sudden death of Colin Wheat at the age of 66.

Colin joined the club in 1978 and was a stalwart and dependable member and a loyal friend to many. Not an adventurous pilot, he derived great pleasure from local soaring in his Diamant.

He was a character with a ready fund of tales and anecdotes and will be greatly missed.

Bob Collins

CAIRNGORM (Feshiebridge)

Two cadets from last year, Kenny Russell and Jonathan Orr, have soloed and are joining the Swallow syndicate. Alastair Robertson has become an assistant instructor.

Our task week (with aerotows available) is from April 19 and the Octoberfest starts on September 13 for six weeks. Visiting pilots are welcome to join us for both events.

R. M. L.

CAMBRIDGE (Gransden Lodge)

Jane Whitehead and Julian Bayford are now AEs. We are holding various courses from April - telephone Roger on 01767 677077 for details. A warm welcome awaits.

We have been granted permission to hold the 15 Metre Class Nationals in 1998.

K. M. B-S.

CHILTERNES (RAF Halton)

Tom Smith has soloed and our fleet now includes the SF-25B motor glider for navigation training and those field landing checks.

Please come and support us on our longest day on June 21.

D. S.

CLEVELANDS (RAF Dishforth)

Welcome to "Spud" and Rachel Hallam from Germany - their enthusiasm and expertise is much appreciated. We thank Bod Blanchard for his staunch support and wish him luck in his new posting.

At the AGM awards went to Nick Whiteley, Mac Mackenzie, Willy Hackett, Barry Smith, Frank Wilson, "Spud" Hallam and the University club.

Nick Bryan has gone solo, Lynne Walters has her Bronze and Wally Grout and Alan Duerden have Diamond heights. These last were just after the waveless but otherwise very flyable Christmas wave camp!

Many members were saddened and shocked by the mysterious demise of the seven beautiful trees which used to protect our hangar. Over sixty years old, they had survived the war unscathed. Someone's idea of progress?

J.P.

CORNISH (Perranporth Airfield)

Don't forget that all glider pilots are welcome to join us for our open weekend on May 24-26 to celebrate our 40th anniversary and our task week from May 10.

Don Spottiswood joined us for our annual dinner-dance in January, when we raised £150 in a whip round for the legal fund to support the pilots being accused in the parachute incident in France. Bill Mycock has gone solo.

We are sad to record the death of Ron Brewer who went from *ab-initio* to full Cat during his time with us. He will be warmly remembered.

S. S.

Obituary - Ronald Brewer

Ronnie Brewer, who died on January 31, was one of our very early members who joined just after the formation of the Cornish Gliding and Flying club in 1957 and went on to be a dedicated instructor and tug pilot.

He worked for many years making and repairing much of the gear associated with gliding and, to us older members who remember his so well, he was a friend - always smiling and eager to lend a hand.

E. W. C. Hayman

COTSWOLD (Aston Down)

At the annual dinner-dance awards were presented to Mike Oliver (2), Vinay Patel, Mark Parker, Mike Pirie, Tony Moore, Peter Ward and Jim Rodgers.

Andrew Flewelling has completed his Silver badge. Our club fleet now includes a Motor Falke for cross-country and SLMG PPL training and the glider fleet has been improved with two very well looked after K-8s.

The holiday course programme is available and visitors are most welcome with courses starting in April. We are hosting a BGA cross-

country course in May and it is worth booking early for our task week from July 28 as it is always over-subscribed.

M. S.

CRANWELL (RAF Cranwell)

Carl Kennedy and Steve Twigg have gone solo and Jim Coughlan has a full Cat rating.

Al Jury has retired from flying with the GSA after many years. We wish him well in his retirement and hope he enjoys many hours' flying in his RF5.

P. F.

DARTMOOR (Brentor)

Our chairman Ray Boundy resigned at the end of last year due to his heavy workload. We offer our sincere thanks for years' of hard work. John Marshall is the stand-in chairman.

The Dartmoor wave has worked well in the winter with east winds giving heights of over 7000ft from a winch launch. The T-21 is repaired bringing the club fleet to seven with 14 privately owned gliders.

One club K-7 has been stationed at Talgarth for weekend use and is proving very popular.

P. W. W.

DEESIDE (Aboyne Airfield)

January has seen us soaring most days with 17 500ft being achieved. Marc Tuscan has gone solo.

There are still a few spaces available for the Scottish Regionals from May 24-June 1. Entry is only £100 and day prizes are Royal Lochnagar malt whisky!

Nearly 30 members have visited Aberdeen ATC to foster relations between ourselves and the Aberdeen controllers. The visit included the tower and time on the simulator vectoring helicopters and planes in for an ILS landing. We hope they will visit us in May for flying and a bar-becue.

Slots are available in early September for this year's wave. Contact Mary Rose-Smith on 01569 730867. Bookings for the 1998 autumn wave season open on September 1. We have ordered two new trailers from Shirenewton.

G. D.

DERBY & LANCS (Camphill)

Frank Townsend has retired as chairman having made a significant contribution over recent years. Many thanks for all his hard work and determination.

We have a lottery grant which, amongst other things, will help us progress with a new workshop. The Camphill News is back, edited by Richard Dance, and Carol Velnoweth is social secretary. An ASW-15 has arrived on site.

The Bronze badge and general interest lectures are under way. Our thanks to all instructors for these informative talks.

W. T.

DEVON & SOMERSET (North Hill)

At our AGM in December Ron Johns took over as CFI from Simon Minson whose efforts and enthusiasm were greatly appreciated. Malcolm Chant is the safety officer and Simon Leeson and Mike Fairclough were re-elected to the com-

mittee joined by Eddie Bromwell and Malcolm Chant. Trophies went to Chris Wool (2), Luke Roberts (2), John Street (2), Simon Leeson (2), Tim Gardner, Eric Shore, Dave Edwards, Dave Reilly, Malcolm Chant and Phil Morrison.

With free reciprocal membership extended to all UK clubs we welcome visitors. Martin Woolner and Simon Leeson have AEI ratings. S. C. L.

DUKERIES (Gamston Airfield)

CFI John Swannack retires in March after ten years, handing over to DCFI Paul Etherington. The value of John's dedicated service is immeasurable. He will still be very active as technical officer.

The Christmas dinner-dance was most enjoyable. The K-7 has a new canopy. J. C. P.

ESSEX & SUFFOLK (Wormingford)

We were saddened by the death of Bob Hyde and send our sympathy to his family.

Chris Smith, Kessack Young-Smith and Luke Evans have gone solo.

We have replaced our club Pilatus B-4 with a Sport Vega and have a bought a second-hand Tost winch to give us four wires. Penny and Paul Foulger have an Astir Jeans CS. Some members went to the Long Mynd in February.

There is a public inquiry in early April to hear our appeal against the restricted flying days currently imposed on our site. C. B.

Obituary - Bob Hyde

We were sad to report the death of Bob Hyde in February at the age of 73.

Everyone admired his cheerfulness and the fortitude with which he bore his long illness.

A one time instructor, Bob started gliding in the late 1940s. If there was any lift about he found it and was often still airborne when others had landed. He will be sorely missed and we extend our condolences to his family.

Ralph Miller

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- PPL SLMG Training
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- Club expeditions welcome

For bookings or more details phone 01631 740316 or 0850 173779

Airfield open 7 days per week all year (subject to weather)

Come up to Scotland for great flying and Highland hospitality!



FENLANDS (RAF Marham)

At the AGM Martyn Pike and Rhod Evans changed posts. Martyn is now CFI and Rhod returns to MT. Our thanks to them both for all their work.

We are using a Motor Falke for advanced training and to practise field landings. C. W.

FULMAR (RAF Kinloss)

We again have our expedition to Connel GC and our trial instruction evenings will be followed by barbecues.

Johnathan Joynson is an assistant instructor on the motor glider; Tim Baxter has a SLMG PPL plus his 5hrs; Rick Jones has renewed his assistant instructor rating and Eddie Pratt his AEI rating after being too busy to fly. Mark Smith has gone solo and Karl Kennedy, who started with us, soloed on his 16th birthday at Cranwell GC. J. P.

GLYNDWR (Lleweni Parc)

We have already had some excellent wave this year. Jessica Pennant soared the last wave of 1996 to 9000ft on Christmas Eve and was the first in wave in 1997, climbing to 9000ft in easterly winds dual with Jay Rebbeck. Eddy Lees and Gavin Foster have Diamond heights and John Bedingfeld and Bill Waite Gold heights.

As usual, when the wave is good, the CFI was stuck in the back of the K-13; however, giving AEI flights to 9000ft cannot be that onerous. Many others have climbed to 12 000ft and explored the extensive Welsh wave, all wishing they had fitted oxygen. Eat your hearts out flatlanders. Avoid disappointment by booking soon for our spring wave - tel 01745 813774. M. P. O.

HEREFORDSHIRE (Shobdon Airfield)

The winter was poor but February 2 made up for it with Doug Gardner from Aston Down managing nearly 4hrs in thermals and Mike Dodd, launching at 3pm, flying until dusk, 90min later.

Both John France (Pilatus) and Dave Fall (Falke) had good soaring flights the following weekend and Peter Greenway flew 300km from Benalla GC, Australia. R. P.

LAKES (Walney Airfield)

The fantastic weather over Christmas gave us our busiest December ever. Everyone was soaring in wave, sometimes over the snow covered Lake District, with John Martindale reaching the highest at over 16 000ft.

Visitors from the Long Mynd, Portmoak and Aston Down all had good flights, as did one air experience visitor who went to over 8000ft. Lyn Martindale and Keith Whitworth gained Silver heights. Martin Lewis has his 5hrs and Fred Barker and Peter Seddon have gone solo. A. D.

LASHAM (Lasham Airfield)

Jill Burry has gained the women's British National record for a 500km O/R and the 100km triangle at Benalla where Mark Pigden flew 500km and Mark Stevens 300km.

We have two aerobic training weekends in

May and July which are open to anyone with an interest in aerobatics at any level.

The available landing area at the north-east of the airfield is being enlarged. The winter has been well spent on overhauling the ground equipment, the Cs of A and clubhouse maintenance.

A. M. S.

LINCOLNSHIRE (Strubby Airfield)

The annual dinner-dance was well attended with trophies going to Henry Williams, Henry Draper, Dick Skerry, Jeannette Kitchen, Allan Ely (2) and Dave Fenn (3). Gordon West was awarded honorary life membership for his dedication and hard work over the years.

Simon Marsdon and Simon Jones have gone solo. We have three new syndicates with a Pirat changing hands and a SHK and Std Cirrus joining the private owners' fleet. D. E. S.

LONDON (Dunstable)

Jed Edyvean has taken over as CFI from Bob Bickers who was on a temporary basis since Derek Sear moved on to build up his Met business. Amongst many improvements introduced by Bob has been a lengthening of the winch runs which, together with the use of a lighter weight cable, has greatly improved launch heights.

The cross-country group will be organising a daily competition-style launching grid for cross-country pilots, in the hope of ensuring launches in peak conditions with our expanded tug fleet. Our mutual field-retrieve system, introduced last year as a trial, was a great success and will be improved this season.

It is hoped to organise a "phone-tree" between keen soaring pilots to relay Derek's weather prognostications to all interested parties in time for them to arrange their absence from employment with adequately convincing excuses. This service will be available to pilots outside the club over telephone and e-mail by arrangement with Derek.

We have been running a number of instructor completion courses for the BGA during the winter. R. G. C.

MARCHINGTON (Tatenhill Airfield)

After a six year search, involving 65 potential sites, the local planners refused us permission to move to the site on which the club's future had been pinned. We haven't had time to make any further decisions but thank Val Roberts and her team for their hard work and offer commiserations for coming so close at the final stage.

However, we still have several years left of our Tatenhill licence and are looking forward to a busy year. Courses are being booked up and we may have a BGA soaring week. As well as weekends we fly on Wednesdays, our Super Cub 180 is available to rent by other clubs and visitors are welcome. I. W. R.

MENDIP (Halesland Airfield)

We are hoping for a lottery grant to upgrade our workshops and mains services. We are keenly aware that a high percentage of failed applica-



Left: Bristol & Gloucestershire GC's cup winners, l to r:- Paul Little, Gerylgn Macfadyen and Tim Macfadyen, with their chairman, James Metcalfe, who presented the trophies at their annual dinner in February. Photo: Bernard Smyth. Right: Steve Twigg and Carl Kennedy of Cranwell GC being presented with their first solo certificates by instructors Kev Morley (left) and Al Docherty.

tions are the result of poor presentation and have taken advice from all quarters to ensure that ours does not fall at the first hurdle.

We have high hopes of at last restoring aerotowing and are working on a hangar packing routine for the Rallye. Winter all but stopped our flying but on one rare good day Sally Carter got a Bronze leg in the club K-8 with her longest ever flight of just over 1hr.

K. S.

NENE VALLEY (RAF Upwood)

Guy Brook has gone solo. We have reintroduced mid-week flying (normally Wednesday) and hope to continue this throughout the year.

A. F.

NORFOLK (Tibemham Airfield)

Our Christmas party was the usual success with good food and in-house cabaret. Griff Griffiths resoloed after 40 plus years. Griff was in the Glider Pilot Regiment and landed Horsas in Normandy and at Arnhem. He started the Army GC at Lasham in the early 1950s with wife Jean.

Work has started on re-roofing the hangar. We are having free flying in February again to encourage use of the winch. We were saddened by the sudden death of Jack Sillis, one of the Wednesday boys.

B. W.

NORTHUMBRIA (Currock Hill)

Thanks to strenuous work behind the scenes we are awaiting the arrival of a SkyLaunch winch. John Collinson is now chief ground instructor.

Our cadet scheme, in its first full year, has helped Jamie Norris to achieve an ATC flying scholarship. Ron Davis and Colin Tweddell have arranged six course weeks this season (tel 01207 561286 at weekends for details).

D. W. H.

PORTSMOUTH NAVAL (Lee on Solent)

We are hanging on at Lee on Solent as if by our collective fingertips. The DLA has extended the lease to 1998 but we really need a clearer view of the long term future to recapture that elusive feeling of security and banish planning blight.

Nigel Gilkes has a Gold badge and Diamond goal flown from Lee on August 4.

We had a successful October expedition to Aboyne when Graham Tucker, John Hale, Chas Perry, Geoff Clark and Dave Tanner gained Diamond heights. Our thanks to Deeside GC.

We have *ab-initio* courses at Easter, July and August and have a (John) Sproule weekend over the early May Bank Holiday to celebrate the 50th birthday of the RN Gliding and Soaring Association - John was one of the founders. Anyone with such connections who wishes to visit that weekend please ring 01705 345845.

K. S.

RATTLESDEN (Rattlesden Airfield)

A new Puchacz has arrived and we have sold one of our K-7s (Ruth) after great service. Winter jobs included work on the two-seater fleet.

Our AGM in February welcomed a promising number of new members and reported one of the best financial years ever.

We are planning the annual dinner and a trip to Sutton Bank in March. We are again running summer courses, youth groups and AEI evenings and will be entering a team in Wolds GC's Two-seater Comp.

Visitors are always welcome and we have dropped the day membership charge. Our first flying week is from May 19.

H. S.

SCOTTISH GLIDING UNION (Portmoak Airfield)

Cadet Sandy Galloway went solo on his 16th birthday. We are pleased our president Bill

Walker MP has been awarded the Royal Aero Club silver medal.

We have refurbished one of the club's single-seaters specifically for members of the cadet scheme to use on cross-countries.

A team led by Colin Golding and Ian Dandie have built a barograph calibration centre in part of the workshops. This facility is thanks to the generosity of Yvonne, wife of the late Richard Rozycka, who kindly ran his own centre next to the airfield.

We are again organising an expedition to HusBos in May. Holiday courses start in May and run through till the end of October. If interested please phone or fax the club office on 01592 840543.

N. F. G.

SHALBOURNE (Rivar Hill)

We held our annual dinner in January, with over 60 people attending. Our thanks to Val Pike and Mavis Brind for their efficient organisation. Trophies went to Phil Morgan, Alan Wilkinson and Steve Ottner and his wife Katrina.

Our K-7 is being repaired and resprayed and our three winches overhauled by our new equipment officer, William Davis, and helpers.

Kay Draper has resoloed and despite bitterly cold easterly winds many members turned up on New Year's Day for the first flights of the year.

C. N. H.

SHENINGTON (Shenington Airfield)

The seven day operation continues in spite of dire weather. Jim Doyle, Damien Dyer and Keith Marchant have gone solo, while Gary Brightman and Dave Wardrop have their AEI ratings.

In December the BBC filmed part of a detective series on the airfield. This was very entertaining and some of our gliders may get a bit of airtime in March as a bonus!

Left: Johnathan Joynson of Fulmar GC, flying a K-13 with Jacky Pratt as P2, photographed Findhorn bay which is right at the end of their launch point at RAF Kinloss. Right: Dorothy Hunter presenting Don Spottiswood, guest speaker at Cornish Gliding & Flying Club's annual dinner-dance, with a club sweatshirt. John Shaw, CFI, is in the centre.



We've had a number of social events at the club over Christmas, followed by a very successful annual dinner-dance in January. Prizes were awarded to Don Birks, Mary Meagher, John Hartley, Gary Brightman and Bill Bench. The AGM will be held on April 6 at the clubhouse.
T. G. W.

SOUTHDOWN (Parham Airfield)

The Christmas dinner was a great success. The CFI Brian Bateson won most of the important awards and then cleared off to Australia for the winter. Others trophies went to Paul Barker, Dick Dixon, Les Blows and Keith Mitchell.

We welcome Roisin O'Neil-Ellis as the office secretary.

We have been broken into twice and hope the new security device will be a deterrent.

Eddie Hannefeld, chairman, had an impressive ridge flight in January of more than 4hrs.
P. J. H.

STAFFORDSHIRE (Seighford)

The new clubroom is now functional thanks to much voluntary labour with exterior landscaping to be done this summer - flying permitting.

The annual dinner went well and saw many members receiving awards. Negotiations are well under way regarding the acquisition of a glass two-seater. Peter Kent, Lee Lawrinson, Robert Lockett and junior member Jonathan Gill have gone solo.
S. K.

STRATFORD ON AVON (Snitterfield Airfield)

Steve Rushton has gone solo and Geoff Bridgewater has an assistant instructor rating.

Several students are ready for their Bronze cross-country endorsements.
H. G. W.

THE SOARING CENTRE (Husbands Bosworth)

At our annual dinner we reflected on an excellent year which saw our first 750km from the site, followed shortly by a second; an extremely successful 15m Nationals and Regionals and the completion of our new clubhouse.

In February we hosted the BGA EGM, with over 100 attendees.

Trophies were awarded to Steve Crabb, Mike Jordy, Paul Thompson, Alan Foxon, Siobhan Hindley, Lindsey Astle, Norman James, Susan Ziegler, Iain Freestone, Basil Fairston, Paul Crabb and Dave and John Evans.

We are hosting the Club Class Championships and a Regionals, as well as our usual courses.

Ron Beezer has taken over from Harry Middleton as CFI. Harry is our full time manager. Special thanks go to Harry, who spent last year juggling the two jobs with some considerable success. Finally, we mourn the death of Bill Clay, a regular at the club for more than 20 years.
T. W.

Obituary - William Loverock Clay

Bill Clay's many friends at Husbands Bosworth will have been saddened to hear of his death on December 12 at the age of 82.

In spite of his years Bill never accepted that he had to feel old and this showed in both his

working life and his twenty year's of flying gliders. He was financial director and company secretary at the firm for which he had worked since he was 18 years-old, and he never really retired.

He served in India and Burma in the RAF as a wireless operator and joined us in 1976, learning to fly at the age of 62.

His enthusiasm and determination were reflected in everything he did and he became a competent pilot with a keen interest in aerobatics. He particularly enjoyed flying the K-8 and gave an aerobatic display in it on his 70th and 75th birthdays. He was planning to repeat this on his 80th birthday but, unfortunately, he suffered a mild stroke. Undeterred, he carried on with two-seater flying and celebrated his 80th by giving his display in the Bocian.

Bill completed his Silver badge at the age of 75, which must be close to a record. He also took part in task weeks flying in two-seaters. He shared in a total of six 1st places and numerous 2nd and 3rd places. Bill's last flight was in August.

He will be sorely missed. We send our sympathy to his wife Nancy and their family.

ULSTER (Bellarena)

A spate of equipment arrivals in January; a brand new Lycoming for G-TUGG, being run in following on-site installation by our new engineer Nigel James; an ex-Army lwb Landrover, bought with only 38 300 miles up as our new on-field retriever; Jim Lamb's LS-3-17, collected by him and three clubmates in a high speed O/R by road to Frankfurt and a donated tel/fax machine now on our list number. 015047 50301.

Phone or fax on 01247 58777 with the dates you'd like to come over for your private visit or club safari.
R. R. R.

VALE OF WHITE HORSE (Sandhill Farm)

We have made an excellent start to 1997 with our first soaring flight, almost 40min off a winch launch on New Year's Day, and a few days later achieving record launches of 1600ft. We also managed to clock up 19hrs in club gliders in January, which was much more than usual.

The Vintage Glider Club are meeting here on July 5-6 and we have BGA soaring courses in June and September.
G. N. T.

WOLDS (Pocklington)

The re-covering of our Pawnee is now complete and it is looking better than new. Many thanks to all those who helped. The club K-21 is now receiving similar treatment and should soon be back on line.

A series of one and two day courses are planned based on the successful ones held last year - subjects include instrument flying and aerobatics. It is also planned to extend summer mid-week flying to Wednesdays, Thursdays and Fridays.

P. E.

YORK (Rufforth)

The one-day mini courses in instrument flying and aerobatics have been fully subscribed. Several instructors have also offered special pre-solo courses on three consecutive Saturdays or Sundays, and these have been welcomed.

Harry Clarkson went solo during the winter. After many weeks of unfriendly winter weather, Sunday, January 12, gave several pilots some interesting wave up to 11 000ft near the A1 to the west of the airfield.

Our new winch and tractor building is complete thanks to continued efforts by Don Atkinson and his team. Our newly acquired K-7m will give us more flexibility on busy days.

Groups of visiting pilots, including ten from Welland GC, have enjoyed flying our gliders on a number of winter days.
M. D. C.

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BGA Conference, AGM & Dinner '97

On behalf of Sylvia Bateman and myself (and the scientist), I would like to thank everyone who attended the 1997 BGA Conference, AGM & Dinner, and for making it such a great success. Hope to see you all again next year.

Claire Thorne

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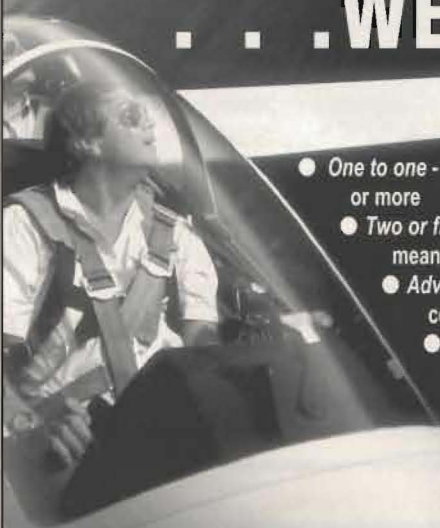
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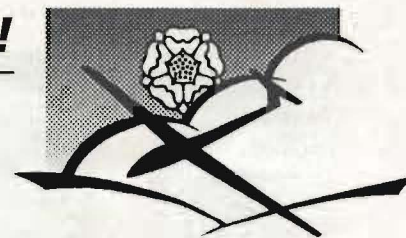
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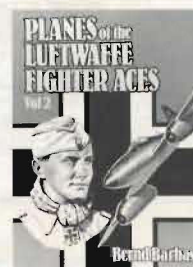
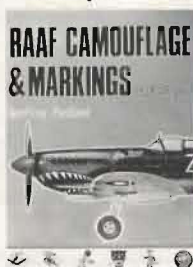
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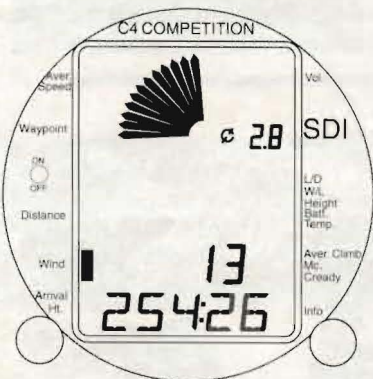


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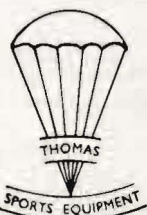
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BGA ACCIDENT SUMMARY

Ref. No.	Glider Type	BGA No.	Damage	Date Time	Place	Age	Pilot/Crew Injury	Hrs
87	K-6CR	1323	Minor	21.7.96 1400	Tibenham	40	None	65

In decaying conditions the pilot correctly selected a ploughed field for an out-landing. The ground run was along the furrows of the field which, due to the lack of recent rain, were very dry and hard. The glider sustained damage to the fuselage skin and at least one supporting rib.

88	Dart 17R	1363	W/O	21.7.96 1500	Tours le Roux, France	44	Serious	217
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The pilot was making his first solo flight from a French site when he hit heavy sink. He returned to the circuit then allowed the speed to decay while looking at the site. The glider ran through turbulence and entered a spin from which the pilot was unable to fully recover before hitting the ground, writing off the glider and injuring the pilot.

89	Jantar 1	1969	Subst	7.7.96	North Hill	53	None	813
----	----------	------	-------	--------	------------	----	------	-----

The pilot approached with the left wing slightly low to counteract a crosswind. On roundout and hold-off the wingtip, still low, caught in long grass causing a severe groundloop. Recommended crosswind landing technique for such gliders is to approach wings level then kick off the drift during roundout.

90	K-23	3164	Subst	29.7.96	Long Mynd	54	None	119
----	------	------	-------	---------	-----------	----	------	-----

The pilot decided to return to the airfield because of an approaching shower. He made a non standard, left hand circuit away from the shower but lost height and had impaired vision due to rain on the canopy. Landing crosswind, due to the wind change near the shower, he misjudged the roundout and ballooned before landing hard on the nose wheel.

91	K-7/13	2601	W/O	30.6.96 1345	Pocklington	56	Serious	1000
----	--------	------	-----	-----------------	-------------	----	---------	------

While airborne the windspeed increased significantly and the experienced pilot recognised this in the circuit and increased speed to 70kts. Late on finals, assured of reaching the airfield, he reduced to 55kts and continued normally to about 80ft when the speed fell due to a very severe gust. The pilot was unable to recover before crashing.

92	K-13	2023	Minor	3.8.96 1643	Tibenham	28	None	2.5
----	------	------	-------	----------------	----------	----	------	-----

The early solo pilot made a normal approach but was distracted by another glider landing on the grass parallel to the runway. As a result the roundout was started too late and a heavy landing resulted.

93	Jantar	2041	Minor	2.8.96 1615	Nr Hucknal	35	None	300
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During a competition flight the pilot had to make a field landing in a stubble field. After a normal circuit and touch-down, into wind and in line with furrows, a wingtip caught in the cut straw. The glider swung sharply and damaged the undercarriage and fuselage.

94	K-8B	3740	Minor	17.7.96 1730	Lyveden	69	None	40
----	------	------	-------	-----------------	---------	----	------	----

At about 500ft on the winch launch the pilot heard a loud bang followed by an increase in noise. The pilot landed safely then discovered that the centresection fairing was missing. A club member had removed the panel to extract the barograph after an earlier flight and was then distracted before fully securing it again.

95	Astir	2318	Minor	22.7.96 1850	Gransden Lodge	52	None	86
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On the approach the pilot failed to allow for the wind gradient and started to undershoot. The airbrakes were seen to retract slightly and the glider touched the crop in the undershoot field about 40m from the airfield boundary. The brakes were again slightly retracted but the glider's wing caught in the crop causing a sharp groundloop.

96	Vega	2526	Minor	4.8.96 1550	Gransden Lodge	54	None	224
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Making an approach to a crosswind landing area near the clubhouse the pilot found that the speed decayed rapidly at about 50ft. Despite closing the (trailing edge) airbrakes, the speed continued to decay and the glider landed heavily on the edge of a concrete track collapsing the undercarriage.

97	K-13	1861	Minor	28.7.96 1315	Rufforth	40	Minor	63
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In light wind conditions the glider was winch launched normally until at about 20ft the speed fell to 40kts. The release was pulled and the nose lowered to land ahead. However, the glider accelerated during the flare and hit the ground hard, bruising the pilot's back. It appears the slightly built pilot may not have fully pulled the release.

98	Puchacz	3864	Minor	21.7.96 1230	Yeovilton	41 P2 52	None None	944 0
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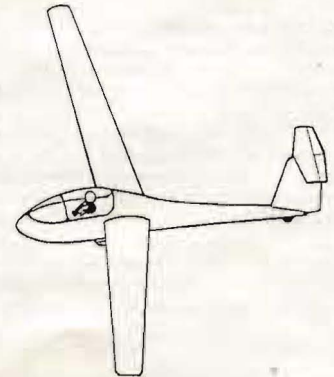
During an autotow launch using Parafil cable, the launch vehicle probably made a jerky transition from "take up slack" to "all out". As a result a small loop developed in the cable which, as the glider overran it and back-released, wrapped itself around the wheel which jammed solid. The glider was dragged along sideways which blew the tyre.

99	K-13	?	Minor	3.6.96	Lasham	60	None	1
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The early solo pilot in heavy sink around the circuit, didn't increase speed to penetrate into wind and lost it trying to stretch the glide. To counter the falling speed during the flare he pushed the stick forward causing a heavy landing.

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100	K-13	—	Minor	25.6.96	Incident Report	54 P2 0	None None	300 – 0
<p>The trial lesson student was standing by the glider when an over-enthusiastic ground handling team pushed it into him. He stumbled and hit his elbow on the leading edge causing minor damage.</p>								
101	DG-300		Minor	7.7.96 1315	Lasham	35	None	116
<p>After a briefing the pilot made his first flight on type. Following a 1hr flight he returned to the circuit somewhat high resulting in a final turn at 100-200ft. He decided to use a brief side-slip to lose height then found the nose pitched up unexpectedly during recovery. He lowered the nose but forgot to close the brakes and landed heavily.</p>								
102	Vega 15/17	2508	Minor	19.7.96 1700	Andover	56	None	3000+
<p>During a competition flight the pilot had to make a field landing and decided on a grass field where other gliders had landed. A normal circuit and landing was made but during the ground run the wingtip caught in the long grass causing a groundloop which damaged the tail wheel attachment.</p>								
103	Duo Discus	4073	Minor	20.7.96	Lasham	40 P2 52	None None	2000 – 200
<p>Returning to the airfield for a relight, the crew dumped ballast and lowered the wheel. However, at touchdown the undercarriage collapsed and the glider ran across a concrete runway, severely scoring the fuselage. The undercarriage mechanism relies on a 90° detent and requires a very careful check that it is pushed fully home.</p>								
104	Chipmunk	—	Minor	–7.96	Incident Report	41	None	221pwr –
<p>While taxiing the tail wheel Chipmunk tug to the refueling pumps the pilot failed to notice a parked glider until he was almost upon it. He applied the brakes but the left wing still collided with the glider. While applying the brake the throttle was inadvertently advanced, further swinging the tug around.</p>								
105	SZD Junior	3718	Minor	27.6.96 1830	Husbands Bosworth	17	None	1
<p>The early solo pilot was making her second flight on type when, just off the ground on the aerotow, she became worried about climbing above the tug. Over controlling, the glider ballooned so the pilot pulled off. Well down the field, the airbrakes were opened which contributed to a very heavy landing.</p>								
106	Puchacz	2957	Minor	5.8.96	Bidford	62 P2 0	None None	700 1440 0
<p>On the first of two trial lesson flights the take-off and landing were across rough ground. On the second take-off, at about 200ft, P1 became aware of a restriction in stick movement to the left. He aborted the launch at 1000ft and made a normal landing, damaging the nose wheel box and the front bulkhead.</p>								
107	K-8B		Minor	6.7.96	Seighford	47	None	11 1200
<p>The aircraft had been test flown after C of A work entailing the flying controls. After normal pre-flight checks the pilot took a winch launch. At about 5ft, just starting to rotate, the nose suddenly dropped and the pilot found the controls had no effect. After a heavy nose down landing the elevator drive was found not to be connected.</p>								
108	Pegasus 101A	3599	Minor	5.8.96	Husbands Bosworth	55	None	1096
<p>After a long, hot flight the pilot returned to the airfield. Approaching the circuit he heard a competition pilot calling up on the radio and decided to let him land first. He then ran into strong sink and, probably tired and dehydrated, failed to appreciate his reducing landing options. Finally, he had to land in a field of oats.</p>								
109	ASW-17	1691	Minor	17.8.96 1715	Tenbury Wells	53	None	1066
<p>The pilot chose to land in a field containing two rows of bales 60m apart, accepting a slightly downwind landing up the slope. Turning base leg, he saw power cables across the near corner of the field so overflew these which then required a difficult tight turn, with full flap, around a tree to line up. The glider landed sideways.</p>								
110	Jantar STD 2	3282	Minor	21.8.96 1210	Long Mynd	49	None	350
<p>After waiting at the launch point with the canopy open then closed but unlocked the pilot failed to check the lock in his pre-flight checks. During the winch launch the canopy flew off and smashed on the tailplane. The pilot pulled off and landed ahead with no further damage.</p>								
111	K 21	—	None	–8.96	Incident Report	64 P2 19	None None	1000+ – 9
<p>The cross-country pilots were briefed to avoid Halfpenny Green airfield. At 2000ft agl and some four miles from the airfield, the glider encountered severe sink and with no fields available P1 chose to land there. He landed alongside the runway but in doing so obstructed a power aircraft on final approach. He had radio but not the airfield frequency.</p>								
112	Open Cirrus	1506	Minor	4.8.96 1650	Near Shobdon	71	None	2350
<p>The experienced cross-country pilot decided that conditions were deteriorating so turned back to the site. Flying into the wind and crossing an area of poor fields, he found that the return was becoming marginal. He could not find a field without crops and had to land in a wheat field. The right airbrake caught in the crop causing a groundloop.</p>								
113	Puchacz		Minor	23.8.96 1550	Aboyne	62 P2 70	None None	900+ 0
<p>At a height of about 50ft the aerotow tug's engine coughed, recovered then ran down again. The tug pilot released the glider and made a landing in a small field, running into the far fence. The glider pilot, with rough ground ahead, turned through 180° to a suitable field. During the flare a wingtip hit the ground causing a sideways landing.</p>								

Thirty Years Behind The Times

John isn't in a hurry to get his all three Diamonds

The Gartempe is connected to the Creuse, the Creuse is connected to the Vienne, the Vienne is connected to the Loire, near the Word of the Lord. I knew my geography of the prairies to the south of the Loire and was determined not to get lost.

The first time I declared 300km I was flying the ancient Avia from Perranporth and you didn't need to fly a closed circuit or take photos to get a Diamond goal. Cornwall was easy to navigate and I didn't get far enough to get lost.

When I moved to the Isle of Wight, navigation was still simple but the chances of Gold distance and Diamond goal were even more remote because of the change in the rules which required a return home. Sea breezes are not helpful either. I decided that I would have to make expeditions to the mainland to do any worthwhile cross-country flying.

My first try was a BGA cross-country course at Lasham. I learned a great deal from John Willie's lectures but the weather was foul and I never saw the vario indicate lift all week. The highlight was six gliders releasing over Dummer roundabout for a straight glide into Popham. This must have depressed John Willie too - he moved to Australia soon after.

Several more annual visits to the mainland (now with a K-6E) produced a Gold height at Aboyne but no significant cross-countries until I went on a course at Husbands Bosworth (now with an SHK) and had to land because I got lost. It wasn't a 300km day anyway - there weren't any that week. The reason I got lost was lack of preparation and ignorance of Midland geography. Nottingham and Northampton are both north of Watford, aren't they?

Whilst waiting for the retrieve I decided that courses are for the clever, and in future I would only fly simple tasks which I had set myself and had researched and rehearsed during the dark winter months. Also English weather is useless and a longer stay in France is warmer and more fun than two short ones in England.

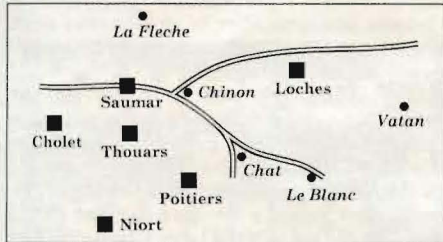
I planned tasks from Thouars which is 30km south of Saumur in the Loire valley. There is a very hospitable small club there which we knew from previous club visits. I had planned three 300km tasks to cover the contingencies of different wind directions.

The first was a very flat triangle running 80km south to Niort, then passing back over Thouars and 75km north to La Fleche, then back to Thouars. There are airfields at Niort and La Fleche

and a nice straight road to follow all the way.

I've tried this one four times in both my SHK and Jenny and Alistair's K-6. Reasons for failure were sea air at Niort once, heat exhaustion at Niort, falling out of the sky at Saumur and lack of will power at La Fleche twice. The "Why not land at this friendly little airfield?" syndrome.

The second task was another flat triangle, east - west; Thouars, Le Blanc 105km, Cholet 160km, Thouars 55km. I've tried this several times too, my best try failing due to sea air, late in the day, at the Cholet end.



Another triangle passed near the nuclear power station at Chinon which visibly produces volcanic lift but, as I found out, the lift is surrounded by a ring of brutal turbulence and sink. This put the SHK and its white faced pilot down in stubble fields on two occasions. I struck that one off my task list too. My SHK partner Martin is made of sterner stuff and managed to fly through the brutal bit before being caught out by sea air near Cholet for a trip of 294km. Cholet is no longer on our late afternoon visiting list.

It seemed that going north-south involved flying through different airmasses and the east-west flat triangles took us too close to the sea. Jenny suggested an O/R to the east but I was dubious of this due to some rather featureless country to navigate east of the Vienne and a lack of airfields *en route*.

Last winter I called in the help of the Friendly Family Computer. We had Flight Simulator 4 and 5 and a program called Aircraft and Scenery Designer. With the aid of the latter and the aeronautical and Michelin maps, I laboriously drew in all the scenery within a 150km radius of Thouars. I also planted thermals down the route, having selected a bridge over a motorway at Vatan as the TP, 152km east of Thouars.

I could now fly the route in anything from an ASH-25 to a K-6; when I got bored, I did it in a Lear Jet - and I shot down the Red Baron.

This summer I tried it for real in the K-6E and it was doddle. I did get a little low after the TP but was saved by a stubble fire, doubtless caused by a careless passer by. Though I must admit that I took along a hiker's cheap GPS for good measure. Old machine, but some electronic aids.

So I flew my Silver in a two year-old Kite1 (before the Bronze badge was invented) and Gold in a K-6 of similar age and the kind of flying I do is 30 years behind the times. It took five field landings to get Silver and goodness knows how many for Gold. Had I gone on lots of courses, gained a Bronze badge, cross-country endorsement and diploma and been herded round some lead and follow courses, would I have felt the same elation as I do now? I doubt it. At this rate, I shall only be 95 when I fly 500km in some beaten up old Discus, too.

114	Discus	4092	Minor	26.8.96 1450	Gransden Lodge	47	None	640
During a final glide the pilot calculated he had 1500ft to spare at 10nm out. He had 800ft at 3nm, but then ran into heavy rain and sink. He continued towards the field as he thought he still could make it but was wrong. The glider landed in a ploughed field with the wheel up, breaking the canopy and damaging the fuselage.								
115	DG-300	3256	Subst	2.7.96 1414	Nr Yeovilton	57	None	597
During a competition flight the pilot decided to land in a cut grass field, estimating the wind at about 10kts. On finals, over some farm buildings, the wind was negligible and the glider landed about 1/3rd into the field. The wheel-brake had little effect and the glider groundlooped as the pilot tried to turn away from the far hedge.								
116	K-7	2803	Minor	1.9.96 1016	Rivar Hill	34 P2 35	None None	460 0
At about 150ft on the winch launch P1 pulled a simulated cable break and P2 recovered very quickly, with negative g, and went to land ahead. P1 saw the cable chute 30ft above the right wing so took control. Despite full brake the cable fell over the wing and dragged the glider sideways during landing, breaking the nose and tailskids.								
117	K-6 & K-8		W/O	21.8.96 1217	Aston Down	KA6 74 KA8 45	Fatal Minor	48 168
This fatal mid-air collision occurred at about 1500ft while the K-8 was turning in a thermal. The K-6 hit it, wings level, almost at 90° causing injuries that probably prevented its pilot attempting to use his 'chute. The stunned K-8 pilot somehow managed to extract himself and baled out safely.								
118	Blanik	-	None	-8.96	Incident Report	65 P2 50	None None	1609 - 0
The trial lesson student was taking his first flight and had listened with interest to the briefing. Upon take-up slack P1 felt spasmodic pressure on the stick and rudder, then P2 threw his head back. P1 released the tow and stopped. P2 appeared to be having an epileptic fit despite no previous history. P1 applied first aid until he recovered.								
119	Capstan	1134	Minor	16.8.96 1633	RNAS Merryfield	41 P2 16	None None	950 0
The auto launch vehicle had previously been giving trouble so that when, at 50ft the launch was stopped, P2 was told to land ahead as briefed. P2 opened the airbrakes so P1 took over but was unable to prevent a heavier than normal landing. The undercarriage collapsed, probably at least partially, as the result of an already weakened structure.								
120	SZD Junior	3718	Minor	8.8.96	Lyveden	56	None	243
During his first flight on type the pilot appeared to hold the glider down too long during the initial stages of the winch launch. Slowly rotating into the climb the cable 'chute inflated and so the pilot released. During the landing the 'chute caught the glider's wing and rudder causing minor damage.								
121	DG-300	3356	Subst	31.8.96 1740	Nr Nuneaton	62	None	58
The pilot was on a Silver distance flight when, after becoming tired and unsure of his exact position, he decided to make a field landing. A suitable long stubble field with trees on the approach was picked and a normal circuit was flown until approaching the trees the speed fell rapidly and the glider clipped the tops which spun it around.								
122	K-1	3274	Minor	17.6.96 1500	Lasham	69	None	27
The pilot was landing to the left of the launch point glider line with a slight crosswind from the right. After landing the glider veered to the left which the pilot was unable to correct. At about 20kt the glider's wing hit a club member who was standing about 6ft from a parked glider, knocking him flat and injuring his back.								
123	LS-8	4245	Subst	7.8.96 1730	Husbands Bosworth	32	None	1100
During a competition the pilot was on a "marginal" final glide when he had to make a hurried field selection. The landing was made in a crop field with the final approach under power cables. The ensuing groundloop cracked the fuselage aft of the wing.								
124	K-13	-	Minor	6.96	Incident Report	-	-	-
On an evening flight the pilot found very strong lift associated with a nearby storm cloud. He prudently decided to land quickly and found he had to land into a 65kt wind. Sitting tight on the ground with the brakes open the glider was hit by large hailstones which damaged much of the aircraft's wings and tailplane.								
125	K-21	-	Minor	6.96	Incident Report	-	-	-
This glider was parked on the ground when a passing storm cloud changed direction and hit the airfield. The glider was held down through gusts of over 50kt and hailstones (that an hour later were still 1.5in in diameter!). All upper surfaces were damaged. (See also report No.124.)								
126	Bocian	3650	Minor	1.9.96 1100	Galewood	41 P2 -	None None	517 0
At about 300ft on the aerotow the tug developed engine problems. P1 released and decided he could make a 180° turn and land back downwind as the options ahead were not good. While briefing his trial lesson student he turned back and made a good landing. Unfortunately, the high ground speed and rough surface caused minor fuselage damage.								

127	Discus	3185	Minor	1.9.96 1600	Husbands Bosworth	28	None	1400
-----	--------	------	-------	----------------	-------------------	----	------	------

The pilot had to make a field landing and chose a large grass field. Viewed from two directions it looked clear but during the roundout the pilot noticed a "clump or obstruction" to his right. He steered the glider away from this but in doing so groundlooped which damaged the undercarriage and tailplane.

128	Bocian	-	None	-9.96	Incident Report	-	None	-
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The winch cable broke when the glider reached about 1200ft. The cable drifted across 11kv power lines in a field adjacent to the airfield. The hydro-electric board was informed immediately and came out to clear the cable.

129	K-7	2477	Minor	11.9.96	Kenley	39	None	431
						P2-	None	-

During the winch launch ground run the glider's mainwheel ran into a depression followed by the tail skid which impacted as the nose rose. The airbrakes came open but P1 closed them quickly and continued the launch. After a normal flight the top fuselage longeron was found to be broken and the rudder mount damaged.

THINGS THAT GO BUMP

"Most of us who glide say that we do so because it stimulates us. What we mean is that it frightens us."

Not my words, but Peter Scott's as he introduces an account of uncomfortable Bocian aerobatics in his autobiography.

Now, while I have managed to comprehensively terrify myself in the air on a couple of occasions, the highest level of apprehension I usually attain is in the realm of Niggling Doubts. This was particularly true in *ab-initio* days when everything was unfamiliar and packed into four minute bursts of frantic learning.

Do you remember that curious time-warp sensation? You joke with the ground handlers, the cable is put on, then the mind is in sudden overdrive, pulling back, keeping the wings level, following the instructor's demands for more lookout, less rudder, where's the low key point...? You land and get back to the launch point, hearing the same banter you left seemingly years ago.

On my very first winch launch no one had warned me about the bang at the top when the cable is released under tension. Suddenly there was this terrific noise - surely the result of a serious structural failure. The instructor seemed unconcerned which was even more disturbing - I'm in an aircraft falling apart with a madman who doesn't care!

Chatting in the club bar makes one realise how common these Early Apprehensions are: Will I get my hat out in time if I feel ill? Will I master the single-seater controls on my first solo before I reach nought feet? And more exotically, a Nympsfield pilot spent her first glider flight in a T-21 worrying that the slipstream might blow off her headscarf which would then fly back and foul the elevators.

Now I have a confession to make. On my first soaring flight I couldn't share Joy Lynch's exultation as the altimeter crept up to 5000ft. My feet were resting lightly on the pedals and I braced myself with gritted teeth. No doubt a few beads of perspiration graced my brow. I had realised that Boyle's Law, helpfully expanding the sealed aneroid capsule in the altimeter, would be having a similar effect on the patent air cushions in the soles of my Nike shoes.

"This must be the highest you've been," Joy remarked brightly, as I sat there waiting for my trainers to explode. ☒

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The launcher will then eject the final stage, which will deliver the satellite to its required orbit. The Eclipse vehicle will return to Earth as an unpowered glider. - Spotted in the *New Scientist* by Dave Barker (Bristol & Gloucester GC).



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