SAILPLANE & GLIDING

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PHONE 0845 597237
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SAILPLANE & GLIDING

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EDITOR
Gillian Bryce-Smith
281 Queen Edith's Way
Cambridge, CB1 4NH
Tel 0223 247725
Fax 0223 413793

ADVERTISING
Debbie Carr
BGA Office
Tel 0533 351051
Fax 0533 515939

SUBSCRIPTIONS
Bev Russell
BGA Office
Tel 0533 351051
Fax 0533 515939

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Kimberley House
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Tel 0533 531051
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Cover: John Ellis took this photograph when flying a Nimbus 2B over the Wyoming range near Afton. See the full story on p76 of John's USA excursion.

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YOUR LETTERS

WELL DONE THE BGA

Dear Editor,

Congratulations to the BGA for their 75% reduction in fees for students and pilots under 21 years. (See the last issue, p38.)

All too often young people get involved in gliding through holiday courses, disguised as Christmas/birthday presents, and spend months afterwards pouring over *S&G* desperate to progress (I know the feeling well). But all too quickly the money tree develops Dutch elm disease and dreams of first solos and Bronze legs disappear almost as quickly as the money.

Now thanks to this reduction more young people like myself (a skint medical student) will be able to afford to get involved again. Cheers.

KATIE FROST, Cardiff University

MOTOR GLIDER PRACTICE

Dear Editor,

In the last issue 30 field landing accidents were listed in the BGA Accident Summary, p39-45, with a back of envelope estimate of about £200 000.

As a motor glider instructor who does quite a lot of field landing instruction, I am not surprised that pilots break gliders attempting to land in fields. Many of them don't know the wind direction, pick a lousy field and/or make no attempt to fly any sort of circuit.

If you intend to fly cross-country this season may I suggest you get yourself into a motor glider and give yourself a chance to get it wrong without losing your much cherished glider for the rest of the season.

RICHARD A. HALL, *Chipping Norton, Oxon*

GLIDER PLAN ARCHIVE

Dear Editor,

Through the columns of my favourite magazine may I please respond to a small but steady and continuing stream of inquiries in respect of the Glider Plan Archive I assembled over the past 20 or so years. Earlier this year I passed on the entire archive into ownership of the Vintage Glider Club to whom further inquiries should please be directed care of Chris Wills or Colin Street.

Worth mention is that the Slingsby segment came *via* George Burton as then MD at Kirkbymoorside, and was meticulously sorted and catalogued soon thereafter by Andrew Coates and, since the subsequent type was still in RAF/ATC service, did not include types beyond the T-30 Prefect. Thus I cannot suggest an answer to numerous inquiries for material on the T-31 and upward (*eg* Dart, etc) beyond inquiry to Vickers-Slingsby.

Within the Slingsby segment were also such types as the Buxton Hjordis, Baynes Bat, Peterborough Guardian (no, not a daily newspaper!), and a hitherto unheard of Slingsby Barcarole – my impression was of a something like a Rhönbuzzard wing above a rather Kite I like fuselage. Also included were numerous tubular metal storage cans and wooden racks from Sling's pre-war design office.

The Elliot of Newbury segment came *via* Norman Ellison on closure of his Olympia Drawing Services and was not catalogued, thus I could never satisfy I/II/IIB, 403/405, 415/419, 463 or 465 inquiries. However, all Norman's originals for **British Gliders and Sailplanes** were therein, with much other interesting material.

The Kronfeld segment (loaned by Robert's son William) was neither catalogued nor because of its very poor condition did I dare unroll it: that will only occur once and just may yet yield treasure such as the Austria and Wolf, the Lowe-Wylde designs and the BACs I To 8 – but not the BAC Drone known to be elsewhere.

Frank Irving directed much detail from Operation Sigma in my direction though not the plans which went with the aircraft to Canada (should anyone wish to replicate!), and material from the Short Nimbus was also within the archive.

Other famous German types were present from various sources including Slingsby originating material: Kranich 2, Weihe, Grunau Baby and SG-38.

It was a privilege to have collected and cared for all this material and I wish the VGC every possible success in establishing what may with time become the world's most comprehensive Glider Plan Archive: but there will need to be many-a-long-night-of-busy-fingers – for it filled the full length of a 15m trailer to a depth of about 2ft when it left!

I regret I was not able to do more than store carefully all this priceless and unique material, but with the passing of too many years it was time to take stock, call pass – and become just another Diamond hunting TINSFOS!

MICHAEL RUSSELL, *Henham, Herts*

BORLÄNGE REFLECTIONS

Dear Editor,

I think Justin Wills must be applauded for his excellent contribution (December issue, p326). We should all take a long hard look at competitions in general. In my experience most people were not too intent on winning but regarded it as a bit of a festival, and if they discovered they were not hopelessly outclassed by the opposition that was an added bonus. They also hoped to improve their own flying by finding out what the more successful did. Sadly these days on that last point we are often none the wiser.

Journalists write stories about "winning is everything" and "nice guys finish last." This is nonsense of course, Philip Wills and Ingo Renner being good examples.

As to Borlänge the costs were absurd - £25 for an aerotow and £7000 to £12 000 overall have been mentioned. Pilots must wonder whether the honour was worth the cost.There is little doubt that a small number of wealthy pilots will cause gliders to be built which rival the more exotic maxis in the yachting field. Already military hardware can make thermals visible in some conditions and combined with autopilots may give pilotless gliders which out perform the human variety, so the pilot will be there just for the ride.

The result will be that new restricted Classes will peel off leading to some absurdities like the Racing Class which is only 1% better than the Standard Class, while pilots usually differ by 3%, so that if the two Classes were combined it would make little difference to the order.

Happily there is some remnant of sanity. Many have discovered that cheap variometers perform as well as expensive ones and that an old Open Class 18m glider flies as well overall as the most modern 15m ship costing three times as much. Whatever bed we make we have to lie on it - talk and thought cost very little. Don't let ourselves be stampeded into a professionalism that in the end we won't enjoy.

Looking back I remember what a thrill it was to press on as far as one could beyond Whipsnade on the Dunstable ridge and get back. Later it was the same at Vinon, the Andes and Fuentemilanos. One day I hope to soar the ridge from Gilgit to K2. I think flying to some inaccessible point and returning with photographic proof is as much an achievement as flying a triangle faster than the opposition.

BRENNIG JAMES, *Marlow Common, Bucks*

Dear Editor,

Clearly it has been proven that contests with 115 entrants and three Classes running simultaneously are *possible,* but are they desirable? Like the 15 Metre Class, little forethought was involved in arriving at this situation so we can't be surprised to find it a dangerous and expensive one.

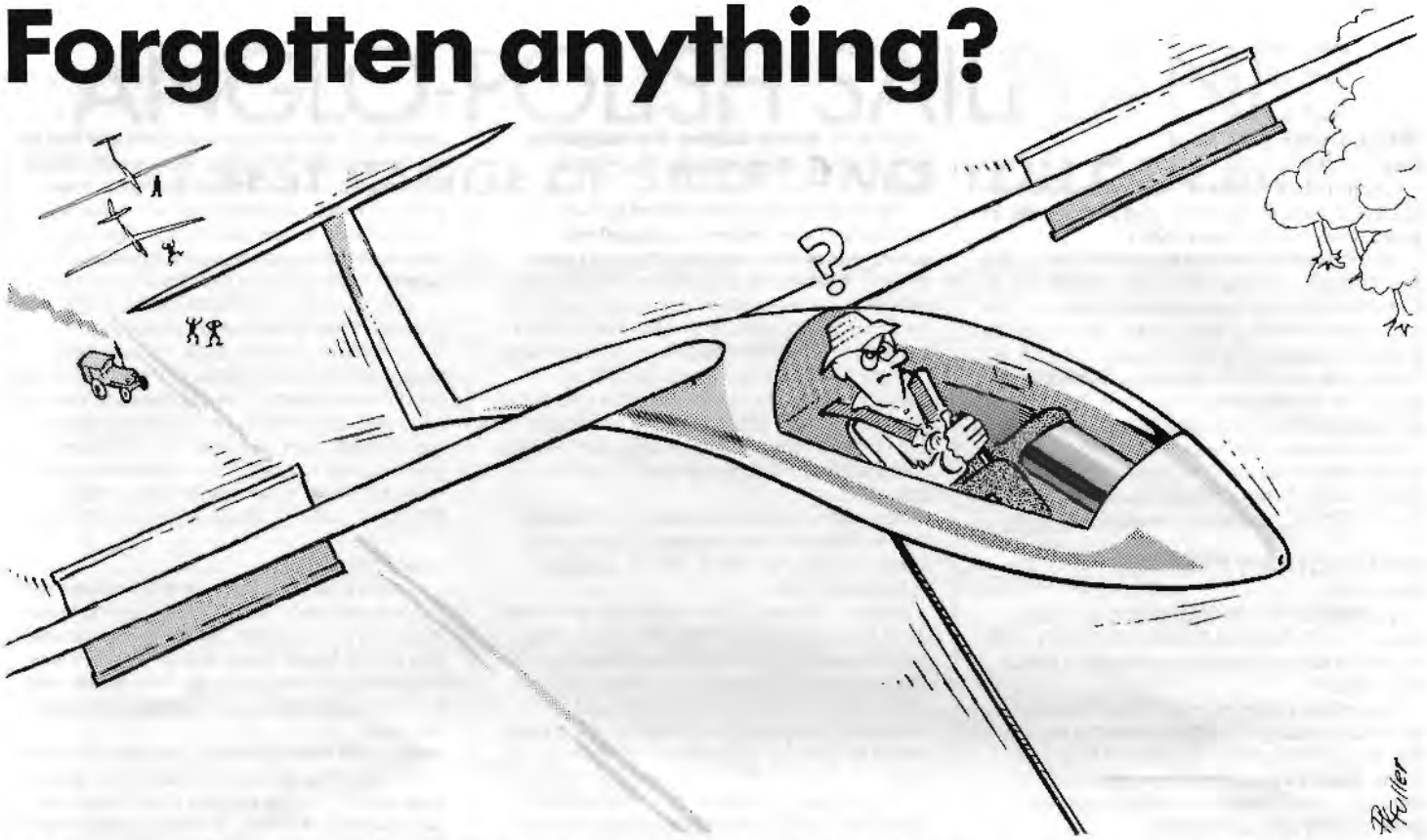
As Justin Wills points out, to make the World Championships smaller the two logical alternatives are: to limit the number of entries to one per country, per Class, or have separate events for each Class. One of these seems necessary as even at Uvalde, which has an extremely large contest area, the different Classes managed to meet up on occasions. A significant consequence of limiting the number of entrants that Justin failed to note is that assuming the Classes are flying in different parts of the sky we wouldn't have to worry too much about team mates passing along GPS or any other kind of information.

Another potential major change is offered by the advent of GPS based scoring and course setting. The Star Wars thermal detection equipment linked to GPS, and an extremely powerful, smart computer to manage all the data, may come but GPS scoring equipment is here now. How do we get the most out of the greater possibilities it offers? For at least a decade in the US we have had the altitude limited startlines Justin mentions as desirable. Maybe World Championships' organisers will use GPS as an opportunity to eliminate this major luck factor once and for all, but this would be only one of a number of positive changes that are possible with this new equipment.

Justin, like almost everyone writing philosophically about glider racing, mentions the "What skills are we trying to measure?" question. How about looking to sailing for analogy - Whitbread Round-the-World, America's cup, the Olympic one design Classes and, my favourite, International 14s, my point being there are many different skills we could measure in many different ways.

The proliferation of Classes and GPS should be used to rapidly increase the pace of evolution in the sport of glider racing. Let's have some Darwinian specialisation and the increased competition it will generate. One aspect of sailing I hope we will use GPS to adopt is the group start. Running glider races as mass individual time trials when in actuality ➡

Forgotten anything?



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under most circumstances pilots are all on the same course at roughly the same time, influencing one another, has always struck me as strange.
JASON GREGG, Liechtenstein

A GENTLE SUGGESTION

Dear Editor,

I refer to the article in the last issue, "A gentle suggestion", p26. All clubs worry, make do, scrimp and save, especially in these recession years, and we would all welcome a financial boost by having the BGA as a tenant, even more if our particular club were "only marginally viable." What club would not like another hangar, two-seater, tug, to expand the bar and lower the aerotow charges?

Dear editor, what has this club, Lleweni Parc, done to warrant that it, above all other clubs, should take as a bride the BGA, plus dowry, and live happily ever afterwards. What kind of children will they have?

A principle by which most of us have to live is that the right thing must be done and that the right thing must be seen to be done. Rodney Witter's suggestion does not meet that standard.

The free advertisement and flirtation looks worse when one turns to the fact that the BGA is funded by all clubs and members who are its forced financiers. It is our money which it is proposed to be used to help Lleweni Parc to "expand its activities" and get away from being "only marginally viable."

No, no, no. There should be a great swell of disapproval and condemnation of this idea. Full marks for cheekiness, zero for principle.

Kill this idea here and now. It should never have been born.
DAVID FOSTER, *Surbiton, Surrey*

PS. May I be cheeky as well and have a free ad? I'd like to expand my activities. I've been looking for, with no success, a young widow who can't fly, who is comfortable and comfortably off, to help me rig and who would make, as a syndicate partner, my life "less marginally viable."

LAUNCH FAILURE

Dear Editor,

Peter Turner's letter in the October issue, p251, reminds me that when I started gliding with the Coventry GC at Baginton (Coventry Airport) in 1958 our pre-launch mnemonic was CHASETH. This may have been the BGA recommendation at the time.

The E was for Emergency and indicated the need to consider actions following a launch failure in the prevailing (wind strength, run length and crosswind) conditions, *ie* straight ahead, S turns, 360° circuit or normal circuit, depending on the height at which the failure (cable break, power loss) or decision to abandon the launch occurred. So, when the worst happened, the knob pulled and flying attitude and speed regained, the decision as to what to do next, depending on the height indicated, had already been made. Hence there was no delay while deciding what to do after a failure.

Like Peter, I feel that an E added to the present mnemonic would be worthwhile and might well have prevented a number of post-launch failure accidents in recent years.

On the other hand, now that launch marshals control the launch procedure rather than the pilot then they should perhaps also advise the pilot what to do at various heights should a failure occur!
JOHN DEAKIN, *Cambridge*

PARACHUTES

Dear Editor,

I was interested to read the letter from Michael Woollard of IRVIN GB Ltd in the December issue, p311, regarding emergency parachutes in which he raises some valid concerns.

However, he is **quite wrong** to imply that BS 5750 is an indication that a parachute has "been designed, developed and manufactured to an internationally recognised civilian or military standard..." **It is nothing of the kind.**

BS 5750 accreditation is an acceptance that a company has adopted and adhered to a certain set of management procedures and documentations of procedures.

Nothing more - nothing less!

I am not an expert on ISO 9001, but it is broadly similar to BS 5750 in that it is not concerned directly with quality of product design or manufacturer.
ROBERT J. SHALLCRAS, *Ashford, Kent*

Michael Woollard replies: I thank Robert Shallcras for the clarification. The point I had hoped to make was that these procedures, once developed under BS 5750, ISO 9001 and/or AQAP 1, do themselves become standards for the production of the products or services to which they relate, those standards having been subject to the full rigours of *appropriate* third party scrutiny and accreditation. As such, the process has everything to do with achieving and maintaining a high quality of production, design, manufacture, testing and any other process, particularly when based on many years of expertise in the technology.

BETTER SAFETY PILOTS!

Dear Editor,

I am something of a loss to know what *Ab-initio* thinks he has learned about gliding unless it is that he should choose his safety pilots with much greater care. (See the article in the last issue, p20.)

With fog enveloping the winch, the decision to launch was foolish. To continue the launch on entering cloud at 500ft was surely dangerous in the extreme. To deliberately descend into cloud, circling and knowing the base could be below 500ft, without even a T&S, must have been bordering on the suicidal. From the description given, with fog approaching from upwind and a blue hole over the site a minute earlier, the chance of finding a hole downwind must have been high. How much better to pick a field through a hole than to spin, or even fly into the ground in fog?

Let's hope that our safety pilot has now learned enough about the hazards of fog from two flights that he will not have to find out whether a third such experience can be as lucky.
ANDREW REID, *London*

FLYING AT SISTERON

Dear Editor,

Having read John Bradley's letter in the last issue, p11, regarding his good experience with Pilot Flight Training, I would like to tell readers about the Sisteron Valley Flying Club in France. I visited them for eight days in early November for a Silver badge to PPL conversion course. We flew every day, even though the weather was only average for the region and time of year. As well as the required flying, I even made a solo trip to Cannes (show off!).

The CFI, Bill Brooks, gave first rate instruction but recommends taking the ground exams before starting flying. I didn't heed his warning and found the workload rather high.

If you want to combine gaining a PPL with flying in a fantastic area and indulging in French food and wine then tel 081 462 8117 (Bill's UK base) for more details.
MARK BURTON, *Malpas, Cheshire*

OTFUR RINGS

Dear Editor,

Bill Dean is absolutely correct in his letter in the last issue, p13. There have been several cable hang ups when using Otfur rings in Tost hooks. I reported one such incident 12 years ago. Most clubs now use Tost rings only (including Bicester).

Otfur rings were designed for use in Otfur hooks with loads of up to 1000lbs. Tost rings were designed for 1000kg. They work in both types of hook. Unless a club operates only wooden British gliders and never has visitors, I would strongly recommend that only Tost rings be used.
TIM MACFADYEN, *Stroud, Glos*

Dear Editor,

How many people are still around who actually know what real Otfur rings look like? Many years ago an alleged supplier of glider parts sent my club a batch of "Otfur rings" which were not only of equal diameters but whose wire size did not match either part of the genuine design. He got them straight back with a flea to insert in his ear.

A likely problem with Otfurs in Tost hooks is that, being designed only for the miserable 1000lb launch case of Section E, the large ring eventually pulls into an oval shape when used with a vigorous winch. Despite this, we never had a jam.
JOHN GIBSON, *St Annes-on-Sea, Lancs*

RECIPROCAL MEMBERSHIP

Dear Editor,

As treasurer of a club (Shalbourne Soaring Society) that responded positively to The Soaring Centre's invitation to free reciprocal membership for 21 days each year I feel it worth commenting on Harry Middleton's letter in the last issue, p11.

We were happy to waive reciprocal fees by mutual agreement with any club. As the most likely beneficiaries were local clubs who might like to take advantage of our north facing ridge, we made inquiries. The response wasn't positive and it soon became clear that a "some pay some don't" system would be totally impractical. Things must be kept simple as ➡

Shalbourne is too small to run an office.

I can see ways in which free reciprocal membership could be abused but I would like to discuss the issue with my committee before commenting in depth. The smaller and less expensive clubs like mine depend on their own members to run their operations.

Visitors taking out reciprocal membership are very important for some clubs, and we should consider what could be lost if their income were to be reduced. I was surprised to find that day memberships represent one per cent of our income, and this is just casual visits. You might even enjoy it!

RICHARD DANN, *Thatcham, Berks*

Happy Landings: Peter Holloway of Southdown GC has always been interested in the history of Parham Airfield and one of the many stories was of a ME 109 landing with engine failure during the last war. After some research he finally had a charming letter from the ex Luftwaffe pilot, Erwin Daig who became a surgeon. Erwin was delighted to know the site is a peacetime flying club and wrote "I wish you only happy landings."

Book review. Frank Irving, reviewing **Die deutscher Luftfahrt: Die Evolution der Segelflugzeuge** in the December issue, p314, said he regretted not knowing one of the authors, Günter Brinkmann. Howard Mills, press officer of his German club, Luftsportverein Kreis Pinneberg, writes that Günter was also a member before his retirement some time ago. He had worked as a radio and television journalist and produced a series on flying, which included gliding, and programmes covering the Wasserkuppe.

GLIDING AND UK AIRSPACE

Carr Withall, chairman of the BGA Airspace Committee, gives the latest airspace position

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.

For instance 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, standard 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, R1, R14, R39.
Crossable below FL95: A1, A2.
Crossable below FL55: B3 (NW of Luton), R8 (west of Midhurst)
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 permitted to fly in this airspace without restriction. Since the upper airspace contains Upper Air Routes and Military training Areas, glider pilots intending to fly at high altitude would be well advised to acquaint themselves with these areas, since jet aircraft speeds are much greater than at lower altitudes, and their pilots may not be aware of the presence of gliders.

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, there are effectively two types of Class D airspace for glider pilots – those areas in which they need ATC clearance to fly and those in which they may fly without ATC clearance subject to maintaining VMC. Class D airspace is subject to Rule 27 which stipulates that any pilot wishing to enter it must:

1. Contact the ATC unit and pass details of the flight.
2. Obtain entry clearance.
3. Remain on the ATC frequency whilst in that airspace.
4. Comply with ATC instructions.

The above rules apply to gliders in the following Areas:

Belfast CTR **London Gatwick**
Belfast City CTR/CTA **CTR/CTA**
Birmingham CTR/CTA **London Stansted**
Bristol CTR/CTA **CTR/CTA**
Brize Norton CTR **London City CTR**
Cardiff CTR/CTA **Luton CTR/CTA**
Edinburgh CTR **Manchester**
Glasgow CTR CTR/CTA
Liverpool CTR

Gliders are exempted from the provisions of Rule 27 and may fly in the following airspace without ATC clearance in VMC:

Aberdeen CTR/CTA **Newcastle CTR/CTA**
Bournemouth CTR **Southampton CTR/CTA**
East Midlands **Southend CTR**
CTR/CTA **Teesside CTR/CTA**
Leeds/Bradford **Scottish TMA above**
CTR/CTA **5000ft**
Lyneham CTR/CTA

Guidelines for the use of this airspace by gliders in VMC have been drawn up by the BGA and approved by NATS. These are set out at the end of this article.

Class E Controlled Airspace. The Belfast TMA is 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), or to use the exemption described above to fly in certain Class D airspace, a glider shall remain at least 1000ft vertically, and at least 1500m horizontally from cloud in a flight visibility of at least 8km. In Class E airspace, the visibility requirement becomes 5km when below FL100.

Local Agreements. A number of local agreements exist which modify the effects of some of the airspace listed above. Letters of Agreement (LoAs) 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 CTR 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. (See *S&G*, June 1987, p141.)

Brize Norton – The LoA concerning glider transits of Brize Norton CTR has been discontinued. HQ Strike Command have assured us that requests from glider pilots for transits of the zone will continue to be accommodated, subject to operational requirements. At weekends the chances of a glider pilot obtaining transit clearance are good, though it may not always be possible midweek.

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

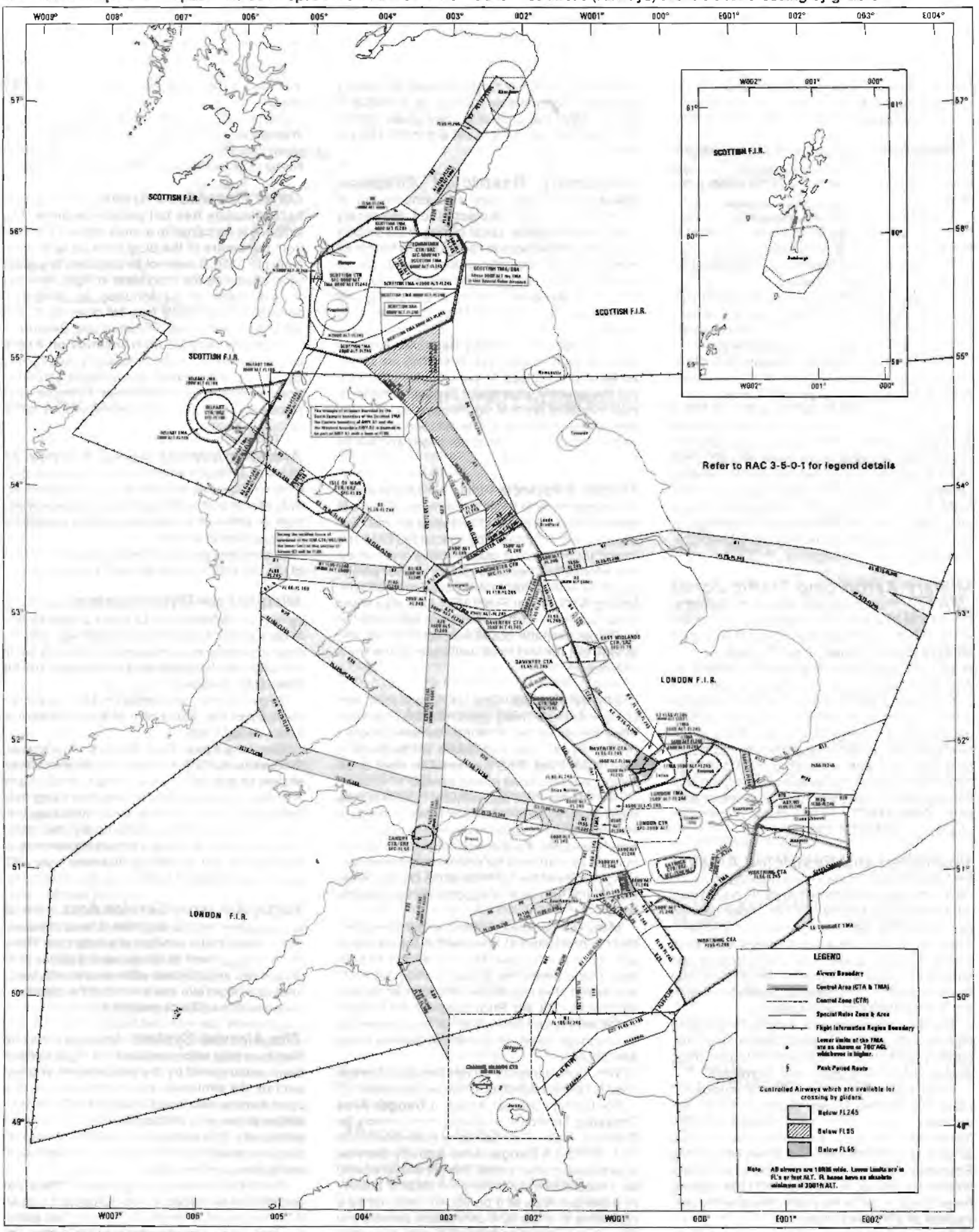
Class G Airspace. This is the term given to the "open" FIR (Flight Information Region), which is the uncontrolled airspace not subject to any of the afore-going classifications. Within Class G airspace there are various non-ICAO types of airspace, which are described below.

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

Controlled Airspace and Special Rules Airspace within the UK FIRs – Controlled Areas (Airways) available for crossing by gliders.



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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 2½nm 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 conflictions.

For landing at airfields with or without ATZs, it should be noted that many 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 prearranged, 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 **Honington 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 airfield 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, applies only to helicopters and microlights.

R313 at Scampton exists for the purpose of protecting the Red Arrows' display training – not normally more than two periods of 20-30min/day. 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.

The Highlands Restricted Area is a large piece of airspace over NW Scotland used for military low flying and weapons training, up to 5000ft. It is outside of the area of current glider operations, and access to it is set out in the **UK Air Pilot.**

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 NOTAM. 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 the 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 in one area simultaneously. Furthermore high performance military aircraft may be encountered manoeuvring outside of 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 bye-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. (Call Salisbury Plain Control 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 CAA charts.

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

Other Hazardous Areas. Other types of hazard include **free fall parachute sites.** The airspace is contained in a circle radius 1½ 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 and electronic variometers. In particular, Fylingdales is so powedul 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).

All gliding sites are notified to MoD, which affords them the status of a Military Avoidance Zone, radius 1½nm.

The Low Level Civil Aviation Notification Procedure (CANP) enables civilian aircraft operators to give advance warning to MoD of any activities that could conflict with low flying military aircraft. In the case of winch launching permission this is done automatically, but clubs planning to make use of a temporary aerotow or motor glider site, especially midweek, may wish to take advantage of CANP.

Radar Advisory Service Area. A RASA is airspace in which a pilot may, if he so chooses, avail himself 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 Airmiss System. An airmiss may be filed by a pilot who considers his flight to have been endangered by the proximity of another aircraft. All airmisses are investigated by the Joint Airmiss 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 airmiss 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. Either call

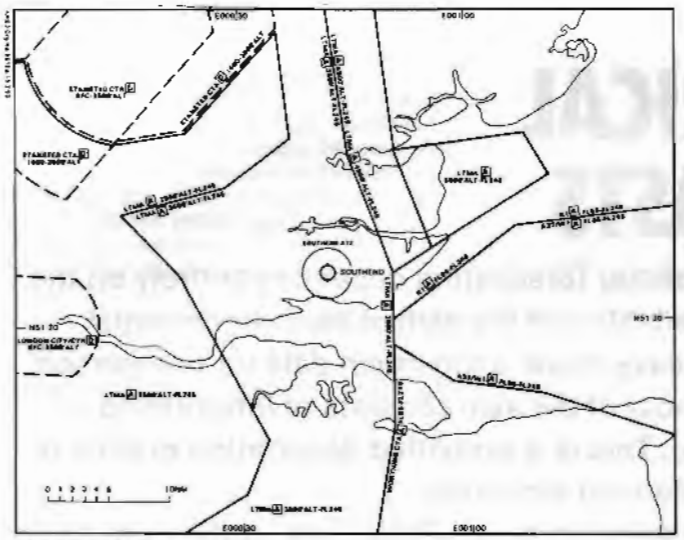


Fig 1. LTMA Airspace.

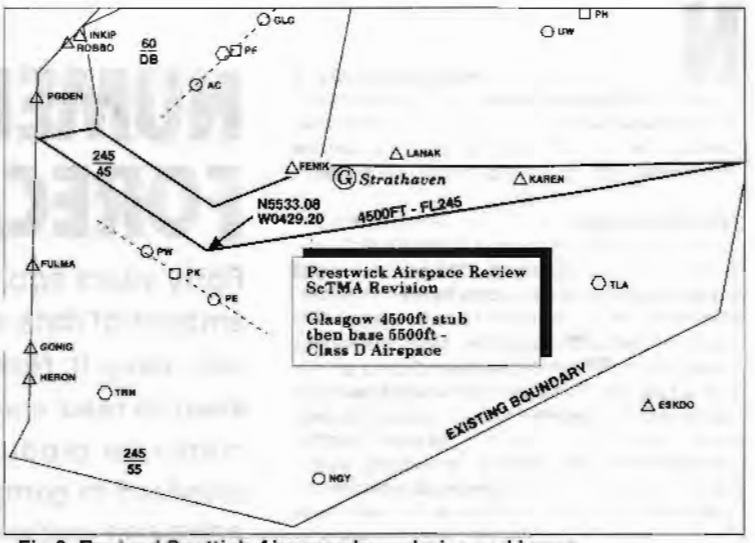


Fig 2. Revised Scottish Airspace boundaries and bases.

the nearest ATS unit or Freephone 2230 (on Monday for a weekend incident) to speak to AIS (MIL) at LATCC West Drayton, who will start trace action at once and tell the Joint Airmiss 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 0895 76-121, 122 or 125, or fax 0895 76124.

Code of Conduct for Glider Flights Through Class D Airspace.

1. Glider pilots should plan to route their flights through Class D airspace only when it is clear there are significant advantages from so doing, such as better soaring weather and shorter track distance.
2. Flights should be arranged so that the minimum amount of time is spent in Class D airspace. Pilots should avoid circling on or close to the runway extended centre lines, since this may interfere with aircraft carrying out instrument approaches or departures.
3. 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, and other aircraft, including commercial jets, may not have been warned of a glider's presence.
4. Pilots of gliders equipped with suitable radio should listen on the appropriate frequency for information on other traffic in their vicinity.
5. Competition tasks should only be set through Class D airspace after consultation with the appropriate ATC unit. Where a task leg has to be set close to but not through 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:
Class D airspace not subject to glider VMC exemptions.
Aerodrome Traffic Zones.
Some types of permanent and temporary Restricted Airspace.
Some Danger Areas.

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

Notams. The NOTAM system has changed significantly over the last few years. Essential flight planning information is obtainable from several different sources.
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 **Air Pilot.** Recently airspace changes have also been announced by way of **Aeronautical Information Circulars (AICs)**, major changes by way of a dedicated AIC and minor changes *via* six monthly summary AICs. A monthly *GASIL* summary covers minor changes also.
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.
UK Air Pilot Supplements (green pages - obtainable separately from whole **Air Pilot**) give full details of Temporary Restricted Airspace arranged well in advance for (*eg*) major air displays plus the dates but not the times of Red Arrows' displays.

Full details of Royal Flights are to be found in **Royal Flights NOTAMs.** A daily update of Royal Flights and Temporary Restricted Airspace is obtainable on the Freephone service (0500-354802).

All above are available from CAA Printing and Publication Services (0242-235151) except Royal Flight NOTAMS from AIS Heathrow (081-745-3464).

Airspace Changes. The following changes have occurred since the publication of the 1993 *S & G Yearbook.*
Upper Heyford Mandatory Radio Area. The Upper Heyford Air Force Base closed in December 1993. This huge area no longer exists. The new 1/2 million map will reflect this change.
London TMA, changes in the Southend, which now only has an ATZ, and Stansted area are as shown in Fig 1 and on current 1/2 million map.
Lowering of R41 209°/26nm from SAM VOR-TAC to ORTAC down to 3500ft.
UB39 above FL165 between RADNO and MALBY hours extended until 0930hrs local time Monday-Friday.
From March 3, 1994 the Scottish Control Zone (Class E Airspace) will be withdrawn in its entirety, together with substantial portions of the lower level of the southern part of the Scottish TMA (Class E Airspace). The new boundaries and bases are shown in Fig 2. Prestwick will just have an ATZ.
Danger Area D131 Hankley Common raised to 1400ft.

Maps. The publication dates for the new 1/2 million maps are; Southern England and Wales, March; Northern England and Northern Ireland, August and Scotland, August. This year will see the publication of the new Low Level 1/2 million series. This map for general aviation use will only show controlled airspace **below** 5000ft or FL50. This greatly reduces the clutter on the map. We who hope to fly higher **must** have the current 1/2 million map showing all the controlled airspace. **For cross-country flights I do not recommend this new low level map.**

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**, Edition 13, July 1992 reflects the current legislation, but previous editions are now obsolete.

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

NUMERICAL FORECASTS

Forty years ago weather forecasting depended entirely on the amount of data available and the skill of the meteorologist who used it. Nowadays there is too much data for one person even to read and most of the skill consists of interpreting computer products. This is a simplified description of what is involved in computerised forecasts.

Numerical weather prediction consists of a number of separate stages and often involves several linked computers. The less powerful machines carry out the preliminary work before passing the data on to a big number cruncher.

The data bank

The first stage is to gather all the available information into a data bank. This needs a rapid and accurate exchange of data between a worldwide network of communications computers linked by cable and satellite. Most numerical models use only part of this mass of data to produce a forecast. The rest is not wasted because it provides very detailed hourly updates for services such as "MIST" (Meteorological Information for Self-Briefing Terminals). Users of MIST can have many varieties of weather observations or charts displayed on their own VDUs.

Quality control

The second stage is to sort out the data and apply quality controls. Few bits of meteorological data are absolutely accurate and some items frequently contain errors. For example the position of a ship report always has to be checked by looking up its previous position and working out if its reported speed and track agrees with the new location.

Analysis

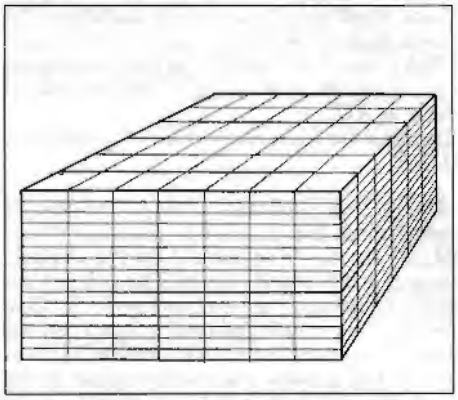


Fig 1. Block showing 15 levels in vertical used for a numerical forecast. For operational forecasts the entire globe is covered by these layers.

Only when the data seems reliable can the third stage, analysis, begin. The technique of analysing new data and producing a set of charts has developed into an elaborate technique. The machine has to analyse the atmosphere at some 15 or more levels starting at ground level and extending up into the stratosphere. Fig 1 shows a schematic diagram of a 15 layer model. I visualise it as a sort of multi-storey car-park with each car representing a piece of Met data. Like many car-parks the top floors are often rather empty.

Since the real data does not always arrive at the required levels a three-dimensional interpolation has to be carried out. Some useful data arrives both before and after the fixed time. This has to be fitted in by a kind of four-dimensional scheme.

It is possible to construct an analysis with no knowledge of previous developments but the process is very slow; it usually requires repeated scans of the data followed by a mathematical smoothing of the rather jagged patterns which appear. It is much more efficient to use the previous forecast as a background. As well as saving time the background preserves features which move into data sparse areas such as parts of the South Atlantic or Pacific where ships and aircraft are rare.

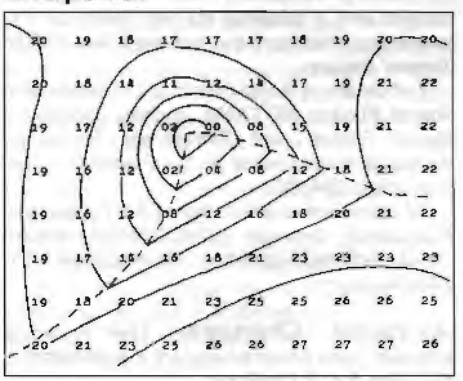
The new analysis starts with the assumption that it will look very like the forecast for this time made six hours earlier. Each piece of new data can be compared with the previous T+06hr prediction. There are almost certain to be minor differences which involve successive adjustments to the T+06 forecast field to arrive at the new T+0 analysis.

Weighting factors

Various classes of data are allotted different "weighting factors". Satellite temperature soundings are not usually as accurate as the soundings made by ground based radiosondes and would be given a lower weighting factor. This process is meant to prevent a single accurate item being swamped by a mass of less reliable data.

It is far from easy to devise a programme which can distinguish between a genuine change and a spurious change caused by a cluster of bad observations.

Grid points



HOW A CHART IS REPRESENTED BY GRID POINT VALUES

Fig 2. Grid point values superimposed on surface analysis.

The fourth stage transfers the irregularly distributed data on to a network of evenly spaced grid points. Computers work best if the data is presented on a regular grid. The grid is like a big net cast over the globe; each knot is a single grid point. Fig 2 shows how a rather coarse mesh grid handles a depression on a surface chart. The computer is only given the pressure values at the grid points. Like fishing nets the numerical grid may have a coarse mesh or a fine mesh.

When the grid points are far apart it is called a coarse mesh. Old numerical models used a mesh with grid points some 300km apart. In recent years the separation has been much reduced.

The accuracy of the analysis depends on how fine the mesh is. A coarse mesh lets small but important features slip through. In general the finer the mesh the more accurate is the forecast. This is partly because one can represent the topography better and partly because small scale weather systems are not smoothed out. However there is a penalty.

More grid points are needed to cover the globe. The more grid points the longer it takes to work through them. The computation time is further increased because the finer the mesh the shorter must be the time step. Short time steps mean more integrations are needed to produce a forecast.

Time steps

The process of prediction consists of a series of short time steps. At each step the machine works out the changes a few minutes ahead for all the grid points. These then provide the starting point for the next step. Step follows step until the machine has produced a forecast for the required time in the future. It is common for the machine to hold the fields at T+06,T+12,T+18 etc so that a time series of charts can be displayed later on. Global forecast models are generally run to T+120 or T+144hrs.

The European Centre for Medium Range Forecasts usually runs on for ten days but the accuracy of such extended forecasts is apt to deteriorate towards the end of the period. There is a theoretical limit of fifteen days beyond which the present methods of prediction are unlikely to have any value. However, some forecasts have been extended to cover a month and the monthly averages obtained from them seem to have some value.

Factors to be calculated

The forecast process uses equations of motion to predict dynamic changes and physical equations to predict changes of state. The physics includes the behaviour of moisture in the atmosphere, the incoming short wave radiation from the sun and outgoing long wave radiation from the earth and clouds. Advanced models include heat transfer through the soil and the ocean. The height of the terrain and the roughness of the surface are two more important items.

How moisture complicates the calculations

The dynamic equations predict how the atmosphere will move. The flow patterns have swirls and eddies on a wide range of scales and these produce areas of convergence. Convergence generally implies that the air at one level will be forced to move up or down. Upward motion cools the air; cooling generally results in condensation of moisture. This first produces cloud and later results in excess moisture falling out as rain or snow depending on its temperature.

Rainfall is not the only effect. Condensation releases latent heat which warms up the air and adds to the energy available for dynamic effects. Depressions often deepen much more when moisture is included. The temperature at each grid point is also affected by the incoming short wave solar radiation and the outgoing longer wavelength radiation from the ground and from layers of cloud or moisture aloft. Temperature is greatly modified by the passage of air over a warm or cold ocean. Evaporation alters the humidity.

Roughness and height of the surface

There are still more effects to be allowed for. The roughness of the surface affects the drag. This slows down the surface wind and also alters its direction. A rough surface can affect the whole forecast by influencing the speed with which depressions fill up or anticyclones decline.

Topographic effects can be much greater. Each layer in the model is made to undulate over the mountains in an artificially smoothed fashion. The undulations cannot accurately represent the jagged shape of real mountains but they give a fair indication of how much the air goes up and down crossing a mountain range.

When so many variables have to be taken into account the interaction is very complicated and the system usually needs to be "tuned" during programme development so as to get good results. For example astronomical equations can provide a theoretical value for the incoming solar radiation throughout the day but careful comparison of computed and measured values shows that the true value may differ significantly from the computed figure.

Displaying the forecast

At the end of each forecast run, the machine holds a great mass of numbers distributed over the grid points covering the entire globe. These have to be turned back into charts and diagrams which human beings can recognise and use. Interpolation between the fixed grid points allows isobars or contours to be drawn, much as a surveyor can draw contours between spot heights on a map.

Modern computers handle far more data than any one person can absorb and their output can be overwhelming. Individual forecasters call up forecasts for the sections of the globe they are concerned with. The BBC TV weather maps are not confined to pictures of British or European weather. Viewers overseas can see weather maps of almost any part of the globe transmitted by BBC satellite.

Some airlines use the output for automated flight planning. Individual pilots may prefer charts on which the wind velocity and temperature is given in a series of boxes, or depicted by means of wind arrows distributed all over the chart. The mass of data is usually divided into geographical regions which can be called up on a VDU, or drawn on photographic film and then enlarged on a very big photocopier.

The trajectory of air particles can be traced both backwards and forwards in time. This facility has proved useful for predicting the route of transoceanic balloon flights. Since the wind velocity nearly always varies with altitude the balloon crew can be advised of the best level to use to reach their destination. Unfortunately some balloons gradually lose the ability to reach or maintain the correct level.

Some limitations

Many features such as shower clouds are too small to be calculated on normal grids. There are some special models which predict the development of a single cu-nim; they use multilayered grids with points every few metres. The global models use a grid length several thousand times larger which is far too big to show individual shower clouds.

Instead of calculating the growth of individual clouds the model uses parameters which take into account the stability of the air, the effect of surface heating or orographic lifting and the presence of troughs. Showers are predicted if the air is, or will become, sufficiently unstable. The progress of individual showers is unknown. The machine just draws the region affected without showing the gaps which appear on radar images.

Sea breezes and small convergence lines are other features which are usually too small to be predicted on the global models. They can, however, be predicted on very fine mesh models with a grid length of a few kilometres. Such fine mesh models need too much computation to be extended over the globe. These very detailed predictions are confined to a small area of particular interest.

Boundary problems

Unfortunately any artificial boundary brings new difficulties; the models cannot allow for movement through them. To avoid this problem boundary conditions have to be updated by reference to the global model. Many years ago it was found that if one wanted to forecast the British weather for 36hrs ahead it was necessary to move the western boundary of the data out to the Great Lakes of America. Boundary problems were eliminated when the computer models were extended to cover the entire globe.

Statistical aids

It is possible to convert the numbers held in the machine into a written forecast as well as a set of charts. The process uses statistical relationships between the computed numbers and the real weather. The process is sometimes called "Model Output Statistics" (MOS). The method is a little like the expert systems used in the medical world to diagnose an illness from a long list of symptoms. The advantage is that such schemes can draw on a much wider field of experience than any single person possesses. The MOS adds details which are not given directly by the grid point values. For example, the weather on the coast can be very different from the weather over the hills a few miles inland. The two places may be far too close to distinguish on a small scale map but a statistical survey will show how the same basic Met situation can produce different weather.

Accuracy

All predictions develop errors. The economic models used by government are notorious for going wrong even when they do not become distorted by some political twisting. Met forecasts are no different. When challenged London Weather Centre often say their forecasts are 85% accurate. The figure doesn't mean much unless the method of assessment is explained. The user must say just what is important to him. For example the wind at a fixed position, time and height may be 50kt out if a jet stream lies close by, however the overall head or tail component for a 3000 mile flight may be within 5kt.

Even an apparently straightforward query such as rain or no rain is difficult to assess. Do a few spots of rain count, or must there be a few millimetres? Is the forecast wrong if a heavy shower just misses the church fete.?

Consistency

Numerical forecasts should have one great advantage over the old fashioned human forecasts. Given the same starting conditions they should come up with identical answers. Unfortunately it is impossible to make the initial analysis good enough to be sure there are no errors in the T+0 fields. Long ago it was noticed that an error of one part in a thousand could grow big enough to change the prediction. Much depends on how sensitive the weather is to tiny changes. Fig 3 shows a barograph trace. The full line is the original forecast, the pecked line shows how the prediction diverged after day 2 due to a tiny change in the starting analysis.

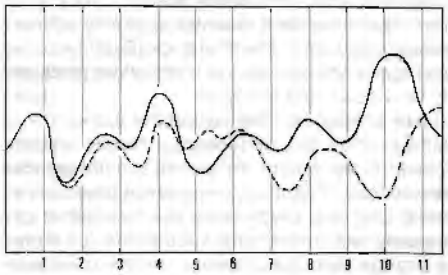


Fig 3. Two barograph traces showing effect of tiny alterations to the initial analysis.

The butterfly effect

The popular idea of the flapping butterfly's wing being enough to alter the weather a month ahead is a colourful example of the problem.

Situations vary greatly in their sensitivity. In some the initial errors take many days before they start to spoil the forecast. In others the prediction starts to diverge from the truth in a few hours and produces a complete change of type in three days.

Ensemble forecasts

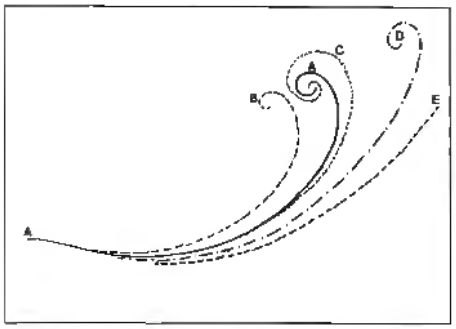


Fig 4. A series of predicted tracks of a depression centre showing how the forecast may alter with successive analyses.

These are a series of forecasts designed to show the effect of small changes in the initial conditions. There are two methods of testing this.

One method is to put some small errors into the original analysis and see if it alters the final prediction. These random errors are kept so small that the basic analysis is not changed; the object is to see if the weather is sensitive to infinitesimal changes in the starting conditions.

A second type of ensemble forecast uses an entirely fresh set of data 6 or 12hrs later than the original. Now if the system is stable the new set of data will produce a forecast almost identical to the original. However, if the situation is delicately balanced the second forecast will soon diverge from the original. This method saves much computing effort because no extra runs are necessary; however, you have to wait longer to see what happens.

Fig 4 shows the predicted tracks of a depression based on successive analyses at 6hr intervals. The first forecast (A) is shown by the solid line.

The others, B,C and D show how the computer changed its mind with new sets of data. The basic idea is the same in each case but the low slows down and recurves at slightly different places each time. The final track (E) shows a big change of opinion; the low is no longer predicted to slow down and swing left.

For at least half the period the tracks are so similar that the differences hardly matter. Towards the end of the period the differences are serious. If each successive run produces almost identical predictions the forecaster can (usually) rely on the output. If the new run shows a change from the previous one the forecaster will be alerted to possible errors.

Alas, the forecaster probably won't know which version to believe!

NUTRITION FOR THE GLIDER PILOT

While we are more aware of the importance of nutrition in sports there is a lot of misleading information. Lisa, a sports nutritionialist, gives a general idea of the most important diet for glider pilots and the reasons behind her advice

Keeping yourself well hydrated is a major consideration. It is good to rig up a drinking tube to overcome the problem of managing to hold a bottle whilst flying. Suitable drinks to have before, during and after flying include water, fruit juices (diluted if preferred), fruit squashes or commercial sports drinks. These sports drinks should be around 6-7% carbohydrate, this means 6-7gm carbohydrate and 1.3gm salt per 100ml solution. This type of drink can also be made up at home with a glucose powder or glucose polymer powder and as long as a pinch of salt is added this will be just as good. At this concentration water absorption will be maximised. Ready made drinks which contain ideal concentrations of carbohydrate and sodium include Lucozade Sport and Isotar.

Fluid intake is important as the body needs to be able to sweat and lose heat during any type of exercise. If fluid stores are low the body is unable to maintain a satisfactory body temperature and runs the risk of overheating. Even slight dehydration can have dramatic affects on performance. Therefore it is important for a pilot to drink plenty of fluids, preferably in small, frequent amounts.

It is best to avoid lots of tea, coffee and alcohol which contain diuretics

You should try to drink even when you are not thirsty, as thirst is a poor indicator for the need to start taking fluids. Remember to drink plenty of the drinks listed above between flights to keep yourself well hydrated. It is best to avoid lots of tea, coffee and alcohol as they all contain diuretics, which will make the body lose water, rather than replacing it.

Carbohydrates provide the principal source of energy during exercise. This is because carbohydrate is an immediate energy source, whereas fat cannot be used as readily. Carbohydrates can be divided into the starches and sugars.

The starches include bread, potatoes, pasta, rice, fruits and vegetables, teacakes, maltloaf and scones, and the sugars, apart from sugar itself, include jams, syrups, sweets and confectionery. If enough of these aren't eaten the ability to train may be affected, and you will fatigue earlier. This is because carbohydrate is stored in the body as glycogen, and these stores are limited.Every time you exercise you use some glycogen, thus, both endurance and strength training-type exercises rely on sufficient glycogen being available. Once these stores become low the ability to perform exercise is affected. Symptoms include heavy, tired muscles and early fatigue. Thus, performance can be affected.

So, a good diet will include plenty of carbohydrates. The starchy forms of carbohydrate are the best, since these contain more vitamins, minerals and fibre than the sugary ones, so, you need plenty of these foods to recover.

Fats, *eg* butter, margarine, oils, mayonnaise and fats on meat contain lots of calories and not much else. Sports people are advised to keep their fat intake to a minimum and concentrate on increasing carbohydrates. However, you do need a certain amount of fat which you can consume in the protein foods, *eg* meat, fish and cheeses. So keep visible fats to a minimum, buy a low fet spread and a low calorie mayonnaise, but don't cut it out altogether.

Suitable foods to take on board with you include muesli bars, plain biscuits, wine gums, liquorice, dried apricots, pears and figs.

After each flight, it is important to replace the carbohydrate used during the flight. So, include something from the following groups in your post-flight meal: bread, potatoes, breakfast cereals, rice or pasta. It is also important to eat within the first two hours following the flight, as the body refuels its carbohydrate (glycogen) stores at a faster rate during this time.

For further information contact the Sports Nutrition Service, Department of Physical Education, Sports Science and Recreation Management, Loughborough University, Loughborough, Leicestershire LE11 3TU. The Sports Nutrition Service also offer a dietary analysis service, and for £20 you can have your own personal diet analysed and given a full report on the adequacy of your diet with advice on which foods to eat, based on your own personal needs.

THE TOW MUST GO ON

Dave gives a flavour of life as the Black Mountain GC's tug pilot at Talgarth

Monday morning at 7.30, Day 3 of the task week and the view of the airfield from the caravan window was certainly encouraging. A thin patina of frost glistened on the wings of the sailplanes waiting in the crisp May morning. Meanwhile inside the clubhouse vast distances were being declared and barographs smoked. Already the sheep were being ushered off the field, the collapsible fence removed and the hangar unpacked while gliders were being fettled and filled with water.

Two cups of coffee and Pawnee G-AZPA or "Old Gasper" coughed into life and I taxyed out to run up in preparation for the first launch.

The first pilot had declared a 750km triangle and requested quite an exact profile for his launch. He wanted to be just west of the airfield at 4270ft QNH on a north-easterly heading and at Vt. As a tug pilot it is important to do your best as 750km is a long way without an engine and it is always helpful if the glider gets off to a good start. At 1006hrs we were at 4270ft, 106kt, just west of the airfield and heading 045°. He released and streaked off towards England while I spiralled back down towards the airfield for a look at the windsock as well as the next glider.

The sock indicated a very gentle northerly so landing uphill to the east looked favourite and I headed back towards the aircraft waiting at the start of the downhill north-west runway. Throughout the day that was the preferred choice for take-off and landing although I would occasionally land on the south-west runway or launch towards the west. Typically the gliders insisted on landing all ways, even south-east. At first this may sound confusing and even outside the realm of normal airfield operating procedures. But the reason lies in the nature of our airfield which is dome shaped and situated midway between a river valley and a mountain ranga.

Being so close to the mountains can produce some very strange conditions. On some days the wind can be howling from the east and yet the combination will launch into a calm west wind. This is an aspect of Talgarth that makes tugging here so interesting. And as the day wore on and the tows mounted I thought of another - the tremendous variety of aircraft that are sometimes launched.

Indeed, at 1218 after a morning of towing fast glass ships, the venerable T-21 was a world apart. It meant going from flying as fast as I could to as slow as I dared. The T-21's ancient pilot meandered hopelessly out of position and yawed the tug badly. I didn't enjoy that launch much as introducing an excessive amount of yaw while flying just above the stall isn't generally a good idea.

After lunch I launched the day's first visitor, an ASW-20 from Sleap. But as I descended towards the threshold of 09, a less welcome visitor casually drove across the runway. I had been watching the car all the time but nevertheless it made me think that I should do something about the warning signs at the gate.

Often chatting to prospective air experience pilots highlight some amusing if not understandable misconceptions. Most are quite surprised that the two-seater will land them back on the field. Presumably they think gliders simply drift downwind like a balloon. Others are relieved to learn that an instructor will fly with them! I'm sure most don't believe me when I tell them that sailplanes have flown distances of more than 1000km and climbed to nearly 50 000ft.

One of the quieter moments. Dave has been tugging at Talgarth for two and a half years. Since he started power flying in 1986 he has over 1500hrs in more than 40 different types of aircraft from antique biplanes to fast jets. He also has 100hrs gliding and says he will complete his Silver badge if he can ever sit in the same cockpit long enough.

Later that day I accidentally dropped the T-21 slightly downwind. There was no real problem but I still felt bad about it, especially as the PI not only holds all three Diamonds but also the rank of Air Commodore, albeit retired.

That afternoon a Cirrus from Bidford arrived, again on the south-west runway despite the tug and most Talgarth gliders landing east. With everyone landing in different directions and few calling their circuit it certainly keeps me on my toes. Indeed, it well behoves the tuggie who aspires to a long life to keep a good lookout both on the ground and in the air. On some days there can be as many as 20 gliders flying the same short ridge beat and they all expect the tug to give way.

At 1542 off the top of a launch I saw the IS-32 landing on Rhos Fawr common. After a quick call to Talgarth base to send a car and tow rope I curved down towards the grounded glider. There's something about a field retrieve that always makas me sit up a bit straighter in the cockpit. Each one is different and there are many factors to consider before even attempting a landing, let alone a take-off. Indeed, on some occasions simply **finding** the glider can be quite difficult but this retrieva was completed without incident.

After 30 or so tows my hammock beckoned but at 1710 a K-23 from the Long Mynd came in and there was news that our Blanik had landed on Hay common. Wa set off on the long tow back to the Mynd. It was a lovely evening. The patchwork fields basked peacefully in the evening sun as the combination climbed slowly north, the Pawnee purring like a contented cat. After such a busy day it was very pleasant to sit back and enjoy the beauty of flight, especially over such scenery.

I saw the Blanik's metal fuselage glinting in the sun as we passed over Hay and once the K-23 had released near the Long Mynd a steep 180° and I slid earthwards for my second field retrieve of the day.

Mind you, Hay common is so big it barely counts as a field retrieve. In fact several microlights had landed to have a look at the Blanik.

However, despite its size, the common is still fraught with traps for the unwary as the surface is strewn with rocks, some quite large. Wa launched off the common at 1824 and the Blanik released at 1700ft and soared back down the ridge while I flew home for my 36th and final landing of the day.

I taxyed briskly towards the hangar, cut the engine and coasted on to the hard stand. A dab of left brake and the Pawnee pivoted neatly in front of the hangar, pertectly positioned to push back.

Once the fenca had been re-erected and the sheep let out I trudged wearily back to my pit but it's the same sad tuggies caravan story. I've got lots of bottles but no food and so I was forced to go to the pub, where they have both. Whilst waiting for my lift I sipped a single bourbon, watched the sunset and looked forward to doing it all again tomorrow.

It's true, there's no business like tow business. Well, no business I know.

TAIL FEATHERS

Rules is rules

This winter I have had so much freelance work foisted on me that I have told my friends that I am unable to shove off to Australia for the usual month or two as I have done six times in the past seven years. Great chorus of "Ah, shame! Poor little fellow! Don't we all feel sorry

We all feel sorry for you.

for you having to suffer the fog and flu and slush and the clammy embrace of the London Passenger Transport Board along with the rest of us!" I have to say I didn't think my plight would get much sympathy. My friends - well, cronies, hangers-on and poker-school members rather than friends, really - always go on to say "You could just turn down those offers of work and go to Oz instead." And then I say "But how am I to pay for the new winglets on my ASH-25?" Another avalanche of sarcastic pity greets that, as you can imagine. "Oh, what a horrible dilemma - can't have a 60:1 glider and go to Waikerie, Benalla, Tocumwal and Narromine for six weeks! We ought to set up a national charity appeal for diddums. What is the world coming to? etc etc."

Define your terms

So on this freezing Saturday morning in January there is nothing for me to do but fantasise about forthcoming big flights in the northern hemisphere in the spring of 1994. I have started browsing through the **Times World Atlas** (no kidding) and the **FAI Sporting Code,** which I have never read before. I am of course, as W. C. Fields said in his old age when caught reading the **Bible**, looking for loopholes. My, that volume is an absolute cornucopia of laughs - not the **Bible**, silly, the **FAI Sporting Code** - a real bumper fun book. (Now you're being sarcastic. Ed.) Well, not totally. For instance the definitions, of which there are eight pages, are fascinating. Take this one:

1.3.1. A Glider Flight A flight by a glider starting at the take-off and terminating with the landing."

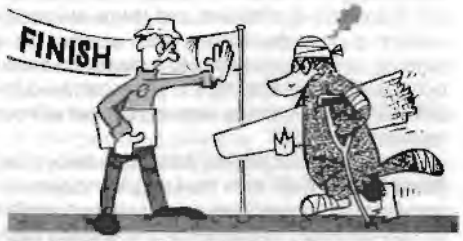
Phew! I wonder how long they sweated over that in smoke-filled rooms. Actually there is some sort of method here. After all they could easily have said "...terminating with a cartwheel into a pile of rocks, the pieces to be distributed over at least three counties, states, départements, provinces or other administrative districts." But in their calm deliberations the committee refused to panic, and chose otherwise. A landing it has to be.

You must survive 48 hours to collect.

However, the way I read the small print, if you insist on cartwheeling into a wilderness, distributing bits over several local governmental regions, it still counts as a landing - BUT you must survive 48 hours to collect your badge, diploma, contest trophy or record. Well, that's not quite accurate either. If you step out of the wreckage with a huge sigh of relief and tread on a rattlesnake (or more likely expire from dehydration, forgetting the wise words of Dr Walt Cannon) then your sad departure to the everlasting gaggle within 48 hours does not disqualify you from getting your badge etc. It is the crash itself that has to do you in, not rattlers or thirst.

Such a nasty word, crash. The FAI prefers accident. Ah! If you deliberately fly the machine into a spruce forest it doesn't count as an accident, then. The FAI rule-makers forgot that. (Gosh, I missed my vocation. I should have been a lawyer, haranguing juries in my wig. What a pleader the world has lost!)

A flight also fails to count as properly completed if anybody bales out. I'm always having to remind my passengers of that rule as they fumble nervously for the canopy release. "You might want to live" I say sternly "but I want my record, so just stay put." If they continue fumbling for the canopy release, I start wondering out loud about which of the two parachutes was involved in the great pee-bag disaster last month, and about its not having been repacked yet.



Continuing as if nothing had happened.

Again, the FAI very fairly stipulates that a flight is not complete if the glider is not complete - that is, if anything important falls off or is jettisoned, like a wing or tail. This is to discourage people from continuing as if nothing had happened after a collision, and a very good rule it is too. It is so humiliating when other pilots fly better than you do with only half a glider. I took a dim view of it in the 1960s when Tony Deane-Drummond climbed past me in cloud and went miles further than me with a vast chunk of one wing missing. Well, in cloud the only view you can take is a dim one, I suppose.

Having enjoyed the simple definitions so much I naturally anticipated pruriently the trickier definitions: those applying to women pilots, for instance. I was disappointed. The committee utterly balked at defining a woman. All they say is:

"3.2.1.3. Feminine records Records obtained when all the persons aboard are of the feminine gender may be classified separately as well as in the general classification."

That expression feminine gender means female sex, but the committee don't like to talk dirty. To this Platypedant, glider pilots don't have gender, only words do. Thus when trying to speak foreign languages the bane of an Englishman's life is gender: in French a fuselage is feminine and a rudder-bar masculine - don't ask me why. And German nouns and adjectives have three genders: masculine, feminine and neuter. In Russian even the wretched verbs have three genders as well as the noun and adjectives. But stopping people babbling about gender when describing the sex of human beings is a losing battle; I guess the silly habit is here to stay. No doubt the job of a chicken-sexer, mildly challenging and even amusing for the first five minutes, will be reclassified as a fowl-genderer, but it won't make it any less tedious, I suppose.[1]

Mildly challenging.

Many years ago a male glider pilot underwent a sex change and became a female glider pilot, swiping records that had recently been set by a woman pilot of my acquaintance. When asked by the press what she felt about this, the ex-record-holder was diplomatic and said "If it's all right by the FAI it's all right by me." I suggested that she should have said "If it's all right by the British Medical Association it's all right by me" or better still "It couldn't happen to a nicer chap" but facetiousness was not her style.

I imagine, though the rules are lamentably

[1] Did you know, American farms have roosters, not cocks?

vague on this important issue, that the FAI would prefer it if a male pilot did not complicate things by actually changing sex during the flight, or, horrors! within 48 hours of a triple-county arrival. (Note to Peter Fuller. We don't need a cartoon for this bit, thanks. Ed.)

Platypostbag

When I get low on ideas I can be provoked into thought by the newsletters and magazines that have been arriving in my mail from gliding friends around the world. From time to time I get the Seattle Glider Council's *Towline*. I'm sure that after the success of that daft, sentimental confection **Sleepless in Seattle** the town will be full of women visitors mooning around with soppy expressions hoping for romance to hit them out of the blue. Well there's a lot of poetry in *Towline*, so maybe romance will hit them out of the blue in the form of a local glider pilot. What a fate for any trusting female! For unsentimental aviators the best thing to see is the Boeing factory. Get over there and watch 747s being built in a hangar big enough to contain Birmingham - and hurry, before they become extinct.

Romance will hit them.

From north of the border comes the elegantly-styled *Ascent*, Journal of the Alberta Soaring Council. Why Glider Councils and Soaring Councils? Over here councils collect garbage and issue parking tickets, but over there I think it means something more lofty, like a senate, or a meeting of great legislative minds. I imagine they sit around in scruffy clothes drinking beer and moaning about the weather like anyone else. In addition I have *Free Flight-Vol Libre* from the Soaring association of Canada: it carries a hair-raising article about a landing on a mountain-side in an IS-28 two-seater which should make our own[2] John Bally, current unofficial record-holder for that kind of flying, with the very same glider I believe, green with envy.

Brian Spreckley's *European Gliding News* (out now!) must become required reading for anyone with serious plans to glide on the Continent. This plug is written in the hope of getting further free editions. "Gratitude is merely a lively expectation of future favours" a cynic once said.

European Gliding News carries an amazing advertisement for a glider pilot's ex-wife: "Tens of thousands spent with no increase in performance. Suit kamikaze pilot looking for a challenge. Buyer beware." No price is mentioned. It sounds as if the advertiser would pay a fair sum to be well rid of the lady, in fact. This may start a terrific precedent: is the ex-wife advertising him in another journal, like *Croquet Gazette*, and would she dare mention that he is a glider pilot? No, I've just realised: this ad in the Spreckley organ has been cunningly placed by the ex-wife herself, as a snare for those who can't resist a challenge. My advice, if interested, is to write to Box 22 giving a phone number only, and wait ...

Spellbound

Incidentally, you can always tell the truly brilliant pilots when they rush into print: they have the most creative spelling. Moi. I scorn spell-checkers on the computer because although I am a crummy pilot I can spell like a whiz. Yes, say the computer people, but even Charles Dickens can hit the wrong key on his word processor. So I have just looked up this Tail Feathers on my Mac's spell checker and it says "Not in Dictionary: soarers. Try soars, sharers, Sierras." I like that. I've shared soaring in the Sierras with soarers. You won't believe this next one. "Not in Dictionary: Sailplane. Try Sail plane (two words)." Who are these clowns, I ask? Then it rejects winglets: "Try wingless." No, thanks! Then "Benalla? - try banal or Bengal". Apologies to John Willy - sorry, not allowed: I can have Willie, or wild (not really) or wily (that's better) - and to the Victorian soarers.

CHANGE OF MANAGEMENT

Winfried Schleicher retired from Schleicher at the end of 1993 after 47 years' service. His sister, Hedwig Kremer, has taken over his share and Edgar Kremer is the new managing director. After a poor year in 1993, the beginning of ASH-26 production means the firm is now working at full capacity again.

The 15 metre ASW-27 is due to have its maiden flight this year and designer, Gerhard Waibel, is forecasting a best L/D of 48!

Translated from *Aerokurier* by Alan Harris.

The Allgäu Mountain Competition (Open and Sport Classes) is at Füssen, Bavarian, from May 28-June 4. Details from Nick Hackett, tel 0509 890469.

[2] They say John Bally has retired from the sport. Shame! The meetings of the BGA Safety Committee, or the Council for the Discouragement of Imaginative Aviation, or Scull's Scholars for Secure Soaring or whatever they call the body that strives against the innate male lust for danger, will never be the same.

John, before his 75nm tow, shares the Glaser-Dirk agency with Bob McLean, flies at Sutton Bank and Rufforth, has 2000hrs, all three Diamonds, is an instructor and tug pilot and has won two BGA trophies.

JOHN ELLIS

A LIMEY ON SAFARI

Last summer John was invited by Tom Stowers of High County Soaring, Minden, Nevada on their third annual safari, flying their Nimbus 2B, and describes two great weeks of gliding and sightseeing, covering more than 2173km

On Sunday, July 18, 17 pilots and crews from all over the USA, Tim Biggs from South Africa and Karl Abhau and Ruediger Luehl from Germany met at the office of High Country Soaring. Karl had shipped his Ventus CM from Germany and Cliff Roberts, the American film star and narrator of "Running on Empty", was with us for part of the trip.

Welcoming us, Tom said that the safari was two weeks of fun, not a race every day, and that we should just do our own thing and enjoy the scenery. But he stressed the safety aspects of flying over the high desert - keeping in contact with other gliders, helping each other out and checking our navigation. On a previous trip someone had got lost and landed 100 miles off track in the middle of a nuclear test site.

We also needed plenty of water and provisions in case we landed out on a dry lake bed where an aerotow retrieve was impossible and it might take until the next day for the crew to arrive.

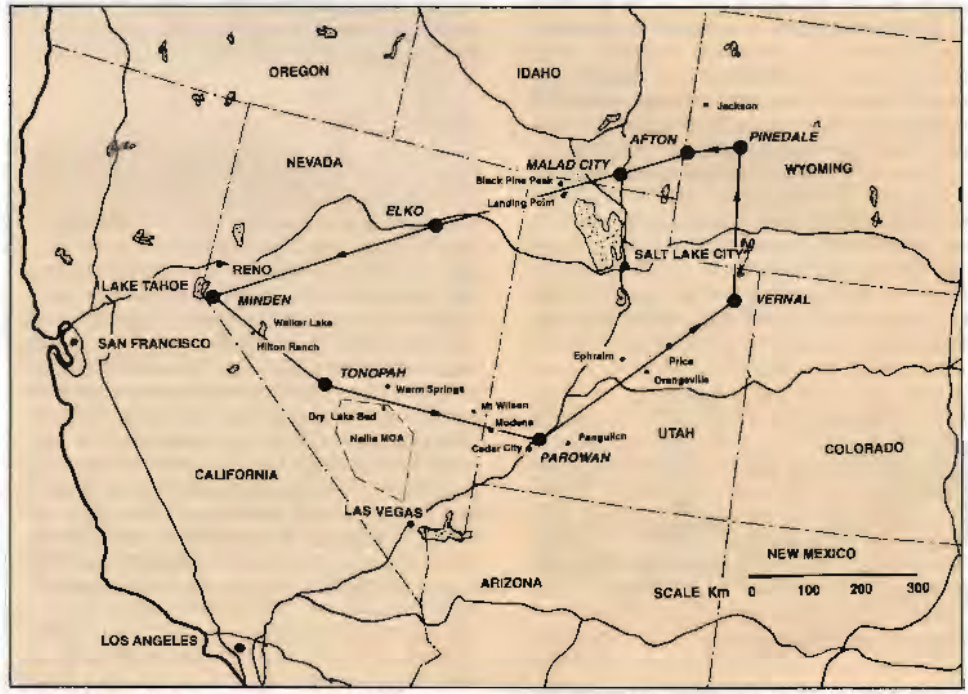
1st leg - Minden to Tonopa, 220km

This was an easy first day to Tonopa where the stealth bomber was developed. We had several landing areas on the route which took us over the Barron Hilton ranch. Although thermals went to 17 000ft later in the day, there were large areas of heavy sink. The last pilot was in by 7pm having become "temporarily uncertain of position."

2nd leg - "the big one", Tonopa to Parowan, 375km

This was the second longest leg over some of the most desolate countryside imaginable. There were few landing areas or roads on track and our crews were at least 60 to 70 miles to the south of us for most of the time. We crossed the Nellis military operations area and the air was full of fast jets which really livened up the long days' driving for the crews as they beat up the cars and trailers for fun. I asked Tom about the lack of landing places and he said: "It's easy. Don't look down."

The first away were the motor gliders, all (except the DG-500M) being towed with their engines going because of the heat and altitude (5426ft). We started with an inversion to 11 000ft



with fairly regular thermals as we set off on track to the first range of mountains. We mostly flew in gaggles to help each other as the inversion got up to 12 000ft.

From Warm Springs we could see a dry lake bed off track with massive dust devils rising from it. Quite a few of us diverted to them but of course when we got there they weren't as good as expected. In the desert the thermals usually only work best off the mountains and as they were about every 30 to 40 miles apart there were some long glides.

The desert wasn't the easiest place to navigate over and I was pleased to have the Garmin 100 GPS with me. I then noticed square objects on the desert floor with dozens of bomb craters around them and then a jet coming in very low and fast, with a big burst of dust behind it. I could see where the craters came from!

We spread out to find the lift as it was blue and I decided to make for Parowan on my own from Mount Wilson. I reasoned it should work over the mountains, so I flew on and on for miles and got quite low. I crossed into the next valley near Modena with an 18kt tail wind. I could see the bright red cliffs near Cedar City and knew there were only 60 miles to go.

I then tiptoed along to Cedar Banks, the red cliffs which are the same stone as Bryce Canyon. Parowan was only 15 miles away and I spent the next 45min flying around fantastic scenery, landing at 6pm.One member got lost and had luckily found a strip out in the desert 50 miles off track.

It was a two day stop over so we had plenty of time for sightseeing. Mike Bradford (Ventus C) from Zephyr Cove, Nevada, flew the 120 miles to the Grand Canyon the next day with only two landing places on the way!

3rd leg: Parowan to Vernal, 405km

Just like England, with the approach of a warm front the cloud thickened and the sun disappeared. In the end only five pure gliders took off and I was the last. The motor gliders all went early and had an interesting day, having got off on track up to 2hrs before the gliders and waited for the thermals to develop. I took a 3000ft tow into the mountains and then slowly climbed. It seemed funny climbing off tow at 2000 or 3000ft and you were still only just above the ground.

With radio reports indicating the next valley was working well, and as there was a strip at Panguitch, I took a chance and cut through Little Creek Pass. Conditions improved with a 13 000ft cloudbase, though the cu were short lived and if

you went for one it was dead on arrival. There was overdevelopment to the left and right of track with hanging curtains of verga - heavy rain that evaporates before its gets to the ground

I was approaching the Wasatch plateau with most of the peaks over 11 000ft, a 13 000ft cloudbase at the end of the valley and a good 30 to 40 miles of this terrain to the nearest strip on track. I then heard that the thermals in the next valley were up to 16 000ft, so cut through a mountain pass between Ephraim and Orangeville. It never feels good as you drop into a pass. The mountains seem to dwarf you and you haven't got a clue what it's like on the other side.

Clearing the pass the ground dropped dramatically and I wondered whether I could make it to the strip. I caught a weak thermal but the track was blocked by verga and with no cloud flying instruments it wasn't safe to push through as you couldn't be certain how thick it could be.

Three of us landed on the strip at Price and it wasn't long before the tugs arrived. I took off for the 75nm aerotow to Vernal, having to climb to 14 000ft to clear the mountains.

Again Mike Bradford had made it across in the only pure glider. He had taken a chance and gone through the verga and luckily found it was not too thick. Another glider was just a few miles short. The motor gliders all made it across without using their engines.

During our two day stop over we were on the tail of the weather that caused the massive flooding on the Mississippi - 8in of rain was forecast for that area the next day and the rivers were already 49ft above floor level.

4th leg: Vernal to Pinedale, Wyoming, 256km

The weather had really clamped down and we all trailered to Pindale, a beautiful small cowboy town 7085ft asl and on the edge of the Wind River range of mountains which are mostly in snow cover and rise to 13 800ft. Soaring was marred by the low cloudbase of 11 000ft but the scenery was fantastic with deep gorges and lakes. Outside one of the hangars sat a Slingsby T-53 in beautiful condition having just had a major overhaul.

5th leg: Pinedale to Afton, Wyoming, 78km

This was the shortest leg and turned out to be one of the most interesting. The crews had a journey of 125 miles compared to our 50, but again the problem was the cloudbase. Tom said there was a farm strip in the desert that wasn't on our maps and to go *via* there across the two mountain ranges.

Conditions weren't easy and there were several relights. We had to cross the 11 378ft Wyoming range with a cloudbase of less than 12 000ft. We were downwind of it with a second range just short of 11 000ft beyond. The secret was to catch the thermals right as you were approaching the down in the lee of the hills. The only problem was that if you didn't get the thermal you had to make a 23 mile run straight back to the farm strip at 7000ft asl as there was nowhere to land between. I made it across with much relief on the second attempt - there were some great stories that night at the barbecue.

The next day we had a tour of the Pitts Special factory where they also make the Christan Husky tug and kits for the Christan Eagle biplane. The soaring later that day was superb and it would

John took this photograph while crossing the Wyoming range to Afton.

have been no problem to go back over the peaks we had sweated over the day before. Again, there was scenery to take the breath away - deep gorges and mountain top lakes, bright blue and covered in ice.

6th leg, Afton to Malad City, Idaho, 123.5km

Very poor weather again, still in the influence of the Mississippi rains. Most of us trailered across.

7th leg: Malad City to Elko, Nevada, 374km

Pete Kelly, our Met expert, had given excellent forecasts all safari and said this would be the day of days, promising unlimited visibility, strong thermals and an 18 000ft cloudbase. He then declared his 500km.

Pulling off tow I hit 8kt, full to the gunwales with water. This was the way to do it. Then bang as I found the 11 000ft inversion that wasn't supposed to be there. We set off in a gaggle towards the 9386ft Black Pine peak, 60 miles away, with little thermals on the way but nothing meaty. We all made for a mine on the side of the peak which worked well but still only up to the inversion.

The Wyoming range the following day on the 5th leg which turned out to be one of the most interesting.

On track again to Raft River mountain, cumulus were coming off the top and Pete was right. We all arrived well down on lower slopes with few landing places. The thermals worked weakly but still hit against the inversion, while the cumulus seemed to be working above the inversion off the peaks of the range.

In the end gravity won and it was field landing time and a long wait for our crews. Four hours later, just as it got dark, they turned after driving 100 miles round the range looking for us, having misread the position on the map. They thought we had landed on the peak. Mike Bradford, who had many successes during the safari, was again the only glider to reach Elko, at one point sitting on a ridge hoping for a thermal with nothing below. Pete Kelly only just missed his 500km.

8th leg: Elko to Minden, Nevada, 380km

The forecast wasn't brilliant so we deemed it safer to trail the last leg.

The safari ended with a magnificent barbecue at Tom's house. It was a great end to the best gliding holiday I have had, even though the weather was by far the worst encountered on previous safaris. Tom now organises the safari on a regular basis, so if you want a different, challenging gliding holiday give him a ring on 0101 702 782 4944.

CIRCUIT PLANNING

Chris Rollings, BGA senior coach, writes about "A new approach to the approach"

From the earliest formalisations of glider circuit planning the "ideal" circuit was visualised as being rectangular, with the downwind leg parallel to the approach direction and a base leg at right angles to these two. Heights and distances varied with glider types and instructors' perceptions of required safety margins. Generally, nowadays we work around (**Fig 1**):
(A) Start of circuit/high key point 800ft three-quarters of a mile to one mile from the landing area.
(B) Abeam landing area/low key point 600ft half a mile from the landing area.
(C) Turn on to base leg 500ft rather more than half a mile from the landing area.
(D) Final turn 300ft a quarter of a mile from the landing area.
(E) Reference points for approach/landing area.
(Those figures for a K-13 and a light wind.)

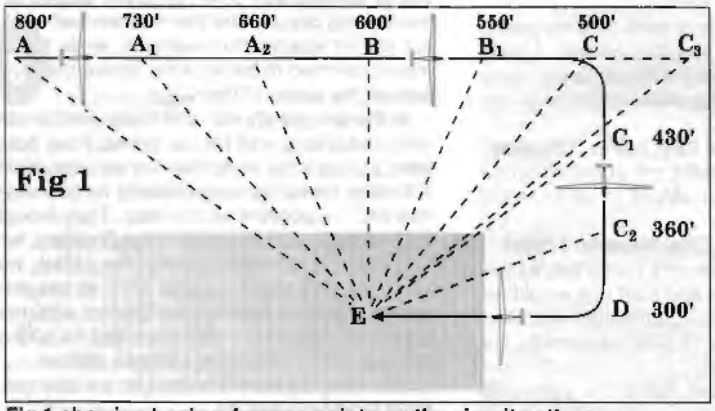


Fig 1 showing basic reference points on the circuit pattern.

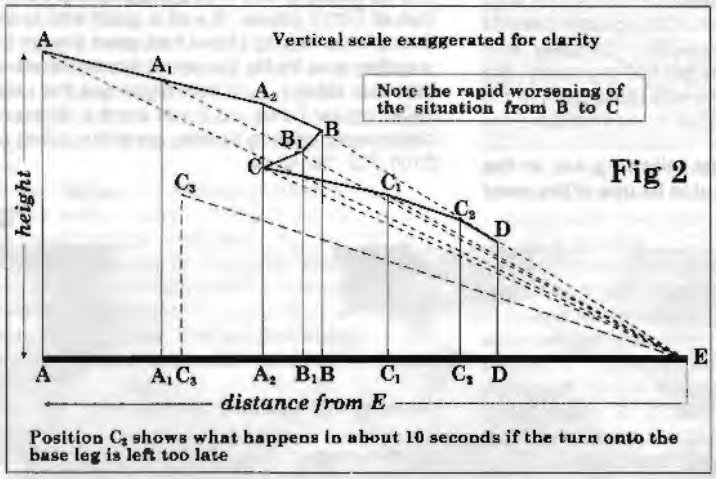


Fig 2 showing the changing angles throughout the circuit.

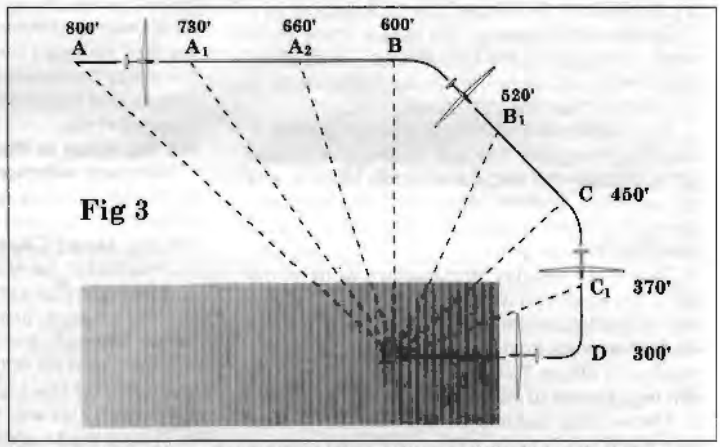


Fig 3 showing the reference points on the modified circuit pattern.

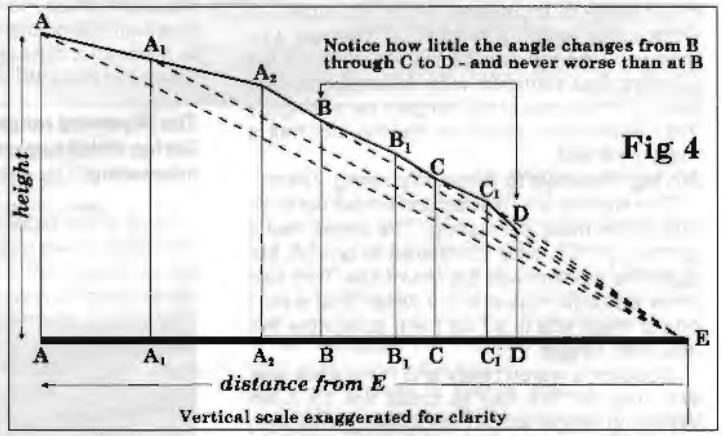


Fig 4 showing the changing angles throughout the modified circuit pattern.

In the early days of instructing correct positioning in the circuit was taught by reference to local landmarks (secondary references) *eg* "Start the downwind leg over the red barn", "Turn on to base leg by the crossroads in the village" etc, etc.

It was realised fairly quickly that this only worked well for a limited range of conditions and a particular take-off direction. Change the wind direction and/or strength and the pupil needed retraining. More important it was quite useless for a field landing and cross-country flying was no longer limited to just a few pilots.

The answer, introduced mainly in the 1960s, was to judge the glider's correct position in the circuit solely by its position in relation to the intendad landing area (primary reference). Correctly applied the method requires the pilot to assess distance from primary reference, angle below horizontal to primary reference and height above primary reference.

This method worked better, but still left me with a growing feeling that all was not well. In particular a sense of unease was often present (on instructional flights) between the low key point (B) and the turn on to base leg (C); this sense of unease appeared to occur in most if not all instructors from time to time.

The reason took some time to puzzle out, but is actually quite simple and in two parts.

First, as the glider flies the first part of the downwind leg from (A) through (A_1) and (A_2) to (B), although the height is reducing, the distance from the landing area (E) is reducing more rapidly. Height loss from (A) to (B) is about 25% of initial height. Total distance from (B) to (E) is 33% - 50% less than from (A) to (E)) so the angle to the landing area is improving.

After the glider passes (B) on its way to (C), the distance to the landing area (E) starts to increase and the further downwind the glider goes the more rapidly it increases, meanwhile height continues to be lost (often at a greater rate, the low key point is usually about where speed is increased to the approach speed) so the angle to

the landing area is worsening and at a rapid rate.

On a moderately windy day the difference between a correctly positioned turn on to base leg (C) and a glider out of gliding range of the landing area (and quite likely to have a serious accident trying to get back) is just a few seconds. No wonder instructors get "the leans"! Once the glider is on the base leg flying from (C) to (D) the angle starts to improve again and on the final turn at (D) is about the same as it was at the low key point (B).

(**Fig 2** shows the changing angles throughout the circuit.)

The rapidly worsening angle as the glider flies downwind from the low key point towards the turn on to base leg is one part of the weakness of this method of circuit planning.

The second weakness is more profound. It is that once you are past the low key point, in most gliders the position of the wing is such that **you can't see the intended landing area.** Since the training concentrates on judging your position in the circuit relative to this spot a certain amount of dissonance results.

Now comes the blinding flash of the obvious. If the part of the circuit from (B) to (C) is potentially fraught and makes you uncomfortable because you can't see the landing area, don't fly that part. As you pass abeam the landing area and it starts to disappear behind the wing turn through about 45° and aim to join a "normal" base leg about half way along.

Fig 3.

Two things happen, one is the landing area stays in sight and you can continue to monitor the all important angle; the other is that the distance to the landing area is constantly reducing more or less in step with the height and the angle remains about constant.

Fig 4.

Putting this idea to groups of experienced instructors generally gets responses like "That's what I do when I'm flying solo!"

Experiments last year on instructors' courses found no problems with the new style circuit; and at the BGA Instructors' Committee meeting in November it was agreed to adopt this method as the normal method of teaching circuit planning.

Perceptive readers will note that since the total distance round the circuit is now less, either the final turn will be a little higher than before or the downwind leg will need to start a little lower or a little further away.The last is the preferred option but the differences are generally small so the choice is not critical.

What I have written here makes no mention of variations for strong winds, crosswinds, being too low, too far away, too high or too close; and in these events this circuit needs to be modified in the same ways as its predecessor. Detailing all the possibilities here would result in an article far too long for *S&G* but you will find all the information in the new **Instructors' Manual** which will soon be available from the BGA.

Finally, it would not be fair if I did not share the credit for this new approach with Julie Angell, Graham McAndrew, Chris Pullen and Terry Slater who helped to formulate it; and also the many trainee instructors in 1992 and 1993 who were unwitting guinea pigs for the developing idea.

JOHN McCULLAGH

1066 AGL AND ALL THAT

Browsing through an old copy of **The Guiness Book of Records**, I discovered that Sir George Cayley was a Johnny-come-lately and that gliding can be traced back as far as the ancient Egyptians. Clearly the sport suffered from a lack of reporting in the intervening years but a tragic story of setbacks can now be pieced together.

Of course, we can only speculate about some of the events. Where the Pharaohs carried up the pyramids by slaves in their papyrus gliders in a vain attempt to get their Silver height? Alternatively, they may have tried some startling bungy launching off the top, but possibly what put off the Egyptians was waiting at the launch point in winter until mummification set in.

It seems that the Children of Israel then picked up the idea, but we can assume that Moses lost interest in gliding since the Ten Commandments contain no references to take-off checks. Possibly it was the 40 years in the wilderness on a retrieve trying to follow bad directions to Sinai that upset him. We can also infer from the number of times that begatting is mentioned in the Old Testament, that this must have had a serious effect on gliding, as it does now.

There seems to have been a Galilean glider called the Lily with legendary stability. Prospective buyers of gliders were advised to consider the Lilies on the airfield. "They stall not neither do they spin." This was misreported by Matthew in his write-up for *S&G*, giving rise to a whole new religion instead of promoting gliding.

From Palestine the secret of gliding was passed on to the Romans (possibly *via* a pilot called Pontius) and to the Britons. A further calamity occurred when Boudicca's trailer was damaged in an encounter with some legions on Watling Street. This may have been caused by the Italians not obeying the British rules of the woad. Proof comes from Latin words that are still in our language such as vario (I wail) and nimbus (a small fortune).

Not much is known about gliding in the Dark Ages, although there are legends of Sir Launchalot. Nevertheless, evidence exists in the number of short Anglo-Saxon words that are used even today when derigging in the middle of a wheat field.

Further attempts at gliding were made in the Middle Ages. For instance, Magna Carta was a petition for a Special General Meeting of the Runnymede Gliding Club around 1215, long after it was soarable. Look down the list of joint signatories for the name of Baron Stemme of Lasham.

It is now also obvious that Richard of York was an early member of Coventry GC, as it was then known. The Battle of Bosworth Field began after a winter of discontent when Henry Tudor nicked the glider on a booming day, leaving Richard to cry "My kingdom for a Horsa". Sadly, Richard was frustrated in his later attempts to get a Diamond badge to go with the crown because the French did not define the kilometre for another 300 years.

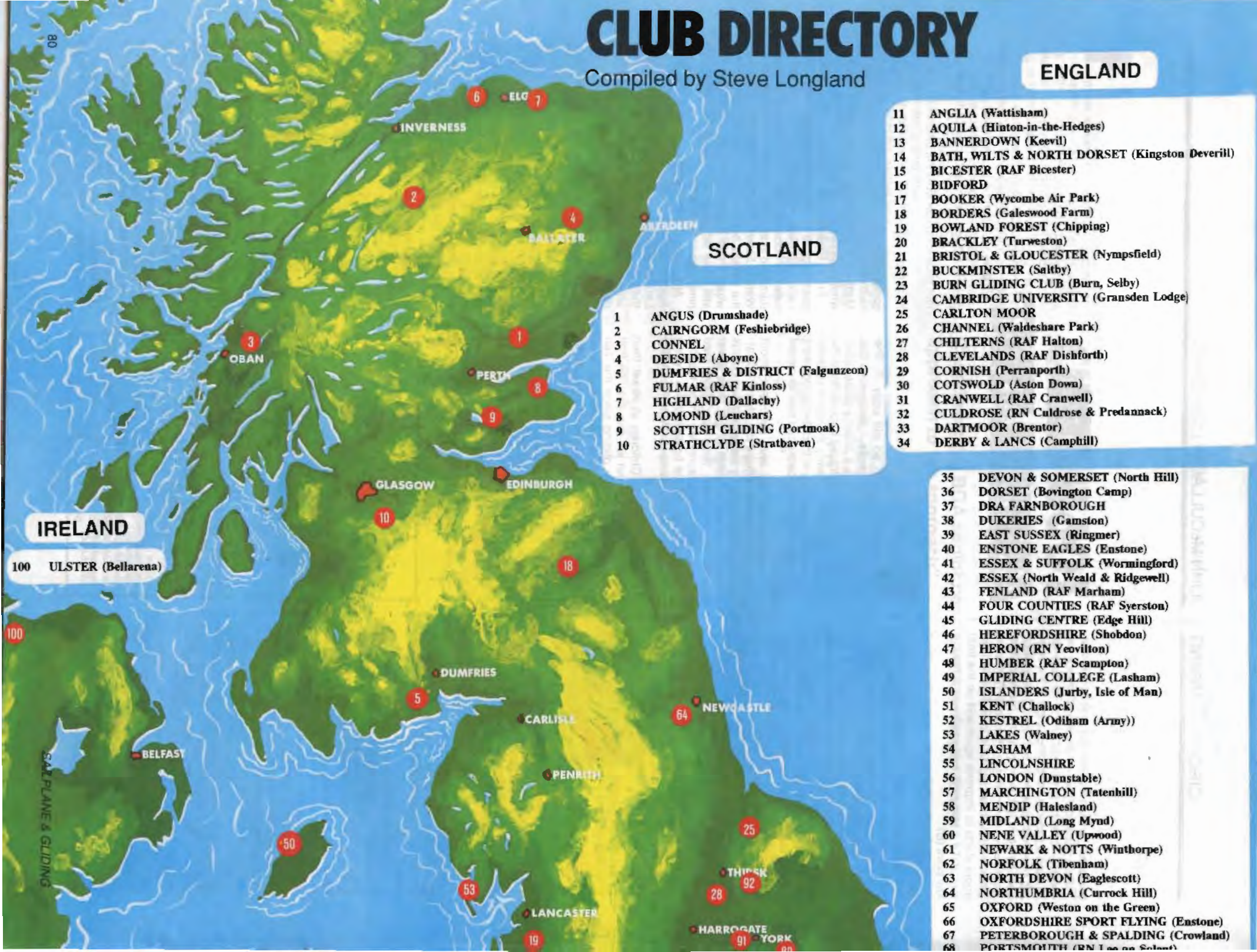
We know that Shakespeare was aware of gliding from the way a horrified Macbeth says "Is this a Dagling which I see before me?". Furthermore, William's marital problems with Ann Hathaway seem to have started when he compared her to a summer's day but took the metaphor too far by describing her over-development and spread-out.

Setbacks continued in the following centuries when Newton invented gravity and the Enclosure Acts put hedges around fields. A horse-drawn Range Rover was then often seen leaving Membury on its way to the wreckage.

In Victorian times mahogany cameras and flash powder caused several accidents at turning points and the CAA restricted airspace in case someone devised steam-powered flight. It is therefore not surprising that when Cayley sent his coachman solo, everyone else had forgotten about gliding.

CLUB DIRECTORY

Compiled by Steve Longland



SCOTLAND

1 ANGUS (Drumshade)
2 CAIRNGORM (Feshiebridge)
3 CONNEL
4 DEESIDE (Aboyne)
5 DUMFRIES & DISTRICT (Falgunzeon)
6 FULMAR (RAF Kinloss)
7 HIGHLAND (Dallachy)
8 LOMOND (Leuchars)
9 SCOTTISH GLIDING (Portmoak)
10 STRATHCLYDE (Stratbaven)

IRELAND

100 ULSTER (Bellarena)

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
17 BOOKER (Wycombe Air Park)
18 BORDERS (Galeswood Farm)
19 BOWLAND FOREST (Chipping)
20 BRACKLEY (Turweston)
21 BRISTOL & GLOUCESTER (Nympsfield)
22 BUCKMINSTER (Saltby)
23 BURN GLIDING CLUB (Burn, Selby)
24 CAMBRIDGE UNIVERSITY (Gransden Lodge)
25 CARLTON MOOR
26 CHANNEL (Waldeshare Park)
27 CHILTERNS (RAF Halton)
28 CLEVELANDS (RAF Dishforth)
29 CORNISH (Perranporth)
30 COTSWOLD (Aston Down)
31 CRANWELL (RAF Cranwell)
32 CULDROSE (RN Culdrose & Predannack)
33 DARTMOOR (Brentor)
34 DERBY & LANCS (Camphill)
35 DEVON & SOMERSET (North Hill)
36 DORSET (Bovington Camp)
37 DRA FARNBOROUGH
38 DUKERIES (Gamston)
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40 ENSTONE EAGLES (Enstone)
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43 FENLAND (RAF Marham)
44 FOUR COUNTIES (RAF Syerston)
45 GLIDING CENTRE (Edge Hill)
46 HEREFORDSHIRE (Shobdon)
47 HERON (RN Yeovilton)
48 HUMBER (RAF Scampton)
49 IMPERIAL COLLEGE (Lasham)
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52 KESTREL (Odiham (Army))
53 LAKES (Walney)
54 LASHAM
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57 MARCHINGTON (Tatenhill)
58 MENDIP (Halesland)
59 MIDLAND (Long Mynd)
60 NENE VALLEY (Upwood)
61 NEWARK & NOTTS (Winthorpe)
62 NORFOLK (Tibenham)
63 NORTH DEVON (Eaglescott)
64 NORTHUMBRIA (Currock Hill)
65 OXFORD (Weston on the Green)
66 OXFORDSHIRE SPORT FLYING (Enstone)
67 PETERBOROUGH & SPALDING (Crowland)
68 PORTSMOUTH (RN Lee on Solent)


April/May 1994
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YORK
HULL
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STOKE ON TRENT
NOTTINGHAM
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SHREWSBURY
LEICESTER
PETERBOROUGH
NORWICH
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BURY ST EDMUNDS
CAMBRIDGE
BEDFORD
HEREFORD
STROUD
OXFORD
SWINDON
CARDIFF
BRISTOL
READING
LONDON
BASINGSTOKE
MAIDSTONE
SALISBURY
TAUNTON
SOUTHAMPTON
BRIGHTON
EXETER
PLYMOUTH
WALES
93 BLACK MOUNTAINS (Talgarth)
94 GLYNDWR (Denbigh)
95 HIGH MOORE (Abergele, Clywd)
96 NORTH WALES (Rhualt)
97 SOUTH WALES (Usk)
98 VALE OF NEATH (Rhigos)
99 WEST WALES (Templeton)
67 PETERBOROUGH & SPALDING (Crowland)
68 PORTSMOUTH (RN Lee on Solent)
69 RAE BEDFORD (Thurleigh)
70 RATTLESDEN
71 RSRE (Pershore)
72 SACKVILLE
73 SHALBOURNE (Rivar Hill)
74 SHENINGTON (Edge Hill)
75 SHROPSHIRE (Sleap)
76 SOUTHDOWN (Parham)
77 STAFFORDSHIRE (Seighford)
78 STRATFORD ON AVON (Snitterfield)
79 SURREY & HANTS (Lasham)
80 SURREY HILLS (Kenley)
81 THE SOARING CENTRE (Husbands Bosworth)
82 THRUXTON
83 TRENT VALLEY (Kirton in Lindsey)
84 UPWARD BOUND TRUST (Thame)
85 VALE OF WHITE HORSE (Shrivenham)
86 VECTIS (Sandown, Isle of Wight)
87 WELLAND (Lyveden)
88 WOLDS (Pocklington)
89 WREKIN (Cosford)
90 WYVERN (Upavon (Army))
91 YORK (Rufforth)
92 YORKSHIRE (Sutton Bank)
Please note: Map accurqte when drawn.
Statute miles
0 10 20 30 40 50 60 70 80 90 100

CLUB DIRECTORY

BGA MEMBER CLUBS (In alphabetical order) 1994 list.
Unless otherwise indicated all telephone numbers are those of the club secretaries. The secretary may be on site where [site] is listed. The list is based on the current version of the BGA's booklet Member Clubs.

Club	Site	Telephone
ANGLIA	Wattisham	Service Club [Restricted]
ANGUS	Drumshade	(0241) 71400
AQUILA	Hinton-in-the-Hedges	(0908) 562592
BANNERDOWN	Keevil	
BATH, WILTS & N DORSET	Park, Kingston Deverill	(0380) 830986
BICESTER	RAF Bicester	ServiceClub [Restricted]
BIDFORD	Bidford on Avon	(0789) 772606 [Site]
BLACK MOUNTAINS	Talgarth	(0558) 823250
BOOKER	Wycombe Air Park	(0494) 442501 [Site]
BORDERS	Galeswood Farm	(0670)790465
BOWLAND FOREST	Chipping	0254) 813400
BRACKLEY	Turweston	(081) 908 5197
BRISTOL & GLOUCESTERSHIRE	Nympsfield	(0453) 860342 [Site]
BUCKMINSTER	Saltby	(0604) 78244
BURN GLIDING CLUB	Burn, Selby	(0757) 703601
CAIRNGORM	Feshiebridge	(0343) 547701
CAMBRIDGE UNIVERSITY	Gransden Lodge	(0223) 880544
CARLTON MOOR	Carlton Moor	(0642) 815160
CHANNEL	Waldeshare Park	(0304) 363111
CHILTERNS	RAF Halton	Service Club [Restricted]
CLEVELANDS	RAF Dishforth	Service Club [Restricted]
CONNEL	Connel Airfield	(036) 981 256
CORNISH	Perranporth	(0726) 842798
COTSWOLD	Aston Down	(0453) 757732
CRANWELL	RAF Cranwell	(0858) 434297
CULDROSE	RN Culdrose & Predannack	Service Club [Restricted]
DARTMOOR	Brentor	(0752) 849604
DEESIDE	Aboyne	(0358) 789761
DERBY & LANCS	Camphill	(0629) 640662
DEVON & SOMERSET	North Hill	(0395) 445870
DORSET	Bovington Camp	(0929) 471447
DRA FARNBOROUGH	Farnborough	(0252) 542893 [Restricted]
DUKERIES	Gamston	(0909) 501032
DUMFRIES & DISTRICT	Falgunzeon	(0387) 64612
EAST SUSSEX	Ringmer	(0825) 768796
ENSTONE EAGLES	Enstone	(0865) 750238
ESSEX & SUFFOLK	Wormingford	(081) 802 6663
ESSEX	North Weald & Ridgewell	(0473) 6882279
FENLAND	RAF Marham	Service Club [Restricted]
FOUR COUNTIES	RAF Syerston	Service Club [Restricted]
FULMAR	RAF Kinloss	Service Club [Restricted]
GLIDING CENTRE	Edge Hill	(0295) 688151
GLYNDWR	Denbigh	(0244) 341166
HEREFORDSHIRE	Shobdon	(0905) 21740
HERON	RN Yeovilton	Service Club [Restricted]
HIGH MOORE	Abergele, Clywd	(0492) 515073
HIGHLAND	Dallachy	(0542) 887585
HUMBER	RAF Scampton	Service Club [Restricted]
IMPERIAL COLLEGE	Lasham Airfield	(025) 683 270 [Restricted]
ISLANDERS	Jurby, Isle of Man	NK
KENT	Challock	(0233) 740307/740274
KESTREL	Odiham (Army)	Service Club [Restricted]
LAKES	Walney	(0229) 821935
LASHAM	Lasham Airfield	(0256) 381 322 [Office]
LINCOLNSHIRE	Strubby	(0472) 600770
LOMOND	Leuchars	Service Club [Restricted]
LONDON	Dunstable	(0923) 267058
MARCHINGTON	Tatenhill	(0283) 820108
MENDIP	Halesland	(0934) 813142
MIDLAND	Long Mynd	(0531) 890 580
NENE VALLEY	Upwood	(0480) 412901
NEWARK & NOTTS	Winthorpe	(0636) 704293
NORFOLK	Tibenham	(037) 977 516
NORTH DEVON	Eaglescott	(07693) 404 [Site]
NORTH WALES	Rhualt	NK
NORTHUMBRIA	Currock Hill	(091) 4888170
OXFORD	Weston on the Green	(0993) 811675
OXFORDSHIRE SPORTFLYING CLUB	Enstone	(0608) 677208
PETERBOROUGH & SPALDING	Crowland	(0832) 280087
PORTSMOUTH	RN Lee-on-Solent	Service Club [Restricted]
RAE BEDFORD	Thurleigh	[Restricted]
RATTLESDEN	Rattlesden	(0787) 237241
RSRE	Pershore	(0684) 567588 [Restricted]
SACKVILLE	Sackville Lodge	(0525) 715460
SCOTTISH GLIDING UNION	Portmoak	(031) 445 4901
SHALBOURNE	Rivar Hill	(0249) 815598
SHENINGTON	Edge Hill	(0295) 251716
SHROPSHIRE	Sleap	(0952) 612862
SOUTH WALES	Usk	(0446) 711749
SOUTHDOWN	Parham	(0342) 716545
STAFFORDSHIRE	Seighford	(0785) 817972
STRATFORD ON AVON	Snitterfield	(0675) 442189
STRATHCLYDE	Strathaven	(03552) 26218
SURREY & HANTS	Lasham Airfield	((025) 381 270 [Site]
SURREY HILLS	Kenley	(081) 763 0091
THE SOARING CENTRE	Husbands Bosworth	(0858) 434297
THRUXTON	Thruxton	(0962) 865503
TRENT VALLEY	Kirton-in-Lindsey	(0652) 648519
ULSTER	Bellarena	(08494) 33341
UPWARD BOUND TRUST	Thame	(0442) 61747
VALE OF WHITE HORSE	Shrivenham	(0793) 725265
VALE OF NEATH	Rhigos	(0639) 637241
VECTIS	Sandown, Isle of Wight	(0983) 853611
WELLAND	Lyveden	(0536) 760293
WEST WALES	Templeton	(0293) 614756
WOLDS	Pocklington	(0759) 303579 [Site]
WREKIN	Cosford	Service Club [Restricted]
WYVERN	Upavon (Army)	Service Club [Restricted]
YORK	Rufforth	(0535) 663492
YORKSHIRE	Sutton Bank	(0729) 822259

FRENCH COMPETITIONS: The Association Aéronautique du Val d'Essonne are organising the French Open Class Nationals at Buno Bonnevaux, 65km due south of Paris, from August 14-23. Foreign pilots are invited and for more details contact Jean-Renaud Faliu, 92 rue Raynouard, F-75016 Paris, tel 010 331 42247715 (evenings).

The Centre de Vélivole du Vallée de l'Eure of Bailleau are holding the 20th International Competition from July 14 - 25 with Standard and 15 Metre Classes plus an Open Class for self launching motor gliders and turbos. The club, better known as CVVE, is twinned with Lasham. For further information contact the CVVE at the Aérodrome de Bailleau, Armenonville, F- 28320 Gallardon, France.

GRAHAM McANDREW

FIELD LANDING TRAINING

Graham, a BGA national coach, says that pilots who never master the ability to choose and land safely in fields deprive themselves of the thrill and enjoyment of cross-country flying

I believe that the fear of field landings is the real reason why so many pilots confine themselves to local flying. They lack confidence in their ability to choose a good field and land in it safely and every out landing accident stiffens their resolve to keep within range of the home airfield.

As a result they never experience the thrill of cross-country flying.

To the vast majority of successful cross-country pilots, field landings are a considered, efficient and relatively safe procedure that doesn't detract from the challenge and enjoyment of the sport.

But to be confident you need good tuition. Over the years several methods have been devised such as landing in a chosen field away from the site or landing on a part of the airfield not normally used. Then there are some clubs who feel they have such a rough and difficult airfield that if you can land there you can land anywhere. None of these give sufficient preparation.

Field landing training to an adequate standard must include **circuit planning** and **field selection** in a motor glider so that fields can be sampled and circuits and approaches practised. The motor glider is an invaluable tool and the nearer it is to glider type handling and performamce the better. A Falke produces the best compromise.

For the instructor

Unless the pupil is well known to the instructor, a short session of circuit planning around the airfield, forcing modifications and making the student work, will often reveal a weakness needing more training. It is obviously beneficial to discover if the student is lacking in judgmental skills before going to the expense of a longer flight away from the circuit.

Time spent this way (and it need only be 15min if the pupil demonstrates good circuit planning skills) also gives him valuable handling practice on what is probably a new and unfamiliar type of aircraft. This may be followed up with a short flight to a suitable area to begin the field circuits. En route there should be discussion about the various fields you are passing over.

Then the instructor demonstrates how it should be done. From a height that will give a realistic length of time, he should choose a field, assess its suitability, plan and fly a circuit and approach. The whole time he should be explaining where he is looking, what for and what he sees, stressing in particular the time available to make an assessment and decision, the distance out from the chosen field for the circuit, always being in a position to see the field easily, and not cramp the circuit. Also he should give an assessment of obstacles, surface and slope, describing the clues he is looking for and the best approach path.

Once the student has seen how it should be done he stands a much better chance of being able to do it himself. After this initial demonstration, a climb back to the same height will allow the student to make the same sort of assessment but on a different field.

Initially we are more concerned with circuit planning and slize/slope assessment and this can be done at any time of the year and is a perfect winter pastime.

The student should be allowed to practise on as many different fields as possible in a large area. After each attempt the climb-out can be used to discuss the merits of the field and the pupil's endeavours as well as positioning in a different area for new fields. Varying the height at which the engine is cut alters the time available for the selection and there should be a minimum of 30min on this exercise.

The next session can only be done when there are crops but it is as important as the first. To be thorough, if done during the spring (a very difficult time of the year for field selection), it should be repeated in the summer to get the full spectrum of crop texture and colour.This is field selection proper where the pupil can look at various fields and their crop, getting used to identifying colours and textures and become familiar with selecting on merit, not just size.

More dummy land outs can be practised but this time incorporating surface considerations into the equation and facing problems such as wheelings and drill lines, trying to tell the difference between silage, hay or meadow, set-aside or crop.

Done properly, field landing training gives a terrific boost to the confidence of the novice cross-country pilot and ensures a much higher success rate and lower accident rates.

For the pupil

It is irresponsible to send novice pilots on cross-countries without adequate training in field selection and circuit planning - and adequate should mean practising on real fields for at least 1hr 30min - 2hrs.

The amount of attention given to the state of fields during a cross-country will depend on how the flight is going. On your first cross-countries, when confidence is fairly low and the chance of landing out high, you should spend a lot of time examining potential landing spots. But with experience it takes less of your attention, provided you stay ahead of the problem.

It's all pretty obvious stuff. If you are over a fairly uniform landscape with no obvious bad areas such as moorland or mountains, then more of your attention will be devoted to landing the lower you get.There is little point wasting good thinking time worrying about landing out if you are at 2000ft or above. Once down to 1000ft you should have a definite field in mind and know how you are going to fly your circuit.

There is no reason why you shouldn't continue looking for and using lift if possible but remember the lower you get the more difficult this will become. Keep the chosen field within reach at all times, continue to assess its suitability and if you can't do that and remain in the lift, then you must give up trying to climb.

Once your field has been picked it has become your airfield. You are local soaring it and the same rules should apply. If the lift is weak and you are being drifted, you leave the lift rather than lose the field.

Being aware of the state and condition of the fields is a skill that needs practice. And it is vital you keep abreast of seasonal changes and farming trends. If you do have to land out, find out from the farmer about the state of the crops in the area, what is being planted or harvested and what it looks like.

Field landing training is an important aspect of gliding that is all too often missed or skimped. Only by incorporating it into every club training syllabus will we see a reduction in the field landing accident rate. Giving it to every solo pilot will go some way to removing one obstacle to successful, safe and enjoyable cross-country flying. **NB.** If you are finding this vital aspect of training difficult to arrange, book on one of the BGA's field landing courses. Phone the office for details.

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WHERE THERE'S A WILL THERE'S A WAY

The story of how a two-seater trainer was delivered to the newly formed Islanders GC at Jurby, on the Isle of Man

It probably started three years ago when I was walking around a gliding club and in the back of a shed, lying very neglected, was a shocking pink K-2B that was to become the first two-seater trainer for the Islanders GC at Jurby, Isle of Man. Sometimes a person is lucky enough to be able to help out at gliding club with spectacular results.

If you are sufficiently lucky one may have a couple of opportunities but this was my third chance.

The first was helping with Black Mountains GC at Talgarth and the second at our own club at Sackville Farm where I have been experimenting over tha years with my own ideas of running a gliding club and we have a very happy group of individuals. More recently came this opportunity to help the Isle of Man.

I offered to store the glider at Sackville and try and find a buyer. Some two years later the new Islanders GC were interested and after having it inspected and given a C of A, the next problem was how to get it to the club. The ferry was too expensive so the practical solution was an aerotow with our Super Cub.

We had to clear the flight with Special Branch, get permission from the Island Airport to land at Jurby and also Blackpool which we thought would be a sensible place to refuel ready for the leg across the sea. Blackpool Air Traffic said they would put us on the secondary runway and close it while we refuelled.

Our route took us between Birmingham and East Midlands, the low level corridor to Blackpool and then to St Bees Head direct to Jurby - 220nm taking 4hrs 30min. The weather forecast for July 20 wasn't too good: overcast, 1500ft cloudbase with a little drizzle clearing to the north.

It might sound a bit silly but the first problem was who was going to sit in the glider. My Uncle David was available and suggested I should do the towing. He thought it would be easier for him to sit in the glider as I would be navigating and towing him, making the point that the wood and fabric glider would float and the Super Cub wouldn't!

The forecast was correct but we decided to go. Conditions were very smooth for aerotowing at maximum speed for the glider. David sat in a low position which he said stabilised the aeroplane very nicely. More than once I had to explain to the different control zones that I had a glider behind me and throughout the Manchester low level corridor it seemed everyone wanted to come and see the combination.

Conditions improved dramatically at Blackpool and we were held off to the south of the estuary for ILS traffic to land. Once given permission to come in. David released and landed short of the grass to the side of runway 31. The Air Traffic Control were extremely helpful and the landing fees relatively cheap considering the inconvenience we caused.

The first leg had taken 2hrs 30min with 1500ft our maximum height.

After refuelling and being interviewed by TV crews we set off, climbing out past the Tower, not forgetting the compulsory photograph.

Cloudbase was 2000ft with 2/8ths cumulus and we were feeling more comfortable with the extra height. There was a beautiful view towards Ayr with wave formations everywhere.

David Wilkinson ready to leave for the trip.

As we got close to Jurby the island was covered with 8/8ths cloud and the breaks in it were becoming smaller. We turned back to an area with larger breaks and started to descend. At this point David opened the airbrakes to take the slack out of the rope. The airbrake lever was wrenched out of his hands with force (anyone who has flown a K-2B knows they are powerful) and this produced an impressive de-acceleration in the tug.

For one awful moment I thought I had lost the glider and we were still out of gliding range. David assured me he wouldn't do that gain. The glider released at 1500ft over Jurby and we were again met by TV crews plus the instigators of the Islanders GC.

Before long we were launching the club's new two-seater with the Super Cub and gave everyone a flight. The mountains in the background looked very inviting and we could see the wave bars stacking up to a wonderful height. However, because they hadn't a trailer, we felt it prudent not to stretch our wings too far as time was too limited for aerotow retrieves.

This is the club's second attempt to get started and Sandy Mitchell, an airline pilot, is their new CFI. I understand they are winching successfully and enjoying the fruits of their labour. The overall impression was of a very friendly, small group who are trying hard and have a lot of goodwill.

Certainly with the wave setting up in the background it was tantalising to realise what a beautiful site this is with great potential to explore the area. They are now an official BGA site and I look forward with interest to hear of their exploits and perhaps take a holiday there.

I think a Gold distance is going to be feasible flying from Jurby to the mainland and then down or up country. There is ridge soaring and some thermal activity, but my feeling is that there will be quite a lot of mountain and wave flying.

Below: At the end of the day. From l to r, Tom Walton, Alan Robins, Cathy Melling, Tim Wilkinson, John Bell and John Melling.

CHRIS DAVISON

YES - BUT ARE YOU SURE IT'S RIGGED?

This article is short, but Chris says it won't take up much of your time and it might just save your life

Every year you hear stories of tragic accidents or near-accidents that occur because of rigging errors. Why? Why do intelligent pilots make such errors? Is it pilot error or bad design? Is it just ignorance? How many times have rigging errors gone undetected and a "normal" flight made on a mis-rigged glider? This article has been provoked by one such tragic incident. A real accident that happened to a real pilot on a real glider. Read it and **think**.

Question: How do you know your Glider is correctly rigged?

Consider the scenario. You and your syndicate have just bought a new glider. You know how to rig it because you have seen it rigged before and besides you have rigged many different types of glider in your time. You rig the glider and DI it. **Stop**. Consider the following;

- How do you know you have rigged it correctly? Well it looks OK . . . all the pins are accounted for, you have checked for wear and tear etc. Fine . . . now ask yourself this question: How do you know you have **not** rigged the glider **incorrectly**?

Think about the difference. Suppose you were standing next to your glider and I came up to you and said "I'll give you £500 for every deliberate mistake you make in rigging your glider that fools me." How many ways of mis-rigging your glider could you think of? How much money do you think you could get out of me? Have you ever tried mis-rigigng your glider? Probably not. I go back to my original question: So how do you know you have **not** rigged your glider **incorrectly**?

The point is we all assume that because all the pins fit in and the wings stay on we have rigged the glider correctly. This may not be the case. It may be possible that you can fit all the pins, attach all the safety clips and **not** have a safe glider. If **you** have never deliberately mis-rigged your glider, how do **you** know what it would look like, or how easy it would be to mis-rig it in the first place? **You** don't.

So the next time you find yourself rigging your glider, think about all the ways you could deliberately mis-rig it. Why not have a try? Make as many errors as you can. Think of the £500s you will get for each one that fools me. (It might be an idea to stick a large piece of paper to the panel to indicate that you have deliberately **mis-rigged** your glider.) If you are in a syndicate then get your partner(s) to do the DI and see if you can fool them. Until **you** know how easy it is to mis-rig your glider and what your **mis-rigged** glider will look like, **you** can't be sure that it is rigged correctly, can you?

Deliberately mis-rigging your glider and getting someone else to DI it might of course be beneath you. **You** might be too experienced to bother with such games. Let's hope you're right, but why should I care, it's not my life that depends upon it. **Think.**

Lithuanian Gliding Holidays: Rosemary Pozerskis (Baltic Sailplanes) says that due to the success of their 1993 gliding holidays, Pociunai GC in Lithuania are again welcoming Euopeans this year. Anyone wanting to glide in an unspoilt and reasonably priced country should contact the manager or his wife, Petras and Irena Breta on 010 370 49 51293 (fax 0103707 204771) for details. They speak excellent English. There are direct flights to Vilnius; information from Lithuanian Airlines (tel 0293 551737) or Rochdale Travel (0706 868765).

ACROSS THE SEA TO IRELAND

Mary tries gliding from a beach in Ireland where she discovers loads of enthusiuasm and the promise of some exceptional mountain soaring conditions

We were told - "Dan Foley's pub, that's where you'll find us, every night!" We pushed into the dim and cheerful din and everybody looked up and said "Hello! How are you?" – that's how it is in Ireland! "Glider pilots? They'll be here, for sure, but they're not here yet!" "They'll all be down on the beach, down at Inch, that's where they go." "Ah, no, not today, they're down at the other place."

We decided to wait. Ron Davidson of Coventry GC and I had just arrived from England in my Super Cub, and a taxi from Kerry Airport had brought us to Anascaul on the Dingle peninsula. We knew it was the right town when we spotted a single glider trailer tucked in a lay-by.

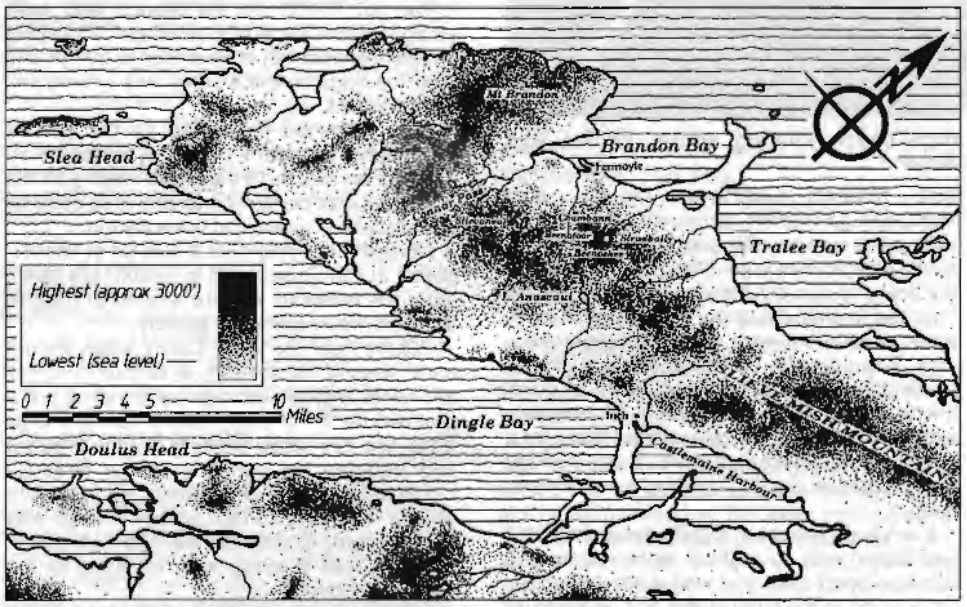
Every year the Ulster and Dublin GCs bring their gliders on safari to the beach in County Kerry. Ron had been to Ireland many times before; he and Ken Stuart ran an AEI and field landing course at Bellarena in Northern Ireland in 1987, and Ron helped the Dublin Club at Gowran Grange with an instructor's course in 1987 and 1989. Ron knew all about the Kerry safari. He's been trying to get there for ten years. I found out about it when I rescued Dublin's Michael O'Reilly from a cut stubble field near Melton Mowbray last summer; Michael had just flown his Silver distance in a Husbands Bosworth K-8.

We took rooms in the Anchor Inn, adjoining Dan Foley's pub. And somewhat later than 11 that night the glider pilots trooped in, all wet, sandy and thirsty. It had been another fine day on the beach at Fermoyle. Nick Short had been flying the K-2 and stayed up over 5hrs; wasn't that splendid?

Next morning we met on the street in front of Dan Foley's and decided that Fermoyle strand would be the best in a strong north-westerly wind. You dare not leave a glider on the beach overnight, even the K-13 must be rigged and derigged every day and the open trailer protected with a plastic sheet. The Dingle peninsula juts into the Atlantic winds due west, Mount Brandon first, 3127ft, and along the spine, Stradbally, 2713ft and Slieve Mish, 2798ft. If the wind is south-westerly, Inch beach is best.

The first time you take your car on the beach it is definitely worrisome; down a stoney track,

Where glider pilots meet. Photo by Mary.



A map of the area drawn by Steve Longland.

through a rocky river ford, hoping the water won't splash over the spark plugs, and on to the sand – will it be soft? But there are the tracks to follow, and there were all the glider trailers lined up, with a Volvo, going hell for leather, with a K-6 going up the wire!

"Can I put my name on the flying list?" I asked Cecily Begley, who was beachmaster for the day. "You can," she said not unkindly. "But it's very unlikely you'll be able to fly, there's a long list already and our club members do get preference." I could appreciate that, and got busy helping Reg Brown put the K-2 together, and Jim Lamb of Ulster with his Astir. Jim showed me a clever way to avoid hassle rigging an Astir – he's painted a line along the bulkhead tracing the precise position of the wing-root correctly installed.

I then sat in the towcar with Dave Mongey. This was a thrilling experience! Said Dave, "It is rumoured that you get a better launch if the towcar is driven by someone other than the owner!" One accelerates like mad up the beach while on the radio the glider pilot gives his opinion of your performance "45! 50! 55! Too fast!" And the towcar driver shouts back "Head out to sea! Head out to sea!" . . . so the line won't plummet down over the rocks and pasture. And suddenly we'd run out of beach, and the river bank was just ahead. Dave Mongey shouted "Release! Release!" and stopped just in time and the line fell down over the rocks and pasture and draped itself across the back of an unsuspecting cow.

"This doesn't happen every time" Dave assured me, as he recovered the line. No harm done. Indeed it doesn't. On most occasions the launch goes very smoothly. The gliders climb away and connect with the hill lift and are gone for hours.

Peter Denman didn't come back*. He was swallowed up by a cloud on the top of Shevanea and found himself on the wrong side of the Windy Gap. "It was 6 down all the way and I couldn't get back, so I landed at Inch."

Much less trouble than the time Ciaran Sinclair landed his K-6 on the top of Beenoskee at 2700ft. He told his worried friends by radio that he was in one piece but the glider wasn't. They met him on the mountain by torch light, and left the wreckage there, weighted down with stones. Next day twenty-four good men and true plus several boys and women went to the top of that slippery slithy mountain and brought down the glider piece by piece. It was a terrible struggle. It was an heroic effort. And when they got it down to the trailer they found that the reason the fuselage was so heavy was the stones were still inside.

Gordon Craig from Oxford GC, the current

*See Peter's account "White Out!!" on p89.

Inch beach looking south. Photo: Dan Begley.

Irish National Champion, brought Alan McKillen's ASW-20 to the beach and, knowing what a fine and capable pilot Ron Davidson is, kindly offered Ron a go. The day was waning, but the wind was still blowing over the hill, and Ron had to sit in the glider at the launch point while several showers delayed the proceedings. The tide was coming in as well. It was nearly dark when the towcar at last set off down the beach, as did Ron in the ASW-20, anxiously watched by Gordon. They splashed along for a long wet mile before Ron gave up and decided to discontinue. Gordon decided it was time to derig.

Everybody pitches in to help derig; you can't just depart with your glider all boxed up and abandon some poor soul who is still struggling. I stayed on to the bitter, bitter end, winding up the parafil tow cable in the dark wet cold fierce wind. Inadequately dressed.

Next morning I turned up at the beach ready for the elements, with long johns, wellington boots, waxed cotton waterproof jacket and rainpants. And ended up sweltering, for it was a beautiful day, with almost no wind at all. Which meant that the knowledgeable pilots went off and did something else so I had the opportunity of a check ride in the K-13 with Cecily Begley. The autotow is quite simple. Before stepping into the glider you perch on the side and knock the sand off your feet – they call it the "Kerry Clap". Unstick the K-13 as soon as possible, then maintain 45kt up to 1000ft or so, keeping well out to sea. Landing back presents no problem. Cecily said she was happy with my performance. I said I would, nonetheless, prefer to have a guided tour of those formidable mountains before going it alone. And so it came to pass.

We were third on the list on Tuesday for the K-13, Ron and I. And it just so happened that the tide for the day was coming in so swiftly that our launch would have to be the last, so Cecily told us "No point in landing back, you lucky people!" And up we went, Ron holding the pole while I sat in front, taking pictures.

We got 1300ft on the launch and went straight to the slope of Coumbaun, slid along beside the waterfall at Beenator to 2000ft and over the ridge to find a small lake lurking just behind the hill.

Ron frightened the sheep on the side of Stradbally mountain – I said the farmer would be none too pleased if they went leaping off the top. But it was certainly impressive to observe how closely an expert can tickle the turf.

I took a turn flying over a nice bit of convergence at Conor pass, up to 3600ft. We didn't have the nerve to venture around in front of Brandon, not knowing the territory.

"Quite right too" said Cecily when we got back; soaring the sea cliffs is serious business and needs a glider with high performance and a pilot with nerves of steel; there is nowhere to go if the sea cliff stops working. By the time we had explored the contours of that beautiful mountain chain for 2hrs 20min, my feet were getting very cold, so Ron agreed enough was enough, only of course we had run out of beach. Gives a whole new meaning to the words "sea level"!

Dan and Cecily Begley had driven round to investigate the current condition of a field used for landing when the tide was wrong, the farmer was friendly, and so we came down with the other gliders near Stradbally, handy to the pub!

It was a grand adventure, flying the Super Cub to Ireland and back, across the Irish Sea, but not very sensible; the autotow is cheap and effective for lobbing up a glider and when the wind is right the primary slope will introduce you to the mountains, no difficulty!

Next time we go across the sea to Ireland we'll be bringing some friends and a two-seater and a high-base towcar to hurtle up the beach.

The tide coming in at Inch. Photo: Mary.

Looking west from Brandon Head. Photo: Dan.

Above: Soaring the cliffs near Brandon Head which nee took the photo from his Phoebus. There is nowhere to g Below: Dan's shot of Inch beach looking south.

eds the ultimate in white knuckle bottle, said Dan, who go if the wind drops but the surf on the rocks below.

PETER DENMAN

WHITE OUT!!

Reprinted from the Dublin GC newsletter

I thought I'd be writing a piece with this title dealing with a week Bruno and I spent at St Auban in the French Alps last May, and a 5hr flight in an ASH-25 among the snow-white peaks, slopes and glaciers. But a humbler set of rocks, and some white cloud, gave me problems more recently. Perhaps, in the spirit of those "I Learned About Flying From That . . ." articles, it's worthwhile telling the tale, seeing as I lived to do so.

I'd been flying the K-6 from Fermoyle for a couple of hours, in a stiffish north-north-westerly. It was a good day; I'd flown up to the Connor pass, and tried without success to get out over the cliffs at Brandon Point so as to repeat an exhilarating "first" achieved the previous day. At about 4.30pm the cloud began to spread and build; earlier it had been about 3 oktas with a base of 3200ft, but now more like 5 or 6 oktas.

Flying out from the ridge, at its western end, I contacted weak but steady lift in a reasonably extensive cloud gap that was open to the north. I climbed, just upwind of a towering cloud bank, to about 4500ft, without getting above the cloud tops at any stage. I could see Jeremy Bryson's K-14 and another K-6, with Nick Bosch aboard and about to get his Silver height I think, also exploiting the same large gap. At this stage, the cloudscape was magnificent, the edges seemed well defined and steady and there was a comfortable sector of clear vision to the ground, beach and bay.

I enjoyed this for 20min, never got above 4500ft, and then used up 1000ft or so flying upwind, away from the cloud bank. Then I drifted back in search of the lift again. Soon I was climbing slowly once more, a little east of the previous position but still over Fermoyle beach with the ridge, 2750ft at its highest, behind it and me. The slot seemed ample, a sort of V-shaped angle, closed to the west but opening towards the north-east, with a good view of the Castlegregory peninsula.

Peter Denman, photographed by Mary, having a wash and brush up removing the sand before climbing into his K-6.

I was – I now realise – well tucked in to the narrower part of that angle as I used the lift, with cloud banked up in front, behind, and left of me as I faced into wind, but I felt quite secure with a way out through the wide clear slot of air on my right – so secure that, with the lift weakening at about 4000ft, and remembering that there is often some lift in that area slightly further west, I thought there was ample room to try to beat that way to the left.

A few seconds on that heading yielded nothing, the cloud seemed suddenly very near and I turned 180° to go back east into that nice open slot I'd been looking at. But when I turned there was no view of Castlegregory peninsula, no view of land or sea, no view of anything except a hummocky carpet of cloud not far below me. Furthermore, the vertical banks on either wingtip were closing in. I increased speed, trying to make it back to where there *had* been a view to ground level, but as I did so a cloud bank wrapped me and the canopy showed nothing but a dirty white featureless blur.

My sensations immediately following would also be a blur, you'd think. Certainly, a lot of things went through my mind, but I can remember most of them quite clearly – I've thought it over a lot and I won't forget them. And no, I'm not going to share the more private and personal bits with you here, but some of what went ➡

On the strand at Fermoyle. Photo by Mary.

through my mind was as follows:

"Oh God, I'm in cloud, I shouldn't be, there are mountains downwind, this is dangerous, turn and fly back out of this. (I did try, a floundering turn, but of course it didn't work, just that dirty white blur on the canopy.) Still in cloud, use the instruments, check the speed, 55kt, too fast, nudge back on the stick, open the brakes, that's what to do when you get into cloud. What are the instruments showing? 3900ft, 45kt 8–10 down, try to head north upwind away from the mountain.

"Check the compass, it's swinging, it's swinging, there's E for east so turn – which way? which way? – doesn't matter, let it settle on N, where's the N? Can't do it, compass won't steady, now which way am I heading? Can't tell, this is bad, bad, 3400ft, cloudbase was 3200 earlier, clear of the mountain, that was earlier, what's it down to now though? Perhaps I'll be all right, will I get away with it? This is dangerous, can't turn on to a heading, compass telling me nothing, forget the compass, speed is okay. Concentrate on that, wings seem level, thank God for that piece of string, 3000ft, watch outside, watch outside . . ."

And looking out I caught through the cloud a brief glimpse of a steep rough slope below to the left. It was indistinct, but did not seem too near and ran parallel to my line of flight. The cloud closed again and I flew on as steadily as possible, airbrakes still open. A few seconds later – five? ten? it's not easy to tell – I came out into clear bright air as abruptly as I had left it. It felt good, like a blind man suddenly getting back his sight. Shapes and colours seemed unusually sharp. That wasn't the only unusual aspect: I'd obviously come out over a piece of previously unvisited territory.

It didn't take long to get my bearings – after first checking that I was indeed clear of any ground. I was on a southerly heading; out in front I could see the Annascaul valley and, rather nearer, Annascaul lake. So I'd been blown over the mountain, or probably back along the line of the Glenahoo valley. I was now at 2500ft, and the vario was reading 6 down. I never considered trying to work back to Fermoyle – or, if I did, it was only to dismiss the idea instantly.

Looking ahead, there seemed to be some reasonably sized fields a couple of miles away – although I realised they would be sloping and difficult in the lee wind. And I knew that Inch beach was further over there, out of sight. So I set off. Although the vario still showed 4 down, with the strong wind I saw almost immediately that I could hope to get across the peninsula to the southern side. I called on the radio, relaying my position and intention to land on Inch. Paul Finlay, relaxing in the house at Annascaul, picked up my call and just caught a glimpse of my glider heading across.

I got to the hill above Inch at about 1000ft. For a moment I contemplated exploring what that was like in a northerly, soaring the reverse side. I did nibble at it, and found some patches of strong lift, but also ran into patches of equally strong sink – presumably caused by being in the lee of the higher mountains upwind. Anyway, I'd had enough excitement for the day, it was getting late, and I was wondering if landing in a strong wind in the lee of the hills was going to cause problems. So I crossed the ridge with plenty of height and prepared for a circuit – planning to land well up the beach to avoid complications. In fact, while the circuit was very turbulent down to 500ft or so, it settled down for the base leg and approach and I landed normally on an almost deserted Inch beach. Within a minute or two Paul arrived, having driven down. He provided a very welcome flask of tea.

So that was it – apart from a challenging derig later that night in the dark with a wind that had strengthened even more and was whipping up loose sand all over the place. Thanks to Ciaran Sinclair, Caroline Jacob and – again – Paul for seeing me and the glider safely stowed.

Some afterthoughts: – Yes, the glider has a T&S – but it wasn't switched on. If it had been, would I have been able to use it to any effect?

• Using the parachute never crossed my mind.

• An almost automatic reaction on finding myself in cloud was to open the airbrakes, as taught. How appropriate was this? Certainly, if one goes *up* into cloud, then opening the brakes should bring you down out of it again. In my situation, descent was bringing me towards the rocks – but there didn't seem anywhere else to go but down. Opening the brakes probably made the glider more stable and easier to control.

• There is I would think a difference between going into cloud when you have time to set yourself up for it – as, for instance, in a descent through a cloud layer from clear air above – and getting wrapped up in it suddenly and unprepared as I was.

The nastiest, most frightening, aspect was knowing I was in a dangerous situation and not being able to do anything very effective about it – just having to wait to find out whether my patch of cloud would have a rock in it or not. It was like playing Russian roulette.

I hope that you reading this will reflect on what I've described, and make sure it doesn't happen to you. And by the way, on it's smaller scale, Kerry compares well with the Alps.

A SUNDAY BARGAIN

Gösta Arvastson and Bertil Ohlsson from Sweden co-authored a book called *Riktigt Segelflyg* – literally *Real Gliding*. Translation into English is almost complete and the following is a sample. The original is generously illustrated with cartoons by Gösta who is the senior president of the Swedish Gliding Federation and a social anthropologist

Not everything in gliders started out with Lilienthal and the Wright brothers. When it comes to dealing in gliders, the roots of this commerce can be traced back to our ancestors' most popular pleasure next to having a pint at the local pub, horse-trading. Seen in this light it is not so difficult to understand why some clubs, even in small hick towns, have a hangar full of top-grade gliders. The older generation can tell you that in the old days this very place was the centre of the entire region's horse-trading which culminated in the annual fair.

In order to help those who don't have a family tree full of horse-swindlers, we will give some advice on how to buy a glider without losing your shirt.

Even if some gliders change owners *via* the grapevine, most are sold by advertisement. Start reading ads in old magazines. This is where you can strike a real bargain by making a phone call to someone who advertised a year ago and still hasn't got rid of the garbage. Deeply grateful that somebody finally called, he will sell at a ridiculously low price.

Do some research and find out as much as possible about the myths concerning this particular type so you are able to embarrass the seller with your extensive knowledge. A DG-300 climbs well but is lousy between thermals. A Discus needs at least 120 litres of water to reach it's true potential. The LS-1 has a weak fuselage even if it is repaired and strengthened. ASW-20s are soft in the wings. All LS machines are too low in the undercarriage.

When you have circled some conceivable objects, try to find out everything **without** appearing interested. Pretend you're a bass who just spotted a fat worm. If you call concerning an odd and unusual type, don't be surprised when the owner, with the same conviction as a religious fanatic, claims that his DG-200 is slightly better than an LS-6. Don't pay any attention to this. All gliders more than five years-old, or those which don't come from the right factory, are totally obsolete and should therefore be sold at bargain prices.

Make your call early morning or late evening when the seller is out of balance. After some small talk – you are advised to speak through a handkerchief and definitely not give away your name – ask him about trivial details as for instance the type of altimeter. Questions like this make the seller unsure of himself and more accommodating, perhaps even honoured that a star like yourself wants to buy a glider from him. Start a discussion on the glider's condition in which you can use the words finish and well-built as you see fit. Make sure he understands that the purpose of your call is to relieve him of an object due for a total renovation. Follow up by asking if the glider is suitable for beginners (especially fun if it is an ASW-22) and if this is the glider that was smashed five years ago. Don't pay any attention to sales talk and emphasis on advantages. If the glider is so damn good, how come it's for sale?

Interrupt the seller in the middle of a long sentence and ask him about the price. No matter what he answers, exclaim your perplexity and hang up.

Give him another call a few weeks later when he is ripe and suggest an inspection visit tomorrow. Bring along some friends; there is no harm in outnumbering if it should come to a fist fight.

During this inspection, search for errors just as a drill sergeant inspects a barracks. Make ➡

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sure that everybody on the selling side keeps their distance and can't hide any faults by placing a hand on repairs or by leaning towards the magic spot on the canopy frame that makes it possible to close the canopy. Take notes and point out to the seller **all** irregularities in the surface, scratches, cracks, marks, visible repairs and extravagant free play. Give him the impression that you find the glider a disappointment and prefer to return home. If you don't find anything, pick a random spot and examine it carefully as if you have found a nasty crack, so fine only you are able to see it. When the seller makes a point of the excellent finish, answer him with a laugh: "Well, it is shiny all right."

Withstand all invitations to fly the glider if it is a type you have flown before. It will only impair your judgment, and a small possible bounce during landing will be to your disadvantage. Instead, let yourself grudgingly be taken into the clubhouse where you thoroughly scrutinise all documentation and with malicious joy point out all faults you have found which aren't in the books. Fading small talk is replaced with a silence which marks the arrival of price negotiations.

Take the initiative by asking about the price. Of course you are already well-informed, but it could make the seller drop £2000 out of pure surprise. Numerous turns follow as in a card game where you are supposed to alternately put down a card. Break the rules and try to make your opponent put down two for each one of yours. By commenting, being stunned or reacting with astonishment to his bids, you might be able to force him down considerably before you have made your first bid. Finally, when you reach the point at which the seller turns sour and asks you how much you are prepared to pay, hit him figuratively in the head by hurling a bid at him that is only 70% of his last offer. Point out that this sum includes a trailer and everything. When he gasps for air tell him that the parachute is too old and should be replaced with a new one. When his head looks like a stop light gently tell him you also want a guarantee that he will pay for all repairs during the next five years!

The final price is now settled, you will meet half way after another hour of thrilling negotiations, adjournments, long silences and instruments being taken out and put in. Here comes the absurd part. You will value the instruments highly, the seller will consider them much overrated! You say: "OK, keep your Gauting turn-and-bank and lower the price £8000."

"No, no," replies the seller. "It is not worth more than £3000."

Eventually you agree and shake hands. You part from a symbolic deposit and a contract is written on a paper napkin in order to make it impossible for either party to back out.

At last the happy day arrives and you leave home to fetch your new possession. Since you weren't too stubborn in the last stage of the negotiation, you will get help in derigging and loading the glider and the sellers will act as protection against the mob of club members who sneak around the hangar walls staring evilly.

Finally you head for home trailing nine metres of potential joy, feeling like you are doing the final glide on a 1000km. You are delirious and try to convince yourself that you have made the right buy. To preserve this state of mind listen only to those club members who loudly admire your new glider. Turn a deaf ear to those who point out all the faults and raise doubts. They are only envious. In due time the day will come when you'll discover all the cracks, freeplay, broken instruments and bad repair work. Until then, keep polishing with a ridiculously happy smile and appreciate the fact that you have bought a real winner.

NB. The book will be stocked by the BGA. Full details in a future issue when it is available.

ONE WAY OF SELLING A GLIDER

Sandy Harrup photographed this ingenious way of selling a glider when time was tight and a compromise half way venue was needed for the transaction. Damian le Roux (Devon & Somerset GC) rigged his K-6CR in a motorway service station car-park to show Sean McGeagh (Ulster GC). It caused a lot of interest with some wanting to know if they were going to fly it and even two glider pilots came to have a look. And the sale went through.

GRAHAM'S CORNER

Graham, BGA national coach, continues his series of observations with;-

Dirty Dancing

It was after midnight when I left and the dancing feet had kicked up clouds of dust from the dirt and gravel floor. As I walked away from the hangar at the start of the last day of the Junior Nationals I thought about the week we'd just had. A mixed bag of weather, some failures on the task setting front granted, but most of the time we got it right - quite a few new faces as well as the regulars and everyone in good humour and willing to give it a go.

Once again the experience range was vast from top Nationals and Junior squad pilots with thousands of kilometres in many competitions to those who had just completed their Silver distance, some with less than 100hrs in their first Comp. Yet all were treating it just as seriously with as much determination and tenacity and more often than not surprising not just themselves. Gliders varied from ASW-20, Discus to Pilatus and SHK but, with the handicapping system and the weather, we had none were at a disadvantage.

Over the last six years since the start of the Junior Nationals I have been involved every year in one way or another. There has been a dramatic improvement in the overall standard to the extent that when you set a task for the middle of the range gliders you can be reasonably sure that somewhere near 75% will finish with speeds that wouldn't look out of place in the other Nationals. But in the first year getting half a dozen back was a result.

I find the whole thing very encouraging. The Junior Nationals is a continuing success and producing results that can be seen both in British and European Championships.

Looking back towards the hangar that night with the dust drifting out of the open doors and the steady pulse of heavy brass hanging thick in the night air I remembered thinking if this if the future of gliding we're in for a good time.

It was then that it occurred to me what the biggest difference was between the Junior Nationals and the rest - you don't see dancing like that at any of the other Nationals parties.

BGA &GENERAL NEWS

RADIO FREQUENCIES

During last summer there were a number of complaints about the incorrect use of various radio frequencies. Just to remind you all, here are the functions allocated to the various frequencies.

130.4 - Primary use, cloud flying; secondary general cross-country messages.

130.125 - Primary use, cross-country training; secondary, competition start and finish lines and general cross-country flying.

130.1 - Primary use, competition start and finish lines; local flying messages. Secondary, cross-country training.

129.9 - Ground to ground only, *eg* launch point to winch. Landed glider to crew etc.

129.975 - Gliding club control ground to air or air to ground. **Not** an official Aerodrome Flight Information Service for mixed use airfields. Apply to the CAA for a separate frequency for that purpose.

Finally, please remember that on a busy weekend there are hundreds of gliders sharing these frequencies. Keep it brief!!

Chris Rollings, BGA *senior national coach*

BGA 1000 CLUB LOTTERY

The **January** draw results are: First prize - G.W.Craig (£84) with the runners up - J.R.Kinley, W.Barnwell, J.Gorringe, A.Macgregor and R.M.Lambert - each winning £16.80.

February. First prize - C.J.Waller (£83.50) with the runners up - S.Lynn, G.Leat, F.Thomas, V.Carr and T.R.Garland - each winning £16.70.

WESTERN REGIONALS CHANGED

Because it may have conflicted with the International Air Tattoo at Fairford, the Western Regionals at Nympsfield has been moved from July 23-31 to August 6-14.

BGA TP BOOKLET FOR 1994

Copies of the 1994 TP booklet were distributed to all clubs at or shortly after the BGA AGM in February. The 1993 booklet remains valid and refinements in the 1994 edition include about 30 new points, principally in Kent, Scotland and Wales, and in the areas of airfields now disused such as Abingdon, Greenham Common and Upper Heyford.

Adjustments have been made to the last decimal places of some lat and long figures; the lats and longs are not measured values but are derived from the grid figures (which are measured on the OS 1:50 000 map) through a PC-based conversion programme. In the 1993 list, the lats and longs for the 1992 points were produced by one conversion programme and the newer points (about 150) by a different programme which was much more user friendly.

Unfortunately for some points (but not all), these two programmes gave slightly different results in the third decimal place of latitude (generally only by one number, occasionally two). The 1994 figures have therefore been standardised to those produced by one conversion programme. Anyone wishing to try and write a conversion programme of their own, I have the OB booklet giving the formulae and can send you a copy for the cost of postage.

For the 1994 list, consideration was given to eliminating the last decimal place quoted in the list, but since pilots may wish to use the figures for calculation of accurate distances, for instance marginal 300 and 500kms, it was felt that the third figure of decimals should be retained so that calculations could be more exact. There is also the question of the best possible TP data when using GPS. Two decimal places would give less accuracy than the measured grid figures, and four decimal places would give a false sense of accuracy, so it was felt that three decimal places was the right compromise.

As usual, hard copy of the 1994 booklet is available from the BGA office or myself for the cost of postage - 90p on going to press. For software copies in Word Perfect or ASCII send a disc or discs to me at Bentworth Hall West, Bentworth, Alton, Hants GU34 5LA, tel 0420 564 195, fax 563 140. Please include a sae. The Word Perfect version needs a 1.4Mb disc (or 2x720kb). Other software files are available such as the grid conversion programme mentioned above, the **BGA 00 and Comps Handbook** and the **Sporting Code.** These will be included on your disc or discs if there is any spare space after the TP data.

Ian Strachan, *BGA TP co-ordinator*

OSTIV PAPERS

If wanting to submit a paper for the 24th OSTIV Congress at Omarama, New Zealand, held from January 12-19, 1995, during the World Championships, time is short. The short summary is needed by March 31, the extended abstract (at least 500 words) by July 31 and the final paper by November 15.

Meteorological and joint session papers should be sent to Dr H.Trimmel - Bründelgasse 34, A-2512 Tribuswinkel, Austria, tel 01043 2252 86494 fax 01043 1-79798 4006; Technical session papers to Winfried M. Feifel, 7107 South Ryan Street, Seattle, Wash 98178, USA, tel 0101 206 772 7021, fax 0101 206 234 4543 and training and safety session papers to W.G.Scull, 6 Will Hall Close, Alton, Hants GU34 1QP, tel and fax 0420 83553.

MOTOR GLIDER FLY-IN

York Gliding Centre at Rufforth Airfield, are holding an International Motor Glider Fly-in from June 18-19. All motorised gliders are welcome and for more details tel 0904 738694.

LANDING AT SYWELL AERODROME

David Roberts from the Cotswold GC is now managing director of Sywell Aerodrome, an all-grass airfield five miles NE of Northampton, where glider pilots have always been welcomed. The airfield is licensed daily from 9am to 7pm during the season. Active runways for fixed wing power are 03 Left/21 Right, 25 Left/07 Right and 33 Right/15 Left with circuits at 1000ft QFE. Watch out for helicopter traffic at up to 700ft QFE in the circuit and sometimes microlights.

Outside the runways and south side movement area there are crops until late August. Call "Sywell Information" on 122.70 but non radio arrivals are accepted with good circuit disciplines.

David says that the main attraction for pilots, as well as safe "field" landing, is the immediate Land Rover retrieve to park in front of the bar and restaurant/motel where you can call your crew and will be made welome.

Aerotow retrieves can be arranged. The longest runway is 900m (21/03) and 25/07 is 700m. David's tug may be on site for gliders up to 1100lbs AUW and if there is a tug pilot an aerotow relight or retrieve may be available. Landing fees are £5.50 with a special £4 rate for tugs on a retrieve. Avgas 100LL is available up to 6.45pm.

GLIDING FOR THE YOUNG

Young British pilots are again invited to join the subsidised gliding courses run by the German Aero Club's youth organisation for 16 to 25 year-olds at Hirzenhain, near Marburg. If you would like more details, write to *S&G* enclosing a sae.

AVIATION ARTISTS' EXHIBITION

The Guild of Aviation Artists' annual exhibition is being held at the Carisbrooke Gallery, 63 Seymour St (behind Marble Arch), London from July 11 - 22.

This is an open competition and entries are invited. The major award will again be £1000 for the aviation painting of the year sponsored by Mrs Eira Gibson.

Entry forms and schedules are from The Guild of Aviation Artists, The Bondway Business Centre, 71 Bondway, London SW8 1SQ

GLIDING CERTIFICATES

ALL THREE DIAMONDS

No.	Name	Club	1993
410	McKirdy, G.V.	Shenington	28.7.92
411	Cleaver, A.G.	Phoenix	3.10

DIAMOND DISTANCE

No.	Name	Club	1993
1/615	McKirdy, G.V.	Shenington	28.7.92

DIAMOND GOAL

No.	Name	Club	1993
2/2174	McKirdy, G.V.	Shenington	28.7.92
2/2175	Selway, R.S.	Bristol & Glos	13.8
2/2176	Heman, R.E.	USA	14.8

DIAMOND HEIGHT

No.	Name	Club	1993
3/1138	McKirdy, G.V.	Shenington	4.10.90
3/1139	Hill, I.B.	Phoenix	3.10
3/1140	Bruinsha, R.J.	Phoenix	3.10
3/1141	Cleaver, A.G.	Phoenix	3.10

GOLD BADGE

No.	Name	Club	1993
1712	Adams, A.B.	Shropshire	16.10
1713	McKirdy, G.V.	Shenington	28.7.92
1714	Cleaver, A.G.	Phoenix	3.10

GOLD HEIGHT

Name	Club	1993
Davies, T.J.	Lomond	14.11
Adams, A.B.	Shropshire	16.10
Hutchins, B.A.	London	20.9
Keylock, I.	Phoenix	12.10
Hill, I.B.	Phoenix	3.10
Rayner, J.R.M.	Achmer	12.10
Clegg, M.H.	Phoenix	3.10
Bruinsha, R.J.	Phoenix	3.10
Cleaver, A.G.	Phoenix	3.10

GOLD DISTANCE

Name	Club	1993
McKirdy, G.V.	Sheington	28.7.92
Pickering, K.	Southdown	13.8
Selway, R.J.	Bristol & Glos	13.8
Henman, R.E.	USA	14.8

SILVER BADGE

No.	Name	Club	1993
9335	Rennison, M.	Cambridge Univer	5.12
9336	Skinner, D.I.	Glyndwr	30.12
9337	Cronin, R.T.	Glyndwr	30.12
9338	Holland, J.A.	Bath & Wilts	5.9
9339	Bruce-Jones, T.	Highland	27.11
9340	Goodchild, R.	Rattlesden	10.9
9341	Griffiths, W.F.	South Africa	26.9
9342	Armstrong, G.	Cambridge Univ	13.8

UK CROSS-COUNTRY DIPLOMA

Part 1

Name	Club	1993
Blake, L.A.	Southdown	23.10
Carney, M.	Southdown	28.8
Bowtell, D.B.	Lasham	17.8
Hirst, A.A.	Booker	22.7
Walton, K.	Portsmouth	28.8

THE NATIONAL LADDER RULES FOR 1993/94

Ed Johnston, the National Ladder steward

One of the consistent criticisms of the National Ladder is that it encourages conservative declarations. The changes to this year's rules address that issue by giving more points to incomplete flights, thus encouraging more ambitious declarations but still maintaining the emphasis on pre-declared cross-country flights.

A Brief Summary of the Ladder

The Ladder is really a local competition, intended to give pilots of all levels an incentive to extend their cross-country flying, then compare their performance with other club members. The National part of it is simply a compilation of local scores, allowing the comparison to be extended across the country.

Ladder stewards at each club compile scores for the four best flights of each pilot. Points are awarded for speed and distance for cross-country flights. Points are also given for up to two height gain flights.

For flights of the same length, Ladder scoring gives many more points for the faster flight. However, the scoring also makes it very difficult for a shorter faster flight to beat another over a longer distance.

The scoring does mean that those pilots who declare and complete longer tasks are almost unbeatable. However, the old scoring means that pilots who over-stretched themselves and land out score only distance points and will have "wasted" the day (at least as far as Ladder scores are concerned). This can be seen by the table in the next column, showing the points earned for the speeds and distances shown. The distance points (*ie* what you get if you land one field short) are shown on the far right.

Speed, km/h

Km	40	60	80	100	Dist
100	280	380	520	700	200
200	560	760	1040	1400	400
300	840	1140	1560	2100	600
400	1120	1520	2080	2800	800
500	1400	1900	2600	3500	1000

The New Rules

Next year, the Ladder will reduce the huge loss of points for failed flights by awarding speed points to incomplete flights. The scoring for declared, complete flights remains the same, but an incomplete flights will gain 75% of the points for an equivalent completed flight. Undeclared flights will be awarded 50% of the full points.

Undeclared flights, like all other Ladder flights, can use a maximum of three TPs.

This means that the pilot who gets round 400km at 80km/h will still get 2080pts. His friend who does the same task but lands one field short will get 1560pts (75% of 2080) instead of only 800pts before the change.

It is now very unlikely that a more cautious declaration of 300km will pay off so long as there is a reasonable chance to complete 400km. At worst, the flights will gain similar points. At best, the more ambitious pilot will be 500pts ahead.

I hope the changes will make declarations closer to what should, rather than what can, easily be achieved. It will also give more reward to those epics which end in a field which we all remember but previously didn't earn many points. And throughout, the basic scoring system stays intact.

Other Changes
I only insist on photographic evidence from those in line for a BGA trophy. For this season this must include time evidence. Otherwise, it is up to the local steward and the pilots' word to claim what they have done.

However, I recommend that everyone who flies cross-country does so with a time recording camera. This means the less expected but deserving winners get the pot at the end of the year (take note Mike Bird!!) and it is good practice for future badge flights and competitions.

There may be more undeclared claims this year. An undeclared flight (from launch to landing), like other Ladder claims, can use up to three TPs only. To help the poor Ladder stewards, the TPs must be BGA approved TPs (in the current BGA list). If a pilot turns elsewhere, they can be re-scored to the nearest BGA TP, so long as it gives them a shorter scoring distance.

Conclusion
I hope that next year the Ladder will be improved but not too much changed. These, like all previous changes, have been aimed at increasing the appeal of the Ladder, by increasing its fairness and by trying to get more pilots to get more from their soaring when they participate.

I hope that this change will encourage more ambitious but sensible task setting, while still retaining the familiarity of the competition to those who participate now.

NATIONAL LADDER RULES FOR 1993/94
1. The competition will start on October 1 and end on September 30.
2. Any flight which originates in the UK may count, except for flights in a competition for which BGA entry forms are required. Points will only be awarded to the P1 in a two-seater.
3. There will be two separate ladder competitions :-
a. The Open Ladder (for any flight).
b. The Weekend Ladder (for flights made on weekends and Bank Holidays).
Flights qualifying for the Weekend Ladder may also be entered on the Open ladder.
4. A pilot may enter up to four flights in each competition but only two in each Ladder may be height gains.
5. The pilot's word will be accepted for flight times, rounding TPs and landing positions except that the two top scores in each of the Ladder competitions will only be awarded with the support of photographic evidence of position and time. The TP photographs will be assessed according to BGA competition rules, and must contain the following:-
a. A start board clearly showing
The date.
Pilot's name.
Glider type and identification.
Declaration of start, turning and finish points.
b. Photographs with times of the start, finish and each TP rounded.
c. A photograph of the glider fin clearly showing the same identification as on the start board.
Cut films are acceptable if accompanied by a declaration containing the following for each flight on the film:-
Date of the flight.
Pilot's name.
Glider type and identification.
Barograph traces must be shown to Club Ladder Stewards for height claims.
6. Flights in gliders with motors are accepted. If used in flight, the glider is scored as landing at the point where the engine was used. If qualifying for a Ladder trophy, barograph and camera evidence is required to substantiate whether or where the engine was used.
7. Declarations must be made before take-off and include the start point, up to three TPs and the finish point. All these must be features shown on 1:50 000 Ordnance Survey map and preferably be selected from the BGA List of TPs.
8. Up to three BGA TPs may be used for undeclared flights. If any other point is turned, the nearest BGA TP which gives a shorter scoring distance will be used for scoring.
9. The current BGA handicap (Si) will apply to the calculation of all open ended tasks. An adjusted handicap (Sih) will apply to all closed circuit tasks, *ie* where the start is within 2km of the finish.
10. If incomplete, the distance counted for the uncompleted leg is the length of that leg as declared, less the distance between the landing point and the next TP (as in BGA contest rules). For undeclared flights the full distance counts.
11. Points are given for cross-country speed or height gains.
a. Full cross-country points are awarded for declared flights, where either the flight results in a successful badge distance claim, or both
1. The declared start, turn and finish points are all rounded in the declared order **and**
2. The startline was crossed below the lower of 1000m or 1% of the distance, above the finish line.

A proportion of full points are given to declared but incomplete flights, where a declaration was made but the goal not achieved, and a smaller proportion for undeclared flights.
b. Height flights are awarded points for gain of height. No flight can earn both height and speed/distance points. Only two per pilot are allowed
12. Calculation of points.
a. Declared flights (full points)

$$\frac{d \cdot (4000 + v \cdot v)}{(Si \text{ or } Sih) \cdot 20}$$

where d = marking distance in km
Si = speed index for open-ended tasks
Sih = speed index for closed circuit tasks
d = marking distance in km
v = h'cap speed in km/h = $\frac{d \cdot 100 \cdot 60}{Si(\text{or } Sih) \cdot (\text{time in min})}$
b. Declared, incomplete flights
0.75 · full pts.

c. Undeclared flights

0.50 × full pts.

d. Height points (not more than two per pilot per Ladder)

1. Height points or distance/speed points can be awarded for a flight, but not both.

2. No points may be claimed for flights above 15 000ft without oxygen.

3. Height gain points are awarded as follows:- $\frac{\text{(height gain) - 5000}}{10}$ units of feet

13. Details of each flight must be submitted to Club Ladder steward within one month of the flight taking place. Full details of flights, including photographs when available, must be submitted to the National Ladder stewards within one month of being requested.

14. Trophies are awarded to the first and second places as follows:

a. Open Ladder; Enigma and Firth Vickers trophies.

b. Weekend Ladder; L du Garde Peach and Slingsby trophies

A pilot can win only one trophy and if qualifying in both Ladders, will win the trophy for which there have been the greater number of entries.

S&G COVER

So many readers wanted copies of the December cover painted by Steve Longland, he has had (24.25x18.6in) photographic prints made .They are available from him at 5 Ratford's Yard, Gt Wilbraham, Cambs CB1 5JT, tel 0223 880544, at £24.50 including p&p.

AIR LEAGUE SCHOLARSHIPS

There is a great opportunity for anyone over 17 and under 21 on June 30 to apply for one of the 25 Air League Educational Trust Flying Scholarships which will give them 15hrs power flying during the spring and summer of 1995.

Application forms, which must be in by June 30, are from The Secretary, The Air League Education Trust, 4 Hamilton Place, London W1V 0BQ.

Parmeet Kalra, an Indian glider pilot of 7 Circuit House Area (East), Jamshedpur 831 001, says he and his friends can't afford to subscribe to *S&G* but they do sometimes buy old copies from a scrap paper shop. He asks readers to take pity on them and send any old copies they don't want. They fly a Rohini two-seater, which he describes as a poor copy of a T 21.

BOOKER

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Photographed by Paul Mellon

CLUB NEWS

Shenington GC's K-7, K-6 and tug over Edgehill, painted by Mary Meagher.

Above: Yorkshire GC's Mark Irving after going solo at Sutton Bank. Below: Mark Hope, Deeside GC, who on New Year's Day reached 7000ft on his first solo.

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 0223 247725, fax 0223 413793, to arrive not later than April 13 and for the August-September issue to arrive not later than June 14.

GILLIAN BRYCE-SMITH

February 9

ANGLIA (Wattisham)
The transition from an RAF to army base caused us several headaches, but has been completed to everyone's satisfaction and we are recruiting Army members from the expanding base. Our new clubhouse, sited next to our hangar, was completed in record time by our members - many thanks. It took two years to construct, but our double-decker control bus and electronically controlled signal lights are giving reliable service, as is the fitted kitchen. The new Tost winch is giving us a 30% increase in launch height and handles our new Grob Twin with no problems.

A T-21 and SHK-1 boosts our club fleet to eight and we are planning several expeditions.
M.A.T.J.

ANGUS (Drumshade)
We have moved to our new site at Drumshade after 25 years at Arbroath - and a Royal Naval club flew there for many years before us. Our last two flights there were on December 12 when Bob Welch flew the H-34 and George Nelson and Bill Romeling the Bocian.
G.N.

AQUILA (Hinton in the Hedges)
We hope to build on our success in the Inter-Club League last year when we came 2nd in our region. Our new winch is giving excellent launches, even on calm days, and we had some good flights throughout the winter.

The grass areas continue to reduce wear and tear on the aircraft. We have bought a new clubhouse and hope to expand our fleet. All this without an increase in membership or launch fees and we believe we must be one of the cheapest clubs in the country. Why not come along, with or without your glider, and try us out?
D.P.

BATH, WILTS & NORTH DORSET (The Park)
Flying continued throughout the winter. Graham Callaway has overhauled one winch with a second being worked on so by spring we can operate both with four cables as well as having our rebuilt Pawnee.

We have had a few successful ridge days.
J.L.

BICESTER (RAFGSA)
Owen Walters went solo on Boxing Day, his 16th birthday. Our Christmas party was a great success and our thanks to the organiser, Val Dean.

Although the weather has been poor we still have over 100 launches a day and our treasured Discus is flying again after returning from the Schempp-Hirth factory.
Y.E.

BOOKER (Wycombe Air Park)
It was announced at the AGM that all charges are frozen for 1994 and the single and the Duo Discus, equipped with L-Nav and Schueman varios and ready for GPS, are coming in early spring. The Duo will have a new Cobra trailer.

Tim Grey and Jane Lawrence (the second BBC member) have joined the committee and our thanks to retiring members Paul Brice and Bruce Cooper for all their efforts.

Improved membership categories include families and students plus a cadet scheme for local teenagers; all designed to broaden our appeal, particularly to younger members.
R.N.

BORDERS (Galewood)
This is the 25th anniversary year since we were formed on the old RAF site at Milfield. Ironically, after establishing ourselves on the Galewood site adjacent to the old airfield, we could be moving back, if our negotiations with the Gas Board are satisfactory.

We enjoyed good winter soaring with ridge and wave activity and Bill Brittain soloed.
B.C.

BOWLAND FOREST (Chipping Airfield)
There was little flying over Christmas due to poor weather with a very wet and waterlogged airfield.

At our December AGM we decided to change our name because we are in the Forest of Bowland and not at Blackpool. Ron Sutcliffe has resigned from the committee with Jim Ashcroft taking his place. Our thanks to Ron for his work.
S.R.

BLACK MOUNTAINS (Talgarth)
The year started in traditional Black Mountains' style with the T-21 soaring the mountains on the first morning of 1994. The next day there was wave to 11 000ft and our many visitors (including some from Belgium and Germany) enjoyed some fine soaring.

Our mountain flying courses are so popular, please book early to avoid disappointment.
D.U.

Sue Foggin, chairman of the Vale of White Horse GC, after completing her Silver badge with a distance leg in her K-6E.

BRISTOL & GLOUCESTERSHIRE (Nympsfield)
After much experimentation, our bar and catering services have reverted to club management and our midweek courses returned to a "holiday" theme with optional advanced courses.

Richard Starling, who took over at short notice as CFI last year, has handed over to Peter Florence and Bob Cunningham, after a long stay with the NHS, has resumed as chairman.

Club finances are on an upward turn, assisted in no small way by the bar under the direction of Gordon Bishop. We are planning task weeks, competitions and cross-country training courses for members and visitors.
S.I.D.

BURN (Burn Airfield)
Now that our latest winches have proved their reliability, partly thanks to winch master Steve Elsey and his crew keeping up with the maintenance, we have sold the "Flannery" winch to Dublin GC.

We had our first good wave day of the year on January 29 with heights up to 8000ft. We have an expedition to the Alps this summer and the annual pantomime was again a success.
P.N.

CAIRNGORM (Feshiebridge)
We have replaced the K-10/13 with a Puchacz and work has started on the new T-hangars.

Plans for the season include a task weekend; open day; beginners' course; an expedition to France and Octoberfest wave soaring.
T.C.

CAMBRIDGE UNIVERSITY (Gransden Lodge)
The annual prizegiving dinner was held in the clubhouse for the first time with trophies going to Phil Atkin, John Bridge (three), Neil Foreman, Graham Hows, Mike Langton, Julian Murfitt and Mike Young.

We have concreted the hangar floor and are cladding the clubhouse. The extra width on the main runway has paid off with little damage despite the wet weather.

The new cadets are progressing well. Janet Birch, John McNamee and Julian Murfitt have AEI ratings. We welcome visitors, especially for the Regionals we are again running this August.
M.H.L.

CONNEL (North Connel Airfield)
Our chairman, Bill Miller, has a Silver badge; our treasurer, Gerry Bryce, and Norman May Bronze badges. Kevin McCuish and Calum KcKenzie, both aged 14, have been awarded training grants by the Scottish Sports Council. We enjoyed a visit by Chris Rollings in December.

Our annual dinner, organised by Helen Anderson, was the best ever. We now have reverse tow, winch and aerotow launching and there have been several good wave climbs, the highest to 9200ft. Membership continues to increase, mid-week flying starts in the spring and we are planning another expedition to Bellarena.
R.W.

CORNISH (Perranporth)
As well as winter gales and torrential rate we had some rare mild days with ridge soaring.

Herefordshire GC members with their new Junior bought with the help of the Sportsmatch sponsorship. Their chairman, Leslie Kaye, the instigator, is at the front with Anne Barton in the cockpit and, l to r, Mike Dodd, Geoff Harris, Chas Boucher (CFI), John Evans, Alex Chappell, Philip King and Roy Palmer.

Bill Brittain after going solo at Borders GC photographed with DCFI Robin Johnson.

Above: The Vale of White Horse GC site photographed by Steve Foggin from his LS-3-17.
Below: Ian Hurle (l) and Neil Kyte with instructor Bill Grey (r) after going solo at Glyndwr GC. Ian and Bill's combined age is 126.

The seven day week operation starts mid/late May with two instructors. Heidi James, just 16 years old, has gone solo.
S.V.S.

COTSWOLD (Aston Down)
Winter weather restricted flying but we had some thermal soaring and wave. In January several climbed to good heights, including Dave Breeze who reached 7700ft in a club K-8.

Our dinner-dance was well attended with Andy Davis, World Champion, presenting trophies to Richard Burgoyne and Kate Hunter (two-seater cup for a flight in the club SF-34); Nick Coe (pre-Silver award); Jim Rodgers (fastest 100km triangle); Oliver Ward (cross-country cup) and Ray Crosse (over 50s award for gaining a Bronze badge in his 70th year).

A presentation to John Holland marked his 70th birthday. John has contributed a great deal over more than 20 years and received a superb picture of his ASH-25, painted by the Guild of Aviation Artists winner, Roy Layzell.
M.S.

CRANFIELD (Cranfield Airfield)
Keith Lillywhite has taken over as CFI from Derek Wilcox. Our thanks to Derek (not forgetting Pat) for all the work they have done over many years.

We are up to our eyeballs in timber frames and tarpaulins, having bought two Besseneau hangars from a nearby RAF station. It's proving to be a mammoth task.

Another Diamant has joined the private fleet, so with Keith's help we are hopeful of a real boost in cross-country flying, along with increased student and associate member training.
M.K.

CRANWELL (RAF Cranwell)
At our AGM well earned honours went to Mick Wood (CFI), James Halfacre and Alan Clark.

Ian Mountain completed his 300km in Australia and then flew four more to make sure!

Our Falke has again been popular this winter for MGPPLs and keeping members current.
R.A.B.

CULDROSE (RNAS Culdrose, Helston)
The annual dinner-dance was a great success and our thanks to the organiser Angi Toller. Prize winners were Dorothy Hunter and Angi Toller; Steve Coulthard (best flight); Dave Dadswell (best progress); Martin Tuthill; Mike Watkin; Rob Adams and Ron Keeping ("duff budgie") who was seen wearing a parachute whilst still in its bag!

If interested in joining our two week expedition to Lithuania this August call Rob Adams on 0803 832278 (evenings).
R.A.

DARTMOOR (Brentor)
The many social events of the winter were well attended. At the annual dinner trophies went to Norman Wood (most useful club member); Dave Wallis (most improved pilot) and the wooden spoon to CFI Peter Williams for getting himself locked in the hangar.

The carol service was again organised by Rev Greg Stanton, our club chaplain, and Frank May.

In spite of atrocious weather, we flew when possible during our Christmas holiday club week. The main effort by a dedicated band of members has been maintenance of gliders and equipment and finishing the refurbishing of the club hut which was moved from another site.
F.G.M.

DEESIDE (Aboyne Airfield)
Our thanks to those who completed our survey on our facilities. The results are encouraging. However, we are also addressing the points raised in the replies. The winner of the malt whisky was Frank Dent who flies at Nympsfield.

Mark Hope went solo on New Year's Day, reaching 7000ft on his first flight. Fiona Fleming has her Bronze, Sarah Harland got Diamond height in January wave with Tony Brown, visiting us from Portmoak, getting Gold height on the same day. Peter Coward had the best winter cross-country with 260km in December.

Our new colour brochure has been sent to all clubs and visiting pilots and expeditions are welcome, especially for the spring and summer. There is still time to enter the first Scottish Regionals from May 21-29. Contact us now.

December saw us at 21 200ft and January at 20 000ft.
G.D.

DERBY & LANCS (Camphill)
Dave Martin retired as CFI at the AGM. He has guided us through many beneficial changes during his four years' of office and nurtured many youngsters into excellent pilots. We give him our sincere thanks.

Although 1993 weather was poor, there were many achievements. Pete Roberts, Steve Robertshaw and our new CFI, Dave Salmon, flew Diamond distances, giving Dave all three Diamonds from Camphill. Phil Brightman's 425km in his K-6E was particularly creditable and we flew over 10 000km cross-country.

We made the most of murky January with Clive Wilby soaring to 18 500ft in wave (again)!, Peter Gray getting to 13 400ft and Chris Fowler to 10 500ft (without a barograph - he didn't want to waste time and maybe miss the wave!).
A.R.

DEVON & SOMERSET (North Hill)
Prefaced by the sad news of Peter Hill's death only hours previously, our AGM went ahead to deal with our successful progress in a mediocre soaring year - to which Peter had contributed in no small measure in many ways.

Committee members elected were Sandy Harrup (our first lady), John Street (re-elected) and ex CFI Chris Miller. David Minson's record of long service as instructor/committee member/chairman/accounts computer was recognised by the presentation of glasses and a decanter. Trophies went to Dave Reilly (club ladder and best flight); Ian Beckett (best flight in wood and best Lasham O/R); John Bugbee (best gain of height); Malcolm Chant (first Diamond goal of the year); Damian le Roux (best place in Competition Enterprise); Ron Johns and Phil Morrison (two-seater trophy); Dick Stephens (best progress) and the "wily old bird" award to Rex Grayling who won the task week trophy.
I.D.K.

Obituary - Peter B.Hill
It is with great sadness that I record the death of Peter Hill.

I first met Peter when he joined the club in the mid 1980s and I was a newly qualified instructor. I asked him what flying experience he had. He replied, with a twinkle in his eye, that he "had done a bit of power flying". It was later, when we became friends, that he showed me his RAF logbooks. During the war he had flown practically everything there was to fly and had logged thousands of hours as a ferry pilot.

Peter was a dedicated member, usually the first on the field, with his dog Josh. He was always available to give aerotows, winch launches and help on summer courses and task weeks.

Peter was well-known to all participants of Competition Enterprise at North Hill. He was also on our management committee.

Delightful company, possessing a wonderful sense of humour, Peter was a true gentleman and a very dear friend. He will always be remembered with affection and will be greatly missed. Peter enriched all our lives and we were privileged to have had his friendship.

Our sympathies are extended to his daughter Joy and his son Alistair.
John Street.

DORSET (Eyres Field)
Our ever inventive duty teams found many other uses for a wet airfield, jet skiing and life boat practice being the most popular.

Our newly acquired K-13 is a much needed boost to the fleet. CFI Dennis Neal hosted a Bronze ground school this winter.
M.J.

DUKERIES (Gamston Airport)
Geoff Birks has gone solo. This spring we are improving the runway as more glass ship traffic uses the airfield.

Our buffet/dance, organised by Peter Uden, was very enjoyable and we have a dinner-dance in May.
J.C.P.

FENLANDS (RAF Marham)
Our November AGM reported that we had prospered financially even though the poor soaring conditions had limited flying achievements. Colin Elliott won the club member of the year award; a popular winner, but not the first time his name has appeared on the trophy.

Any Christmas hangovers were blown away by the T-21 "Barge" on Boxing Day.

The regular club expedition to Lleweni Park is in March and an instructors' course in April. Kev Sharp has been posted to Bicester. As our ground engineering member he spent many selfless hours keeping our equipment in working order, for which we thank him.
A.R.M.

FOUR COUNTIES (RAF Syerston)
Our AGM was well attended with a party afterwards. Grateful thanks to Sylvia Bateman, our retiring chief soup dragon, for all her three years' hard work. Five qualified on our full Cat course including members Colin Davey, Ken Reeves and Al Garrity. We have an expedition to Sisteron and two to Lleweni Parc. The Easter

task week is April 1-10. Visitors are welcome but please call 0636 525300 if bringing a glider.

Ben Beniston and Trevor Gorely have become life members.
M.D. & H.M.R.

Obituary - Pete Stewart

It is with great sadness that we say farewell to one of our stalwart members - Pete Stewart (Helmut). His contribution over nearly 20 years helped make Four Counties what it is today.

His never ending enthusiasm and willingness to help out in any way will be sorely missed.

Our sympathy goes to his family.

GLYNDWR (Lleweni Parc)
We have had excellent flying, despite a muddy airfield, with over ten gliders one weekend reaching 10 000ft with Chris Bolton getting to 14 600ft for Gold height.

Ray Cronin and Ian Skinner completed Silver badges with distance flights in wave on December 30, Ian having been solo for only nine months. Neil Kyte climbed to 10 000ft for his first Bronze leg and a Gold height.

Our K-13 has been refurbished to give us three two-seaters. Several clubs are visiting in April and May.
G.P.

Obituary - Dave Merriman
With great sadness and shock we record the tragic death of Dave Merriman in a gliding accident at Lleweni Parc on October 16. Aviation was an overriding passion of Dave's life. Though only a member for a few months he will be remembered for his cheerfulness and enthusiasm and also his devotion to Chris, his fiancée. They were virtually inseparable.

The esteem that Dave was thought of was evident from the packed church at the funeral. Later after a short memorial service his ashes were scattered over the Vale of Clwyd by his fiancée. Our condolences to Chris, the children and Dave's family. We will miss him.
Gill Pennant.

HERFORDSHIRE (Shobdon)
Wave started in December and is still going strong. Phil King has a been to 10 000ft any number of times and Diana King to 16 700ft, David Evans to 12 000ft, John Evans (Twin Astir) 9700ft and Les Kaye and Alex Chappell (Blanik) to 10 000ft. Brian Marsh from Snitterfield had several excellent flights, one to 17 500ft, and Mike Dodd gained 13 000ft in his immaculate SHK after years rebuilding it from a wreck.

Les Kaye has raised £16 000 - half from a sponsorship by Lyndon Scaffolding with an equivalant award from the Sportsmatch scheme. Part of this has been used to buy a Junior and we intend to fit the Blanik with hands-only controls for a disabled member and fund a club cadet scheme.
R.P.

David Oliver with HRH Princess Alexander having been presented with a trophy for voluntary work in sport at the Torch Trophy Trust reception in London. David has been tug master at Lasham Gliding Society for more than 16 years and served on several club committees.

HUMBER (RAF Scampton)
In December the hangar and an aircraft were damaged by high winds. At the AGM trophies went to Tony Fussey, Dave Cockburn, Tony Smith, John Dobson and Nick Dean.

Lyn Batchelor, Mandy Massey and Ian Whittingham have gone solo. Our thanks to Kevin Atkinson for the many years' service.
N.D.

KENT (Challock)
Several members, under the guidance of BGA inspectors, overhauled our club fleet. Kevin Vincent, our new CFI, will be promoting more cross-country flying.
A.R.V.

Obituary - Roy Gilbert
It is with sadness that we record the death of Roy. Being our social secretary for many years he will be missed terribly especially for his fantastic barbecues organised with great enthusiasm at the end of our yearly task week. We send our sympathy to his family and especially to Ann.

LAKES (Barrow-in-Furness)
We had a clutch of big climbs and modest cross-countries in the depths of winter! Dave Bull, Gordon Furness and Graham Welch gained Bronze legs (Gordon reaching Silver height without a barograph) and Alan Dennis has 5hrs.

We gave Keith Butterfield (tug master) a surprise send off party before his move to France.
A.D.

LASHAM (Lasham Airfield)
Terry Joint came from RAFGSA Bicester five years ago as our new CFI. He bravely stuck out his neck and replaced the charismatic Derek Piggott. He has now decided to leave for a post in commerce, but will still be flying at Lasham and producing his superb action photographs of gliders.

He greatly encouraged gliding expeditions in the UK and abroad. He supervised the introduction of an efficient launch point system, and even cleared the motor car rash from the runways and perimeter track, a labour worthy of Hercules. Thanks, Terry, for all you have done.
A.M.S.

LINCOLNSHIRE (Strubby Airfield)
Despite the main winch run being waterlogged we continue to fly. Paul James, Bill Armer and Bun de Wilde have gone solo; Angie Hearny is our first lady Bronze pilot and John Storry our first home grown full Cat.

The annual dinner-dance was a great success with a record attendance. Awards went to Alan Ely, Mike Fairburn, Colin Watmough, Angie Hearny, Eric Hughes, Steve Crozier (two) and Dick Hannigan.
R.G.S.

LONDON (Dunstable)
Our clubhouse has a new central heating system. We have sold one K-23 to a French club and ordered another two-seater. We have reduced our rates bill by more than half and hope ➡

to extend the clubhouse over the next couple of seasons, partly by self-build methods.

Expeditions are planned to Shobdon, Lleweni Parc and Aboyne and various small groups are planning trips to Sisteron, Le Blanc, Bellarena and to the States. Optimism in the club is very high and we have placed our PR on a professional basis to make full use of our AEI capacity.
R.C.

MENDIP (Halesland Airfield)
We started 1994 with a few good ridge days. The annual dinner-dance and award night was a great success with trophies going to John Boley, Kirstie Turner, Jack Ryland, Pete Jones, Chris Crabbe, Patrick and Tim Hogarth and the ten members that won the South Western division of the Inter-Club League at their first attempt. Some interesting items were also presented to CFI Peter Turner in recognition of his sterling efforts.

We have expeditions to Lleweni Parc, Sutton Bank and possibly Perranporth.
G.W-S.

Steve Fraser of Staffordshire GC who went solo on his 16th birthday.

We have a record number of reports in this issue, which is great because it is good to hear your news. But we would be grateful if you would try and include details of interest to readers from others clubs rather than making the accounts too parochial. With such a demand on space we have to look for ways of taking out unnecessary items and perhaps it is time to cut out thanks to members for their work and other clubs for their hospitality - both could be done personally and not through our pages.

A group of Mendip GC prizewinners. Photo: JGR Photographics.

Obituary - Ken Wiseman
We were all saddened by the death of Ken Wiseman after a long illness.

Ken began gliding with the RAFGSA in Germany in the 1960s, and was a founder member of Mendip GC in 1975. He was an instructor for many years and after his retirement became very active in club glider maintenance and refurbishment.

Ken was one of life's gentlemen, quiet by nature but with a dry sense of humour and always on hand with help and advice.

He will be missed by all his friends and our sympathy goes out to Marie and her family.
Barry Holgarth.

MIDLAND (Long Mynd)
January 30 was an excellent wave day shared by visitors with 18 height gains of over 10 000ft, the highest being 13 500ft. John Collins, Chris Harris and Denise Hughes gained Gold heights and over 500km were flown.

On January 2 members and Lasham visitors flew from 46 bungy launches. Our course season is from mid-March until the end of October.
A.R.E.

NENE VALLEY (RAF Upwood)
We had a wet and windy end to an otherwise good year. The Christmas dinner-dance was well attended with awards going to Martin Reynolds (CFI's trophy); John Young (Ladder Gold) and Gary Johnson (Ladder Silver).

The fleet and equipment refurbishment continues with the K-7 in a new livery and the rebuilt winch ready soon. Our thanks to all involved.
R.T.

NEWARK & NOTTS (Winthorpe Airfield)
Kate Jackson and Marke Booker soloed in December. The clubhouse committee have given us an electronic barograph, a pay telephone and a fax machine.

We close down every year to do the Cs of A, refurbish the club fleet and vehicles and for building maintenance, relying on help from our members.

The new winch is going well under the leadership of John Cawrey and Bob Grant.

We are also offering members of other BGA clubs free reciprocal membership. Visitors are always welcome.
F.H.

NORFOLK (Tibenham Airfield)
Flying continues between bouts of wind and rain and we have had a series of social events and illustrated talks in the clubhouse.

Bookings for the Eastern Regionals and Two-seater Competition are building up nicely and will be opened by Graham Parker, the BBC weather forecaster.

Prior to this, we are hosting a BGA cross-country soaring course during the third week in May. Why not join us and sample good old Norfolk hospitality.
K.E.P.

NORTHUMBRIA (Currock Hill)
We had the BGA Discus during the winter giving some members their first experience of a glass single-seater.

Dennis Driver and Ernie Moore are honorary members in recognition of hard work over many years as instructors, and Ernie as a tug pilot.
J.T.C.

Three Scottish Gliding Union pilots who have recently gone solo. L to r: Gail Hynds, Tony Duncan and Neil Watt.

Obituary - Bob Hopwood
Our oldest member, Bob Hopwood, died recently aged 83 years whilst on holiday in the Channel Islands. "Hoppy", as he was affectionately known, was a man of many and varied interests, who lived his life to the full.

Besides being an enthusiastic glider pilot, he had a parallel interest in sailing and was Commodore of his sailing club for many years. He was a keen observer of wild life, an amateur meteorologist and an expert on edible fungi.

He derived great pleasure from aerobatics and even recently, although no longer able to fly solo, would persuade instructors to "try a loop". His last flight with us was only three weeks before his death and shortly before that he had experienced his first microlight flight.

We extend our sympathy to his son Bob, daughter Hazel and family.
Ron Davis.

OXFORD (Weston on the Green)
Annette Shaw, Rosalie Taylor and Terry Young have soloed and Peter Brooks has re-soloed after a long lay-off. Chris Lee has his Bronze badge.
F.B.

PORTSMOUTH NAVAL (Lee on Solent)
We had a busy start to 1994 despite a waterlogged airfield. Our new Discus CS had its first soaring flight off the winch into wave.

Our second seven tonne winch, built by Ken Stephenson and helpers, has vastly improved our launching capacity. Our thanks to Ken and his team.

Our successful Tuesday evening lectures have started again. Paul Limburn has a Bronze badge and Steve Micklewright a Silver badge.
J.P.

RATTLESDEN (Rattlesden Airfield)
Our AGM was well attended and we have started a two-seater fund, run by Sarah Lee. Older members were saddened that one of our founder members, Theo Spurge, has died.

The lectures run by our new CFI Martin Raper have been well attended. From May we will fly on Thursday and three evenings a week. Members are enjoying the use of our tug.
M.E.

SCOTTISH GLIDING UNION (Portmoak)
Winter flying has been good with many visitors gaining 5hrs through to Diamond heights. Gail Hynds, Neil Watt and Tom Duncan have soloed; Gavin Goudie has a Bronze badge at 17; Anne Grant and Mike Edwards have Silver badges; Eoin Macdonald a Gold height and Gary Binnie a Diamond height.

The SSC ASH-25 has had notable flights including a 450km wave flight to 16 000ft in October by Colin Hamilton and Kevin Hook.
G.S.G.

SHALBOURNE (Rivar Hill)
Our Christmas meal in January was a great success with a raffle of unwanted Christmas presents swelling our social fund. Our chairman, Steve Ottner thanked the organiser, Verity Murricane; Hugh Harwood for his task week help and presented Joan Mortimer with a gift for her catering contribution.

The weather has been horrendous with few flying days. Thieves finally managed to break into our lorry container.

We send best wishes for a speedy recovery to Carol Pike, our hard working full Cat who was taken ill just before Christmas.
J.R.

SHENINGTON (Edgehill Airfield)
The club has tripled in size since last February. We have a new clubhouse and work continues on extra showers, toilets and a bar. The club fleet includes a K-13 and we continue to share the Gliding Centre gliders at the weekend. The grass strip on the airfield has been widened and with more fences removed we have greater flexibility.

The airfield is to be renamed Shenington Airfield in the near future so watch out for us on the new maps.

We had a very successful annual dinner-dance in January - our thanks to Colin Edmonds and Jill Hampson. The most notable award went to John "JR" Harley for outstanding achievement. John went solo in August at the age of 79 (becoming a local media star in the process!) and is well on his way to the Bronze.

John Whiting had the dubious honour of winning both highest achiever award (pre-solo to Silver in five months) and another shared with syndicate partner for his many gliding adventures!

We are hoping to take part in the Inter-Club League.
T.G.W.

SOUTHDOWN (Parham)
We had our most successful Christmas party ever followed by strong hill soaring conditions in the new year. Paul Fitche (LS-4) flew 512km and Craig Lowrie (DG-300) 260km. Jim Allin and Mike Clark completed their Bronze badges and James Allen went solo.

Our K-8 has had major repairs and there are two turbo Discus on site.
P.J.H.

STAFFORDSHIRE (Seighford)
Steve Fraser went solo on his 16th birthday - his father Bob is the European distributor of the American Spirit glider kits.

David Gill continues his rapid progress by completing his Silver badge with 5.75hrs in wave at the Long Mynd when he also gained more than 12 000ft. On the same day Chris Harris, Andy Oultram and Tom Jurdison also achieved Gold heights.

As well as our own inimitable CFI Charlie Wiggins, we have three other CFIs instructing regularly at Seighford. Our thanks to Peter Gill (Shropshire), Chris Harris (Midland) and Dick Lyon (T-21 North Wales). It's almost impossible to fly without being observed by at least one CFI. Andy Oultram is the DCFI responsible for post solo training and Peter Lowe the DCFI concentrating on *ab-inito* training.

The longest flight of our October expedition to Borders GC was Ian Martin's 1hr 50min during a dead calm week. But we plan to visit again - the hospitality made up for any disappointment.
I.G.P.M.

STRATFORD ON AVON (Snitterfield Airfield)
Our two powerful diesel winches are very efficient with four cable capability. We have also overcome the problem of field damage by using the Rover SDI car as a retrieve winch during the prolonged torrential rain.

Our annual dinner-dance was again most successful and we are repeating the open day which created a boost to membership. Bob Berry, Geoff Butler and Roy Wood have Silver badges.

Brian Howett's book **Wings over Snitterfield** has sold very well with correspondents from Australia, USA and Canada giving their experiences whilst training at our airfield - please note it is £4.50 including p&p, not £4.00 as previously reported - (Not the editor's error I hasten to add!)
H.G.W.

SURREY HILLS (Kenley Airfield)
The airfield has been waterlogged so we have been using the tarmac. We have had our first thermals of 1994 and added another K-7 to our fleet which is being re-covered by CFI P. Poole and helpers. One of our K-8s has also been recovered and Cs of A carried out.

Membership is well up and we have more courses. We hope to have a re-engined winch to give launches in all wind conditions.
S.D.

THE GLIDING CENTRE (Shenington Airfield)
Another phenomenon is coming to light: nit-picking by idlers who are jealous of our results! To help unfortunates our new T-shirts will bear a target on the back and the phrase "Pioneer- stop me if you can."

The fleet momentarily peaked at over 20 aircraft at the end of 1993, and the airfield became the BGA's fourth busiest site (official BGA figures!). We also did nearly 1000hrs of motor gliding which doesn't seem to count. We're replacing all the old gliders and winches with newer types and are virtually giving K-7s away. Any offers?

Over a quarter of last year's course pupils joined the local club and 90% of this year's bookings are repeat customers.

Expeditions from other clubs are very welcome - come and see for yourselves how we do it.
M.F.C.

THE SOARING CENTRE (Husbands Bosworth)
At a well attended annual dinner our CFI Peter Burgoyne spoke of an excellent year's flying despite the weather. Trophies were awarded to Tony Pozerskis, Keith Nurcombe, Steve Crabb, the SB-5 syndicate, Graham Thomas, Paul Thompson, Andy Fry, Chris Parker, Tony Head, Jeanette Burgoyne, John Cadman, Iain Freestone, Malc Guard, Doug Sadler, Derek Abbey, Frank Davis, Alan Foxon and Richard Devey. Andy Smith was awarded the "grotty potty" for a landout in his new ASW-20F.

We have replaced our oldest Junior with a new one and sold the SF-27. The clubhouse extension is in full use. We have a Regionals from June 25-July 3 and a task week.

When Norman James and Peter Davies landed our Puchacz in a remote "field" on the wrong side of the hills during a trip to Feshiebridge, they had to hire a helicopter to airlift it back in pieces.
T.W.

ULSTER (Bellarena)
The good fortune which brought us the steelwork for a huge hangar at scrap yard price continued with the erection of a 40ft x 20ft fully carpeted portable building for a clubhouse at a similar knock-down price. We are paying to have it moved professionally ready for the ceremonial opening of the new site on April 9, during our traditional Easter task week. If you'd like to be there, be there!

Guest of honour at our annual dinner, Sports Council for NI director "Dusty" Miller, made it clear we were in high favour with the authorities for bringing into being an impressive addition to the province's sporting and tourist amenities.

With Citroën slinging a sailplane from the King's Hall roof for the Ulster Motor Show - a stunt we pioneered years ago with the Twin Astir - Chris Rollings will supervise its removal and check out the new field and our instructors.
R.R.R.

VALE OF WHITE HORSE (Sandhill Farm)
Our new CFI Gordon Walker has been giving winter Bronze lectures. Our seven day week operation is from May 1 and we are re-vamping our two existing winches and re-engining a third in readiness for increased use.

The K-13 trailer is being renovated by Steven Parsonage with plans for (intentional!) two-seater cross-countries. We have bought a club K-8 so that our K-18 may be used for more club cross-country flying.

PS. Steve and Stuart are really enjoying their ASW-20 - thanks for asking Mr Penguin (see last issue, p52).
S.F.

VECTIS (Isle of Wight, Bembridge)
Our annual dinner was well attended and very enjoyable. Awards went to Chris Waghorn (most improved pilot for progress in the ASW-15); Barry Pearce (the good luck "Parrot" for just missing his 5hrs by a few minutes) and John Chape (the chairman's cup for his excellent work as treasurer).

The ridge near the airfield (Culver Down) has proved a useful source of lift even in a light breeze. As it has two sides, and with the winds that occur on the island, it should work with the wind in either direction.

Airfield maintenance work continues with several weekends spent rolling and filling in mole runs and rabbit holes, but hopefully by the spring we should have quite a good surface. Also having never had a hangar of our own we are slowly learning how to pack in all the gliders.
M.J.H.

VINTAGE NEWS
The 22nd International Glider Rally is at Lasham from August 6 with the International Rendez Vous Rally at the London GC the week before.

Sadly the hangar containing the Brooklands Vintage Glider Exhibition was pulled down by property developers as it wasn't on Brooklands' land. Most were Mike Beach's collection and are now stored in their trailers or in the Chilterns' hangar.

Mike is making excellent progress with his Scud 1 and intends to restore the Manuel Willow Wren next. This genuine 1931 aircraft should be the world's oldest flying glider.

John Allison has bought Ted Hull's Kite 1 (BGA 394), based at RAF Halton, and Ted has sold his Moswey 4 (BGA 2277) to Fritz and Willi Fahrni whose Swiss glider restoration workshop is close to where the Mosweys were built. Ted, as well as flying his Scud 3 (BGA 684), is making a Breguet 905 "Fauvette" airworthy. The Fauvette first flew in 1958.

A gale at Wycombe Air Park damaged two and destroyed two vintage glider trailers and the recently restored Krajánek. But it is being repaired by Mike Birch. Graham Saw is restoring the Petrel (BGA 651) fuselage. Both gliders should fly at the Lasham Rally. Keith Green is bringing his Swedish JS Weihe (BGA 1093) up to the highest standards of perfection.
C.W.

WELLAND (Lyveden)
Our thanks to retiring CFI Keith Scott for all his hard work. He is now a regional examiner. Barry Chadwick is our new CFI and Werner Leutfeld continues as DCFI.
R.H.S.

WOLDS (Pocklington)
As our familiar Wolds and Pennine wave disappear with the onset of summer, we have task weekends and mini soaring courses planned. Why not come and fly in our un-restricted Yorkshire skies? Our task week is from May 29-June 4 and visitors will be made very welcome. The entry fee is £15. There are also expeditions to France (Le Blanc) and Lleweni Parc.

The Two-Seater Competition is from August 21-29. Contact our new club manager, John Smith, for details.
M.R.F.

WREKIN (RAF Cosford)
We had poor weather for our Lleweni Parc expedition, the only achievement being Jock Sproat's 5hrs.Alison Arnold completed her Silver with a distance flight; Glenda Porter has gone solo and Ritchie Toon is a full Cat. Ritchie and Al Marshall have completed 1000hrs. Siobhan Hindley attended an AEI course held here by Mick Davis and Mick Boydon.

Our AGM was a great success. CFI Dave Gordon has handed over to John Sullivan. We have a new Tost winch and January gave us lots of wave and ridge soaring.
I.C.

YORK (Rufforth Airfield)
Enthused with launches to 1800ft we are installing a second winch with a V8 engine. The Falke 2000 engine is being overhauled and the K-7 looks like new thanks to Dave Allan. On January 22 Mark Boyle took the Astir to 18 000ft in good wave while Brian Mennell landed out in the K-13 at Linton on Ouse.
H.McD-R.

YORKSHIRE (Sutton Bank)
January brought a return of the westerlies with several good ridge days. January 15 was a good wave day with David Hayes climbing to 16 000ft. Mark Irving went solo shortly after his 16th birthday.

Winter refurbishment continues and a new K-21 is coming this spring. Our task week starts on May 28 and visitors are very welcome. The entry fee is a bottle of wine.
C.L.

HANS-WERNER GROSSE

Last season Hans-Werner Grosse donated the use of his ASH-25, Hotel Whiskey, to some 85 young pilots living in what was East Germany. Together with Hans and other experienced cross-country pilots, the youngsters, most of whom had never flown a modern sailplane, completed 425hrs and 25 733kms. Hans has agreed to repeat the operation this year.
Translated from *Aerokurier* by Alan Harris.

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RECORDS

INTERNATIONAL GLIDING RECORDS (as at 10.2.94)

SINGLE-SEATERS

Height Gain	12 894m	P. F. Bikle, USA	SGS 1-23E	25.2.1961
Absolute Altitude	14 938m	R. R. Harris, USA	Grob-102	17.2.1986
Straight Distance	1460.8km	H-W Grosse, W. Germany	ASW-12	25.4.1972
Goal Distance	1254.26km	B. L. Drake, D. N. Speight, S. H. Georgeson, New Zealand	Nimbus 2	14.1.1978
Goal & Return Distance	1646.68km	T. L. Knauff, USA	Nimbus 3	25.4.1983
Triangular Distance	1362.68km	T. L. Knauff (Nimbus 3), L. R. McMaster, J. C. Seymour		
		K-H. Striedieck, (USA) (ASW-20B)		2.5.1986
		R. L. Robertson, Gt Britain (in USA)	Ventus A	
Free Distance*	1394.04km/h	T. L. Knauff, USA,	Discus	6.1,1993
		B. Milner, Canada (in USA)	Ventus	
100km Triangle	195.30km/h	I. Renner, Australia	Nimbus 3	14.12.1982
300km Triangle	169.50km/h	J. P. Castel, France (in Namibia)	Nimbus 3	15.11.1986
500km Triangle	170.06km/h	B. Bünzli, Switzerland (in Namibia)	DG-400 (sealed)	9.1.1988
750km Triangle	158.41km/h	H-W. Grosse, W. Germany (in Australia)	ASW-22	8.1.1985
1000km Triangle	145.33km/h	H-W. Grosse, W. Germany (in Australia)	ASW-17	3.1.1979
1250km Triangle	133.24km/h	H-W. Grosse, W. Germany (in Australia)	ASW-17	9.12.1980

MULTI-SEATERS

Height Gain	11 680m	S. Josefczak and J. Tarczon, Poland	Bocian	5.11.1966
Absolute Altitude	13 489m	L. Edgar and H. Klieforth, USA	Pratt Read	19.3.1952
Straight Distance	1383km	G. Herbaud and J-N. Herbaud, France	ASH-25	17.4.1992
Goal Distance	1383km	G. Herbaud and J-N Herbaud, France	ASH-25	17.4.1992
Goal & Return Distance	1261.36km	M. W. Walker and T. Delore, New Zealand	ASW-22	1.12.1989
Triangular Distance	1379.35km	H-W. Grosse and H. Kohlmeier W. Germany (in Australia)	ASH-25	10.1.1987
100km Triangle	177.26km/h	E. Sommer and I. Andresen, W. Germany (in USA)	Janus C	26.7.1984
300km Triangle	170.90km/h	H-W. Grosse and Karin Grosse, W. Germany (in Australia)	ASH-25	8.1.1988
500km Triangle	163.03km/h	H-W. Grosse and Karin Grosse, W. Germany (in Australia)	ASH-25	20.1.1988
750km Triangle	161.33km/h	H-W. Grosse and Karin Grosse, W. Germany (in Australia)	ASH-25	10.1.1988
1000km Triangle	157.25km/h	H-W. Grosse and Karin Grosse, W. Germany (in Australia)	ASH-25	11.1.1988
1250km Triangle	143.46km/h	H-W. Grosse and H. Kohlmeier W. Germany (in Australia)	ASH-25	10.1.1987

SINGLE-SEATERS (WOMEN)

Height Gain	10 212m	Yvonne Loader, New Zealand	Nimbus 2	12.1.1988
Absolute Altitude	12 637m	Sabrina Jackintell, USA	Astir CS	14.2.1979
Straight Distance	949.7km	Karla Karel, Gt Britain (in Australia)	LS-3	20.1.1980
Goal Distance*	951.43km	Joann Shaw, USA	Nimbus 2	2.7.1990
Goal & Return Distance	1127.68km	Doris Grove, USA	Nimbus 2	28.9.1981
Triangular Distance	847.27km	Joann Shaw, USA	Nimbus 2	5.8.1984
100km Triangle	145.49km/h	Susan Beatty, South Africa	ASW-20B	24.12.1990
300km Triangle	143.9km/h	Susan Beatty, South Africa	ASW-20B	26.12.1990
500km Triangle	133.14km/h	Susan Martin, Australia	LS-3	29.1.1979
750km Triangle	127.29km/h	Susan Beatty, South Africa	ASW-20B	21.12.1990

MULTI-SEATERS (WOMEN)

Height Gain	8430m	Adela Dankowska and M. Matelska, Poland	Bocian	17.10.1967
Absolute Altitude	10 809m	Mary Nutt and H. Duncan, USA	SGS 2-32	5.3.1975
Straight Distance	864.86km	Tatiana Pavlova and L. Filomechkina, USSR	Blanik	3.6.1967
Goal Distance	864.86km	Isabella Gorokhova and Z. Kozlova, USSR	Blanik	3.6.1967
Goal & Return Distance	673.5km	Katrin Keim, Germany and A. Orsi (in South Africa)	ASH-25	7.1.1992
Triangular Distance	760.4km	Katrin Keim, Germany and A. Orsi (in South Africa)	ASH-25	5.1.1992
100km Triangle	141.90km/h	Adele Orsi, Italy and K. Keim (in South Africa)	ASH-25	10.1.1992
300km Triangle	143.17km/h	Katrin Keim, Germany and A. Orsi (in South Africa)	ASH-25	6.1.1992
500km Triangle	113.87km/h	Katrin Keim, Germany and A. Orsi (in South Africa)	ASH-25	3.1.1992
750km Triangle	121.02km/h	Katrin Keim, Germany and A. Orsi (in South Africa)	ASH-25	5.1.1992

BRITISH NATIONAL RECORDS (as at 10.2.94

SINGLE-SEATERS

Height Gain	10 985m	D. Benton	Nimbus 2	18.4.1980
Absolute Altitude	11 500m	H. C. N. Goodhart (in USA)	SGS 1-23	12.5.1955
Straight Distance	949.7km	Karla Karel (in Australia)	LS-3	20.1.1980
Goal Distance	859.20km	M. T. A. Sands (in USA)	Nimbus 3	23.4.1986
Goal & Return Distance	1127.68km	M. T. A. Sands (in USA)	Nimbus 3	7.5.1985
Triangular Distance	1362.68km	R. L. Robertson (in USA)	Ventus A	2.5.1986
300km Goal and Return	153.3km/h	M. T. A. Sands (in USA)	Kestrel 19	10.5.1983
500km Goal and Return	152.7km/h	M. R. Carlton (in South Africa)	ASW-17	24.12.1980
100km Goal and Return	105.79km/h	M. T. A. Sands (in USA)	Nimbus 3	7.5.1985
100km Triangle	166.38km/h	B. Cooper (in Australia)	LS-6B	4.1.1991
300km Triangle	146.8km/h	E. Pearson (in South Africa)	Nimbus 2	30.11.1976
500km Triangle	141.3km/h	B. J. G. Pearson (in South Africa)	ASW-20	28.12.1982
750km Triangle	109.8km/h	M. R. Carlton (in South Africa)	Kestrel 19	5.1.1975
1000km Triangle	112.15km/h	G. E. Lee (in Australia)	ASW-20B	25.1.1989
1250km Triangle	109.01km/h	R. L. Robertson (in USA)	Ventus A	2.5.1986

MULTI-SEATERS

Height Gain	10 234m	A. E. Kay and K. Wilson	ASH-25	12.10.1990
Absolute Altitude	11 023m	A. E. Kay and K. Wilson	ASH-25	12.10.1990
Straight Distance	472.43km	M. R. Carlton and M. French (in South Africa)	Calif A-21	18.12.1979
Goal Distance	472.43km	M. R. Carlton and M. French (in South Africa)	Calif A-21	18.12.1979
Goal and Return Distance	709.35km	R. C. May and S. G. Jones (in Finland)	ASH-25	11.6.1988
Triangular Distance	825km	B. T. Spreckley and P. Jones (in Australia)	Nimbus 3DT	7.2.1987
300km Goal and Return	138km/h	G. Dale and M. Bird (in Australia)	ASH-25	4.1.1991
500km Goal and Return	113.08km/h	M. R. Carlton and C. Greaves (in South Africa)	Calif A-21	23.12.1978
100km Triangle	137.22km/h	M. R. Carlton and Leonie Lawson (in South Africa)	Calif A-21	27.12.1978
300km Triangle	138.37km/h	B. T. Spreckley and P. Jones (in Australia)	Nimbus 3DT	6.2.1987
500km Triangle	130.56km/h	M. Bird and R. Gardner (in Australia)	ASH-25	3.1.1991
750km Triangle	114.18km/h	B. T. Spreckley and P. Jones (in Australia)	Nimbus 3DT	7.2.1987

*=with up to three TPs

SINGLE-SEATERS (WOMEN)

Height Gain	9119m	Anne Burns (in South Africa)	Skylark 3B	13.1.1961
Absolute Altifude	10 550m	Anne Burns (in South Africa)	Skylark 3B	13.1.1961
Straight Distance	949.7km	Karla Karel (in Australia)	KS-3	20.1.1980
Goal Distance	528km	Ann Welch (in Poland)	Jaskolka	20.6.1961
Goal & Return Distance	545km	Anne Burns (in South Africa)	Std Austria	6.1.1966
Triangular Distance	814.01km	Karla Karel (in Australia)	LS-3	9.1.1980
300km Goal and Return	107.5km/h	Karla Karel (in South Africa)	ASW-15B	1.1.1975
500km Goal and Return	102.6km/h	Karla Karel (in Rhodesia)	ASW-15B	16.10.1975
100km Triangle	110.8km/h	Karla Karel (in Rhodesia)	ASW-15B	2.11.1975
300km Triangle	125.87km/h	Karla Karel (in Australia)	LS-3	12.2.1980
500km Triangle	120.69km/h	Karla Karel (in Australia)	LS-3	20.2.1980
750km Triangle	110.53km/h	Pamela Hawkins (in Australia)	ASW-17	17.11.1984

UNITED KINGDOM RECORDS (as at 10.2.94)

SINGLE-SEATERS

Height Gain	10 065m	D. Benton	Nimbus 2	18.4.1980
Absolute Altitude	11 031m	D. Benton	Nimbus 2	18.4.1980
Straight Distance	827.9km	T. J. Wills	LS-6	29.5.1986
Goal Distance	579.36km	H. C. N. Goodhart	Skylark 3	10.5.1959
Goal & Return Distance	801.3km	C. Garton	Kestrel 19	22.7.1976
Triangular Distance	770.5km	C. C. Rollings	Jantar 2A	28.5.1985
300km Goal & Return	114.5km/h	D. S. Watt	ASW-22	18.8.1983
500km Goal & Return	93km/h	M. B. Jefferyes	DG-202	12.5.1984
100km Triangle	123.2km/h	R. Jones	Nimbus 3	13.8.1983
200km Triangle	114.95km/h	D. S. Watt	ASW-24	3.8.1990
300km Triangle	117.14km/h	R. Jones	Nimbus 3	28.5.1985
400km Triangle	114.3km/h	R. Jones	Nimbus 3	1.8.1984
500km Triangle	106.9km/h	R. Jones	Nimbus 2	31.5.1975
600km Triangle	88.8km/h	C. Garton	Kestrel 19	10.6.1976
750km Triangle	77.98km/h	C. C. Rollings	Jantar 2A	28.5.1985
100km Goal	150km/h	T. J. Wills	LS-4	12.5.1984
200km Goal	127.1km/h	A. H. Warminger	Vega	12.5.1984
300km Goal	132.8km/h	A. H. Warminger	Kestrel 19	24.4.1976
400km Goal	98.36km/h	A. H. Warminger	Ventus 16.6m	7.4.1990
500km Goal	90.7km/h	H. C. N. Goodhart	Skylark 3	10.5.1959

15m CLASS

Straight Distance	827.9km	T. J. Wills	LS-6	29.5.1986
Goal & Return Distance	617km	C. Garton	LS-6	28.8.1989
Triangular Distance	609.9km/h	A. E. Kay	ASW-24	9.5.1991
500km Goal & Return	83.42km/h	M. B. Jefferyes	DG-600	25.5.1990
100km Triangle	119.7km/h	T. J. Wills	LS-4	18.4.1981
200km Triangle	114.95km/h	D. S. Watt	ASW-24	3.8.1990
300km Triangle	115.85km/h	J. Gorringe	LS-7	3.8.1990
400km Triangle	99.39km/h	P. Jeffrey	LS-7	13.8.1991
500km Triangle	93.1km/h	M. D. Wells	LS-7	26.5.1990
600km Triangle	88.1km/h	A. E. Kay	ASW-24	9.5.1991
200km Goal	127.1km/h	A. H. Warminger	Vega	12.5.1984

STANDARD CLASS

Straight Distance	718km	T. J. Wills	Std Libelle	1.8.1976
Triangular Distance	609.9km	A. E. Kay	ASW-24	9.5.1991
300km Goal & Return	104.09km/h	A. Kay	ASW-24	28.4.1989
500km Goal & Return	75.66km/h	P. Jeffery	Pegasus	3.9.1989
100km Triangle	119.7km/h	T. J. Wills	LS-4	18.4.1981
200km Triangle	114.95km/h	D. S. Watt	ASW-24	3.8.1990
300km Triangle	115.85km/h	J. Gorringe	LS-7	3.8.1990
400km Triangle	99.39km/h	P. Jeffrey	LS-7	13.8.1991
500km Triangle	93.1km/h	M. B. Wells	LS-7	26.5.1990
600km Triangle	88.1km/h	A. E. Kay	ASW-24	9.5.1991
100km Goal	150km/h	T. J. Wills	LS-4	12.5.1984
300km Goal	131.1km/h	T. J. Wills	Std Libelle	24.4.1976
400km Goal	73.8km/h	T. J. Wills	Std Libelle	7.8.1976

SINGLE-SEATERS (WOMEN)

Height Gain	7833m	Alison Jordan	Astir CS	8.10.1978
Absolute Altitude	8701m	Alison Jordan	Astir CS	8.10.1978
Straight Distance	454km	Anne Burns	Skylark 3B	10.5.1959
Goal Distance	324.4km	Jane Nash	Ventus B	15.4.1989
Goal & Return Distance	334.2km	Ruth Housden	Libelle	29.5.1982
300km Goal & Return	80.60km/h	Jane Nash	Ventus B	4.6.1989
100km Triangle	80km/h	Anne Burns	Cirrus	14.6.1970
200km Triangle	77.08km/h	Jane Randle	Nimbus 2	12.8.1990
300km Triangle	76.8km/h	Jane Randle	Kestrel 19	18.8.1976
400km Triangle	60.6km/h	Anne Burns	SHK	5.8.1967
500km Triangle	76.1km/h	Anne Burns	Nimbus 2	31.5.1975
100km Goal	135.39km/h	Jane Nash	Ventus B	11.6.1989
200km Goal	85.5km/h	Anne Burns	Olympia 419	2.6.1963
300km Goal	93.16km/h	Jane Nash	Mini-Nimbus	7.4.1990

MULTI-SEATERS

Height Gain	10 234m	A. E. Kay and K. Wilson	ASH-25	12.10.1990
Absolute Altitude	11 023m	A. E. Kay and K. Wilson	ASH-25	12.10.1990
Straight Distance	445.58km	J. Moore and D. Stabler	Bergfalke 2	5. 5. 1991
Goal & Return Distance	542.91km	A. E. Kay and A. Kay	ASH-25	12.8.1990
Triangular Distance	770.27km	C. C. Rollings and B. Fairston	ASH-25	3.7.1990
300km Goal & Return	112.2km/h	A. E. Kay and C. Lyttleton	ASH-25	27.5.1990
500km Goal & Return	98.20km/h	A. E. Kay and A. Kay	ASH-25	12.8.1990
100km Triangle	123.99km/h	R. C. May and E. Morris	ASH-25	27.7.1989
200km Triangle	119.07km/h	R. C. May and P. Townsend	ASH-25	18.7.1990
300km Triangle	109.08km/h	C. C. Rollings and G. McAndrew	ASH-25	18.8.1989
400km Triangle	113.70km/h	J. D. J. Glossop and I. Baker	Nimbus 3DT	30.8.1990
500km Triangle	104.74km/h	C. C. Rollings and P. Brice	ASH-25	25.5.1990
600km Triangle	94.94km/h	R. C. May and S. Lynn	ASH-25	19.7.1990
750km Triangle	92.34km/h	C. C. Rollings and B. Fairston	ASH-25	3.7.1990
100km Goal	173.32km/h	D. Hill and J. Gorringe	ASH-25	8.4.1990
200km Goal	113.3km/h	R. Miller and B. Tapson	Janus C	11.5.1984
300km Goal	107.4km/h	P. R. and A. H. Pentecost	Janus C	7.5.1984

MOTOR GLIDERS

SINGLE-SEATERS

Height Gain	6710m	A. Mossman	PIK-30	20.8.1992
Absolute Altitude	8010m	A. Mossman	PIK-30	20.8.1992
100km Triangle	76.5km/h	I. W. Strachan	PIK-20E	11.8.1984
200km Triangle	48.2km/h	I. W. Strachan	SF-27M	23.8.1996
300km Triangle	83.1km/h	I. W. Strachan	PIK-20E	19.8.1994
100km Goal	85.7km/h	I. W. strachan	SF-27M	16.7.1991

MULTI-SEATERS

Height Gain	5882m	M. G. Throssell and P.Bartle	Janus CM	27.9.1988
Absolute Altitude	6888m	M. G. Throssell and P.Bartle	Janus CM	27.9.1988
100km Triangle	35.6km/h	P. T. Ross and H. Daniels	SF-28A	27.6.1976
100km Goal	76.2km/h	P. T. Ross and K. Winfield	SF-28A	22.8.1966
200km Goal	66.3km/h	P. T. Ross and P. Fletcher	SF-28A	18.7.1976
500km Triangle	78.45km/h	B. T. Spreckley and O.Pugh	Janus CM	16.5.1986

BRITISH NATIONAL MOTOR GLIDERS (as at 10.2.1994)

SINGLE-SEATERS

Height Gain	7253.9m	J. M. West (in USA)	Ventus CM	5.7.1992
Absolute Attitude	9211.3m	J. M. West (in USA)	Ventus CM	5.7.1992
Straight Distance	652.7km	B. J. Willson (in Australia)	PIK 20E	10.1.1983
Goal Distance	415.1km	B. J. Willson (in Australia)	PIK-20E	11.1.1983
Goal & Retum Distance	646.97km	J. M. West (in USA)	Ventus CM	6.7.1986
Triangular Distance	509.46km/h	J. M. West (in Spain)	Ventus CM (17.6m)	12.8.1992
100km Triangle	119.14km/h	J. M. West (in Spain)	Ventus CM (17.6m)	15.8.1992
300km Triangle	97.96km/h	J. M.West (in Spain)	Ventus CM (17.6m)	16.8.1992
500km Triangle	96.11km/h	J. M. West (in Spain)	Ventus CM (17.6m)	12.8.1992
300km Goal & Return	113.05km/h	J. M. West (in Spain)	Ventus CM	9.7.1992
500km Goal & Return	103.77km/h	J. M. West (in Spain)	Ventus CM	7.7.1992

MULTI-SEATERS

Height Gain	5882m	M. G. Throssell and P. Bartle	Janus CM	27.9.1988
Absolute Altitude	6888m	M. G. Throssell and P. Bartle	Janus CM	27.9.1988
100km Triangle	35.6km/h	P. T. Ross and H. Daniels	SF-28A	27.6.1976

UK 750km DIPLOMA

1. Goal & Return	801.3km	C. Garton	Kestrel 19	22.7.1976
2. Distance	761km	D. S. Watt	ASW-20L	9.5.1980
3. Triangular Distance	770.5km	C. C. Rollings	Jantar 2A	28.5.1985
4. Distance	827.9km	T. J. Wills	LS-6	29.5.1986
5. Triangular Distance	770.28km	C. C. Rollings & B.A.Fairston	ASH-25	3.7.1990
6. Distance	757km	A. J. Davis	Discus	7.8.1990
7. Quadrilateral	753km	B. Elliott & D. P. Francis	Nimbus 3DT	7.8.1990

INTERNATIONAL MOTOR GLIDERS (as at 10.2.94

		SINGLE-SEATERS		
Height Gain	9935m	M. D. Stevenson, USA	DG-400	25.10.1985
Absolute Altitude	10 408m	G. Cichon, W. Germany	Nimbus 2M	27.5.1979
Straight Distance	1039.87km	K. Radebar, Austria (in New Zealand)	DG-400	25.1.1993
Goal Distance	1039.87km	K. Radebar, Austria (in New Zealand)	DG-400	25.1.1993
Goal and Return Distance	1220.44km	K. Holighaus, Germany (in South Africa)	Nimbus 4M	23.12.1992
Triangular Distance	1400.19km	K. Holighaus, Germany (in South Africa)	Nimbus 4M	7.1.1993
Free Distance*	1351.16km	B. Bunzli, Switzerland (in Namibia)	DG-600M	24.12.1992
100km Triangle	191.19km/h	B. Bünzli, Switzerland (in Namibia)	DG-400	29.12.1987
300km Triangle	176.99km/h	B. Bünzli, Switzerland (in Namibia)	DG-400	14.11.1985
500km Triangle	164.18km/h	K. Holighaus, Germany (in South Africa)	Nimbus 4M	4.1.1993
750km Triangle	155.82km/h	K. Holighaus, Germany (in South Africa	Nimbus 4M	6.1.1993
1000km Triangle	155,00km/h	Tilo Holighaus, Germany (in South Africa)	Nimbus 4M	2.1.1993
1250 Triangle	139.96km/h	K. Holighaus, Germany (in South Africa)	Nimbus 4M	7.1.1993
		MULTI-SEATERS		
Height Gain	5650m	H. Köhler, W. Germany and J-C Batault (in USA)	Taifun 17E	28.4.1986
Absolute Altitude	8000m	H. Köhler, W. Germany and J-C Batault (in USA)	Taifun 17E	28.4.1986
Straight Distance	1078.07km	H-W. Grosse and Karin Grosse, Germany	ASH 25E	6.5.1993
Goal Distance	1078.07km	H-W. Grosse and Karin Grosse, Germany	ASH 25E	6.5.1993
Goal & Return Distance	1011.45km	W. Eisele, Germany and Daniela Eisele	Nimbus 3DM	23.12.1991
Triangular Distance	1256.19km	W. Binder and W.Mertel (in South Africa)	ASH-25MB	14.12.1991
Free Distance	1196.11km	W. Binder, Germany and A. Knahm (in South Africa)	ASH 25MB	30.11.1992
100km Triangle	179.53km/h	O. Wegscheider and P. Eich, W. Germany (in South Africa)	Nimbus 3DM	5.1.1990
300km Triangle	164.88km/h	H-W. Grosse and Karin Grosse, W. Germany (in Australia)	ASH-25T	9.1.1991
500km Triangle	171.1km/h	H-W. Grosse and J. Hacker, W. Germany (in Australia)	ASH-25T	31.12.1990
750km Triangle	157.27km/h	H-W. Grosse and Karin Grosse, W. Germany (in Australia)	ASH-25T	10.1.1991
1000km Triangle	144.67km/h	H-W. Grosse and Karin Grosse, Germany (in Australia)	ASH-25E	10.1.1992
1250km Triangle	128.04km/h	W. Binder and W. Mertel, Germany (in South Africa)	ASH 25MB	14.12.1991
		SINGLE-SEATERS (WOMEN)		
Height Gain	8444m	Ingrid Köhler, W. Germany (in USA)	DG-400	12.6.1988
Absolute Altitude	10 245m	Ingrid Köhler, W. Germany (in USA)	DG-400	12.6.1988
Straight Distance	539.87km	Ingrid Kohler, W. Germany (in USA)	Ventus CM	14.6.1993
Goal Distance	539.87km	Ingrid Kohler, W. Germany (in USA)	Ventus CM	14.6.1993
Goal & Return Distance	531.11km	Ingrid Köhler, W. Germany (in USA)	DG-400	1.7.1989
100km Triangle	127.49km/h	Ingrid Köhler, W. Germany (in USA)	DG-400	4.7.1989
300km Triangle	87.53km/h	Ingrid Köhler, W. Germany (In USA)	DG-400	4.7.1989
500km Triangle	84.94km/h	Margit Pantenburg-Becker, Germany	Ventus CM	31.5.1991
		MULTI-SEATERS (WOMEN)		
Gain of Height	6550m	Ingrid Kohler, W. Germany, and S. Class (in USA)	Grob 103SL	10.6.1993
Absolute Height	8782m	Ingrid Kohler, W. Germany, and S. Class (in USA)	Grob 103SL	10.6.1993
300km Triangle	67.82km/h	Isabel Mittag and K. Walter, W. Germany	DG-500M	27.5.1990

*with up to 3TPs

WAY OFF TRACK

Fright safety

Beware of apples, Isaac Newton might have said. One bounced off his bonce in 1666; he got a bruise and we got the law of gravity.

It happened at Woolsthorpe, only a spit away from Saltby where Buckminster GC pilots challenge gravity now.

A less exalted apple more recently played a key part in what might have been a graphic demonstration that gravity is not defied with impunity, however.

It could have finished my whole career. In the interests of flight safety a self-righteous but honest Penguin passes a warning on.

You may have noticed that food trade marketeers now ensure that even individual apples, oranges and whatever are labelled with their promotional guff, in the shape of small stickers on the skin. They haven't got down to individual grapes and gooseberries yet, but give them time they will.

They won't stop till they can brand individual blackcurrants too. Meanwhile, a single apple is as good as a 16-sheet poster site to these buffoons.

In close company with four clubmates, I was soaring in vigorous but broken convection low over Binevenagh on August 22.

We were enjoying a day which brought a blustery north-westerly and about half our whole summer's ration of bright sunshine.

Eyes looking out, I sank my teeth appreciatively into a crisp Granny Smith which I'd taken, without a glance, from my hamper just before taking off.

British Gliding Association

THE 1000 CLUB MONTHLY LOTTERY

A great chance to win substantial cash prizes and at the same time enable the Philip Wills Memorial Fund to make loans to clubs for site purchase and development.

1000 is the target number of members to participate in this new monthly lottery which started in July 1992. When 1000 members subscribe £1.00 a month each then the monthly first cash prize will be £250.00.

HALF of the proceeds go to the Philip Wills Memorial Fund to help with its work in developing BGA clubs and. the other HALF is distributed each month in the form of 6 CASH PRIZES. The more participants we have, the greater the prize money pool.

1st PRIZE – 50% of the prize money pool.

5 Runner Up Prizes of 10% each of the prize money pool.

Chances/numbers can only be bought from the BGA at £1.00 each. Those whose money has been received at the BGA by the end of each month will then participate in the draw on the first Wednesday of each following month. Tickets will not be issued in order to keep the administrative costs low but each member will purchase a "number" which will go into the draw. It is hoped that members will purchase 12 months' worth of tickets at a time. Winners will receive their prizes direct from the BGA and a list of their names will be published in S&G.

Please complete the form below and return it to the BGA with your payment. Please note that only BGA members and their families may participate and that the BGA is registered under the Lotteries And Amusements Act 1976 with Leicester City Council.

Barry Rolfe
Promoter

To: Barry Rolfe, British Gliding Association, Kimberley House, Vaughan Way, Leicester LE1 4SE

Please include me in the "1000 Club" and I enclose £12.00 (payable to BGA) for twelve months of entries, or multiples thereof.

Name .....Signed .....

Address .....

.....

.....

Five or six chews and a few seconds after biting, I was gagging and choking over what proved to be a small label in my throat where, being sticky, it stuck.

This is not to be recommended when you are thermalling in turbulent conditions with scarcely 200ft of clearance over the conifers which carpet a portion of our ridge.

Eventually I got the choking under control, ejected the offending object from my throat and managed to draw breath but probably not before the aircraft had made a few pilot induced oscillations and unintended changes of bank.

"So what's new? That's the way he always flies," some uncharitable nearby pilot may well have said, for in being rude about me my clubmates never miss a trick.

So take heed – and inspect any fruit which you may carry for in-flight sustenance. Remove any stickers. Avoid the kind of fright I gave myself.

CLASSIFIED SECTION

TO PLACE AN ADVERTISEMENT IN THE CLASSIFIED SECTION, please send your remittance together with a copy of your wording to Tiffany Rolfe, BGA, Kimberley House, Vaughan Way, Leicester LE1 4SE (Tel 0533 531051 or Fax 0533 515939), before May 4th for next publication. Any advertisements received after this date will be carried forward to the next edition of S&G. Rates 70p per word with a minimum of £14.00. Black & White photographs accepted £6.00 extra. Box No. £3.00 extra. Prices include VAT.

FOR SALE

ASW-24 in immaculate condition including factory winglets. £28 000. Cobra twin-axle trailer £4000. Available immediately. Tel: Bruce on 071 734 4944 (office) or 071 561 3706 (home).

The most performance per pound in gliding! **19M JANTAR.** 45:1. Easy two-man rig, tow-out gear, full panel including LX-100 and new Horizon. Above average condition with excellent metal trailer. Barograph, radio and parachute included. £13 000. Tel 027864 1593 or 081 546 8403.

ASH 25

Quit dreaming and DO IT!

A rare opportunity exists to acquire a share in this under utilised outfit based in Southern England.

20% of the equity gets you: 25% (or more) of the flying.

If you are switched on, have around 500 hours (including flapped gliders) and the necessary dosh then please write to Box No. 4, c/o BGA for full details.

Tempus Fugit

1/2 DISCUS (or 1/3?) Fancy buying one to fly in the fabulous **LLEWENI PARC** wave – North Wales, and where you wish? 0244 33653.

K-6E Complete outfit in immaculate condition. Full panel, 720, parachute, excellent metal trailer and rigging aids. Tow-out gear. £9750. Tel 081 871 9485 evenings.

PIRAT – with reluctance. 740hrs, vgc, metal trailer, barograph, parachute, oxygen, good panel, new canopy. £6600. Derek Hilton 0482 657460.

FAIREY REED GLIDER TOWING PROPELLER for Chipmunk, D67996/X1/3, fully certificated with Boss Blocks. £1500. Telephone 0442 215625 evenings.

PIK-20E 15M flapped only 800hrs, excellent condition, GRP trailer, tow- out gear. £13 500 ono. David Bruce 0577 830626.

KESTREL 17. No 14 1900hrs. As new. Day Winner 1972 World Comps. For complete details fax 010 617 209 1835.

JANTAR 1. 19M, 1:46+, full panel, Borgelt vario/director/ computer, horizon, 720/VOR, oxygen, AMF trailer, tow-out gear. £13 500. Tel: John 0763 848478 (eves).

NIMBUS 3DT. 25.5M. Competition panels, trailer, T-hangar. 1/8 or 2/8 shares available. Based Gransden Lodge. Tel: John 0763 848478 (eves).

SUPERB LS-3. Full Specification, instruments, includes parachute, Ansham Trailer, one man rigging, tow-out gear. Any inspection invited. £18 500 ono. 0752 848565.

LIBELLE 201B. VG condition, water, oxygen, glass-fibre trailer, many Diamonds flown. £12 000 ovno. Phone Paul Rice, 0206 42327.

K-6CR and K-8. Both in very good condition. K-6CR £5750 ono including trailer. K-8 £3750 ono excluding trailer. Trailer £250. Details from 0952 460420.

K-8B Good condition, 3500hrs. Totally refurbished 1984, new canopy 1992. Basic instruments, radio ATR720C and open trailer. **K-6E** Excellent condition, painted 1987, 3600hrs. Basic instruments, with LX100 (Solfahrtgeber), radio ATR720C and trailer. Price negotiable and depending on equipment. Fax +46 13 182219, Phone evenings +46 13 132238 or +46 12 63252 Sweden.

LIBELLE H301. Flapped version with Schuemann mods. to give 42:1. Outfit complete and in outstanding condition. £14 500. Tel 0608 74209.

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NEW LS-4B (VAT inclusive) from c. £24 350. Martyn Wells Office 0608 685790 Otherwise 0608 84217.

ASH-25E with WINGLETS. Excellent condition. All factory options. NDH. Fully loaded with Bohli, Peschges, Dittel Radio, Transponder, Trailer, Tow-out aids etc. Many extras. For details phone Germany 0241 64685 or 0241 872726 or Fax 0241 64685.

IS-29/D2 1982, approx. 450hrs, perfect state, closed trailer. Swiss Francs 15 000. Contact M.R.Knup, Basle, Switzerland. Tel 010 41 61 281 74 75. Fax 010 41 61 281 74 81.

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SKY-3B £3500. 0670 823232.

K-6 (1957). Recent fuselage refurbishment with full vision canopy. Fitted basic panel, aluminium trailer. Offers around £4800. Call Steve 0449 781280.

K-2 – Excellent condition. Good paint. Basic panels. C of A June '94 - open trailer – seen Cranwell must sell, £3200 ono – Mick 0529 303249.

CLASSIC VINTAGE. NORD 2000. Meise Olympia built France 1948. Super restoration. New C of A. Excellent wooden trailer. Sensible offers. 0377 229235.

SHK-1, excellent condition, low hours and launches, many extras, best performance per pound at £8600. Tel 0761 453615.

TRAILER by Norwich Sailplane, wooden floor, fibre-glass top. Will take all 15 Metre gliders. Good condition £950.00. Tel: Ernst 0203 382190.

LS-7. 1 pilot. Low hrs. Proven winner. Full outfit or hull only. 0509 890469.

NIMBUS 2 with instruments and 2yr old aluminium trailer, all in superb condition. £17 450. For more details phone Garry 0633 221997.

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VENTUS C TURBO. New December 88. Masak winglets, 17.6M tips, fin tank, tow out gear, covers etc. For sale with AMF trailer and basic instruments for £48 000. Tel 0533 770159.

SKYLARK 3F. Good condition, standard instruments, T/S, electric vario, parachute. Sound trailer. 1 year C of A. Based Portmoak. £4950 ono. Contact Neil McAulay 0506 414426.

PESCHGES VP2 Vario/Flight Computer system, full instructions – £400. Also OK barograph – £175. Syndicate upgraded to LNAV/GPS. Contact Sven Elgsas 0628 485594 (Marlow Bucks).

LS-6B, Schroeder trailer, tow out gear, Peschges, VP4ENAV, ASI, Altimeter, T&S, mech vario, radio, parachute, barograph, battery, camera mounts, new C of A. £36000 (0684) 572409.

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LIBELLE 201, reluctant sale due to big wings arriving. Excellent condition, no prangs. Phone 0508 498264 for details. £12500.

DART 17R. Good condition. Barograph, oxygen, audio vario, T/S, 'G' meter. 2274 hrs. Metal trailer. C of A on sale. £8500. 0849 433341 evenings.

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1/3 share in beautiful **STD LIBELLE** based Husbands Bosworth. Good trailer, fully equipped. C of A, insurance paid and ready for season. £3750 or consider selling outright. Chris 0926 420200 office hours.

ASTIR CS77, very good condition, full C of A, trailer, parachute, barograph and oxygen if required. £11 000 ono. Tel 0572 757342.

K6-E, good condition, 12 months C of A, full instruments, radio, barograph, parachute, vg trailer. £8950 ono. Tel 0780 54840.

PIRAT Excellent condition, well instrumented. New metal trailer, oxygen, parachute and barograph. Ring, (evenings), Chris (0262) 850082 or Andy (0904) 416425.

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K-18, rare opportunity to purchase this superb glider. To view 0494 535005 – sensible offers.

PIRAT – well instrumented – A/H, T&S, audio, Dolphin etc, parachute, tow-out gear, metal trailer. Recently painted and fabric replaced. £6500. Tel 0533 871087.

PIK-20s CARBON SPAR. Comp number 989, complete outfit. Immediately available including parachute, radio and full panel. Pristine condition £13500 ono. Contact Geoff Avis on 0284 828888 (daytime) 0359 31987 (evenings). Christine Bell on 071 600 0423 (daytime) 0483 760537 (evenings).

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BLANIK L-13, 2-seater, 1959, 1954hrs, undercarriage slightly damaged, without trailer. Contact: Kortrijk Flying Club. Elleboogstraat 23, B- 8500 Kortrijk, Belgium. Fax: 010 3256214423.

K-21, privately owned since new, competition panels including Borgelt, A/H, 2 times T&S, radio, oxygen, plus Komet trailer and tow-out aids. Tel: 0260 224487.

LS-4 1987, low hrs and launches, complete outfit: competition ready, excellent condition, AMF trailer with specialised fitting. Keevil (Wiltshire). Tel 0249 814381.

EW BAROGRAPH. Not GPS model. Good condition. £295. Tel: 0844 215266.

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WANTED SECTION

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1543	Open Cirrus	2166	Std Austria	2820	Nimbus 3	3406	Discus b	3816	Nimbus 4T
1578	SHK 1	2174	SHK 1	2821	Nimbus 3	3411	Ventus ct	3821	Nimbus 2b
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1612	Std Cirrus	2243	Nimbus 2	2898	Nimbus 3	3453	Discus b	3857	Janus c
1616	Std Cirrus	2268	M. Nimbus	2968	Ventus b	3456	Ventus c	3865	Open Cirrus
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1677	Std Cirrus	2420	Std Cirrus	3136	Ventus b	3523	Discus b	3894	Open Cirrus
1706	Std Cirrus	2426	Open Cirrus	3141	Discus b	3533	Ventus c	3899	Ventus b
1722	Nimbus 2	2462	Std Cirrus	3152	Ventus b	3535	Discus b	3904	Std Cirrus
1725	Nimbus 2	2466	M. Nimbus	3155	Std Cirrus	3538	Discus b	3918	Ventus
1726	Nimbus 2	2468	M. Nimbus	3159	Nimbus 2c	3540	Ventus ct	3920	Nimbus 4
1727	Std Cirrus	2469	M. Nimbus	3171	Ventus bt	3549	Ventus ct	3921	Ventus ct
1734	Std Cirrus	2491	Nimbus 2c	3185	Discus b	3553	Nimbus 2c	3929	Std Cirrus
1743	Std Cirrus	2495	Nimbus 2c	3197	Ventus b	3564	Std Cirrus	3932	Discus bt
1748	Std Cirrus	2501	Std Cirrus	3199	Discus b	3565	Nimbus 2c	3933	Discus
1785	Std Cirrus	2505	Nimbus 2c	3204	Ventus bt	3568	Ventus	3935	Ventus ct
1801	Std Cirrus	2528	Nimbus 2	3206	Discus b	3575	Ventus ct	3939	Discus b
1818	Std Cirrus	2531	Nimbus 2	3207	Discus b	3581	Nimbus 3DT	3946	Discus bt
1822	Cirrus VTC	2539	M. Nimbus	3224	Nimbus 3	3591	Std Cirrus	3959	Ventus b
1834	Open Cirrus	2549	M. Nimbus	3232	Discus b	3602	Open Cirrus	3960	Discus b
1835	Cirrus VTC	2553	M. Nimbus	3236	Discus b	3607	Discus bt	3961	Discus bt
1864	Cirrus VTC	2574	SHK 1	3244	Nimbus 3T	3610	Nimbus 3DT	3978	Discus bt
1869	Open Cirrus	2597	M. Nimbus	3253	Discus b	3622	Ventus b	3981	Discus bt
1870	Cirrus VTC	2625	Nimbus 2	3257	Std Cirrus	3628	Std Cirrus	3983	Std Cirrus
1905	Std Cirrus	2628	Std Cirrus	3265	Ventus	3631	Discus bt	3989	Std Cirrus
1913	Std Cirrus	2630	Std Cirrus	3269	M. Nimbus	3632	Discus b	3992	Std Cirrus
1915	Std Cirrus	2631	M. Nimbus	3278	Discus b	3641	Discus b	3994	Discus cs
1916	Std Cirrus	2641	Nimbus 2c	3279	Ventus ct	3646	SHK 1	3996	Std Cirrus
1919	Std Cirrus	2645	Nimbus 2c	3295	Ventus bt	3648	Nimbus 3T	3997	Std Cirrus
1958	Nimbus 2	2657	Nimbus 2b	3301	Ventus ct	3651	Ventus c	4001	Nimbus 4
1966	Std Cirrus	2673	Std Cirrus	3310	SHK 1	3653	Std Cirrus	4008	Nimbus 3DT
1991	Std Austria	2680	Nimbus 2c	3320	Discus b	3675	Std Cirrus	4009	Std Cirrus
1992	Govier	2684	M. Nimbus	3322	Discus b	3678	Std Cirrus	4010	Std Cirrus
2015	Std Cirrus	2695	Ventus	3334	Nimbus 3	3681	Ventus bt	4012	Std Cirrus
2022	Std Cirrus	2701	Nimbus 2c	3339	Discus b	3684	Ventus ct	4016	Discus b
2025	Nimbus 2	2705	Nimbus 2c	3355	Std Cirrus	3719	Std Cirrus	4021	Discus b
2033	Open Cirrus	2737	Janus c	3365	Discus b	3730	Cirrus VTC	4030	Discus cs
R1	Janus c	R2	Janus c	R6	Discus	R9	Janus b	R10	Discus
R12	Discus	R15	Discus	R17	Discus	R23	Discus	24	Ventus ct
26	Nimbus 3DT	27	Discus	R28	Ventus ct	R30	Ventus	R38	Ventus ct
R39	Discus	R53	Discus	R55	Discus	87	Discus		

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