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Magazine of the
British Gliding Association

April-May 1993
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Cover: Kite 1s feature strongly in this issue. Peter Warren took this colourful photograph of Bob Boyd's Kite 1 at the 1991 Slingsby Rally and see also S&G Classics starting on p79.

SAILPLANE & GLIDING

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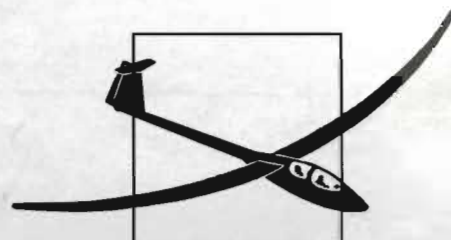
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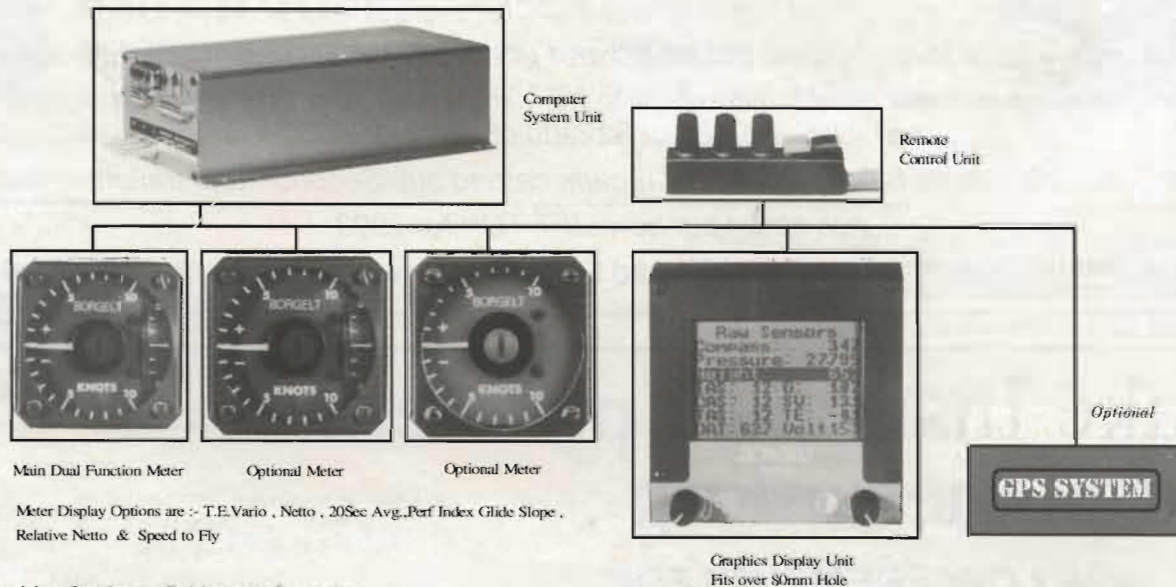
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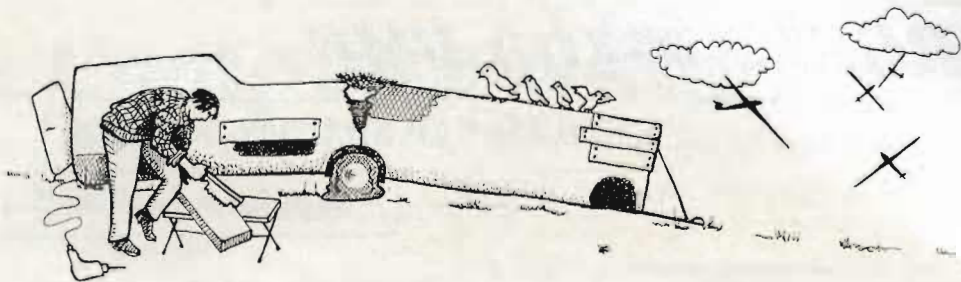
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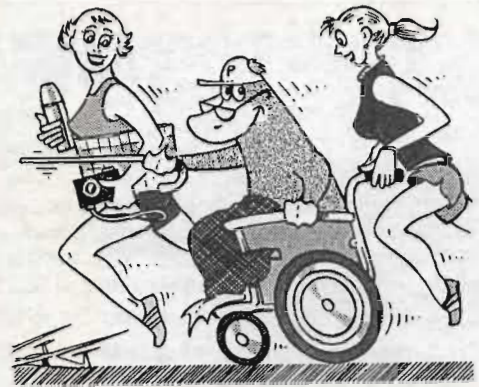
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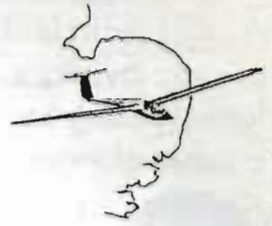
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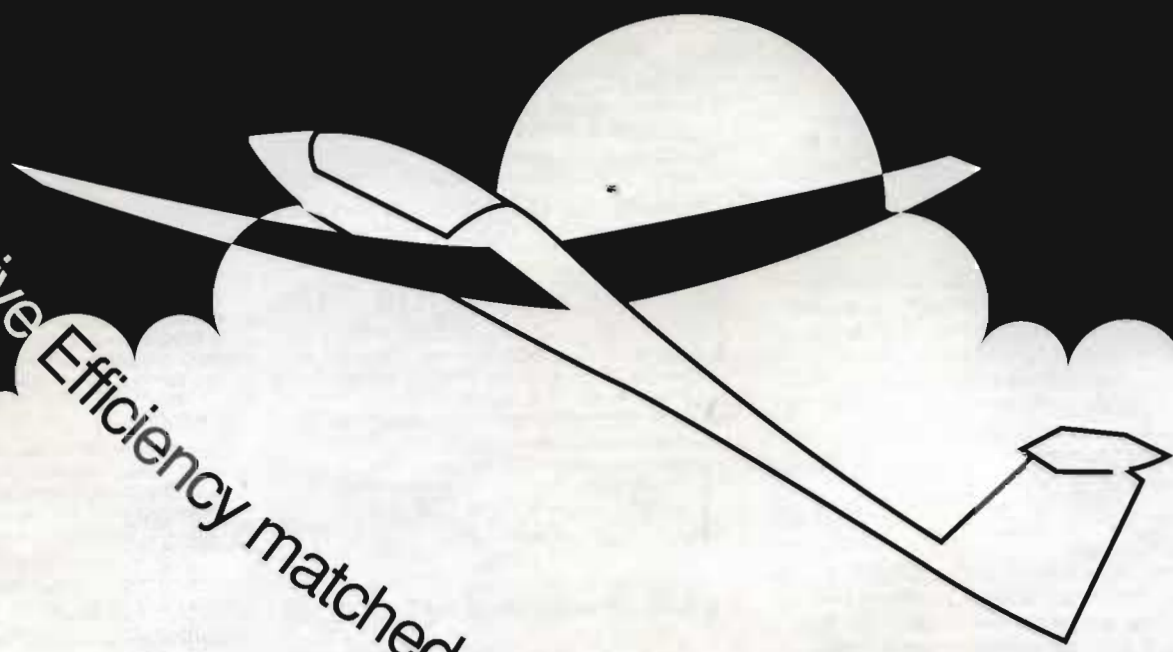
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YOUR LETTERS

A NEW PLACE TO VISIT IN SPAIN

Dear Editor,

I have just returned from a short visit to the Gliding Centre at Monflorite in Spain. The Centre is keen to invite pilots from every country to come and share the facilities and the exceptional soaring conditions in the area.

Monflorite is about 30 miles from the southern face of the Pyrenees about five miles from the town of Huesca. The airfield is situated at the top of a low, soarable ridge of hills which runs out towards the foothills (5000ft) of the Pyrenees. Over the southern face of the Pyrenees, the conditions are even better than the well-known northern (French) side.

Away from the mountains the countryside is fairly flat with plenty of good fields and is suitable for 300km and 500km flights as well as for early cross-countries.

Built as a permanent gliding centre, the accommodation and buildings are excellent and there are hangars, workshops, a large swimming pool and many other fine facilities. They have 18 glass two-seaters and nine tugs.

I will be visiting again this summer to learn more about flying in the mountains and to welcome English speaking pilots. Let me know if you are going.

DEREK PIGGOTT, London (Tel 081 876 0277)

BE PREPARED TO BARTER

Dear Editor,

I'm not surprised the farmer charged Timothy Dews £50 for his landing if he displayed in the field the same pomposity and self-righteousness that comes over in his letter. (See the December issue, p307.)

The call for BGA involvement in sorting out stropky farmers is absurd. Any P1, let alone an instructor, is surely responsible for extricating him or herself from the consequences of bad decisions. It's half the fun of gliding. So the front didn't work and a field landing was necessary. Tough!

I suspect that this particular farmer has seen a lot of the local glider fleet in his or his neighbours' fields recently and is now none too impressed by the emergency landing argument.

Of course, if a farmer asks for "compensation" of £50, that is not to say he really means it. Being a market orientated chap – this is after all how corn and cattle are sold – he's quite prepared to barter.

Glider pilots should thus enter into the spirit of things. Tell him how well his farm looks, the cows and crops are some of the best you've seen (probably not a lie if you live in Surrey) and suggest £5. He will probably accept.

This ego massaging approach might not work, however, when your glider is sitting prettily in a field of strawberries, even though you claim to have landed down the rows!
NORMAN PARRY (strawberry farmer),
Wanborough, Swindon

JACKKNIFING TRAILERS

Dear Editor,

This topic comes up regularly in S&G and it is about time it found its way into the textbooks.

I think the solution is that the boot of the towcar is loaded up with tools and luggage so that the car tends to oversteer. Once this happens the weight of the trailer takes over, even though the trailer is itself perfectly balanced. The usual story is that the trailer tows perfectly at weekends, but when a holiday is taken and the boot of the car is fully loaded the trailer jackknives often on the first day, sadly.

In the case of Phil Lever (see the December issue, p309) he noted that things got better towards the end of the day. I think the explanation may be that as he used up the petrol in his tank the C of G of the car shifted forward reducing or even correcting the amount of oversteer.

When you tow in an oversteer configuration, you can observe three regimes of stability. At low speeds the car-trailer combination is stable, at an intermediate speed it is conditionally

stable, that is it is stable provided that the driver corrects any swing, but as the speed increases it becomes unconditionally unstable and it is beyond the capability of the driver to control it.

Usually the three regimes are easy to recognise so you can keep your speed down to what you feel is safe, but remember if you have a heavy load in the boot or have filled up with fuel you will have to be cautious for the next few miles until you get the feel of the situation.

BRENNIG JAMES, Marlow Common, Bucks

CAUTION WHEN WAVE FLYING

Dear Editor,

I write in response to two stimuli:-

First – because on recent flights some of my club members (Borders GC) got into difficulties attempting to navigate in wave which, in one instance, included almost complete cloud cover apart from two small wave slots.

Secondly – the article in the last issue, p22, by Mike Fairclough. His Welsh wave flight in particular has similarities to our club experience – two very small slots in complete cloud cover. Added to this extremely limited navigational reference is an incomprehensible and deadly belief that it is OK to wander up through these slots and play around with gay abandon and precious little attention to navigating home safely.

Mike might have had a GPS or similar system but his reference to getting it wrong by choosing the wrong slot in which to descend indicates this was unlikely. The pilots on one of the wave flights in a two-seater at my club didn't have a map or radio, the compass was believed to be inaccurate, there were no cloud flying instruments and they didn't have parachutes.

Now I am no deity when it comes to wave flying but I have done a bit and urge caution with the following advice:-

Don't ever do this again, especially with cloudbase so close to known hills/mountains or the coastline.



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We welcome your letters but please keep them as concise as possible and include your full name and address. We reserve the right to edit and select.

Even if you know where you are with your GPS, what about the batteries going flat?

Experienced wave pilots do go up through slots but there are a host of variables to take into account - I wouldn't go if it was a lonely, small slot (and it's small if it is less than a mile long). Be extra careful in winter when the low, oblique angle of the sun and extensive cloud cover combine to present the pilot descending through a slot with almost night like conditions until his eyes adjust from the sun to the poor light of an overcast day.

I wonder if Mike has ever timed a small slot closing or how long it would take him to descend from 24 700ft to cloudbase, which appeared to be 2400ft on his flight. In my experience this wouldn't be a fair contest as the wave slot would win easily.

Usable wave slots are usually much bigger and more frequent than associated clouds and so occupy a larger proportion of the sky. They have firm, consistent edges and been observed for long periods to confirm their status. I worry until I can get high enough to confirm there are enough clear gaps to navigate or descend into, before going on. If I'm unconvinced I abort the flight.

Sailplane & Gliding

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Finally if ever I flew in new conditions as a novice I would think twice about advertising my dangerous mistakes in an article in S&G. Doesn't this beg a reply from the BGA Safety Committee?
DEREK ROBSON, Ryton, Tyne & Wear

JULIAN'S FIRST SOLO

Dear Editor,

Julian Pellatt asked if he did the right thing on his first solo (see the December issue, p356) and the answer is emphatically yes. But he should have released much sooner by being more attentive of his airspeed, as he must have been taught.

At 200-250ft, at only 38kt and carrying the full weight of the cable, he was very close, and more probably at, the stall. The subsequent release and recovery to a 55kt approach speed would have put him much closer to the ground and landing ahead was his only option. He can be assured that any more experienced pilot would have varied his action only by releasing earlier.

As an instructor who for 15 years has flown K-13s and similar types having a skid and with a C of G forward of the main wheel, I was surprised to read that when he eventually stopped he still had the stick held fully back, despite the far boundary and winch coming up fast.

This made me wonder how many early solo and, indeed, more experienced pilots are not aware that preferable to hitting anything and to stop shorter, it's perfectly legitimate after landing and whilst holding full airbrake (hopefully actuating the wheel brake) to move the stick forward and thereby put the skid on the ground sooner to give added friction braking. Certainly on the grass airfields on which Julian has learnt no damage is likely and even metal surfaces only cause extra skid plate wear.

What to do on more modern types with a nose wheel when the brake fails poses an entirely new question!

PAUL RICE, Colchester, Essex

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“What is Competition Enterprise all about?” Trying to answer this question from innumerable gliding friends to whom it is evidently not self-explanatory, is less easy than you might think. Some of my answers have included “more flying than any other competition”, “better . . . (ditto)”, “more interesting . . .” and “more challenging . . .”. I could have said “more enterprising . . .” but that sounds a bit too smart.

A very personal view (I don't know if the founders or most entrants now would agree) is that Competition Enterprise sets out to test every aspect of a glider pilot's expertise; to encourage flying for the whole soarable part of each day; to recapture elements of discovery in gliding otherwise lost to modern badge tasks and conventional competitions and to put all this in reach of the widest possible range of pilot experience and glider performance.

Look at some examples of flights and tasks – can you imagine any of these in an “ordinary” competition? Aboyne, 1983 – my first encounter – gave six competition days and 21hrs' flying in my K-6E in a UK summer (including flights on rainy days). On one day of mixed cloud and wave, the task was to register a height at which one's crew could make a positive identification, to the satisfaction of a competing crew, through holes in the cloud. On a day unsuited for cross-country flying, this provided hours of flying and some of the most entertaining radio transmissions I have ever heard.

Berated for not being competitive and staying up there piling on points!

Another day in the same competition the task was a choice of multiple O/Rs, intending to use wave. In fact it was weakly thermic when I started. After nearly 7hrs of early struggle and a satisfying total of 396 scoring kilometres (428 actually flown) I landed in time for a superb venison dinner – to be berated by my long suffering crew for not being competitive and staying up there piling on the points! I think the day winner did over 600km, landing at about 2200.

I returned to Competition Enterprise and Aboyne in 1987, with eight competition days out of eight, and 35hrs' flying. Challenges I had never before faced included crossing long stretches of high mountain under not-much-higher cloud, in my case at least with an eye always to a safe landing should it all go wrong. The first day was to undertake the longest O/R one could under the conditions (thermal only, as it turned out). I plumped for Fort Augustus, 226km.

The Aviemore-Loch Ness bit was about 25 miles, with only 1000ft from plateau-top to cloud-base. I took three attempts at the first half of this section, turning back twice when I didn't find a thermal in the right place. Midway, there was a glen over which I could “park” while waiting for another convenient thermal; the whole trip was always with a landing area within gliding distance, down one or another glen, in spite of the proximity of the nearest ground. I took a very

ENTERPRISING FLYING

Chris says that Competition Enterprise sets out to test every aspect of a glider pilot's expertise and caters for the widest possible range of pilot experience and glider performance

slow 5hrs and 45 min. (Justin Wills went sight-seeing first, then did a quick 2hr trip over the same distance. As I said, it caters for pilots of all abilities!)

Reading the weather and choosing the right way to approach a task is a bit like solving a problem set by nature. Competition Enterprise task setters and scorers add to the puzzle solving syndrome – they sometime set tasks which are so encrypted that no one else really knows for sure what is the winning strategy. If all else fails, they then “clarify” the rules during (or after) the task.

“Castles”, North Hill, 1988, for example. It sounded simple – photograph up to four named castles, Oakhampton being the first and only compulsory one. Bonuses for each castle photographed, points for each kilometre flown and a bonus for landing back at North Hill. The key lay in a north-westerly wind which was likely to produce a sea breeze front along the south coast. The hot ships were supposed to yo-yo back and forth between two pairs of castles, maximising distance between each TP – a possible 476km if they did it all (but downrated by their performance factor). The Capstan and Gull could attempt one or two, not even turning at the full distance (“photograph” the castle, not “turn”, was deliberately phrased).

In the event, the front was out at sea. I know, because I tried it. It wasn't working. I hadn't flown over the sea before. When I abandoned the front I had to fly back into wind. In my K-6E, at least I consoled myself that wood floats if necessary. In the end, I managed three of the castles, and a meagre distance, but 6hrs of varied, exciting flying (not really dangerous, it just felt like it at times) and enjoying quite superb scenery.

The task setters reached perhaps the ultimate in encoded instruction in 1990. I missed the first briefing, when task setter “B” described the task invented by task setter “A”. I went to the second briefing, where task setter “A” described it himself. I should have twigged from the ensuing questions, but didn't, that there was some ambiguity (for want of a better word) between the two. The details are immaterial. Suffice it to say that the field split into thirds, each doing totally different tasks. My group did rather a lot of TPs; for the first time ever, I reached the end of the film and had to change it in flight to capture the last dozen or so of my 28 scoring (I thought) TPs. When I heard that the Nimbus had struggled to achieve a legitimate five, the penny should have

dropped. I have no idea how it was eventually scored.

Which leads to the last point. Fairness hardly comes into it. Life isn't fair, why should competitions try to be? My somewhat biased view is that the modern, “fair”, conventional competitions throw too many babies out with the bathwater. To be “fair” everyone has to be launched before the first can start. Result – 45min soaring lost, plus snifter time to prove there is a “fair” amount of lift before anyone launches.

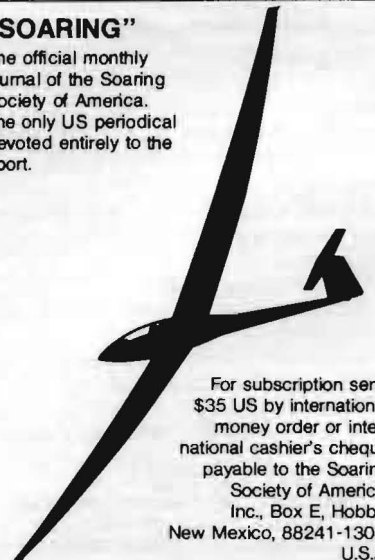
The task is intended to finish about 30min before thermals end (no wave or sea breeze or ridge must enter into it!). The better the pilot, the fewer the hours flown. No task decisions made in the air – it wouldn't be “fair” if different people were in different airmasses. Everyone tries to gaggle with the leader, so there is ideally no difference even in which thermal people use. All want equally good machines and instruments.

Our sort of competition differs in almost every way. More ability or cunning yields more flying, more fun, more experience gained and still (generally speaking) more points. For me, that's fair enough.

(This year, Competition Enterprise is at North Hill from July 3-10. Entries to Sandy Harrup, 28 Salisbury Road, Exmouth, Devon, EX8 1SL.)

“SOARING”

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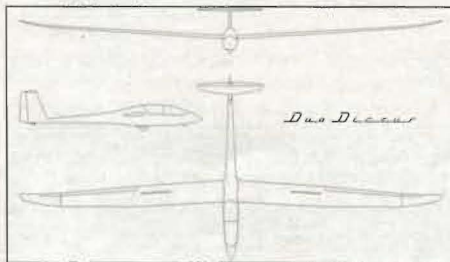
GLASFLÜGEL'S CELEBRATION

Owners of more than 70 Glasflügel designs brought their sailplanes to a meeting in the Black Forest last autumn and celebrated three birthdays – the 30 year-old Hütter H30, the first glass-fibre glider designed by Eugen Hänle (seen above); the Std Libelle (aged 25) and the 20 year-old Hornet. The Hütter was built by Eugen (who tragically was killed in 1975 in an air crash) and his wife Ursula in their own flat. Also at the party was the manufacturer's largest sailplane, the Glasflügel 604 (on the right). Both photographs are by Peter Selinger.

MAIDEN FLIGHT



Peter Selinger also took this photograph of the 20m Duo Discus two-seater, Schempp-Hirth's latest glider which has the aerofoil of the Standard Class Discus. Its maiden flight was in February when it handled well.



ROLL-OUT OF NEW GLIDER

By Nainah Carts



This photograph from the last Farnborough Air Show catalogue, is of a new glider, the A330G, which has been designed for the club air experience market. In this role it will carry up to 335 air experience students, thus taking the load off club two-seaters. Suitable only for the larger clubs, negotiations continue with the CAA about pilot licensing for this machine, and the manufacturers are carrying out trials for a suitable tug aircraft. Performance of the A330G is quoted as Max L/D of 20:1, but min sink is rather high at 2100ft/min. Motor glider versions are also available with a choice of either two or four engines, and are suitable for long range deployments to other glider sites at somewhat higher speeds than other motor gliders currently on the market. Another manufacturer based at Seattle is understood to be closely watching the situation, and may soon offer clubs a rival machine, the 777G, and the Russians may also offer a version of their MAIA motor glider which will be capable of taking up to 500 air experience students although this is believed to have less L/D due to its widebody fuselage, and in its motor glider version has no less than six engines. It is understood that Dunstable are considering levelling their field (voice from L*sh*m "About time") in order to accommodate this new class of glider, although our LGC correspondent believes that JJ is not yet convinced of the concept . . .

PS. The photo, kindly provided by Airbus Industrie, is of the Industrial Rollout of the first Airbus A330 in April 1992, before its engines were fitted.



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Although the FAI Sporting Code classifies these aircraft as motor gliders they are called sailplanes in this article because of their performance.

No one can doubt these two categories of aircraft are here to stay. They offer an increased potential for soaring over the conventional sailplane, especially in terms of flying to better weather and avoiding the inconvenience of a retrieve. The self launching version has the added advantage of choosing your take-off time, a considerable benefit at clubs which are either crowded or do not have launch facilities when you want them.

This article is the first in a series to consider some of the problems and potential pitfalls of both the SLS and the SSS.

Problems. The problem common to both is the abandonment of a cross-country flight. The principle is straightforward – start the engine and climb away – but carrying out this task in a fail-safe manner is not so simple if the accident record is anything to go by.

The critical scenario. At a certain height the pilot decides to re-start the engine. He starts the procedure, engine raised, then start. But **what if it doesn't?**

In theory there may be two options – retract the engine or land with the engine out. Retracting the engine presupposes there is sufficient time and height to do so and is generally undesirable unless the engine sequence is automatic, and maybe even if it is. If this is not possible then there is only one other option, land with the engine out and stopped.

Performance considerations. Consider a DG-400 in its 17m span configuration. According to the manufacturer the best L/D is 44:1; this degrades to 30:1 with 8°C of landing flap and (say) 20:1 with 12°C. Incidentally, the best L/D speed (0°C flap) is 56kt. With the engine raised but stopped the best L/D figure becomes 13:1.

Based on this information it is interesting to make some assumptions on the size of circuit pattern in the appropriate configurations, clean and otherwise. Let's assume a circuit starting height for the downwind leg in the clean case of 600ft and, to keep it simple, assume there is no wind.

If Ventus T ("T" for turbo) owners think this doesn't apply to them then they should consider the engine-out-and-stopped performance of their aircraft. The numbers may be different but the principles are the same.

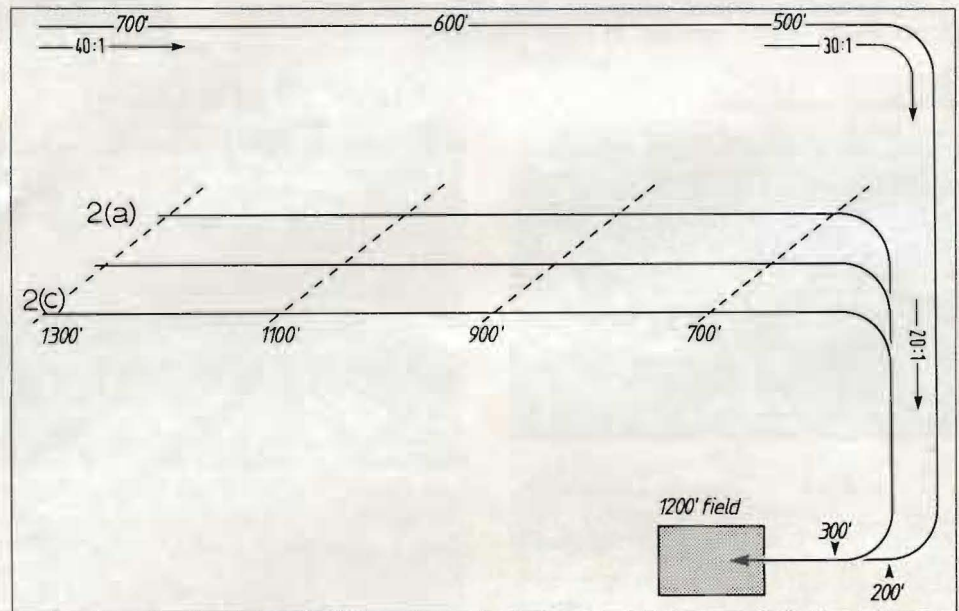
Circuit assumptions. From 600ft in still air the glider would actually fly 4.3nm! (600 x 44/6080) but with the engine out and stopped a mere 1.3nm. In the circuit patterns illustrated I have made the following assumptions:

Stage of flight:	L/D	"Clean" Dist	Ht Loss	Engine out/stopped		
				L/D	Dist	Ht Loss
Final approach:	10:1	2000	200	5:1	1500	300
Final turn (30°C):	20:1	750	*50	10:1	750	75
Base leg (1):	20:1	1600	80			
Base leg (1 & 2):				10:1	1280	*130
Base leg (2):	30:1	3200	*110			
Base leg turn:	30:1	750	*30	10:1	750	75
Sub-total:		8300	470		4280	580
Downwind leg:	40:1	5200	130	13:1	1560	120
Total:		13,500	600		5840	700

*Rounded figures; all distances in ft.

SELF LAUNCHING AND SELF SUSTAINING SAILPLANES

In this first of a series Bill Scull, BGA director of operations, writes about some of the problems and pitfalls of these gliders



Circuit options.

While you might haggle over the assumptions I believe that they are in the right order and a good first approximation. More importantly they serve to illustrate a key point – the relative starting position in each case.

The other feature of the diagram is that three alternative circuit patterns are shown for the engine-out case. This enables an alternative plot of heights/positions assuming the same rectangular patterns are flown. In practice many pilots will fly a constant angle pattern (that is they will maintain a constant angle to the landing area)

but this simple view of the considerations serves to illustrate the problem.

Fail-safe engine starting attempts. Assuming that you accept the pattern you would fly "clean", where do you need to be when you attempt to start the engine? The answer is fairly straightforward; it is in the area between patterns 2(a) and 2(c) and at or above the heights indicated. Simple, isn't it?

Decisions, decisions. This decision to start the engine at the beginning of the downwind leg needs to be made at or above 1200ft; frustratingly high. Why? Because of the reduction in glide angle with the engine out but not running. You could use a lower height by putting the engine up at a later point in the circuit, say at the end of the downwind leg, but this gives you little time.

Also, you will discover, Murphy's Law of motor gliding is that you always have difficulty starting the engine if you have got yourself into a critical position. Trying to find lift generally encourages you to leave it later than you should. Furthermore, successful engine starts only make you more complacent.

One possibility that should not be rejected out of hand is simply to land in the field as a glider without attempting to re-start the engine at all. This is what you should do if you finished very

low and the fields are small. Doubtless he, or you, would be tempted to try a take-off from the field – which opens up the possibilities for a different sort of accident!

But since you want the convenience that an SLS offers you will endeavour to start the engine. If you want to get the engine out at the start of the downwind leg (with a DG-400) the critical decision height is at least 1200ft agl, assuming you are in the right place to fly a pattern for the chosen field and whether or not the engine starts. Your subsequent choices are:

1. If the engine starts then climb away. Incidentally this climb should be planned on the premise that the engine may not continue to run!
2. If the engine fails to start continue with the pattern to the field. Realise how quickly you will be on the ground and fly the pattern accordingly.

You can only hope to succeed with (2) above if you practise it often. This too needs careful planning at your site so as not to interfere with other pilots. A recent accident to a very expensive machine resulted in a groundloop in a field when the engine failed to start. The glider was over one airfield and within "clean" gliding range of its base!

Summary

- Be aware of the marked reduction in performance with the engine out and stopped.
- Having chosen a field either land in it as a glider without attempting to use the engine, or,
- Attempt to start the engine in the position for the worst case circuit.
- If the engine doesn't start then land with it out. If you try to retract it and fail this may be to the detriment of your handling of the glider and organising the approach into the field.
- Practise "deadstick" landings at your home airfield. How can you expect to cope in anger if you haven't practised.

The next articles will deal with the considerations for engine failure on take-off (EFTO), aircraft handling qualities and taking-off from strange fields. ☑

AIRLINES

BOOKS IN CASE

For the benefit of its members the club has generously provided a bookcase to which all may have recourse when the weather is unflyable. But nobody ever does. We sit around and moan, put offerings of money into a little machine which occasionally rewards us with a cup of synthetic coffee, and scoff at one another's competence as aviators. Sometimes chip butties are prepared – soft white bread with the chips like chunks of firewood – and several members are sufficiently hungry to eat them – somewhat defiantly in view of the uninformed, but colourful, medical opinion freely offered by their fellows.

But nobody reads the books. This is a great pity, because these tattered old relics can speak volumes to any amateur anthropologist. Like fossils trapped in rock they form a record of the rich diversity of interests, habits, and beliefs of members long gone to their just deserts.

Look – side by side we have a paper back **Reach for the Sky and Merrylegs the Pony**. Further along the same shelf you can find the collected *New Yorker* pieces of Art Buchwald, still amusing after thirty years, leaning against **Angelique and the Sultan** (former property of some bored but romantically inclined gliding widow?), with Kant's **Critique of Pure Reason** lying on its side, presumably where it dropped from the nerveless fingers of some long-forgotten member, appalled at what he'd mistakenly picked up. On the next shelf down we have **Gone with the Wind**, pinched from the Market

Harborough public library by some non-literary pilot deceived by the title into the mistaken belief that he'd discovered a handbook on soaring, and the reappearance of Merrylegs – a whole herd of Merrylegs – **Merrylegs and Friends, More Merrylegs, Merrylegs and Me**, and for all I know or care **Merrylegs and the Sultan**.

The aviation theme reasserts itself on the bottom shelf, strongly represented by **Fly for Your Life** with only the last three pages missing and good value at 3/6d to Book Club members all rights reserved, as it tells us on the dust jacket; **Dead Weight** signed by Brian Lecomber who has since moved on to a wider world than *HusBos*; a ragged copy of **Donald Duck's Bumper Colouring Book** (well, ducks fly, don't they?) with most of the pictures coloured from a rich palette apparently composed of assorted jam and chocolate; and **The Dambusters** with a shopping list on the back cover and several (erroneous) attempts to spell "because" on the front. Mind you, "because" is a pretty tough word for most of our members to spell without the support of their syndicate.

I suspect there could be mind-blowing, undiscovered wonders concealed in that old bookcase, and on the next really wet day I'm going to skip the chip butties and investigate those shelves in minute detail. Who knows – tucked away in there could be Wilbur Wright's logbook or even an autographed copy of the Bible. ☑

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TAIL FEATHERS

Sticks and stones may break my bones, but it's words that really hurt

Elsewhere in this issue I yearn for the days when gliders were known by their colours (see *S&G Classics*). At Dunstable in the 1950s there were so many Olympias that they tended to be identified by their paint-jobs. Certainly not by competition numbers since there weren't many competition pilots in those innocent days.

So we had Red-O, White-O, Blue-O and so on. One Olympia came back from a re-fabricking job with a blue fuselage and yellow wing and tailplane. I – unforgivably and to my undying shame – found the garish result jarring on my delicate nerves. Hungover again? Probably. The moment I set eyes on it as it was wheeled out of the workshop by its proud – well, proud for a very brief while – owners, I felt unwell and yelled out derisively “Sick-O!”

For all the years that glider remained at Dunstable the vile name stuck, like chewing-gum to a seat cushion. The value of its shares plunged. I had ruined my friends with an unconsidered gibe. (You're still doing it; keep up the good work. Ed) I often wonder whether some of the cable breaks inflicted on me, and the more subtle ways of luring a pilot to his doom – such as giving the impression all the way down the field that power is about to pick up any second now, so that you find yourself over the upwind

Identified by their paint-jobs.



A dozen alternative colour schemes.

boundary without enough height for a circuit – were revenge for that one small but vicious slur. I had earned it.

Bring back the Red Baron

Ted Hull – he of the *S&G Classic* in this issue – loved to make dozens of meticulous coloured drawings to test different paint schemes. When it was too cold to fettle – say around 20 below freezing – he would fantasise about the next season's purchase on paper. I suppose nowadays you could get a computer to show you in a few minutes what a dozen alternative schemes would look like from any angle, but that would take all the fun away: what do you do for the rest of the winter? The red, black and white for our new Dart 17R, No. 68, bought in 1966, was very elegantly attired by Ted, with the fuselage in two tones: top side red to be visible from above, and the underside black to aid visibility from the ground and not show the dirt. Or maybe it was just done to look pretty and we rationalised the practical benefits afterwards.

Then in came glass-fibre and, because heat weakens plastic and we all know dark tones retain instead of reflecting heat, out went colour. Well, almost. There were apple-green PIKs and yellow PIKs in the early 1970s, but it didn't catch on. Why not? I suppose getting a matching colour for a repair would prove a problem, and

any colour other than dead white absorbs more heat than white. Besides, the out-and-out ace competition pilot does not want to be recognised at more than 200 metres; the opposition are waiting to pounce, if that is the right word for the craven leeching which goes on these days. Anonymity is the rule.

Richthofen's Flying Circus didn't worry about being recognised. Indeed they invited it and painted themselves accordingly. They were, however, armed to the teeth with triple Spandaus and Lugar pistols and the odd grenade or two.

Now there's a thought.

Take a letter, Ms Fraser: “To the chairman of the BGA Competitions' Committee, Dear Sir, Don't you think Comps are getting just the teeniest bit boring these days? Of course you do, I've just had this idea . . .”

Notes faxed from Oz

1: How to dress on the field of flight.

At Narromine I am enjoying very much flying Chris Stephen's DG-300, which comes close to reconciling me to little gliders. The DG's long canopy, as most of you know, hinges just in front of the pilot's toes, and in Australia one does not fly a DG wearing shorts unless you want roasted legs. However, there is another sartorial point that I now watch out for in that glider before yelling “Take up slack!” After doing all the proper control checks and being duly launched, I decided to stretch my legs a bit and tried to adjust the pedals. I found I couldn't do so because the longish loops of the shoelaces on my right foot had been jammed between the canopy and the edge of the cockpit when the canopy was closed. No amount of tugging would free my foot which had just sufficient movement to operate the rudder so long as I didn't try to adjust the pedals one inch.

A current fad is for the younger generation to wander about with the laces of their trainers deliberately left undone, and if older people point out the fact, imagining that they are being helpful, they get the sort of weary look that teenagers reserve for half-witted but well-meaning grownups. However, I want you to understand that I have long ago abandoned attempts to pass myself off as a juvenile person. (Childish, more

like. Ed.) My shoes were properly laced up, but there appear to be yards of redundant lace. In America, that paradise for litigants, anyone who underwent that minor ordeal for six hours would by now have dispatched writs to the shoe manufacturers and to Glaser-Dirks for long term effects of cramp, mental anguish, loss of what otherwise would have been a world record etc, etc.

2: "First, let's kill all the lawyers" (Shakespeare).

It's no joke, this suing business. In the USA, glider manufacturers have been dragged into court by ambulance chasing attorneys after mid air collisions, for Pete's sake. Indeed, in one such case, the manufacturers of the towplanes that launched the gliders received writs, although they had landed back a good half hour before the accident, in which needless to say they were not remotely involved. Not all the

3: All play and no work makes Jack a stony-broke boy.

If you are self-employed – and I'm the only person who would have me as an employee –



Waiting for me at breakfast.

modern technology is making it possible to combine a day's (or a month's) gliding with a fair amount of work, whereas once they were re-



Richthofen's Flying Circus armed to the teeth.

frivolous writs succeed, but they waste time and money, and create a lot of stress and uncertainty in small companies that cannot afford to play such games. It is hardly surprising that light aircraft building is grinding to a halt, when insurance against crackpot claims can add 30% to the cost of developing a new plane. In the home of free enterprise, enterprise is being stifled.



Attempts to pass myself off as a juvenile.

President Clinton should tackle this one ahead of his current priority, which seems to be the licensing of gay sergeants – which incidentally will do wonders for army recruitment and create instant pacifists amongst the most unlikely people, such as members of the National Rifle Association. (Get back to the subject. Ed.)

Trouble is, Mr Clinton's a lawyer.

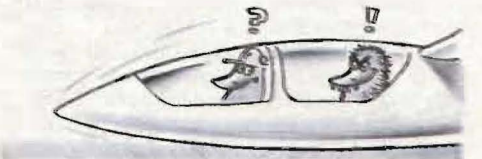
garded as totally incompatible. For instance, during my three weeks at Narromine I have been using a portable computer and printer to knock out reports, letters, tables, questionnaires etc, etc for people in Sydney and London, which are then faxed from the Airborne Avionics office at Narromine Airfield immediately before take-off, which is usually between midday and one o'clock. There is an equally brisk traffic the other way, usually waiting for me at breakfast time. After a long spell of good flying weather, a wet day is greeted with relief rather than gloom, since there is plenty to do, such as finding out how yet again I have managed to file some priceless document in the great databank in the sky.

The only snag about such a way of life is that you never relax completely: you feel you should always be either flying tasks or toiling at the word processor, but just lying idly by the pool reading a thriller is somehow wicked. It's my puritan ethic driving me. (You, Puritan!? Ed.) You begin to envy those who are paid to show up from 9 to 5 and who know exactly when worktime ends and playtime starts. It will take real effort of willpower to disappear to a remote site in the hills, leaving no address or contact number and abandoning the yuppy gadgetry, the portable phones and the modems and the box full of floppy discs. The withdrawal symptoms will be terrible but it must be done. I'll take instead all the great novels that have sat unread on my bookshelf for years, look-

ing at me reproachfully, as well as some lovely junk paperbacks, the literary equivalent of hamburgers smothered in tomato ketchup. Yes, I'll do it!

"Splendid" says a small voice "But how are you going to pay for re-gel coating the old ship, which is cracking up? Back to the electronic treadmill, you sluggard!" The inner war continues unabated.

Next issue, Dr Jekyll and Mr Hyde take up gliding.



BOOK REVIEW

The new edition of **The Guinness Book of Aircraft Records, Facts and Feats** by Michael Taylor and David Mondey, published by Guinness at £14.99.

Gliding might have to share a ten page section with parachutes and kites but this doesn't diminish the value of the book. It's perfect for dipping into and beautifully presented with loads of illustrations.

It records that the earliest known aviation artifact is a carved wooden model from Egypt which many believe could have been intended as a model glider, or the design for a larger version, as it almost certainly had cruciform tail surfaces.

S&G 1993 YEARBOOK



This is the cover of the S&G Yearbook which will be out in early April. It is really a seventh issue of S&G plus masses of extra information to carry you through the season.

It costs £3.50 and is £3.95 including p&p from the BGA, or get your club to make a bulk order. There is a generous discount to help club funds.

The early months were frustrating. We had seen hopeful cloud formations but mainly due to launching problems at the critical moment, couldn't explore them. But by autumn we had settled into our new site and the winch was often giving launches to 1800 and 1900ft.

My chance came at the end of another gloomy November day spent teaching circuits in a stiff north-westerly crosswind. Like a gaggle of expectant geese we'd looked at the sky thinking there should be something up there, but it was only towards the end of the day that the clouds seemed to array themselves in hopeful fashion.

Towards the end of the day the winch broke and Roger Slade began offering aerotows in the Tiger Moth, but there were only three takers – Ron Lynch (white Bocian), Ron Sexty (K-8) and eventually (after asking if anyone else wanted to fly) myself in the red Bocian with Terry Knight as P2.

We climbed out to 1800ft very slowly; clearly we'd made a mistake because all around was sink! Then the vario began to stir and went from 2 to 6 up. Roger seemed to be pulling back on the power because although we were climbing rapidly it was only at 45kt IAS. We then quickly went to 3000ft and pulled off, heading roughly north-east.

Best of all, was the immaculate arch of the azure sky stretching upward forever

To our right, about half a mile away, a smooth bank of cloud ran parallel to our track and extended from our level to 1000ft above us, clearly delineating the area of lift. To our left an enormous hole – our escape route – ran from south of Wincanton to beyond Westbury. Best of all, above was the immaculate arch of the azure sky stretching upward forever.

The vario showed 4 up, we trimmed out for 38kt and climbed steadily, following the cloud line and keeping about half a mile upwind of it. The altimeter began winding up, I pulled the trimmer back as far as it would go and we were hands off at 38kt.

The aircraft was utterly stable with no indication of flight except the clouds falling far away below, the snail's pace progression of the ground and the soft swish of passing air. For five minutes at a time we were able to fly hands off, controlling any slight tendency to drop a wing with tiny dabs of rudder.

Far, far to the west the sun sank smoothly below the horizon until the last spark was extinguished. The evening was wearing on, the outside temperature was -15°C and it was bitterly cold in the unheated cockpit. Suddenly we didn't want to be too far from The Park. Small visions of recovering the Bocian from a strange, dark field slipped into mind and vanished again. All was well. We were at nearly 9000ft and the hole was still there to our right with the darkening countryside below. Bruton and Wincanton were quite clearly visible with the first lights beginning to show.

THERE IS WAVE AT THE PARK!

Richard said that when the Bath, Wilts & North Dorset GC moved to The Park last August they knew it was an exceptional area for thermals but also hoped they might find wave

We tracked back to Westbury, still in 6 up. The cloud was far below and the last crimson streaks of the vanishing day were fading in the crystal sky to the west. Awed by the splendour of the occasion, we went long moments in complete silence. Then Terry broke the spell with a noise like a hiccup and said abruptly "The hole's closing in..."

I could see the blurring edges of the panorama below; it was nearly time to go. Ready now for our planned descent, I glanced once more downward to the comforting surety of the great hole ...

It had gone!
Inside two minutes the hole had vanished as if it had never been, the sky had drained of colour and all that was left was a grey, sunless expanse of cloud stretching from horizon to horizon.

Of course we'd known about the possibility of the hole closing in. We'd been prepared for it. It was just that the speed of its disappearance was so amazing.

Do you remember the Toad in **The Wind in the Willows** forever wrenched from ecstasy and plunged into despondency in an instant? That was us – there we were thousands of feet in the air with no T&S and no AH. How then to penetrate those gloomy clouds and find our way back to the security of The Park?

We circled a couple of times orientating ourselves and then spotted a darker patch in the cloud. Perhaps that showed the way – airbrakes fully open, stick forward, fly downward to maximum airbrake speed aiming the nose ever

steeper until it pointed seemingly vertically towards the dark patch; diving at over 100mph and throwing away the treasure of thousands of feet of height, oblivious to the hours of scratching usually needed to gain just a fraction of it.

The cloudscape rushed towards us and through the dark patch a nebulous glimpse of fields, then we entered thin cloud and, almost as abruptly, were out on the underside at 4000ft. Away to our left – oh joy and happiness – The Park was clearly in view. The elation was back and Terry was shouting "Loop, loop."

Was there light enough? Of course there was ... Then Terry shouted "Another, and another, and another, chandelle to the left, chandelle to the right, tight turn left – and right." Shouts of glee, *g* pushing us down into our seats until suddenly we were at circuit height and doing the downwind checks.

We landed, overcome with excitement and delight from such a splendid flight. Now we know there's really wave at The Park! Thanks be to Roger Slade for getting us started. ✕

RECORD BREAKING IN SA

The FAI world and/or national records of free distance (min 1000km required) has had a good start since they became valid last October 1 with a number of flights in excess of 1000km.


We have heard from South Africa that Klaus Holighaus (Nimbus 4m) of Germany is claiming nine world and national motor glider records and his son Tilo four after a particularly successful International Gliding Camp at Hendrik Verwoerd Dam. The most outstanding flight was on January 6 when Klaus completed a 1400km triangle at an average speed of 140km/h, breaking both the distance and speed world records.

His other achievements were a 1284km triangle at 128km/h; a 1388km triangle at 133km/h; a 750km triangle at 156km/h; a 500km triangle at 164km/h and a 1218km O/R at 156km/h.

Tilo, aged 23, flew a 1000km triangle at 154km/h plus flights of 1062, 1076 and 1122km.

The South African pilots claimed eight national records with 1000km diplomas for Michael Stehr and 74 year-old Tim Biggs.

Other record news is that David Jansen (Nimbus 3) has flown 1035km from Forbes Airfield to Narrowmine in Australia. All are subject to homologation. ✕



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S & G CLASSICS

CHOSEN BY PLATYPUS

I have a personal interest in these two Kite tales, since the first glider I had a share in was a Kite 1, indeed the very aircraft that Ted Hull tells us about. I sold my quarter-share to Ted in 1959. The Primrose Kite – ah, the days when gliders were named by their colours! – gave me the first taste I ever had of high performance and superior handling in the winter of 1958-59. “High performance and superior handling?” you ask incredulously. Well, when all you have flown is a Tutor, the Kite 1 is bliss. It took a colossally high launch on the feeble winches of the period, and stayed up on anything, depending either on a 10kt westerly or on what the local cows had had for lunch. I did my 5hrs in driving rain in the open cockpit of The Primrose Kite, hovering about 50 to 100ft over the bushes in the Dunstable bowl when nobody else could stay up. (Nobody else wanted to stay up, but no matter.) How many figure-eights can you do in five hours? I never did calculate it. The old semi-circular canals got a real working out, anyway. (There’s an intriguing thought: if one rolls 45° to 45° with perfect smoothness and the ball in the middle throughout, should the semi-circular canals register anything at all? It’s academic with the Kite, since the controls were very 1936-ish, but the aerodynamic-physiological question still remains for some pundit to write in and answer.)

Ted Hull’s flight was enjoyable to read about precisely because Ted has never had pretensions to national fame as a cross-country pilot; it made one realise what those early machines had been capable of from the day they were first built, if only the pilots of the day had had the hours and skills we take for granted. In the magnificent and well-documented soaring weather of the 1930s, it is now quite clear that 200 and 300km closed circuit tasks would have been possible. What was lacking at the time was not only the experience but, it seems, the desire too. A writer in *Sailplane* seriously suggested that clubs would have to be set up in Cornwall especially so that long distance flights would be possible in the prevailing westerlies. The best UK closed circuit before World War II was an O/R record in 1939 of about 150km in a Rhönbussard, a quite considerably better performer than a Kite.

I particularly liked Ted’s ingenious way of dealing with the variometer problem, a sort of Stonehenge answer to super netto. (Shades of Nick Goodhart rewiring his blind-flying kit in a cu-nim.) I am sure it would never have occurred to me to do that. I just expect a professional to install some infallible piece of hi-tech and panic when it fails.

The editor and the BGA and I have not been

OLD FOLKS’ OUTING

Ted recalls a flight in his Kite 1 which would have made world gliding headlines if achieved in the 1930s when the machine was designed

Messing about with vintage gliders can be a lot of fun provided you can accept the fact that on most days it will not be possible to do much more than local soaring anyway. The lower down the performance scale you go, the greater becomes the problem of even reaching the next thermal before meeting Mother Earth, and thoughts of cross-countries have to be saved up

able to trace Mr Longley of the legendary 1958 cloud-climb (not to be confused with Steve Longland of the earlier classic) and of course anything can have happened in 35 years. He is not on any current RAFGSA or BGA list. I read his account at the time with special interest because of having a share in a Kite. Spoilers were no answer to cu-nims, so his story was an awful warning.

Of course you could say “Well, it’s an amusing account but it doesn’t apply to me or the modern type of plane I fly”. In fact the typical modern glider’s brakes are only designed to prevent it from reaching V_{NE} in a 45° dive, so obviously it must exceed V_{NE} with full brake if it finds itself going down vertically. Therefore losing control in cloud is still a bad idea, and I’m all in favour of getting the brakes out the moment the speed hits 80kt. I am a bit sceptical about the 120kt that Mr Longley says he reached in the Kite. Would any Kite owners or aerodynamic experts like to comment on the chances of the aircraft emerging in one piece? And was deliberate spinning ever a realistic ploy for safe descent from cloud in the days before speed-limiting brakes? How do you keep the desired spin from becoming a deeply undesirable full-blooded spiral dive, I ask? When Mr Longley says “I *managed* to . . .” (my italics) he exaggerateth a bit. My feeling is, he fell out of the cloud on the time-honoured basis that whatever goes up eventually comes down, and that he was not a great deal in charge of proceedings most of the time. On the other hand I could simply be reading my own ineptitude into everyone else’s behaviour. Anyhow, this is one of the great howlnearilyundunnits.

for high cloudbase days, considered suitable for the odd 300km or 500km triangle.

August 17, 1975, was one of these super days with a wedge of good weather lying between belts of rain and horror to the north and south. At Dunstable, this was the second day of Euroglide and when all the slippery ships had streaked off out of sight for the Long Mynd, a couple of pre-war sailplanes started off to pair fly what is these days a modest triangle, Bicester, Husbands Bosworth and return. Dave Adams was piloting the Weihe (one time resident of Lasham) and I was having a go in my venerable Kite 1 (rebuilt 1939 and reputedly ex-Amy Johnson).

We launched into a superb looking sky and were soon heading westwards at 3500ft. The cumulus were forming in broken streets but the lift was not constant enough to fly along without losing height. At least, not for me. Dave had suggested that I led the way as I was more familiar with our route, but this meant that I needed to push on very hard if I was not to hold up the higher performance Weihe.

With a glide angle no better than 20:1, the penetration of the Kite is what an optimist would classify as abysmal and the useful speed range lies between the 30kt for thermalling and the 40kt for going places. Flying faster gives one a very good view of the ground immediately ahead and the fascination of seeing the altimeter winding back like crazy! However, the thermals were pretty close together and I was able to speed up to a dizzy 55kt across the gaps without losing too much height; and to keep above 2500ft.

The sink rate was so high that flying through a 3kt thermal produced no change on the vario

A problem became evident using this “high speed”. The Cosim was reading way up the top of the red tube and the needle of the 5kt vane type vario was jammed hard against the bottom stop. The sink rate was so high that flying through a 3kt thermal produced no change on the vane vario and a minimal movement of the red ball. I got around this by continuously tweaking the capacity rubber tubing behind the panel which caused the vario needle to twitch off the end stop. As we ran into rising air, this movement became much greater and I knew it was worth while pulling up. A bit primitive, but it seemed to be effective.

We made very good progress and Bicester soon came into view. The sky seemed to be full of gliders and we were inspected by a very smart Oly 419. I was just thinking that it really was a “barn door” day when, idly looking down, I saw a real barn door thermalling up beneath me. After a swift double-take, I realised that it must be the “Budgie”, Bicester’s AV-36 Fauvel flying wing.

By this time the lift was getting better and better and smooth, regular 6 to 8kt thermals were taking us up to 4000ft. We turned Bicester and started hopping across the lines of cumulus, finding little sink in the blue. We watched a driving

test meeting taking place at Finmere and took a look at diminutive racing cars circuiting Silverstone. Somewhere near Daventry we were rather disconcerted by a large black cloud of smoke rapidly approaching from the left at our flight level. This portent of doom revealed itself as a rather scruffy looking Vulcan bomber which fortunately changed course to pass a quarter of a mile ahead of us. A Phoebus came over and joined our thermal, could not compete and pushed off in disgust.

North of Rugby was very overcast and caution was indicated. I slowed right up and watched the Weihe and Phoebus (with us once more) glide off into the gloom. Down to 1500ft, it seemed a good idea to head for a small patch of sunlight and, sure enough, a thermal developed to keep me going. I tiptoed off towards Husbands

started to pay off now as the cumulus were becoming more scattered. Beyond Northampton we crossed a very dead patch of air which saw us down to about 1000ft over Salcey forest. Scratching around in zero sink for some minutes produced nothing better and I was looking for the best field when I saw the Weihe throw a circle and then another. The fields that way seemed safe enough so I moved over to join him. It was very weak stuff and we settled down to what seemed an age of steady circling which in time gained us about 400ft. Each of us in turn left the circle to sniff around for something better and we did at last achieve this. With the help of an extra 1000ft we reached Newport Pagnell but were again down very low.

By this time I was really suffering agonies from the cold and cramp – open cockpits are all very

CLOUD + KITE + PLIGHT = FRIGHT

Wednesday, May 17, 1958, had been a somewhat uneventful day at Andover as we were all fervently engaged with preparations for the coming RAFGSA competitions. We had decided not to fly as the weather looked decidedly sinkable.

Andy Gough had ordained that Ken Newholme and myself should fly our recently acquired Kite I (late of Nympsfield) which had only that day emerged from the skilful ministrations of Scotty, our worthy chippy extraordinary; so at seven o'clock that evening a solitary bent wing monoplane took to the air on her test flight.

Ken and I each had several trips and were preparing to hangar fly when a small frontal cloud with attendant rain squall was observed approaching the airfield. I launched off and released at 1000ft in the rain right beneath the cloud. Here was lift! Genuine green ball at 5ft/sec, and in two turns I was at cloudbase, which was 1500ft.

Now, the grey-bearded fathers of gliding may nod sagely and say, "time to come down"; but alas! I have only a ginger moustache and am not, as far as I know, a father, so I headed for the front edge of the cloud, which was directly across the wind, and was delighted to find that there was powerful smooth lift all along the cloud in clear air, and at 40kt and 10 to 15ft/sec up, I soon found myself at 5000ft with clear air on one side of me, whilst on the other side the cloud was seething above and below me, like a huge precipice. This was simply marvellous, I thought, when suddenly with a rush and a roar I was enveloped in cloud. I decided that my position was fraught with danger, so I straightened up on a downwind course and sat waiting for the daylight.

After several dark minutes I realised that daylight wasn't in that direction, and was just conditioned myself for a change of course when I noticed my speed had crept up to 60kt. "Ease back gently," I thought, so I did, and the needle said 80kt! Then 0kt. So this is what they mean when they say "go and get knotted!" Spoilers out – still no difference; then things got really rough. In an attempt to get back in control I peered at all the clocks in turn. Horn vario 10 metres up,



The Kite being hand launched at the Long Mynd.

Bosworth to try and catch up the Weihe. Things then got difficult and all seemed lost. On the downwind leg of my approach to the airfield, and well below 1000ft, another patch of sunlight did its stuff, the port wing giving a decided kick upwards. A turn that way and after a few seconds there was a real surge and I was soon locked into the core of a four knotter which lifted me to over 4000ft.

Back southwards under the murk, using every patch of rising air, eventually brought me back into the sunny conditions where things were easy. I was happily winding my way up in a good one when I was joined by the Booker Motor Falke forming a few yards out from my wingtip, its engine screaming and the two occupants grinning out through the canopy. Fortunately after a few turns they cleared off and left me in peace once more.

Later I caught up with the Weihe and we were able to continue with our pair flying. This really

well but they did not build them for comfort in the old days.

Cranfield was well out of range to the left and ahead of us we could see the Weihe from Hinton in the Hedges circling about 2000ft above us. It did not seem possible that we could reach the thermal he was using, but Dave used his superior range and height to search it out. Seeing him circle lured me on, stretching my glide at 30kt, and there it was – one of the best thermals of the day right up to 5000ft for a straight glide back to Dunstable and completion of a 170km triangle in 4½hrs.

Could we have flown further? Yes, I think so. Had we been able to start an hour earlier, with no contest launches to delay us, we should have been able to manage a 200km flight fairly easily. Perhaps next year . . .

As a flight, it was very satisfying if only to prove that there is life yet in the old gliders and, on the right day, you don't need to have GRP to go somewhere.

(Reprinted from the December 1975 issue, p244.)

which was as far as it went. ASI varying between 60 and 80kt; Cosim vario top of the green tube; T&S completely incomprehensible but still working, as the venturi drive was wailing like a banshee; altimeter past 8000ft and moving towards 9000ft fast!

This completely unnerved me and I began to dwell on converting from uke' to harp (with obituaries in the "Adventures of Joe"); I lost control completely and the aircraft began a succession of aerobatic manoeuvres which the Rev Sling never intended her for.

Somewhere round about now the hail started, and with the hail, the ears, and prayers and thoughts about using the panic-bag, which I could feel comfortably pressing from behind. I hauled the stick back and applied full rudder and after a sickening pause the aircraft began to spin. However, the spin soon developed into what must have been a spiral dive, for the ASI reached 120kt(!) before I managed to spin the other way. In this manner, spinning in alternative directions, I plummeted vertically and thankfully out of the cloud over Whitchurch.

I suppose a braver chap might have taken a bearing on Andover, four miles upwind, and gone back in again; but I could see a good friend's house within gliding distance with a suitable field alongside, and I parked the glider by her house – which made the neighbours talk, you can bet!

Altogether I had been in the air for 45min, and they are minutes I shall never forget. Tribute is due to Mr Slingsby and the venerable Kite. The latter suffered no damage and is giving of her best with the Wessex Club, who all have a rather understandable fondness for her.

Had I achieved Gold height and had a barograph, neither of which I did, I would still say that to emerge from circumstances like those I experienced was by far the luckiest thing that has ever happened to me, and if anyone benefits from this description of what can happen, I shall be more than satisfied.

(Reprinted from the October 1958 issue, p281.)

A LESSON IN CLOUD FLYING USING THE T&S

John Dobson prepared a series of lessons for the RAFGSA as a result of two tragic cloud flying accidents and uses this as the basis for two articles intended for the pupil and instructor. In the next issue he will cover cloud flying for advantage using the turn and slip and/or the artificial horizon

This is a basic introduction to instrument flying using the turn and slip (T&S) and assumes the pilot has no previous instrument training in gliders. The aim is to teach safe cloud penetration using the T&S so that the pilot can enter cloud intentionally to regain VMC.

The limitations of the T&S must be understood if you want to fly efficiently in cloud. Here are a few points to ponder:

1. The needle indicates rate of turn and is not a reliable indicator of bank angle by itself. Its indications lag behind the actual rate changes.
2. G loading affects the turn needle deflection if it is not central by making it over-deflect with more than 1g and under-read with reduced g.
3. The needle indication will vary with True Airspeed (TAS), as it relates to rate of turn, so that you get less needle deflection the faster, or higher, you are for a given bank angle. (Rate of turn is inversely proportional to TAS, eg at 40kt and 30° angle of bank at sea level the rate of turn is 16°/sec; at 80kt it is 8°/sec.)
4. The T&S does not topple if the turn limits are exceeded but it only gives useful information if the needle is kept "live" on the scale.
5. T&S instruments need to be calibrated regularly by a service instrument section or commercial firm if you are relying on them for a predictable performance. Almost all non-glider T&Ss will over-read unless they have been modified to give a standard glider performance of a Rate 1 turn at between 450 and 540°/min on a 12-14 volt supply at the normal thermalling speed.

The RAFGSA emphasise that cloud flying must not be attempted lightly, especially in the sleek sailplanes of today – it is just too easy to lose control with the wrong instruments, weak electrics or limited training. They have decided to fit artificial horizons in the near future to any competition glider and only pilots who have been checked out as competent on both the artificial horizon and T&S may cloud soar competitively.



John, who was an instrument examiner on the Lightning, Hawk and T-38 in the USA as well as holding a Master Green Instrument rating in the RAF for the past 15 years, is deputy Air Member (training) on the RAFGSA Executive Council and has recently become the chief instructor at the Air Cadet Central Gliding School at RAF Syerston. He flies an LS-6C as well as aircraft in the Air Cadet and RAFGSA fleet.

6. Good battery power is essential for sustained and reliable indications and a battery power level indicator should be fitted on the instrument panel so that the integrity of the power source can be monitored. A battery's output will be affected by cold ambient temperatures as well as electrical load and charging methods.

7. Once the T&S is switched on the "off" flag, if fitted, may retract at quite low gyro speeds before the gyro has reached its design speed. Depending on design and/or battery power it is possible to have a low needle sensitivity and under-reading of the rate of turn with an otherwise apparently serviceable instrument.

Limits. In the early days of gliding any cloud flying was done in blunt aircraft with big airbrakes which limited the glider to a safe speed under the never exceed speed (VNE), even in a 90° dive with full airbrake. The instruments used were basically similar to the ones used now, apart from artificial horizons, but today's sleek airframes are considerably less forgiving with modern gliders designed to be VNE limited only to a

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45° angle of dive with full airbrake, a zero flap setting and no waterballast. Sleeker gliders are more limited still with 35° nose down being often quoted as a maker's VNE limit. The old fashioned method of spinning out of cloud to regain control is definitely not recommended for modern gliders, for several obvious reasons, as a safer alternative exists in the emergency exit method.

The relevant airframe airspeed limits must be known instinctively, and the emergency exit from cloud procedure practised before attempting to start training. The relevant speeds include: VNE, Vrough air (for control deflection and strongly advised for airbrake selection), Vmax flap and any speed or *g* limit on the airbrake.

Flying

Lookout. Whilst this is instrument training the flying will be done out of cloud and it is vital that a good lookout is maintained by at least one person in the cockpit, preferably the instructor!

Control technique. It is important to be relaxed, have the glider trimmed out and fly with smooth yet progressive and co-ordinated control inputs. It is better to use a number of small corrections to the rate of turn and/or airspeed over a period of time rather than one large input. A well tried method of progressive speed and bank control is to apply a stick input and after a short pause return the stick to the neutral position and wait for the resultant pitch or bank change to have an effect. Pause before making any further input rather than trying to put all the input in at once and probably overcontrolling as a result. Remember to ease the stick forward as you roll out, especially if you have trimmed into the turn. Conversely add back pressure if you enter or steepen the turn up so that the nose attitude, and therefore the airspeed, is kept under control.

Fly Straight. Careful use of the elevator trim is a great help in keeping the glider's attitude stable in cloud, although thermal gusts will tend to vary the indicated airspeed. The glider should be trimmed at the penetration speed prior to cloud entry if at all possible; it is probably better when in cloud to fly slightly faster than normal so as to give positive control rather than to seek the last bit of performance.

Noise. Whilst airflow noise is often a good speed cue in lower performance glider it doesn't work well in more streamlined gliders until quite high speeds.

Scan. The primary scan of the instruments should be of the airspeed, which will give a close indication of the glider's pitch attitude, and the T&S, which will give the rate of turn cues and therefore a very approximate idea of the angle of bank. A systematic scan of the primary instruments, not fixing the gaze on one particular instrument for more than a few seconds, is needed to detect small variations in bank or attitude. A secondary scan would include compass and altimeter for trend information with an occasional look at the variometer if the audio is not used.

Compasses. Part of the secondary scan is interpretation of the compass; cloud flying using the traditional "whisky", or more accurately, silicon fluid filled compass is a black art form, but fortunately it is well explained in Chapter 17 of Derek Piggott's book *Gliding*. More modern

compasses such as the Cook or Bohli have taken most of the pain away for the well-equipped single-seater pilot. However, initial teaching will be done using the two-seater's more primitive compass and will concentrate on straight line penetrations of cloud. Later on, small heading adjustments for heading control will be introduced.

Physiological. The muscle senses must be ignored to a great extent and the instruments trusted as far as their limits go. Similarly the delicate mechanisms of the balance organs in the inner ear (the semi-circular canals) will give spurious, powerful and erroneous indications to the brain – these must be ignored. For example, in a prolonged turn the feeling will be that the glider is wings level and on roll out to wings level it will seem as if the glider is still turning, or even turning the other way. These disorientating mental indications – colloquially called "the leans" are increased if the head is moved quickly or significantly; it is much safer to merely move the eyes to scan or search the cockpit rather than turning the head.

Additionally the reduction of *g* on rolling out will seem to be reduced *g* if the normal stick position is ignored, and the tendency will be to input an unnecessary nose up attitude change. Nobody can fly successfully in cloud by "the seat of the pants" alone with no external references. The instruments *must* be trusted to be the best source of information to fly the glider properly in cloud.

Hyperventilation. It is possible in stressful or unusual situations to breathe so deeply and quickly that the carbon dioxide balance in the lungs is upset. This causes a condition called hyperventilation, which can give various upsetting symptoms including light-headedness and a feeling of unreality. The solution is to control breathing so that it is measured and moderate.

Radio and airspace. The radio must be monitored on the cloud flying frequency, 130.4Mhz, and used intelligently to inform other glider pilots before intended cloud entry and after exit. The information includes the distance and direction from the nearest distinct geographical feature and the height above sea level (QNH) at entry and exit. Needless to say the pilot must be aware of relevant controlled airspace and its category, staying clear unless specifically allowed access by the rules contained in the **UK Air Pilot** or its associated documents.

Pre-flight briefing

Flight profile. I suggest this exercise should be flown in VMC with you in the back cockpit but able to see out until happy with how the instrument indications and stick inputs relate to the outside world. You will then fly in the back with a blanked-off cockpit to demonstrate that you can fly safely with no outside references. First, we will look at what information the T&S gives us, then we will fly wings level at normal speeds, next with the airbrakes out, then minor heading changes and finally some unusual attitudes. This will all be flown with you referencing the instruments but with you will still be able to lookout. When you are ready we will then fly again with you under the hood.

Control technique. The ASI is the main pitch

reference in T&S cloud flying, although the altimeter is useful at times. There is a certain amount of lag due to inertia in the ASI indications when new pitch attitudes are set, and a control technique is needed to avoid chasing the airspeed with stick inputs that result in over or undershooting the desired airspeed. A method of progressive speed and bank control is to apply a small stick input, and almost immediately return the stick to the approximate neutral position and then wait for the resultant pitch or bank change to have an effect. Then carefully scan the instruments, before making any further input, or trimming the pitch forces out as required. Another recommended speed control technique is to move the elevator to oppose the airspeed change – not to change the airspeed towards the target speed. *Eg* speed 60kt, but reducing, move the stick forward; speed 35kt but increasing, wait until the speed is definitely increasing, and then move the stick back a small amount. Both techniques work, but they do rely on careful monitoring of the stick position, which is not a normal gliding technique.

Try to keep the slip ball in the no-slip position as any yaw will affect the turn needle initially. It will not be easy to use the yaw string as your concentration will need to be on the instruments, whilst in real cloud it may be stuck to the canopy with moisture or ice and be indistinct in the gloom. Obviously we still need to co-ordinate the roll inputs with the rudder, but as the aileron inputs are normally small and we are flying at a comfortable speed, we should only need small pressures on the rudders to accomplish this.

Flying. We will look at straight flight first, keeping the turn needle approximately in the middle of the T&S display with small stick and rudder inputs, setting a stabilised airspeed with small stick pressures, and trimming out any forces. To start the airbrake descent ease the stick forward and then gently open the airbrakes to a stabilised position; try to co-ordinate the airbrake and stick inputs so the airspeed stays approximately constant.

For several reasons, T&Ss will indicate different rates of turn for the same angle of bank, given different conditions, and we will look at this in the air. We will calibrate our T&Ss in the glider, having given plenty of time for the instruments to be run up fully, to an angle of bank and speed that we feel comfortable with by comparing them with the outside horizon.

We will try small heading changes with turns at first; enter the turn with a small co-ordinated roll input, but before the needle reaches the Rate 1 mark apply a counter input to stabilise the angle of bank – just like a visual turn – and apply a small amount of back pressure as you do this to anticipate the nose down pitch, monitoring the airspeed for trends. The roll out is almost exactly the reverse of this, remembering to ease the stick forward as you approach the needle central indication.

Unusual attitudes. The aim of practising instrument recoveries from uncontrolled attitudes is to recover to straight and controlled flight safely; the major priority is to keep the airspeed well under control whilst recovering the situation. This means that if you think that the glider will approach the Vrough air the airbrakes must be fully out early enough, and the flaps checked at

the zero setting if appropriate, to avoid a high speed high *g* situation developing. If you are not certain that a safe recovery can be made, adopt the emergency exit procedure immediately.

If the turn indicator is near or at full deflection, as it will tend to be in a spiral dive, it is vital that any *g* forces are reduced to as near 1*g* as possible as the rolling input to wings level is made. This is because the turn needle indication is affected by the *g* force – the so-called “looping error” – unless the needle is close to its central position. Once the turn needle is under control any pitch input can be made. It may be helpful to think of the turn needle as the stick deflection required to level the wings, *ie* with the needle half deflected to the left you need to move the stick to the right to correct to the wings level situation. However, don't wait for the needle to move back exactly to the centre, but anticipate with a small counter input to stop the roll going past wings level – just as in any normal turn flown visually.

The altimeter and ASI should be scanned as part of any pitching recovery; the aim in the nose low situation is to stop the glider pitching nose up immediately the airspeed starts to decrease and the altimeter slows down its needle sweep. Then use the fine tuning technique of small input – wait for an affect – readjust and trim – to adjust the speed. If the speed is below the normal flying speed at any stage the priority must be to ease the stick forward until the altimeter starts showing a descending trend with the speed starting to increase and then fine tuning to achieve normal parameters. If the glider stalls take the normal recovery actions, only using co-coordinated aileron and rudder once the buffet has gone and there is an increase in airspeed.

Air exercise

Aspects of T&S flying to look at in the air include:

1. **Characteristics demonstration.** Point out indications with no power, time for the “off” flag to go, showing that it detects yaw and not bank alone, show constant bank angle with increasing *g* and the resultant *increase* in turn indication, and the reduced *g* with the same bank angle to show the *reduced* turn indication. Show indications at normal airspeeds for a standard angle of bank and then repeat at a slower, then a higher

than normal, airspeed to show needle deflection is inversely proportional to airspeed for a given bank angle. Show that a turn initiated by rolling in with uncorrected adverse yaw will initially indicate a turn on the T&S in the opposite sense to the applied roll input, before settling down into a normal indication as the glider's yawing motion reverses.

2. **Wings level penetration.** Show the pupil wings level normal speed, slow speed and the penetration speed – emphasis is on the primary scan and using trim on speed. Continue with a partial then full airbrake descent, wings level, recovering to airbrakes in and normal speed again. Then let the pupil practise.

3. **Turns.** Demonstrate a Rate 1 turn, rolling in, maintaining and rolling out, showing indications, controls technique and trim. The pupil then practises with small heading changes only. Anticipate the roll-out by a least 10° normally. Student practises. When required later on, the turning training can continue with slightly steeper turns and rolling out on specific headings. The end standard at this stage, however, is to penetrate cloud on heading in a controlled descent with only minor heading changes.

4. **Unusual attitudes.** Demonstrate, with visual references, several unusual attitudes and safe recoveries on instruments, allowing the student to practise a recovery after each of the demonstrations. It is especially important to show a spiral dive situation and a slow speed slightly nose high recovery. Emphasise that the bank should be sorted out before the pitch, and airbrakes should be used early on if at all unsure. Too many of these recoveries with poor outside references will make the strongest stomach turn eventually, so proceed with caution and concern.

Once both you and the student are happy that they can cope in a visual environment with the straight descent and unusual attitudes proceed with “blind” flying. A suggested profile would be with them flying as para 2 and 3 but only to a Rate 1 turn, for heading change only, followed by some unusual attitudes – realistic rather than extreme. An optional finish to the exercise is for them to be talked round the circuit by the instructor until a safe point is reached for the instructor to take over control for the landing. Only do this if you think they are feeling well and have the ability.

Standards. The end standards should be:

1. Able to maintain within +/- 10kt and 30° of nominated heading, once established, for 1min, with and without airbrake.
2. Able to turn safely up to 45° off heading if required.
3. Able to recover safely to straight flight from realistic unusual attitudes, one being a spiral dive, another being a slow speed situation.
4. Able to carry out the emergency exit procedure safely.

Post flight discussion

Successful completion of this training only means that the student can penetrate clouds in virtually straight descents and does *not* entitle them to intentionally cloud fly for advantage until more advanced training has been done. Successful instrument flying expertise requires the pilot to stay current with the techniques, to gain confidence gradually and improve their capability with more dual flying.

Advice to instructors

Emphasise the very small control inputs that are needed normally, especially in pitch to control airspeed, once the glider is trimmed out. Get the student to look at the stick position in straight and turning flight, as this is an important part of the control technique when actually in cloud. Large inputs result in over-controlling, which may lead to loss of control, especially in the case of sleek gliders. Input – wait – cross-check – readjust – trim.

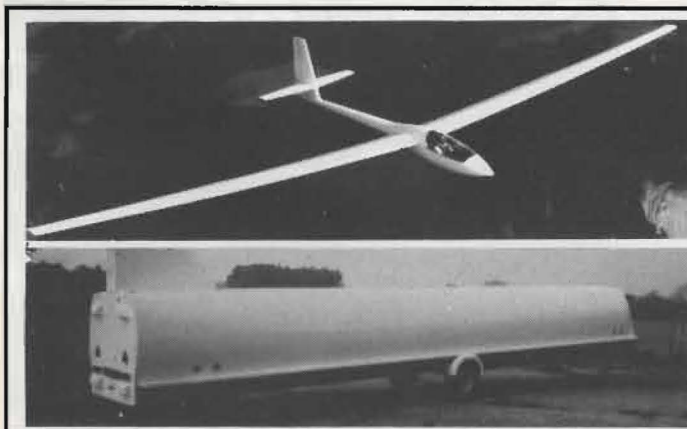
Instrument flying needs to be practised regularly if the pilot is not to lose the skills; this requires dual blind flying as the opportunities for straightforward cloud penetrations will be rare.

Instructors who have not had formal instrument training might benefit from running through the package themselves before trying to teach it; this could be done in VMC in a single-seater if necessary.

Discuss in simple terms the way the T&S works, and the physiological aspects of non-visual instrument flying before he is cleared for cloud penetrations. Further reading is available in Derek Piggott's **Gliding**.

If the student does not have a R/T licence get them to practise some calls to you in the cockpit but encourage them to get the training and take the test as soon as practicable.

Ensure that pilots have had this training before they go wave flying! ➔



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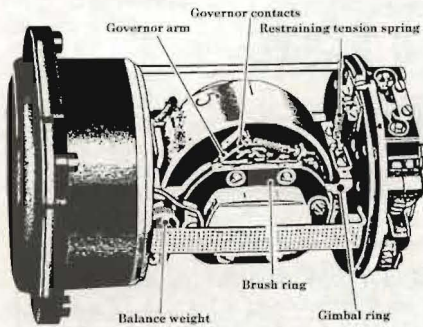
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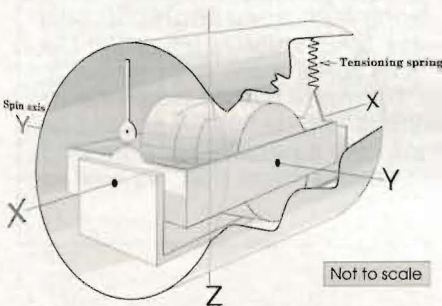
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Turn indicator (cut away).



Turn indicator (schematic).

Emphasise that in the real case the wings level penetration of cloud should continue with the airbrakes out until visual below cloud – closing the airbrakes in cloud could lead to losing control of the speed.

The diagram represents a rate gyro rotating up and away from the pilot, with its horizontal axis (y) at 90° to the fore-aft axis (x) of the glider, with yawing forces in the plane (z) acting on the rotor.

There are two laws of gyros that are of interest to us:

1. A gyro has a rigidity proportional to its rotating

mass and the speed of rotation.

2. Any force applied to the rotating gyro will tend to move it as if the force had been applied at a point 90° further round the gyro's circumference – this is called precession.

In the case of the T&S gyro then the two resultant yawing forces will tend to act in plane z with the resultant force acting to tilt the rotor on its only free axis. This in turn is resisted by a set of springs which dampen and limit the extent of the tilt of the gyro, whilst the turn needle is moved in the direction of yaw by a system of enmeshing pinions.

Thus a slow running gyro gives less needle indication, weak springs let the T&S over-read, rolling by itself cannot move the gyro and the T&S will read zero at 90° of bank. If the gyro rotated down and towards the pilot, then the turn indication would be reduced under high positive g, over-reading in reduced g situations.

Controlled exit from cloud (Intermediate syllabus)

Aim. To teach a safe recovery from an inadvertent entry into cloud, or loss of control whilst instrument flying.

Considerations. An uncontrolled entry into cloud is highly undesirable but can happen if a pilot tries for the last few feet of a powerful thermal. Even good instrument pilots can occasionally lose control in cloud, especially when flying on basic instruments. The results of loss of control in cloud are well known and need no extra emphasis. Prompt action by the pilot can save the situation in forgiving gliders, but high performance gliders or ones with limited airbrakes can exceed their maximum speeds (VNE) quite quickly without prompt and correct actions.

Some of the considerations for this lesson are:

- a. Glider speed limitations (rough air speed limit, VNE, U/C limit, flap limits, maximum g limit with airbrake out, etc.).
- b. Most advanced gliders are not VNE speed limited by their airbrakes beyond 45° nose down pitch, or only 30° in some very high performance gliders.
- c. Physiological effects, *ie* disorientation, hyperventilation, and "seat of the pants" unusable.
- d. Intentional cloud flying is not normally permitted in club gliders without the approval of the CFI of the site.
- e. Lookout below is especially vital during this lesson.

Briefing

We are going to practise what I hope you will never have to do for real, however you should be familiar with the technique for a safe recovery if out of control in cloud. We will practise controlling the glider so that it stays within sensible speed limits and therefore should not over-speed or be stressed during the recovery. This lesson involves rapid descents, so we must pay strict attention to lookout, especially below us.

Part of the recovery technique involves centralising the controls so that the glider's attitude stays slightly nose low, and therefore we will look first at what speeds we get with the airbrakes in and out with a central stick position. We will also use the standard recovery while in a turn, and to recover from a moderately high nose attitude.

We will not prolong the cloud simulation beyond descending a few hundred feet, and we will not enter cloud at all. After you have tried the recoveries visually we will be recovering from some mild unusual attitudes with you looking in the cockpit for the recovery, to simulate the real case.

It is important the controls are not moved from the central position, until you have visual references: there will be strong physiological stimuli to do so and these feelings must be ignored to avoid extreme attitudes.

The standard safe recovery technique is:

- a. Pull and hold full airbrake before reaching the rough airspeed.
- b. Hold the controls positively central until visually orientated.
- c. Roll towards the nearest horizon, recovering wings level.
- d. Once the speed and attitude are under control, close the airbrakes.


Post flight discussion

- a. Emphasise that cloud flying in gliders is potentially very dangerous, even if the pilot is skilled enough to fly on instruments safely.
- b. The higher the performance the glider has the more quickly things can get out of hand, and the higher the risk.
- c. The standard recovery technique is also applicable for pilots losing control in cloud through instrument, battery or brain failure.
- d. It is vital that the airbrake is used early, recommended by 70kt, certainly by Vrough air, although some high performance gliders are not VNE limited by their airbrakes, and therefore may reach dangerously close to their speed limit if a prolonged recovery is needed.
- e. Avoid reacting to the strong mental disorientation inputs that often occur when denied an external horizon of any sort, especially if the head is moved, and/or the glider is rolled appreciably.
- f. Recovery to the level flight should not be too hasty as gliders can be overstressed easily at high speeds with large stick inputs, *ie* above Vra.
- g. The pilot should understand that this is an emergency recovery technique only and does not clear him or her in any way for cloud or instrument flying.

Correction: The Tel No. given in the article in the last issue, p21, of The UK Civil Satnav Group GPS Information Service should have been 0336 400499.

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Opinion Divided. Last year was the first in which your well beloved Comps Committee for the first time introduced BGA rules for POST, a task that has been an option in World Championships for a number of years. The first UK POST was set from Lasham for 50 gliders on July 28, and at the subsequent debrief only two pilots objected to the principle of the POST, although the rest told us to do better with time for flight planning and TP information. However, in discussion at other Comps, harsh words have been reported including pilots muttering that they wouldn't enter a Comp if POST was on the menu, threats to lynch the task setter (so what's new?) and so forth. So, other than the Lasham group, the majority of other Comps pilots seem to be against POST, some of them violently so.

Author's View. I will declare my hand straight away – I am strongly in favour of the BGA version of the POST task as an occasional mix with conventional race tasks *via* fixed TPs. It provides variety from fixed legs and gagging, and has a number of significant advantages both to the pilot and the task setter, and I strongly recommend its use in all competitions, preferably after a couple of conventional tasks with fixed TPs have been successfully completed. Once pilots have flown it, particularly the "Line POST" described below, they will realise the advantages. I believe that a lot of the objections are based on unfamiliarity and a fear of the unknown.

The 1992 Lasham POST. On the Lasham POST day, the morning forecast from Tom Bradbury sounded immaculate between the Cotswolds, East Anglia and as far north as Melton Mowbray. Had the task been a conventional one, like the Nympsfield 15 Metre Class Nationals on the same day, 500km would probably have been set, such as Leicester – Didcot – Lutterworth (503km). As it was, the day started early and well but bands of unforecast cirrus then reduced thermal strength. Surprise, surprise, these very good forecasts often don't deliver since they are vulnerable to any slight change, and the task setter normally can't win; remember Llanfair Caereinion in the 1985 Nationals? I do, I was crewing! However, on July 28, 1992, Nympsfield seem to have been luckier with their route and the bands of cirrus, and many pilots completed the 500km. But the average flown from Lasham was only 303km (although Ralph in the Nimbus 4 managed 460km), best speed being 89km/h and average speed 61km/h. At 61km/h you would need over 8hrs for 500km even assuming no reduction in rates of climb over the longer time. Therefore, *on a fixed 500km task very few would have finished, even allowing for later finish times than were used on the POST.* However, being a POST, pilots could adjust in the air and in the event, only one in ten landed out. Finishers were well spread in time, and there was *less congestion at the finish line than with a fixed TP race.* A successful contest day despite the change from forecast.

History. I am old enough to have flown free distance, pilot selected goal, distance-along-a-line, and cat's cradle. All have now been abandoned for Comps because of the undesirability of condemning all pilots to outlandings, and, except for distance-along-a-line, because scores often did not necessarily relate to pilot skill because

POST – FOR BETTER OR FOR WORSE?

The BGA Pilot Option Speed Task (POST) is a task scored for speed via turning points which pilots may choose in flight from a list of TPs set for the day by the task setter. In order to limit the legs flown to a sensible number, only a given number of TPs will be counted for scoring purposes; presently this number is five. An integral part of the task is a Set Task Time (STT), and to avoid pilots flying fast round short courses, penalties are incurred if they finish in a task time which is less than the STT. If they finish after the STT, under BGA rules there is no specific penalty except that, later in the evening, thermals will be weaker and achieved speeds (on which scoring depends), will be less. It should be noted that the international POST rules impose a penalty for finishing later than STT as well as earlier, making the task a "time trial" as well as a speed task.

many decisions on choice of route were made on a random basis. For this reason, the "fairest" distance task for Comp flying was distance-along-a-line, because pilots *were forced to go in the same direction and so they had an equal chance to take the soaring decisions which eventually result in day points.* But as well as landouts, it had the disadvantage of any fixed TP task, *ie if a TP is clagged out (sea breeze etc), the task can completely fail with all pilots battering themselves against the area of clag until they have to land. Alternatively the high performance merchants are able to round the TP but the lower performance gliders land.* Not the fairest condition for a Comp day which ideally should present similar opportunities for scoring to all competitors.

In poor or uneven conditions, alternative TPs may be used as part of conventional race tasks

My worst experience in task setting was many years ago when a front had the cheek to reverse its forecast direction, and really washed out a set TP. Nowadays, where poor or uneven conditions are forecast, alternative TPs may be used as part of conventional race tasks, but the distance round the alternatives must be about the same, so there is not the option of reducing task distance while airborne if conditions are worse than forecast.

Area Tasks – Cat's Cradle. CC was invented after the other distance tasks to give pilots a

choice of TPs while airborne so that if one TP (or a particular direction) looked poor, you could go elsewhere. After all, conventional task setting is done between 7 and 9am based on pretty inaccurate soundings of what thermals will be like some hours later. How much better to allow *assessment by experienced soaring pilots at the time and place itself,* albeit based on what they can see rather than a synoptic chart. But, like all distance tasks, CC commits pilots to landouts, and if there is a wide area of choice, decisions on, for instance, whether to go north or south could tend to be random rather than based on soaring acumen (like free distance).

I remember winning a CC day in a Dunstable Nationals when for most of the flight I was convinced I had made the wrong decision; the wind was east and I decided to go north when the rest went downwind, but weak thermals and the wind kept the rest at that side of the polygon whereas I was able to go with the wind at the end of the day and so finally cover more distance. But my decision to go north was not particularly skilful, and involved very slow progress while others were clocking up kilometres much faster at first. What this does show is that the *scores from "Area" tasks may not reflect the best pilot judgment of conditions,* and maybe this is what some pilots feel about the POST.

The BGA POST combines the advantages of the above tasks and if set carefully will not have their faults, having the crucial additional bonus that it is a speed task with a finish back at base. The BGA lack of penalty for being later than STT compared to the international rule of penalties both before and after STT, makes the difference between a pleasant cross-country closed circuit task and a desperate scramble for all to get back at the set time. I have heard it said that a POST should have about 50 pre-set TPs, announced well before the competition (with their photo zones also pre-set), and then on the day the pi-

lots make the best choice of the many routes available. I regard this as the task setter not fulfilling his responsibilities to optimise tasks for the day concerned, let alone his responsibilities for careful consideration of airspace in relation to possible task routes and the conditions of the day. And, even more important, it gives too much choice for even handed competition between pilots, for which a more controlled task structure is required; 50 TPs is anarchy, a maximum of, say, 15, is more than enough! Also, a POST need not be an "Area" task but can also be set roughly along a line. Indeed, I see the Line POST as being its primary application. Take Lasham; if sea breeze is forecast for the Salisbury area, we often go north through the Oxford gap between the Brize zone and the LTMA. A good Lasham Line North POST task is as follows:

POST Lasham Line North Example TPs	O/R Distance from Lasham (km, approx)
Basingstoke	16
Newbury	60
Goring	75
Ilsey	85
Didcot	100
Oxford	130
Bicester rail bridge (Avoids Bicester Local Soarers)	160
Silverstone	200
Northampton West	230
Watford Gap M1 Services	250
Lutterworth	280
Market Harborough (Avoids HB Local Soarers)	290
Leicester M1 Services	320
Leicester North	335
Melton Mowbray	350

Minimum distance is 16km and, using five TPs, maximum is 944! (via Melton, Basingstoke, Leicester North, Newbury and Leicester M1 Services). What a versatile task! Since all possible tracks avoid airspace restricted to gliders, no mandatory TPs are required to dog leg round airspace. And no danger of mass landouts if, say, there are poor conditions at Melton Mowbray since pilots will simply turn back earlier, say, at Leicester. Collision risk, no worse than a conventional O/R; gagging, much less; decision making in the air, somewhat more (maybe this is what puts some pilots off). But calculations so as not to arrive back before STT are pretty elementary since the BGA system has no specific penalty for being over the STT. Typically, you would plan to be, say, 15min "late" knowing that you will be scored simply for speed achieved. For instance, STT 5hrs, your start 1200, aim to finish about 5.15. Up to 15min earlier (5 o'clock), no problem; later than STT, OK as long as you keep up the rate of climb and so maintain your scoring speed.

Flight planning. The minimum needed is to mark all the TPs, a few typical track lines, note any sensitive airspace and just get airborne. If you want, estimate how far you think you will go on the day and select a basic route, bearing in mind that you will modify it in the air as you assess the real conditions. Personally I think *people try and flight plan too much in gliding*; basically you just need to mark the TPs on your

map, and, with a fixed TP task, the track lines. Pre-calculation of accurate headings is not essential since real headings between thermals will depend on rate of climb and wind strength at the time (and the accuracy of your compass!). The only heading that matters is that needed between thermals to take you to the next TP. And never mind GPS, above all, map reading ability is paramount! Thank Heavens that our sport is one where the basic principles of the ability to thermal and "dolphin", cloud selection and map reading, normally win!

Tactics, and calculations in flight. On the Lasham Line POST North, you are soaring north up the M1, approaching level with Husbands Bosworth, and you have to decide whether to press on to Leicester or Melton or turn earlier at Lutterworth. All you have to do is look at your watch. If the STT is 5hrs and you are approaching HB 2.5 after your start time, you would turn south at Lutterworth. Whereas if it were only 2hrs you would press on to Leicester. Allow for the fact that, other things being equal, your return will be faster than the outbound leg due to speed picked up on the final glide. On a super day, approaching HB after just over 1hr, you would be looking for 500km or so, for instance a route via Leicester, Didcot and Lutterworth (503km). With this latter route, if you were early coming south to Didcot, you could extend the southerly leg to Goring (528km), whereas if you were late on time, you could turn north again at Oxford (471km).

The exact distances don't matter but the time from your start time relative to STT, does. Since all pilot navigation consists of calculated approximation, nit-picking navigational calculations are quite unnecessary although undoubtedly many pilots will attempt them! Finally, at the end of the flight, what if you make a mistake and look like arriving back at Lasham *before* your STT? Here, as soon as you realise, you convert your final glide into normal speed flying and turn at Basingstoke, backtracking to Newbury (or Goring or Ilsey) so as to finish after the STT and still maintain your scoring speed. However, Basingstoke is only 8km from Lasham and should not be allowed as a last TP before finishing, since gliders would transit it fast and low on final glide and there would be a collision risk while distracted by photography.

Gliders of differing performance. Conventional fixed TP tasks often result in the high performance ships completing in a short time without fully utilising the soaring day, and the lower performance gliders struggling to get back at all. The POST forces the high performance gliders to fly on task for the same time as the low performance machines, who are allowed to finish at the same time of the day as the others and not always in dying thermals.

Task setting. Some POST options such as Lasham Line North can be prepared beforehand and even included as annexes to the local Comp rules; pilots will then have plenty of time to plan and those who wish can have a field day looking at all the options of routes and distances. I also have a Lasham Line North-east task through the Swindon gap up to Leominster, and a Lasham Line West to Yeovil going south of the Salisbury Plain ranges. Computerised task information for POST tasks is already being developed so that,

not only do day task sheets contain all the vital information about all of the set TPs (to avoid using the BGA TP book in the air!), but also give a matrix of distances against many possible sequences of TPs; not necessary but perhaps comforting. But there are still some pitfalls for the task setter.

If the day brews up better than forecast, it must not be possible for a high performance glider to achieve the maximum set distance and still finish before STT. Hence the very large maximum possible distance (over 900km) for Lasham Line North. The TPs should be set so that few, if any, legs pass through airspace restricted to gliders, in order to avoid awkward choices for pilots while airborne. Also, STT is critical and must not be too long or the task will fail with all pilots being condemned to scratching about in late, weak thermals or choosing to deliberately finish earlier than the STT and incurring penalties. If in doubt, set STT shorter rather than longer. The following table is suggested:

Time of first launch for the Task Group	Set task time
Up to 1024	6hrs
1025 – 1034	5hrs 50min
1035 – 1044	5.40
1045 – 1054	5.30
1055 – 1104	5.20
1105 – 1114	5.10
1115 – 1124	5hrs
1125 – 1134	4hrs 50 min
1135 – 1144	4.40
1145 – 1154	4.30
1155 – 1204	4.20
1205 – 1214	4.10
1215 – 1224	4hrs
And so forth until	
1415 – 1424	2hrs
1425 and after	Scrub, or change to a short fixed TP task

This table aims to allow 45min to launch the group and to allow the last launched to work up to start, with the earliest returns of the last launched between 5 and 5.30pm. The essential is that all pilots are in no doubt of the STT when they launch, and that an individual pilot's calculation of first finish time is easy once the pilot has recorded his or her start time. Finally, if an early cut off is forecast, STT would be reduced or a fixed TP task set allowing for early finishing.

POST shapes. The extreme shapes of the area enclosed by the POST TPs vary from the "Line POST" to the "Area POST", with an infinite variety in between. The ability to set compulsory TPs as well as those of pilot choice, allows task setters to dog leg gliders round areas of restricted airspace before allowing them tactical freedom. Indeed, a dog leg POST from Lasham into East Anglia, using a compulsory first and last TP at, say, Didcot to get round the LTMA, is a potentially valuable task. After Didcot, pilot choice TPs could be Wescott (170km round trip), Woburn (225km), Bedford (260km), Grafham Water (300km), Cambridge (330km), Ely (370km), Feltwell (410km), Watton (460km) and even, for the brave, Norwich (510k). And of course all the dog legs between them.

Comp rules. Last year's BGA rules were pretty good, and streets ahead of the International ➡

rules that have caused controversy by overconcentration on finishing at a precise set time. This year I hope BGA rules will be made more versatile by allowing repeat legs (but having flown another leg first, like the old cat's cradle rule), and the maximum possible number of TPs claimed to be increased to seven. You won't want seven all the time (to say the least!), but if you have already used up more than three and see that you are getting back early, you need a couple more for a dog leg or zigzag before finishing. Of course you can go to as many TPs as you wish, but only the number specified by the BGA will count (*ie* that combination which maximises your score). Fortunately, best speeds will generally be achieved using the minimum number of TPs since each TP rounded always slows you down, and long straight legs in good conditions always give the best speeds. And it should be possible for the task setter to use two compulsory TPs both out and back, in order to dog leg round restricted airspace, and to specify a TP or TPs which will *not* be allowed as the last ones before finishing, for either airspace reasons or because they are very close to the finish line.

Photo zones will always be controversial and photo assessors will never like POST, but I believe the best compromise is the old cat's cradle rule using the extension of the leg just flown as the centre of the photo zone. Fixed photo zone orientations such as all centred on north leads to pilots deliberately turning short if approaching from the north (you are allowed 3km by the BGA rules) and makes photo assessing between distances of 2.9 and 3.1km, impossible. Better the labour intensive than the impossible. GPS TP validation will sort this out in due course. And I believe that legs which would not be set in a fixed TP task (in accordance with BGA guidelines for task setting) should not count for scoring in POST tasks, in order to avoid tempting pilots into airspace transgressions and, even more important, in order that the BGA may be seen to be firm on airspace.

Conclusion. Not only is the BGA POST a useful addition to the task setter's armoury, it is potentially a challenging and enjoyable task for pilots to fly, and gives as equal a chance as possible for gliders of all performance to score well. Its Line POST variant channels all gliders in the same direction, so that decision making in flight by all pilots may be on the similar basis. The distance tasks mentioned earlier all fell into disrepute because they condemned gliders to fields; whereas the Lasham POST day showed that the POST will actually save many field landings on days where the Met does not live up to the initial forecast. And on days which are better than forecast, the POST rules will ensure that all pilots fly for a respectable time, compared to the fixed TP task where the hot ships finish early and underutilise the day.

Lower performance gliders will not feel that they are constantly being over-penalised by always getting back late, if at all, since they simply aim to come back at a similar time to everyone else. Therefore, to the doubters I would say, give it a chance, fly one or two and then pontificate. I see future Comps starting with several conventional fixed TP tasks, progressing to a Line POST and, if enough good weather is available, maybe

ADDITIONAL ENTERPRISE

Sunday, October 18, with Rodney Witter and Tony Knight flying a Nimbus 3DT

Saturday was disappointing with only the ridge working fitfully in the 10 to 12kt north-westerly wind but at 8am on the Sunday there was wave immediately above the airfield. This looked like the low level stuff we often experience directly off the top of the winch. However, due to recent torrential rain and a waterlogged airfield, the winch couldn't be used so we had to aerotow.

We took off just after 11am behind the impressive Christen Husky and cast off above the site at 1500ft with the ridge clearly working in the 12 to 15kt north-westerly. There had been a ground frost and the visibility was now extremely good – portents for good thermal soaring – although the low cloudbase and a freezing level at 3000ft were not too encouraging.

John Fielden (setting, as always, an unusual and enterprising task) had lived up the briefing room with the command "Get me a photograph of the 'snowed on' Snowdon from 12000ft". Our intention, therefore, was to climb high in wave above the Vale and make a high transit to Snowdon. The plan was to employ the standard Vale of Clwyd practice of climbing on the ridge to cloudbase, then pushing forward to the cloud edge to connect the wave.

The technique will often work – particularly at the highest point in the Clwydian range, Moel Famau 1800ft asl, where pushing towards Ruthin at cloudbase can usually be relied upon to discover wave.

Today it seemed that conditions were too unstable for the wave to appear. Frustratingly the cloud bars, evident across the wind before launching, had reorientated themselves into cloud streets lying directly along the wind. Nevertheless, we spent a considerable time trying the cloudbase technique in the hope of connecting the wave. We flew to the north of the

having an Area POST towards the end of a competition, just like in the old days when we had the odd cat's cradle. One thing is certain Comps will not be the same again! Isn't gaggle flying over fixed tracks over the ground just that teeny-weeny bit *boring*, not to say fraught at times . . . ✕

Rodney flew in Competition Enterprise in the 1970s and last autumn he invited the Enterprise team to try out his new site, Lleweni Parc, Denbigh (home of the Glyndwr Soaring Club) for a weekend and hopes a full Competition Enterprise may be held there when they have further facilities.

Vale and then to the south and explored both sides of the cloud street, all to no avail.

As the day was now getting on a review of tactics seemed appropriate and it was decided to follow a cloud street directly upwind. One ran beckoningly from just north of the airfield in the direction of Snowdon. With cloudbase at 3500ft and the ground rising to 1700ft west of the Vale, the prospect didn't seem as relaxing as transiting in wave.

In the event, the conditions over the Denbigh moors were quite good with 2 to 3kt carrying us to cloudbase eventually at 4000ft asl.

Coming up to the river Conway we could see a line of sun along the valley running north-south. This had to be promising. Pushing forward at cloudbase over Llanrwst the air was choppy but soon settled to a steady 3 to 4kt of wave. It was now 3pm and we were able to climb here to 8000ft.

At last we could relax and eat our sandwiches with a little Mozart on the cockpit stereo. The wave slot was not long and only gave strong lift in parts. Moving forward to photograph Snowdon, the next bar didn't appear so well formed, nor did it give good lift. Perhaps it was too much over the top of the mountains actually producing the lee wave.

Snowdon itself was covered in cloud, but we photographed the peaks to the south and then moved north to the area of Penmaenmawr. It was here we achieved a high point of 10 500ft and took more photos of the snowy on peaks. Try as we might, however, we couldn't achieve the 12000ft demanded by our exacting task-setter.

It was nearly 5pm and we felt it was time for home. What a contrast to the outbound journey. It took us just 6min to return to the Vale of Clwyd with (so our GPS told us) a 27kt tailwind.

We paused at Prestatyn to examine another wave system which had formed at the north end of the Vale and was obviously accessible from the ridge at Dyserth, then a braked descent to the circuit.

But panic on downwind – the undercarriage wouldn't go down! Although the brakes had been exercised on the descent to ensure no icing, I had never heard of an undercarriage icing up. Obviously we had collected water on the take-off run which had frozen around the mechanism in flight (we noted -15°C at 10000ft). Fortunately a dive and steep pull up, with an adrenalin assisted push on the operating handle, did the trick. Moral: Try you undercarriage before arriving in the circuit to give it time to thaw out and for you to sort out the problem if it sticks after a sub-zero flight.

We landed cold but happy after a total flight time of 6hrs and nil engine time. ✕



Mike back on home ground.

THE EASY WAY TO BADGES

The quick answer, says Mike Langton, is Minden, Nevada. He describes how as a relative newcomer to gliding he gained his Silver badge in America



A postcard from Minden showing the site with its spectacular background.

Since my first flight on a cold and windy May Bank Holiday at Aston Down in 1991 I was hooked on gliding. It took me all of 24hrs to find the nearest gliding club – the Cambridge University GC.

Having gone solo that August and completed my Bronze for the 1992 season, I was invited to join Jim Tee on a gliding holiday at Soar Minden.

The long flight to San Francisco was shortened by admiring the cloud formations. The 300 mile drive to Minden was only broken for refreshments and a stop in Reno to acquire a licence from the FAA. Arriving at Douglas County Airport, which is 4700ft asl, I just about had time to grab a hat from the car before being given a check flight in a Grob 103 to 16 000ft.

We had been warned that it was a question of choosing which day you wanted to do your Silver legs. All went well and I was ready for a solo flight the next morning. Unfortunately I forgot I was suffering from the journey, the altitude and overconfidence, which doesn't make for good flying.

Such minor details as virtually no time on glass, few landings on hard runways as opposed to grass, not having used the radio in the circuit, made for added interest. The fact I noticed 10kt down on the circuit was the only good thing about the flight. I then messed up the aerotow check behind a Pawnee 250.

Suitably put in my place, the next day I took things a little easier and consequently so were the landings. Randy the tug pilot (yes there are Americans called that) must have been impressed that the wheels were starting to touch only once as we were invited to his previously unannounced wedding. Harvey Clarke, my ex Royal Marine instructor who used to fly with Portsmouth Naval GC, needed a little more convincing before giving in.

I was encouraged by reports of strong thermals and gliders at 18 000ft over the mountains. Unfortunately I forgot the advice to stay on tow until at least 2500ft and pulled off at 1500ft at

10kt and almost beat the tug home. Just to prove it wasn't a fluke, I went up and did it again.

By now Jim and I were sharing a Grob 102 and, having learnt many lessons when I stayed on tow long enough, I found myself at 10 000ft. I didn't have a barograph of course but plucking up courage managed a 15km O/R, topping up in every thermal just to make sure I had enough height to get home. Having taken at least 2hrs I now landed by the familiar method of holding the airbrakes open for a long time.

Tony Sabino, the boss, was soon encouraging us to take a barograph, oxygen and camera, so I finally decided that perhaps I should go for that big step – the 50km. Being very cautious – there aren't too many places to land out in the desert – when I had completed 30km still in range of Minden and at 14 000ft I decided I really could complete the further 27km.

I landed at Silver Springs but had forgotten one thing. My aerotow was too high (1% rule) so despite some beautiful photos the distance didn't count.

Deciding I should plan my flights a bit better the next time I did a bit of preparation and a remote start and finish of about 130km. Having

completed this in 2hrs and arriving home at a more sensible height, I went for the duration as well. This was slightly more difficult but having learnt from Jim's experience of staying high under the clouds late on in the day which cut out the thermals low down, I completed 5hrs.

I should have believed them in the beginning that any day was a Silver day and with a little more experience and the ability to work out final glides, I might have achieved more. But I was more than satisfied and the magnificent views with such clear air were a joy.

It was a great holiday and our thanks to all at Soar Minden and Douglas County Airport for their help and hospitality.

Since returning home I have managed the odd cross-country just to satisfy those who said it was too easy in the USA. I can recommend a trip to Minden for anyone, even those family men, as there is plenty to do for those who don't have the bug.

The big advantage is you don't have to jump out of bed early in the morning to see what the sky looks like – it's the same as yesterday and the day before, booming! Just arrive at around 11am, jump in the glider waiting for you and you're off. FAA certification, although compulsory, is very simple and flying, though a little dearer than the UK, is good value.

To use an American quote: "I shall return." ✉

SKYWATCH – A Beginners Guide to Clouds

Part 7, Monster Cumulo-Nimbus

The preceding article in the February issue described some of the features of relatively small cu-nims, the kind one might enter with a fair chance of emerging intact much higher up. This article is about the monster cu-nims which are best given a very wide berth

Where the difference lies

Most of the small cu-nims develop in cold unstable air which has come from polar regions. These clouds depend very greatly on surface heating to set off the instability so they usually die out overland in the evening. Monster cu-nims are features of warm air which has come from regions near the tropics. Although they too depend on surface heating they may develop as a result of two different airmasses becoming superimposed, warm moist air moving in under cold and often dry air. A feature of monster storms is they develop over a wide area and can persist through the night even when the storm cloud is carried over a cold sea.

Pilots who enter the little cu-nims can usually fly out into clear air within a few minutes if they find it becomes too uncomfortable or frightening. Once well embedded in a monster cu-nim a pilot may not find it easy to get out quickly. Instead of being a few miles wide the monster can grow to diameters of more than a hundred miles with many active cells inside a canopy of thick layered cloud. The lift may, on rare occasions, become so strong that the sailplane is hurled up to heights far above the level where ordinary oxygen systems can sustain life.

Warning signs on weather maps

In summer, spells of hot sunny weather often occur when a high develops over England and the near Continent. The centre of the high generally drifts away eastwards and when it goes a southerly airflow starts to bring even warmer air northwards. For three or four days pressure falls and the temperature rises until day maxima exceed 30°C. These high temperatures encourage evaporation and the dew point rises, partly from evaporation but mainly from the transport of moister air from tropical regions. At the same time a cold front approaches from the west. The

front itself may be inactive but it brings an upper trough with much colder air at high levels. Cold fronts are able to generate a line of cu-nims but many severe thunderstorms break out in the warm air a long way ahead of the weak cold front. When such pre-frontal thunderstorms occur the following cold front is apt to become very weak.

Big changes of wind with height

As the high moves away the low level winds start to strengthen from the south-east. Over the top of this hot humid air the winds at 15000ft and above are south-westerly. These bring colder drier air over the top of the hot humid air. The whole region becomes progressively more unstable, but for a time nothing happens. At first the hot low level air is capped by an inversion at 4000-6000ft which stops even small cu forming.

Adding a jet stream

A third factor often appears – the arrival of a south-westerly jet stream associated with the approaching upper trough. Now jets ahead of upper troughs nearly always produce widespread ascent of air; most of the frontal depressions start this way. Rising air becomes less stable. The instability can be increased when there is moist air low down and dry air aloft. It produces a situation known as “potential instability”. The upper air soundings look stable, but slow lifting turns them violently unstable after clouds form.

The three main factors preceding severe thunderstorms

Three destabilising factors often combine to set off severe storms:

(a) The spread of hot humid air from the south or south-east.



Photo A. *Alto cumulus castellanus* preceding a thundery outbreak.

(b) The arrival of cooler and much drier air aloft carried by south-westerly upper winds. The two wind directions, SE below and SW aloft, provide a wind shear which can control the way a cu-nim develops.

(c) The development of a jet ahead of the upper trough setting up a widespread ascent of air which results in destabilisation aloft and (usually) a fall of pressure at the surface.

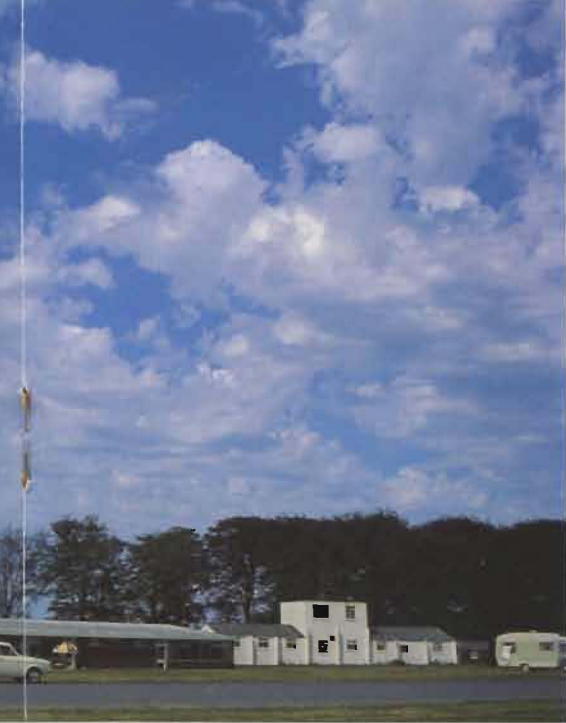
Fig 1 shows a situation favourable to severe thunderstorms. The shaded area marks where cu-nims can be expected to grow.

An inversion often delays the formation of cu-nims

The inversion holding down the warm moist air delays any build up of cu-nims until the conditions aloft have become very unstable. When this inversion finally breaks the pent up energy is released suddenly. The inversion prevents the system going critical until there is a vast reserve

Photo C. The expanding arc of a tropical gust front after the originating cu-nim had disappeared.





Visible indications

Widespread thunderstorms are often preceded by the appearance of altocumulus castellanus. Photo A shows an example. This "Ac cast" often looks like a field of small cumulus but the base is far above any thermals. It is often at levels of 10000-15000ft. This kind of cloud shows that the air at medium levels has been lifted above the condensation level and the puffs of very high cu warn you that the air is becoming unstable aloft. (Ordinary upslope lifting of stable air tends to produce a sheet of cloud not castellanus.) Thunderstorms often follow within 24hrs of the appearance of medium level castellanus clouds. Photo B shows an air view of castellanus cloud with trails of ice crystals falling from them. These trails are termed "Virga". You can see that these trails are above the tops of the smaller cu which were held down by the inversion.



Photo B. Altocumulus castellanus with trailing "virga" (trails of ice crystals falling from the cloud).

Castellanus clouds sometimes grow very large and end up producing their own shower (usually very light) well before the main thundery outbreak. They can be very deceptive if there are no lower clouds. I have been fooled into taking a tow under them, and spent fruitless minutes searching for non-existent lift before realising the clouds had no roots.

ing the haze still persists. It takes prolonged heavy rain to wash out all the haze and it often needs a change of wind bringing in cooler clearer air from the Atlantic.

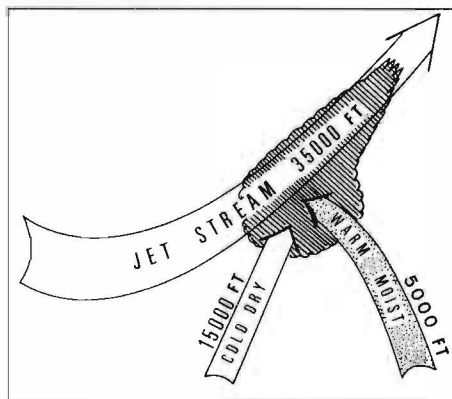


Fig 1. Situation preceding severe thunderstorms, advection of warm humid air at low level, arrival of cold dry air at middle levels and a high level jet stream ahead of an upper trough. Cu-nims form in the shaded area.

of energy available to feed monster cu-nims. Thunderstorms can still develop without it but the energy would be released over a longer period and the storm would grow less rapidly.

Visibility

When lesser cu-nims develop in unstable air from polar regions the visibility is generally extremely good. One can see a cu-nim summit more than 100 miles away, if there are no intervening clouds. In the hot and humid conditions before the monster storms arrive the low level visibility is often so poor one can barely see the ground from 10000ft. Above the haze the horizontal visibility is usually very good so distant cu-nim anvils can still be seen if you climb high enough.

The inversion which restricts thermals in hot weather also traps all the Continental haze in the south-easterly flow. Even when the inversion has broken and massive cu-nims are develop-

Plan of a severe cu-nim

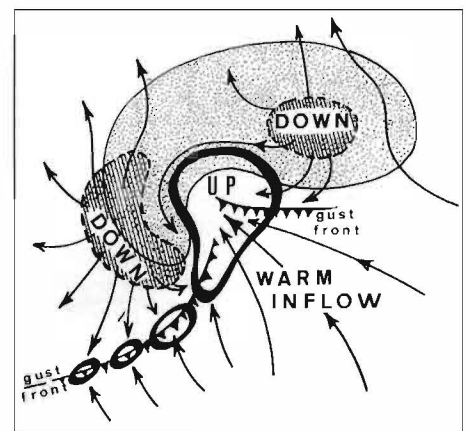


Fig 2. Plan of a severe cu-nim showing inflow and ascent close to downflow, descent and gust fronts.

Photo D. The end of a cu-nim line.



Fig 2 shows a low level plan of a severe cu-nim. The warm inflow comes pouring in from the SE. (The upper flow has been left out for simplicity.) Thick black lines mark the up currents while hatched lines show the nearby downdrafts. The large area filled with dots is the radar echo. Rapidly descending air is deflected horizontally along the ground and forms a gust front. One gust front undercuts some of the inflow to boost its ascent. A longer gust front grows out on the SW side. New cells build up along this gust front. In parts of the USA where this process is extremely violent tornadoes may develop along this line. In the UK and NW Europe tornadoes are comparatively rare and do not reach the size and intensity of the the American ones. However they do occur, particularly along cold fronts in autumn, and then they may strike during the night.



Photo E. A line of cu-nims over Yugoslavia.

Multiplication of cu-nim cells

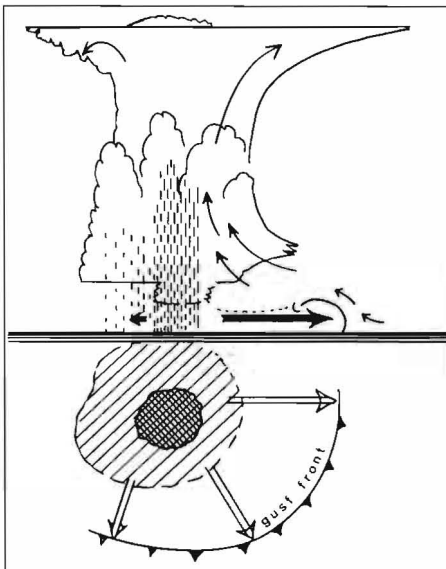


Fig 3. Plan and cross-section of simple cu-nim with outflow starting to produce a gust front.

Fig 3 is a plan and elevation of a simple cu-nim showing the downrush of rain close to the column of lift. The lift is beginning to be deflected over the outflowing gust front on the right.

Fig 4 shows how a single big cu-nim can grow into a long line of thunderstorms. The gust front (marked by spiky symbols usually kept for cold fronts) spreads outwards from the original cu-nim. On the southern flank of the storm it meets the hot and humid SE flow and sets off a new cell. This in turn produces its own gust front. The cells are numbered historically from 1 to 4. Each new cell forms on the right flank of its predecessor.

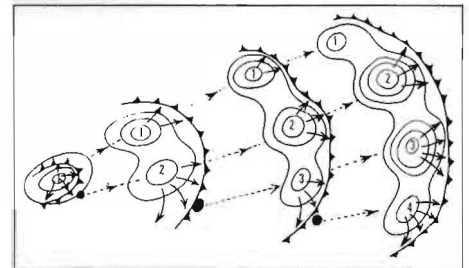


Fig 4. Growth of a cu-nim line by expanding gust fronts.

Structure of a gust front/squall line

Fig 5 shows the evolution of a gust front after an extremely severe descent of air called a downburst. As the downburst hits the ground it is deflected outwards and soon develops its own circulation over the top of the gust front. This is rather like a supercharged sea breeze circulation. It can form part of a ring with an arc of turbulent cumuli over the leading edge.

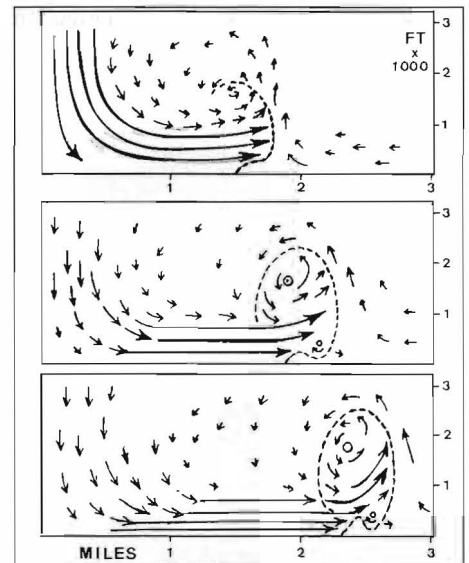


Fig 5. Structure of a gust front spreading out from a downburst.

Photo F. Cu-nim distorted by wind shear seen from about 38 000ft over the Indian Ocean. Photos by Tom.



Fig 6 shows three stages in the formation of cloud over an expanding gust front. The first sign may be an outward curve to the rain shaft below the cloud. Next little bits of scud start to form where warm moist air is lifted by the gust front. Third an arc of cloud, often very smooth edged like a wave cloud, forms at low level. Such arc clouds under a cu-nim may mark the main inflow region where the lift can become very powerful. The gust front weakens as it spreads out but it can remain intact for scores of miles.

Photo C shows an arc of cloud over a tropical gust front many miles out from a distant cu-nim which had already disappeared. These gust

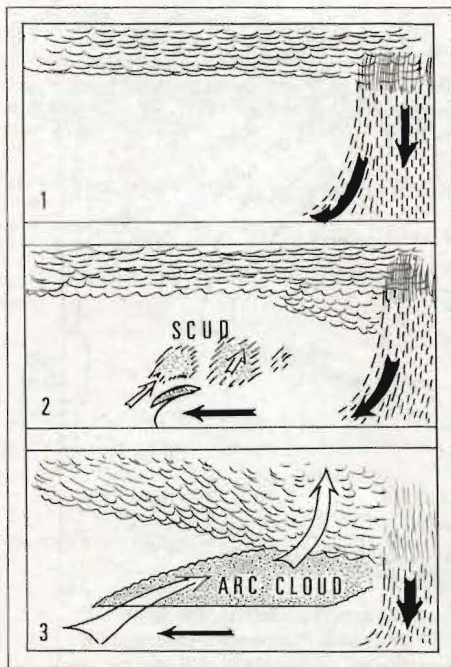


Fig 6. Visible signs of a gust front growing from under a cu-nim.

fronts may travel a long way before dying out; some set off new cu-nims as they expand.

Other thunderstorm lines

A range of mountains may grow a line of thunderstorms when the surrounding plains are almost cloudless. A chain of thunderstorms is often formed along convergence lines; sea breeze fronts occasionally set off such a line but more often there is a trough of low pressure lying across the zone of instability. The low level convergence along a surface trough starts the air rising and triggers cu-nims. Photo D shows the leading end of a westward moving thunderstorm line which extended from London across the Brize Norton zone to Gloucester. New cells of very big cu were constantly forming along the sunny side while lightning flickered away under the blacker parts. Photo E shows part of a Yugoslav cu-nim line. The cu-nim anvils had come up against a strong inversion, probably the tropopause, and the anvil tops were particularly level.



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Multi-cells or supercells?

The majority of cu-nims are composed of many cells at different stages of development. Multicell clouds may grow to cover a very large area but the life of individual cells is shortened by the downrush of precipitation. If a mass of rain or hail falls back into the rising air the lift is soon overloaded. The effect is increased by the cooling produced by a mixture of rain, snow or hail falling into the previously "warm" air. If the column of ascent is almost vertical the lift soon turns to sink and the cells rapidly fall to bits. One can see this happen to isolated cu-nim but if it is embedded in a vast mass of cloud the process may only be detectable by radar.

Supercells

If the descending rain or hail can be kept separate from the column of lift a huge storm cloud called a "supercell" may evolve. Fig 7 shows a three-dimensional sketch of a supercell. Before a supercell can form there needs to be a marked wind shear between the base and top of the cloud. This is not uncommon, it is one of the three severe storm factors listed earlier. Multicell storms may evolve into a supercell storm. The essential feature is a sloping inflow bringing the warm moist air in at an angle. As this air rises the angle becomes almost vertical and the lift increases. Eventually it comes up against the tropopause, the boundary between the unstable troposphere and the very stable stratosphere.

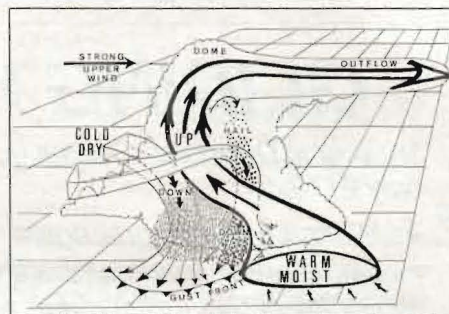


Fig 7. Three-D sketch of a supercell.

Here the inversion is so strong that the cu-nim spreads out forming a very flat top. (Photo E.)

Overshooting tops

The strength of the lift in a severe storm can be so great that the cloud top overshoots this lid and makes a bulge in the tropopause forming a dome well above the general cloud top. Over the UK some domes have been observed by radar to penetrate as much as 10 000ft into the stratosphere. In the USA one exceptional cloud penetrated about 17 000ft. Overshoot domes seldom last long but when one subsides it may be rebuilt by a fresh surge of lift.

Strong upper winds pull out the anvil

If the upper wind is very light the top of the cumulonimbus spreads out to form an almost circular anvil. More often the cu-nim top goes through a layer of strong upper winds just below the stratosphere. Then a huge anvil of cloud, usually consisting of ice crystals, is carried away downwind.

I have seen a tropical cu-nim which grew over Malaya produce an immensely long anvil of cirrus which extended about a 1000 miles in the high level jet stream.

Photo F taken from about 38 000ft shows the effect of wind shear on equatorial cu-nims over the Indian Ocean. The low level wind was entering the cu-nims from the right (western) side but the outflow of dense cirrostratus was carried in the opposite direction by a powerful easterly wind.

Separating rising air from descending rain keeps the cell going

The supercell can survive far longer than ordinary cu-nims because it keeps the updraft separate from the downdraft so does not collapse from the weight of precipitation. Fig 7 shows how the cold dry air is entrained at middle levels to form separate downdrafts; one part may actually curve over the updraft before descending. This is sometimes where the hail shaft develops. Rain drops carried up freeze at high levels and fall back as small hail. Some re-enter the updraft and are carried up again to grow successive layers of ice. Those larger hailstones which fall out into the downdraft often arrive first. At ground level the first precipitation often starts off as heavy hail followed by lighter hail and finally rain.

Monster cu-nims may make monster hailstones

Tiny frozen particles are called ice pellets and these may fall from small cu-nims. The particles are called hail when the diameter exceeds 5mm. The little balls of ice may grow to a diameter of 50mm or more. The stronger the updraft the larger the hailstone can grow before it finally hits the ground. Some incredibly large hailstones weighing more than 2lb have been reported; one which fell near Manchester had 51 concentric rings suggesting it had made that many up and down trips. A broken fragment from this monster stone was 14cm long.

Monster hailstones and very strong updrafts

Sailplanes pilots have reported lift of nearly 60kt in the core of a cu-nim. This is much less than the maximum updrafts in some very big storm clouds which passed over south-east England. In one storm the maximum lift at heights around 30 000ft was calculated to be 67m/sec (130kt). The cloud top reached 43 000ft. Even stronger lift was attributed to an American Cb, 145kt in a cloud which went up to 58 000ft. This cu-nim dropped hailstones with a maximum diameter of 10cm; such big stones should have a fall speed of about 126kt at the high levels where they form so the calculated lift was probably not far from the actual value.

Long life supercells

Once the supercell is in existence it is no longer dependent on sun-heated ground to keep going. The process is self-sustaining and can easily go on all night. Solar heating certainly

plays a part in initiating the storm but when it has become a supercell it can keep active for many hours. These storms can even survive a long journey across the cold waters of the North Sea. All they need is a continued supply of warm moist air at levels up to some 5000ft and a wind shear with a strong flow aloft.

Cloudbursts

The torrential rain descending from a monster cu-nim is sometimes described as a cloudburst when the heavy rain continues unceasing for a long time. The amount of water inside even a monster cu-nim is insufficient to produce the vast amounts of rain in a cloudburst. It is necessary for the storm cloud to remain almost stationary over the area while the rain generating process continues at full blast. London had such a storm on August 14, 1975, during the late afternoon. A vast multicellular storm developed in a region of considerable vertical wind shear. The downdraft gust front pushing against the inflowing south-easterly winds maintained an almost stationary convergence line above which successive cells developed. The rain generator hardly moved for about 2½hrs and Hampstead had just over 170mm of rain. Hailstones of 20mm diameter were reported.

What a cloudburst can do

During the Hampstead storm an area of 15sq km had a weight of 22.5 million tonnes of water dropped on it in about 2.5hrs. This is equivalent to about 2500 tonnes/sec. During another exceptional storm over southern England on July 9, 1959, the influx of water vapour into cloud-base was put at 12000 tons/sec. To carry such a mass of moisture implies a total inflow of about 800000 tonnes of air/sec. The energy involved is enormous. The rainfall which is measured at ground level is usually less than the amount sucked in by the updraft. This is because the rain eventually spreads over a larger area than the updraft.

Anchor themselves

To higher ground

Almost stationary masses of cu-nims sometimes seem to anchor themselves to high ground. The small island of Malta has had two or three autumnal cloudbursts when the storm cloud sat overhead for well over an hour. On one occasion part of the main island had about 280mm of rain while the airfield at Luqa only had a sprinkling.

The Lynmouth floods of August 15, 1952, were due to an almost stationary system which developed over Exmoor and gave at least 200mm of rain. (There are few rain gauges up there so the maximum amount is not known.) The downpour was so fierce that even near the hill tops where the ground hardly sloped, the torrents washed large stones across the roads and dug deep trenches beside lanes. When this mass of water swept down the steep valleys it easily carried five ton boulders along, smashing bridges and houses and taking cars far out to sea.

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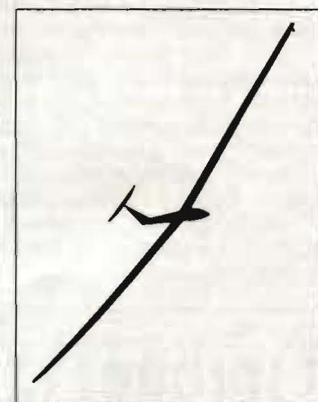
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LONDON GLIDING CLUB

I'VE HEARD THIS BEFORE SOMEWHERE

"G" Dale, the manager of Bristol & Gloucestershire GC, describes how they are planning to take the frustration and time wastage out of learning to glide

And you've seen it too. A two-seater lands with a potential glider pilot, Miss Abbey Nitio, down from her first flight.

Abbey to instructor "Wow, terrific. Let's do it again." Instructor to Abbey, "OK, just put your name on the flying list and we'll fly later."


Two or three hours later she is still waiting for her name to come up. Not much fun, 3hrs at the launch point for 20min in the air. She gives up.

On Saturday she tries again. She's through the clubhouse door by 9am to find herself tenth on the flying list. She flies at 2.15pm. "Sorry, you need to be here early at the weekends" someone tells her.

I wouldn't do it; neither would you. So why should Abbey who isn't hooked on gliding yet.

There has to be a better way, like selling Abbey a fixed price, 1hr lesson, which she could book at a time which suits her. No waiting, no uncertainty and no complications. It already works at every power flying club in the country so why not for gliding?

Giving pupils _____
Priority launches _____

Well this is what we have just started doing at Nympsfield. We are running trial lessons and 1hr lessons which may be booked so there is no waiting around. We will, of course, offer the usual holiday programme to include soaring, aerobic, cross-country and intensive "solo" courses. We are hoping the 1hr lesson scheme will prove to be the link we are looking for in the chain from trial lesson to club pilot. We are giving the pupils priority launches and using aerotows as much as possible as winching involves too many potential hold-ups. You can't book lessons at the weekend when it's busy but we do use this concentrated method for teaching members. 

It is generally accepted that more effort has to be made to keep the enthusiasm and hold the attention of ab-initios. We would like to hear from any other club who has found a way of making training more appealing, less tedious and effective.

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BRITISH TEAMS FOR 1993

With the World Championships in Sweden, the Women's Europeans in Czechoslovakia and the Junior Europeans in France, fevered voting has been taking place all winter.

The World Championships team is voted for by the 15 members of the team squad plus the five highest other pilots in each of the three Nationals, giving a voting panel of 30 pilots. The six pilots elected to the team were Justin Wills, Andy Davis, Al Kay, Dave Watt, Martyn Wells and Brian Spreckley. Chris Rollings was 1st reserve and Steve Jones 2nd reserve.

The Women's European team was elected by a vote of all women holding a competition licence in 1992. The four pilots elected to the team were Gillian Spreckley, Jane Nash, Julie Angell and Jill Burry.

The team for the Junior Europeans is selected by results in the previous year's Junior Nationals and is not finalised yet, but places will be offered to Steve Jones, David Allison, Simon Housden, Karina Hodgson, Brian Connolly and Brian Marsh if they can avoid reaching their 26th birthday in 1993.

Good luck to all our teams.

Basil Fairston, *British teams' co-ordinator*

CHURCHILL AWARDS

We are pleased to announce the introduction of a bursary scheme to encourage young glider pilots. This will take the form of awards of £100 each for pilots achieving the Bronze endorsement to their gliding certificate before their 18th birthday. The cheque for the award will be payable to the gliding club of their choice and will be set against their future flying fees' account at that club.

The money will come from a fund set up by an anonymous donor wishing to commemorate the spirit of Winston Churchill and the trustees of the fund have decided to make these awards to encourage young people until such time as the fund is exhausted.

Applicants should apply in writing to the BGA office giving their date of birth and nominating their gliding club.

Barry Rolfe, *BGA administrator*

INSTRUCTORS' GROUND SCHOOL

In response to the lack of theoretical content on assistant instructors' courses, the BGA Instructors' Committee have introduced two-day (weekend) courses as a precursor to the main seven-day course.

They will be held at various sites throughout the country and cover such subjects as placard and flight limitations, stability, cross-country performance, meteorology, lift generation and drag production, the stall and spin, forces in flight and structures.

The ground school is a requirement for anyone attending an instructors' course and should be completed before the seven-day course. There is a £20 booking fee to cover the hand-outs and other expenses, payable when you book with the BGA office or in conjunction with your instructor record card.

Although these courses were designed with

the potential instructor in mind, it may also be very useful for those looking for a full Cat rating who are unsure of the standard of theoretical knowledge required.

By now your CFI will have a list of the courses. Make sure you book early as places will go quickly.

Graham McAndrew, *BGA national coach*

BGA 1000 CLUB LOTTERY

The results of the January draw are:- First prize – Miss T. Pearson (£116.50) with the runners up – C. Cornish, E. A. Arthur, Mrs M. Smith, J. E. F. Kettley and C. J. N. Waller – each winning £23.30.

February: First prize – J. Wooldridge (£119) with the runners up – J. G. Allen, D. G. Shepherd, P. J. Chamell, D. B. Eastell and S. Naylor – each winning £23.80.

FOREIGN COMPETITIONS

We are occasionally notified of European competitions that would welcome British contestants. These tend to be of a specialist nature eg Club Class, motor glider, veterans, junior, two-seater etc. The one thing they all have in common is that the details are received too late to be published in *S&G*. If you are keen to fly in a European competition, write to Basil Fairston at the BGA office giving details of your preferred type of contest and any suitable details will be sent to you.

AIR LEAGUE SCHOLARSHIP

There isn't much time left but youngsters over 18 and under 22 by May 31, 1994 are invited to try for an Air League Flying Scholarship which will give them 15hrs power flying next year. Application forms, which must be in by the end of June, are from The Secretary, The Air League Educational Trust, 4 Hamilton Place, London W1V 0BQ.

SORRY WRONG NUMBER

In the autumn I was approaching my home airfield and called on 129.975MHz to ask for airfield status and landing clearance. I was interrupted by a glider pilot who said "Don't you know this is a glider frequency?" I told him, very politely, that yes I did know that it was a glider frequency and that it was the correct frequency to use Air to Ground at gliding sites from a powered aircraft.

It was in June 1987, after protracted negotiations with the CAA, that I obtained permission to use this frequency. The CAA refer to it as "A Common Glider Field Frequency" and go on to say that "it will be in order for you to communicate with visiting powered aircraft on bonafide safety aspects relating to the activities of gliding. Only messages related to the activities of gliding are permitted on the allocated frequency. Tug planes in the circuit, winch cables, positions of gliders on approach and on the ground, as mentioned in your letter, are all part of gliding activities. Therefore messages referring to them will be permissible."

On any gliding day you can hear pilots using 129.975 to chat with each other, presumably

because the frequency is less congested. It does mean, however, that those using it for the proper purpose can be thwarted in their attempts to establish communication. There is such widespread ignorance of the correct usage of the five glider frequencies that it is worthwhile to tabulate them yet again.

MHz	Primary Use	Secondary Use
129.900	Ground to ground, eg launch point to winch, retrieve crew to glider on the ground.	Nil
129.975	Airfield Control Service, eg ground to visiting aircraft or tug or glider within 10nm of site.	Nil
130.100	Competition start/finish line. Local flying	Training. Lead and follow.
130.125	Training. Lead and follow. Other cross-country messages.	Local flying. Competition start/finish lines.
130.400	Cloud flying. Cross-country location messages.	Nil

This coming season why not resolve to get it right? Brush up your R/T phraseology. Treat yourself to a copy of CAP 413 and be clear and concise when you press the tit! The air waves will be so much more peaceful as a result and those who really need to establish contact will be able to do so, making the sky a safer and more enjoyable place to be!

Humfrey Chamberlain

DANISH GLIDING CONFERENCE

Denmark has only 38 clubs, 2100 members and 450 gliders and motor gliders yet 150 members attended a gliding conference at Ry in Jutland in January. The idea for the weekend stemmed from a Society of America convention in Reno, Nevada when the predecessor of the OSTIV Training and Safety Panel (TSP) met there in 1983.

Bill Scull, chairman of the OSTIV-TSP, gave a flight safety talk, a dry run for his BGA presentations; Mogens Hansen spoke on the International Gliding Committee and public relations and Klaus Holighaus on the problems of designing gliders.

When pressed Klaus did show details of the Duo-Discus, a 20m two-seater due to fly soon, but didn't want to talk about his recent trip to South Africa during which he is claiming ten world records – 16 flights totalling 14 000km. Only three were under 1000km, one a 500km and two 750kms.

There was a debate on the relationship between the Danish Gliding Union (DGU) and the clubs. Increasingly the responsibility of gliding is being devolved from the civil authorities to the DGU which seems to be increasing the number of rules rather than reducing them.

The remaining sessions were on stress factors and a review of winch launching accidents given by Ole Didriksen who for 20 years has been the national coach, DGU secretary and director of operations.

ADVERTISERS PLEASE NOTE



Debbie, your contact for display and classified advertisements.

As we explained in the last issue, the BGA office (tel 0533 531051 fax 0533 515939) has taken over the advertising for S&G.

June-July deadlines

Display advertisements – April 20

Classified advertisements – May 4

Editorial copy is needed long before this. Our main deadline is March 31 with club news and letters accepted up to April 10.

Gillian Bryce-Smith, editor

MANDATORY INSURANCE COVER

BGA Operational Regulation 1.8 requires that all gliders shall be covered by third party insurance and all two-seater gliders shall additionally be covered by second seat insurance for at least minimum amounts which shall be decided from time to time by the BGA Executive Committee.

At their meeting in January the Executive decided that the minimum amounts of mandatory cover should be increased to £1m for all

multi-seater gliders (the figure for single-seaters remains at £500000). We would recommend that you take immediate action to contact your insurance broker if you do not already hold cover to this limit, but in any case it must be put into effect by the next insurance renewal date.

It may interest you to know that without this increase in the mandatory cover it would not be possible for the BGA to obtain renewal of our own block policy of back-up insurance for all rated gliding instructors. We shall require confirmation from clubs that all gliders are covered by the required amounts and a request for this information will be included with the annual questionnaire for clubs at the end of September.

Barry Rolfe, BGA administrator

BGA TP LIST FOR 1993

Copies of the 1993 list of BGA Club Sites and Turning Points were distributed to all BGA clubs either at the BGA AGM or by post shortly after. The 1993 list contains many improvements on previous editions. About 140 additional points have been added at the request of clubs and pilots in areas which were sparsely covered before, and the presentation now uses the Word Perfect "Table" function, which not only looks neater but makes the list easier to handle in software form since each element of the data is in a separate "cell" or "field".

For the benefit of GPS users, lats and longs are now quoted to an increased accuracy. The old Air Activity lists have now been incorporated in the main lists for England/Wales and for Scotland, the Air Activity points being identified by shading across the row. Better indexes are provided, all point names and trigraphs being listed against page references in the main page index, and a regional index is provided which lists the 50 or so main features used for distance and bearing data such as Exeter, Norwich, Oxford, Perth, Yeovil, York, etc, and gives against each main feature a list of all the points referenced to it in order of the bearing from the feature.

Finally, an alphabetical category from A to D is given for each point which is intended to reflect the ease, or otherwise, with which a pilot who has not been there before should be able to find the point from typical soaring heights; the category for Air Activity points includes a hash symbol (#) after the letter.

Pilots, organisers, official observers and computer programmers using the TP list are therefore advised to destroy old copies and use the 1993 version. With POST tasks now in the BGA rules and assuming that TPs are taken from the current BGA list, you may need a personal copy sooner rather than later!

Computer operators will realise that the "sort" function may be used with the new "field" layout to sort the list in different ways, such as by trigraph (Field 2) rather than name, by TP category (Field 3), by regional main feature (Field 8), by 1:50k map sheet (Field 9) or even in north/south order (Field 10 Word 2). Advice is requested for the 1994 list for the best way of presenting the data; for instance is an alphabetical or a regional presentation preferred? It could, for instance, be in alphabetical order of the regional main features (starting with Andover, ending with York), and having the full TP details under each feature rather than just a summary in the regional index; the page index would be continued as an overall alphabetical reference for all of the TP names and trigraphs.

Hard copy of the latest list is available for the cost of postage (63p at the last check; it's quite heavy, please send stamps), or on floppy discs (3.5 or 5.25in) for an extra £1 if you wish a disc to be supplied, otherwise send your own unused disc with an address slip and return postage. Please state what software format you want; the list is processed in Word Perfect 5.2/5.1 but Word Perfect will convert to other formats such as ASCII which may then be used for entering other systems such as databases. Each disc will be checked by Norton Disc Doctor and Dr Solomon's virus checker before dispatch. Write to the BGA or direct to:

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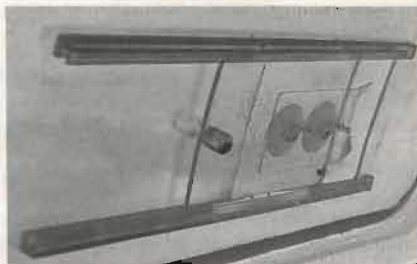
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Ian Strachan, BGA TP co-ordinator

COMPETITION FLIGHT VERIFICATION BY GPS DATALOGGER

The popularity of GPS (global positioning system) for glider navigation in 1992 UK competitions, its first year of use, was spectacular. More than 50% of Nationals pilots used GPS and indications suggest the figure will exceed 90% this season. Perhaps this is not surprising when considering its accuracy, ease of use and comparatively modest cost.

Also now available are Dataloggers (DLs) which continuously record GPS positions and allow the flight to be "played back" using a personal computer. This gives the opportunity for flight verification, particularly in competitions, with potentially great advantages over existing photographic methods. It offers to verify a course was flown without unrelated photographic complications; record start and finish times; monitor start heights; log out landing positions; virtually eliminate photographic processing and assessing; and, perhaps most importantly, trap the cheats who risk so much damage to our sport by violating controlled airspace.

For a start, the BGA Competitions and Awards Committee is promoting the trial use of DLs in 1993 competitions. All UK non handicapped Nationals, and other competitions at organisers' discretion, will accept DLs as primary flight evidence. There have been cries of unfair and muttering about level playing fields (useful for landouts), but the alternative of making such a radical change mandatory without the benefit of significant practical experience is considered unacceptable. A trial without allowing the evidence to count has been suggested, but who would invest in a DL and participate if only photographs scored?

How will it operate? On initial booking in, the competition organiser will apply a seal to the DL marked with the glider number. In use the competitor sets the sampling rate to 10sec, installs the DL in the glider, connects it to a working GPS, switches on the DL and then flies the task. After landing the DL is switched off, removed from the glider and handed to control for down loading the flight record. This information is processed by an evaluation program (available free of charge to organisers) which provides the scorer with start time, TP's rounded and landing position for a non finisher.

To be properly controlled at the start or a TP an individual GPS DL position point must lie within the standard photographic zone. If there is no position point within a zone but one or more close by, the evaluation program selects the best placed and advises the penalty incurred as per existing photographic criteria. The start will be the time of the last position point lying within the start zone. Pilots may generate additional DL position points by use of an event marker.

Worth mentioning is the need to ensure the

BGA ACCIDENT SUMMARY

Compiled by DAVID WRIGHT

Ref No.	Glider Type	BGA No.	Damage	Date Time	Place	Pilot/Crew		
						Age	Injury	Hrs
133	Skylark 3F	****	N	**5.92 ****	Incident Report	49	N	48
As the aerotow started the left wing dropped and the pilot corrected with full opposite aileron. The glider became airborne and, as the stick was centred, again rolled left. The pilot released and landed ahead normally. The left aileron was found to be up with the stick central as the wingtip aileron connector was crossed and jammed.								
134	K-13	1861	M?	15.8.92 1206	Rufforth	34 P2 63	N N	330 16
The pupil used full airbrake on the approach which was normal until the speed started to decay close to the ground. P1 could not override the airbrake lever control as P2 had "locked on" and a heavy landing resulted.								
135	SHK	1544	S	11.8.92 1635	Bicester	51	S	2441
After a competition cross-country the weather deteriorated and the pilot diverted to a nearby airfield. He calculated he had enough height but the headwind had increased and he lost more height than expected. He tried to clear the boundary hedge but hit a post which spun the glider around and crashed nose first, breaking the pilot's leg.								
136	Skylark 4	****	M	**7.92 ****	Incident Report	41	N	94
During a cross-country the pilot had to make a field landing. He was in an area with only one landable field and this had some cows in it. He landed uneventfully then went to contact his retrieve crew. On returning he found that the cows had damaged the wing fabric, the fuselage and broken the canopy.								
137	Skylark 3F	925	S	16.8.92 1600	Strathaven	22	M	1
On his first flight on type the early solo pilot was briefed about the characteristics of the glider, including the mid C of G aerotow hook. The glider pitched up at the end of the aerotow ground run and the pilot over corrected. It then struck the ground, bounced, then landed, slewing slightly left. The tailplane and fin broke away from the fuselage.								
138	DG-400	S/L G-BNCN	S	14.8.92 1715	Nr Swindon	63	N	2420+ 1800pwr
After making a field landing the pilot of the motor glider paced out the field and decided it was large enough to take-off. The surface was firm with 6in grass with patches of 18in rye grass. The aircraft accelerated slowly but the pilot was committed. He tried to clear the hedge but hit the top and the glider groundlooped on the far side.								
139	Janus	3333	M	6.8.92 1540	Aston Down	32 P2 36	N N	4000 70
The reverse pulley autotow launch started normally and the glider climbed to about 20ft. The speed was about 45kt when the launch slowed. The pilot moved the stick forward and the cable was released. There was insufficient airspeed or height to prevent a very heavy landing which damaged the u/c. The tow vehicle had run out of fuel.								
140	DG-300	3805	S	15.8.92 1610	Nr Enstone	32	M	749
The pilot was on final glide only 10km out when he struck heavy sink. He searched for lift around a selected field but had to land. A good circuit was made to land on the best run although this had cables on the approach. The final turn was started early to avoid these but the strong sink descended the glider through the cables into the ground.								
141	Sie 3	2347	S	5.8.92 1300	Nr Ludlow	63	N	107
After launching into a southerly wind the pilot set off on a cross-country. A field landing became necessary and a large NS field was selected. The glider did not descend as expected and finally touched down 750 yards into the 800 yard field, running into the far fence. The pilot did not notice a 10kt tailwind which caused the overshoot.								
142	Astir Jeans	3486	M	6.8.92 1200	Aston Down	36	N	70
Attempting a cross-country, the pilot had a poor 600ft launch and had to join the circuit. On the downwind leg he flew through strong lift and tried to contact it rather than continue the circuit. He became too low and hit a wingtip during the final turn while trying to make the normal landing area and the glider groundlooped.								

S=Serious; W/O=Write-Off; M=Minor; N=Nil.

GPS is set to the map datum corresponding to the lats and longs used by the organisers to assess the flight. Not surprisingly, for competitions held in the UK and using the BGA TP list, the setting is Great Britain. For other competitions check with the organisers.

All DLs providing scoring evidence must be type approved by the BGA Competitions and Awards Committee and used in conjunction with a GPS approved by the manufacturer. At present, the only DLs allowed are those produced by EW Avionics and Skyforce. The former is an addition to the existing electronic barograph and the latter a stand alone unit. Both are fairly similar in cost but if DLs become mandatory for competitions the Skyforce will require modification to incorporate a pressure transducer to provide accurate altitude information. (Skyforce state this will be available during

1993 and cost less than £150 including VAT). The evaluation program will then check every flight for start height and airspace violations. This will probably make the Skyforce unit acceptable in lieu of a barograph for competitions but not for record or badge flights. You pay your money and takes your choice.

The security aspect of DL use has received much consideration. Whilst nothing can ever be 100% proof against the determined cheat, what is planned appears at least as safe as present photographic procedures. For this purpose the evaluation produces take-off and finish times which can be compared with information from other sources. Additional checks may be made by, amongst other things, comparing glider traces on tow with traces from DLs carried in tug aircraft. The only near cast iron solution is a DL sealed with its own GPS engine which

would at present be very costly and provide the pilot with no navigation information.

Whilst all are encouraged to use DLs in competitions which accept them this year, it is a trial and organisers discovering faults in the procedure may need to suspend use temporarily or permanently. It would therefore be unwise to leave cameras at home and most pilots will employ photography as back up by handing in film(s) and/or camera(s) as at present. Think about it. What serious competitor is going to let his or her Championship aspirations rely on electronic wizardry, with a large proportion of it whirling around in space for years on end?

What of the future? Hopefully the trial will be well supported and faults with the system easily corrected. That being the case, a decision will be taken whether to make DL use mandatory next year based largely on the proportion of competing gliders equipped with GPS this year. The most likely outcome is to require it in Nationals whilst remaining optional for Regionals. In competitions where DLs are mandatory, starting, finishing, and TP control will be effected in a manner appropriate to DL rather than camera technology. Still some way off is the potential for badge and record claim assessment. In the event the system proves unworkable the only option is indefinite postponement; for all concerned it is hoped this will not be the case.

Phil Jeffery, *BGA Competitions and Awards Committee*

JUNIOR NATIONALS

This year the Junior Nationals will be held at the Avon Soaring Centre, Bidford from August 21-29.

It is subsidised by the Sports Council with free entry and a number of free aerotows. If you are under 26 this year and expect to have a Silver badge before the start of the competition, you are eligible to apply for entry.

Application forms are from the BGA office and the closing date is April 30.

Tony Moulang, *BGA Competitions and Awards Committee*

INTER-UNIVERSITY TASK WEEK

Nottingham Trent University GC are hosting the task week at Buckminster GC's Saltby Airfield from July 18-24. For more information contact Paul Labdon, Byron House, Shakespeare St, Nottingham NG1 4GH, tel 0602 476725, fax 0602 413107 or evenings on 0602 700379.

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.

AEROBATIC CHAMPIONSHIPS

The World Glider Aerobatic Championships are being held at Venlo, Holland from August 15-28 as the main event celebrating the city's 650th anniversary.

OBITUARY

CARL ALEXANDER BECK



One of the real old stagers of British gliding, whose roots went right back to its founding days, died in Belfast on December 15, aged 81.

Carl Beck was a lifelong and, latterly, the sole honorary life member of the Ulster GC and was for many years a member of the Midland GC too. At the age of 19 he attended the foundation meeting of the UGC on August 27, 1930, and had vivid recollections of its earliest days: of the blind leading the blind; of ground slides and low hops in a succession of wholly unsuitable fields; of countless prangs; of the first soaring flight in Ireland in ridge lift over Sallagh Braes in 1933; of the earliest expeditions to Downhill/Benone Strand – still the finest beach flying venue in these islands – and of innumerable characters who litter soaring history.

In July, 1931, as a young man of 20, Carl took part in the conference at Ilkley which led to the formation of the BGA and travelled widely throughout the movement in its early years.

He was a near contemporary and close friend of the late Doc Slater and, like Doc, visited the Wasserkuppe and other German sites during the pioneering days of the 1930s, together with nascent clubs throughout Britain, when his long membership of the Midland GC began.

Carl was a friend and frequent correspondent of Amy Johnson during her involvement with gliding both at Benone and the Mynd. He became an admirer of her resourcefulness and ingenuity when, in the absence of a tin-opener and with a high-heeled shoe, she opened a tin of baked beans which, with a loaf, was the only food immediately available to a small party of MGC pioneers on top of a gale-swept Mynd.

Of mixed Ulster-Danish parentage, Carl was a designer with Harland and Wolff shipyard during his working life, after an apprenticeship in textile engineering. He remained an active pilot into his 70s with the UGC, which conferred life membership on him about 15 years ago.

Like Doc Slater, he was a passionate historian of gliding and other fields in which he was

interested, and a keen collector of memorabilia. But the best memorabilia was in his head.

Staunchly independent until two years ago when increasing infirmity led him to live in a nursing home, Carl's death severed one of the last surviving links with soaring's infancy.
BOB RODWELL

THE AIR EXPERIENCE INSTRUCTOR RATING REVIEWED

The concept of the Air Experience Instructor (AEI), trained and qualified to give trial lessons, seems to have worked well. AEIs have been providing a valuable service to clubs and to their pupils.

The role is a responsible one. The AEI is often the first contact a member of the public has with the sport of gliding. The way in which the flight is conducted will leave a lasting impression which will, without a doubt, be conveyed far and wide by the pupil when he talks about his experience to friends and relations.

But it is now over six years since the introduction of the AEI rating, and the BGA Instructors' Committee decided that it was time to carry out a thorough review in the light of experience gained.

Chris Pullen, who is senior regional examiner Thames Valley Region, kindly agreed to take on the task. His brief was to review the privileges and limitations of the AEI rating, together with the coaching network and arrangements for training, appointment and supervision of AEIs.

The task facing Chris was considerable. Consider these facts which give an idea of the scale of the organisation which has evolved since the rating was first introduced in 1986.

1400 AEI ratings have been issued.

750 AEIs current on November 1992.

70 AEI coaches have been appointed of which about 40 are active, having run courses within the last two years.

Feedback from CFI conferences indicated that a modest widening of the privileges of the AEI would be a welcome development and this request was taken into account in drawing up the recommendations.

Chris Pullen reported to the Instructors' Committee at their November meeting. After detailed discussions it was agreed that a number of changes will be introduced, effective from the beginning of 1993, which can be summarised as follows:

1. The style of the AEI course, and the privileges of the rating, will be adjusted to bring them more into line with the assistant instructors' course.
2. The minimum requirements to qualify for training remain the same but the AEI will in future be entitled, in addition to elevator and aileron, to demonstrate and teach the effect and co-ordination of the rudder. This means that the AEI will be able to introduce the pupil to the effect and co-ordination of all three controls.
3. As a consequence of the introduction of the rudder, the following exercises will now be included in the AEI course syllabus. New items

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are marked with an asterisk.
Lookout.

Elevator.

*Trimmer.

Ailerons.

*Adverse yaw.

*Use of the rudder.

**Rudder not for turning."

*Rolling the glider using all three controls.

These changes have been incorporated in a revised AEI record card which will be issued to all applicants with immediate effect. There will be transitional arrangements during the change-over period so that no candidate will be faced with attending a new syllabus course without proper preparation.

In order to cater for the additional work, it is necessary to introduce two changes to the programme of training and the structure of the course

1. The pre course training and preparation will have to be carried out more thoroughly under the supervision of the candidate's CFI or other senior instructor and

2. There will be a maximum of two students per coach on the two day AEI course.

Clearly it will not be possible for the coach to "teach" or the candidate to "learn" all the exercises during the course. This work must be completed prior to the course, thus allowing the coach and candidate to concentrate on the wider aspects of instructing, airmanship, care of the pupil and so on.

AEIs trained in the new syllabus will be able to teach early students the first few lessons, rather than simply the elevator and ailerons. However, it must be emphasised that not all the work covered during the course is expected to be taught during the first trial lesson. This should remain as before *ie* lookout and effects of the elevator and aileron, or whatever is felt to be appropriate for the particular circumstances, bearing in mind the pupil, method of launch, duration of flight and so on.

Careful consideration has been given to the appropriate level of support for the newly appointed AEI. Periodic checks are sensible to ensure that standards are maintained. The new AEI will, therefore, be required to have a check flight either with their CFI or an AEI coach after they have been instructing for six months and or 30 trial lessons. The reasoning is similar to that for newly appointed assistant rated instructors who are required to attend a completion course when they have been instructing for a period following their initial instructors' course.

Thereafter, the AEI will, as a minimum, be required to fly with their CFI once a year. If an individual instructor has not achieved the required minimum amount of flying in any one year, or has not progressed on to a higher rating within a period of five years, a check flight will be required with a regional examiner or an AEI coach.

CFIs will be able to train existing AEIs so that they can teach the new exercises, although this will not be compulsory for existing AEIs. The BGA will not insist on existing AEI ratings being "upgraded".

To supervise the new arrangements, Chris Pullen has been appointed senior AEI examiner and has set up a network of AEI regional examiners. They will be contacting all AEI coaches as

part of an overall AEI coaching review and as from the end of March all AEI courses will be run by coaches approved to the new syllabus.

I must thank Chris Pullen and his network of examiners and coaches for the tremendous amount of work which has been and will be put into the vitally important task of ensuring high standards of safety and skill throughout the air experience organisation.

Dick Dixon, chairman of the BGA Instructors' Committee

**GLIDING
CERTIFICATES**

ALL THREE DIAMONDS

No.	Name	Club	1992
388	Howes, N. J.	Derby & Lancs	9.9
389	Levi, A. R.	Shropshire	29.9
390	Boyce, F.	Staffordshire	31.10
391	Hibberd, G. P.	Glyndwr	31.10
392	Williams, R. J.	Imperial College	22.7

DIAMOND DISTANCE

No.	Name	Club	1992
1/580	Davey, B. J.	Imperial College (in France)	22.7
1/581	Williams, R. J.	Imperial College (in France)	22.7
1/582	Moore, K. C.	Midland (in Spain)	25.7

DIAMOND GOAL

No.	Name	Club	1992
2/2056	Eastburn, M. P.	Aquila	28.6
2/2057	Elliott, A.	Phoenix	28.6
2/2058	Middleton, R. J.	SGU (in Hungary)	1.7
2/2059	Decloux, Ariane	Cambridge Univ	22.7
2/2060	Harper, S. J.	Cranwell	22.7
2/2061	Allison, D. W. K.	Bicester	22.7
2/2062	Matcham, K. S.	Lasham	22.7
2/2063	Watson, A. F. W.	Cranwell	22.7
2/2064	Coughlan, J. R.	Anglia	22.7
2/2065	Mellor, P. G.	Booker (in France)	25.7
2/2066	Fitzgerald, J. F.	South Wales	28.7
2/2067	Rebbeck, H. A.	London	28.7
2/2068	Vilia, C.	Cambridge Univ	28.7
2/2069	Gretton, R. E.	P'boro & Spalding	28.7
2/2070	Turner, S. M.	P'boro & Spalding	28.7
2/2071	Carr, M. I.	Lasham (in France)	22.7
2/2072	Woollard, Susan	Bristol & Glos	28.7
2/2073	Stainer, C. D.	York	5.9
2/2074	Haley, Vivien	Essex & Suffolk	5.9
2/2075	Petrie, R. B.	Strathclyde (in France)	25.7
2/2076	Coker, D. A.	Four Counties	5.9
2/2077	Grinter, A. F.	Wolds	5.9
2/2078	Glazebrook, G. R.	Wolds	5.9
2/2079	Parish, A.	Welland	22.7
2/2080	Robson, D.	Borders	28.7
2/2081	Fuchs, J.	Yorkshire (in France)	25.7
2/2082	Bollom, R. S.	Derby & Lancs	26.6
2/2083	Britton, N. A.	Avon	28.7
2/2084	Moore, K. C.	Midland (in Spain)	18.7
2/2085	Cheatham, Helen	Buckminster	22.7

DIAMOND HEIGHT

No.	Name	Club	1992
3/1099	Howes, N. J.	Derby & Lancs	9.9
3/1100	Levi, A. R.	Shropshire	29.9
3/1101	Rice, P. A.	Midland	9.9
3/1102	Kaye, L. J.	Herefordshire	9.9
3/1103	Stoker, T. W. J.	York	9.9
3/1104	Kirton, G. W.	Buckminster	8.10
3/1105	World, T. M.	Portsmouth Naval	30.10
3/1106	Heneghan, M. J.	Portsmouth Naval	30.10
3/1107	Boyce, F.	Staffordshire	31.10
3/1108	Pullen, C. J.	London	31.10
3/1109	Boath, P. A.	Deeside	31.10

3/1110	Ward, P. J.	Deeside	5.11
3/1111	Cronk, R. J.	London	9.9
3/1112	Bollom, R. S.	Derby & Lancs	9.9
3/1113	Brady, J. P.	Chilterns	8.10
3/1114	Hibberd, G. P.	Glyndwr	31.10
3/1115	Jacobs, A.	Lasham	15.10
3/1116	Reid, K. G.	Shalbourne	30.10
3/1117	Walton, K. R.	Portsmouth Naval	30.10
3/1118	Clement, R. J. M.	SGU	12.12
3/1119	Henderson, I. J.	Deeside	2.1.93
3/1120	Owen, D. T.	Shalbourne	2.1.93

(Eighteen heights were flown from Aboyne.)

GOLD BADGE

No.	Name	Club	1992
1649	Stainer, C. D.	York	5.9
1650	Haley, Vivien	Essex & Suffolk	5.9
1651	Petrie, R. B.	Strathclyde	25.7
1652	Glazebrook, G. R.	Wolds	5.9
1653	Bradley, H. J.	Midland	9.9
1654	Boik, M. C.	Bicester	15.9
1655	Robson, D.	Borders	28.7
1656	MacGregor, A. R.	Bath, Wilts & ND	10.10
1657	Swannack, J.	Dukeries	15.10
1658	Heneghan, M. J.	Portsmouth Naval	30.10
1659	Pullen, C. J.	London	31.10
1660	Brady, J. P.	Chilterns	8.10

GOLD DISTANCE

Name	Club	1992
Stainer, C. D.	York	5.9
Haley, Vivien	Essex & Suffolk	5.9
Petrie, R. B.	Strathclyde (in France)	25.7
Coker, D. A.	Four Counties	5.9
Grinter, A. F.	Wolds	5.9
Glazebrook, G. R.	Wolds	5.9
Gazzard, M. L.	Two Rivers	6.9
Parish, A.	Welland	22.7
Robson, D.	Borders	28.7
Fuchs, J.	Yorkshire	25.7
Bollom, R. S.	Derby & Lancs	26.7
Britton, N. A.	Avon	28.7
Upton, J. R.	Bristol & Glos (in France)	4.8
Moore, K. C.	Midland (in Spain)	18.7
Cheetham, Helen	Buckminster	22.7

GOLD HEIGHT

Name	Club	1992
Hogarth, J. S. W.	Derby & Lancs	9.9
Jennings, Elizabeth	Derby & Lancs	9.9
Bradley, H. J.	Midland	9.9
Biggs, I. P.	London	9.9
Brown, A. P.	London	9.9
Gander, M. B.	London	9.9
Wilkinson, J. C.	Yorkshire	9.9
Smallbone, E. J.	Lasham	15.9
Parry, J. R.	Midland	15.9
Boik, M. C.	Bicester	15.9
Bonny, G. R.	Devon & Somerset	15.9
Oldfield, C. J.	Devon & Somerset	15.9
Byass, D. M.	Booker	8.10
Kirton, G. W.	Buckminster	8.10
Mansfield, C. A.	Lasham	9.10
MacGregor, A. R.	Bath, Wilts & ND	10.10
Barter, S.	East Sussex	14.10

Swannack, J.	Dukeries	15.10
McIver, J. L.	Dumfries	15.10
Cooper, J.	Aquila	30.10
Heneghan, M. J.	Portsmouth Naval	30.10
Burke, J. F.	Staffordshire	31.10
Pullen, C. J.	London	31.10
Day, J.	Shalbourne	31.10
McAvlay, N. T.	SGU	7.11
Hook, K. D.	SGU	7.11
Denne, J. A.	Booker	9.10
Bennett, R.	Midland	9.9
Elliott, C. R.	Fenland	9.10
Hill, Susan	Northumbria	10.9
Brady, J. P.	Chilterns	8.10
Tweddell, C. A.	Northumbria	4.9
Penman, R. R.	Heron	15.10
Reid, K. G.	Shalbourne	30.10
Cook, W. G.	Shalbourne	30.10
Holland, M. J.	Oxford Univ	10.10
Griffiths, C. H.	Midland	14.9
Schyfsma, F. D.	European SC (in Spain)	19.4
Welford, R. J.	Cambridge Univ (in France)	1.9

SILVER BADGE

No.	Name	Club	1992
9052	Perry, S. L.	Avon	19.5
9053	Fairhurst, B. M.	Lasham	4.9
9054	Beale, L. A.	Southdown	5.9
9055	Hannah, G. M.	Cambridge Univ	31.7
9056	Chambers, J. M. H.	Vectis	23.8
9057	Hook, K. D.	SGU	7.11
9058	Fuchs, J.	Yorkshire	25.7
9059	Wimbury, C. J.	Black Mountains	27.12
9060	Penman, R. R.	Heron	6.8
9061	Verdier, R. C.	Cambridge Univ	5.9
9062	Walford, A. C.	Cambridge Univ	28.7
9063	Rowntree, D.	Ouse	3.5

UK CROSS-COUNTRY DIPLOMA

Part 1	Name	Club	1992
	Butterfield, A.	Oxford	28.7
	Swinton, N.	Oxford	29.7
	Smith, D. A.	Bath, Wilts & ND	3.5
	Walford, A. C.	Cambridge Univ	28.7
	Otner, S. C.	Shalbourne	27.6



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AERONAUTICAL CHART DELAY

A number of changes to regulated airspace in south and south-east England will become effective on July 22. Because of this and in order to incorporate them on aeronautical charts, publication of Sheet 2171CD Southern England and Wales Ed 19 have been postponed until July.

Any inconvenience is regretted. However, this unavoidable delay will enable these major airspace changes to be brought to the attention of chart users at the first available opportunity.

Correction: We are sorry but the advertisement - Flying Colours - on p24 in the last issue was printed with the image reversed.



Julie Angell, Booker GC's new CFI.
Photo: Paul Mellor.



Sue Crowland of Newark & Notts GC after going solo.



Sackville GC's pilot of the year, Diane McDonald-Smith.

CLUB NEWS

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 10 and for the August-September issue to arrive not later than June 8.

GILLIAN BRYCE-SMITH
February 10

ANGLIA (RAF Wattisham)

The RAFGSA awarded our CFI, John Hicks, the member of the year trophy at the AGM.

Matt Jones has an AEI rating. The club is to have a Grob Acro soon and a Tost twin drum winch.
N.P.

AQUILA (Hinton-in-the-Hedges)

Malcolm French, Doug Boyle and Vince Fuller have gone solo; we are competing in the Inter-Club League and some members had wave flights at Aboyne last year, John Cooper gaining Gold height.

We are now using the grassed centre triangles at Hinton and any visitor wanting to try

them out will be most welcome. The grass is making life much easier and saving wear and tear on the tugs and gliders. Despite a recent price increase, we still believe we can offer one of the cheapest aerotows in the country.
S.K.



Retrieving in style at Four Counties GC.

BATH, WILTS & NORTH DORSET (The Park)

Though poor weather meant little flying in January we have had some wave flights and our pundits, led by CFI Ron Lynch continue to explore the possibilities.

We thank two newcomers to gliding, Les Mott and Paul Wade, for helping with various building projects and Alan Nichols, who is in charge of the winches.

Bob Bromwich has a new LS-6. Our launching fees have been increased by 10% to help secure our financial position.
S.G.

BLACK MOUNTAINS (Talgarth)

Ian Kirby has soloed and Phil Drake and Roger Bowker gained Silver heights in easterly wave.

On our few good days there have been some enjoyable soaring flights and on New Year's Day, despite the freezing conditions, flights in the T-21 were a wonderful way to start 1993.

We found the average flight time of the club's Junior last year was 1hr 30min.
S.R.

BLACKPOOL & FYLDE (Chipping Airfield)

Having been refused planning permission to continue using our super silent Pawnee, this winter all our energies (and cash) have gone into a 3½ day appeal in January. We are nervously awaiting the outcome.

We have greatly improved the workshop, the car-park and the clubhouse sleeping quarters.

The AGM was held in January. Increased interest in cross-country flying has resulted in a club ladder, now in its second year. Dave Johnson won the shield in the junior league and George Wearing in the senior.
V.H.

BOOKER (Wycombe Air Park)

We are delighted to welcome Britain's first female professional CFI, Julie Angell, even though she is another refugee from Dunstable! We wish her every success in coping with this most competitive of clubs. The freshness of her approach is already making its mark. Andy Beatty is returning to run our courses after his success in 1992.

We made an operating surplus in 1992 in spite of the awful weather which has continued

Chris Briggs of Essex GC who went solo a few days after his 16th birthday pictured with instructors Don Ling and Dave Hertzberg at North Weald.

Two father and son partnerships solo/resolo at Devon & Somerset GC. They are, from l to r, Robin and Phil Rix, instructors John Street and Dick Wolff and Richard and Philip Britton.



CLUB NEWS

throughout the winter. At the AGM Geoff Payne, from the BBC group, joined the main committee and the log-cabin has benefited enormously from the efforts of Dave Caunt and Ian Griffiths. Our Regionals are in June.
R.N.

BORDERS (Galewood)

Wave in January gave good flying but also reminded us of the need for sound preparation.

Two Bocian pilots were caught above cloud when the gaps closed very rapidly. After making a successful descent they were confronted with the North Sea and only just made it back to Holy Island (Lindisfarne), landing on a deserted beach. The wind speed at 11 000ft had been much stronger than they expected. It certainly made an interesting retrieve as they could have been stuck there for hours if the causeway to the island had been submerged.

We are planning a joint task week with Northumbria GC from May 30, spending three days at each site. Also, we hope to fly all of next November, statistically one of our best wave months, and visitors are most welcome.

R.C.



Martin Dean in the Aberdeen University Bocian after going solo at Deeside GC.

BRISTOL & GLOUCESTERSHIRE (Nympsfield)

We welcomed about 150 old timers, including Robbie Robertson, to a reunion and 50 flew. Peter Fuller drew an excellent cartoon for Seven Skies of Zimmers and crutches arriving.

Ron and Mita Barnes gave their last firework display in November before leaving us for Snitterfield and a new Discus. They will be missed. The first winter lecture was given by Peter Waite on thermal generation.

S.R.

BUCKMINSTER (Saltby Airfield)

After a reasonable autumn, the weather has limited flying since Christmas but Dennis Hargreaves has soloed. The Christmas fancy dress party was a great success.

Nottingham Trent University are hosting the Inter-University task week here in July (see the BGA News for details).

M.E.

April/May 1993



Above: Kirsty Turner of the Mendip GC after her first solo with her father, CFI Peter Turner (in the middle), and her instructor Phil Hogarth.



Above: Alan Taylor (in the cockpit) and Keitha Delahunty, who soloed the same weekend with the Cambridge University GC, photographed with instructor Steve Foster and, far right, CFI Robert Bryce-Smith. Below: Steve Archer-Jones having gone solo at Bicester three days after his 16th birthday photographed with three other 16 year-olds – from l to r, Andy Mudie (Bronze badge), Tim Johnson (pre-solo) and Carl Peters (Silver badge).



BURN (Burn Airfield)

Not much flying to report with the sad exception of a club K-8 taking off on its own accord in adverse weather conditions whilst being towed back to the hangar.

We are building a winch house and workshop – badly needed because of our habit of buying and importing Tost winches with our third arriving recently. Since converting to these winches following many years with home built ones, we have sometimes had 2000ft launches – not bad at £2.25p each! It has certainly reduced pressure on the Pawnee. Steve Elsey is now winch master.

P.N.

CAMBRIDGE UNIVERSITY (Gransden Lodge)

At our presentation evening cups went to Richard Baker, John Bridge, John Glossop, Phil Jeffrey, Steve Mynott, Julian Murfitt, Richard Maisonpierre, Lorna Webb and Robert Verdier.

The first six in our cadet scheme are showing great enthusiasm.

George Sanderson, Keitha Delahunty and Alan Taylor have gone solo, the latter two making use of our bookable weekday instruction this winter.

Thanks to Sandy Torrance and helpers, particularly Robert Verdier and Barrie Beesley, a K-8 and one of the K-13s have been beautifully refurbished.

J.L.B

CHANNEL (Waldershare Park)

The Texbury hangar grows visibly, almost matched by the fund. Our thanks to the stalwarts who have slaved away on our equipment.

N.O.A.

CLEVELANDS (RAF Dishforth)

There have been a few pleasant days between the fog and wind and Dan Basterfield went solo. We managed Christmas dinner, but no wave!

At the AGM, awards went to Eddie Edwards, Jim McLean, Paul Whitehead, Mark Evans, Terry Potter and Jill Povall. The CFI gave an excellent speech aimed at keeping morale high despite our domestic difficulties.

J.P.

COTSWOLD (Aston Down)

January weather kept members on the ground on maintenance and odd jobs.

The annual dinner-dance in January was a tremendous success with trophies going to Ed Johnston (ladder cup); Peter Ward (best height gain with a Diamond at Aboyne); Frank Birlison (pre-Silver award, gaining a Silver badge in one flight); Oliver Ward and Mike Oliver (two-seater award) and Les Akehurst (cup for achievement over 50 years – Les soloed at 70 and is now flying the K-6CR).

M.S.

COVENTRY (Husbands Bosworth)

At our annual dinner CFI Barney Toulson spoke of our excellent flying in 1992 despite the poor weather. Trophies went to Clive Groves, Paul and Steve Crabb, Dave Booth, Malc Guard, Alan Foxon, Graham Thomas, Ian Freestone, Claire Nurcombe, Richard Blackmore, Andy Vidion, Alan Kangurs, Frank Davies, Lester Goodman,

Andy Spalding, Mike Jordy, Dave Farmilo and Barry Chadwick.

Heydon won the grotty potty for cutting off the village telephones when digging a post hole on the airfield boundary.

DCFI Peter Burgoyne has taken over from Barney as CFI and Roger Goodman replaced Phil Marks as tugmaster. Our thanks to Barney and Phil for all their time and effort.

Tug pilots and helpers have refurbished a tug; the four drum winch is so good we have sold the two drum and have a satellite receiver for weather forecasting.

Visitors are welcome to our task week which starts on May 29. We are hosting the 15 Metre Class Nationals in August and our courses include ones for cross-country speed training.

Carl Buzzard, Andy Fry and Dave Farmilo have AEI ratings.

T.W.

MONEY SAVERS

Most clubs are constantly looking for ways of cutting costs in these hard days of recession. If you think you have found a useful method, then do please share it with our readers. It might not be a dramatic saving, but small economies add up and are always worth considering.

CRANWELL (RAFGSA)

Our thanks to Clevelands GC for their warm welcome at the Christmas wave camp. The new Venture motor glider has been re-covered and resprayed – and we thank Brian Hutchinson, Mick Smith, Mick Lee and their team.

The RAFGSA AGM we hosted went very smoothly, thanks to Nev Weir and excellent help from the base. We are sorry Nev is leaving us for Scotland but appreciate his great contribution to the club.

I.M.

DARTMOOR (Brentor)

A small group have dedicated themselves to overhauling the equipment during the atrocious winter weather and others are building our clubhouse.

This year we celebrate our tenth anniversary.

F.G.M.

DEESIDE (Aboyne Airfield)

The winter wave has continued to work for us with 18 800ft in December and 19 500ft in January. Ian Henderson and Steve Thompson flew Diamond heights with Diamond and Gold heights for our Christmas/New Year visitors. Martin Dean has gone solo and Mike Bailley and Cameron Robinson have Bronze legs.

Fiona Bick has moved and the new phone number for wave season bookings is 0224 832659. We have a new fax/answer phone (No.03398 85339) in the clubhouse.

Our thanks to SGU members who helped when a 100km retrieve went horribly wrong and left us with a trailer on the M90 at 10pm with one wheel missing and one flat tyre. (Did you know it's a criminal offence to leave a vehicle or trailer on the hard shoulder for more than 3hrs?) The

loan of a wheel helped us slowly on our way, however the retrieve finally took 23hrs and three AA call outs. Check the trailer really is roadworthy before you go cross-country. The tyres may look OK but are they really!

G.D.

DERBY & LANCS (Camphill)

Obituary – Geoffrey Mostyn Lewis

We have lost one of our most interesting members with the death on Christmas Day of Geoffrey Mostyn Lewis.

As a young family, resident at Camphill from the early 1960s, we frequently watched Geoffrey, an enigmatic figure with a mane of silver hair, rosy cheeks and a scarlet dressing gown, making his way from his tent to the washroom in the early morning mist.

Geoffrey had many diverse interests and was flying solo until last summer. He was a keen rambler and, among many other marathons, walked the Pennine Way, starting on his 60th birthday.

During the war he delivered new aircraft to the squadrons and after the war, before going to university, designed the big window on the staircase of the Shakespeare Memorial Theatre at Stratford-on-Avon. After teaching drama for many years, he became country drama adviser for Lincolnshire.

Geoffrey was a most unassuming and gentle person and the lives of most long-standing members at Camphill have had a great deal of colour added by knowing him during his 84 years.

Eunice Boyle

DEVON & SOMERSET (North Hill)

Private ownership is increasing – we are at 38 with the arrival of a Libelle and M200. Cs of A and maintenance work continue on non flying days.

At our AGM and prizegiving, Damian le Roux won trophies for the club ladder, best Diamond goal attempt, best cross-country, best cross-country in a wooden glider and best placing in a BGA rated Competition (Enterprise). Other prizes went to Rex Grayling (task week winner); Ron Johns and Chris Wool (two-seater trophy); Chris Miller (best O/R to Lasham); Richard Petheram (best progress) and Ian Davison was the Wily Old Bird. There was a good attendance and Caroline's buffet supper was much appreciated.

Francis Bustard, who died last autumn, remembered the club in his will; we have to find a suitable way to perpetuate his memory.

We are running Competition Enterprise 20 and our regular summer courses.

I.D.K.

Obituary – Francis John Bustard

I don't know when I met Francis; it just seems he was always there. Quietly, lovingly, Francis seemed to turn up whenever he was needed and caused things to be done "right."

His contributions to the club were continuous. He was a contributor to the North Hill purchase deposit and when we bought North Hill (in exchange for our gliders), he lent us a Capstan.

He and I collected it from Slingsby's, towed by Phil Jefferies in the Tiger Moth. Over the Mendips we got towed over the top of a fog layer which Phil decided to dive through. At 500ft, in

thick cloud, diving steeply with the Moth dangling somewhere out of sight in front of us (the Capstan had very good brakes), Francis said: "I don't think the insurance starts till tomorrow!!" There wasn't the slightest tone of panic or fear in his voice. There should have been, but that was Francis.

Francis became chairman and then president, bringing that quiet confidence, which was his hallmark, to all club decisions. He will be remembered by the BGA Executive Committee members for his contribution from 1970 to 1980.

I had the good fortune to share a Dart and then a K-6E with him. He enjoyed the air so much, which was unusual for someone who discovered it late in life.

Those of us who had the honour of knowing and loving him as a dear friend, know that he was a one-off and an English gentleman of the best sort.

John Fielden

DORSET (Eyres Field)

After completing the hangar we now have planning permission for our prefabricated clubhouse which should soon be in place.

As anticipated the membership is changing with some of the old guard being replaced by those from the different catchment area. A mutually beneficial arrangement is being discussed with Borington Garrison, who are interested in helping with equipment maintenance.

Winch launching continues, despite the weather, and experimental aerotowing has begun.
G.S.

EAST SUSSEX (Ringmer)

The C of A season has seen the usual basic training and Bronze lectures. Chris Wimbury has a Silver badge and Geoff Harris has gone solo.

Roger Warren is a full Cat and will be running summer courses with a newly acquired Venture motor glider.
L.M.

FOUR COUNTIES (RAF Syerston)

We had a good expedition to Portmoak with lots of ridge flying.

Our AGM went well with Steve Walker winning the pilot of the year award; Rose and John the award for non-flying achievements (our thanks to them for their hard work) and the most meritorious flight award went to Helen.

We overcame the bad weather for our instructors' course and they all passed. We have lots of new instructors – Pete Sanderson is a full Cat, Dave Pratt, Ian Tunstall, Colin Lake and Nige Gough are assistant Cats and Sylvia Bateman, Dave Palmer and Mark Davies have AEI ratings. We now have our own tug, a Supermunk.
R.M.D.

FULMAR (RAF Kinloss)

We have escaped the worst of the weather and many early solo pilots have experienced wave. Anoy Stirrat has gone solo, Martin Teague has a Bronze badge and Silver height, Andy Gresham Silver height and Guy Davidson and Mike Seward Gold heights. Our thanks to Mike Seward for his hard work servicing the ground equipment.

We have had many expeditions to Highland GC exploring their new ridge and thank them for their co-operation and hospitality.
B.F.G.

HEREFORDSHIRE (Shobdon Airfield)

Despite the poor winter we have had occasional wave which, on a mid December weekend, took Phil King to a cloudy 16 000ft.

Visitors who enjoy competition flying without stress are invited to our fun task week starting on May 31. Our new Twin Astir is very popular and some have enjoyed flying a syndicate owned Venture Motor Falke.

Our revised ground handling procedures (for dust free runway centreline operation) are now well practised and particularly appreciated by glass aircraft owners.
D.A.F.

HIGHLAND (Easterton)

Our soaring capabilities have expanded with the Super Scottish Chariot showing the way to a handy, thought to be unreachable, hill downwind of the site. All our aircraft can reach it and, most importantly, get back with not too great a height loss, even in a strong wind.

Our thanks to Fulmar GC's Chipmunk for coming to our rescue when our winch broke down for over a month.

Martin Birse and Willie Williamson went solo and Martin has a Bronze leg. Merv Ross and Geddes Chalmers have Bronze badges and Gordon Beattie, Grace Chalmers, Viv Robertson, Neil Anderson and Theresa Bruce-Jones found out how to use parachutes for fun and raised about £1500 for local charities in the process.
A.G.V.

HUMBER (RAF Scampton)

At the AGM trophies were presented by our chairman, Grp Cpt P. Edwards, to John Dobson (longest closed circuit, greatest distance and fastest 100km triangle at 111km/h); Alan Docherty (workers' pot); Dennis Sandford-Casey (best progress); CFI Dave Cockburn (grotty pot) and most contribution to the club from a non member, RAF Scampton's ATC.

Tony Fussey and "Titch" Howells have gone solo; Bob Fox is a full Cat and Dave Ruttle an assistant Cat giving us 16 instructors.

A Grob Acro joins our K-13, K-8, Astir CS 77 and Discus with the K-7 going to Cranwell.
D.M.R.

KENT (Challock)

Several members, including a BGA inspector, have been giving our club fleet Cs of A. The Christmas parties were much enjoyed and our thanks to Jean, the organiser.

We welcome a BGA soaring and cross-country course in August, which should be beneficial to all as it is the first for many years.
A.R.V.

LASHAM (Lasham Airfield)

Ever mindful of saving fuel, this winter we enjoyed £5 "green" winch launches to the maximum permitted height of 1000m above the site. No kiteing – genuine straight launches! Cor!

Joseph Solski, the world class aerobatic pilot

and instructor extraordinaire, is running more courses at Lasham in August which are open to everyone and being booked now.
W.K.

Obituary – Bob Potgieter

One of the aviation world's true characters, Bob Potgieter, died in the autumn. He was born in South Africa, learnt to fly at 16 years-old and became a commercial pilot at 19, delivering mail hundreds of miles over hostile country in primitive aircraft.

Bob came to England in 1936, joined the RAF and during the war flew an assortment of aircraft. He later commanded the calibration unit at Duxford and flew some of the captured German aircraft there for evaluation, including an Me109 and a FW190.

After the war Bob, a Sqd Ldr, was personal pilot to the C-in-C of Bomber Command, Sir Hugh Pugh Lloyd, based at RAF Booker where he first tried gliding. This was the start of a lifelong affection for the sport. He was responsible for the creation and further expansion of many ATC gliding training units.

He was later a member of the Portsmouth Naval GC for over 20 years, continuing to provide cadet training courses.


Bob will be remembered for his contribution to aviation and for the stories of his experiences which would mesmerise those privileged to listen. Our thoughts go to his wife Ivy, daughters Anna, Susan and Disa and son Paul.

Terry Joint

LINCOLNSHIRE (Strubby Airfield)

At a very successful social and privilege giving, trophies were awarded to Dick Skerry, Alan Ely, Phil Trevethick, Chris Ormsby and John Sear with Harry Fleet and Terry Mottishead and Berk Barker, Colin Whatmough and Jack Libell sharing cups. A special presentation was made to Jack Elliot, a recently retired instructor.

We now have a Falke syndicate and the rebuild of the club Skylark 2 is nearing completion, so visit us if you want to fly this Slingsby classic.
R.G.S.



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Gary Bennett, the paraplegic instructor at The Gliding Centre, with his first solo pupil, Graham Foster.

MARCHINGTON (Tatenhill Airfield)

Our dinner-dance was well attended with trophies going to Paul Shelton, Ken Lawrence and Val Roberts. Ray Steward and Mike Shelton were presented with engraved plates in recognition of their many years' service to the club.

Although poor weather has limited winter flying Paul Walton went solo.

A.R.

MENDIP (Halesland Airfield)

Bad weather stopped Kirsty Turner going solo on her 16th birthday but she was successful the following day and also has a Bronze leg.

Patrick Hogarth, Pete Dunlop and Paul Youhill have Bronze badges and at our annual dinner-dance awards were presented to Steve Collins, Bob Merritt, Kirsty Turner, George Whitcombe-Smith, John Garrett, Barry Goodyer and Patrick Hogarth.

Our extension to the west end of the airfield should improve winch launch heights. Our thanks to president John Boley for his efforts to acquire this extension.

G.W.S.



Above: Alan Foxon of Coventry GC found this hangar door while on holiday at Cyprus. It was painted by Crusader GC member, P.C.Ahmet to brighten up his club site. Below: Ian Grosz after soloing at Deeside GC.



The Dorset GC's K-8 above the newly erected hangar at Eyres Field. Photo: Graham Swinerd.

MIDLAND (Long Mynd)

We had an enjoyable Christmas lunch for 90 members and guests. The weather has been generally frustrating but we have had some good wave flying.

Our courses, running from mid-March to the end of October, have a more flexible structure and will include cross-country flying.

A.R.E.

NENE VALLEY (RAF Upwood)

Martin Reynolds was elected chairman at the AGM. A very successful Christmas dinner has prompted plans for more social events to aid club funds. Gary Johnson has won the CFI's trophy.

Our fleet and facilities are being revamped, thanks to a team of members.

G.P.

Obituary – Chris Hook

It is with sadness we record that Chris Hook died on Christmas Eve following a heart attack.

Chris started gliding in 1969 and was an instructor at 616 VGS at RAF Henlow. In 1978 he joined 613 VGS at RAF Halton and from 1982 to 1988 was a valued member and keen instructor at our club. He will be remembered with affection and we send our condolences to his wife and family.

Gus Pinkerton

NEWARK & NOTTS (Winthorpe)

Despite the rather poor weather we had a good end to 1992 and a good start to 1993 with John

Vince Fuller of Aquila GC was photographed with instructor Simon Kroner after being sent solo.



Struggles, David Round, Wally Fisher, Sue Crowland and Neil Foster going solo.

The refurbished K-8 is almost ready to fly, we have a splendid new caravan and are looking for a tractor. The motorised SF-27 is nearing completion and a credit to the syndicate. Frank Hunt owns a half share in the Zugvogel.

Visitors are always very welcome.

M.A.



A reflective Geoff Wirdnam of the Vale of White Horse GC after gaining his AEI rating.

NORTHUMBRIA (Currock Hill)

A second Puchacz has joined our club fleet and our cashflow has improved with the help of a powerful accounting and statistics program written by Jon Pickering. Steve Randle and our New Zealand visitor, Ralph Jones, have resoled.

A number had good wave flights during our Christmas flying week. More recently the Wednesday crowd achieved excellent flights to 11 000ft from the winch.

At our prizegiving evening awards went to Martin Fellis, Martin Arrowsmith and Phil Slater

(and his instructor) who won the club two-seater league.
J.T.C.

NORTH WALES (*Bryn Gwyn Bach*)

After little winter flying, with persistent rain, since mid-January there have been excellent wave and ridge days. Our new Super Blanik is very popular.

Several club weeks are planned for the summer and we are holding courses again with a welcome for visitors (with or without a glider) to our scenic site; please ring Vic on 0745 582286.
D.J.

OXFORD (*Weston on the Green*)

We were saddened to learn of the death last year of Joy Taylor, a vice-president and treasurer for many years. Joy was extremely active in the 1950s and 1960s when we were at Kidlington. As an OO in the Nationals she would be deposited at TPs and sometimes, alas, forgotten until someone at the bar remembered. She used to fly the Skylark 2 most weekends.

Sixteen year-old Mallory Woodcock has gone solo during a soggy two months. The new briefing room is used for evening lectures and a well supported RT course. CFI Steve Evans and Rick Underhill have an LS-6c.
F.B.

PEGASUS (*RAF Gütersloh*)

With great sadness I report the demise of the Pegasus GC on March 31. After 15 years during which the club grew to the adventurous, globe trotting group who last year claimed Diamonds in places as diverse as the French Alps and South Australia, early 1993 saw her finally succumb to the ravages of options for change.

However the final AGM in January ensured the club went out in the style its many former members, who came over from the UK, would have expected. Old friendships were renewed, gliding yarns told and the health of all those who had helped over the years toasted many times.

During the evening an auction of club memorabilia raised enough money to keep the bar going and for a substantial donation to charity. As our members disperse into the RAFGSA, we hope the memory of happy times at Pegasus will live forever.

D.R.M.

PETERBOROUGH & SPALDING (*Crowland Airfield*)

The winter rain has made the field very wet and boggy. We have several gliders coming on site, including three Libelles, a Foka 4 and a Kestrel 22.

Mick Edwards and Daniel Cooper have gone solo and the 1993 club ladder has started. Our barbecue will be on August 14 after our soaring fortnight and we are entering the Inter-Club League after a long lapse.

D.K.P.

RATTLESDEN (*Rattlesden Airfield*)

A very successful quiz evening was held in the clubhouse and won by the Team Vega.

The AGM was well attended with three new committee members elected.

M.E.

SACKVILLE (*Riseley, Beds*)

There has been little home gliding due to a very wet field but we have had several expeditions to Black Mountains GC.

Our Christmas dinner was very successful with the pilot of the year award going to Diane McDonald-Smith and the wooden spoon to Paul Kaye.

D.C.W.

SHALBOURNE (*Rivar Hill*)

Our January "Christmas" meal was a great success with a raffle of unwanted Christmas presents adding to club funds – our thanks to the organiser, Verity Murrice, social secretary. Our thanks also to Bill Cook, aircraft member, and helpers for their work on the Cs of A.

The weather has severely curtailed weekend flying but thanks to instructor Geoff Nicholls we have flown during the week when Paul King went solo.

J.R.

SHROPSHIRE (*Sleep*)

December was a carbon copy of November – flying days were all wave with 29 flights lasting a total of 66hrs, and a 25 000ft by Hans Wiesenthal. The best lift was in clear air above the system with a faint lenticular when very high.

January was a disaster and it's still raining!
A.A.

SOUTHDOWN (*Parham Airfield*)

We have had the worst winter flying weather in memory. Our K-13 (by Ron King's team) and one of the Pawnee tugs (by Bob Woodhead and Jim Hammerton) are being re-covered and given a major overhaul. Sue Hill has completed the mammoth task of re-computerising our flying records. Our thanks to them all for their hard work.

Chris Hancock is joining Surrey Hills GC staff of instructors.

W.S.

SOUTH WALES (*Usk*)

Under the guidance of Dennis Bryan and Earle Duffin, a dedicated few have given the club fleet Cs of A and we have had the occasional wave.

At our very successful dinner-dance the guest speaker was Dick Dixon, chairman of the BGA Instructors' Committee and DCFI. Our thanks to the organiser John Milsom. Trophies went to Dave Jobbins (Open Class and a height gain of 28 000ft); Eric Fitzgerald (Intermediate Class); Nick Parker (meritorious flight with a Silver badge in one flight) and Harold Armitage (the "staring eyes" award for the most misdirected flight).

The clubhouse was broken into with some damage, which highlights the vulnerability of remote airfield sites.

N.S.J.

STAFFORDSHIRE (*Seighford*)

In our first year here we have had a substantial increase in solos and badge legs. Launches were up 40% despite the inevitable problems of the move and we have eight club and nine private gliders.

The hangar and workshops have been completed and the field remained serviceable

throughout the winter rains. We even have mains water.

In November we held our first dinner-dance for some years and Vic Carr was the speaker at the January club evening. An open day is planned for Seighford Airfield's 50th anniversary in April and we will operate three days a week (Friday-Sunday) throughout the summer.
P.G.

STRATFORD ON AVON (*Snitterfield Airfield*)

Although the atrocious weather hindered flying, we used our Rover V8 back-up launching winch as a retrieve to keep vehicles off the field and prevent damage. Less happy news was the suspicious fire in our trailer park which destroyed four gliders and their trailers.

Our annual dinner-dance was very successful – our thanks to Harry Williams, the organiser.

Phil King has all three Diamonds. Bookings are healthy for our courses, trial lessons and the cross-country task week. Thanks to Ian Edkins our workshop is finished; we have a purpose made Land Rover retrieve (thanks to Bob Hill and Colin Bushell) and Vic Colman, Pete Kenealy and Phil Pickett are fitting out our double-decked bus as a launch control vehicle. We have bought another twin drum winch with pay-on gear and are fitting a more powerful engine to match our existing winch to give maximum launches.

G.J.B.

SURREY HILLS (*Kenley Airfield*)

Despite the lack of winter flying Richard Mace has completed his Bronze badge. We have a second K-8 and the first is being re-covered.
P.A.P.

TWO RIVERS (*RAF Laarbruch*)

The Benalla expedition was a great success with Ian Smith and Jon Hill breaking the British national multi-seater distance record with a flight of 515km from Berialla to Narrowmine in an IS-28s. Jon also has Gold distance/ Diamond goal and a full Cat rating.

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The Australian weather could have been kinder but we gained a great deal of experience with almost 20 000km, 600hrs and three Gold distance/Diamond goals, plus wonderful hospitality from John Williamson and his staff.

Sadly quite a few members have been posted. Our thanks to them for all their hard work.
L.F.

ULSTER (Bellarena)

National coach Graham McAndrew was a welcome and entertaining annual dinner guest in January on his first visit to Ireland. He lectured the next day at chairman Harry Boyle's house. Graham had briefed himself well on our long history, back to the foundation in August, 1930 – sadly the last link was recently broken (see the obituary to Carl Beck in the BGA News).

Sand-blasting proved impracticable so we had to wire brush by hand before spraying the many tonnes of lattice girderwork of the huge dismantled hangar we are about to erect on our new site.
R.R.R.

WOLDS (Pocklington Airfield)

Les Cooper and his wife Audrey retired in January. Les was manager for many years and is known to countless pilots from a wide range of clubs. Day or night nothing was too much trouble for him.

He was instrumental in buying our airfield in 1982 and was a leading figure to save the airfield from industrial development. Thank you Les from everyone for being "Mr Wolfs GC" and for all the hard work over two decades – it will never be the same without them both.
N.R.A.

YORK (Rufforth Airfield)

Our winter training groups resulted in Vic Waterhouse, Phil Ellison and Kevin Suddards going solo. In a radical move to clear our land loan we have asked members for financial help. It is a test of commitment for us all!
H.McD-R

YORKSHIRE (Sutton Bank)

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C.L.

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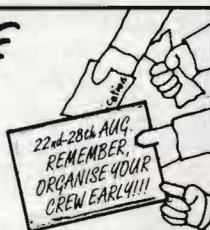
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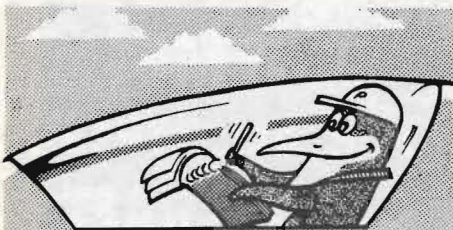
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Après le déluge, nous

For the Queen 1992 was an *annus horribilis*. Had HM been an Ulster glider pilot, the royal Latin would have been unprintable – even if it could have been correctly spelled.

There was no consolation for us in deducing from almost every page of the last two *S&Gs* that clubs throughout the length and breadth of Britain also suffered, in varying degrees, the meteorological nightmare which afflicted us for many months.

Existing on the BGA's far north-western fringe, shaking rain off one's dripping water-

proofs and trying not to plaster a mud and sheep-dung slurry from one's wellies to the clubhouse carpet, it was too easy to assume that soaring buff's on your side of the ditch enjoy conditions akin to the US desert states.

Whatever weather 1993 brings – and the year began with a three-week sequence of ferocious gales – it could not possibly be ghastlier than 1992.

Gruesome weather severely strains marital harmony at Penguin Place because just as Penguin is exceedingly sensitive to the weather outside, Hen Penguin's views on what constitutes a lovely day are so diametrically and infuriatingly opposed to his.

Rejoices in cloud cover

Adolescence and young womanhood spent in Africa gave her enough exposure to bright sunshine to last a lifetime; she positively rejoices in eight octas' cloud cover and so delights in rain that she would probably have found the inundation which preceded Noah's flood refreshing.

"Stimulating" is her favourite description for the kind of gutless, grey and drizzling day which locals over here call "soft". Her eyes sparkle and her skin glows as the sheer weight of a gale-driven torrent threatens to smash windows and stave in the conservatory roof.

So it says a great deal for my passive nature and equable forbearance that she remains uninjured after more than 32 years of such provocation.

But she'll get her cumuppance. This summer, God willing, she'll graduate as a qualified archaeologist after bravely tackling a full-time degree course at Queen's University at an age when most people are counting the days to their free bus pass.

And then when, as a Grannie Graduate, she's out digging and if the weather, Heaven forfend, is as evil as that which has clobbered both my gliding and my birdwatching for the past umpteen months, I'll laugh like the drain that her excavations will rapidly become.

Vegas and Amazons

For nearly 60 years I've cruised around with the top of my head rather closer to the soles of my feet than the western world generally considers admirable in males.

The upshot – psychiatrists probably have a word for it – is that I'm an absolute push-over for tall women, though my admiration has rarely been reciprocated. I can forgive a woman almost anything from a ghastly taste in music to halitosis if she is 5ft 10in. If she's 6ft, the range of shortcomings I'm prepared to overlook is even greater.

Given where I've lived for the past quarter-century, this particular predilection has spared me from excessive local temptation as tall women over here are as rare as hens' teeth.

These reflections were provoked by Bill Scull's article on cockpit/pilot sizing in the last issue, p18. We learned that although only 12% of USAF airwomen would fall below the World Class glider design criterion of 1.55m (5ft 1in) minimum pilot height, no fewer than one in four British women and half of all Japanese women would find they were too short for optimum comfort and safety.

I'm not surprised by the trans-Atlantic difference. Some years ago, after I and equally short Hen Penguin had towed a borrowed Slingsby Vega some 1400 miles across America's south western states to Minden, Nevada, owner Duane Sprague phoned to say he was sending someone to install oxygen and a flight director and deliver a barograph and parachute.

"A mechanic is here, working on your airplane" the office functionary greeted me when we drove on to Douglas County airport the next day.

Continuing to the Vega, which we'd picketed out, we drove up to the mechanic from behind, stooped low with head in cockpit. The legs were endless and shapely, extending all the way up from the shoes to the bottom, which was at the top and clad in cherry-red hotpants, that year's fashion rage.

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When aware of the car behind and screw-driver in hand the mechanic stood up . . . and up . . . and up, unfolding to a statuesque and eye-popping 6ft 3in.

"I've fitted your flight director" she told Penguin, rendered speechless – a rare condition – in surprise and lustful admiration.

The second most impressive thing about this gorgeous beanpole was that she had risen at 3am to drive 250 miles over the Sierra Nevada from Vacaville in California, to fit the gear. She'd completed the task before we'd even arrived from breakfast in town two miles down the road and the thermals had begun to pop.

It's "can do" country, the US – thank God.

A long hack

On the subject of pilot size, can anyone suggest anything – other than basketball – for a colleague of mine, the tallest member by far of the Ulster press corps at 6ft 8in? He is keen on gliding and has sampled, uncomfortably, some trial flights in various two-seaters.

Geoff is a talented and very funny reporter but is not, perhaps, best suited for undercover work. Or sailplanes.

Dumped

While studying Jack Stephen's fine aerial shot of Aboyne in the last Club News section, noting the developments that have taken place since I was last there two years ago, an embarrassing and pointed object lesson came to mind. It occurred in 1975 on the first of my many visits to this most welcoming and worthwhile site.

At that time the Deeside club used a dumper truck both for running site repairs and occasional on-field retrieves. "I'll get it," I called in helpful enthusiasm when it was suddenly needed, trotting over to what was then Aboyne's only hangar, against the rear wall of which the dumper was parked. I had not driven it before.

Cranking the engine into life, I leaped aboard, selected first gear and reached down to the handbrake lever. As I slipped it off the ratchet and the bucket began to tilt the awful truth dawned.

The handbrake was at my *other* hand. The dumper was now pinned to the hangar wall behind it by a mini-mountain of gravel chippings immediately in front.

As I laboriously shovelled it all back into the bucket while my safari companion and alleged friend Billy Craig split his sides in mocking laughter and declined to lend a hand, I resolved never again to fly or drive *anything* new without being briefed.

Little airport – please do not feed

I wouldn't normally decry the return of £4.85 million in EC money to these shores – even if the Euro fatcats who staff the Berlaymont have paid themselves twice as much while deciding how it should be spent.

But it is with deep gloom and foreboding that I

heard that the quiet and hitherto modest little airport, Derry's Eglinton, ten miles from Bellarena, is to be developed with an EC grant.

Long experience has taught me that little airports instantly assume delusions of grandeur, and become dictatorial towards other airspace users, once authority breathes the dread word "development" and spends cash on them.

This tendency is particularly marked when they are municipally owned and so-called civic pride and councillors' *amour propre* become involved.

The Brussels money (well, yours and mine, actually) will pay for a new terminal, enlarged car-park and new access road at Eglinton which, for all the brouhaha, still has only two scheduled airline departures, and two arrivals, every day.

At 41 000, last year's passenger throughput was probably less than that of any reasonably well used suburban bus stop, while its 15 000 aircraft movements annually would hardly make Chicago Midway catch its breath.

But ever since Eglinton got an instrument landing system some time ago it has forever been on the phone asking what we have in the air and generally behaving like a bossy hen.

A control zone or TMA is almost certain to follow, if only because civic machismo demands. They have another problem with a public road crossing the main runway. It is a cul de sac leading to a number of loughside farms and the RSPB's huge Lough Foyle sanctuary and reserve.

The airport managers haven't expunged this road yet but they will, give 'em time, they will.

Non-persons

Platypus notes that the word numerologist does not exist, according to his Shorter Oxford (see last issue, p10). My 1965 edition of this two-volume work doesn't include it either, though it offers numerist, with a 1646 origin and the dismissive note "rare".

More to the point, the SOD – an acronym, not a judgment, unless you drop it on your foot – also omits the more useful word geriatric.

So if you accept the authority of Plat's ancient varsity – and who would not? – neither he nor Penguin exists.

You only imagined it. ☒

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Confessions of an Obsolete Instructor

Yes, we had gained 25ft. I keep tapping the altimeter, probably to the annoyance of Lucy who was flying us beautifully from the front seat. She is a neat, capable pilot but had asked me to fly with her. It was the last launch on a windy thermalless day. Few students ask to fly with me these days; the younger instructors are word perfect. In the "Authorised Version of the Patter Book," enjoy spins on the downwind leg and enliven lift on boring days like this by pulling the release as the tug crosses the upwind boundary.

Then my singing doesn't engender popularity either. Patter for first lesson, P1: "Do you know HMS Pinafore?" P2: "No." P1: "Well, there's a bit which goes like this, 'A British tar is a soaring soul and-this-shall-be-your customary-at-ti-tude.'"

P2: "Do you mind? I'm paying for this." P1: "Well as Nat King Cole says, 'Straighten-up-and-fly-right.'"

I tap the altimeter again. We've gained another 25ft, the airspeed is steady, angle of bank constant and the yaw string straight. I suggest that we shift the circle a little and behold the vario shows a half up. Lucy handles the glider better than I could – most students do after about six months!

Why do I fall in love with so many lady pilots? It's their determination, courage and character. All pilots are a cut above the rest of humanity but lady glider pilots are goddesses. Tap tap, 2000ft. They are all stunningly beautiful seen through my 'specks' tinted by their delightful personalities. Lucy's hair changes style and colour as often as the fields below change theirs. The back of Jane's neck has a gorgeous curve, never mind that her earrings obstruct the view.

That flight made my day

This autumn flight is like one we had on a June evening when we climbed over the river, rising so gently to over 4000ft to the sad drizzle of an approaching warm front. We floated around till the poor souls on the ground had packed the hangar: fortunately the two-pew was the last to go away. That flight made my day as I was in the dumps, having fallen out of the sky in the single-seater.

I kidded myself that even if I can't fly I can talk others into lift: a kind of back seat Svengali. Those who can do, those who can't, instruct. The airfield is far away now but the fields look inviting, the blackberries are good this year and I like the company. Lucy, reading my mind, no doubt, gets us back to the airfield. They've put the other gliders away. It's pleasant to soar on unsoarable days.

As we put the two-seater to bed I'm struck with horror at the thought that I'm a Male Chauvinist Pig. Why else would I admire lady pilots so much for being better pilots than me? ☒

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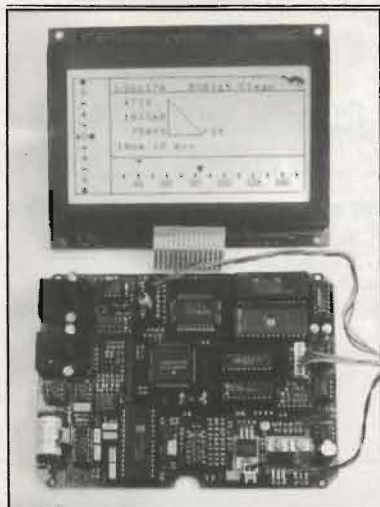
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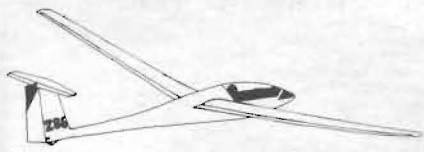
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