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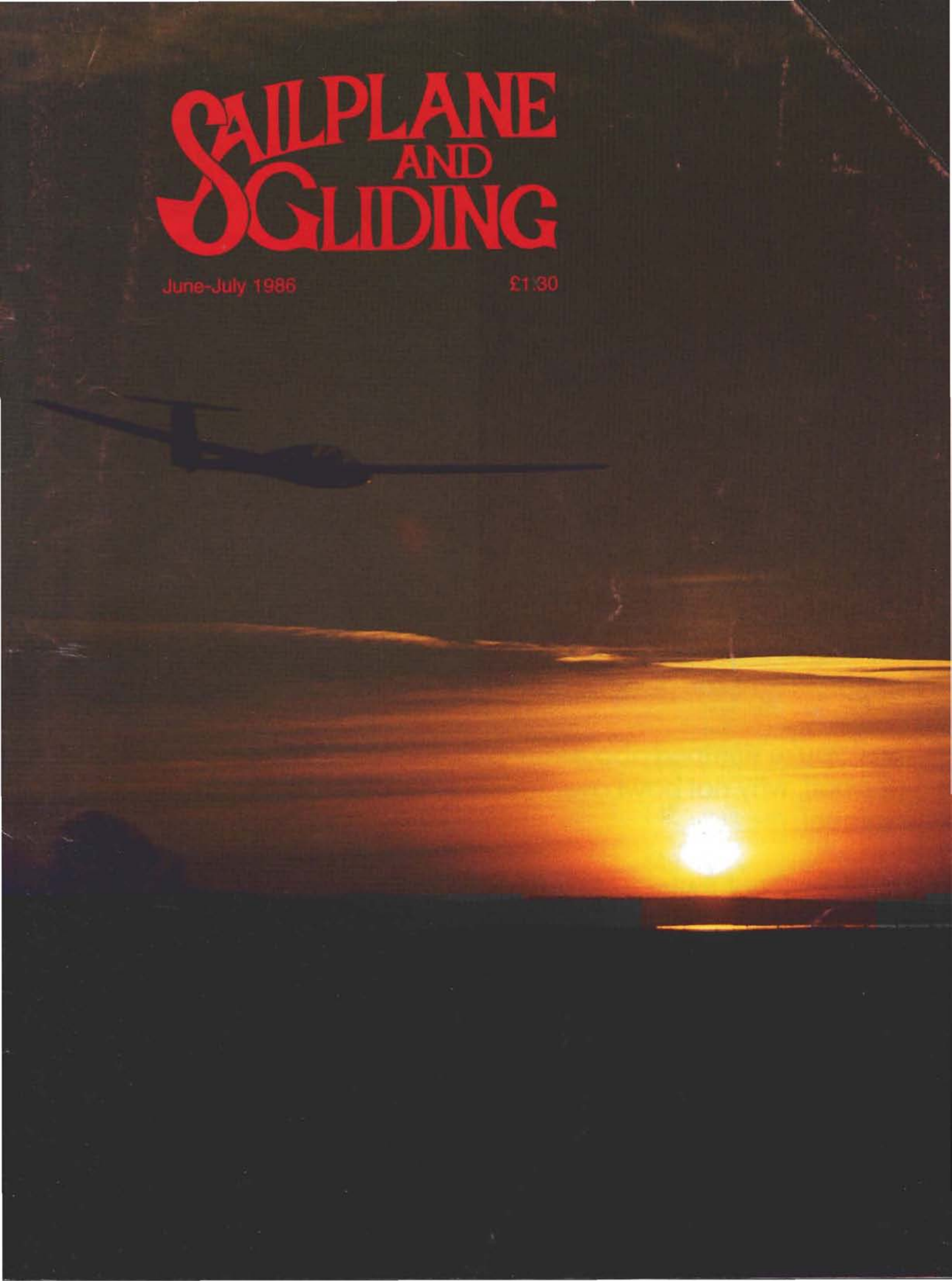

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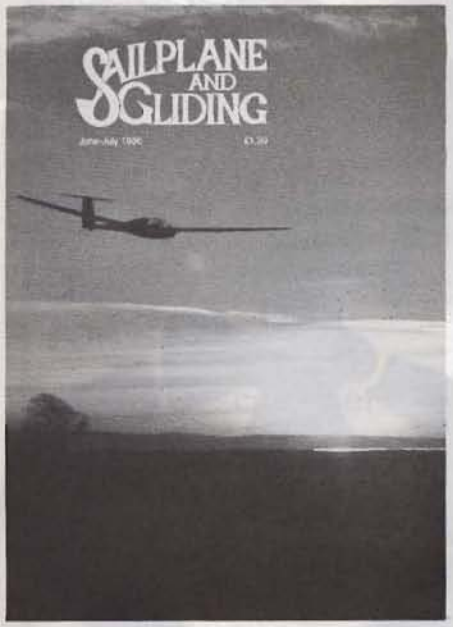

Cover: The Ulster GC's Twin Astir steals home for the last landing of the day as the sun slips into the Atlantic beyond Donegal and Lough Foyle at the western end of the Bellarena site. *Photo:* Crispin Rodwell.

SAILPLANE AND GLIDING

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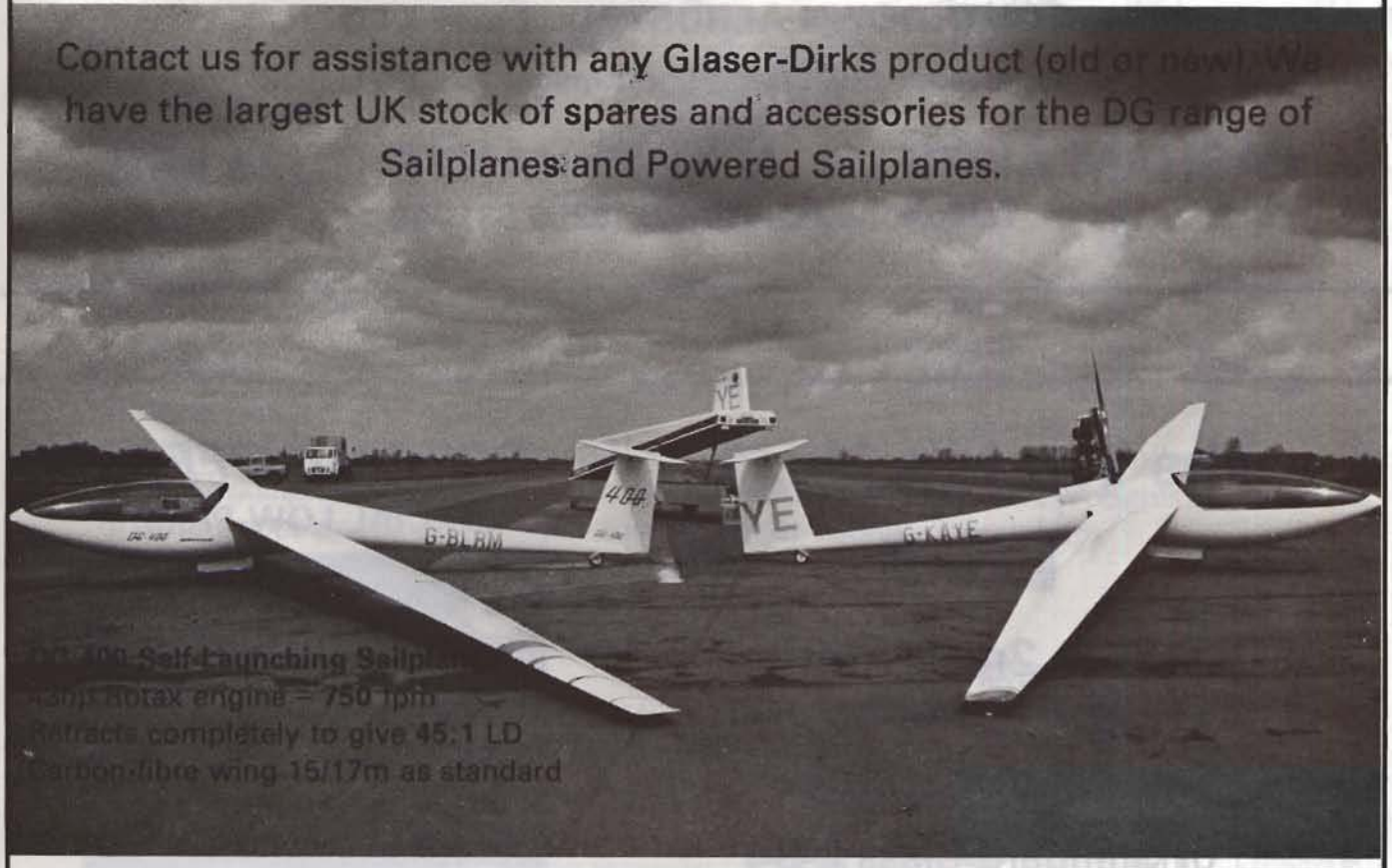

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UPPER HEYFORD

Chris, Chairman of the BGA Airspace Committee, gives an update

Most glider pilots will by now be aware that a Mandatory Radio Area was imposed at Upper Heyford, replacing the previous Radar Advisory Service Zone, for a one-year trial. The new airspace, effective Monday to Friday except for UK and USA public holidays, has been defined in NOTAM A 114/1986, together with its rules. The BGA has circulated all clubs with advice as to how to use the airspace, for those who have radio with the Upper Heyford channel (128.55 MHz).

For what it is worth, the only possible concession we could obtain was the use of a gliding frequency, probably 130.1 MHz, to gain entry to the MRA during the first three months of the trial. This would be conditional on relinquishing use of that frequency for any other purpose within 105nm of Upper Heyford. We have not taken up that option at the time of writing. The majority of clubs replying to our questionnaire would not agree to this restriction (so far, weighted by numbers of members, responses are 345 would agree, 1965 would not).

There is little point now in issuing a blow-by-blow account of how the MRA came to be brought in, except perhaps to learn some lessons for the future. What we certainly have to consider is the progress of the trial, and what may happen afterwards.

The trial. We now have to hope that the trial will be as realistic as possible, and that sufficient evidence of its success or otherwise will be obtained, in spite of the small number of gliders which will actually be able to use the MRA by first (courteously!) making the obligatory radio call.

The success of the trial seems likely to be measured by the authorities in terms of air safety in the Upper Heyford area. In gliding terms, the results must also include the effect on flights which would have been made, and now either are modified or are carried out in altered circumstances.

This includes flights made by gliders without the ability to call Upper Heyford; in spite of our failure to convince the authorities that this is a real problem, most gliders simply do not have the UH frequency, and we believe that most are unlikely to be legally able to use it during this season.

It follows that there will probably be consequent effects outside the MRA itself, particularly in the narrow gap between the MRA and Brize Norton.

Monitoring. National Air Traffic Services (NATS) has advised that Upper Heyford will be making reports each month. NATS has asked other air users to provide feedback too, preferably monthly also. A report will be compiled and issued to the BGA (among others) after six months. There may be a possibility of modifications to the terms of the trial if early comments suggest that improvements are called for.

The BGA has issued three requests to clubs for feedback. The first is applicable to pilots equipped for using the MRA, and provides for reports of each flight intended to transit the MRA, covering whether access (by radio) is easy or has problems.

Several possible outcomes – with undesirable consequences

The second questionnaire is aimed at the other affected pilots, those who would have selected a task routed through the MRA, but have instead to adopt a different plan due to lack of the radio frequency. Their obvious options include trying to maintain course but keeping above the MRA if conditions permit, going round the side, choosing another task less suitable for their experience or the day's conditions, or possibly not undertaking a cross-country flight at all. For most of these options, there are several possible outcomes with undesirable consequences. It is probably not feasible to devise a simple questionnaire covering every possibility, so we hope that all pilots will provide brief notes to amplify anything significant not covered on the report form.

The third area of inquiry concerns radio equipment in gliders, and is more general than just the Upper Heyford issue.

Glider radios. We are asking all clubs to survey the gliders based at each site, to establish how many radios are available, and how many frequencies they cover. There are several reasons for requiring this information. The most immediate is to establish whether a previous survey of seven clubs is representative of the whole, which showed that only 20–30% of gliders could contact Upper Heyford.

In the longer term, however, it is apparent that some organisations who pass comment on gliding, and indeed have influence on our activities, either do not believe we have a problem or simply cannot understand why radios should not be standard equipment. Whatever debate might take place, it will be helpful for the BGA to be able to consider the implications – for instance, if airspace is accessible only by use of non-gliding frequencies, what would be the cost to members of re-equipping. We therefore need to know the present situation.

Liaison with other air users. The Upper Heyford discussions involved other sporting aviation bodies of course, and it became apparent to us at a late stage that while we were hearing similar disquiet from many of them, somehow an impression that we were isolated in our opposition was communicated to the authorities. At the time of writing we do not know how this happened. To prevent misunderstandings in the future, however, we plan to liaise more with our fellow national associations. It may not always lead to unanimity, but if not we should at least know and understand where any differences lie.

****

Whither now? It all depends on how the trial is perceived by the authorities. Besides complying with the NOTAM, the only action we can take at present is to do an honest job of reporting what is really happening, and to make sure that BGA input is as complete as possible. We hope that all the other civilian users will do the same, and that the total response to NATS will therefore reflect the real experience of pilots leading to alleviation of the current restrictions. So, please tell it the way it is – and fill in those forms!

1984?

The threatened future of gliding

One of the most engaging things about glider pilots is their apparent monomania, the only thing that they usually talk about is flying.

Other subjects of conversation do crop up from time to time; the quality of the beer, the standard of clubhouse catering or the behaviour of certain members of the club when under the influence of alchohol, but serious issues connected with gliding do not often get an airing.

I usually find this wholly desirable, as Jimmy Edwards once said; "I can get all the sex and violence I want at home" and as one who has day to day contact with politicians the last thing I usually want to talk about is politics. It does seem however that the climate of government in this country is beginning to seriously impinge on our ability to enjoy our flying. The freedom to fly gliders across country or indeed to fly at all in some areas, is in some danger of being taken from us.

If we do not take some notice of the economic and military assumptions that seem to be influencing the actions of our government, and by extension the regulations governing aviation, we could find ourselves virtually squeezed out of the air.

One could start by examining the apparent uncritical governmental assumption; that any commercial air carrier, however peripheral its operations may be, or however flimsy its objections to sharing airspace appear, has an absolute right of veto over private air sport in its vicinity.

To give an example. The struggling Albatross GC near Plymouth at last managed to find a site which placed them within easy reach of the wave and thermal possibilities of Dartmoor. The landowner was enthusiastic, the local community raised no objections and a public inquiry established that it posed no threat to the environment.

Unfortunately Brymon Airways, operating out of the tiny adjacent airfield at Roborough, objected violently on the grounds that the site would present a serious danger to their commercial operations. They flatly refused to have anything to do with an agreement, drawn up by the club in conjunction with the BGA, which would have ensured that operations would not conflict.

The CAA, shifting its ground from benevolent neutrality, to outright hostility and then to a less benevolent neutrality again, appeared to have been manipulated by the airline. What is more, having been caught in the act and having reversed their decision for the second time in the face of a local political furore, they proved immune to reprimand by the Ombudsman as he has no power over that particular statutory body.

The Brymon operation is miniscule, and as gliders are unlikely to be flying in IFR conditions their complaint that the proposed gliding club circuit might interfere with instrument approaches was frankly risible.

Their refusal to co-exist with a small gliding club looks equally ridiculous when one considers that this very same Brymon Airways is proposing to operate STOL aircraft out of London's Dockland, squarely under the London Airport TMA and at the intersection of the London helicopter and light aircraft transit routes.

The inquiry eventually ruled against the club

To add insult to injury, despite the fact that the Brymon case was largely argued by their managing director, an accountant with no knowledge of flying, and Albatross GC was able to field a team including a positive bevy of aviation experts, the inquiry eventually ruled against the club.

The reasoning was beautifully simple; without some sort of liaison between Brymon and the gliding club there was a possibility that an accident might occur. Brymon would not even discuss the matter, therefore the club could not be permitted to operate.

The airline won despite the blatantly unreasonable nature of their case It would appear that in the field of civil aviation, commerce is unquestionably king!

We could also start questioning the assumption that the UK lies under a military threat so serious, that it justifies the government in removing our civil liberties at will.

Military aviation appears to be making major new incursions into the airspace available to glider pilots and other private flyers.

Readers of S&G are no doubt only too well aware of the new restrictions which will effectively exclude gliders from over 200 square miles of airspace around the USAF base at Upper Heyford.

This is a classical example of how the magic word "defence" enables restrictions to be bulldozed through without any objective justification and if they get away with it at Upper Heyford how long can it be before other military zones are extended in a similar fashion?

So far as I know there is no recorded instance of a collision between a glider and a military aircraft in the UK and the statistical probability of a glider being involved in a collision in the vicinity of Upper Heyford has been calculated as being one every 850 years.

Military aircraft however are constantly involved in collisions with other military aircraft!

A casual glance at the accident reports shows that the RAF has lost eight aircraft in air to air collisions with its own machines in the last two years in Great Britain alone, while the USAF lost two in similar fashion over the UK and no less than 14 elsewhere.

These figures are justified on the grounds that realistic training demands that military aircraft operate in close proximity and at low altitude. "Military necessity" legitimises the acceptance of an admittedly high level of risk.

I fail to follow the logic that accepts risks of a very high order of magnitude when it is convenient to the Ministry of Defence or the USAF and rejects the statistically insignificant ones allegedly created by ordinary citizens pursuing a harmless, aesthetically pleasing and environmentally neutral sport.

What is more to the point, what is the evidence for this apparent need for greater levels of military activity? The Russian menace seems less than credible.

I confess that I don't much care for the Soviet system but I don't see the remotest possibility of ever being compelled to live under it. As a graduate economist and historian with a long standing interest in military matters I can't see that they have either the motivation or the ability to threaten Western Europe.

So, back to the conversations in the club bar!

Our government appears to hold at least two opinions that are seriously damaging the interests of glider pilots.

First, that in some way people who fly fare paying passengers enjoy an absolute priority over all other users of the sky.

Second, that an objective view of the world justifies a growing extension of military monopolisation of our airspace.

Perhaps they are right, perhaps "father really does know best" but I don't think so.

Perhaps however we need, temporarily at least, to turn our attention to the boring world of politics and tell our representatives to re-establish control over these commercial and military interests. Some of them might make a start by ceasing to accept fat "consultancy" fees from those very same interests and start concentrating on representing us, their constituents.

At the moment it appears that the criteria adopted by government is, "if it can't earn money or kill anybody it has a diminishing right to be in the sky".

BANANA SKINS AND BEWILDERMENT

This article is the result of Rhoda asking in the October issue, p224, for readers to tell her about the crazy happenings at their clubs

I'm glad I thought of asking for hilarious happenings – gliding certainly does throw them up.

Please, contributors, forgive savage compression: ED wouldn't allow me to take S&G over. Of course, as "Platypus" (why the pseudonym?) rather tetchily pointed out, I can't promise purest truth, but then, neither can the national dailies – let's not be heavy about it!

"Banana skin" to me means someone having a bad time – but not disaster. Here's the first.

It had all gone well. Splendid downwind dash across Ireland. Kind farming family. When the family retired to bed (where was his trailer?), a walk to Fermoy. When the pubs closed, a chat and a warm at the police station. When that closed (where was his . . .?), sitting sadly at the foot of the market cross where they couldn't miss him – cold, tired, bored and unsuitably dressed. Three am – the trailer! He sprang up and rushed towards it, waving wildly. It swept past and straight out of town. After sitting back at the foot of the market cross for what seemed like all night, the trailer returned. "Why didn't you stop?, (by now totally undone), I ran out and waved". "Oh", said his wife, "was that you? I thought it was a drunk".

* * *

Proudly and happily fettling his cockpit: all finished. Closed the canopy – horrors! a crack. Sadly he drilled the little hole to stop it running. As he turned away his sleeve brushed the "crack" – it moved. He lifted it off – a filament of glue. So he had a perfect canopy with one small, round hole.

* * *

I know I shouldn't include Tiger Moths, but I can't resist this one. It happened a long time ago. Pupil lost, on his first cross-country. Landed in a field. 'Phoned airfield for help – not sure about take-off. Another Tiger Moth with two instructors on board finds the field. It looks very small – but there's the lost Tiger Moth with waving pupil. If he can get in so can they. Side slipping with great skill, they approach, touch down, streak across the field and land in a heap in the far hedge. They clamber out and walk back to the pupil. "How did you get into this field?". (I censored that). "Oh, I didn't land in this field – I landed in that one and bounced".

* * *

Pilot and wife didn't think it funny when it happened – but that's "banana skins" for you. Trailing back from Italy they came to a French gliding club at lunch time. Hot and sticky – no one about. They rigged their immaculate bird and went off for a sandwich and a briefing. As they walked back to the glider they realised it had been wrecked! Wingtips broken, tail twisted – consternation! Then an explosion of capering young French pilots. They had tenderly wheeled the rigged glider round behind the hangar and, (chuckling horribly), had carefully and artistically replaced it with one that had recently landed in some trees.

* * *

Here's a beautiful vintage "banana skin". Pre-war Slingsby had a splendid Buick for towing, complete with long-range tanks. It set off before dawn from Kirkbymoorside to collect Kit Nicholson's glider in southern England. Arrived before the family was up, but no problem because the Slingsby trailer was all ready for him in the drive, so he hitched up and roared back up north. Next morning they opened the trailer and discovered Mr Greig's glider. Kit Nicolson's trailer was behind the house – Mr Greig was visiting. The "theft" was reported to the police but the Buick wasn't stopped. Maybe they couldn't catch it!

* * *

A large club. The winch launches got worse and worse. Finally the instructor said, "I'm going to have a sort out this winch driver", and sprang into his car. He complained long and loud. "Not much good?" More loud complaints. "I'm interested in machinery", said the 'driver'. "I parked my car and came over to have a look. After watching a few launches the chap who was working the winch said, 'OK, you take over, I'm off down to have my lunch'. I've never seen one of these things before". They were being launched by a passer-by!

* * *

Now a bit about bewilderment. The general public have no idea what we're up to. 'We've all had the, "Where's your engine?", "Why did you crash in this field?" sometime. We rather like to add to the mystification.

My undercarriage warning was designed to make a strange warbling sound, (the designer said he wanted to make it sound like me). When on its belly trolley I needed a bungy to stop the brake lever slipping back and setting off the warning. Trailing up a slope I stopped with a jerk when the lights changed. After a while a man on the pavement, who had been looking puzzled, came across. "Excuse me, I don't know what you've got in that trailer, but it's making a very odd noise". "How kind of you to tell me – but I'm nearly home now, then I can feed it" . . . and the lights changed.

* * *

On this occasion bewilderment was compounded by language problems. The field was English, the farmer German. The pilot apologised for landing his glider in a newly sown maize field. Asked to speak more slowly, he explained that a glider was an aeroplane without an engine. "What has happened to your engine?" "Nothing happened to it. I just didn't have one to start with". "And you do this for fun?" – the farmer was horrified. "But it's done a lot in Germany too, you know", said the pilot. "My glider was made in Germany". This really upset the farmer. "Dear God, made in Germany, and you must land in my field". "Please don't worry, there's nothing wrong with the glider, it's really very well made". "Ah", said the farmer, realisation dawning, "There is then something wrong with you".

* * *

He landed downwind in a small Cornish field – I forget his excuses. It was not a nice experience – but nothing was broken. A family party having a picnic by the hedge. Father gets up and walks towards him. Pilot prepares for the "have you run out of wind?" routine. "Young man", says Father sternly, "do you realise you just landed that glider downwind?". A radio-controlled aeroplane enthusiast.

* * *

So there your are. There's one thing for sure – I'd much rather have told you over a pint in the bar.

CHRIS DAVISON

YELLOW PEN STUFF

A trip to the Long Mynd in search of logbook material and a five-hour attempt

There comes a time in everyone's logbook when you get that sinking feeling. Another page has been filled and **still** no sign of that illusive flight!

Well, one night, I picked up my logbook and flicked through it (always good for a laugh). I'd got to the end of a page, so out came the pen, calculator and back of envelope. Add it up three times and pick the largest P1, lowest P2 times, then bung them in . . . Yippee, for the first time ever P1 time had exceeded P2. OK so I've still got a long way to go before I've had more P1 flights, but who cares? (Me!) So out came the yellow highlighter pen . . . "P1 exceeds P2!!". Great.

Anyway to cut a long story short I flicked back through the rest of my logbook, and each page had at least one highlighted flight. OK, so some of them were pretty tenuous — First flight K-6 . . . First field landing (200yds from club) . . . First flight new club — but nevertheless highlighted they were! Happily I went to sleep secure in the knowledge that statistically at least my next page of logbook would also have a yellow smudge across it.

'Apart from an hour on the ridge nothing looked worthy of the yellow pen treatment'

Well, a few weeks went by and apart from an hour on the ridge (albeit my **first** hour on the ridge) nothing looked worthy of the yellow pen treatment. Not to worry thought I, I'm off into Myndland for a week's soaring, bound to be something there — Diamond height in wave . . . First 750km diploma in K-8 . . . First 3min circuit at Mynd — who knows? Who cares! So one rainy Sunday morning (aren't they all) I set off in Dotty (my car) in search of sun, wave and Myndland.

It has to be said that Myndland was not quite as sunsoaked as it might have been; the closest we got to wave was watching ripples in the puddles! Cloudbase was about 100ft below the site — still, as people kept telling me, "You should have been here on Saturday, could have got Diamond height from the winch, no problem". Great, I thought, absolutely ruddy marvellous.

Monday morning arrived. You couldn't see your hand in front of your face. Still, never mind, I mean the chances are that at least one morning will be rained off. Ron (our long suffering instructor) did his best to keep us amused and informed, and I thoroughly recommend you see his impression of a sheep running from a winch cable — but still no flying. At 6.30 everyone crowded into the telly room to see what Ian wotsisname had to say about the weather. "Good evening, well as you can see this **s-l-o-w** moving **low** is centred somewhere approximately over the windsock at the Long Mynd. "Thanks Ian. Only one thing for it, pile down the pub . . . roll on Tuesday.

Tuesday morning did one of the best impressions of Monday that I have ever seen. Well that was me finished. Now I'm not one to give up without a struggle (you ask any of my instructors and they'll tell you how trying I am), but there's only so much "Oh look it's clearing, you can almost see the windsock" I can take, so off I went in Dotty to discover the wild delights of Shropshire.

Sitting down in a Shrewsbury cafe with my apple pie, slurping my coffee, I looked out of the window . . . wait a minute, the sun was shining, and the clag was not there, in fact it was looking flyable (ish). I was gone.

I arrived back at the Mynd five minutes before lunch, quickly wolfed it down and set about the task of unpacking the hangar; well not me by myself but you get the gist of it. Fifty minutes later I was airborne, so the ridge wasn't working, and the sun had gone back into hiding, but it was flyable, and fly we did. "First flight K-21 and Mynd", well not quite yellow pen stuff but it's a start. After a few K-8 circuits and tea, Tom and Robin took me up in their Superfalke and I actually navigated without getting too lost. Thanks lads.

The evening was spent playing cricket with the Wednesday mob from Booker (no they can't play cricket either!) and everyone went to bed tired but happy. Breakfast on Wednesday was quite a happy affair, basically because you could see the windsock **and** the valley beneath.

I decided to take the barograph with me today (more out of sarcasm than anything) the idea being that if the worst came to the worst I could always enter "Third flight with barograph" and yellow pen that. The only trouble with this is that to get a big barograph into a small K-8 you need to take the fairing off, and to take the fairing off you need to take off the wing nuts, and if you drop the wing nuts under the seat . . . Half an hour later I was ready, canopy closed, brakes open, closed and locked . . . cable on please, cable . . . cable break. Another half hour and we were ready. Piece of cake this, short winch launch onto ridge, ridge up to 1200ft then connect with the wave . . . great. All out I cried, short winch launch (400ft), straight onto ridge — ridge isn't working. "Oh that is a shame" I said to myself (well words to that effect), picked my field and pushed on (the ridge is fairly reliable up to 200ft so I'm told).

It was an hour before I had enough height to do a circuit, damn this I thought, I'm not stupid, land while you've got the chance . . . woosh 4 up . . . on the other hand! At this point two things struck me, first that although the ridge wasn't working, I might just be able to get my five hours, and secondly I only had one cushion with me and my backside was beginning to complain! Did the Wright brothers complain when they got their Silver? I asked myself . . . go for it!

The next low point (for me and the K-8) was after about two and a bit hours. Great, I thought, this is now my longest flight to date. Only another two and a bigger bit hours to go. Five hours is a pretty long time when you need a pee, it's even longer when you see the rest of the course trooping in for their chicken and chips, cup of steaming tea, nice warm . . . At this point my audio would have started whining at me if the K-8 had had one, but it didn't, so my backside chipped in to inform me that I'd hit lift.

This cycle of climb, sink, dream of tea and loo (not necessarily in that order), prepare to land, hit lift, climb . . . continued. All the old "comments" that have ever been shouted at me from the back seat of the K-13 came back to me . . . "Get that nose down, you're in sink . . . No don't circle in the stuff, look fly the thing, don't wander like a deranged fairy . . .". By the time four hours had passed

(Continued on p149.)

A GLIDING ETHIC

The following is a transcript of a presentation given by Justin at the BGA Conference.

In the second part of my address today I would like to give you a personal view on the role and responsibility of the performance pilot in the development of gliding. I want to start by suggesting the adoption of a "Gliding Ethic" against which the actions of the various gliding communities can be measured.

The Ethic I would like to propose is as follows:

"A responsibility to uphold the freedom whereby enthusiasts from any walk of life can explore the ocean of the air howsoever and wheresoever they choose, with the minimum of constraints other than those imposed by the laws of nature."

Underlying this ethic is a belief in the intrinsic value of the sport and that it enriches the lives of those who participate in it.

Performance flying, be it for badges, records or competitions, is the most publicised part of gliding and thus should bear its full share of this responsibility. However, modern trends in performance flying are showing signs of running contrary to this ethic.

I have two specific grounds for concern: the first is the introduction last year of the new FAI rules permitting flights encompassing multiple TPs to qualify for badge and distance diploma flights. I am not alone in this concern, and I would like to read you excerpts from a letter printed in the February issue of *Soaring* magazine:

"Once upon a time, flying a sailplane cross-country was a horizon-expanding experience. But all that is changing. The latest revision to the FAI Sporting Code drastically reduces the minimum distance a pilot has to fly from his home base to complete the distance requirements for Gold, Diamond and 1000km badge legs. And while there was jubilation in the clubhouse at the prospect of completing Diamond distance without risking even a 100-mile retrieve, I was caused to wonder if the challenges of soaring cross-country are not being over-diluted.

"Twenty-five years ago, flying Skylark 3s with an average cross-country speed of 25-35mph, we attempted Gold and Diamond distance. Landing out was often a foregone conclusion, as was a lengthy retrieve. In this fashion I recall drifting away from sites as soon as the first buzzard was aloft and soaring the entire breadth of the state of Maryland from Cumberland to the Chesapeake Bay — even crossing it on one occasion.

"Now we fly fiberglass beauties with cross-country speeds twice that, yet our globe-trotting has become restricted to a much narrower region. Diamond distance can be achieved by zipping up and down a mini-course to points only 52 miles from the center. Meanwhile, our dinky little computers are telling us how fast to fly, how high to climb, what course to head, etc, etc, after we've punched in our data on the flightline.

"Are we becoming a bunch of armchair pilots? Have the demands for comfort and convenience taken over the soaring movement? If so, where will it end — in the total simulation of the cross-country experience?

"I'm not at all sure that we're not going too far. My guess is that I shall never again look down on the Chesapeake Bay. Or open the canopy and ask the farmer, 'What state is this?' Or set up my approach in the last glimmer of gloaming. Of course, I could do these things, but if the rules say I don't have to, chances are, I won't. I question whether a 52-mile return ticket excursion is worthy of that prized Diamond in the pin. What should we aim for — absolute fairness and ultimate safety? Or tasks that challenge the pilot to make creative decisions and extend him to the limit — even at some risk?"

I agree with the sentiments expressed, and I believe that the reasoning behind this change is not only mistaken, but runs contrary to the gliding ethic.

The previous rules provided an acceptably consistent measure of achievement within the country concerned.

1. The first reason advanced is that this change enables such flights to be performed in countries where geographical limitations rendered them impossible under the previous rules. However, this reason is based on the fallacy that there is an equality between the achievement of a given task in different countries. In fact, we are all perfectly aware that the achievement of, say, a 750km triangle in Australia is far easier than a similar flight in the UK, and that in Denmark it may be impossible. That hasn't prevented a Dane from being a recent World Champion! What the previous rules did provide was an acceptably consistent measure of achievement within the country concerned. A change in the rules will destroy this, whilst making such flights perhaps ludicrously easy in Australia.
2. The second reason advanced is one of safety. I want to cover this more fully in a moment, but at this point would simply state that a skilled pilot must be capable of meeting the demands of the laws of nature, and attempts to insulate him from such demands are not only contrary to the gliding ethic, but could also be counter-productive.
3. The third reason is one of convenience. This is unarguable if you accept that the length of retrieve determines its inconvenience. I don't, but realise this is a subjective view.

However, surely it is ludricous to devalue the achievement of long established standards at a time that has seen enormous improvements in glider performance. Furthermore, in Britain we have been particularly fortunate that the ultimate badge requirement has always provided a tremendous challenge; it used to be 500km; now three 750kms have been achieved, and many of us believe in the possibility of 1000km all under the previous rule. Surely there is no case to alter the basis of these achievements and aspirations.

And, if this were not reason enough, even more important is the likely effect on the future of gliding. Once it is generally perceived that the ultimate goals of performance flying can be fulfilled within a corridor 50-90 miles either side of the base airfield, we will lose not only the interest of the public but also a crucial argument in our efforts to keep reasonable amounts of free airspace available for our sport.

In other words, acceptance of these rules runs contrary to the gliding ethic. I feel strongly that the BGA should not recognise claims for flights submitted under the new rules. Let such flights be seen for what they are — an interesting way to spend a day, perhaps competing with others, when the weather precludes flying over a wider geographical area. The principle could even be extended to K-8 pilots flying locally — who can clock up the highest reading on an instrument designed to record air distances covered at speeds in excess of, say, 50kt.

My second specific concern relates to potential developments in competitive gliding, and has been focused by an article in the November issue of *Australian Gliding* by Ingo Renner. Entitled "To crash or not to crash, that was the question", the article includes the following excerpts:

"One cannot overlook the fact that the sport of gliding went for a nose dive during the recent Italian World Championships. I see the reason for this debacle in the change from the traditional flat country sites for World Comps to the mountain site of Rieti . . . The difference between racing gliders over flat country and over mountains is highlighted by the fact when taking risks on flat terrain a pilot faces a normal outlanding, and in the mountains he faces a crash . . . At the end of this 19th World Championships, 22 gliders were pranged, of which seven were written off. Of these latter prangs the pilots were extremely lucky that they were not injured nor killed . . . I always thought that in World Championships we were

looking for the best glider pilot and not the most courageous fool . . .

"All these problems could be avoided if the CIVV delegates would use some common sense and ban mountain flying for all future World Comps, in the same way as they banned cloud flying after the disastrous 1972 World Comps in Yugoslavia.

"The 1989 World Comps should be changed from Austria to a flat country, and the CIVV should ask the Soaring Society of America to change the venue of the 1991 World Comps from Minden to a flat countryside of the USA.

"Now the whole gliding world is looking towards Benalla. With all their heart the international competition pilots prefer to race in flat country."

'His argument rests on the safety factor. The assessment of risk is a very personal thing'

Obviously, when a pilot of Ingo's ability puts forward such a case it must be given every consideration. His argument rests on the safety factor. The assessment of risk is a very personal thing, and having been a pilot at the Rieti Championships. I would like to express my views. After reading Ingo's article, I asked myself the following three questions:

1. Did I feel at any time during the contest that I was exposed to an unusually high or unacceptable level of risk? The answer is no. I believe I flew my aircraft within reasonable safety limits throughout.
2. Did I feel other pilots gained a competitive advantage through being prepared to accept a higher level of risk than I was? Again the answer is no. The pilots that beat me did so by taking better in-flight decisions, as usual!
3. Would I have done better if I had steeled myself to take greater risks? Certainly not. I am quite certain that the resultant fear would have greatly handicapped my performance.

Of course, one can envisage a situation where the above answers would be different, *eg* a TP in a valley unexpectedly filled with cloud, or being faced with a short cut through an area known to be strewn with unmarked cables. But none of these situations occurred in Rieti.

I certainly would not regard the successful pilots at Rieti as "the most courageous fools", and I'm sure Ingo shares my view — after all, he won!

However, there is the fact that 22 gliders were damaged during the practice and contest period. An important point is that about half of these accidents occurred in situations unrelated to the presence of mountains, *eg* Leutenegger's accident.

Only six gliders were unflyable at the end of the contest. No one was hurt.

That still leaves a fair number of aircraft broken by pilots of considerable experience. There is no denying that field landing in Italy does require more care than in certain other parts of the world. Nonetheless, I simply do not believe it is intrinsically dangerous — the accidents occurred through pilot misjudgment, among pilots who should have known better. Of course, we can all make mistakes, and awareness of this is a vital part of our safety consciousness. But likewise we should always be ready to take the responsibility for the safe outcome of every flight and handle every situation that arises accordingly. We must never rely on a benign tasksetter or weather conditions to insulate us from the fundamental reality of the constraints of the laws of nature

Thus I do not concur with Ingo's assessment of the risks incurred flying at Rieti. And I am even more strongly in disagreement with his suggestion that henceforth the World Championships should boycott any contest area that is not flat.

First, I think it essential that successive World Championships should test competitors in as many varied conditions and terrains as reasonably possible.

Secondly, they should be held in as many different countries as possible in order to promote the sport of gliding in those countries.

Thirdly, the effect of such a restrictive boycott as Ingo suggests could have a disastrous effect on the gliding movement in the country concerned. Once the authorities perceive that, internationally, gliding in their country is regarded as unacceptably dangerous, what chance does the local gliding community have of defending itself against well meaning "it's for your own good" type justification of further restrictions.

In short, Ingo's proposal runs contrary to the gliding ethic.

But this view raises the question of why a pilot of Ingo's extraordinary ability has failed to see this: I would like to offer the following possible explanation. Ingo flies in a country which arguably suffers the most unreasonable constraints on its gliding activities of anywhere. Cloud flying is forbidden throughout Australia: commercial airports are surrounded by vast chunks of forbidden airspace; mixed operations are either not permitted, or, where they have historically developed, greatly discouraged. If the same level of restrictions were applied to the UK, gliding would effectively cease. Therefore, I believe that Ingo may simply not perceive the gliding ethic as I have defined it.

And despite this "safety at any cost" approach, gliding in Australia is **not** particularly safe. The blue conditions that occur so frequently lead to a lot of gaggle flying, and collisions occur — we had one at Austraglide that damaged one glider very badly. Dehydration and heat stroke are serious considerations, as is the temptation to continue flying very low fully ballasted — thermals can be very strong right down to 300ft.

Furthermore, some of the rules applied to promote safety can have the opposite effect — the low flying rule at Austraglide was the cause of two major accidents, one of them fatal.

Thus, even at Benalla, with its smaller entry than Rieti, we suffered over half a dozen accidents, three aircraft were unflyable at the end of the contest and one pilot was killed.

I can only refer once again to the gliding ethic.

I believe we performance pilots should recognise our good fortune to fly in the UK with its comparative lack of restraints and do all we can to defend and even improve the situation. Above all we should avoid changes in our own regulations that could have a contrary effect. These may well be initiated overseas where they have lost the freedom we take for granted. But we must not follow suit. In my opinion we should reject Ingo's suggestion to limit the venues for future World Championships.

Within the UK we should promote the awareness of performance gliding among the general public — not with a view to recruiting more enthusiasts, though this may occur, but with the purpose of informing them what we do and how we do it. Our failure to do this is repeatedly evidenced by the first question we are asked after a field landing, "Did the wind stop?" I suggest we try to get one of the TV channels to do a feature on gliding, like a mini "Life on Earth" series. I'll volunteer to be David Attenborough.

'If they can televise darts, bowls, golf, skiing and yachting we can certainly do it for gliding'

We should design our gliding competitions to provide an interesting media spectacle. If they can televise darts, bowls, golf, skiing and yachting we can certainly do it for gliding. This may require a change in the way we run competitions, perhaps involving group starts, maximum altitudes at TPs and even carrying transponders so that our relative positions can be relayed to spectators. If so, so be it, as long as we use it to promote the gliding ethic.

I am convinced that to support this gliding ethic we need enterprise and charisma. It is the ultimate challenge we face; success in this endeavour will enable us to continue describing gliding in the terms so well expressed by *Frank Irving:

"Our vision of gliding is an exalted one: we see it as one of the finer flowerings of this century's civilisation. Unlike the monuments of earlier times it relies on technology (initially more a craft than a science) to expose people to natural beauty, perhaps to stirring endeavour, and to truth about themselves. It can exalt the spirit, it demands the taking of decisions, the cultivation of competence, a deep understanding of wind and weather — and it can have its frights and real dangers. For those who practice it to the limit of their capabilities the rewards are great indeed: unforgettable visions of this lovely planet and perhaps insights of an even deeper and more subtle nature."

Thank you.

Tribute to Philip Wills, Lasham magazine, No.178.

SITE SUCCESS FOR WOLDS

We have another encouraging account of a club buying their own site

For the last 15 years the Wolds GC has been flying from the old wartime airfield at Pocklington alongside the main road (A1079) between York and Hull, some 20 minutes drive from York. We are in good soarable country at the foot of the Yorkshire Wolds with no airspace problems. A few years ago we started to think seriously about owning our own site because we were becoming uneasy. The farmer would only renew our lease on an annual basis and anyway the lease gave us very little security.

We had also heard rumours that other airfields in the area were being sold at very profitable prices for the hardcore from the old runways. The biggest problem was we couldn't plan ahead with any certainty because of the lack of security.

When it was proposed that we should start a site fund and look for a site, some committee members thought it would be too expensive and we would never raise the capital. However, the more enthusiastic agreed to look into the feasibility of the project.

Then started a long trek round farms for sale in the area. Also negotiations with the Sports Council and various local councils for planning permission possibilities for the different sites we looked at. When it was decided there was a chance we might achieve our goal, a site fund was set up.

We were lucky that our chairman, Les Cooper, had recently retired from the police force and had time to spare to act as co-ordinator and was able to attend the daytime meetings.

While we had a disappointment over one promising site, we had negotiated a very substantial grant from the Sports Council and it became known in the area that we had quite an impressive amount to spend if we could find the right land at the right price.

The solution turned out to be on our doorstep.

Our landlord suddenly realised that we had cash available (we had approached him in previous years and been brushed aside) and offered to sell us the two runways we had previously leased plus enough land for full length grass runways alongside, a 60ft× 60ft hangar, a perimeter track and entrance and about four acres for a clubhouse and caravan park. He wanted £100000 for the lot! We therefore knew that we needed to raise £160000.

By salting away money in the site fund over the two previous years and asking members to make a £200 loan we accumulated £30000. Then came the joyous day when the Sports Council made us a £50000 grant, which really made the project possible (thank you Mr Villiers). Without it we would have been too alarmed at going too heavily in debt to have attempted it.

A view of the site.

We also had smaller, but still very useful, grants from local and regional authorities. Because of legal fees and other incidentals, we still had to ask the bank manager for a £36000 loan. This he agreed to and we knew we were home and dry.

But while raising the money is important, public relations comes a close second. Buying a gliding site involves the help of many people. Local and county councillors, MPs, planning authorities, grant aid authorities etc. This help is more likely to be forthcoming if the club follows an active and positive policy towards public relations. At Pocklington we make great efforts in this direction and as I write arrangements are being made to entertain five county councillors and give them a flight in the Falke (after all, they did help us to buy the place!).

The BGA (in the form of Bill Scull) is another valuable resource which should not be forgotten. It can provide much needed information and help, especially on the site suitability, planning and grant aid aspects, and has a team of experts to help with any particular problem – a great help when you are starting from scratch. In February 1983 we signed the appropriate papers, drank the appropriate champagne and the site was ours. Then the hard work really started. We levelled the four acre site, dug foundations, put in services, laid concrete and built an access road and clubhouse. By doing the work ourselves we kept the bank loan within reason and it's truly amazing the amount of expertise that can be found within a gliding club.

We now have a good clubhouse and bar with toilets and showers, video and lecture room, office for the airfield manager and a large tree lined tent and caravan site. We are just about to extend the hangar and build a larger workshop.

Hoping to buy more land on the airfield

After three seasons the £36000 bank loan is down to £5000 and should be paid off this year. We run holiday courses and employ a course instructor and winchman, a full time airfield manager who lives on the site and a BGA inspector for most of the winter. Our grass runways have been seeded and are in regular use, being one of our best assets. We are now looking to buy more land on the airfield.

The key to expansion and advancement for any gliding club is security and utilisation. Without security you can't plan ahead – vital for a growing club – and without utilisation you can't

progress because you don't have the cash. So why not give the matter of buying your own site some more thought. All you need is enthusiasm and perseverence.

If a small club like ours can do it (we only had just over 100 members when we bought the site) so can you. I wish you lots of luck and here are a few do's and don'ts to help you along the way.

P.S. Land prices have gone down drastically recently so this could be a good time to get the machine moving. If you want any help or advice why not ring Les Cooper, our airfield manager (he was the co-ordinator for the project) on 07592 3579.

DO

. . . maximise the utilisation of your facilities and charge reasonable prices so that you save for your site fund.

. . . operate reasonable performance machines which don't make a massive annual loss.

. . . make up a proper explanation, past record and "why you need the money" pack to take to the Sports Council.

. . . appoint one person to organise the project – preferably someone who is available during the day – and give him the authority he needs to act on your behalf. This means, of course, that you must trust his judgment.

. . . create good relations with local and regional authorities, even if this means giving away a little free flying occasionally.

DON'T

. . . go to the Sports Council "cap in hand" unless you have accumulated some capital of your own.

. . . be put off by the enormity of the project – it can be very rewarding.

. . . be put off the "doubting Thomas" element within the club.

. . . be persuaded that you need a lot of luck to be able to buy your own site. You have to make your own luck!

BRINGING THE MAGIC BACK

Paul, a Booker GC instructor with some 1000hrs, two Diamonds and a PPL, has some good advice for the disheartened pilot

Where has all the magic gone? This is a question that many pilots ask themselves a while after gaining their Silver C, for part of the gliding magic is the sense of achievement after hurdling each test or badge. The sort of day required to complete a Silver distance, duration or height appears quite regularly during the spring and summer at most sites. Pilots with sufficient spare time and money, adequate training and a certain amount of "go" often achieve their Silver C within a year of going solo.

The first solo, Bronze and Silver C all represent numerous tangible achievements, each one spurring the pilot onto the next. But after the Silver, the badge awards become considerably more difficult and sometimes more expensive to get. Unless a competent cloud flier, the flat-site pilot will often have to travel hundreds of miles in the hope of finding wave to gain Gold and Diamond heights and the 300km and 500km badge flights normally require much better than average days. Consequently the badges — and as a result the apparent achievements — are less frequent and the pilot becomes disheartened.

Ask your club pundits about their most satisfying cross-country flights of the season. After the one or two obvious ones on cracking days, reflection might lead them to mention a flight possibly inconspicious by its actual distance (100km maybe) but highly satisfying because they had made the most of what was offered. A 100km or 200km which produces no badge can be far more meritorious in certain conditions than a 300km romp in ideal conditions. And certainly the elation of crossing the finish line after a 100km completed is far greater than that of sitting in a field after 120 of a failed 300km. Good cross-country flying comes from a sense of purpose, practice and the right mental attitude.

There is a great tendency amongst pilots waiting for their Gold distance to waffle around within twenty miles of home and then saunter back claiming they have gone round places they could see in the distance and which they never declared beforehand. For the purposes of a Diamond goal this achieves nothing. First, the 300km Diamond is a declared flight and secondly it requires photographic and barographic evidence. I know many pilots (including myself) who have had bitter experiences of losing badge claims and Comp days on bad TP photography or poorly set-up barographs. It all needs thought and practice.

Setting the right task for the day is another problem so practise it. Get help at first — often it pays to ask the pundits what they're doing. If it's a 750km day then you might consider a 300 or 500km attempt! If they're trying to do a smallish task very fast then declare it yourself — they'll mark some thermals and with luck you may be able to follow for a while (avoid doing this in competition or badge flights because it isn't only unsporting and irritating for the leader but can be dangerous if you are directly on their tail without their knowing).

'Don't let the desire to get round reduce your acceptable safety standards'

Even if it takes all day, make a proper start, stagger round, go through the photographic sectors (take pictures if possible to examine afterwards) and make a safe final guide. Don't let the desire to get round reduce your acceptable safety standards.

If you have the opportunity to fly a high performance glider, get help in declaring a suitable task. Crosswind legs in a light, wooden glider can be soul-destroying and impracticable in a strong breeze.

However impressive it may sound, getting away from 300ft is more often the result of a tactical mistake or poor airmanship than supreme competence. Generally the lower you get, the weaker the thermals become and the fewer your options, so don't glide too fast because you'll come down much quicker. Look at the sky. Fly where the lift is even if it is a little off track. Avoid obvious areas of sink. Be prepared to change gear with varying conditions and if it all goes to worms fly anywhere to stay up.

And when you land out time after time, ask yourself why. Look at the barograph trace, examine the photographs. Ask advice. In the end perserverence will bring results, if slowly. Feel your sense of achievement and the return of the magic — even if you land out.

If you are content with your gliding — whatever form it takes — then be grateful for the magic. This article is not a dig at non cross-country pilots. It is an attempt to encourage those who think gliding has lost some of its charm to get out and feel the great sense of achievement from cross-country flying. Don't worry about badges. They'll come in good time.

A. MURRAY WILSON

OXYGEN AND ALTITUDE FOR GLIDER PILOTS

Overheard in clubhouse, "How much oxygen does a person need to survive?" "About 250 millilitres or a quarter of a litre each minute, of which the brain takes 20%". "Then why do I have to have such a high flow of oxygen in the glider? If there is still some oxygen in the air I should be able to manage with much less than 2 litres a minute."

Unfortunately, glider and hang glider pilots do not have a good reputation with regard to the use of oxygen. Recently criticism was levelled in the *British Medical Journal* [1] at a hang glider pilot who had taken small puffs of oxygen from a tube in his mouth[2] while attempting a high altitude cross-country flight. It is a sad reflection that the BGA had to introduce the recommendation[3] that no Gold height could be accepted unless oxygen had been used.

Why are risks taken? Probably the two reasons are enthusiasm and ignorance. Along with ignorance goes the inability to recognise the onset of the effects of lack of oxygen (hypoxia). Enthusiasm results on the one hand in stories of makeshift equipment and on the other of "pressing on". I recently heard of the episode where an oxygen mask was left behind, but a replacement fabricated from a cut-down squash bottle. All very fine in times of war but not for a sporting pastime. Does this approach also apply to repairs to the glider itself? The successful return to earth does not negate the ancient phrase "Lack of oxygen not only stops the engine, but also wrecks the machinery".

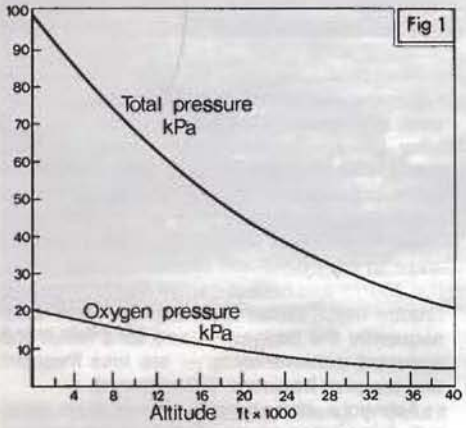
The conversation in the clubhouse demonstrates one of the more confusing aspects of the use of oxygen. If there is enough volume of oxygen in the inspired air, why is it not necessarily sufficient to support life? The answer lies in understanding that the pressure of oxygen is just as important, perhaps more so, than the quantity.

It does seem strange that despite the presence of apparently enough oxygen, if it is not at sufficient pressure it may not support life. This situation can be better explained by describing fizzy drinks which owe their fizz to dissolved carbon dioxide. Although the proportion of carbon dioxide in the air is very low the average room contains about 1000 litres of carbon dioxide. Despite this enormous volume there is no way that this can be made into a fizzy drink unless pressure can force it into solution. A Sodastream injects only half a litre but does so at high pressure. In the same way the oxygen we breath has to be at sufficent pressure to force it into solution in the blood.

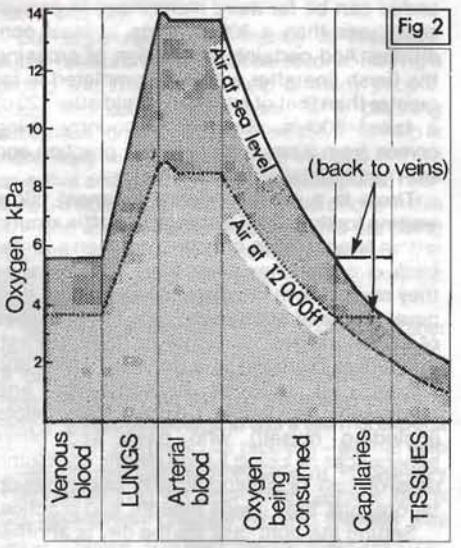
The atmosphere. Atmospheric pressure falls with increasing altitude, but the proportion of the gases in the atmosphere remains constant, Table 1. The fall is rapid at lower altitudes and then slower (Fig. 1). Pressure at sea level is variously described as 1 Atmosphere, 1013.2mb, or approximately 100 kilopascals (kPa). Near sea level the pressure falls by one-thousandth of an Atmosphere, approx 1mb, for each 33ft. At 18500ft the pressure is one half an Atmosphere, (50kPa) and at 37000 it is one quarter (25kPa). Each gas present exerts a pressure proportional to its concentration. As oxygen occupies at all times one fifth of the atmosphere, its partial pressure is one fifth of the atmospheric pressure. Thus at sea level, oxygen pressure is one-fifth of an Atmosphere, or 20kPa. At 18500ft this has fallen to 10kPa.

The Atmosphere	
Nitrogen	**78%**
Oxygen	**20.9%**
Carbon Dioxide	**0.3%**
Rare gases	**0.9%**

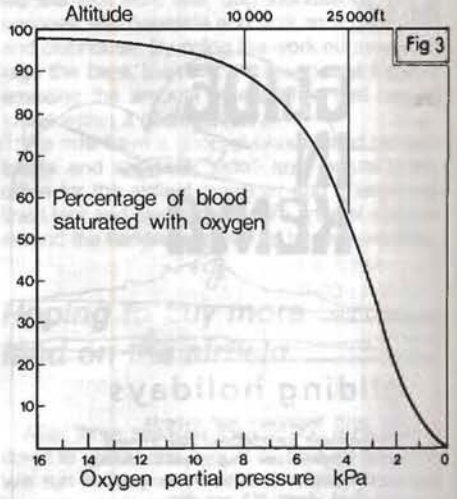
Table 1



Inspired air is diluted in the lungs, and oxygen is taken out. Thus its pressure in the lungs is less, about 14kPa, the normal at sea level. Oxygen is carried to the tissues where it is consumed, and so the lowest pressure is found here. This progressive fall in oxygen pressure, known as the Oxygen Cascade, is shown in Fig 2. Normal values are the solid line. From the left to right the oxygen level is shown in the blood in veins returning to the heart and lungs. In the lungs the oxygen pressure rises sharply to just above that found in the arterial blood. The fall from the level in the lungs, to that in the arteries, is normally low but increased in any lung disease. This includes even the common cold. As oxygen is given up the pressure falls to the venous level. Diffussion carries oxygen into the tissues where it is consumed and the pressure falls further. It is this lowest tissue level that is actually sustaining life.



Dr Murray Wilson is consultant anaesthetist in the Sheffield Children's Hospital and Plastic Surgery Unit and has a qualification in aviation medicine. He took up gliding six years ago and is treasurer of the Burn GC where he flies a Pirat within easy range of the airfield.



Nothing in this field is simple, and the amount of oxygen taken up by the red pigment, haemoglobin, of the blood has a complex relationship to the pressure. Fig 3 shows on the vertical axis the amount of oxygen taken up at the pressures

shown on the lower horizontal axis. It can be seen that the amount absorbed does not fall much as the pressure is at first reduced from the normal 14kPa. Then from about 9kPa downwards the amount absorbed, and therefore the amount available to be used by the body, is markedly less. The values shown are for a normal person. If you have anaemia, even that produced by giving blood on the previous day, you are able to carry less oxygen, and will be more affected by altitude. Smoking, by converting the normal haemoglobin to an unreacting compound, reproduces the effect of anaemia. The haemoglobin takes days to be reconverted after a last cigarette.

Precipitous fall in absorbed oxygen will start at 12000ft

The upper horizontal axis of Fig 3 shows the altitudes equivalent to the pressures shown below. This demonstrates that the precipitous fall in absorbed oxygen will start at 12000ft. The effect of breathing air at 12000ft on the Oxygen Cascade is shown in Fig 2, dotted line.

Volumes of breathing. While at rest we breathe about 16 times per minute taking about 400 millitres per breath. So we breathe about 6.4 litres, of which 4 litres reach the lungs where gas exchange takes place. Thus we take in about four times as much oxygen as we need. This is typical of the "safety margin" that is found in the body. It is this safety margin that we start to erode at altitude. As the pressure falls, only a small increase in respiration is needed to maintain an adequate volume intake. This argument must not be taken as reducing the need for oxygen. The following example will demonstrate. At 37000ft the total pressure is a quarter of an atmosphere, 25kPa. By over-breathing to 12 litres a minutes, not at all difficult, we could take in 600ml of oxygen or twice the required amount. This sounds fine until it is remembered that an oxygen pressure of 5kPa will not support life, however hard we breathe. Additionally this extra breathing itself consumes oxygen.

Effects of hypoxia. The most important point about the effects of hypoxia is that they are insidious. Like the effects of alcohol they are less apparent to the sufferer than to an observer. Similarly the effects may not be unpleasant.

Up to 10000ft a normal fit person will feel no effects. Passenger airliners are routinely pressurised to a cabin altitude equivalent to around 6000ft. Research has shown that there is some impairment of vision at as low as 5000ft, and of complex mental activity above 8000ft.

Above 10000ft effects of which the subject is unaware progressively increase. The most obvious sign is an increase in respiration. As this can occur also because of anxiety, fright, cold or activity it is by no means a specific sign. Above 15000ft symptoms occur even at rest. Co-ordination is reduced, but as loss of critical judgment is also a feature, the subject is unable to judge how severely he is affected. Watch for light-headedness, tingling of fingers and toes, or around the mouth. Visual effects include haziness, loss of colour perception and general dimming. Headache may occur. Waiting for the nails to become blue (cyanosis) is to allow hypoxia to reach a very dangerous stage. Nearly all of the signs and symptoms described can be produced by over-breathing. If there is any doubt about the cause of any symptom always **assume hypoxia** is present. Check your oxygen system is running; use it if you are not already doing so; and **descend.** Forget the task, restore your oxygen pressure as soon as possible, and return to earth to investigate the cause.

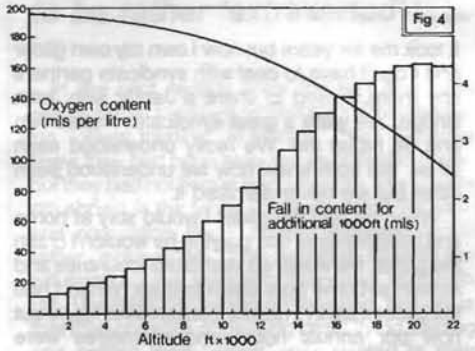
Above 20000ft symptoms occur quite rapidly and this may include sudden loss of conciousness. This unconciousness may be followed by convulsions.

Variations from normal. The foregoing refers to the effects expected in a normal person. Many factors influence individual tolerance but *all* of them reduce it. Reference has already been made to anaemia, including that produced by smoking. Any chest disease adversely influences oxygen uptake. Physical activity increases the need for oxygen, as does cold, which in itself clouds mental judgment. At 18000ft the outside temperature is −20°C, and shivering can double oxygen consumption. All sedative drugs increase the effect of hypoxia. These include tranquillisers such as valium, antihistamines for hay fever and colds, and, of course, alcohol. Alcohol is a depressant drug and clouds judgment. A really heavy night at the bar can leave a significant alcohol level during the following morning.

The process of acclimatisation or becoming used to low oxygen levels takes weeks or months, and cannot be achieved even in a Silver duration flight.

Oxygen equipment. The function of oxygen equipment is to ensure that the inhaled oxygen pressure in the lungs never goes below that found when breathing air at 10000ft. Military equipment is precisely controlled and provides an accurate increasing concentration up to pure oxygen at 37000ft, and increased pressure above that. Glider equipment which must be cheap and light, aims only to ensure sufficent oxygen. Any error should be of over supply, the only disadvantage of this being a less-than-economic use of oxygen.

Oxygen is recommended at 10000 feet[3], and mandatory at 12000. Does pressing on "just another thousand feet" matter? The result is shown in Fig 4. The oxygen content is shown as



before. The vertical bars demonstrate the fall in content that occurs with each additional thousand feet. As always there is no sudden change at any altitude, merely a continuous fall in available oxygen. The answer is in the Cascade where the devastating fall in oxygen at altitude can be seen, (dotted line in Fig 2). To complete the story, it is important to watch the quantity of oxygen remaining in your cylinder as the human body stores enough oxygen for only about 4 minutes. Descent after exhaustion of the cylinder could not be sufficiently rapid to avoid the effects of hypoxia.

References. (1) Harding, R. M. & Mills, F. J. *British Medical Journal* 1983., p277; (2) Pollard, M. Rendezvous with a glider. *Wings!* 1982; March, p20-22 and (3) BGA **Laws & Rules for Glider Pilots** 8th edition, RP26.

RANDOM THOUGHTS

Angelos reveals a glider pilot's secret thoughts. As he puts it, "to word the unutterable and mention the things we know we shouldn't".

Please God just one more climb, just one more. Is that really too much to ask? It's funny how most of us only pray when we desperately need something. On this occasion I could see my goal but my glider needed another tantalising 500ft to make it for sure. If I didn't make it this would be my fourth 500km attempt to complete the dreamed of "all Three."

What it is about those three Diamonds that make them so much more attractive than the Gold or even the 750km diploma? Not that I won't try for one this year.

There is something magical about all three Diamonds that I haven't experienced since going solo or when I felt like a pundit when my Silver C was completed in an old Oly. It must have something to do with the old wood days.

There is no question, though it still remains an achievement, glass gliders make the 500km much easier. Why else create the UK 750km or the FAI 1000km? So what is so great about the 500km, even with the super ships?

I suppose it has something to do with the sense of retracing the steps of the old greats, you know, Philip Wills and that lot. A bit like getting in a souped up Range Rover and tracing the route of Scott in the Antarctic, easier but nostalgic. It's a sense of zipping around the country seeing what used to be seen and knowing that only those others who have done a 500km have seen what you have seen in any flight. It's difficult to put into words but hopefully you know what I mean.

My first 500km started on a less than classic day. I suppose I was desperate. I say less than classic day because it wasn't all easy. I got very low twice. I suppose it shouldn't be all easy, after all a 500km goes through an awful lot of climate and in England you are bound to hit some grot somewhere. The trick is to fly around it or very carefully through it.

Have you noticed how long you had to wait for your Silver or Gold or both? It's the same with the Diamonds. It's funny but as soon as you get that Diamond badge flight over not only do you end up doing a string of them on subsequent days but faster also. Is it experience or is it just our Heavenly Father letting us know who's boss?

What I'm trying to convey is the glider pilot's secret thoughts. We all wonder if it is just coincidence in being held up in badge completion or when it rains on just your days for the glider, why the second 300km is much easier etc. Is there a God? Is he a sadist?

Perhaps we are just selfish superstitious dum dums and yet my prayer was answered. The vario peeped and slowly, yet surely, I not only got the 500ft I needed but 1500ft and my last climb had a Diamond sitting on top of it. So off I set on final glide saying to myself "Gosh that was lucky." I really am a selfish little drip. Next time God will make me crash. Not even a thought of a thank you, "but it was my skill and judgment and it had nothing to do with old what's-his-name."

* * *

Competition pilots hate losing. Don't let all that dribble about "winning doesn't matter, it's the competing" fool you. Comp pilots just want to win. It's all about treading on your friend's face and letting your faithful and trustworthy friend know that you are better than him.

You hear plenty of "Oh bad luck old chum. Looks like you had some hard lines" with the reply of: "It's the way the cookie crumbles. Congratulations on winning old sport."

The truth is more like, "Ha! I beat you – yet again. Why don't you just pack it in?" And the more truthful retort is something like "You lucky bastard. If it wasn't for that timely stubble fire you would have been massacred".

Man really is a two-faced swine

All good stuff though for without competitions gliding would stagnate. Man really is a two-faced swine. Come on, you're just the same. Every one likes to fly faster than their pal, climb higher than their mates, aerobat cleaner than their buddies, instruct more efficiently than their colleagues etc. It's **all** competition but I guess it's all good stuff. Can you imagine never trying to compete? Of course I am committing a form of sacrilege by uttering the unutterable.

* * *

It took me six years but now I own my own glider and I don't have to deal with syndicate partners any more. I used to share a Jantar with John Bridge. We were a great syndicate. I hated him and he hated me. We really understood each other. We both knew how we understood each other but we never admitted it.

When he had the glider I would stay at home and bawl my eyes out, praying he wouldn't crash the glider. He would do vast cross-countries and remain airborne from dawn to dusk. When I had the glider it always rained. I could never figure out how our annual hours and kilometres were always the same. I would always congratulate him and he me. The truth was I always hoped a bus would knock him down so that I could have the glider to myself and he had the same plans for me.

I hear many pilots wishing their syndicate partners well and good flying. Pardon me while I choke. The best syndicate is made up of four members. Number one works abroad during the summer. Number two suffers from summer ailments, particularly hay fever, and can only fly in the winter. Number three isn't too keen on flying but likes to own a glider and number four is you who complains because you have to share the glider in the winter.

The other problem with syndicates is that the glider is always left in a dirty condition for you. The seat is in the wrong position. The oxygen has run out. The wing spar lever has been misplaced and the trailer tyres and batteries are flat.

* * *

Launch time is always interesting. No one likes to go first. The club fleet is taken out and the grid looks like the Nationals but launching doesn't start until the two-seater is visibly going up. The excuses range from "the time isn't optimum yet" to "I haven't finished my DI" but what we really want is for someone to go first and risk making a fool of themselves. So we all stand around wearing sun glasses and floppy hats waiting for the right time.

Actually, us clever ones usually con some poor novice into spending his life's savings on a tow. "What are you waiting for?" we ask. "It's cracking. If you don't go now you'll never get your Silver." Ten minutes later he's back and we decide that 9.30 isn't trigger time so we have to work on someone else. Meanwhile the poor chap, having flown, is banished to the winch for the rest of the morning with absolutely no sympathy from the rest of us.

Next comes pandemonium. The two-seater is thermalling and everyone fights to get into the launching queue. The tug pilot is pulled out of the toilet and we become a mass of hissing teeth, clenched fists and generally unsporting types. Oh, how I love this sport.

Finally some cretin is towing you towards a sink hole instead of a cloud street. Even though you hate him you make a point of thanking him on the radio at release. If you don't he might not tow you again.

* * *

All glider pilots like their CFIs when face to face with them. We crack jokes and listen attentively. When the CFI isn't around we always hate him, especially because he (or she, sorry Ruth Housden) is always right.

Mine stopped me doing beat-ups. I love doing beat-ups. I love soaking the launch point and pulling up at the last moment causing everyone to duck for cover. Why did he have to make me see it was dangerous? Now I come screaming in at 500ft keeping a good look out. Boring!

Actually have you noticed how many glider pilots come in with their wings screaming doing the old beat-up? Glider pilots love to waste time and climb a little higher in the last thermal. This is usually followed by a supposedly thoughtful radio call on final glide so you could be advised on base traffic and to keep gliders out of your way.

Search deep in your mind and the truth is more like "Final glide, five minutes so get out your

(Continued on next page.)

YES, YOU'RE NORMAL

Harold, of Bartdale Ltd, gives the results of an interesting exercise which shows amateur aviators are slightly more stable than the rest of the population

From time to time I have prevailed upon members of the Yorkshire GC and some unsuspecting visitors to fill in questionnaires or to complete personality inventories. (My presence in the clubhouse is really a part of a management scheme to ensure there are plenty of hands at

(Continued from previous page.)

cameras, stop whatever you are doing and watch me impress you." Why else subject yourself to smashing through thermals at VNE, watching food, drink and mints fly around. Go on, admit it to yourself if not to others. You love to show off.

* * *

You know, we glider pilots have large egos. We don't admit it but we believe we are an elite. Not everyone can hack gliding after all. Most people have the ability to learn to fly but they can't stand the waiting around, cold days, heights, flying without an engine, etc. Most people think there is something unusual about glider pilots and we take that as a compliment. We make ourselves believe we are on some higher understanding than most of the earth bound. They don't know what they are missing.

It may be true that there are probaly hundreds who don't know what they are missing, but millions don't care. They have interests that we don't understand. Mention gliding to them and try to describe its wonders and you'll send them to sleep. I can hear you screaming at me now – "You're not much help in promoting gliding." Oh but I have tried and had some success, but the fact is most couldn't care less. We are a minority.

* * *

So there you have it. Some of the most secret truths about glider pilots. When you next see me I shall deny all knowledge of this article. But let me leave you with some sobering thoughts.

Though you may kid yourself your glider is an investment, it isn't. It's a pure luxury. Money spent just for fun. It can't be for physical fitness, not couped up like that. At best you get dehydration practice or bladder enlargement. Is it the view? Surely you can get that on top of a mountain. Is it the age old desire to fly like the birds? Maybe, I don't really know.

I only know that I sink hundreds of pounds a year into the sport, get nothing material in return but while my money has gone for ever I know it isn't wasted. I don't know why it's not wasted, I just know that it isn't. I love to soar up there on my own. You see, we are romantics but for heavens sake don't admit to it.

the launch point.) Recently some of my victims have reappeared to ask what became of their efforts. This piece explains what one exercise was about.

Over the last few years I have been involved in attempts to improve the selection tests for military pilots. The aptitude tests used by all three armed services are administered by the RAF at Biggin Hill. They were originally devised during World War II. Military flying has changed quite a lot since then, so it is not surprising that they do not necessarily predict as well as they might. There is therefore a move afoot to develop new tests.

During the post-war years various attempts have been made to supplement the aptitude test battery. In the 1960s it was thought that the personality of the students has an influence upon their performance and should be considered in addition to aptitude. Consequently a research programme was initiated in the RAF to assess the utility of personality "tests", some specially designed, others standard instruments. Only one of the tests used held any promise as a selection tool, the Eysenck Personality Inventory, or EPI for short. Derived from wartime tests used to screen "shell-shocked" service personnel, the EPI has two scales. One, the E scale, measures Introversion-Extraversion, the higher the score the greater the degree of extraversion. The other, the N scale, measures Stability-Neuroticism, a high score indicating neuroticism. Persons with high scores on the neuroticism scale are relatively susceptible to stress.

These cadets appeared to be rather 'extraverted'

In the pilot section trials the EPI had been administered to cadets while they were undergoing "officer training" at Henlow. They therefore knew they had been selected as potential pilots, but they had not begun flying training. The results are shown in the table. Compared with the general population these cadets appeared to be rather 'extraverted'. This probably reflects the influence of the selection interviews at Biggin Hill. The most interesting observation, though, is that their chances of passing basic flying training and getting their "wings" was related to their scores on the N scale. The successful ones had lower scores, *ie* appeared to be more "stable".

Similar trials had been instigated in the Army Air Corps during the early 1970s. The records at Middle Wallop show that these gave the same sort of results, except that the Army's student pilots were less extraverted. Taken together the RAF and the Army trials indicated that men most likely to succeed in military flying training appear on the EPI scales as "stable".

Taken at their face value, these results suggest that successful military aviators as a group have distinctive personality characteristics. There are some reasons for doubting whether the answers given to the questionnaire really reveal the respondents' true personality, since faking cannot be ruled out. Nevertheless it seemed interesting to check whether civilian amateur aviators would show the same characteristics if they were given the same test. Persons who take no interest in flying sometimes remark that there must be something peculiar about those of us who do and it could just be that they are correct!

I sought out a broadly based sample of amateur aviators taking a note of their level of experience. Altogether 114 obliged by completing two EPI forms. In addition to the gliding types I accosted at Sutton Bank there were some members of power flying clubs who I caught in their crewrooms on wet Saturday afternoons. These included some instructors. Finally there were 18 members of a Yorkshire hang gliding club lured to their monthly club night by promise of a flying film. Forty-five of the total sample had PPLs (some of these being from the hang gliding club).

A PPL not related to higher level of stability

The bottom two rows of the table show the N and E scale scores for the amateur aviators. As a group they are slightly more stable than a normal sample of the population at large. The acquisition of a PPL, though, is not related to a higher level of stability. So it does not parallel the pass/fail difference shown in the sample of military pilots.

At this stage various speculation can be made. My pet idea is that military flying training is stressful, so that a stable personality is needed to survive. Civilian training, by contrast only strains the pocket. There is no time pressure or competition, nor is there any expectation that some students will be failed.

Whatever the truth, the results provide food for thought and I would like to take this opportunity of thanking all those who participated in the exercise. If your friends and relations accuse you of being odd feel free to quote these results. Better still roll *S&G* round a lump of lead and strike them over the head with it.

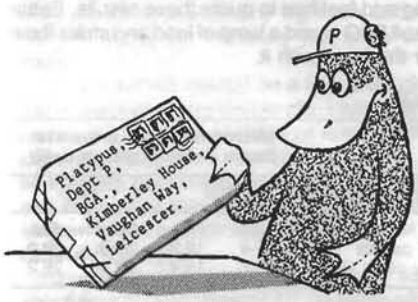
TABLE

	Neuroticism (range 0-48)		*Extraversion (range 0-48)*	
Normal population	19.6		26.2	
	Pass	*Fail*	*Pass*	*Fail*
RAF cadets	15.4	19.3	30.3	29.9
Army pilots U/T	13.1	15.4	27.9	26.2
Amateur aviators	17.5		26.7	
PPLs	18.2		26.6	

TAIL FEATHERS

At last, a subject on which we are all experts

You can bash away at your typewriter, or more recently the wordprocessor, for years, pontificating on every subject, lambasting all sorts of people, or nagging at respected institutions like the BGA Comps Committee, and get what Lord George-Brown used to call a total ignoral. "Are glider pilots completely dozy except when the thermals pop?" one begins to ask. (Well, some of them are pretty dozy even when the thermals *are* popping, but that has nothing to do with this piece.) But I seem to have found a deep well of passionate interest in the bosoms, or maybe the lower parts, of the fraternity of glider pilots. And indeed in the sorority of soarers. I refer to the hot, or at least warm, topic of having a pee in a *planeur*. (I did that last bit for alliteration, but it occurs to me that we could widen this whole subject to take in the international scene, with contributions from Australia, where an outlanding in the outback has actually made at least one pilot resort to drinking his urine to avoid death by dehydration, or Alaska, where you could imagine the problem of having your peebag freeze between your knees and jam the rearward movement of the stick on the roundout.)



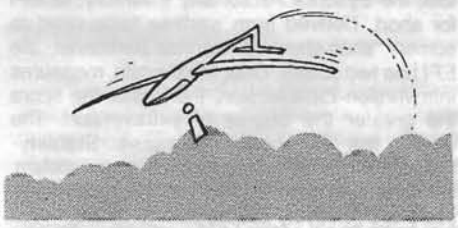
Free samples of plastic gadgets.

A truly massive, indeed gargantuan, mailbag followed "Mentioning the Unmentionable" in the February issue, p16.) Well, eight letters and three free samples. Free samples of plastic gadgets, I mean, not fluid, silly.

The first sample comes from RAFGSA Dishforth: this is a pretty simple and brutal-looking piece of Service equipment (male only, designated 8465 99 137 6876 BAG CREW RELIEF ALEXANDER PLASTICS 1985), best employed in smooth wave. "Effective use", says Paul Whitehead[1], "requires the pilot to 1) Undo seatstraps 2) Undo Parachute straps and 3) Turn body through 90 degrees. The old problem of pushing water uphill otherwise applies".

Please adjust your dress after leaving

As long as one does not get into the rotor at the *moment critique* this seems not a bad solution. However — and although I customarily throw howevers around like so much chaff this is a pretty solid however — if you were unlucky enough to hit turbulence or inadvertently jog the stick while rolling your torso through the requisite right angle, you would of course have no parachute as you left the aircraft. I only hope you would have the presence of mind to do up your flies on the way down, to spare the blushes of your next of kin.



It would probably work in any attitude.

Another male-only solution comes to me from another north country pilot who has connections with an old people's home, and is designed for constant use by those with bladder-control problems. The problem of incontinence is no joke, and any of us could reach that unhappy state in years to come, so there are strictly no laughs to be had here. However, the system looks like a combination of plumbing (similar to ordinary instrument-panel piping) and a device which looks like a modified condom. Its main advantage is that it would probably work in any attitude. Its only disadvantage is that it would take some effort to overcome initial squeamishness, and could well take your mind off aviating, not just for part of the flight, but the whole time. No doubt female versions exist, since sex is no bar to the disabilities of old age.

Lastly there is a commercially-available solution, both for men and women, by P&H Enterprises, for use in cars and vans when there is no opportunity to get out for relief. (If you are a security van driver you may not be allowed out of your vehicle for fear of robbers.) It is designed to be as elegant and unembarrassing as anything doing that job can be, and comes in a neat plastic bag that looks to the inexperienced eye as though it contains your overnight toothbrush and toiletries. The disposable bags come with self-tightening clips that close the neck of the bag after use, so the bags can be stowed rather than ditched on the countryside. Men can even get underpants that harness to the Carloo. This looks like the best all round answer.

'Pilots will just have to reconcile themselves to not wearing their Sunday best while on long flights'

While in some gliders with extremely reclining positions water will still have to be pushed uphill somewhat, so that some risk of getting a little damp may be unavoidable, pilots flying such machines will just have to reconcile themselves to not wearing their Sunday best while on long flights, and to dousing themselves in aftershave when greeting the farmer's daughter[2]. I'm glad for reasons of visibility, more that anything else, that ultra-supine gliders have gone out of fashion since the 1960s.

That is enough of that topic for the moment: positively the last word in the next issue. In particular I'd like to cull extracts from the letters that say "Whatever you do, don't mention my name."

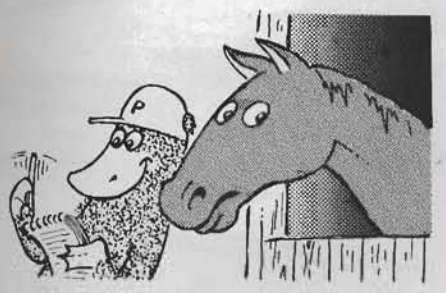
The wrong box — truth revealed

Another topic that gets people going is nostalgia and retrieve stories. Now there comes from the horse's mouth, the definitive version

1. PW adds a PS: "The diameter of the bag neck was designed for the real men of the RAFGSA. The manufacturer may be interested in special orders from the Booker Boy Racers." Before encountering the BBR at the next comp I want it to be quite clear that this grossly offensive remark did not come from me. Heh-heh.

2. Though unless you douse all over she may wonder about the strange places that glider pilots shave . . .

of what happened when an Olympia trailer set out on a retrieve from the Mynd with another derigged glider already in it. It was Charles Wingfield[3] who was the pilot in 1949 (the date



The definitive version from the horse's mouth.

given by Frank Irving in his letter in the last issue) and who has written to me with a full account. Having whistled up to 11 650ft in a cu-nim, Charles got lost in cloud and when he eventually got his bearings, was compelled to "land at the house of a friend, 1⅓ miles short and 700ft lower". And it *was* the Cambridge mob who came on the chaotic retrieve, he says, though Frank's statement that an Imperial College man was at the wheel does not necessarily conflict; this was quite a party, not

The Cambridge mob on the chaotic retrieve.

one of today's spartan one-man or one-woman retrieves. "CUGC arrived very quickly to collect, so we all had a few drinks . . . Sometime later in the hay field someone mentioned a key for the lock. 'What lock?' They had to go back to the club (eight miles by road each way) for the key, so it took even longer than it should to discover the surplus Oly in the trailer. Thus the whole business was even more disorganised than today's legend suggests, apart from the small matter of distance. No doubt it is from this event that we derive the sacred principles of a) checking the trailer all over and counting the fittings before rolling and b) no drinks for anyone till the whole thing is derigged and stowed and safely on the road behind the car, pointing towards home.

3. Not as Frank Irving, exercising poetic licence (ie lying) says "The Lord Lieutenant of Shropshire".

Incidentally Charles, now back in gliding after nearly 30 years absence for medical reasons, landed in the same field again, about three years ago. His last shot "The moral is that there is no need to embroider a good story, but if you insist Wally Kahn might oblige." Come on Wally, send us either some embroidery or a writ.

Records for the taking

A stack of those records for little gliders.

If you browse through the United Kingdom record list (April issue, p82) you will see some formidable peaks, such as Chris Garton's 801km Lasham-Durham O/R in fabled 1976 and the Ralph Jones 300km triangle at 117km/h on one of the only two great days of 1985. But there are lesser peaks, which with a bit of foresight you could scale and thus put your name in the Hall of Fame forever. Well, for a few weeks anyway until everyone else notices how easy it is. Some of these records are waiting like ripe plums.

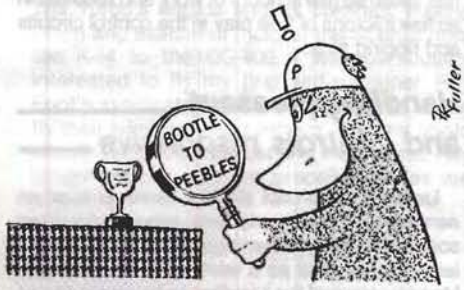
'. . . I happen to think that records of this kind are almost as silly as records for women'

First of all there is a stack of those records for little gliders. In spite of having a small ship I happen to think that records of this kind are almost as silly as records for women[4]. (I'll get those letters pouring in, even if I have to be more than usually obnoxious to do it.) I think that to be consistent we should have records for people who can't get away on weekdays, or for people whose wives insist they do a tour round Sainsbury's with a trolley before releasing them to rush up to the site, and records for people who can't get up in the morning, as well as for people who can never find an Official Observer or a barograph at the right time and for any other group that feels life has been less than just. However that is a subject for another debate entirely.

Nearly all the straight downwind-dash speed records are vulnerable to a bit of planning and opportunism. Look at Justin Wills's 400km goal at 74km/h in a Libelle in 1976. That is especially true of the two-seater records: the 96km/h in a pre-war Gull 2 for a straight 100km has stood since 1957 — nearly 30 years. Nobody has done a 400km goal at all in a two-seater, so any speed at all will do so long as you get there.

Reaching the parts that other pilots . . .

But what, you say querulously, about the horrendous costs of getting the glider back home? Advertising and sponsorship is the answer. Remember, the public is naturally more impressed by straight distance and sheer speed than by complicated triangles. "London to Newcastle faster than the Inter-City Express" catches the imagination and the headlines. Any advertiser should be willing to



A modest trophy for any record-breaking flight.

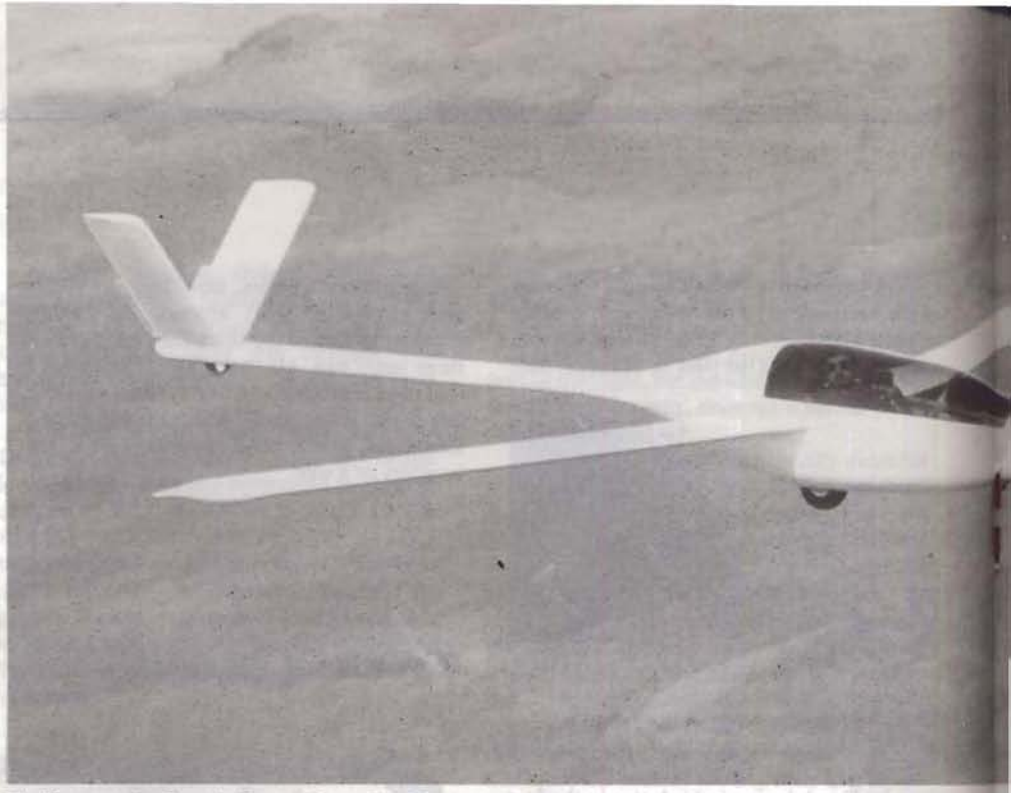
back that, except possibly British Rail. A sponsor only has to promise a modest trophy for any record-breaking flight *and all retrieve costs paid* to get a whole crowd of us trying. For bigger distances, a cross-channel retrieve would cost the sponsor a lot more, but "Brit Glides London to Paris in Two Hours to take Heineken Speed Trophy" would get a nice little heap of press-cuttings and be very much worth while for the client.

On second thoughts, knowing at first hand the mentality of Fleet Street — or Wapping — the headline most likely to be set in 24-point type on the front page is *"Gliding Blonde (see Page Three) Flies London to Paris in - Hours"*. The duration of flight would be immaterial. Drat. I suppose we will have to retain those women's records after all.

4. It is exactly 20 years since Anne Burns became National Champion. Not Women's National Champion, but everybody's. Since then it has gone very quiet. Which is sad.

ALAN SANDS

MONERAI'S FIRST UK FLIGHT



The Monerai being flown by Mervyn. *Photo:* Alan Sands.

After a gestation period of several years, the Monerai built by Ulster GC members Loudon Blair and Mervyn Farrell became the first one in the British Isles to take to the air when Mervyn gave it its maiden flight on January 16.

The Monerai, of which over 100 are flying in the United States, is a vee-tailed glider of 11 metres span with a glide angle of 28:1 at 52kt. The structure is all metal, with a constant chord wing, and approach control is by trailing edge flaps. These extend up to 90° down for landing and up to 6° upwards for high speed flight.

Seeing the fully completed glider rigged on the airfield for the first time, two things strike one. First, the Monerai is a small-scale glider; everything looks half size, and feels it – would you believe wings that weigh only 55lbs each? Second, on this example, is the high standard of finish and painstaking attention to detail which has taken so many hours of work and resulted in so few microns of free play in the control circuits and rigging pins.

Handling pleasant and controls responsive

Under an overcast sky the Monerai took an aerotow to 3000ft, and was soon to be seen soaring high above the ridge, landing after a little less than an hour as a warm front approached. Mervyn reported the handling to be pleasant and the controls responsive, although the glider feels generally very light (which indeed it is, with an empty weight of 245lbs). With its short span, incursions into the tug's slipstream sound exciting, too. Performance seemed up to expectations, and the penetration at higher speeds good for a glider with only 450lbs all up weight: the wing loading works out at a respectable 5.75lbs/sq ft. More detailed flight testing is being carried out in pursuance of BGA type approval.

The cockpit gives adequate accommodation for a six foot pilot in a canvas-sling seat. There are armrests on both sides, with the flap lever to the left and a side mounted stick on the right, which reportedly feels quite natural in flight. A free-standing panel has room for four 80mm instruments and a small radio. The cockpit structure consists of a steel tube cradle, with a non-structural GRP outer shell and an alloy tube tail boom, on which are mounted the two all-flying tailplanes. Although Loudon had approval to do the welding himself, he preferred to enlist the help of a CAA approved professional welder in the search for perfection. An argon arc TIG welder was used, which avoids oxydisation of the joints.

The wings use alloy I-beam spars, with pressed alloy ribs and bonded (rather than riveted) alloy skins, formed around the leading edge in one piece. The tailplanes, ailerons and flaps are also bonded. This bonding process is the most critical in the construction of the aircraft, and requires meticulous preparation with chemical cleaning of the surfaces to be bonded. For the bonding itself, atmospheric conditions are also critical: not just the temperature which is of obvious importance, but also the humidity which in our rather damp climate rarely drops to the level necessary to achieve a satisfactory bond. Without humidity control the epoxy used absorbs water while it cures, which weakens the bond and can lead to failure. A de-humidifier was used during the bonding process and test pieces made at every stage, resulting in a proven average bond strength over twice the acceptable

The happy pair after the flight with Mervyn in the cockpit. *Photo:* Laurence McKelvie.

Loudon Blair *is a planning engineer with Martin Baker (who make ejector seats) and previously worked with carbon fibre composites on the now abandoned Lear Fan project, where he was able to obtain invaluable advice on bonding techniques and shear strength testing during the building of the Monerai. A BGA inspector, he has worked on even smaller aircraft, and has represented Ireland at the World Radio-controlled Model Championships.*

Mervyn Farrell *is an electronics engineer and is Electronics Superintendent for the Department of Pure and Applied Physics at the Queen's University of Belfast. He was well placed to get help from the mechancial workshop team, many of whom have formerly worked with Shorts aircraft. He is also a full Cat instructor.*

minimum, whereas test pieces purposely made with less care failed well below it: a worthwhile investment in peace of mind.

With similar thoroughness accorded to the control circuits, these operate as smoothly as any I have encountered. This resulted from the replacement of all the bearings and pushrod bushes supplied with the kit by newly-made self-lubricating nylon bearings. Particular care was taken with the bearings in the elevator and rudder circuits, where the geometry would magnify any play. Despite the coupling of these circuits through a mixer unit, the feedback which is apparent in some other vee-tailed gliders is not present, but since both controls are seriously impaired should the rudder pedals fall flat, a straightforward bungy/pulley assembly was added forward of the pedals to keep the cables under tension.

In the aileron circuit travel-limiting stops were added to the pushrods in the wings, and a solid rib was added to the open inboard ends of the wings to prevent handling damage. Among other mods were additional mounting points and strengthening ribs for the GRP cockpit shell, and the addition of an air vent fed from the nose.

Possible future developments include self-launching capability. A mounting point is built into the fuselage behind the cockpit for a self-contained power unit which can be fitted in a few minutes. The engine itself is a three cylinder Koenig radial, with 22hp and a prop which folds in gliding flight, resulting in a claimed loss of only 2 L/D points.

In the search for an increase in L/D to over 30:1, the wingtips can be extended to give a 12 metre span. Provision for this mod was built into the trailer constructed concurrently with the glider, and surely as small as any trailer yet built – just 21ft long and 3ft square at the rear.

And the cost of owning a brand new 28:1 glider? About the same as for a 20 year-old K-6, they say, although the cost of the kit – about three quarters of the total – will have risen with the dollar in the meanwhile. Needless to say, there's a hidden cost in terms of spare time!

IAN STRACHAN

TESTING THE TURBO

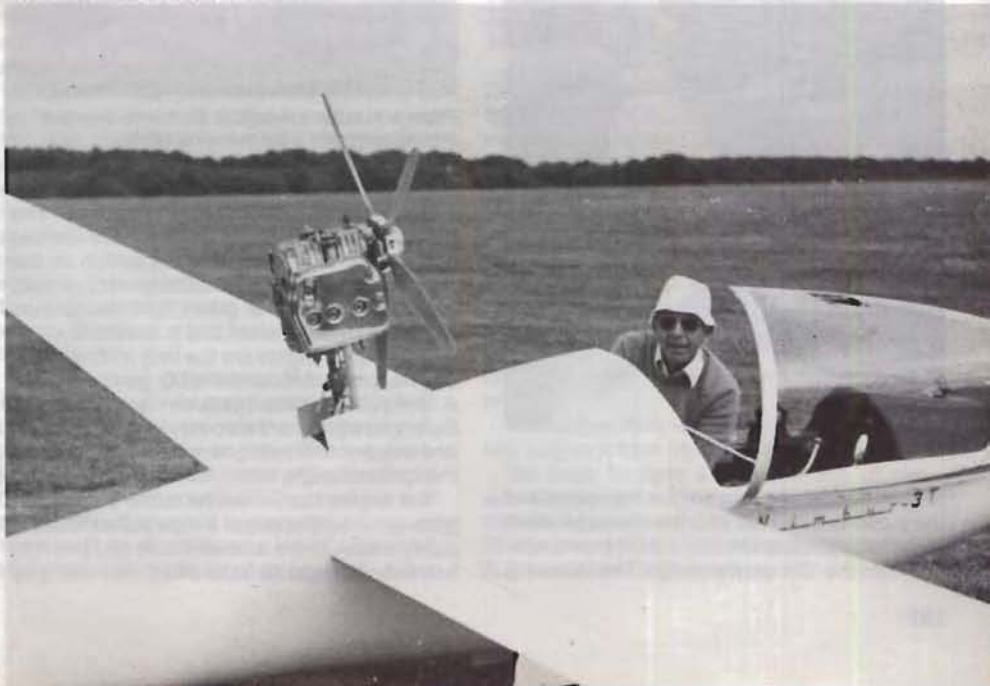
The word "Turbo" is a misnomer. The retractable 26hp Solo 2350 two-stroke engine that can be fitted to the Nimbus and Ventus is neither a turbo-supercharged piston engine nor a turbo-jet. It is not capable of self-launch but is capable of giving you a climb of 2.4kt 30sec after deciding to use it, having just fallen out of that last thermal, miles away from base. It therefore possesses the essential characteristics of the high performance motor glider (HPMG), a combination of soaring performance and the ability to save the pilot from field landings. Unlike the more complex and more powerful self-launching motor gliders (SLMG) such as the DG-400, PIK 20E and 30 and the Janus CM, the self-sustaining variety (SSMG) do not have the flexibility of being able to taxi from the trailer to the launch point, to take off and climb precisely when and where the pilot wants, to have a 5-6kt climb under power, and the ability to taxi clear of the landing area at the end of a flight.

Minimising field landings. Both types of HPMG enable you to avoid the aggro and possible damage of field landings, and to achieve more challenging cross-country soaring because judicious "pressing on" does not carry the risk of being stuck miles from base before a busy day on the morrow. The HPMG offers you maximum soaring with minimum inconvenience, and in addition you should routinely achieve the sort of cross-country that normally needs the spur of competition (and a retrieve crew).

Advantages of self-sustaining MGs. The SSMG has some advantages when compared to the self-launcher. There is no need for a PPL or MGPPL and, as the engine operation does not include the take-off phase, it can be made very simple. Indeed the engine fitted to Schempp's Nimbus and Ventus has no throttle and choke levers in the cockpit, needs a mere 7sq in of panel space for the engine controls and has no problems in lining-up the propeller before retracting the engine as most self-launchers do (see the last issue, p78). The Turbo's propeller mechanism was designed by Professor Ohler and the patent rights are held by Schempp-Hirth. Also the lower powered engine of the self-sustainer weighs much less than the larger units in the SLMGs and so the fixed (*ie* engine) ballast that you have to carry is some 50lbs instead of the 120lbs or so which is needed to give you a take-off capacity.

The Turbo's engine and its controls. Having flown and evaluated most of the SLMGs from the K-14 to the DG-400, I was particularly interested to fly my first self-sustainer. Ray Foot's syndicate were brave enough to let me fly their Nimbus 3T at Lasham. The first photo shows the general layout and the second, Ray demonstrating that the propeller blades are

Photo 1 showing the general layout.



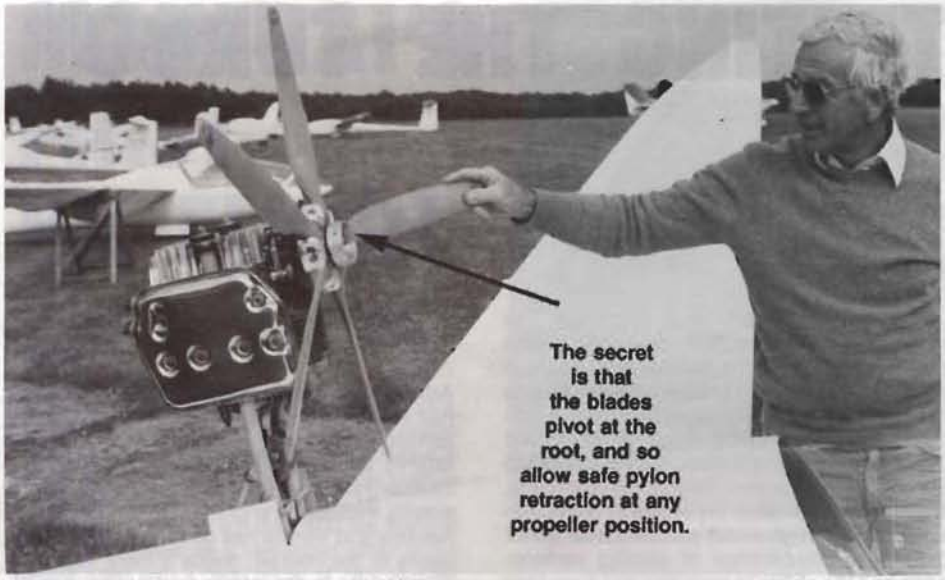


Photo 2. Ray Foot demonstrating the propeller blades.

Photo 3. Going down . . .

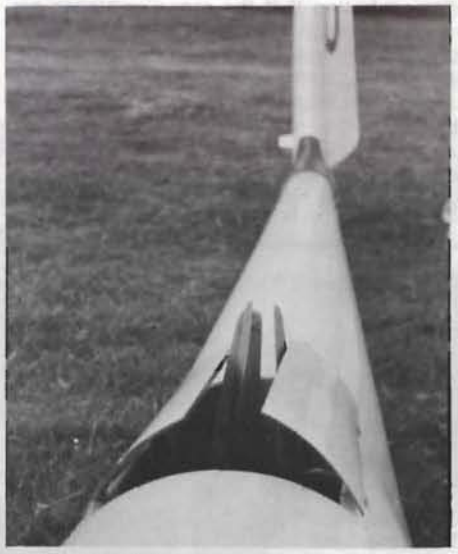


Photo 4. Almost gone . . .

pivoted so that when the engine is stopped and the pylon is retracted into the fuselage, each blade folds to allow the 33in diameter propeller to fit into the 10in wide stowage. The following two photos show the sequence which when witnessed from the ground looks like a long legged insect returning to its lair, folding in its legs and pulling a cover over its head. It's weird but it works!

Engine controls are very simple On the right-hand cockpit wall (see photo 5) there is a fuel cock and a mirror On the inboard side of the fuel cock is a bulb-shaped plastic container let into the fuel line which, when squeezed by the right thumb, acts as a fuel priming pump.

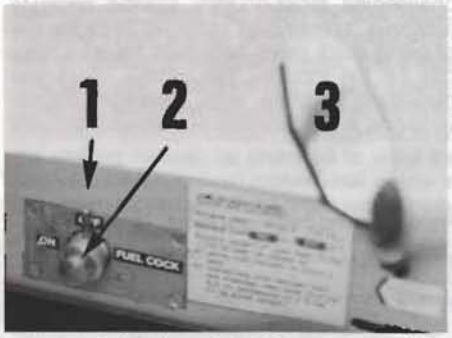


Photo 5. 1, is the fuel cock, 2, the thumb-operated priming pump and 3 the rear-view mirror.

Other controls are on the instrument-sized circular control panel shown in photo 6. The only two switches are for ignition (lower centre) and a pylon **extend/stop/retract** switch on the right. Three lights show battery voltage (red, green, amber) and a green light illuminates when the pylon is erect and it is safe to start. Red and green lights are the only indication of engine rpm; red for under 4000, green for over. A pylon-drive circuit-breaker is also fitted. Safety interlocks are also very simple; the only one ensures that pylon retraction is inhibited if the ignition is ON.

The engine has no starter motor but can be ground-run by the use of a rope pulled round a pulley wheel. There is no ability to taxi and it is not safe or legal to take-off. If you did you would probably be uninsured. Motor gliders not having a C of A which shows compliance with the CIVV definition for self-launching are not allowed to take off and may only use their engines in free flight after a normal launch. The minimum take-off criteria for self-launching are a take-off roll of 600m to a height of 15m and a rate of climb giving a height increment of 300m in 4min (246ft/min) — all at +15°C, no wind and no vertical air movement. If the machine can't meet the minimum criteria it's a self-sustainer, the design probably will not have the features normally required for take-off (such as fuel booster pumps etc) and you don't need that pilot's licence.

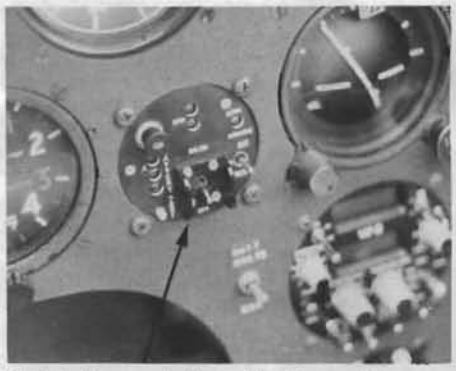


Photo 6. The remarkably small engine panel.

Using the engine in the air. While still scratching around for lift before deciding finally to use the engine, you check the pylon-drive battery voltage (a green light should show), put the fuel on and prime with about ten pumps with your right thumb. Having selected a field you make the decision to use the engine. If below say 1000ft you lower the undercarriage in case the engine doesn't work. You reach forward and flick the pylon-drive switch to **extend.** It does not have to be held in this position and you can concentrate on your field as the pylon comes up. After 19-20sec the pylon-up green light comes on. By this time the propeller is already turning over slowly and making a noise like a steam engine, presumably due to the decompression valve fitted to each cylinder. You increase speed and quite suddenly at 65-70kt the rpm increase markedly. You switch the ignition on and reduce speed to climb away at 50kt.

I carried out four starts and on each one the response was virtually instantaneous, the rpm running fully up in a mere 1-2sec from turning on the ignition, a momentary flicker of the rpm red light, then a steady green light showing that rpm was over 4000. Height losses from starting to extend the pylon to climbing away were 140ft with the glider clean, 170ft in the landing configuration with wings level and 200ft in the landing configuration while turning finals. The rate of climb averaged over 5min was 237ft/min*. In the cockpit, however, the engine is noisy and a good soundproof R/T headset is recommended.

**Climb conditions were: speed 50kt, clean (0 flaps), no waterballast, 7 litres fuel, pilot's weight 12 stone, temperature 8°C, average height 3000ft asl (QNH 1026).*

Klaus Holighaus tells me that the latest models have a manual decompressor, which allows starting at 55-60kt instead of 65-70.

The maximum speed allowed with the engine extended is 86kt. As you accelerate, the engine rpm and cockpit noise increase. I gave up at 80kt in level flight because the noise is like a demented banshee at that speed and it was a relief to reduce to 50kt again. Klaus says that the engine is de-rated from its maximum of 26shp so there should be no danger of over-stressing it and that later models have maximum rpm governed at 5600rpm (climb is at 5100). Fuel consumption is given as 2.2 imperial gallons/hr, which with nearly four gallons capacity gives 18hrs engine time and a range of 500km using the "climb-and-glide" or "saw-tooth" profile in still air, or 280km flying level (if you can stand the noise).

Stopping and retracting the engine. And folding the engine away? Simplicity itself. Lower flap, reduce to 40kt and switch off the fuel. The rpm die rapidly about 3sec later. Ignition off and look in the mirror until the propeller stops. When it does, hold the retract switch down for 15sec until you hear the second set of "clicks" from behind that tell you that the doors are closed. This whole process took 36sec and only involved a height loss of 100ft from turning off the fuel. Very impressive, and you are now a Nimbus 3 soaring glider, albeit carrying a small amount of fixed ballast. About a further 200kg of waterballast can be carried up to a maximum AUW of 750kg.

Recommendations. I can therefore strongly recommend the Nimbus T and similar self-sustainers to glider pilots who wish to maximise their cross-country soaring and who

Photo 7. The fuel tank is removed for rigging and de-rigging. Photos by Ian Strachan.

do not want to either land out or to give up their task early. Yes, the cost is greater than the equivalent non-motorised glider, but you simply have more shares in the syndicate in order to afford it. With luck, insurance rates will come down because there should be no field landing damage, except in competitions where you have to tape the engine doors closed.

Cautionary Notes. The self-sustainer pilot will have to be very careful if he delays starting until low level. Although it is manifestly possible to re-start on the downwind leg to a field, or during the final turn when speed would have to be increased anyway, the pilot has to allow for the possibility of the engine not starting and for the low rate of climb when it does start. Such low rates of climb can be reduced to zero by downcurrents due to thermals, hills or waves whereas the 5kt rate of climb from the typical self-launcher will be less affected. However the judgment of when to extend the pylon is easier than in a self-launcher because of the relatively lower drag of the Turbo system. Of course with any motor glider it is prudent not to delay re-starting if it is obvious there will be no more soaring, and so with common sense, the number of low level re-starts will be few, and should always be with good fields selected.

Battery is not topped up by the engine

Another point to watch is to keep the pylon-motor's battery well charged, as it is not topped up by the engine (which has no electrical generator).

The future. And for the future I would like to see a single brief action to initiate the starting cycle, an electric starter motor cutting in automatically as soon as the pylon is up, obviating the need for speed changes and allowing the pilot to concentrate on his potential field until the engine power was assured. And personally, I would prefer a hand throttle and a small rpm gauge rather than a fixed throttle and red and green lights; but as a power pilot I suppose I would think that! Finally, it would be better to have a more positive indication that the engine doors are fully closed on retraction: at least one pilot has flown unknowingly with the doors slightly open.

Soaring ethics. And what of the ethics of it all? For years I have preached on behalf of the HPMG, and a significant body of opinion used to say that it was "not the sport as we want it", "it changes your whole frame of mind when soaring", "unethical", "cheating", "not really **proper** soaring", and so forth. It is interesting that I have heard little of these remarks about the Turbo, indeed only enthusiasm and regret that new machines are costly. So perhaps soaring ethics are not as important as simplicity in the cockpit and the fact there is no need for a PPL. And of course since normal launches are needed, club operations and financial structure can carry on normally, whereas if a lot of self-launchers suddenly displaced normal gliders at a club, wire and aerotow facilities would become excessive for the need.

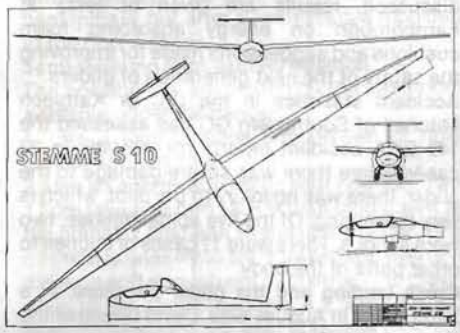
But we are all in this sport for **soaring.** The HPMG will give you more soaring with less inconvenience, at the cost of larger syndicates, a two needle engine-recording barograph and an extra BGA motor glider form to fill in when you claim your Gold, Diamonds or that record. Your chances of making these achievements will be significantly increased and I predict your frame of mind as you soar miles from base will be that of a normal soaring pilot and not be altered for the worse.

Owner opinion. Ray Foot tells me that he was on the point of giving up gliding after many years due to a combination of lack of time, uncertain British weather and the need for a crew standing by. By contrast, last season with the Turbo was marvellous, setting off on many cross-countries without the usual worries. He only had to use the engine twice to get back home, and on one of these occasions it was to increase speed in order to fulfil an appointment. He believes that his cross-country flying is now much more confident and practice in the Turbo (note this, you pundits) improved his performance in the Nationals. He looks forward this year to exploring more waves, mountains and sea breezes.

And Annie insists on a word from the crew! Once her pilot is launched, she has "glorious freedom..." (Watch it, Ray.) It's civilised **family gliding at last,** without the hassle.

References. See the last issue, p77.

STEMME S-10



We have news of the development of a new two-seater 22m motor glider, the Stemme S-10, which is predicted to cruise at 198km/h, doing 75km/gallon with the need to refuel after 2000km and a glide angle of 44:1.

This side-by-side aircraft is the invention of Dr Reiner Stemme, managing partner of Stemme GmbH 7 Co Kg of W. Germany. The maiden flight should be by July with the first deliveries due by the end of the year.

Flying speeds are calculated to range from 162kt V_{NE} to under 40kt (stall). The revolutionary new propulsion system and twin wheeled undercarriage are fully retractable. The engine, an 80hp two litre Limbach four cylinder four stroke, does not fold out into the airstream but is mounted centrally inside the fuselage behind the seats and drives forward through a carbon shaft to a folding propeller in the nose.

The carbon fibre wings are in four sections and originate from the DG-500.

We hope to have an assessment of the aircraft as soon as possible but meanwhile more details are available from Mike Jefferyes, 15 Sycamore Way, Chelmsford, Essex CM2 9LZ, telephone 0245 261145.

PILOT SAFETY

Tony updates his article of February 1985, p12, with new findings and conclusions

This Lasham project has three aims — to make the cockpit more comfortable, to give protection against normal heavy landings and to reduce the effect of a severe accident. The effect of a crash on the glider structure is discussed, results are given of tests at Farnborough on energy absorbing foam cushions and suggestions made for improving the safety of the next generation of gliders.

Accident statistics in the UK. Dr Kathleen Mitchell of Southdown GC has assessed the 149 BGA accident reports for 1984/85. In 23 cases where there was severe damage to the glider, there was no injury to the pilot, which is very reassuring. Of the five spinal injuries, two were serious. There were 11 cases of injuries to other parts of the body.

Crash landing and the glider structure. In a letter to me in August 1985, David Gilson of the Royal Aircraft Establishment, Farnborough, wrote: "In a crash landing, the resilience of the cushion is just one element in a complex assembly of resiliences (both elastic and plastic) which may include the ground itself, the undercarriage wheel or skid, local deformation of the fuselage at the impact point and more general distortion of the fuselage, *eg* ovalling, distortion of the seat attachment point, distortion of the seat structure, deformation of the flesh of the buttocks and deformation of the intervertebral discs of the spine. Thus the shock absorbing effect of thin foam may only provide a fraction of the absorption of the overall system, therefore adjustments to the foam cannot make a dramatic difference to the overall loading on the spine. However, every little helps, and it is certainly true that any foam should be firm."

He confirms the advantageous semi-reclining position of the pilot in a low profile glider. The pilot benefits from the larger bearing area produced by his reclined attitude. Also, if the contact with the ground is mainly on the main wheel which is free to roll and the glider is not heavily nose down, then the direction of the deceleration (and therefore loading) will be largely normal to the fuselage. Thus the component of deceleration along the spine and hence the compression loading will be reduced. However, Wg Cdr David Anton of the RAF Institute of Aviation Medicine (IAM) has pointed out that the head and neck then become vulnerable and a head support is essential.

Forces on the spine. The strength limits of the healthy human spine in compression are well defined at 25*g* with a maximum rate of rise of *g* of 300g/sec. These figures apply to a pilot using an ejection seat. David Anton has discussed these figures with me. As the forces involved in a glider accident are unknown, it is not valid to assume that the forces on the spine in a pilot ejection are the same as those incurred in a glider crash. The IAM has agreed to crash test an old glider with an instrumented dummy in the cockpit and accelerometers in the fuselage. A suitable glider for testing to destruction is needed.

Support of the spine. The spine should be fully supported by the parachute or by firm cushions. Some parachutes leave the lower (lumbar) spine unsupported and it is suggested that these parachutes be repacked in a longer pack.

The late Dr Stedtfeld of Germany stressed in his reports to OSTIV in 1978 and 1981 the importance of a lumbar support to maintain the shape of the lower spine, allowing the natural shock-absorption capacity of the spine to take effect.

David Gilson describes an American study in which a 57mm solid lumbar support produced a 50% rise in the acceleration required to cause spinal damage to cadavers tested on an ejection tower. It is not known whether the same results would be obtained on live humans.

Studies in 1945 on the importance of keeping the spine erect to absorb maximum energy

It is interesting that Sir James Martin, of the Martin-Baker Company, carried out studies in 1945 on the importance of keeping the spine erect so as to absorb maximum energy, and also limiting peak acceleration with *g* coming on slowly. (There is a fascinating book on Martin-Baker seats, **Engineering for Life** by John Jewell, 1979).

A comfortable lumbar support-pad can be made from DLR 90 (Dunlopillo Low Resilience) foam fastened by a belt around the waist under the parachute or glued to the seat-back if a parachute is not worn. A rigid glass-fibre shell can be constructed for each pilot, held in place by a velcro strap and worn under the parachute. In 1968 the late Dr J.G. Fitzgerald of the IAM devised a very quick and simple method of making a mould for the glass-fibre shell, using a vacuum applied to a container holding small polystyrene spheres. For source of supply contact me at Lasham.

Tests on energy absorbing cushions. In December 1985 and January 1986 two series of tests were carried out at the IAM, by courtesy of The Commandant, Air Marshal P. Howard, using the decelerator track and the helmet research laboratory facilities. The experimental team involved were Wg Cdr David Anton, Ft Lt Ian McKenzie and Higher Scientific Officer Roger Gilkes.

Decelerator track. The test vehicle runs on a 120ft long track propelled by elastic bungies and is stopped by hydraulic rams. An aircraft seat is mounted on the test vehicle. Strapped to the seat is an instrumented anthropometric dummy weighing 165lbs. The peak *g* readings recorded by an accelerometer mounted at the base of the spine were as follows:

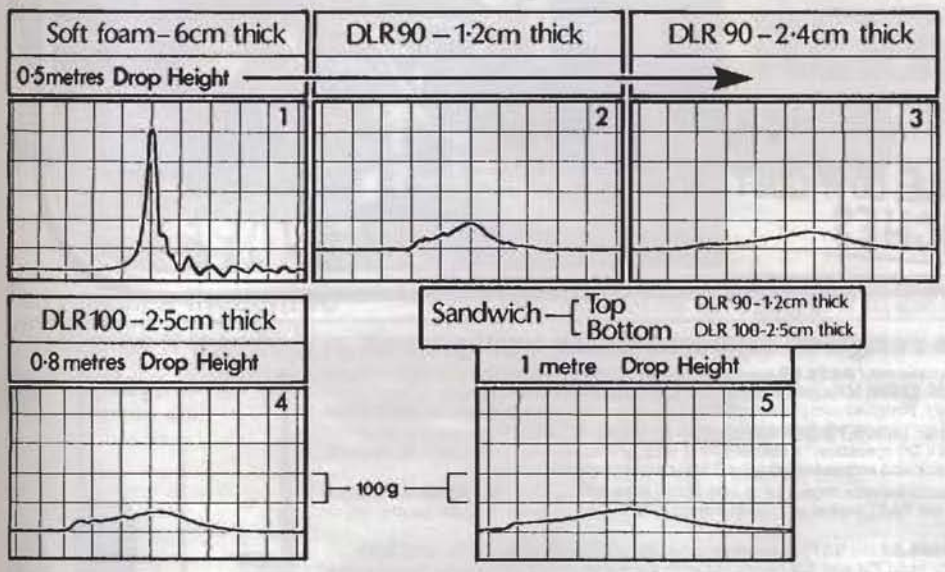
1. Bare seat — 35*g*.
2. Ordinary soft foam cushion, 6cm thick — 45*g*.
3. Sandwich of 1.2cm DLR 90 on 2.5cm DLR 100 energy absorbing foam cushion — 28*g*.
4. Cushion filled with expanded polystyrene beads, 2cm thick — 35*g*. (Note: A low steady rate of change of *g* was obtained with this cushion. The beads first compact and then deform. The significance of this is difficult to assess.)

The tests had to be carried out within the limits of the decelerator track which meant the rate of change of *g* was very high as was the velocity at impact at 8.1m/sec. The aircraft seat was rigidly mounted on a solid metal structure so there was no "give" as there would have been in a glider crash. However, the figures clearly show the increase in *g* loading on using an ordinary soft foam cushion and the enormous improvement if an energy absorbing cushion is used.

The anthropometric dummy strapped to an aircraft seat mounted on the test vehicle of the decelerator track. A polystyrene granule cushion is being tested.

Helmet research laboratory. A series of 30 tests were carried out dropping a 5.16kg weight from various heights onto foam placed on a metal anvil. The readings from an accelerometer in the weight were displayed on an oscilloscope which was photographed on Polaroid film. The full test results may be seen at Lasham. The most important results are as follows:

The weight was dropped from 0.5m onto



unloaded soft foam 6cm thick. There was little initial energy absorption. There was a high peak loading of 480*g* over one millisec followed by excessive rebound.

The weight was dropped from a height of one metre onto a sandwich of 1.2cm DLR 90 and 2.5cm DLR 100. (A lower test drop was not carried out because, during the course of the tests, it was obvious that the material could easily cope with a lower energy drop.) There was a prolonged plateau of low *g* (20*g*) lasting four millisecs building up gently to 80*g* over a further five millisecs. No rebound occurred.

Although these tests are not directly applicable to the pilot/glider situation, it is clear that soft foam cushions should no longer be used but should be replaced by energy absorbing cushions. A stock of foam is held at Lasham. Financial benefit, if any, will go to the Lasham Trust.

Several problems remain with the Dunlopillo Low Resilience foam. It is inflammable so if used on motor gliders or light aircraft it should be given a fire-resistant cover. The foam is fragile and deteriorates in ultra-violet light so a cushion cover should be used. The foam becomes harder in the cold. This is important as gliding is in varied climatic conditions and the cockpit is exposed to cold at high altitude. The tests described were at room temperature only.

SAFETY IN THE NEW GENERATION OF GLIDERS

The following ideas have been put forward:

1. The legs should be protected by a strong structure in front of which is an energy absorbing zone.
2. The legs should be protected from impact with the lower edge of the instrument panel (Hugh Hilditch).
3. A head support should be provided (David Anton).
4. The seat harness should not slip off the shoulders.
5. It should not be possible to undo the parachute harness in error when releasing the seat harness in an emergency (Gr Capt Tony Barwood, rtd, IAM).
6. An adjustable negative-*g* strap should be used to prevent "submarining" down and forward out of the seat harness in low profile gliders (Ian Strachan).
7. The rear of the cockpit structure should not project forward, nor should there be any canopy-locking mechanism that could interfere with a successful emergency exit from the cockpit (Tony Barwood).
8. The canopy should be high enough to give room for a lumbar support to be worn and for energy absorbing cushions or seat structure to be used.
9. Enough depth, say 6in, should be left free of the glider structure and control runs beneath the seat to allow for the installation of an energy absorbing seat structure. This could be made from metal or plastic honeycomb material.
10. Energy absorbing material could be placed between the inner and outer shell of the fuselage structure (David Nunn).
11. The landing wheel should be well damped to reduce rebound.
12. The fuselage below the pilot should be strengthened to prevent injury on a heavy landing on a rough surface.
13. The front of the canopy should be strengthened to prevent injury by wire fencing.

SUGGESTIONS FOR PRESENT DAY GLIDERS

Upright pilot seating position

1. Smooth out irregularities in the seat structure.
2. The parachute or back cushions should fully support the spine. Back cushions can be made of firm chip foam D76, available from Lasham (see Pete Disdale's article in the June 1985, issue p128). This chip foam has little energy absorbing capacity and should **not** be used for seat cushions.
3. A lumbar spine support-pad or rigid lumbar support shell should be used.
4. An energy absorbing seat cushion should be used. An efficient cushion is 1.2cm of firm DLR 90 on 2.5cm hard DLR 100. This cushion should be firmly attached to the seat to prevent possible interference with the movement of the control column. This cushion should not be glued to the seat, as the open cell foam absorbs water. Owing to limited headroom, tall pilots may be unable to use this cushion. Last season the K-13 fleet at Lasham was equipped with 2.5cm DLR 100 seat cushions which felt hard initially but after a few minutes moulded to the pilot's shape.

Semi-reclining pilot seating position

The possibilities are limited by the headroom available under the canopy.

1. Use a lumbar spine support-pad or rigid lumbar support shell.
2. Use an energy absorbing seat cushion. Two 1.2cm layers of firm DLR 90 will mould well to the complex seat-pan shape of the glider. This cushion is unlikely to slip forward and even if it did so is soft enough not to obstruct the movement of the control column. A 2.5cm DLR 100 cushion was used last year in several different solo gliders by a female pilot and found to be comfortable. This hard cushion will absorb more energy.
3. A head support should be used.

Summary. Suitable design features in the glider can help the natural shock-absorbing characteristics of the pilot's body resist the forces involved in a crash landing.

TERRY HURLEY

THE AIRFIELD

Terry gives a thought to HusBos as it was before its gliding days

After a spell of dry weather the faded grey lines of the overgrown runways can be seen from the air lying like old bones beneath the thin covering of grass, and just to the east of the new hangar there are hummocks like neglected graves where the bomb stores used to stand. You notice these things briefly as you drift back to the field to land, then once on the ground you forget them.

But long before the club came to this airfield bringing its Bocians and its Chipmunks, other men flew from here in Wellingtons and Hurricanes. Not that the field has any dramatic, historic associations — nobody busted any dams from here or went with a thousand bombers to raid Cologne. This was merely an Operational Conversion Unit, one of many dispersed through the East Midlands, where young airmen received the final stages of their wartime training before being posted to their tours with Bomber Command. We know now from the sad statistics how few ever survived those thirty trips.

It's as calm and green and pleasant as any other meadow in England

Former operational fields are not like ours. Even today they have a haunted atmosphere and are silent with that unnatural silence that rings in your ears after the shut-down of powerful aero engines. Airfields like those have as many ghosts as Culloden or Gettysburg. But our field has no ghosts and no history to speak of, and it's as calm, and green, and pleasant with its wild flowers and flocks of plovers as any other meadow in England.

Occasionally, during autumn ploughing the local farmer turns up a few shards of perspex, or a fragment of aluminium crumped like an old chocolate wrapper, and sometimes a handful of .303 bullets, the copper jackets green and corroded by forty years in the heavy dark soil. Around here farmers have been digging out the debris of wars since Cromwell brought the king to battle just beyond the crossroads, but these few relics are all that remain of two Wellingtons which crashed on the approach to the airfield during night training exercises — these and the gap in the tall line of elms which stand a mile to the east.

This isn't the stuff of history, however. These were just incidents, though somebody probably stil remembers them and always will.

One of our club members has collected a few souvenirs of the airfield during its active years — a list of aircraft types, names of base commanders, some faded photographs of smiling young men grouped in front of black-painted bombers. You can find similar photographs taken during that period in almost any country in the world. Only the aircraft markings are different.

The club bought this field more than twenty years ago, glad to have the benefit of the wartime levelling and draining, the cleared approaches and the other facilities which the RAF left behind them. On fine weekends during the summer people drive out from the great industrial towns of the Midlands and line the road to watch us fly. They bring their wives, kids and parents, and make a day of it with picnics, folding chairs and cameras. A cheerful Italian comes in his van all the way from Coventry to sell them ice-cream.

There are times, though, when a particular intentness about one or other of the middle-aged men following us so carefully through his binoculars catches my attention, and I wonder if it's just us in our gliders that he's watching or whether there's something else that only he can now remember how to see.

GREYBEARD

I CAN REVERSE ANYTHING

The last time Greybeard appeared in S&G was when he wrote the club news report. His friends love his stories of what he calls "the string and sealing wax days" and have persuaded him to send us the occasional article spanning his 33 years in gliding in four countries.

What have I got to show for all that time on gliding fields? I've never broken any records unless it be for being constrained to the two-pew as the only instructor on those good soaring days – my launches in thousands nearly exceed my hours in hundreds and I have little interest in belting around closed circuits with my flying controlled by the demands of microtechnology. But I have had all those years of a wonderful sport with the most wonderful companions, unsurpassed views, memorable (to me) flights and the odd exciting moment. I have also amassed a fair number of gliding, or gliding associated, stories and personal experiences with which I regularly bore *ab-initios*. Imagine my surprise when it was suggested that I should write some of them down for S&G.

* * *

Recently I had a few marvellous days at a club in Wales and on waving goodbye drove out very cautiously along the high hedged road with the trailer touching both sides. About a mile down the winding road I rounded a sharp turn to find a car parked in a very short and shallow passing place. I shouted that I couldn't pass and would he drive on in front of me but he said he had just reversed as there was someone coming up with a caravan.

Doom, I thought, switching off and leaping out. I told him there wasn't a passing place behind for ages and anyway it was impossible to reverse my length around the bends I had just negotiated. He said I would have to as the chap approaching couldn't reverse his caravan to which I replied that if he couldn't reverse he shouldn't be on the road. I would go down and meet him and if need be reverse the caravan for him.

Secure in my knowledge of years of trailer reversing, I trotted round the corner with my new companion in tow, ready to demonstrate my skill, albeit rather puzzled as to why the van was taking so long to appear.

On rounding the corner I froze in my tracks. There was the caravan – Romany type, horse drawn, led by an old man with an equally ancient spouse pushing on the rear to help the even older member of the equine race which looked about ready to expire in harness.

"See," my companion said, "I told you he couldn't reverse. Now let's see you do it." Me, I'm just a loud mouthed idiot. I'll draw the proverbial line over the next hour, suffice it to say that I now claim I can reverse *almost* anything.

BGA & GENERAL NEWS

BGA CONFERENCE

These annual junketings, like good wine, get better with age. The Yorkshire GC were the hosts for the BGA Conference at the Old Swan Hotel, Harrogate from March 1-2 and coming at the end of a grim winter spell it was a relief to contemplate the approaching season.

Pilots from Northern Ireland, Aboyne, West Wales and most parts of England braved various degrees of snow and found this a popular centre for the non-gliding wives and girlfriends while they immersed themselves in the full programme.

This year for the first time the Saturday morning offered three workshops – management, under John Holland, chairman of the BGA Development Committee, flying operations, (launching) chaired by John Gibson and cross-country under the chairmanship of John Taylor, BGA Competition and Awards Committee. This generated a lot of discussion, some interesting talks and a good exchange of ideas with Bill Scull, Nikki Campbell, Bob Rodwell, John Holland, Dave Roberts, Peter Atkin, Peter Moss, John Charlett-Green, David Clayton, John Jeffries, Dick Stratton (BGA chief technical officer) and Justin Wills among the speakers. In the afternoon Tom Bradbury spoke on how to spot the good soaring days followed by an update on the airspace situation by Chris Nicholas, chairman of the BGA Airspace Committee, and Bill Scull, BGA director of operations.

Ben Watson, the BGA chairman, ran the AGM smoothly and it was gratifying to find the BGA more than £16000 in the black, giving a planned for contingency fund.

He presented BGA diplomas to Gil Phillips (West Wales GC) and Frank Thompson (Burn GC) for their services to gliding and in particular to their clubs.

The dinner-dance was attended by more than 200 people with Bill Walker, the MP who is our spokesman on gliding in the House, and his wife among the guests. Mike Bird, who chaired the conference, was in good form as the guests speaker asking everyone to "drink to the infinite variety of gliding."

The majority of the annual trophies were presented by David Chaplin, the Yorkshire GC's chairman, though a few were accepted by club members on behalf of winners. They were awarded as follows: **Seager** cup (longest distance in a two-seater); M. B. Jefferyes and P. F. McElarney (Essex) for a 429.6km O/R, North Weald, M18/A1 in a Silene on July 7; **California in England** cup (longest distance by a female); Hilary Stewart (Lasham Gliding Society) for a 502.7km quadrilateral, HusBos, Lasham, Lutterworth, Chieveley in a Std Cirrus on July 7; **Furlong** trophy (for the largest declared triangle) and the **Wakefield** trophy (greatest distance); C. C. Rollings (Booker) for a 770.5km triangle, Petersfield, Welshpool, York in a Jantar 2A on May 28; **Volk** cup (longest O/R); Robin May (London) for a 545km, Dunstable, Thirsk in an ASW-20 on May 28; **Frank Foster** trophy (fastest declared 500km); C. Batty (Cotswold) for 513km at 74.14km/h from Cambridge A/F, Nympsfield, Southam, Aston Down in an ASW-20 on July 7; **Manio** cup (fastest 300km with one or two TPs); R. Jones (Avon) for a 306km triangel at 117.14km/h, Lasham, Birdlip, M1/A508 in a Nimbus 3 on May 28; **De Havilland** trophy (maximum gain of height); M. F. Cuming (Booker) to 20000ft at Aboyne in a Pegasus on October 7; **Rex Pilcher** trophy (earliest predeclared 500km of the year by a pilot completing this task for the first time) for a 508km triangle, Brecon, Lake Vyrnwey, Dunstable in an ASW-20 on May 28 and the **Enigma** trophy (winner of the National Open Ladder); T. Stuart (London); **L. du Garde Peach** trophy (winner of the National Club Ladder); Annabel Lucas (Lasham); **Firth Vickers** trophy (second on the Open Ladder); F. J. Sheppard (Booker) and the **Slingsby** trophy (second on the Club Ladder), C. G. Starkey (Surrey & Hants).

Ian Walton, a young Midland GC member who has just become a professional painter, donated a beautiful picture of an ASW-19 crossing the finishing line which was raffled and made £175 for the British Team fund.

The exhibition was well arranged and varied with a DG-400 and an LS-6 rigged on the hotel lawn.

Sunday found Bill Scull frightening the audience again this year with Hazards, a short sharp shock treatment, followed by a talk on glider design by Dieter Paff, production manager of Rolladen-Schneider. In the afternoon "Black" Jack Harrison spoke about the joys of Aboyne, beautifully illustrated with slides, and the conference ended with Mike Bird giving a vote of thanks to the Yorkshire GC, and in particular Mike Benson, their organiser, and to Ben Watson and Nikki Campbell for arranging the programme.

BGA DIPLOMA WINNERS

Frank Thompson, left, and Gil Philips who were awarded BGA diplomas for their services to gliding. *Photo:* A. Murray Wilson.

OPEN CLASS NATIONALS

Al Farmer, competition director of the Open Class Nationals being run by the RAFGSA at RAF Hullavington (1½ miles north of the M4 junction 17 on the A429) from July 26-August 3, says that visitors by road or air will be welcome.

Access during the day will be *via* a gate which leads directly on to the A429, ½ a mile north of the Lower Stanton St Quintin crossroads. Visiting aircraft will be by PPO on 06663 233 ext 313, with a call on 130.10MHz when approaching the airfield. All visitors should bring a logbook or gliding licence as proof of their interest in gliding.

GLIDING CERTIFICATES

DIAMOND DISTANCE

No.	Name	Club	1985
1/318	J. P. Gorringe	Booker	28.5

DIAMOND GOAL

No.	Name	Club	1986
2/1469	G. Terry	Newcastle & Teesside (in Australia)	2.1
2/1470	W. G. Upton	Culdrose (in Australia)	24.1

DIAMOND HEIGHT

No.	Name	Club	1985
3/714	Jane McCoshim	Deeside	15.12
3/715	M. J. Haynes	Deeside	24.2

GOLD BADGE

No.	Name	Club	1986
1140	G. Terry	Newcastle & Teesside	2.1
1141	A. W. Cox	Enstone Eagles	12.1
1142	W. G Upton	Culdrose	24.1

GOLD HEIGHT

Name	Club	1986
R. E. Pettifer	Blackpool & Fylde	3.1
Jane Nash	Enstone Eagles	18.1
M. D. Bowman	Hambletons	18.1
R. F. Jones	Shropshire	12.1
A. W. Cox	Enstone Eagles	12.1
D. P. Taylor	Yorkshire	15.12.85

GOLD DISTANCE

Name	Club	1986
G. Terry	Newcastle & Teesside (in Australia)	2.1
R. E. Baker	Portsmouth Naval (in Australia)	10.1
W. G. Upton	Culdrose (in Australia)	24.1

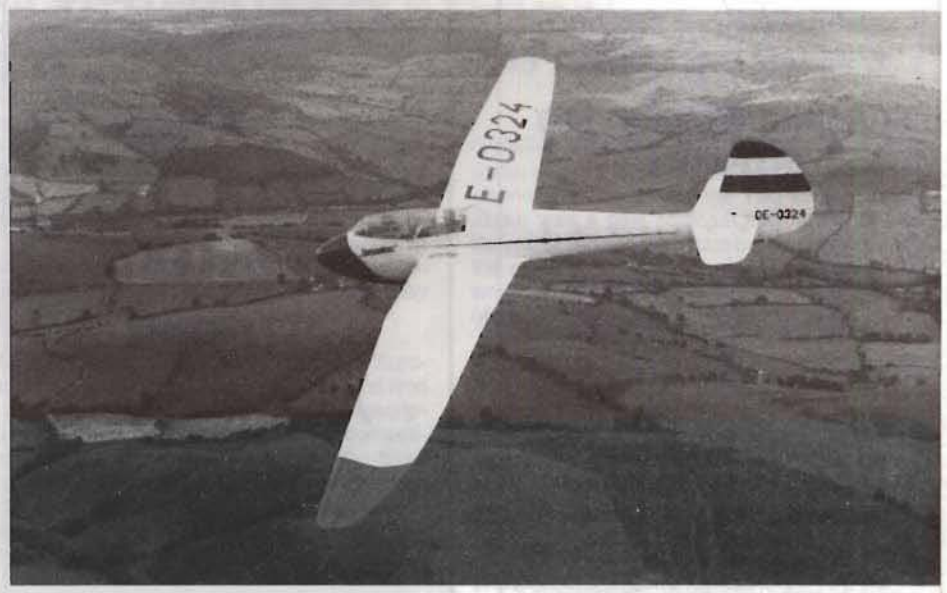
SILVER BADGE

No.	Name	Club	1986
7152	M. S. Smith	Bath & Wilts	15.6.85
7153	M. E. Kingston	London	21.3

AIR LEAGUE SCHOLARSHIPS

If you are over 17 and under 22 years on May 31 1987 and a British citizen resident in the UK, you are eligible to apply for the Air League Educational Trust Flying Scholarships for 1987 which give 15 hours flying instruction. Application forms are from the Secretary, The Air League Educational Trust, 4 Hamilton Place, London W1V 0BQ and must be completed and returned not later than September 1 1986.

READY FOR THE INTERNATIONAL RALLY



This beautiful Steinadler, photographed by Ian Tunstall, is one of the gliders being flown at the 14th International Glider Rally at Lasham from August 2-9. When members of an Austrian club heard about Chris Wills' Kranich accident in 1979, they gave the Vintage Club this glider which is flown by Chris and a syndicate. David Chapman will be the Rally pilot. It was designed by Erwin Musger after the Second World War as a development of his 1935 Mg 9, designated the Mg 19, and translated Steinadler means Golden Eagle. It was flown for the first time in 1951 and is now based at Booker.

BARRON HILTON CUP

If you have seen the new video "The Quiet Challenge" you can't fail to wish that you could be offered a free flight to the USA to be the guest of Barron Hilton at his Nevada ranch for a week's free gliding in one of his aircraft.

That is the prize on offer to each of the Class winners for the best (handicapped) flight between March 1 and September 15 which complies with the competition rules. If interested, then ask the BGA for a copy of the regulations.

CIVV REPORT

Some brief extracts from a report by Tom Zealley, BGA delegate, who attended the Commission International de Vol a Voile (CIVV) meeting in Paris on March 21-22. Ben Watson attended as British team manager.

Olympics. The International Olympic Committee had agreed that three aviation sports should qualify for the 1992 Olympic Games – parachuting and hang gliding, which were keen to be admitted, and gliding at IOC's own suggestion. Although CIVV had decided two years ago that it didn't wish to seek admission for gliding, the chairman, Bill Evans (USA), recommended letting the issue rest to see how things developed.

Rules. On the recently introduced three TP rule for distance badges, there were two situations where interpretation was required:

In the typical case of a predeclared triangle where the start and finish were to be the base airfield, the pilot might decide after completing the task to remain airborne, photograph the base airfield and then fly on and land elsewhere to achieve a greater distance. The meeting agreed that it would be reasonable to allow both the triangle (as a goal flight) and the greater distance flown as a distance flight.

In the second case considered the pilot declares a remote start point and a remote finish point in addition to three TPs and also separate from his take-off and landing points. Although this represents a total of five predeclared points the meeting decided that the distance between his start point and finish point should be allowed to count for distance.

The meeting again confirmed that the principle of the pilot changing his mind about his task whilst airborne should be acceptable for distance flights.

It was also decided to keep the regulation requiring that World Championships rules be fixed and approved at least eight months prior to the event.

Motor gliders. Per Weishaupt (Denmark) reported as usual, mentioning records, the use of motor gliders for scientific research and an increasing interest by manufacturers in both self-launching and retrieve-only motor gliders.

It was agreed that Photo time/Aeorgraph linked equipment (and similar devices) for flight verification in gliders and motor glider should be given a trial. It was stressed that manufacturers and national aero clubs should pay special attention to corroborative evidence and methods of avoiding tampering with the mechanism.

The meeting also approved a resolution that self-sustaining gliders should be included within the definition of a motor glider – at present they qualify as neither gliders or motor gliders.

Club Class. France offered to run a 1987 European Club Class competition, the place and time to be decided. There was interest in the description of the USA National Sports Class competitions by Bernard Smith. Not only was the glider speed handicapped but the task was varied according to the handicap of the glider. (There was resemblance to the 1985 Dunstable Regionals.)

World Championships. There was considerable discussion arising from a letter from the Australians concerning the dangers and potential unfairness of holding World Championships in mountainous country. The view was supported by a number of delegates (including the UK) but there were no specific proposals to change the planned arrangements for either Wiener Neustadt, Austria, or Minden, USA.

Wally Wallington, reporting on the plans for Benalla in 1987, proposed the speed formula for race scoring should receive zero points for pilots achieiving less than 0.7 of the winner's speed.

Plans were discussed for the 1989 World Championships at Wiener Neustadt

Heinrich Gesau spoke about the plans for the Championships at Wiener Neustadt in 1989. Some delegates were concerned at the age of the director (24), the lack of camping facilities on the airfield and the proposal to hold the pre-Worlds two years instead of the usual one year before the Championships. The chairman pressed Austria strongly to reconsider the last point.

European Championships. The UK delegate suggested we might submit a bid to hold the Europeans in England in 1988. There were no adverse comments and no alternative offers mentioned.

Women's Championships. Bulgaria and Sweden made bids to hold the women's European Championships in 1987 and Bulgaria won the vote. A bid for the USSR to be the hosts in 1989 was agreed.

Glider Classes. There was a lengthy and at times confused discussion on various proposals

Scandinavians introduced proposals for limitations to 15 Metre and Standard Classes

under this heading including the previously considered 18m Class and the Two-seater Class. There was a new proposal from some of the Scandinavians to introduce some limitations to the existing 15m and Standard Classes (*eg* no waterbalast for Standard Class). In the end none of the proposals for change were agreed.

Airspace. This session was opened by Bernard Smith (USA) giving the results of his investigation into the availability of cheap modern Navaids. He reported that a wide range of equipment utilising modern micro-chip technology such as a small hand-held VOR was becoming available at ever decreasing prices. Several delegates waxed eloquent about the benefits to be derived from the hi-tech that was in prospect including the total electronic control of competitions. It was agreed that Bernard would continue his work in this area and would collect, collate and distribute the information concerned.

The main discussion (lead at Bill Ivans suggestion by TSZ) evoked considerable interest, but in the nature of the subject there were few specific decisions. One concrete result was the preparation of a list of the names and addresses of the gliding airspace specialists in each member country. This was immediately photocopied and circulated.

Representatives from UK, USA, W. Germany and Switzerland each described the key aspects of the gliding airspace situation in their country. (The French delegate declined to do so.) The emphasis was on the "diplomatic" approaches used to negotiate with the National Airspace Regulatory authorities and the different techniques adopted for "cohabitation" between gliders and commercial and military aircraft.

Other subjects mentioned were the poor use made of statistics by the authorities and the increasing use of 720 channel radio by gliders.

It was agreed that a simple questionnaire should be prepared and the results circulated to all member countries to assist information exchange. TSZ agreed to do this.

Other Items. Other subjects briefly discussed included the Barron Hilton cup which is continuing, the regular report on OSTIV affairs, and a discourse led by Piero Morelli on the ideal design of tow plane. A motion introduced as AOB to ban two-seaters in the Open Class (because of the unfair advantage of having a second crew member to share the work-load) was not adopted because it was felt that it deserved more careful consideration within delegates own countries before decision.

Bernard Smith reported that the SSA was investigating the possibility of a more advanced badge; possibly a speed requirement or a distance requirement that was progressively uprated as pilots and gliders advanced. Views were requested.

YOUR LETTERS

AIRMANSHIP THE PRIMARY GOAL

Dear Editor,

Although agreeing fervently with Vic Carr (April issue, p75) that the crashery going on in the fields of the UK is a disgrace to the sport, for once I disagree profoundly with him about his proposed solution that every club should buy a glass two-seater. It is easy to hear about the painful financial consequences ensuing from such a decision in some clubs, but that is not the point of my letter.

If pilots are not being taught to be competent in K-13s they certainly will not be in anything else. The crashery, about 20% of all accidents, will not stop until airmanship is taught as the primary goal and pilots are expected to acquire experience and skill before they earn the privilege of being allowed to go cross-country. If we can't do better, then the litigation now reaching back into the club of an offending pilot will sort us out eventually.

That vastly experienced pilot/writer, E. G. Gann, whose words on airmanship should be required reading, wrote of some pilots that they leave a stain in the air behind them. If a pilot has to crash before he considers mending his ways, one might ask what his club was doing about the visible evidence in his local flying.

Pilots taught well in K-13s can learn to fly anything safely. They can also be taught badly in glass two-seaters. Or *vice versa*. Attitudes are far more important than hardware. Cross-country flying is too often promoted as the sole aim of gliding, something that must be done. Obsessions make pilots leave their brains at home.

JOHN GIBSON, *Lytham St Annes, Lancs.*

CABLE PARACHUTES VIS-A-VIS GLIDERS

Dear Editor,

The very short answer to Tony Gee's very long letter (the last issue, p91) is to use a very long strop made of non-elastic material. Such an arrangement is incorporated into the six-drum van Gelder winch at Dunstable.

DICK STRATTON, *BGA chief technical officer*

SPINS FOR BRONZE Cs?

Dear Editor,

When will spins in solo machines be made a requirement for Bronze badges? It would be the logical answer to one of Bill Scull's very interesting talks some time back.

IAN PATTERSON, *Sidmouth, Devon.*

Bill Scull, BGA director of operations, replies: My own view – not necessarily that of the Instructors' Committee – is that before a pilot makes deliberate solo spins he should have had adequate dual training. Due to lack of facilities the dual training may not be satisfactory. Therefore solo spins for the Bronze badge cannot be a national requirement.

A RECORD BREAKER?

Dear Editor,

I have been associated with gliding (in all sorts of capacities) since 1960. In this time I have assisted in the installation of four septic tanks. Is this a record?

M. C. USHERWOOD, *Huntington, York.*

NEWS FROM ZIMBABWE

Dear Editor,

It must be a good many years since we last contributed to your excellent magazine, so I guess a few lines from this part of the world won't go amiss.

Since Zimbabwe became independent in 1980, gliding in this country has become somewhat stagnant. Owing to an extreme shortage of foreign currency, no new aircraft have been imported and most of the hot ships that were here have gone south together with their owners!

However those of us who have decided to stay put still enjoy our soaring in what can only be described as almost ideal conditions the whole year round. The number of days during the year when gliding isn't possible due to bad weather can usually be counted on one hand. At the moment we only have two active clubs, Warren Hills (formerly Salisbury GC) and our own club (Midlands).

Our club fleet consists of a Blanik and Dart 15, both 20 years-old, a 27 year-old Skylark 3 and a 38 year-old Goevier. The only glass ship is a privately owned Diamant 16.5. We are trying to repair a Swallow that was virtually written off in 1984. As you can guess it really makes our mouths water to read about all the lovely gliders available in the UK. Maybe one day things may come right again but until then we make do with what we have.

We have always stuck to winch launching at our club and with our two-drum winch driven by an Oldsmobile V8 Rocket motor we average some 50 launches a weekend. Our cable is 12/14 gauge oval wire with a breaking strain of 1400lbs. A join takes only a few minutes using a copper ferrule with both ends wrapped around.

After two fatal accidents involving Blaniks, in 1974 and 1984, we have devised what we consider a foolproof control column in the front cockpit of our present Blanik. This consists of a stout coil spring of some 15cm in length and 3.6cm wide, welded onto the base of the front cockpit column. The handle part of the stick is then welded onto the top of the spring, restoring the stick to its original length. For pupil training a plastic tube is fitted over the spring making it quite rigid for normal training, but in an emergency – such as the pupil freezing on the stick – the plastic will crack leaving the instructor in full control. When a PI flies from the front seat a steel sleeve replaces the plastic. We would be happy to pass on any further information on this mod to any club operating a two-seater training aircraft.

In conclusion, we would like to hear from any ex-members who have lost touch over the years.

HARVEY QUAIL, *President of the Midlands GC, PO Box 725, Gweru, Zimbabwe.*

REVIEWS

British Soaring Yearbook 1986-7, edited by Gordon Camp. Published by the BGA and available from them at £2.75 plus 25p p&p.

All the information you need to discover who pushed you out of your thermal or who has been talking too much on the glider frequency can be found in the **Yearbook.**

Apart from a comprehensive list of all National and International gliding records, British holders of 1000 and 750km diplomas and all three Diamonds, it contains National Ladder rules, BGA speed indices, badge requirements and information on UK airspace.

All BGA member clubs are given as well as a complete list of sailplanes currently registered with the the BGA together with their registration letters and competition numbers where applicable.

Well presented with more illustrations than before, the **Yearbook** is a very useful addition to your bookshelf and possibly your map pocket.

B.H. BRYCE-SMITH

Gliding at Sutton Bank, a guide for new members and visitors by Harold Dale and Dick Stoddart, priced at £2.50 plus 50p p&p.

This comprehensive briefing book is divided into sections and only those appropriate to your needs and ambitions need be read at a time.

Part 1 covers the getting airborne and down again bit for all the runs with emphasis wisely placed on what to expect on the circuits.

Part 2 is soaring and cross-country. With many miles of ridge all the notable areas are discussed with reference to one of the many adequate line drawings. The wave section is longer and possibly of most interest to most people as wave flying is really what sites like Sutton Bank are all about.

Finally, Part 3 explains the present state of all the local airfields.

PETER BAKER

IS THIS A RECORD?

Josée Moseley-Williams of Southdown and Booker GCs started gliding just before her 70th birthday, went solo at 72, did her C certificate at 73, her Bronze at 74 and is still flying K-8s at 80. If anyone at your club can beat this please contact Nikki Campbell at 29 Beech Avenue, Lane End, Bucks HP14 3GC. Tel 0494 881166.

CLUB NEWS

Copy and photographs for the August-September issue of S&G should be sent to the Editor, 281 Queen Edith's Way, Cambridge CB1 4NH, telephone 0223 247725, to arrive not later than June 10 and for the October-November issue to arrive not later than August 12.

GILLIAN BRYCE-SMITH
April 9

ANGUS (Arbroath)

We have re-launched our newsletter after six years. To maximise utilisation of equipment we have introduced differential launching fees for a trial period – at certain times a winch launch is 60p.

The season started well in April with many notable flights including a Silver height for Martin Davis, 4hrs for Ron Smith and Bronze legs for John Mitchell, Malcolm Minnon and Mark Kinsaven.

Les Horibine and Martin Davis have bought a K-6CR to join the privately owned Pirat and Vega.
M.M.K.

AVON (Bidford on Avon)

As I sit here with the hailstones bouncing playfully off the clubhouse roof and the tractor up to its axles in mud, my thoughts turn to the summer. A Puchacz has been added to our fleet of Blaniks, K-8s, Pilatus B-4 and Jantar to cope with our hectic programme of courses and trial lesson evenings.

Our annual expedition to Feshiebridge in October is planned. Some places remain for private owners to take advantage of our aerotow facilities. So come on down.
D.C.O.

BICESTER (RAFGSA Centre)

The new airfield bus is operational thanks to Bob Brown and helpers. The soaring season started well with three 100km triangles on March 2 and several Bronze legs. Congratulations to Brian Stewart, Tom Gunningham and Andy Holmes on going solo and to Sean Buckner on his Silver distance.

In December 1963 the RAFGSA took delivery of its first Blanik, flown from Czechoslovakia by Andy Gough. After 22yrs sterling service the last one departed for the Isle of Wight in February.
C. & G.

BLACK MOUNTAINS (Talgarth)

Now that our appeal against the National Park planners has been won there are no restrictions on the continued expansion of the club. We can soar even on Bank Holidays! One immediate consequence has been to buy a Fournier RF5 motor glider which is pleasant to fly and proving very popular.

Congratulations to CFI John Bally on being selected for the UK team at the European Championships in Mengen and to Tim Hurn on his Bronze C.

We say farewell to Mick Willett who moves on to a tugging job at Lasham to be replaced by Dave Bradley.
W.D.M.

BOOKER (Wycombe Air Park)

It is time to report the enormous success of our self-insurance scheme. Damaged gliders are repaired in next to no time in our new workshop and members have been so co-operative in keeping crashes to a minimum that we're actually buying in wrecks for our stock!

Speculation that Mary Meagher's latest opus – now in its third printing – may be awarded this year's "Booker" prize for literature is to be taken lightly; however, sales are being boosted by the practice of using the books as Frisbees on non-flyable days.
M.F.C.

CAMBRIDGE UNIVERSITY (Cambridge and Duxford)

We finished cross-country flying in late November and started again on March 8 with three flights of over 100km by Richard Baker, Peter O'Donald and Sigfrid Neumann.

Congratulations to Richard Baker on completing his Gold C with a height gain of 12000ft at Sutton Bank in December, to Hazel Becker and Andy Kingswood on going solo and to Mark Emerson on his Bronze C.

Our thanks to the members who helped build the glider workshop which now makes us fully autonomous at Duxford.

The annual dinner was at Jesus College when the trophies were awarded. The winners were Peter O'Donald, Paul O'Donald, Peter Baker (two), Steve Cooke, David Evans and Steve Longland.

Obituary – Guy Baker

We were very saddened by the untimely death of Guy Baker on the airfield recently. He had been a very keen member for a few years following in the footsteps of two of his sons, Peter and Richard who started gliding some years before him. Guy flew Halifax bombers on operations in the RAF during World War 2.

He was a popular member of the club and we send our sympathy to his wife Lily and three sons.
B. H. Bryce-Smith

CLEVELANDS (RAF Dishforth)

Without too many good wave days during the winter, time has been devoted to workshop activities. The Acro is in full use and the Chipmunk has been repainted. Even the old Primary has been looked at with a view to restoration.

We hosted the first of the season's Northern Inter-Club League meetings over Easter. Overriding memories will be of frequent heavy showers and gliders spread around the vale. Mike Bond used some late wave to produce the club's best effort.
P.W.

COTSWOLD (Aston Down)

We had a very interesting series of winter talks which were well attended. Congratulations to Sue Price on going solo.

We now have use of an Astir CS (except Sundays) thanks to Mike Gribble, which is proving very popular.

Members past and present attended Emil Chwistek's funeral – the fact there wasn't even standing room was testimony to this wonderful character who will be sadly missed.
L.M.B.

Emil Chwistek

We have lost Emil; at the tender age of 60 a heart attack has taken him away. Things will never be the same again.

If you have ever been to Aston Down you are sure to have met Emil and indeed he was known at many other gliding sites too. You didn't forget him afterwards because he was one of those characters that you only meet a few times in your life.

He started gliding as a schoolboy in Poland but when the invasion came he left home and grew up in the Polish underground movement. He subsequently escaped to Italy to join the Free Polish Army and was decorated at the battle of Monte Casino.

So to England in 1945 where he married Jean and settled down to bring up his children. Tales of his kindness and help are legendary and the circle of his friends stretches from Royalty to the odd tramp he brought home to feed.

He was one of the first members of the Cheltenham GC in 1963, which shortly became the Cotswold GC operating from the old Long Newton airfield flying a T-31. He stayed with it, flying many different types and having shares at various times in an Oly, a K-8, Pilatus B-4, Skylark 3B, a Jantar and, for many years, a Cirrus. Goodness knows how many flying hours he logged because he didn't profess to be a

cross-country pilot and he did not go in for Comps; it is doubtful if he even kept a log but he would disappear for hours at a time and only in an unrelated conversation later, would you learn of some remote place that he had been flying over.

We now have a large hangar in construction; Emil erected all the steel work and it is likely to become a permanent monument at Aston Down to remind us of Em and his little dog, Blue. Two folk that we thought would always be with us.

J. D. Holland

COVENTRY (Husbands Bosworth)

Prior to the season starting, a series of Bronze C lectures were held in the clubhouse on Sunday mornings. The first 1986 cross-countries of over 100km were on March 8 by Frank Davies and Alan Kangurs.

Our courses are proving successful and we now have an "activity" evening every Tuesday during the summer to include ten-pin bowling, ice-skating, swimming, roller-skating, etc.

A Sport Vega has been added to our club fleet. We are organising an "airfield week" to encourage members to help improve the surface of our site.

Our annual soaring course starts on June 28, the Inter-Club League weekend at HusBos, when there will be a disco and barbecue.

D.L.S.

CRANFIELD (Cranfield Airfield)

Snow prevented flying in February but we started again on the first weekend in March. The club Pirat is now resplendent after recovering of the fuselage and wingtips.

"Mohsen" Alha-Sehed Mirzabozorg and Richard Medlock have gone solo. We are again offering *ab-initio* short courses this summer.

P.J.W

CRANWELL (RAFGSA)

Many thanks to Bruce Tapson for his years of dedicated service as CFI and his continued contribution is much appreciated. We welcome Mick Lee as our new CFI.

Our Motor Falke is being refurbished. We have 61 members and the recent newsletter has stimulated a few "summer flowers" into action.

We have a fun flying competition in May to give more cross-country experience. Tony Mountain, Darren Neil, Steve Chadwick and Pete Beange have gone solo.

L.P.

DARTMOOR (Brentor)

Alan Huxham was elected chairman and Frank Mares our secretary at the AGM. We now have our first club single-seater, an Albatross, bringing our fleet up to four. Our first course from Brentor is in June.

This spring we are widening our runway which is a mile long and are starting on a second transverse runway. We have the support of our landlord but have to proceed carefully in any land use changes as we are well inside the Dartmoor National Park.

John Bolt, our treasurer, has designed an interesting set of cross shaped hangars into which our gliders will slide.

F.G.M.

DEESIDE (Aboyne Airfield)

I've been writing these notes since my arrival at Aboyne five years ago and am now leaving for Yorkshire. These years will take some beating. The club has gone from strength to strength. I've seen the clubhouse built, two club Vegas purchased, the second runway in use.

We've had Competition Enterprise (with another next year) and successful task weeks. Huge numbers of visitors come every autumn and increasingly at other times. I've averaged 3hrs/launch and done more Gold and Diamond heights than I can remember. I've had the thrill of flying over Ben Nevis, the fright of low level at Rannoch Moor, the knee-knocking thermal flying in the Cairngorms, the humiliation of an accident. I even found a wife.

Thank you Aboyne for the most stimulating flying of my life. I'll be back time and time again.

Blackjack.

DERBYSHIRE & LANCASHIRE (Camphill)

The winter weather severely curtailed flying with snow drifts so deep it was possible to walk on to the hangar roof. The few who continued the fettling, now that Trevor Appleby has amicably relinquished his franchise to do more flying and instructing, are to be congratulated.

We had some fine soaring between the showers during the club week before Easter and during Easter, although it was frustrating sitting under a wave cloud with the base too low to permit launching on Easter Monday.

Our new balloon tyred, double wheeled cable retrieve tractor seems to be doing less damage to the field but even this outfit is having difficulty getting sufficient grip on the tundra-like ground.

Our social activites included a superb Christmas party, annual dinner-dance, a barbecue and an impromptu musical evening at Easter.

Anne Jennings, Keith Oldbury, Dave Stredder and Steve Calver have gone solo.

C.S.W.

DEVON & SOMERSET (North Hill)

Our 50% improved launch rate, mentioned in the last issue, was due to the trial use of two winches and four cables for peak demand. Latest update on the Supercat winch operation is that pilots can now control their launch speed themselves simply using their elevator: or so the theory goes. It seems to work, or perhaps . . . ! Time will tell.

The weeks either side of Easter gave some good soaring but Easter is best described as "educational". Strong north-westerlies kept the west ridge working with thermal and low wave augmentation. Martyn Fisher (K-6E) got his 5hrs.

Chris Miller has his MGPPL but the Motor Falke has disappeared for its C of A and some de-lamination repairs.

The airfield extension proceeds apace: drains going in and stumps coming out. Although our Sports Council grant was smaller than hoped for we are grateful for all support from whatever source – most of all from our members.

I.D.K.

Club News Contributors. *First a very big thank you for keeping our deadlines so magnificently. Secondly, we hope you appreciate that this section has to be written extremely concisely in order to contain it to a reasonable length. Many of you achelve this admirably, not using unnecessary words or elaborate sentences — sadly this isn't a place for a literary style but is just a means of getting across information as briefly as possible. However, it would be helpful if those of you who feel you are edited severely would give your reports a very critical look and see if you can cut out the elaborations.*

EAST SUSSEX (Ringmer)

Dave Felix, Ron Speer and Mike Baker have their full Cat ratings, being checked out by John Morris who also brought the BGA Super Falke in March for some members to get ready for field landings. John Williamson gave us an interesting illustrated talk on soaring. Our thanks to them both.

Hugh Greham is handing over as tug master to John and Patricia Richardson (both airline pilots) after many years' valuable service.

As a part of the programme to publicise gliding locally, a general talk on gliding has been given by Larry Matthews to such groups as Scouts and Young Farmers.

Will Greenwood, Mike Garbut, Arthur Dearden and Roger Warren have their Bronze Cs.

J.S.

ENSTONE EAGLES (Enstone Airfield)

The two matters of major concern are now mostly behind us. The Upper Heyford airspace "letter of agreement" with us has in no way made our conditions worse and it is hoped the good behaviour of glider pilots will, at the end of the trial period, show that the restrictions are unnecessary. In spite of our efforts in raising at very short notice a substantial capital sum to purchase the main runway our tender wasn't the highest. We understand that two other gliding clubs also tendered – if only they had approached us we may all now be the new owners! However the new owner – who also owns the rest of the airfield – wishes to ensure that we continue flying and to negotiate a long lease with us.

Flying for the last three months has been dogged by bad weather forcing the new "introductory course" members to be very patient. Following our open weekend for "first lesson" instructional flying there is now a waiting list for this course.

Pat Blackburn and Jonathan Kingerlee made a superb job of respraying the club K-6CR. We have a record number of entries for the Regionals in August.

R.J.P-B.

ESSEX (North Weald)

Alan Manson has gone solo and Sylvia Tamkin has her Bronze C. Winter layoffs, Cs of A and clubhouse decorations all complete, we made a good early start to the season with soaring from February onwards.

We welcome the return of John Mitchell for his third year as course instructor. Regrettably Ron "yellow truck" Burke has had to give up truck driving for the courses after many years, to be replaced by Charles Forsythe, but our grateful thanks to Ron for all his work.

Guests from our twin club, Ludwigshafen, W. Germany, visited us in April.

Courses started in April and can be booked through Gary Giles on 0245 87446.
P.W.B.

ESSEX & SUFFOLK (Whatfield)

Geoff Thurtle retired as chairman at the AGM and we are grateful for his input, particularly the difficult site negotiations. Paul Rice has taken over with the remainder of the committee staying in office.

Paul Rice also collected the Ladder trophy and the Jeff Cook memorial trophy for the furthest handicapped flight with the 100km Triangle trophy going to Peter Wilby, the Members' cup to Wally King and the Instructors' cup to Peter Cross.

Congratulations to Richard Harris and Steel Haughton on becoming full Cats.
R.C.A.

HAMBLETONS (RAF Dishforth)

We did our best to keep flying through the snow and in early March were rewarded by thermals followed by some wave.

Our AGM saw the retirement of two very long serving committee members, chairman John Jones and treasurer Mike Crane. Our thanks to them for many years of unsung effort and best wishes to the new chairman, Eric Stephenson. Our congratulations to Peter Wilson for his award as best *ab-initio*.

At Easter we joined with Clevelands in hosting the Northern Inter-Club League, our team achieving a creditable second place.
J.P.

IMPERIAL COLLEGE (Lasham Airfield)

Our annual dinner in February marked the 40th anniversary of our reformation after the war and guests Ray Brigden and Bill Tonkyn recalled those early post-war days. John Towill and John Chapman scooped the Horseshoe and the Brake Cylinder, our highly valued bogey prizes.

We have rebuilt the Club Libelle trailer and given it a radical stripy paint job making it identifiable from over a mile away.

We have a club "fly in" at Lasham from June 16-20 with a barbecue on June 14 to which members past and present are welcome. We are taking our ASW-19 and Club Libelle to Aosta in Northern Italy for six weeks from the beginning of July.

Melanie Flint went solo only 1234 days after her 16th birthday.
P.T.H.

KENT (Challock)

Heavy snow falls meant virtually no flying in February but time was spent on servicing equipment and winches. Unfortunately Easter weather also stopped any thought of flying.

Our courses start in April with John Harvey again our senior course instructor. We also welcome Bob Davy as resident tug pilot for the season so we can offer aerotowing seven days a week.

Our AGM was on April 5 and our annual open weekend is at the beginning of May.

Congratulations to Richard Brown, Alan Waring, Jim Lambert and Peter Butler on their Bronze Cs and to Ken Stevens on going solo.
J.W.

LAKES (Walney Airfield)

Pride of place goes to Paul Bassett for his first solo in the Capstan. Congratulations also to Keith Butterfield and Neil Braithwaite (IS-28) who were the first to land out this year – we still don't know who was PI! Keith has also flown Diamond height without the weight of a barograph.
M.S.

Obituary – Eric Kendall

Eric died on February 27 after a long illness which we all hoped he would overcome. He joined the club in 1971 and became an experienced pilot, gaining a Silver C and flying solo in the Falke belonging to a syndicate he later joined.

He was highly rated in being able to use weak thermals but Eric was much more expert in maintaining the club's machines. He was extremely hard working, frequently passing up the chance of flying to finish a job on a glider.

Last year, despite illness, he wired our new clubhouse and did major work on both our two-seaters, spending many hours on the airfield, often alone. He even found time to write our Club News reports.

Eric also had a long involvement with the local Scouts, particularly the Venture Scouts, but flying and working on gliders were his main loves. It is impossible to overstate just how much we owe Eric and how much we are going to miss him.
Michael Sadler

LASHAM (Lasham Airfield)

C of A work has been proceeding at a furious pace and again this winter we held regular and enjoyable dining-in nights.

Derek Piggott has just returned from a short lecture tour of the USA whilst Tony Norrie spent a few days at Benalla, reporting "average" conditions of 11kt thermals to 9000ft!

Roger Downing, for six years a staff tug pilot and latterly a senior staff instructor, has become a commercial pilot and we wish him a happy and successful career.
A.J.R.

MIDLAND (Long Mynd)

We have christened the new bungy rope. There have been some superb ridge soaring days with the ridge enhancing thermic activity and thermal soaring possible as far back as January 25.

At the annual dinner in March awards included presentations to Tom Jurdison for best *ab-initio* and Simon Adlard for the most promising pilot under 25.

Course bookings are filling nicely with hopes of breaking last year's record. Congratulations to Len Dent on passing the 1000hr mark.
N.B.

NORTHUMBRIA (Currock Hill)

After a mammoth stint of ten years as CFI, John Greenwell has retired and Rod Watson taken over with Ken Holburn as our new DCFI.

Thanks to Brian and Sarah Hindmarsh and John Dickinson our club magazine *Thermal* has been re-launched as a quarterly.

John Graham has successfully completed his instructors' course at Booker. Brian Hindmarsh has a Bronze leg and Alan Cowell has soloed and won our Easter draw. If Roger Winley had switched on his barograph he would now have Silver height.
S.M.H.

PEGASUS (RAF Gutersloh)

We hope to fly our brand new (second) K-13 during our May expedition to Oerlinghausen. It replaces the K-7 which has been sold and is back in England.

Alan Harris has clocked up 1000hrs and Al Burn has the dubious distinction of a first field landing of the year, from the circuit!

Recent farewells include Ian Smith, Robbie Barr, Chris Milton's car and the Astir trailer.
R.C.S.E.

SHALBOURNE (Rivar Hill Nr. Hungerford)

Our super new ground equipment team, led by Carol Pike and Robin May, are getting the bugs out of a lusty twin drum winch – after the old one has been serviced we will have four cables. The cold weather delayed Cs of A as the paint wouldn't dry. Our thanks to JD, the CFI, who does nearly all the work.

Our aircraft member, Ken Mackley (resident electronics genius as featured in *The Sunday Telegraph* supplement) is happily making a good recovery from a serious illness contracted on a trip to Kuala Lumpur to sell his steerable parachute systems.

We had two well attended lectures and a number of brave spirits were encouraged to nominate their achievements in advance of the season, on payment at the AGM of a £1 fine for each failure to complete. Naturally the club doesn't expect to make any money from this initiative!
R.S.

SOUTHDOWN (Parham Airfield)

At our AGM in March, Peter Aitkin, our very efficient secretary for three years, retired. Many thanks Peter. His place has been taken by Peter Hurst.

Congratulations to Bob Jeal on his 5hrs and to Eddie Hahnefeld on a quick completion of his Bronze C. Dave Connaway and Dave Hatfield have worked hard to rebuild a Ford Super

Major tractor with full hydraulics ready for the grass cutting season.

The monthly courses are well booked and Dave Clews, Inter-Club League team manager, is getting his team ready to defend the trophy we won in 1985.
R.W.

STAFFORDSHIRE (Morridge)

A good foundation for 1986 was laid last year with the ordering of our K-13, the building of our workshops and a healthy maintenance of membership.

John Graham was confirmed as treasurer at our AGM and Pauline Goodwin as chairman. Charles Webb, CFI, was deservedly awarded the Chairman's cup for long service. Another feature was the way members voluntarily committed themselves to make progress on airfield improvements.

The season started well with soaring on most flying days. After two years' endeavour, Dave Thorpe is testing the new flying retrieve concept and we look forward to 80 launch days on a single cable.

Bob Crinean (at North Hill), Nigel Mobley and Tim Caswell have gone solo, Tim achieving a Bronze leg on his very first solo. Our thanks to Mesdames Wintle and Davies who put their homes at the disposal of members for two enjoyable social evenings.
M.P.

STRATFORD ON AVON (Long Marston Airfield)

We have retumed to Long Marston airfield with a much improved operation having acquired additional land to increase launching and landing facilities. We have also built a superb winch which is giving excellent launches at very reasonable costs.

Our enthusiastic members have initiated a recruiting drive together with a comprehensive programme of trial lessons, courses and fund raising events.

Our recent AGM paid just tribute to retiring committee members, in particular Peter Candy, an excellent chairman, and the long serving Andy Coffee who has been given the first lifelong honorary flying membership for his outstanding contribution over many years.
C.M.

STRUBBY (Strubby Airfield)

At our AGM on March 23 CFI, Jim Aitken, reported that last year was the best ever for award attainment and one of the best for flying time and launch rate.

A powered aircraft group are now flying from the airfield we already share with model aircraft and go-karts.

Our T-21 is back in action, looking especially smart after re-covering. Congratulations to Bob Snowshall on going solo.
L.M.T.

SWINDON (Sandhill Farm)

As we settle in at Sandhill Farm we are faced with the seemingly endless saga of planning applications and delayed meetings of the Planning Committee, as detailed by various other clubs who have trod this stoney path. Apologies to East Sussex GC who, in the last issue, mysteriously became East Essex GC.

Our ranks have been swelled with ten *ab-initios* joining under a block membership through Allied Dunbar.

John Ashcroft, Les Clarke and Gordon MacDonald have been accepted for the National Squad Training Scheme.
P.M.

TRENT VALLEY (Kirton-in-Lindsey)

Following an EGM in February, we are hoping to buy a site and the committee are busy pursuing this aim.

Sadly the K-6 has been pranged reducing our fleet of club single-seaters to two.

Congratulations to Wayne Dewick on going solo. Expeditions have been planned to France and Aboyne. Our second flying week has been changed and will now start on August 11.
L.W.

TWO RIVERS (RAF Laarbruch)

The soaring season started on February 9 when Barry Elliott claimed the first hour of the year. The high launch rate, early starts and high performance club fleet should ensure we hold our position in the RAF statistics league – only Bicester bettered our launch total last year.

With various expeditions to France and Austria this year, as well as competitions in the UK and W. Germany, the club continues to support its pilots wanting to try every type of gliding. However, we can't understand why anyone would want to sit in rain at the Nationals when they could be racing along endless cloud streets at 9000ft in the Alps, an 8hr drive from here.

Congratulations to Dick Hunt on his full Cat, to R.T.L. who has his assistant rating and to our new crop of solo and Bronze C pilots.

We welcome Tim Doyle, Mark Desmond, "Porky" Conyers and Martin Pengally and say a sad farewell to Pete Spevack, Mike and Lyn Ferguson and Scott Napier.
P.J.S.

VENTUS (Sandown Airport, Isle of Wight)

The AGM resulted in the total re-election of the Wight Mafia. The winch has been completed under Ken's creative control and we have a second Blanik, which has allowed us to open the membership to *ab-initios* and a K-6E.

Also those little jobs like refurbishing seats and towcar etc have been finished, enabling us to get on with the flying.
A.H.B.

WELLAND (Middleton)

The last six months have proved just what hard work can achieve since we have cleared debts of almost £1000, prepared ourselves to become a limited company (saving £300 in legal costs) and gained a grant of £2000 and a loan of £1000 from the Sports Council to help us buy another two-seater. We are grateful to Chris Simpson, BGA solicitor, for all his help.

Better organised and financed we may be, but we are still pitifully short of instructors – if there is anybody out there . . .
K.S.

WOLDS (Pocklington)

A new toilet block is being built to cope with our two-seater competition and other periods of intense activity and the electricity scheme for our caravan site is near completion.

We are also on the lookout for a more advanced single-seater to operate with our K-8 and also hope to acquire and then dispose of a series of "interesting" low-cost single-seaters to stimulate interest and provide new "types".

We have just had our bi-annual pilgrimage to Portmoak with some 40 members and ten gliders. There was no wave but we soared every day and Tim Milner and John Holmes achieved their 5hrs.
D.B.

WYVERN (RAF Upavon)

At our AGM Pete Cook and Eric Smith shared the Chairman's challenge trophy for their Diamond distance flights, Sara Deck was presented with Mike's mug for best progress since *ab-initio* and other awards went to Paul Cook, Ephy Darnbrook and Alan Burch.

Our thanks to John Williamson for another successful cross-country week when we managed 1325km and Pat Farrelly, chairman, and Bob Preston were checked out for solo aerotow.
P.A.S.

YORKSHIRE (Sutton Bank)

Cliff Banks, Jim Smith and Roy Laing retire from the Board this year and we thank them for all their work.

In spite of the poor 1985 season our financial position remains relatively healthy and is likely to improve as our courses are fully booked due to the publicity from a TV holiday programme.

At the annual dinner-dance trophies were presented to Dick Stoddart, Mike Carter, Derek Taylor, Phil Holland and Derek Sutton.

The soaring season started over Easter with Nick Gaunt completing the first declared closed circuit flight in his newly acquired Kestrel.

We welcome visitors, with or without their own gliders, to sample our wave, thermals and hill lift.
P.L.

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Lilienthal Medal

Dick Georgeson, described as the "father" of gliding in New Zealand, has been awarded the FAI Lilienthal Medal for 1985. He has been involved in gliding for 36 years, represented his country in three World Championships, has gained seven world records and was the first pilot to be awarded the 1000km diploma for an O/R flight. In fact several of his world records were awarded after he overcame a blindness problem which threatened to end his flying career.

He is considered to be one of the top exponents of wave flying in the world. Equally important has been the encouragement he has given younger people and his contribution to the administration of the sport in New Zealand.

Dick has always had the backing of his wife Helen — together they hold two world multi-seater records — and is still an active pilot chasing records.

Please send news and exchange copies of journals to the Editor, 281 Queen Edith's Way, Cambridge CB1 4NH, England

(Continued from p117.)

my legs had given up all hope; funny thing was that my turns had never been better, weird that!

For the last three hours I'd managed to stay above about 1300ft by frenziedly circling in anything remotely bouyant, and by my watch five hours was just about up, great. Start your descent, nice slow drift to circuit height . . . A quick glance at the windsock told me that whilst I had been scratching my "vario" off trying to stay airborne, the wind had swung back onto the ridge — someone's got a weird sense of humour. Airbrakes out 1000, 900, 800 — OK circuit, wonderful, I'd never used this circuit before, and what's more the wind has picked up. A quick plead with my legs not to let me down, or rather to let me down **gently,** go for it!

Well, to cut a long story short, I made it. Stiff but happy I clambered out. It's funny, but even though I couldn't sit down for the rest of the week, the 800 metres' time I clocked to the clubhouse would have put Steve Cram to shame. Well that was it, the last two days of the course were both flyable, but partly due to guilt for hogging the K-8 and partly due to lack of enthusiasm for sitting down, especially on a wooden K-8 seat, I took a supporting role (mainly the bar). Still I did manage to get a crack at bungy launching, and another flight in a real (glass) glider, so I went home happy, bruised but happy.

Trouble now is that the pressure is really on — a new page in my logbook, and no yellow mark. Maybe I can get my 100th P1 flight, or maybe even the CFI will let me go cross-country . . . such are the pressures of gliding!

CLASSIFIED SECTION

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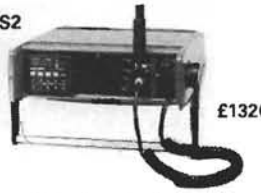

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