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11	YOUR LETTERS D. D. Carrow, H. Middleton, R. B. Witter, J. Jackson, J. Bradley, D. B. James, L. Frank, W. Dean (reply by R. B. Stratton), G. H. Stephenson	
14	WHY HAS MY INSURANCE PREMIUM GONE UP? S. J. Hill	
15	*S&G* CLASSIC A. E. Slater	
17	THE WAY IT WAS I. W. Shattock	
18	MERRI'S PROGRESS Merri Head	
19	LEARNING TO GLIDE S. E. Whaley	
20	I LEARNED ABOUT GLIDING FROM THAT *Ab-Initio*	
21	FLYING THE LAK-17 J. S. Williamson	
22	TAIL FEATHERS Platypus	
23	JUSTIN'S VIEW T. J. Wills	
24	GRAHAM'S CORNER G. McAndrew	
25	INTER-CLUB LEAGUE FINAL M. B. Jefferyes	
26	A GENTLE SUGGESTION R. B. Witter	
27	BILLOWS, WINDSHEAR AND WAVES T. A. M. Bradbury	
31	THE HORTEN FLYING WING	
32	UKRAINIAN ADVENTURE T. Mitchell	
33	SAILPLANE NEWS	
34	ANNUAL STATISTICS	
36	A DAY IN THE LIFE OF BOOKER Julie Angell	
38	BGA & GENERAL NEWS	
39	BGA ACCIDENT SUMMARY D. Wright	
40	GLIDING CERTIFICATES	
48	CLUB NEWS	
52	WAY OFF TRACK Penguin	

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YOUR LETTERS

Peter Scott with HRH Prince Philip. This photograph on our August 1963 cover was by courtesy of the *Farnham Herald*.

PETER SCOTT MEMORIAL WINDOW FUND

Dear Editor,

The Rector of St John's Parish Church, Slimbridge, has suggested that it would be appropriate to erect a memorial to Peter in the form of a stained glass window in the church - a fine 14th century building in the village with which so much of Peter's work is associated.

Because I was Peter's vice-chairman in 1968, when he took over the BGA chairmanship from Philip Wills, Philippa Scott has written to me seeking our support. I have also been to Slimbridge and seen the quite excellent design which she has commissioned from the well known stained glass artist Thomas Denny (a fine example of his work can be seen in Gloucester Cathedral).

In retrospect one can see what an incalculable debt we all owe to Peter for agreeing to take on the chairmanship at that time. Philip wanted to retire, after a mammoth and hugely influential 18 year stint, and we needed - above all - someone at least as distinguished to succeed him. Weren't we fortunate!

The BGA Executive Council and the committee of Peter's old club at Nympsfield have enthusiastically supported this appeal; I have also written individually to a number of Peter's former colleagues and friends, those of us who worked, or flew, with him in the 1960s. But there may be many others in the wider gliding world, including overseas, who would like to be associated with this memorial.

The total estimated cost of the design and work will be £12 000. Donations should be sent to Lady Scott, c/o The Wildfowl & Wetlands Trust, Slimbridge, Gloucester GL2 7BT, and cheques made out to Slimbridge Parochial Church Council.

DAVID CARROW, *Hartley Wintney, Hants*

BGA RECIPROCAL MEMBERSHIP

Dear Editor,

During the early part of 1993 The Soaring Centre, Coventry GC, circulated all BGA affiliated gliding clubs offering free reciprocal membership for 21 days each year. This would mean that their pilots could broaden their experience of both different sites and types flown and our members would have the same benefit.

The revenue at our own club, which is easy to operate from with its flat site, large field and good thermals, wasn't thought to be substantial and by not charging we could encourage others to use our facilities. This offer was welcomed and reciprocated by some clubs and we have had successful exchange visits.

However, it is recognised that a few clubs, through geological reasons, do earn more than others from reciprocal charges and their policies are understood. But should flying conditions be similar in an area with two or more clubs it would be only human nature if the facilities offering free temporary membership would be the one most usually used.

In the next column are those who have joined this free scheme and I ask all clubs to consider joining the list. If you haven't had our letter outlining the scheme, please contact me so that the details can be discussed.

The clubs are Booker (seven days), Buckminster, Derby & Lancs, East Sussex, Enstone Eagles, Lakes, Mendip, North Wales, Northumbria, Newark & Notts, Oxford, Surrey Hills, Shalbourne, Strubby, Trent and Wolds.

HARRY MIDDLETON, *Manager, The Soaring Centre, Husbands Bosworth Airfield, Lutterworth, Leics LE17 6JJ*

INDEPENDENT RIGGING CHECK

Dear Editor,

Can any reader explain why the BGA does not insist as a specific requirement that a newly rigged glider should have its rigging independently checked before it is flown? I believe that at present this is a "recommendation" or "good practice" and as such is therefore frequently ignored.

I am aware that over the years a significant number of glider pilots have died who might otherwise be alive had this simple procedure been adopted. Surely the BGA would render its members a service by insisting on the independent rigging check as a **must** at every rigging.

It is suggested that many individuals wouldn't wish to take responsibility by signing another's logbook for the independent check. This is not necessary; all that is required is two boxes printed in the DI book to be ticked off;- *ie*

Rigging check carried out ☐

Independent rigging check carried our ☐

In this way the obvious requirement for the independent check stares you in the face every time you fill in a DI book after rigging.

A positive control check isn't of course the same as an independent rigging check.

RODNEY B.WITTER, *Glyndwr Soaring Club*

TUG NOISE

Dear Editor,

I was very sorry to read in the December issue, p349 and 359, that the Blackpool & Fylde GC had failed to obtain their planning permission for aerotowing at their site, but I'm afraid they are not the first to underestimate the strength of the anti-noise lobby, especially at sites that have not been service airfields.

The noise from tugs is a serious problem and for a few people can be perceived as intolerable. The BGA should have made the use of tugs fitted with up to date hush kits mandatory years ago and there are still some clubs flying unsilenced tugs which the protestors hear and translate to the proposals at their home ground.

I hope the Blackpool & Fylde GC did not apply for unrestricted aerotowing; 10.30am to 6pm at weekends with perhaps a fortnight in the summer for a club task week etc should be enough for the first five years.

The difficulty of obtaining planning permission for aerotowing will only be resolved if the general public know that everything possible is being done to mitigate the nuisance. Flying varied climb patterns helps and the banning of evening training flights in anticyclonic, nil wind, no thermals conditions would be a gesture.

Those clubs which aerotow at present owe it to themselves and to the glider pilots of the future to show that they are exercising every possible consideration for others.

JOHN JACKSON, *Blandford Forum, Dorset*

A SATISFIED CUSTOMER

Dear Editor,

Wishing to obtain a SLMG PPL I contacted Pilot Flight Training at Hinton-in-the-Hedges, having seen their advertisement in *S&G* and I would like to express my appreciation of Tom Eagle's organisation.

I received excellent one to one tuition on the ground, while the intensive flying training was undertaken in a thoroughly professional manner. I would recommend Pilot Flight Training to anyone considering a power conversion.

JOHN BRADLEY, *Pewsey, Wilts*

TOO MANY CLASSES

Dear Editor,

If you look at the World Championships' results you'll find a difference of about 10% between the Open and 15 Metre Classes and about 1% between the 15 Metre and Standard Classes. When you examine the differences between the scores of adjacent pilots in the result order it is about 3%, so it usually would have made no difference if they had changed their machine from one kind to another.

Glider pilots usually rail at the stupidities imposed on them by non flying bureaucrats in Whitehall or Brussels. I might remind them that this example originates from our own kind. In my experience the worst kind of bureaucrat is a glider pilot.

BRENNIG JAMES, *Marlow Common Bucks*

➡

THE BUY GERMAN QUESTION

Dear Editor,

Loath as I am to tangle with such noted commentators as Brennig James and Charles Ellis (see Brennig's article in the June issue, p154), I feel bound to take issue with Charles (October issue, p251) who seemingly supports Sir Michael Edwards' infamous statement "Britain does not have the engineering capability." Neither "Sir" nor Charles should overlook such companies as Cosworth Engineering who have contributed tremendously to the motor racing sport over three decades - and still lead the way in many aspects of the sport today (*eg*, Indy racing here in the US).

Mike Costin - the "COS" of Cosworth - has been an enthusiastic and competent glider pilot for many years and in his own quite way has brought much of his engineering skill to the gliding movement.

Forgive me a little flag waving, but I'm a long way from home!

LOU FRANK, *Albuquerque, New Mexico, USA*

MORE ON LAUNCHING RINGS

Dear Editor,

Dick Stratton (BGA chief technical officer) says in the last issue, p312, that "The BGA Technical Committee have no substantial evidence for any source that there is incompatability between Otfur and Tost equipment..."

Derek Piggott tells me categorically that Dick is wrong. There were two hang-ups on a PIK 20b and on the K-13 wire launch hook - this only happened somethimes and only with a straight horizontal pull.

Lasham immediately changed to Tost rings and the BGA were told. A warning was printed in the August 1982 issue of *S&G*, p176 of the BGA News, quoting Derek Piggott with comments by Dick Stratton, However, this warning has never been repeated and has not been put in **Laws and Rules, Recommended Practices** or any other BGA paper or publication.

Derek urged me to write and has given me permission to quote him. He says that the use of the wrong rings is dangerous.

I have seen two gliders written off when the pilots were unable to release, one on aerotow and one on a wire launch, and in both cases using Otfur rings in German type hooks. **Accidents to Gliders** stated that the pilots were unable to release. I believe that the BGA authorities made no attempt whatever in either case to find out why the pilots were unable to release. The references are 1980 p36 No.173/1 and 1992 p9 No. 75/02.

Using Otfur rings with Tost and other continental type release hooks is **dangerous.**

BILL DEAN, *Kings Langley, Herts*

Dick Stratton replies: Two cases of failure to release are not **"substantial evidence"** that we have a problem of epidemic proportions in view of the substantial number of wire launches conducted in the UK year after year! The causes of failure to release could have been due to distorted or otherwise incorrectly manufactured rings and malfunction of the release system. Does Bill Dean have such details? Perhaps the correct weak links were not in place.

FURTHER TURNS AND SLIPS

Dear Editor,

As there still seem to be some masochists who want to fly blind with only a T&S and an ASI, may I, as an octogenarian who was brought up this way, be permitted to make two observations.

First, I think it helpful to concentrate primarily on reducing the rate of change of airspeed; the actual airspeed can be attended to later. In this way quite harsh elevator movements can be made in the first place and the required airspeed can be slowly restored at leisure.

This skill isn't as difficult to learn as it sounds. Incidentally it is nice to have a little outward slip, even if it is only to avoid slipping inwards. Who cares about efficiency if you are going up fast!

My second point is to remind you how quickly a pitot tube can ice up and that the airbrakes can freeze in the locked position so that it is quite impossible to open them. I have had both these things happen at the same time and was just lucky to get away with it by flying straight and listening, but with some modern gliders there is very little to listen to and the situation would be much worse. So carry an artificial horizon just in case of trouble. No one need know if you use it!

GEOFFREY STEPHENSON, *Ickenham, Middx*

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

STEVEN HILL

WHY HAS MY INSURANCE PREMIUM GONE UP?

An overview of the aviation insurance market and its affect on the barographic rise and fall and rise of glider insurance premiums.

It would be easy to simply list in a couple of paragraphs the reasons for the recent and continuing increases in aviation insurance premiums. However, this would not sufficiently explain why the premiums are increasing so dramatically, especially with low inflation, a hard economic climate and no real evidence of increasing claims.

As most glider owners and gliding club insurance officials are aware, to obtain insurance quotations for gliders has not in the past caused too many problems apart from, after accepting a quotation, collecting the monies to pay the premium.

A glance through the last *S&G* will give the names, contact numbers and addresses of five agents and brokers who can obtain quotations on your behalf from the insurance companies and Lloyds syndicates who are prepared to provide cover for gliders. A quick look back at an old copy of *S&G* from August 1967 shows that there were no agents, brokers or insurance companies advertising at all.

This may lead you to imagine that the present glider insurance market is in a healthy condition, but as a lot of glider owners and pilots are only too aware this is not the case. At the time of writing there are no Lloyds syndicates and only two insurance companies insuring gliders on a day to day basis.

Gliding fraternity have little control over market forces

Despite the present unhealthy condition it is not the purpose or intention of this article to ask for sympathy or commiserations to be extended to the existing insurers or those that are no longer involved in the market. The present situation has been caused by economic, financial and market forces of which the gliding fraternity had very little control.

Underwriters in the past were naturally expected over a period of time to charge premiums which exceeded the claims paid, or due to be paid, from policies taken out in that same period. This "underwriting profit" would be sufficient in a perfect world to cover the administrative costs, return to investors and funding of a "pool" to cover the hopefully rare, but inevitably high, liability or storm damage claims which occur from time to time.

The task of producing an underwriting profit and accurately rating various types of risks, although seemingly easy on paper, is difficult in a stable, predictable and relatively large market, even with modern equipment and number crunching machinery. In the recently unstable and unpredictable market this task has become near impossible and is further aggravated in the case of glider insurance by the small number of individual risks. Even if accurate and complete statistical evidence were available in respect of gliding, the varying affect that outside forces would have on it could not be adequately catered for at all times anyway.

The other factor which is maybe not so obvious is that even when only insuring physical items, such as gliders and their equipment, it can be over two years from covering their first policy before an underwriter knows exactly what profit or loss was made. This is due to the fact that a policy incepted on the last day of the year does not expire until the end of the second year. With third party and passenger legal liability insurance the situation is further confused by the fact that liability claims tend to take years to resolve and are normally for large amounts.

The insurance market, although containing a certain mystique, is quite open in that an underwriter or company are free, within reason, to provide insurance in areas that they choose, for example marine, aviation, commercial, motor, household, personal accident, liability or re-insurance, to name but a few.

If a certain type of insurance is seen to generate a good return then naturally there will be a tendency for underwriters and companies to move into that market to try and improve their profits. This increase in "supply", assuming demand is constant, would cause premiums to reduce and if claims are constant, profits to reduce as well. If a loss is made or profits are poor then insurers may decide rather than just to increase their premiums to pull out of that type of insurance. This in turn would reduce the supply and subsequently allow premiums and presumably profits to increase again.

The period of time that it takes to finalise profit and loss figures and the movement in and out of various areas of insurance produces a market over which the premiums cycle up and down over roughly a five year period. The resultant reductions and increases in the premiums for glider insurance over the past years have been more noticeable because the market is so small and the proportional changes in the supply have been so much more dramatic.

To avoid the detrimental impact of a single large claim or group of claims on the "underwriting profit" it is normal for insurance companies and Lloyds underwriters to buy re-insurance. They re-insure an agreed level of each policy above which they will not be at risk, by paying in advance a predetermined premium based on their own expected turnover and previous claims record.

This re-insurance is obtained, believe it or not, in the re-insurance market and in the past would have enabled the insurer of your K-6 or ASW-20 for example to only be responsible for say the first £5000 of any hull claim, the balance being at the expense of the re-insurer. In the present harder market with higher re-insurance premiums it is more usual for an insurance company to be responsible for say the first £25 000 of any hull claim.

In the 1980s, due to a decline in shipping, the marine underwriters began to turn towards aviation and other areas for their premium income. This, together with the considerable increase in investments which was taking place, caused a massive increase in the capacity of the aviation and re-insurance markets and this in turn caused a reduction in premium levels. As the market softened it became increasingly easy for the brokers and agents to obtain more comprehensive insurance at lower premiums for their clients and wider re-insurance at lower premiums for the Lloyds underwriters and insurance companies that they used.

The maximum amount of insurance that an insurance company or syndicate is allowed to provide is based on a pre-set ratio of their assets to the premiums which they receive. The reduction in premiums, therefore, effectively continued to increase the number of risks that an Insurer could underwrite before reaching the maximum level and this further increased the competition for premium income between the insurers.

It resulted in lower premiums and wider cover

To summarise, the slump in shipping caused marine underwriters to search for alternative sources of premium income, often in the aviation market. This together with the already buoyant financial situation in the mid 1980s caused a considerable increase in the size of the aviation and re-insurance markets, resulting in lower premiums and wider cover, both for their clients and their own re-insurance, which in turn helped the downward trend in premiums to continue.

Insurers were tempted into the aviation mar-

ket in particular by the fact that profits were quite good and these peaked around 1987. Compare the premiums being charged on gliders in 1986 and 1987 with those being charged now and you might well find that they are similar.

At one stage, unbelievable though it may seem, certain aviation insurers had so much re-insurance at such low premiums, that once they had developed enough income to cover the cost of their own re-insurance, they were able to guarantee an underwriting profit by receiving only a relatively small premium for an individual policy.

It is easy to imagine some primary insurers in this position not bothering too much about underwriting in the strictest sense and just writing business for their immediate gain. This allowed them to hold the premiums artificially low with little regard or respect for accident records and as a result more risks were taken on over a far wider variety of values and uses than had been previously. This lead to the underwriters who provided the re-insurance for the primary insurer taking quite a hammering, but with the number and size of insurers being so great the re-insurers were re-insuring and their re-insurers were re-insuring and the losses were being spread both further along the line and into the future.

Up to three years ago, as the market gradually increased in capacity and underwriters were persuaded into glider insurance, the premiums charged for insuring glider hulls and equipment had been steadily reducing. The greatest reductions applied to gliders with the highest values where the previous market had been quite restricted.

There is some evidence now to suggest that the premium levels at that time were too low to cover the cost of claims, however, due to the financial situations already discussed, the premiums continued to fall and in respect of the highest value gliders had possibly halved from five years earlier. Even the premiums charged on lower value gliders were seen to reduce to levels lower than in previous years.

This further reduction in the premiums, which were possibly already too low to cover the cost of claims, meant that a whole group of underwriters and companies pulled out of the market rather than trying to turn the position around. Some of these insurers had only recently been persuaded into the market and others had been established in it for some while.

The considerable increase in premium levels is, therefore, attributable not only to the lack of competition resulting from now only having two main insurance companies, but also for the reasons that caused this as previously discussed. There are other insurance companies and Lloyds syndicates in the aviation market but they would only be willing to provide cover for gliders at higher premiums than are presently being charged.

As always, the only effect that we as glider pilots can have on premium levels is to ensure that the number of accidents and the cost of them are kept as low as possible. Although initially this will only improve the return to the present underwriters, it should in the longer term help to ensure that this tiny element of the insurance market is not avoided by insurers and that it remains well serviced by the insurance companies and Lloyds underwriters.

S&G CLASSIC

CHOSEN BY PLATYPUS

Anyone who has been trained *ab-initio* in a single-seater (there must be lots of us left, surely) progressing from groundslides, ground hops and low hops to high hops, hammer-head stalls and the last-one-still-walking-is-a-cissy, must acknowledge that it was the most tremendous fun and absolutely the worst way of learning how to fly. Some good pilots got through, but that was despite the system, not because of it. Solo training is strictly for the birds, and I mean that literally.

However, if you are determined to stuff a primary glider into the ground nose first from 150ft, the Rhön Rossiten dunes were the ideal place to do it. Doc had in his youth earned the nickname, being a qualified physician: however, having once but unforgettably seen him attempt to fly a Tutor in the 1950s, I am astonished that on those sands he gave much more medical attention than he received. The Lord was obviously preserving him for greater things, like the British Interplanetary Society and the editorship of *Sailplane*, as it was called at first.

Doc always had a furious contempt for aeroplane pilots and would lose no opportunity to take a dig at them. Indeed I feel that being "the first Briton to get a gliding certificate without having first flown aeroplanes" he felt morally one notch up even on the legendary Philip Wills, who used to roar in and out of the London Gliding Club's site in a Monospar with (horrors!) not one but two engines. I expect Philip was one of those Johnny-come-lately aeroplane-drivers Doc refers to with such scorn.

Lastly, eat your hearts out, you with the trendy winglets at £5000 a pair: look at the photo of the brave Lt Dinort's aircraft. If those end plates didn't put paid to tip vortices, I'm a flying Dutchman.

FIRST *AB-INITIO*

When organised gliding began here in February, 1930, after the formation of the BGA, people seemed to have only the vaguest idea of how beginners could be taught to glide. But I had kept in touch with German gliding since 1927, taking the magazine *Flugsport*, visiting the Wasserkuppe and acquiring the standard textbooks. So, of course, I was determined to become the first Briton to get a gliding certificate without having first flown aeroplanes.

The London Gliding Club operated then in a narrow valley above Aldbury, near Tring, and coveys of experienced aeroplane pilots would come along and be allowed to fly down into the valley from whichever side of it faced the wind. We needed their subscriptions, but they tended to crowd out the genuine pupils and I only got six hops in over a month. That coveted A certificate was receding far into the future unless I did something about it. So I confirmed a resolution, already half formed, to take a course at a German gliding school and get ahead of the other *ab-initios*.

So I applied to the Rhön-Rossitten Gesellschaft, the German gliding organisation, named after its two gliding schools: one on the Wasserkuppe in the Rhön Mountains, and the other at Rossitten on the Baltic coast at the far end of Germany. They said there was no room at the Wasserkuppe, but offered me a place on a course at Rossitten throughout May.

I had hoped for the historic Wasserkuppe, where the world's first soaring flights of one, two and three hours had been made in 1922. But Rossitten had a history too. It was on a narrow sandy spit of land, 60 miles long and a half to two miles wide, forming the Baltic coast on one side and enclosing a lagoon on the other. The spit consisted of a line of sand dunes, up to 200ft thick, mostly confluent except for a gap around the fishing village of Rossitten. Two miles beyond the village was the gliding school, and at this point the dunes began again, to continue to the far end of the spit where there was a break for the lagoon to empty itself into the sea, with the town of Memel (now Klaipeda) just beyond.

Of course, the dunes made a wonderful soaring ridge, and sure enough in 1922 there came along an East Prussian schoolmaster called Ferdinand Schulz – a remarkable character who knocked together a crude glider out of odds and ends (they called it *Fliegende Besenstock* – "flying broomstick"). It had no rudder or fin – the birds could do without and so could he. In the machine Schulz set up a world's duration record of 8hrs 42min in 1924 (imagine all the turns he had to make without a rudder!); later, in a conventional Westpreussen sailplane, he made a world's distance record of 37.4 miles from ➡

Rossitten to Memel in 1925, and another duration record of 14hrs 7min in 1927.

At the gliding school we were usually called at around 6.15am by the instructor, Herr Lorenz: "Guten Morgen, Mister, bitte aufstehen"; then had breakfast (slices of grey bread spread with some jammy concoction), and at 7am formed a procession to take a Zögling Primary to the nearest sand dune. Later, when we were launching from the summit, we were joined by a couple of horses to pull the glider back to the top. They were shod with wide based shoes to prevent their hooves from sinking into the soft sand.

The softness of the sand made this site ideal for primary training. You could dive steeply into it without damaging either yourself or the glider – provided a wingtip did not hit first. (The Germans called this a "Petroleum Bore".) One pupil, on his first launch, lost his head and pulled hard back; a strong wind gradient took him up, and up, and up, till at last, having reached the highest point, he could be seen trying to get out of his seat. Fortunately he was too panic-stricken to be able to undo the straps. He came down vertically and suffered nothing but a scratch on the elbow, though the glider was not so lucky.

On May 13, on my 19th launch, I had a first try for the A certificate, making 28.2sec. You had to fly a Zögling pretty carefully to keep airborne for 30secs during a descent from under 200ft, and I had seven more attempts on the 15th, making 25.2, 24.0, 23.2, 29.8, 29.6, 24.0 and finally 31.6sec. The trouble was that, from much reading of the aviation news, I was only too well aware that most flying accidents at that period were due to stalling (including two airliners); so, with this background information in mind, it needed a lot of will-power to pull right back to speed-for-minimum-sink.

The geophysics of a continuous line of sand dunes produces an odd effect on its suitability as a soaring site, in that the prevailing wind cannot be a soaring wind. Sand is blown up the windward face and then falls over the top into dead air on the lee side, where it takes up its maximum possible angle of slope of about 25°. Good soaring is therefore only possible in a non-prevailing wind blowing up a steep slope which has already been created by a wind blowing in the opposite direction. This 60 mile spit of land, called the Kurische Nehrung, runs from SSW to NNE; so soaring had to be done in easterly winds, and when they came, the beginners had to stand down. One continuous line of dunes starting near the gliding school descended on its east side steeply into the lagoon; but further north, at Pilkoppen, was a similar long line with a meadow at the foot of its east slope, suitable for landing on. So, whenever the wind was easterly, even on a Sunday (normally a rest day), we set off northwards on a six mile journey along a rough sandy track with the two horses pulling a sort of ox-cart carrying our lunch in an enormous saucepan containing an appetising hot-pot, later to be warmed over an improvised fire.

Our destination was a wooden shed labelled "PiCeBeFa" (pronounced "Pitsay-Bayfah" in English script), short for "Pilkoppen C und B Fabrik" – the place where C and B certificates were fabricated. It contained derigged gliders, bungy, a stretcher and other stores. The post 1918 treaty had drawn a frontier here between Germany and Lithuania and our soaring ground was in the mile or two of no-man's land between the last customs posts on either side.

However, on one unstable day when it really was turbulent, a rather clueless member of our group was suddenly tipped over by a gust from the right, and reacted by pulling the stick hard back and over to the left. The result was a vertical bank, followed a few seconds later by the pilot staggering away from the wreckage with one portion of a broken tibia sticking out into the open air. Out came the red cross box, and I had to get to work, while others offered portions of the broken glider for use as splints. There was an excited shout from the other end of the patient where somebody had noticed a trickle of blood from his nose and thought it ought to be given priority over the broken leg.

The instructor was saying "Der Mister ist Arzt" to a young lady who had come to watch us and partaken of our hot-pot, and was now apologising for bringing us bad luck. He got worked up at seeing me take a photo of the scene, but someone said: "Der Mister will surely promise not to publish it." So you will not be shown it here.

He was slung on several strands of bungy stretched across the ox-cart

We laid the victim on the intact wing, whose ribs hurt him far more than the broken leg, took him down to PiCeBeFa and transferred him to the stretcher. This was slung on several strands of bungy stretched across the ox-cart, so that he swayed gently to the bumps on the road. The customs house gave him a drink as we passed by and finally the local doctor came out from Rossitten and rigged a better splint out of plywood from the workshop.

The pupils on the course were mostly *Luftpolizei*—"Air Police" employed at German airfields, aged about 30 to 35. The friendliest of them had been a prisoner of war in a Lewisham hospital and seemed intrigued with the idea of talking to an ex-enemy.

The outstanding character, however, was a young man named Ribbert but always called "Der Fähnrich", meaning Cadet Officer. (Everybody had to be "Der" something; I was "Der Mister", but most of the others were named after their home towns: "Der Kassler", "Der Berliner", etc.) On my arrival, one of the pupils began trying out his English, only to be shut up by Der Fähnrich with "Only German must be spoken here."

I had noticed that many of the company, on entering the dining room, raised a hand and said "Heil!", and mistook this for a local convention, not knowing that they were only the workshop staff, who must have formed a sort of Nazi "cell". So next morning, on coming in to breakfast, I did the same (for the first and last time). Loud protests from Der Fähnrich: "One must not say 'Heil'—it is bolshevistic . . ." etc. But he soon became friendly, overcome with curiosity as to the nature of an ex-enemy; and before I left, when the two Hobson brothers had arrived from Lancashire to take part in the next course, he became still more friendly and all four of us were going around together like buddies. Der Fähnrich found the inter-war years lacking in opportunity for adventure, and said he hoped there would be another war. I have not heard whether he survived it. I did see him again in 1933 on the Wasserkuppe; he was in Nazi uniform, having evidently overcome his reluctance to say "Heil".

The head of the school was Rittmeister Röhrer, an ex cavalry captain, who spent most of his time administrating but occasionally rode over on horseback to see the gliding. A stocky little man, he gave the impression of suppressed energy, as if he was made for bigger things than running a small gliding school; he got his chance in 1934 when he was put in charge of the German Nationals on the Wasserkuppe and enjoyed himself hugely. Then he disappeared from the gliding scene and I heard later that he had become a priest.

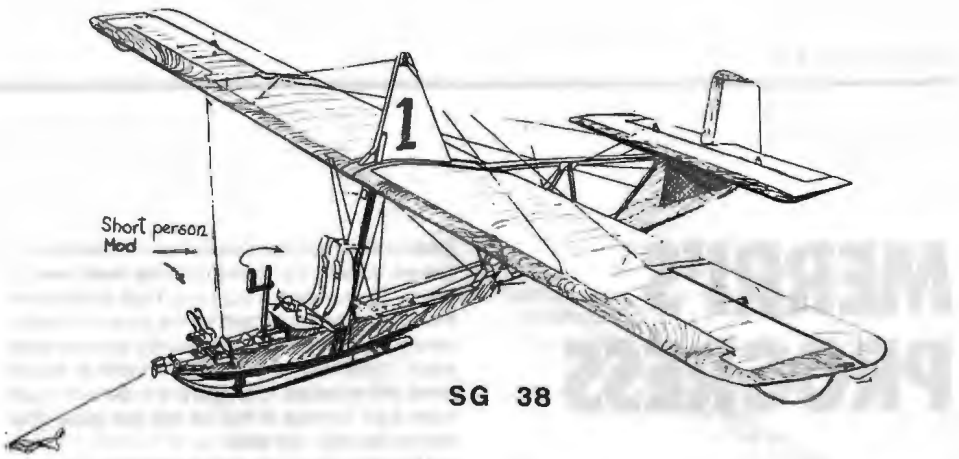
Another local character was Lieut Dinort, who had beaten Schulz's record with 14hrs 48min in 1929, in a primary type machine which he chose to fly through the night, guided by hurricane lamps which kept blowing out and had to be relit by shivering helpers. He was not on the school staff but was busy in the workshop building a curious machine with a vertical panel at each wingtip.

One of the workshop staff explained that this was to prevent skidding outwards on the turns when slope-soaring. (At this period almost every prominent glider pilot, except Schulz, was obsessed with the "cosine law" and afraid to bank on the turns for fear of losing excessive height.) Dinort was too dedicated to remember mealtimes, and it was regular routine for Der Rittmeister, ten minutes after lunch began, to go outside and shout "Deeee-noort!".

Altogether the trip cost about £40; I had 46 launches and my longest flight was 53sec. But on returning to England I had to unlearn one-habit brought back from Rossitten. Owing to a Zögling's elevator being far more sensitive than its ailerons, we were taught to hold the right forearm parallel to the leading edge of the wing, and work the ailerons by moving this forearm in the direction of its length, while the elevator was worked by the hand only, using the wrist as fulcrum. It was a clever idea but an uncomfortable position; and back in England, no longer under the watchful eye of Herr Lorenz, the elbow soon began drifting back, with the result that whenever one put on right aileron the nose came up, and with left aileron the noste went down – most disconcerting when trying to land in gusty weather.

The sand dunes around Rissitten were used during the last war as a training ground for the German Afrika Korps in preparation for their campaign in North Africa under Rommel. But now, although the Lithuanian border is still where it was on the map, the whole area, including Königsberg (now called Kaliningrad), has come under Soviet administration, and I don't expect ever to see those dunes again – except perhaps from an orbiting space station. But my instructor, Herr Lorenz, is still around, and at the World Championships in 1960 at Butzweiler we always sat next to each other at briefing.

IVOR SHATTOCK



SG 38

As is often happens, by co-incidence Ivor Shattock has sent us his version of the old training method with photographs and his drawing of the SG 38.

THE WAY IT WAS

During an all too rare pleasure these days of sending someone solo, I was asked when and where I went solo. On reflection I had to confess I had never gone solo - I was trained by the solo method in Germany during 1949.

In those days the remains of the German nation were being fed with great difficulty by the RAF and USAF in the Berlin Airlift. My job was to maintain some of the radar that guided the transport aircraft in narrow corridors to Berlin. Somehow we found time to glide, using repaired Luftwaffe gliders. The training glider was the SG 38 on which I had 40 odd launches before I graduated to the Grunau.

The training procedure was to have a series of slides, low hops, high hops and high hops with turns before qualifying for a full launch in which a circuit was attempted. All this solo - there being only one wooden board which sufficed as a seat. Oh yes, we were strapped in! (See the drawing.)

As initiation we "balanced" the wings, using the aileron controls only, whilst stationary, facing into wind, until proficient enough to be pulled over the ground by the winch at walking pace with the stick fully forward. These were called groundslides. I only needed two of these before the first hops. The requisite winch cable speed for the various hops or slides was signalled to the winch driver by a system of white squares on a blackboard, facing all of 1200 yards up the field. One white square on the board for a slide, two for a hop, three for a high hop and four full squares for a full launch.

Yes. we did have mistakes. After a full launch the SG 38 was sometimes pulled at full tilt halfway up the field with a terrified groundslide pilot pushing hard forward on the stick. Any relaxation of the forward pressure on the stick and you literally leapt into the air and several stages up the training at the same time!


Ivor taking-off in 1949 - a photograph from his album.

The SG 38 had hoops on the wingtips to help them suffer the blows struck on the ground during early slides. They also had a release hook, no wheel and no instruments. Sometimes an advanced version was fitted in a matter of minutes with a cupola which held two instruments, but it did nothing for the performance which was about the equivalent of a finely fettled piano.

After the glider was dragged or hopped to the middle of the airfield, sometimes with the cable released at height in order to glide to earth (very advanced stuff this), the next phase was to return it to the launch point.

If the winch driver knew his job (and he usually did) in a fair breeze he'd tow the pupil to within a few hundred yards of the winch, making it very tricky to get the glider to the launch point, because it was then flown back by a more experienced pilot who had followed the training flight in the jeep.

Having been "hopped" close to the winch, the pundit got in and waggled the wings for up-slack. All out was wings level. There were never bats or a stop signal. As the SG 38 got to the top of the very short launch, say 300ft, the winch driver gave a little burst of power enabling the pilot to know the exact point of release and allowing him to pull hard back on the stick, release the cable and put on rudder and aileron in the preferred ditrection, all at once.

Now came the tricky bit. If you didn't get the glider to the launch point exactly plus or minus five yards, you weren't allowed to carry on with the job which was regarded as a perk - there being no sixpenny launch fee for those retrieve flights.

As you proceeded from your lofty perch downwind you had to access how to end up at the launch point. With practice this could be achieved by a snappy turn off the winch, then perhaps a few wide lazy curves ending up with a downwind landing if there was only a light wind. If there was a fair wind, the height of the winch turn, coupled with the wind behind, allowed one to overshoot the launch area to one side at something like 50ft above the ground and complete a 180° turn with the wing, complete with the hoop brushing the grass. The German instructor was very good at this and I'm sure far too much of this rubbed off on us.

To complete the SG 38 training, a full circuit of the field was allowed and we were "instructed" from the ground by a large signal bat being waved at the pilot when he was required to turn a) downwind, b) crosswind and c) final turn. He had to judge the first turn off the winch, both in time and degree. In fact, what with delay, lag and lack of judgment of what a 90° turn in the air was, it's surprising we ever landed back on the airfield.

Below: On the left the results of a bad landing, though Ivor says he can only recall two accidents on their site. On the right is the SG 38 with an aerobatic Grunau Baby in the background.

MERRI'S PROGRESS

New Year's Resolutions

Where do I begin? This summer sure has given me a new perspective on gliding: just after I flew that rather tasty 100km triangle I was grounded till the end of September with pneumonia. Can you believe it? I just get myself up to speed on 710, and Whamo! Out for the count...

I was even cautioned against going up to the gliding club lest the old adrenalin started pumping and I started coughing...it was bad enough that the Doc was right, and worse luck that she's married to an aviation medical examiner - so she knew what she was talking about. Worst of all was having a doctor in the syndicate who backed my GP to the hilt and who also knew what he was talking about. I couldn't win.

He came home to a wife who was barely speaking to him

What was I to do? Easy - I made Derek's life a misery. Every time he visited the gliding club he came home to a wife who would barely be speaking to him. I don't know, maybe he considered that a blessing.

So, I guess, my first resolution would be to become more patient - a more patient person, that is, not more of a patient, please! Though how he could go gliding when I was incapacitated is beyond me! If the situation had been reversed, I would have been content to bathe his fevered brow. Honest.

My second resolution is a little more complicated. I love gliding. You may have noticed. I have a real respect and regard (and yes, a degree of envy too) for excellence. *Ad infinitum*, it seems, I really try to improve my own level of ability. Sometimes, I suspect, I get a bit lost in the trying, a bit distracted by the pursuit of an arbitrary standard of excellence. My second resolution, therefore, is to just get on with it. Never mind the niceties, disregard the details - just have a go. Get out of that rut and just glide. This will not be easy. Oh well.

My next resolution is to learn how to cut my coat to fit my cloth. No, I'm not taking up sewing. Rather, I need to learn that if I'm busy, or unwell, or stretched in some direction which doesn't permit me jumping into the Janus, it's not a problem.

I must make the most of the opportunities afforded me instead of gritting my teeth and getting worked up about the opportunities which do not, for whatever reason, really exist. Here goes: I do like being duty Mum at playgroup, I do like being duty Mum at playgroup. Prognosis? Needs more effort.

I have been told by Derek, who on the odd occasion goes completely mad and takes his life in his hands, that I have a habit of referring to 710 as "mine". Why this should attract attention is a mystery - just what's the problem here? Alright, I'll admit it, technically, he is in the hands of a syndicate (710, that is, not Derek), but I know he feels as though he's mine. And, yes, 710 is a chap.

Resolution: for the good and mental well-being of the syndicate I will refer to 710 as "ours" from here on in. I promise to really try, but even in these days of set-aside I wouldn't bet the farm on the success of this one. And I don't ever imagine I'll be able to call the Janus "it".

The weather. Oh yes, I really need to buckle down to this one. I do not control the weather. On even my best days, the influence I exert over the isobars is minimal. I recognise this, truly I do. Why, then, do I get upset when the weather plays against me? I must learn to shrug my shoulders philosophically, and look wisely towards the heavens and mutter something about weather systems. Just like a grizzled, worldly full Cat.

As the old saying runs:"If you want to marry money, go where money goes". Merri's version: "If you want to enjoy 10kt thermals, go where the ten knotters go." Any one got the price of the fare to Oz/Texas? Think about this - it'd keep me quiet for a while. No chance?

Ok, resolution: I promise to make the best of gliding in murk/rain like everybody else. Besides, fog does have it good side, doesn't it? Answers on a postcard, please.

Now, I like a drink as much as the next glider pilot. But when I'm trundling across the countryside, somehow drinking gets put into that category of activities which - like cleaning under the sink - never get done. I've even taken juice cartons, and for that matter sandwiches, with me. What happens? They all wind up getting stowed on the downwind leg and sometimes even forgotten as we pack the hangar.

I can vouch for that fact that tuna butties become unpleasant after a week (the shame of it). By the way, I found a remedy for this memory lapse: we let the dog mine-sweep - he likes soggy tuna sandwiches.

Dehydration is insidious and a potential killer

It is a fact, however, that not drinking during cross-country flights is dangerous. It is wrong and stupid: dehydration is insidious and a potential killer. I know this. I also know that it has affected my performance adversely on occasions.

I can put up with my own idiocy (something I cope with every day of my life), but my cross-country performance is not so terrific that it can easily absorb losing its edge. I resolve not only to make taking drink with me as much of a reflex as taking a half mil map, but also to drink what I take with me. Don't know about the butties, though.

For my last resolution, I intend to become a warm, kind, generous sort of glider pilot. I shall kick back and traipse through life, bouncing, as it were, from one puffy cloud to another.

I shall stand aside for those who wish to sample 710's virtues and smile while so doing. I shall kiss Derek with a welcoming beam and give him his tea while graciously asking him about his day's gliding.

I shall even crew for him on the odd occasion - in the spirit of turn and turn about. Just don't try to cut in on my thermal, and remember: 710 is mine.

Sorry.

LEARNING TO GLIDE

Random comments of a mature student

I had just released at the top of the launch on my first solo towards the end of a one week intensive course. It was the realisation of a long held ambition, the first milestone of a plan which had suffered more than its fair share of change and delay. This article chronicles some of the reasons for my erratic progress to solo, many of which are likely to be recognised by other similar hopefuls and which I hope may inspire them to continue. Attention is drawn to aspects of gliding and instruction methods which cause delays and frustrations to *ab-initios* though they are possibly less apparent to the more experienced Virtually any improvements might just increase the number of newcomers who stay in gliding.

I am a reluctant member of a seemingly ever increasing number regarded as dinosaurs in the current industrial scene. The net result is that previously never experienced luxury - leisure time. A budding geriatric in the eyes of my offspring but with a personal perception of only being a mere stripling, I am representative of a body of people likely to be seen in greater numbers as newcomers to a variety of activities including gliding. By virtue of the late start such people are perhaps both in more of a hurry (and slower) to learn new skills than the average club cadet or new member. Additionally it may be expected that by reason of their maturity time honoured practices will be queried and, dare I say it, could benefit from reconsideration and change.

Virtually the whole of my career has been concerned with defining goals, planning and resourcing the means to attain them and then controlling activities to ensure a satisfactory conclusion. With a background of successfully completed major projects in both the UK and abroad, I did not anticipate over much difficulty in setting up a plan of campaign to learn to glide. Little did I know.

A week's course was selected as a suitable starting point. This was intended to get me some 50% along the path to going solo if all went to plan. Whilst weather conditions did not help neither did the snail's pace of the course - five days, six pupils, one instructor and 12 flights. Hardly the fast track to achieving my ambition. That I was not alone in begrudging the fact that at least 75% of the time was spent watching the birds was proved when it was suggested that "pupil power" be exerted in order to get airborne not later than 8.30am.

At this stage work intruded and gliding plans were shelved for the next eight years. Never one to give up, I tried another course in 1992. Things were bound to have changed for the better. How wrong can you be! A combination of indifferent weather and other activities on the site which seriously impaired course flying resulted in only seven more flights on the four flyable days. Thus two week long courses had yielded only 19 flights and I was still at base zero. Something had to be done.

I went on a one week intensive course and I went solo part way through the fourth day which restored my self-esteem. Thanks Mike.

I believe the time honoured method of club instruction on a regular (weekly) basis leading to solo standard in the first season (two flights per session for say 30 sessions for the apt and dedicated pupil) has a great deal to recommend it. However, not everyone can make such a regular commitment, even those like me who would at first sight appear to have plenty of time. But as time is not on the side of the more mature this is exactly the group who would be attracted to the week long courses that I discovered didn't match expectations.

Steve who is a chartered mechanical engineer.

Worse still in my book is that no course development whatsoever has taken place over a period of years. The plain fact is that they are just very relaxed activity holidays and this should be made more evident in the advertising and course literature. Without doubt there is a loss of recruits to gliding due to the misconception existing in the minds of optimistic recruits.

While club instruction is a good route to becoming solo I sense a need for rather more formalised ground school instruction, briefing and debriefing. Also, I think they should cater for those who have difficulty in attending regularly and there should be a better use of time spent on the site, particularly by speeding up the launch rate.

I opted to ease some of the perceived frustrations and "went intensive" and only wish it had been possible many years earlier. It was far more cost effective than the previous courses. I obviously needed later consolidation and to resolo at whichever club I joined but at least the prospect of continued progress was viable. This process would include such novel factors as flying with other gliders in the vicinity, approaches and landings in proximity with other planes, club etiquette and flying protocol, etc. It is easy to become sublimely unaware of matters such as these when one has only flown in a training environment.

Some things aren't necessarily known by newcomers

Also, there are many things which are no doubt taken for granted by the experienced but are not necessarily known by newcomers. Random examples I have given below are typical of the topics I feel could be covered at ground school since I feel there is a risk that otherwise they are only picked up by chance or after an incident. Some I consider to be vital and no doubt CFIs believe them to be covered during *ab-initio* training or in briefing. If so I missed them and I trust they will be accepted in the spirit in which they are offered.

Early solo pilots should be briefed by the duty instructor (DI) before the launch on flight limitations/cautions due to prevailing conditions, glider type and pilot experience.

The flight plan should be discussed with the DI. This seems an excellent rule but how many pilots know it? Frankly I was only aware of this requirement well into my solo programme.

Flying currency, both general and for type. Again I missed this point until recently. Are we expecting too much of the DI, especially if he is flying? I feel the old management adage of "no responsibility without authority" should apply. The launch marshal is on the spot so perhaps he should be given the responsibility of initial logbook vetting and bringing details to the attention of the DI.

Cable handling. I have seen all sorts of actions, some of a nature which would close down a construction site if known to a health and safety inspector.

Flying list. Some recruits are less self-assertive and it isn't unknown for someone to be busy helping and then find himself queue jumped by others who probably neither unpacked the hangar or stay until the hangar is packed. Again something for the launch marshal to consider but possibly the ground school could round up some of these miscreants.

Now one year on, thanks to the unstinting efforts of the instructors at my club (Cambridge University) I resoloed and have a Bronze badge and Silver height. My attendance has been intermittent but persistent questioning of pundits and trying to make myself useful to anyone wanting a pair of hands has enhanced my understanding of what gliding is all about. I accept that the likelihood of making epic flights is nil but everything is relative. Hopefully I will manage some flights which classify as epic to me. I look forward to my first cross-country for example.

I LEARNED ABOUT GLIDING FROM THAT

I took up gliding in August and progressed well so that by late October I was solo. One Saturday morning in early November I arrived to find the airfield shrouded in fog. Flying started at 10am after the fog had broken up into banks of cloud with bases at 400ft but by 11.30am the sun seemed to be losing its battle and to thewest of the airfield I thought I could see a fresh bank of fog approaching.

The sky overhead was still blue as my turn to fly approached, but now fog was beginning to obscure the winch three quarters of a mile away. As I strapped myself into the K-13 I began to feel uneasy. Finally, and just in time, I overcame my pride and asked an instructor to fly with me as a safety pilot. I've often thought since how wise that decision turned out to be.

My safety pilot had 40 years' experience of gliding and power flying. He was known for his cool temperament and excellent flying skills and I couldn't have a better pilot in the back seat. I explained my worries, and reminded him to keep a very close eye on my flying and to take over at the slightest sign of difficulty.

At 500ft on the winch with the nose pointing skyward we suddenly found ourselves enveloped in cloud. No advice was offered from the back seat so I used the thread in the centre of the windscreen and the ASI to keep us climbing correctly. We punched through the fog at 900ft and it felt more like 9000ft.

There was a solid mass of cloud beneath us

On either side and up ahead were magnificent banks of fluffy white cloud whilst above was clear blue sky and a bright November sun. Our bridges burned, I took the winch launch to the top and released at 1300ft with a solid mass of cloud beneath us.

"Note the sun is on our left", came the voice from the back seat. I wondered at that remark and initiated a 180° turn to the right to go back and find the hole in the cloud over the airfield, but was advised strongly from the back seat to keep circling. If I failed to find the hole, he explained, we could get well and truly lost and might not make it back to the airfield. If we circled evenly we should drift back over the airfield and be well positioned for a quick landing decision. In the meantime, we should switch on the T&S and prepare for a descent through cloud in case we didn't find a hole to go down through.

I switched on the T&S and looked at it hopefully for signs of life, but none appeared and I felt the first surge of fear as I announced the bad news. "OK - then we'll have to fly by the thread on the windscreen and the ASI", said the voice from the back, adding "If the airspeed moves over 60kt ease off the bank rather than trying to raise the nose."

I wondered what an instrument rated pilot would think of our predicament. Our cloud flying episode would be brief but critical. So we circled, all the while looking for a hole to come down through. But none appeared and at 900ft we sank into the cloud.

Controlling the plane was easy at first but then it became turbulent and the airspeed started to rise to 60kt. I eased off the bank on the stick and the airspeed fell slowly to 50kt. For what seemed like an eternity I fought back my fear and ignored my senses while trying to understand and respond to what that thread and the ASI were telling me. Just as I felt I couldn't control the plane any longer the turbulence subsided.

I caught sight of the ground briefly with the altimeter registering 700ft and announced my sighting calmly (!) before all went white again. At 450ft the voice from the back said, equally calmly, that he thought we were getting a bit low but he had barely finished his deliberations when we started to break cloud.

The ground looked unfamiliar and this distraction, coming after the previous period of sensory deprivation, made accurate flying extremely difficult. The field below was dotted with sheep pens and, with visibility below cloud very poor and no clue as to where the airfield was, the sobering possibility of it picking us for a landing started to grow in my mind.

After a turn and a half, to my great relief the voice from the back confidently announced he knew where we were and that he had control.

We flew in over the airfield boundary with 100ft to spare and landed downwind towards the launch point. Using my judgment we would have straightened out and flown directly away from the airfield to land who knows where. Handy things, safety pilots.

Back on the ground there was much relief and cheering. We had been airborne 7min and out of sight for almost all that time, so the sight of the K-13 emerging out of the gloom from an unexpected direction must have had rather ghostly overtones.

It was then that the voice from the back seat admitted to an identical experience two seasons before. On that occasion they had tried to find the hole in the cloud and landed ignominiously in a ploughed field about a mile from the airfield.

I learned about gliding from that flight!

JOHN WILLIAMSON

FLYING THE LAK-17

John met up with Frank Pozerskis, the LAK agent, at Husbands Bosworth last summer and now gives his impression of this Luthianian glider

My first sight of the LAK-17 was as it screamed across the HusBos finish line, flown *hors concours* in the 15 Metre Class Nationals by Vytautas Sabeckis. First impressions count and this was of a small, neat-winged racer with rather flexible wings! Second impression, close up to the cockpit, was still of a small, still neat and, for a prototype, well finished 15 metre sailplane.

Clearly it was also a lightweight as Vytautas pushed it off the strip with one hand! And with an empty weight of only 195kg it has to be one of the lightest in the Class. Loaded with its full 180kg of water, however, its wing loading puts it up with all the others.

I cannot really comment on its performance. Perhaps you should ask one of the 40 or so pilots who have seen it go past them occasionally for Vytautas to have flown it into 4th place!

I had arranged to fly it with a view to assessing its usefulness in Australia. My only chance would be immediately after the Nationals. The aircraft was high-tailing it for Luthiania the next day. True to the English tradition (and making me feel truly at home after my six years of hot sunshine in Benalla) the last day was grotted off! I arrived during the early afternoon's prizegiving and 30min later was towed into a grey, fragmented skyscape. The base was 1800ft and they were quite right to have cancelled, so my assessment of the LAK was curtailed. But to facts.

John after testing out the LAK-17 on the last day of the 15 Metre Nationals.

Cockpit comfort - it looks small but could take a six footer with care. It fitted my 70kg and 5ft 10in easily, but I would have liked more time to make myself comfortable. There was talk of small modifications in production to make a little more room. *(We have heard that the production models will be 4in longer than the prototype so 6ft pilots will benefit. Ed.)*

Handling - excellent. Crisp and positive and well harmonised. The stall is straightforward and apparently innocuous. Being more used to a Janus and Nimbus 2 for the last few years it was a delight to get back to a really nippy rate of roll. I attempted to measure 45-45 at 1.2Vs and came up with about 2.5sec, but Vytautas said he, as the test pilot, made it about 3.1sec. This will no doubt be verified when all testing is complete.

Performance - well, as I said, one flight down from 1800ft doesn't tell one much, but it did seem to take a long time to get down and, using slightly less than half the height, I went what seemed a long way before turning back. So far that, briefly, I wondered whether, mapless and in the standard British murk (we temporary Aussies have it good!), I could have forgotten the HB geography! But I didn't tell Frank Pozerskis about this. The LAK got me safely back within range for a comfortable circuit and simple approach and landing.

Conclusion. A good club and private owner sailplane is promised. Easy rigging and ground handling is assured; excellent flight characteristics are already demonstrated; performance is proven by its placing in the UK's most prestigious Nationals, flown by a charming and modest stranger to the British scene. I believe the LAK-17 will be a winner.

The Kortrijk Flying Club, Belgium, are holding their fifth international competition from May 12-15 which is open to all Classes. For further details contact Freddy Demeester, Kortrijk Flying Club, Langerei 44, B-8000 Brugge, Belgium, tel 01032 5033 6570 or fax 01032 5035 0570.

TAIL FEATHERS

Drams and dreams

As I write this it is winter outside, prematurely frosty, with some days of snow already behind us, though Christmas is three weeks away. So I am permitted to fantasise amiably, with a malt Scotch whisky by my side, about the huge feats of aviating that are possible in 1994 and beyond. Each dram of malt adds another 50km to the achievable dream.

If an extraordinarily ordinary pilot like my mate

Fantasise amiably.

Mike Bird - admittedly in an ASW-22, a very good glider, but flying 20% under the maximum permissable wing loading - can do a 758km task (see the October issue, p252) can the first UK based 1000km flight be far off? Perhaps the BGA should run a book, assuming Barry Rolfe does not get into trouble for infringing the gaming laws, on the chances of the magic number being achieved before January 1, 2000 AD, the proceeds to go to the British team fund.

True pedants who, like me, believe that the 20th century ends on December 31, 2000, not December 31, 1999, will happily extend the deadline by another year. However, since every hotel and restaurant and dance hall in the country has for ages been booked solid by people determined to celebrate the first and not the second of those two dates, it is clear that we pedants on the subject of when the next century begins are in an ignored minority. It was ever thus for us sticklers for precision and accuracy. (What? Ed.) Well, I meant I'm a stickler for precision and accuracy in matters of absolutely no importance. (Get back to the subject! Ed.)

If the first UK 1000km is to be a cross Channel dash, then Justin Wills must be the odds on

Stickler for precision.

favourite. Weather forecasting over a great area and in particular timing the Channel crossing - which means picking the right place to start from, probably Yorkshire - are the great challenges here.

For closed-circuits, the contenders are:

Andy Davis, Britain's World Champion in the Standard Class. If he can do 750km in a Discus, what can he do in an ASW-22BL or Nimbus 4 at 26.4 metres? His flight was equivalent to nearly 900km in the latest Open Class ships.

Chris Rollings. As the only pilot to have done 750km in Britain twice, he must be a contender. He's a very aggressive pilot.

Chris Garton, whose brilliant 800km O/R record in a Kestrel is nearly 18 years old. Chris is still on top form, having won the handicapped Overseas Nationals Open Class in 1992 and 1993.

Robin May, who has a plan which is not to be divulged. However, his scheme for wiring navigation lights to the wingtips of the ASH-25 and a strobe light to the navigator's head is arousing the darkest (no pun intended) suspicions. However, it should be mentioned that the FAI does not award 1000km diplomas for two-seater flights', which is odd, since they allow two-seaters in the World Championships.

Anybody can do it if...

It could of course be any reasonably capable Jack or Jill who is in the right place at the right time with the right glider, who is completely organised and who sets the right task, who starts on (or before) the first available lift and lands after squeezing the final drop of juice from the last available lift, be it thermal or wave.

It might indeed be a team effort, similar to the Roger Bannister four minute mile, or the Tour de France, in which "pacers" scout the ground ahead and risk getting sunk themselves to help the boss to win.

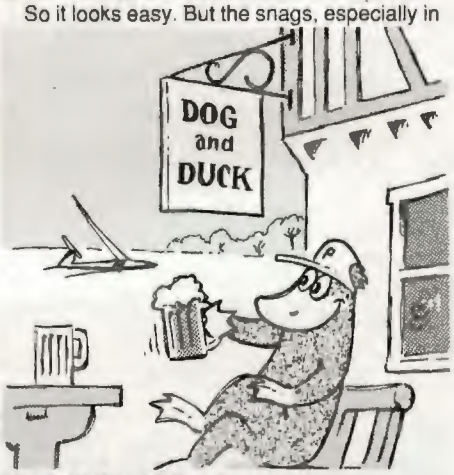
Risk getting sunk.

'The late Helmut Reichmann flew 1000km from Minden, USA in Grob trainer (!) with his sister as P2, but did not get the diploma for using a two-seater

Leaving aside flight during hours of darkness, it's a simple matter of arithmetic: 10hrs at 100km/h, or 8hrs at 125km/h, or 12hrs at 83.34km/h etc etc. Say this to yourself over and over again and the task gets steadily easier to contemplate. There's no doubt that we can soar for 10hrs or even 11 in pure thermal lift, starting at 9.30 am and landing at 8.30pm on exceptional days. Ridge and wave extend that timespan still further.

As for speeds, an average climb of only 3kt is enough to push a fully-ballasted supership along at 100km/h, and streets increase that speed.

So it looks easy. But the snags, especially in



Stuck or slowed down.

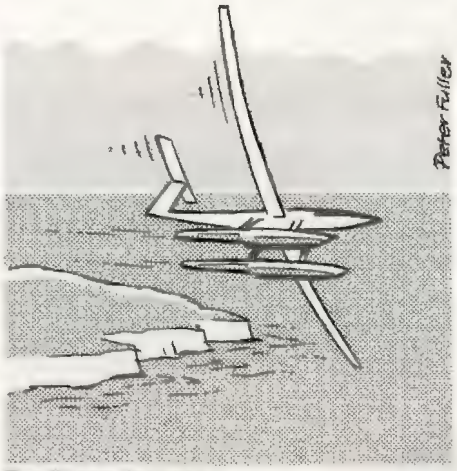
our island, are that even if the unweighted average of all the rates of climb achieved in individual thermals is 3kt over the day as a whole, with 5 and 6kt in the best parts from say noon to 5pm, the very early and very late periods will be much weaker, and you will be extremely lucky not to get stuck or slowed down somewhere even during the best hours of the day.

Then winds and detours erode the achieved groundspeed. Every schoolchild knows that if you travel from A to B at 100mph and back again at only 20mph, your average is not 60mph but 37mph. It is the Law of the Unfairness of Life in General. I"m told there's a shorter and ruder expression that means the same.

I have met Yorkshire GC pilots from Sutton Bank who are quietly confident, as the boxing promoters say, that one of their boys will do the Grand Flight from that splendid site. This might be entirely in wave, since mixing thermal and wave is a) difficult to do and b) extremely difficult to plan. So instead of taking the morning wave and heading for the southern thermals, returning in the late afternoon to the wave, it is more likely to be a task into Scotland.

Over the sea to where?

I was about to say that there is a third choice other than the Channel crossing or a close circuit,and that is north-south or south-north free distance Odyssey. I was considering the fact that Scotland is huge, as anyone who has ridden a bike over its length (as I did when I was 16) can testify. However, according to a rough measurement I have just this moment made on my **Times World Atlas** (which I naturally use for planning



The Channel crossing.

my really worthwhile flights) the distance between Land's End and John o' Groats is about 970km. Blast! The Scillies or the Orkneys will have to be brought into the plan. Unless of course we calculate just how far out to sea the daring pilot can legally be towed before release. Sorry, but pure free distance starting and finishing within our isles looks unrealistic.

However, the next closest thing would be downwind dogleg flights with a goal miles from home - entailing a 2500km retrieve - the last leg being chosen for wind direction, ridge or other lift or whatever other reason. If you go north, the hours of daylight lengthen, which might be handy. But take your GPS and have some policy about where you might land if it gets dark before you reach your goal.

Policy about where you might land.

Finally, a fifth choice is a dogleg in which the last leg could be a gentle downwind wander to anywhere you fancy,undeclared. This can be done even if you originally declared a polygon: you abandon the original task, but are credited X kilometres to any declared TP(s) and then Y kms for your undeclared free distance portion. It is easy to forget this option as you bash into a hostile wind and dying lift, fixated on getting home. You ask me, how will your partners feel when you do 999km in this fashion and they realise very late in the day, because you are way out of radio range, that they are going to spend a day or so retrieving you from a peat bog? Don't worry about it: they'll just laugh gaily and remind you it's their turn next.

JUSTIN'S VIEW

Having been faxed Tail Feathers by Platypus, Justin has come over the wires with the following comments plus a gripping account of a flight last January.

I think Platypus has underestimated the effects of two major developments in gliding.

First, the advent of GPS and its associated flight recorder. The latest Cambridge system is designed to avoid the need for any official observer involvement before the flight. It can contain up to ten pre-programmed tasks and the pilot simply has to select the appropriate one and declare it electronically to the flight recorder immediately before take-off.

The flight can then be performed without the need for TP cameras, barographs or any other timing system. Since TPs are merely co-ordinates the pilot no longer needs to declare identifiable landmarks. Thus they could even be points out to sea. Also the pilot will no longer need to observe the TP as the GPS indicates when the glider has reached the TP zone. Thus rounding TPs above cloud becomes straightforward. This will make distance flying in wave vastly easier.

Secondly, the IGC's determination to relax the rules for distance flying, despite the improvement in aircraft performance. No one has ever admitted responsibility for introducing the multiple TP distance task. It just seemed to emerge from the IGC rules committee.

The latest **Sporting Code** has even bestowed record status to such flights, calling them "free distance", whilst what I have always regarded as "free distance" is now relegated to "straight distance". As a sop to those of us who felt the whole business misguided, they introduced a requirement that the TPs had to be "at least 10km apart", but then hastily issued a clarification that the start point, not being defined as a TP, therefore could be used as a subsequent TP.

All this produces an arrangement whereby every schoolchild can show that it is now possible to fly 1000km without going more than 143km from the start point. Therefore in a Nimbus 4 on a reasonable day you need hardly ever be out of range of the home field.

Is this really what people see distance flying as all about? Sadly, from some of the articles in *S&G* it seems so.

Here in New Zealand with its wave systems such flight would be so simple that no one has even bothered to try. About the only point of interest would be to see if 1000km could be done before lunch at the Omarama pub, presided over by the lovely Vanessa, daughter of the publican.

Fortunately, perhaps inspired by Ray Lynskey's 2000km (NB: only two TPs), real distance flying continues Downunder. Last January, in company with Karl Rabeder from Australia in his DG-400, I declared a far promontory in the North Islands. New Zealand provides a perfect example of Wills' law that the severity of Air Traffic Control varies in inverse proportion to the density of air traffic. Thus in New Zealand gliders are required to carry transponders for distance flights. Fortunately I managed to borrow a suitably equipped Gläsflugel Hornet from a trusting friend.

The weather was quite different from forecast and it was not until 11am that we could take-off, by which time it was overcast and drizzling. It was, therefore, with some surprise that we found ourselves nearly 9hrs later at 12 000ft, 200km south of our goal, with a faint prospect of arriving there just before dark.

At this point Auckland ATC advised me that my transponder had failed (the batteries were now exhausted) and insisted I let down below 9000ft, despite there being no other aircraft within 100km, apart from Karl.

At the lower altitude it proved impossible to maintain height and the country below comprised a jumble of razor-backed ridges covered in dense forest. I therefore tracked eastwards downwind for the coast, and after an interesting glide arrived at 800ft in the gathering darkness to find the beach covered in driftwood from a recent storm and totally unlandable. Things were beginning to look a bit dodgy.

The excitements were not quite over

Fortunately I spotted a small clearing in the forest into which it was just possible to squeeze the unfamiliar glider. However, the excitements were not quite over, as it was now dark, no one had seen me land, my radio batteries were flat and having broken my leg in several places a couple of months earlier and with no room on board for my crutches, I was unable to leave the aircraft. It was also an area of New Zealand where the local Rastafarian Maoris still indulge occasionally in cannibalism.

Meanwhile Karl, supported by the substantial electrical arrangements of the DG-400, managed to reach our destination. In the dusk he mistook the school playing field for the landing strip and discovered that the rugby posts were 16 metres apart. Unfortunately he was flying the DG-400 with its 17 metre tips...

The subsequent retrieves took five days, involved two new trailer tyres, one new set of wheel bearings and brake pads, and an amazing little cargo boat whose only other passengers were a herd of cattle, and a crew which included three dogs (for mustering the livestock) and the most beautiful stewardess I have ever seen (but don't tell Vanessa).

NB. Karl's flight has been accepted as a new world record. (We are still trying to establish the exact distance and nature of the record. Ed.)

GRAHAM'S CORNER

The first in a series of observations from Graham McAndrew, BGA national coach

Junk!

Look into most gliding club hangars and you'll find piles of the stuff - propped up against walls, lying in corners, tucked away behind pillars and cupboards. Bits of old winches, batteries that will never spark again, old wheel rims and tyres, unidentified bits of unknown aircraft.

Some clubs have seen sense and pushed away all the scrap into its own shed, hidden away round the back and out of sight. It is lovingly cared for and added to by the club hoarder - usually distinguished by his very, very greasy overalls and hands that, like the lady in the Scottish play, will never come clean.

Other clubs, however, do not seem to bother and proudly display their junk for all to see, in the meantime losing 15% of their hangar space.

The worst offenders allow the spreading cancer to invade the field itself. It creeps out a bit at a time but once out spreads quickly, scattering rusting relics of engineering and one time thingamyjigs at random.

The size of the individual items increase, growing from an old tow ball one summer to a decomposing, dirty, dripping Massey Ferguson the next. Wait long enough and I'll bet it transmogrifies into the wreck of a winch.

First impressions are important and an untidy site might lose you potential members

When we see something for the first time we immediately form an impression which is a powerful influence on what we base all our subsequent opinions and recollections.

Take a trial lesson - a prospective member coming to your club is trying to decide between spending his hard earned cash and time on gliding or golf. He makes up his mind without even taking a flight - he doesn't want to spend his precious free time at a gypsy camp.

Consider the local councillor who pops in, unannounced and unrecognised, just to see what sort of amenity the club offers. If I were asked to decide on the merits of awarding planning permission or approve a grant application to a badly maintained eye-sore I'd refuse. Wouldn't you?

There are exceptions and when you come across them it is like a breath of fresh air. The moment you drive on to the field it is immediately apparent. You pass the neat clubhouse with its fresh paint and cut grass with borders and park in a level car park separated from the rest of the field. There is no junk, no oxidising piles of rubbish, it's tidy and the hangar only houses aircraft. There is a shed alongside for the grass-cutter, tractor etc, and they are clean. Even the floor is clean with drip trays to catch the mess. It's tidy and you can find things.

Sadly they are rare and not necessarily the full time clubs. In fact the best certainly are not. It's all done by members and costs very little.

Let's face it, there are numerous days when the weather isn't good enough for flying, so hire a skip (a big one), send the club hoarder off on some wild goose chase and purge the airfield of its junk.

Wasted 'phone calls. Many readers are putting money into BT's pocket by telephoning S&G (0223 247725) when they want the BGA office (0533 351051) and vice versa Do check before dialing.

Practically On His Doorstep

Below: Michael Gibbins of Brackley GC wonders whether anyone else lives as close to their club as he does - the farm to the left of the main runway. Michael took this photo flying the club K-8 over their site (Turweston Airfield) with a camera mounted on the right wingtip operated by radio control. An aluminium boom held the camera 20cm in front of the wing.

Max at FAI Conference

Max Bishop giving his first report. Photo: Tom Zealley.

Max Bishop, one time secretary of the RAFGSA, took office as secretary general of FAI on February 1 and within eight months he had to co-ordinate the 1993 FAI Annual General Conference at Tel Aviv with its 150 or so delegates.

His first annual report included presenting the usual statistics of all the different airsport activities of the 90 National Aero Club members of FAI, which is not an exciting subject. But the descriptive part of his report was most informative and shows that he has already got his feet well and truly under the table.

He has established personal contact on behalf of FAI with a large range of international and European organisations including the regulatory bodies which may threaten our sport. All the comments that I've heard about the way he is doing the job are very favourable and not just from Brits. We wish him well.

TOM ZEALLEY

MIKE JEFFERYES

INTER-CLUB LEAGUE FINAL

Nympsfield, August Bank Holiday weekend

The Intermediates' grid on Day 2. Photo: Mike Jefferyes.

For several years we had put off the invitation from the Bristol & Gloucestershire GC to hold the Inter-Club League final at Nympsfield, forcing them to compete away from home territory. In spite of this by 1993 they had achieved the hat trick, winning the final in each of the preceding three years. So we were pleased to accept their invitation for the 1993 final, giving them home advantage to defend their position.

Challengers were Booker (South Eastern League), London (Eastern League), Oxford (Midland League) and Mendip (South Western winners in their first season). Unfortunately two Leagues were unable to join us - Trent Valley (Northern winners) and Cambridge University (East Anglia) who were too heavily committed running their Regionals.

In fact the weekend was so busy with competitions around the country it was almost impossible to find extra tugs. We are grateful that Sid Elvins flew his Wilga to our rescue. Thanks to Roger Targett of Roger Targett Sailplane Services who donated prizes and ran a disco on Sunday night. Also to T.L.Clowes (insurance brokers) who again paid for our other expenses.

On the Saturday we were welcomed by Phil Walker, contest director,and given the Met by Julian Rees which had been kindly supplied by 'phone by Tom Bradbury - reasonable conditions inland but deteriorating from the west later. Mike Strathern set two tasks - for Pundits a 208km dog leg 0/R to Kingsclere *via* Didcot and for Intermediates and Novices a 142km 0/R on the same track to Didcot.

Among the first to make a start was Alister Kay (ASH-25), Booker's Pundit. Andy Davis (Discus), Bristol and Gloucestershire GC's Pundit, also started early but returned some time later to restart - clearly a bold gamble versus the Open Class competition for a Standard Class machine facing deteriorating weather.The finish line showed limited optimism as a layer of dead stratus moved over us. Predictably Alister Kay was home first at 80.6km/h, reporting significantly better conditions inland. All five Pundits finished with Andy Davis winning his gamble and the day at 81.1km/h (all speeds quoted are handicapped). Graham Smith (LS-7) was 3rd at 78.7km/h, putting London less than 50pts behind Bristol and Booker.

With a later than anticipated start and an early cut-off to the thermals, Novices were launched into a sky already past its best. None finished but Adrian Hirst (Pegasus) from Booker won with 65km and Steve Coffey (Cirrus) was 2nd for Bristol & Gloucestershire with 44km. Colin Watt (ASW-20) was the one Intermediate finisher at 69km/h for London. Booker's Mike Mee (LS-4) was 2nd with 112km and Bob Merritt (Kestrel 19) 3rd for Mendip with 88km.

Overall positions after Day 1 were Booker 1st, Bristol & Gloucestershire 2nd and London 3rd - but all close enough to be easily changed by the next day. Those not involved in late retrieves on Saturday had great fun playing on a skittles alley set up in the workshop.

Novices were moved to the front of Sunday's grid for a 97.4km triangle - Northleach, Hullavington. Intermediates and Pundits were set a 185km triangle - Bicester, Didcot. Three Novices finished, led by Bob Selway (Cirrus), Bristol, at 44km/h, then London's Richard Abrahams (LS-7) came in at 41km/h with Booker's Adrian Hirst at 34km/h. Colin Watt (London) again led the Intermediates at 73km/h with Paul Dunthorpe (Jantar 1) 2nd for Bristol & Gloucestershire at 67km/h. John Hanlon (Std Cirrus) flew 174km into 3rd place for Oxford.

Andy Davis reinforced his lead of the Pundits with 84km/h, followed by Bob Merritt for Mendip at 77km/h and Bernie Morris (LS-7) at 74km/h for Booker.

Our hosts at the Sunday night barbecue were particularly cheerful having pulled into the overall lead, lying 1st in the Pundit and Novice Classes and 2nd for Intermediates. Booker and London were sufficiently close for the positions to be easily reversed with a further contest day.

At Monday's briefing Julian relayed the dismal Met prospects - Tom Bradbury wasn't at all hopeful. The sky confirmed this and it would have been understandable if Phil had scrubbed on the spot and declared Bristol the winners. No useful improvement was evident by the 1pm rebriefing; however, maps were marked up with Mike Strathern's latest ideas and the Wilga was called in - just in case.

The organisation's persistence gave us what turned out to be a great afternoon's contest with all but two gliders finishing. Oxford's Andy Barnes won the Novice's 67km 0/R to Northleach at 58.2km/h in his K-6E. Second was Rob Hanks (Std Cirrus) at 57.7km/h for Bristol followed by Booker's Brian Watkins (Pegasus) at 46.6km/h.

The Intermediate's task, 101km 0/R to Moreton-in-the-Marsh, was for the third day running won by Colin Watt for London at 68.9km/h with Mike Mee 2nd for Booker at 66.1km/h followed by Tony Lamb (Mini Nimbus) for Oxford at 56.1km/h.

The Pundit winner, also for the third day running, was Andy Davis completing the 138km 0/R to Edgehill at 71.6km/h. Duncan Macpherson (ASW-20) London, was 2nd at 67.2km/h with Ron Perry (Kestrel 19) 3rd for Mendip at 63.6km/h.

Final overall positions were little different from Day 2. Oxford and Mendip teams were equal 4th; London was 3rd (thanks to Colin Watt's hat trick in the Intermediate Class) and Booker was 2nd overall - coming 2nd in both the Pundit and Novice Classes. League winners, coming 1st in the Pundit and Novice Classes and 2nd for Intermediates, were Bristol & Gloucestershire, making it four successive wins.

We had hoped for some celebrity to award the prizes but this proved impossible since he'd won most of them! Our congratulations to Nympsfield and also our thanks to them for such an enjoyable and successful weekend with three contest days in all three Classes. Our thanks also to all those behind the scenes.

Changes for 1994. After sounding out team captains earlier, it was unanimously agreed at the first briefing to change the Novice rules for the final with the recommendation that the national rules are changed for 1994 The change concerns the restriction on the type of glider permitted in the Novice Class. The previous rule allowed **any** Standard Class glider, or a glider of any Class with a handicap of 100% or less - allowing the LS-7 (handicap 105) but banning the Cirrus 17.6m (handicap 102).

The new rule allows any Standard Class glider (as before), or a glider of any Class with a handicap no greater than the best current Standard Class. To minimise performance differences, Novices are **not** permitted to carry waterballast. Furthermore, as always, task setters are to plan tasks as much as possible for the lowest performance machines in the contest.

This change will be confirmed in writing to the League secretaries by April 1, unless over-ruled through response to this report. Anyone requiring clarification or other information or assistance is welcome to contact me at Tanglewood, Fingrith Hall Road, Blackmore, Nr Ingatestone, Essex CM4 0RU. Tel/fax: 0277 823066.

A GENTLE SUGGESTION

In 1991 Rodney started the Glyndwr Soaring Club at the wave site, Llewenl Parc, near Denbigh, Clwyd. It is only marginal financially viable and he must now decide whether to invest further to expand the activities and one possibility he has in mind is to build a combined clubhouse/assembly room incorporating offices suitable for the BGA headquarters. In this article he sets out his reasons for relocating the BGA office from Leicester, an idea which will be on the BGA AGM agenda.

Perhaps the BGA headquarters are more expensive than they need to be and not as cost effectively manned as they could be? In addition, the BGA might be better placed to serve its members if its headquarters were on a suitable gliding site.

It is hoped that these blunt statements won't give offence to anyone. Rather they are intended as debating topics to initiate discussion on the best location for our sport's headquarters.

The office suite at Leicester is some 2900 sq ft. The Association is paying about £9000pa rent together with £10 000 rates and service charge. Rent on the offices can only be adjusted upwards and the lease runs until 2010. Lease disposal, whilst difficult in these recessionary times, wouldn't be impossible. It seems clear that office rents and rates in North Wales are substantially cheaper.

In addition, it would be worth exploring with the local council any financial incentives which might be available to encourage relocation. Development and local authorities sometimes give generous help to ensure that employers who are relocating come to their area. It is also worth noting that Clwyd is an area very keen to promote such new employment.

BGA employees

The BGA employs at headquarters one full time general secretary, four full time staff and two half time employees. The staff costs (including our professional coaching and development staff working in the field) are by far the largest item of BGA expenditure.

It is not appropriate in this article to discuss the tasks undertaken by each member of headquarter's staff. Suffice to say that further investment in modern technology and suitable computing equipment might well improve the productivity of our office staff - and lead to significant savings. Studies of time efficiency also often reveal areas for improvement. These aspects could perhaps be best studied by suitable management consultants. The gliding movement is known to contain such high powered animals.

The shop

The BGA runs a mail order shop from headquarters which is a significant earner but only about one member per day makes a personal visit to buy. How much greater would be the potential passing trade if the shop was on a popular expeditionary airfield?

BGA courses

Many of the services offered by the BGA to members, in particular some courses run by our permanent staff, could well benefit by having the headquarters on the airfield. The airfield at Llewenl Parc provides some quite extraordinary wave and ridge flying opportunities and has rapidly established itself as a major expeditionary site. Its location close to the A55, North Wales Expressway, and nearly central in Great Britain (just look at the map), means that it is easily accessible from all parts of the country.

BGA committee meetings tend to be in London rather than at headquarters. The main requirement for headquarters is that they should be near a main line station to permit reasonable travel to London for the general secretary. Llewenl Parc is close to the main North Wales line and it would take some 2hrs 30min to get to London.

A parallel example to consider is the British Canoe Union whose headquarters moved from London to Holme Pierpont in Nottinghamshire to be near the canoeing action. Many of their members find this is much more convenient. A further example is the PGA golf headquarters at the Belfry near Tamworth which is one of the finest golf courses in the country.

BGA membership and the future

Membership of the BGA fell some 6% in the year to October 1992. It is expected that a further fall will be evidenced by the accounts to October 1993. These facts are bringing pressure on the Executive to look at all aspects of the BGA's activities, including the financial performance of HQ.

In conclusion, I respectfully suggest that the BGA studies carefully whether an improvement in services and financial performance can be achieved by leaving the Leicester office. This study may perhaps be best undertaken by management consultants. In particular the offer of Llewenl Parc to provide a home for headquarters might be examined in detail to see whether its merits outweigh any demerits.

BILLOWS, WINDSHEAR AND WAVES

Tom continues his widely acclaimed series

Most people are familiar with the appearance of major wave clouds, especially the elegant lenticular bars so often illustrated in text books. There are also a number of less obvious indications of wave and some of these are described below.

Basic conditions for lee waves

The conditions which usually produce lee waves are:

1. A wind of some 15kt or more blowing across a ridge.
2. An inversion or very stable layer not far above the mountain tops.
3. A wind whose speed increases with height but whose direction remains fairly constant.

When all these conditions are met, waves are very common but wave lift may also be encountered when one or more of these factors is missing. If there is little or no wind shear the wave energy propagates upwards but very little is reflected back to produce a wave train. Lack of feedback usually means that there is only a single wave. Single waves sometimes produce lift to great heights, occasionally up to the base of the stratosphere and sometimes much higher. It is likely that the energy is eventually dissipated as turbulence in the lower stratosphere. No useful wave energy is reflected back to produce a wave train.

Wave trains

Wave trains occur when the wave energy is trapped within a sort of duct. The wave bars one sees on satellite pictures are a resonance affect produced when the wave energy is reflected up and down within the duct. Ducts are often formed when there is a marked increase of wind speed with height. These trapped waves usually develop their maximum amplitude in the stable layer or inversion above the mountain top. Higher up the wave amplitude gradually decreases. If there is a long train of wave bars at medium or low levels one is unlikely to make a very high wave climb.

Waves or Billows?

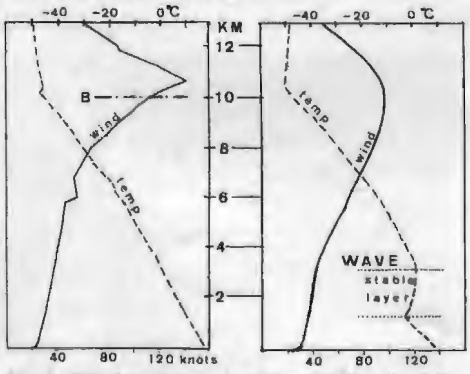


Fig 1. Wind and temperature profiles for billows (left) and standing waves (right).

Fig 1 shows two types of temperature and wind profile. A wave day is shown on the right and an occasion of billows on the left. The right hand temperature curve (pecked line) shows a stable layer, centred near the 2 km level, sandwiched between two layers of less stability. The wind profile (full line) shows the wind speed increasing upwards to just above the 10km level. Above 10km the wind decreases and the temperature curve becomes almost isothermal. This change usually marks the tropopause, the base of the stratosphere.

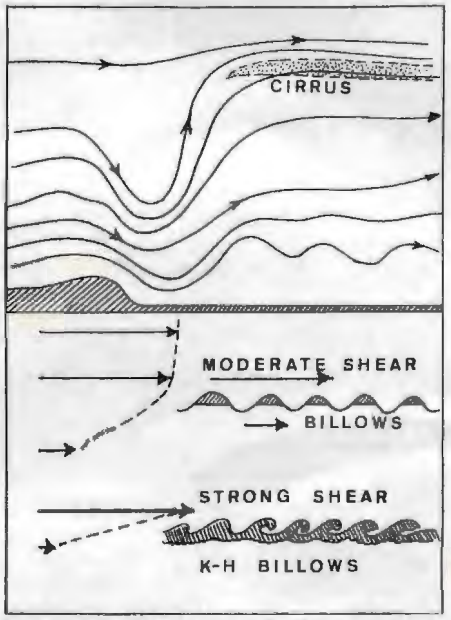


Fig 2. Streamlines for a one bounce cirrus level wave (top) and enlarged patterns of billow and Kelvin-Helmholtz waves (below).

The diagram on the left of Fig 1 shows an occasion when billows formed at very high levels. The pecked temperature curve has no inversion until the tropopause is reached near the 10km level. The wind profile increases upwards but has a particularly strong shear just below the tropopause at the level marked "B". This is where billows appeared in cirrus.

In Fig 2 the streamlines show a short train of waves at low level and a single bounce wave much higher up which generates a sheet of cirrostratus. The high level wave may have no obvious connection with the lesser waves low down and quite often the cirrus shows no sign of wave bars. This cirrus usually forms directly above the upstream ridge and streams downwind. The upwind end remains anchored to the ridge for several hours but the downstream end grows ever longer. After some hours the whole mass becomes detached from its anchoring ridge and blows away.

Billows

Billows form when a shallow layer of air has both weak stability and a strong wind shear. Weak stability makes it easy for small up and down movements to occur; the addition of windshear ends to amplify these oscillations within a shallow layer where conditions are favourable. This results in waves with a very short wavelength called billows. I sometimes think that "ripples" describes these waves better but we seem to be stuck with the term "billow". Unlike lee waves the billows are not stationary; they move with the wind and are aligned at right angles to the shear. This usually means they also lie at right angles to the wind direction. One cannot always see billows. High powered radar has detected billows in clear air where the moisture was insufficient to form clouds.

Ripples on sand

Billows or ripples are not confined to clouds. A similar pattern can often be seen on a flat beach after the tide has ebbed. The shearing effect of water flowing across the sand produces ripples on the surface of the beach. Desert sand dunes also have ripples on them formed by the shearing effect of the wind.

When billows break

The lower half of Fig 2 shows an enlargement of the cirrus cloud in the upper half. Two situations are illustrated. In the upper one the wind has only moderate shear and the billows are quite regular. In the lower one the shear is very much stronger and the billows are curled over like breaking waves.

The billows do not immediately break as would an ocean wave. They first start to curl up like a clock spring. These are known as Kelvin-Helmholtz waves after the two people who first described them. These K-H waves usually break down into turbulence. Almost all clear air turbulence is due to K-H waves which formed at a level of very strong vertical wind shear. They become visible when there is enough moisture for cloud to form. The sketch of K-H billows was taken from an actual photograph.

Photo A illustrates billow clouds above cumulus tops. The wind aloft was blowing from right to left and increased with height. Clouds like this can appear before any wave lift is found lower down. They show that wind shear exists aloft and suggest that there may also be an inversion at the top of the layer cloud.

Photo B shows wave cirrus with crosswind billows moving through the wave. In this photo the wind was blowing from left to right (approximately westerly). The wave cirrus was being formed at the left (western) end which seemed to be stationary for half an hour or more. The billows also formed at the western edge and then moved down wind through the cirrus layer.

Photo C shows a close up of the billows. They ➡

Photo A. Billow clouds aligned across the wind shear.

Photo B. Wave cirrus with crosswind billows moving through the wave.

Photo C. Close-up of billows moving through the wave cirrus.

Above: Photo D. Very long bands of cirrus billows at right angles to the wind.Below: Photo E. Arrowhead wave clouds pointing into wind.

are not all aligned in the same direction, probably because the shear vector was not constant over the whole area.

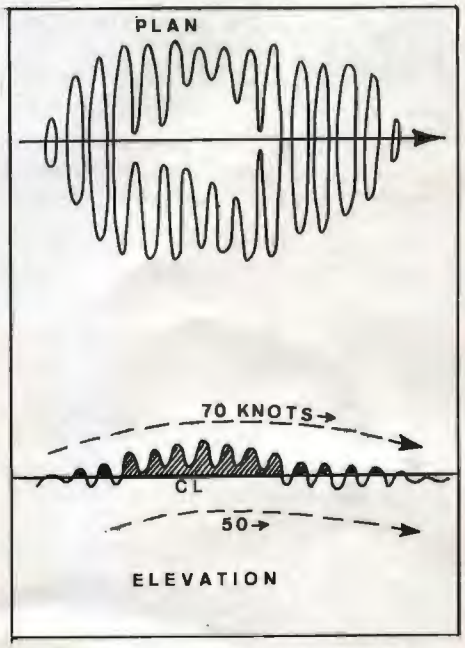


Fig 3. Plan and elevation of billows moving through a wave.

Fig 3 shows a plan view of billow clouds in the top half and a cross section in the lower half. As the wave crest is approached some billows merge to form a more solid piece of cloud. When the air starts to dry out on the descending side the billows separate again. In this case the flow lines show the wind shear: 50kt below the billows, 70kt just above the billows. The horizontal line labelled "CL" for condensation level, shows how the billows can grow as they pass through a wave crest and then vanish at the downwind edge. If, as in photos B and C, the flow is almost horizontal then the billows retain their size and shape for many miles.

Billows of cirrus

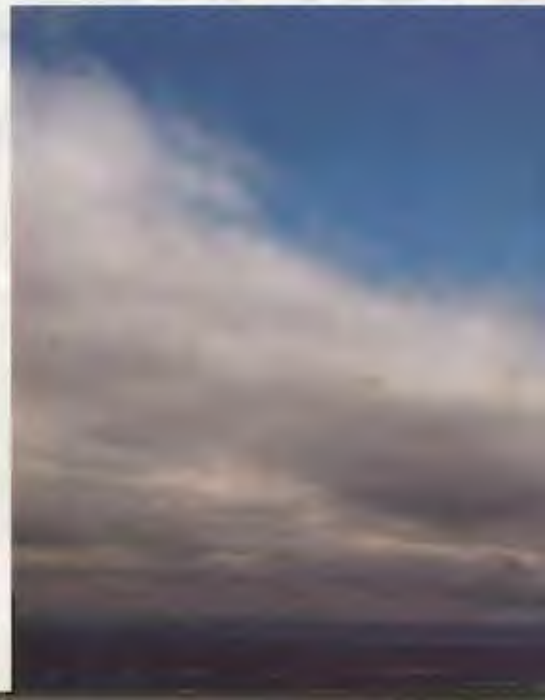
Photo D shows a longer wavelength set of cirrus billows. I had never seen this kind of cirrus before so it is probably uncommon. Some high definition satellite pictures show similar transverse bars amongst thick sheets of frontal cirrostratus; the ground is usually hidden however so they are seldom seen from below and rarely recognised from above. In this illustration the wind is again from left to right and the much shorter wavelength billows illustrated in B and C may just be seen lower down. Unlike the short billows shown in B and C these cirrus billows were very long and stretched across most of the sky.

Wave fingers

Photo E illustrates fingers of arrowhead wave clouds streaming downwind from right to left. The head of each arrow marks where wave cloud forms at the upwind end. This formation preceded the development of soarable waves low down.

Photo F. Wave boosted cumulus, the tail points upwi

Above: Photo G. Wave distorted cu 2min later showi
Below: Photo H. Wave slot opening up in warm secto



nd.

ng the wave crest marked by a lenticular on the left.
r cloud (about 11GMT).

At first glance I did not associate these clouds with any sort of wave. Then the short stump of a contrail (far right) was seen to move through the arrowhead pattern, growing thicker with time. Then it became evident that the little cloud cells were moving through the pattern too, just as the billows did in photos B and C. The fingers of cloud with their arrow like points were almost stationary. It would be very hard to spot this in flight but on the ground one can line up the pattern against a fixed object and see which part moves and which remains stationary.

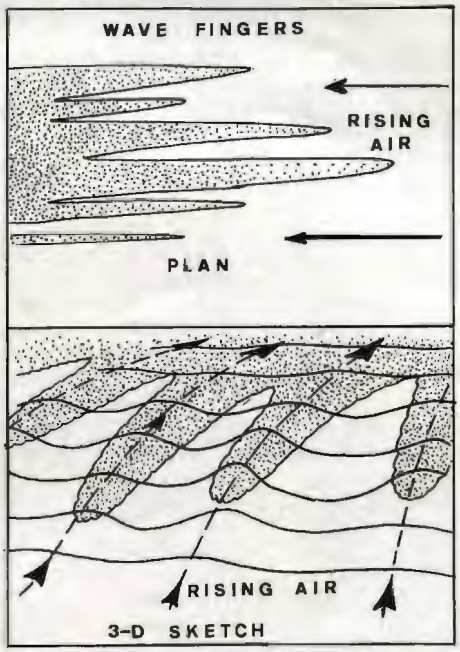


Fig 4. Plan and 3-D sketch of wave fingers (arrowhead pattern).

Fig 4 shows a plan view of these wave fingers; they are aligned almost exactly along the wind direction rather like streets in low convective cloud. The tiny alto-cu elements forming these fingers look like very high level convection cells. The fact that cumulus streets are known to occur under wave clouds suggests that a similar mechanism might be responsible for these cloud fingers. However there is another possibility, illustrated in the lower half of Fig 4. This suggests that the rising air on the upwind side of the wave does not ascend in a smooth uniform curve. Instead there may be irregularities which form longitudinal corrugations in the wave flow. The cloud fingers first appear along these corrugations and only merge to form a regular sheet several miles downwind

Ribbons of wave cloud

During high wave climbs I have occasionally seen very long thin ribbons of cloud at levels above 20 000ft and been surprised to find they were aligned along the wind. These ribbons undulated through the wave instead of forming a bar lying across the wind.

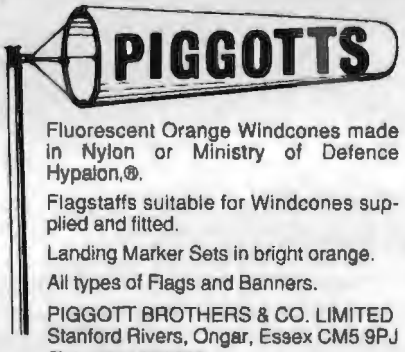
None of these high level clouds is an infallible sign that there is, or will be, wave lower down. They merely suggest that part of the atmosphere is sensitive to wave development and soarable waves may appear lower down later on.

Some low level signs

Low level instability commonly occurs on wave days. Quite vigorous cumulus can grow on the rising side of a wave; some of these cu seem able to cross the wave gap. When they do it is difficult to detect that there is a wave gap. Large, almost stationary, cloud free slots in the cumulus layer may be a sign of waves aloft. Irregular gaps with chunks of cu moving all the way across them are rather confusing. Behaviour like this usually means the wave pattern is not fixed but drifting slowly downwind.

Photo F illustrates wave boosted cu on the downwind side of a poorly defined wave slot. The wind was blowing from right to left and the cloud tail points into wind. This cloud was being pulled apart by the wind shear and photo G shows it degenerated into a thin trail a couple of minutes later. A scruffy lenticular cap over the next cloud on the extreme left shows where the wave crest was. Notice this too was preceded ➡

Below: Photo I. Wave boosted cu at about 1430hrs the same day.



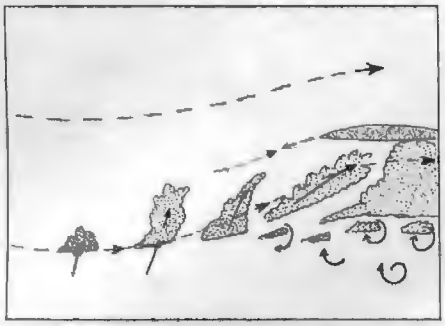


Fig 5. Cross-section showing cu distorted by shear being carried through the wave.

by a sloping trail of degraded cu just upwind.

The structure is illustrated in Fig 5. This shows a bubble of cu being distorted as it rises into the sheared flow on the upwind edge of the wave. When the air is dry and the wind very strong the growing cu may be pulled into ragged shreds in under a minute.

Other wave trails

Similar sloping cloud trails often develop on the downwind side of waves gaps; some even show up under an almost 8/8 sheet where the wave is particularly strong. When there is a strong WNW wind the Welsh mountains are very good for setting off wave. Occasionally a well developed wave appears over the river Severn between Newport and Avonmouth. The first sign of it may be a semi-permanent tongue of untypically low cloud which develops SW of the Severn bridge and curves up into the 8/8 cloud layer above. The tongue looks rather like the cumulus trails in photo G, but starts at a lower level and looks grey beneath the top cover. Watched closely it can be seen to change form; bits break off and are sucked up into the cloud layer only to be replaced by newer fragments upwind.

Warm sector wave

Wide warm sectors often give good conditions for wave. The trouble is that the cloud is too often 8/8 with a dangerously low base. However, in summer the sun is often strong enough to lift the cloud base well inland and produce small breaks. Then these grow and the sky develops cumulus instead of stratus. At some of the best Welsh wave sites such as Talgarth the breaks may be delayed until late in the day. It can be exasperating to fly the slopes near Hay Bluff under a lowering grey sky and hear that pilots from Usk have already found gaps and climbed high above the cloud.

One of the best wave days which gave climbs to 20 000ft near the Malverns brought the cloudbase down on top of the Black Mountains. Bristol Lulsgate reported drizzle with cloud almost on the deck. Lulsgate is very exposed to warm sector clag blowing in from the Bristol Channel. A temporary backing of the wind can bring this clag up the estuary to threaten Nympsfield too.

Photos H and I show a rapid break up of warm sector stratus on a different occasion. H shows the first signs of wave when a blue slot developed in the sheet of stratus. Photo I is the scene about three hours later when all the stratus had gone and the wave was marked by well developed cumuli.

Conclusion

Most big waves are clearly marked by easily recognised cloud forms especially in or near the mountains. There are many other days when lesser waves occur but these are often missed because the clouds are unfamiliar. One may blunder into these waves during a normal thermal flight and spend an interesting hour or three above the cloud tops. Billow cloud aligned across the upper wind flow shows that wind shear has developed aloft; this may later make soarable waves develop lower down. Unexpectedly slow moving gaps among the low level cumulus clouds can be a sign of wave. In summer an 8/8 sheet of warm sector stratus may break up well inland to reveal a regular wave pattern where the mountains provide shelter.

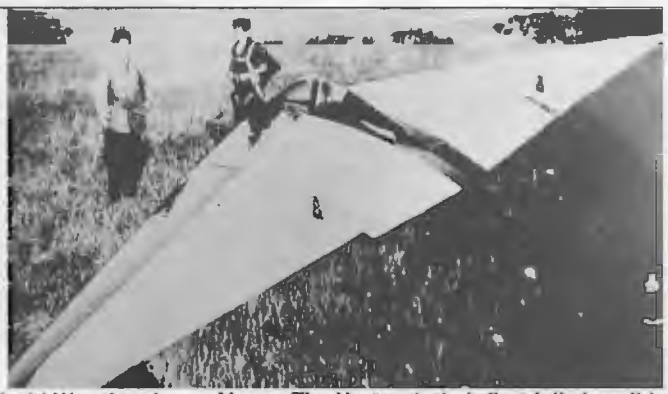
THE HORTEN FLYING WING

Reimar Horten, the designer of the flying wing, died in August having worked for more than 27 years until 1960 on these machines. The same month he was awarded the Royal Aeronautical Society's gold medal for outstanding achievements in aeronautics but sadly the letter announcing his award arrived after his death.

Peter Selinger tells us that as a youngster with his elder brother Walter, Reimar built models of sailplanes and in 1933/34 the first flying wing, the Horten 1. It was a single-seater with a swept, high tapered design.

The boys flew it in the 1934 Rhön competition but as they couldn't find any way of getting it home they burnt it on the Wasserkuppe. Peter says that they had to face many difficulties as well as successes in the following 26 years.

We are grateful to Chris Bryant for our illustrations and captions. (See also the letter from Chris in the last issue, p311.)



Above: The Horten 1, their first full size glider, with Reimar (left), aged 20, and Walter 18 in 1933. It was successful. Below: The sole remaining Horten 6 in the rafters of Northrop's hangar during evaluation in 1946. Photo courtesy of Northrop and Smithsonian Institute.

A Horten H3, built in 1938, on a hill top in Germany, probably the Wasserkuppe.

At the end of the Second World War the allies evaluated many of the unusual machines discovered in Germany. Here a Horten H4 is being examined at Farnborough. It was built in 1943, at one time had a BGA No. 647 and is now in a Californian museum.

UKRAINIAN ADVENTURE

Terry writes about an exceptional gliding holiday

The seeds of friendship which led to this exciting trip were sown by our team in the 1989 European Women's Championship. Mary Meagher invited six Ukrainian glider pilots to England in 1990 and persuaded some Booker GC members to give them hospitality. In return, the hosts were invited to the Ukraine in 1991. However, the break-up of the Soviet Union overtook this arrangement and it wasn't possible until last August. Visas were a problem but now you can buy them on arrival.

With my wife Joan and Dennis Harris (standing in for John Denne who had been taken ill) we were met at the airport by our friends Boris Polishuk and Mikhail Beliy and Eugeny Rudensky and Nicholai Batanov - all four top Ukrainian pilots.

The plan was to fly at Kamenka Airfield, home of the Dniepropetrovsk Aero Sports Club and originally the training centre for the Federation of Aviation Sport of USSR. Boris is chief of the Aero Club and Mikhail chief of the gliding section.

We were treated like royalty and language wasn't an insurmountable problem. Several spoke English, some rather more German and gestures helped a lot.

We amused everyone with our attempts to perfect radio calls in Russian and eventually Dennis and I wrote out a phonetic crib sheet which helped.

My check flight was 1hr dual in a Wilga to see the task area and then a Blanik which turned into 75min in booming conditions. I was then given a Std Jantar 3 for the week.

The club fleet consists of eight Blaniks, six Jantars, two LAKs, six Wilga tugs and three AN-2 biplanes for the parachutists, but unfortunately due to fuel shortages parachuting is now done from the Wilgas before the gliders are launched.

A competition was arranged in our honour - the first time I have been an excuse for something useful. The tasks for the first three days were the same - 300kms for the Jantars and 200kms for the Blaniks. I elected to do some familiarisation flights before setting out on a 300km task in a new type over strange terrain where I couldn't speak the language. My first flight was a lead and follow. There was never a risk of landing out on the first three days with fantastic conditions. The area was very flat with large fields. I was able to make straight final glides from 60km by pulling up under clouds and not circling unless needing a navigational fix.

From l to r: Mikhail, Boris and Terry. Dennis is in the cockpit.

By the fourth day I was happy to fly the task, a 175km for everyone, since conditions had reduced to those of a good British day but with bad visibility. Happily I got round but not without some nail biting.

There is a local custom that if a glider lands in a field the farm workers present the pilot with gifts of produce. They are so generous you have to watch the weight limits as they load the cockpit with such things as aubergines, peppers and beans. Field landing training is carried out by doing them for real, the choice of field depending on all the usual criteria, plus what the instructor needs for the larder.

Ukrainians are very keen to meet foreigners and we attended many "friendship dinners."

If you want a gliding holiday with a difference, in conditions that must rival Australia but are closer to home, the Ukraine has a lot to offer. They want to meet you so you will have a great time - the Ukrainians will see to that. ■

SEMINOLE LAKE GLIDERPORT

We have an up date from this gliding centre about 45 miles from Orlando, just off Highway 33, from Tony Dickinson who visited while on holiday in October.

It is a beautiful grass site surrounded by trees and is a professionally run operation open six days a week, owned by Knut Kjenslie who is also the chief instructor and an FAA examiner.

They have two Pawnee tugs, two Grob 103s, a Schweizer 2-33, a 2-32 three-seater and a 1-34 for solo flying. They are very busy in the summer so it is advisable to book at least a week before as the gliders are in constant use.

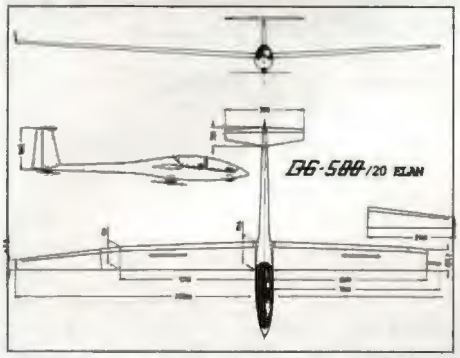
The day I spent with them was glorious. Thermals started about midday and improved throughout the afternoon with a 4300ft cloudbase. The only restriction is the airway, a mile or two to the east of the site, but it is clear in the other directions. I had a check flight in the 2-33 followed by solo in the 1-34. It was an enjoyable experience amongst very friendly people.

To fly solo you need an American Airman's Certificates which is free of charge from the FAA offices (closed at the weekend) just outside Orlando Airport. You need your BGA Certificate, logbook and passport to get one.

Addresses are:- Seminole Lake Gliderport, PO Box 120458, Clermont, FL 34712 tel 904 394 5450 and FAA Flight Standards Office, Suite 100, 9677 Tradeport Road, Orlando, tel 407 648 6840.

SAILPLANE NEWS

The new version of the DG-500.



Because a 20m Two-seater Class has been established in Germany Glaser-Dirks have brought out a new version of the DG-500. The DG-500- 20 Elan prototype first flew in late summer.

This version is a modified DG-500-22 Elan with shorter outboard wing panels reducing the span to 20m from the original 22m, but with added winglets. Flight tests have been made on a pre-production model and shows the stalling speed has been lowered by 2kt using the winglets.

The performance of the 20m winglet version is expected to be nearly as good as the 22m model, but will have a faster roll rate and lower control forces. The price will also be a little lower.

The new addition will be produced on the same production line as the other DG-500s and will therefore have a similar delivery time - there is a still a long waiting list for these sailplanes.

AMERICAN SPIRIT

Our front cover is of the 15 metre Standard Class American Spirit, the first US manufactured high performance sailplane kit to be offered to the public in the last 20 years and designed by Tor Jensen with the first time home-builder in mind. It costs $17 980 and the manufacturers, Advanced Soaring Concepts Associates of Camarillo, California, claim an L/D of 42:1; measured stall speed of 38kt; min sink 101fpm at 41kt and a VNE OF 125kt.

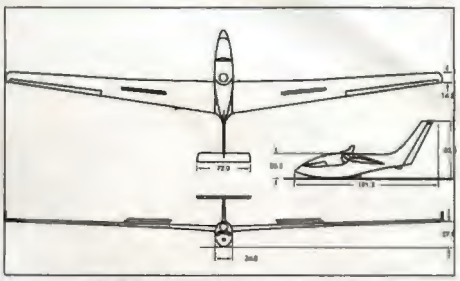
The kit includes pre-moulded glass-fibre parts, carbon fibre spar, factory welded box frame and landing gear plus basic instruments. The aspect ratio is 23.9; wing area 106.2sq ft and the empty weight 475-525lb.

Tor is the president and co-owner of an advanced composites engineering firm and as a soaring pilot he wanted to poduce the world's first all composite high performance glider kit. He started by buying six glider wrecks to evaluate manufacturing techniques and as a result says that the American Spirit fuselage was designed to give more pilot protection than currently available anywhere in the market today.

It has gone through rigorous tests to determine load factors and stress points along the airframe. Combining information gained at the design stage it includes the following features:-
Rounded airbrake openings.
Full sandwich construction for greater strength.
Aramid fibre reinforced cockpit for greater pilot protection.
Large wing access panels to make assembly easier.
Turn down wingtips designed to protect the tips during launching and landing.
Cockpit designed for a 6ft 4in 260lb pilot with a 'chute.
Aluminium core honeycomb reinforcement.

THE GENESIS 1

Within days of being sent information about the American Spirit we had news of Genesis 1, another high performance15 metre Standard Class Sailplane being sold in kit form and constructed of high temperature composites designed by John Roncz and Jim Marske. It was developed with the emphasis on aerodynamic optimisation through state of the art computer modelling. The main goal was to create a reasonably priced sailplane kit with world class performance.



On going to press the maiden flight was hoped for December. Meanwhile the projected performance was an L/D max of 43:2 at 65kt and 29.5 at 100kt. The aspect ratio is 20.2; wing area 120.5sq ft; empty weight 490lb; AUW 1157lb; wing loading 5.5-9.6lbs/sq ft and aerofoil, Roncz G-745.

The Genesis comes with all major assemblies completed by the factory. This includes wing halves assembled in factory alignment jigs.

Features will include automatic control hook ups and adjustable rudder pedals, waterballast, carbon fibre spars, Kevlar reinforced cockpit structure, a large cockpit for a 6ft 4in 250lb pilot; stall speed of 37kt at 5.5lbs/sq ft wing loading and rough air redline (Vb) 115kt and VNE 150kt. The projected building time is less than 300 man hours with the option of a factory trailer. An interesting innovation is a ballistic parachute recovery system as standard equipment.

The kits are from $21 900 with deliveries scheduled to begin this spring at an initial rate of three kits each month. For more information contact Skip Hockman at Group Genesis, 1530 Pole Lane Road, Marion, OH (614) 387-WING, USA.

Below: A view of the Genesis 1 fuselage.

ANNUAL STATISTICS OCTOBER 1, 1992 TO SEPTEMBER 30, 1993

GLIDING CLUBS	AIRCRAFT				ALL LAUNCHES	NO. OF AEROTOWS	HOURS FLOWN	KMS FLOWN	MEMBERSHIP		
	Club 2s	Club 1s	PO	Tugs					Full Flying	Estimated No. of Temporary Members	No. of Female Members
ANGUS	2	2	4	0	1806	26	319	546	34	302	3
AQUILA	2	2	20	3	1506	1342	773	13210	45	106	0
BATH, WILTS & DORSET	4	3	21	0	4494	328	1241	7000	104	215	10
BIDFORD	4	2	40	2	5490	5490	N/K	N/K	147	980	10
BLACK MOUNTAINS	2	1	25	1	2660	2660	3798	28080	56	129	8
BLACKPOOL & FYLDE	2	4	25	0	3633	0	1868	2500	102	97	5
BOOKER	6	7	78	6	10335	10335	–	325000	290	2091	23
BORDERS	3	1	20	2	1625	1625	1096	6750	75	250	4
BRACKLEY	1	2	4	0	1827	5	402	320	32	64	1
BRISTOL & GLOS	4	4	62	2	7241	4037	4843	110000	249	380	27
BUCKMINSTER	3	2	20	2	3029	1892	1308	8533	81	408	9
BURN	4	5	20	1	6371	1414	1847	1550	125	340	7
CAIRNGORM	1	0	9	0	925	343	748	1490	34	52	2
CARLTON MOOR	1	0	2	0	782	0	141	0	24	20	1
CAMBRIDGE UNIV	3	5	56	2	10999	1837	5863	131611	216	1632	18
CHANNEL	3	1	5	0	3803	0	528	N/K	54	490	4
CONNEL	3	0	4	1	579	63	232	2675	26	180	1
CORNISH	2	2	8	1	1491	980	514	900	29	228	1
COTSWOLD	4	4	47	0	9097	166	3603	32400	192	1087	20
COVENTRY	5	7	86	4	13520	8953	6539	72415	317	1542	33
CRANFIELD*	1	1	11	3	1299	1299	777	2150	39	164	2
DRA FARNBOROUGH	2	3	7	1	1756	446	754	3445	61	0	6
DARTMOOR	3	2	14	0	3000	0	450	300	50	630	6
DEESIDE	2	3	20	3	5514	5367	5182	N/K	133	693	10
DERBY & LANCS	7	4	38	0	8804	0	4008	10000	229	1473	23
DEVON & SOMERSET	4	3	39	1	8503	760	3550	12797	200	972	14
DORSET	2	3	5	1	2581	225	318	2000	52	240	0
DUKERIES	2	1	6	0	2625	–	489	540	34	169	3
DUMFRIES & DISTRICT	1	1	2	–	325	0	94	300	12	37	1
EAST SUSSEX	4	4	15	0	5925	113	1068	3500	122	833	9
ENSTONE EAGLES	1	1	9	0	1503	30	565	2000	39	309	4
ESSEX	3	2	15	1	4045	758	783	–	134	789	4
ESSEX & SUFFOLK	3	2	19	0	4242	114	1372	12500	92	500	6
GLYNDWR SOARING	3	1	12	1	6079	475	2609	9500	70	195	10
HEREFORDSHIRE	1	1	8	1	663	663	633	N/K	33	104	4
HIGHLAND	2	2	7	0	2942	165	653	–	58	221	9
HIGH MOORE	1	0	0	0	98	0	26	–	11	3	–
IMPERIAL COLLEGE	2	1	–	0	2500	500	600	6000	25	50	4
KENT	3	2	31	1	N/K	N/K	N/K	N/K	158	623	15
LAKES	2	2	5	1	1128	1128	528	3477	33	157	0
LINCOLNSHIRE	2	2	5	–	3146	36	477	393	52	306	1
LASHAM	11	–	145	5	29634	11617	9910	233176	455	3034	107
LONDON	6	5	87	3	24000	8000	11000	120000	296	4582	16
MARCHINGTON	3	1	12	1	2053	2053	908	N/K	89	279	3
MENDIP	2	2	15	0	3978	50	772	7500	60	608	4
MIDLAND	3	4	35	1	10705	663	5133	18000	194	641	21
NENE VALLEY	3	2	5	0	2811	0	540	1200	45	180	10
NEWARK & NOTTS	3	3	16	0	3757	N/K	665	1000	56	550	6
NORFOLK	4	1	32	2	4777	2786	1759	N/K	184	904	24
NORTH DEVON	1	0	6	1	368	368	70	500	9	51	0
NORTH WALES*	2	1	5	0	3428	0	505	N/K	55	164	3
NORTHUMBRIA	3	2	16	1	3701	1067	942	1000	83	406	2
OXFORD	4	3	15	0	3642	0	1232	14717	74	207	2
OXFORDSHIRE	2	0	0	0	N/K	1068	N/K	N/K	30	20	2
PETERBORO' & SPALDING	3	1	18	2	2536	2536	1269	8500	82	270	6
RAE BEDFORD	1	0	6	0	133	0	N/K	N/K	18	10	0
RATTLESDEN	2	2	15	1	3796	367	1025	5400	67	275	14
RSRE	2	1	–	–	191	5	30	–	11	13	1

SACKVILLE	2	1	6	1	1002	478	690	14000	31	26	5
SCOTTISH GLIDING UNION	4	3	42	2	9034	1174	5683	10500	191	919	14
SHALBOURNE	3	1	21	0	3534	0	1114	4000	84	613	11
SHENINGTON	3	3	8	2	3419	187	1040	7945	70	231	6
SHROPSHIRE	0	0	12	1	530	530	981	N/K	34	0	1
SOUTH WALES	2	2	21	1	3920	1177	1700	10500	68	472	6
SOUTHDOWN	3	3	34	3	6769	5197	4455	–	216	750	20
STAFFORDSHIRE	2	2	9	–	4968	86	824	1349	104	312	7
STRATFORD ON AVON	2	2	19	0	5840	0	693	5125	124	1018	12
STRATHCLYDE*	1	2	3	1	481	260	99	0	26	35	1
SURREY & HANTS	0	11	(See Lasham)		2120	478	1196	(See Lasham)	192	–	14
SURREY HILLS	4	3	6	0	5116	0	719	200	86	898	9
THE GLIDING CENTRE	7	6	10	2	11207	469	1086	2200	26	460	3
THRUXTON	3	1	7	1	752	752	350	2050	34	101	2
TRENT VALLEY	4	1	20	1	3632	634	1086	5550	62	165	6
ULSTER	2	1	11	1	1225	1202	686	1450	38	114	1
UPWARD BOUND	2	1	3	–	2395	0	382	N/K	25	297	3
VALE OF NEATH	2	1	6	1	806	242	302	N/K	27	41	0
VALE OF WHITE HORSE	2	1	14	0	2817	25	368	11000	47	250	5
VECTIS	1	1	6	1	751	751	366	N/K	71	75	2
WELLAND	3	2	15	1	2970	347	996	19500	61	210	1
WEST WALES	2	1	1	0	326	0	47	–	9	23	0
WOLDS	4	2	28	1	11192	1260	2663	15000	205	1535	17
YORK	3	4	19	1	5567	2095	1354	1500	114	643	5
YORKSHIRE	3	5	38	3	7210	5065	2940	36820	231	1267	9
CIVILIAN CLUB TOTAL	229	183	1611	82	354984	106564	128177	1371764	7853	41710	699
ARMY GLIDING ASSOCIATIONS											
KESTREL*	2	4	2	1	3833	117	727	16500	81	230	5
WYVERN	2	4	6	1	3900	0	960	5300	70	105	5
ROYAL NAVAL GSA											
CULDROSE*	3	3	1	3	2074	1664	426	N/K	46	215	6
HERON*	3	2	4	1	1219	799	460	4500	54	108	8
PORTSMOUTH	5	5	6	3	8358	3855	2642	–	210	1069	6
RAFGSA											
ANGLIA*	2	3	1	0	3841	149	834	5087	56	–	–
BANNERDOWN*	2	3	5	1	5557	264	1190	5890	82	294	7
BICESTER*	7	5	30	4	14119	4808	6350	67015	220	720	–
CHILTERNS	2	4	7	0	5010	59	1591	3561	110	146	14
CLEVELANDS*	3	4	17	2	4436	1923	2064	20743	107	150	–
CRANWELL	3	3	10	1	5309	746	1532	17198	80	80	12
FENLAND*	2	4	5	0	4465	31	1011	3279	70	150	9
FOUR COUNTIES*	4	3	8	0	8325	136	2421	24791	92	234	8
FULMAR	2	2	0	1	1658	401	537	2501	40	35	7
HUMBER	2	3	2	0	3248	48	945	12934	40	150	3
LOMOND	0	1	2	0	480	80	500	2500	15	–	1
PHOENIX	3	4	2	0	4440	0	1029	1200	63	435	–
TWO RIVERS	2	4	5	0	2973	10	991	22522	30	0	5
WREKIN*	3	3	6	1	5158	628	1429	7118	90	206	–
SERVICE CLUB TOTAL	52	64	119	19	88403	15718	27639	222639	1556	4327	96
CIVILIAN CLUB TOTAL	229	183	1611	82	354984	106564	128177	1371764	7853	41710	699
GRAND TOTAL	281	247	1730	101	443387	122282	155816	1594403	9409	46037	795

** Incomplete or no statistics received – previous figures used.*

A DAY IN THE LIFE OF BOOKER GC

If any other club would like to write an article showing the character and atmosphere of their operation, backed by good photographs, we will consider it for publication. Or you might like to profile one or more of your members who have stamped their individuality on your club and added to its success. Please keep it concise so that it will take one page.

It's **0830**hrs and the trailer park is buzzing. Gliders ranging from K-6CR to ASW-22 are being rigged, waterballast is going in and plans for the day are under discussion. The sky is clear blue and the atmosphere is charged.

Back at the hangars tugs are out and being prepared (five will be needed today - this day was forecast and we have anticipated the rush). The club fleet is out and being washed. Club single-seaters have been allocated - a couple of Silver distances with height gains will be attempted and the Pegasus fleet are being readied for 300 and 500kms. (We will have the addition of a Discus this coming season.) The K-8 will remain at Booker for the day and as soaring time is free it should barely touch the ground.

0900 and the single-seaters are already parked out behind the launch point bus, canopy covers on, whilst their pilots set tasks and make declarations. Club two-seaters have started a busy day of training.

1000 and the first cumulus have already formed. Cloudbase is going up fast and from the Met information service we can expect 5000ft plus with thermal strengths of6kt at the best part of the day. Anticipation is mounting as tasks are set and pilots are briefed. The novice cross-country pilots are ready to go. The K-21 is brought out - I will be using it for cross-country training after the main launching is over.

It's nearly **1100** and the training gliders are averaging 3kt to 3000ft ... time to go. All five tugs are now running and gliders are pulling on to line. We have 30 gliders to launch and they want a launch now. Launching here is the nearest thing to launching a competition grid - there is no waiting at Booker.

1200 and more gliders have been towed out. The later launches will be for shorter tasks, flown in competition style - fast and competitively. The racers pull on to line to be launched in quick succession.

By **1300** relative peace reigns. The main bulk of over 40 gliders have launched and the training fleet is soaring. The T-21 is out and giving trial lessons a breath of fresh air.

At last I can climb into ECZ, which is ready and waiting with an expectant pre-Bronze pilot. We are going to fly a 100km triangle. We should be back in a couple of hours to be ready to catch the finishers and to make sure the not so skilled or fortunate are accounted for and retrieved.

1630 and returning gliders are calling up the launch point. They will be arriving in 5min. Four minutes later the same gliders call "1min" then the finishers come in low and fast and pull up in spectacular grace. Many are dumping water and some add a couple of loops and simple aerobatics off the finish to keep the launch point entertained. The Silver distances have made it to Lasham and tugs are on their way to collect the initiates.

Back at the trailers, whilst derigging the conversation between pilots is still competitive and analytical. Those with dataloggers go back to the clubhouse to analyse flights in detail and compare notes.

Over 100 aerotows and several thousand kilometres have been flown, however Booker's day will end only after all the pilots are accounted for, the hangars are packed and back at the clubhouse flights are observed for badge claims. Equipment such as barographs and batteries should have been returned and all participants have retired to the bar to discuss and celebrate the day's achievements.

This combination of good equipment, launching that is second to none, excellent training and supervision which extend well beyond first solo, plus a membership of highly motivated soaring pilots, has produced a club that comprises many of the finest pilots in the country.

Booker GC is all about gliding. Getting up there and getting on with it. We look forward to an exciting future. The winning formula exists - why don't you come along and be part of it?

The Robin tug at the launch point. Photos: Paul Mellor.

Noel Rabouhans.

Karina Hodgson, club member and the Junior Nationals Champion.

BOOKER

AT BOOKER WE OFFER:

- ★ The most efficient launch rate in the country
- ★ Flying from 9am to dusk every day
- ★ Excellent instruction
- ★ Cross country instruction
- ★ Free ab-initio and Bronze courses for our members
- ★ Free soaring in K8s all year
- ★ Free soaring in all club single seaters throughout the winter

DID YOU KNOW THAT WE HAVE:

- ★ A Duo Discus and Discus on order
- ★ A fleet of 9 single seaters from a Prefect to Pegase
- ★ Nav computers in club Pegases and K21
- ★ EW barographs, glider batteries and camera mounts available for use with all club gliders
- ★ A Falke SF25C Motor Glider available every day for field landing practice, circuit practice and MG PPL instruction
- ★ New clubhouse facilities
- ★ Over 100 instructors

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- ★ Five Day Course (15 flights) from £355
- ★ Intensive Course (50 flights) for £999
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- ★ AEI & Assistant Instructor Courses
- ★ Aerobatic Courses

MEMBERS OF BOOKER:

- ★ Won all the National Gliding Titles in 1992
- ★ Currently hold National distance, speed and height records
- ★ Can turn up and fly, solo or with an instructor, every day of the year
- ★ Fly thousands of cross country kilometres every season

THE AIRFIELD ALSO HAS:

- ★ An independent restaurant and licensed bar
- ★ Two aircraft museums
- ★ Other flying facilities

THE LOCAL AREA OFFERS:

- ★ Beautiful countryside
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BOOKER GLIDING CLUB

Wycombe Air Park, Marlow, Bucks SL7 3DR (M40 Jct 4)

BGA & GENERAL NEWS

BRITISH TEAM SQUAD

The British team squad, from which the team will be selected for the World Championships in New Zealand next January, has been chosen. Andy Davis is in as the current World Standard Class Champion with Alister Kay, Steve Jones, Graham McAndrew, Peter Sheard, Ted Lysakowski and Jed Edyvean qualifying by coming in the top two places in the 1993 Nationals.

The last ten places were voted for by a panel of the top 40 competition pilots in the country. These went to Justin Wills, Brian Spreckley, Chris Garton, Martyn Wells, Dave Watt, Robin May, Chris Rollings, Mike Young, Dennis Campbell and John Gorringe. The final election for the team will be immediately after the 1994 Nationals.

Basil Fairston, *British team co-ordinator*

WOMEN ONLY

The Women's European Championships will be at Marpingen, Germany in 1995. The German Women's Championships will be at the same site from August 1 this year and pilots from other countries are invited to compete. Contact Basil Fairston *via* the BGA for details.

A BONUS FOR YOUNG PILOTS

The BGA Executive have agreed that this year pilots under 21 years or still in full time education should have a 75% reduction in fees on all BGA courses and on flying fees in BGA aircraft. The proposal was put forward by the BGA Instructors' Committee.

This is not a misprint - 75% off. The catch? There are only limited places available per course at that discount so book early. See you there!

More courses

In response to a perceived need for some development training for instructors, instructor refresher courses and full rating preparation courses are being arranged in consultation with the national coaches.They should be of great assistance to instructors who are either a bit out of practice, trained a long time ago or simply want to improve.

The London GC instructor refresher courses are on March 12-13; March 26-27 and April 9-10 with their full rating preparation courses on April 16-17 and April 23-24. Other clubs running courses hadn't sent in their details on going to press but contact the BGA for other dates and venues.

Chris Rollings, *senior national coach*

WHEN WILL THEY LEARN?

During 1993 there was one serious injury accident and one fatality because the elevator or tailplane half was not properly connected. Articles on the importance of daily inspections and control checks need to be repeated if we have any chance of getting across the vital message that failure to connect the controls correctly can lead to a loss of life or serious injury. *(See Bill's articles in the February 1980 issue, "Whatever happened to the daily inspection?", p7 and April 1991,"Daily inspections and all that", p71.)*

The Air Navigation Order, Article 35, states that the commander of an aircraft "shall reasonably satisfy himself before the aircraft takes off that the flight can be safely made." It doesn't state "make sure the aircraft is correctly rigged and the controls are connected." Perhaps it should.

To be certain the controls are connected requires assistance - someone to hold the control surface while you move the stick. **It should be part of our culture, the standard practice from the first time a student is shown how to DI a glider. It doesn't matter if the glider has been kept rigged in the hangar for the last year.**

If this was standard practice we might just avoid some of these accidents. It is interesting that the RAFGSA, which has such a culture of independent checks, has a much better safety record that the civilian clubs. Even so the double check is no absolute guarantee.

Why then are pilots so casual? Most will claim they're not but the the more common problems are:

Distraction - being interrupted during the rigging sequence.

Unfamiliarity - perhaps it is a glider which is new to you.

Haste - a good soaring day and being late to launch.

The "It can't happen to me" syndrome - I wouldn't make such a basic mistake.

Changes of culture are possible. After an accident a club might insist on an independent check and a positive check of controls. An alternative might be to have someone, the duty pilot or instructor, making a positive control check on every glider launched.

Think about it! Only a change of culture is likely to reduce the accident rate from this particular cause.

Bill Scull, *BGA director of operations*

COMPETITION ENTERPRISE

No, Competition Enterprise won't be at Le Blanc as we were led to believe but will be organised by the European Soaring Club at Colmar, France, 30 miles south of Strasbourg in the Rhine valley, which is about an 8hrs drive from Calais. Apart from the Rhine valley the flying area includes the 50 mile long Vosges hills, which are between 3000 and 4000ft, the Black Forest, the Shwabischer Alps and Jura mountains. Brian Spreckley says that apart from thermals in good conditions, there is wave in all wind directions, except north, and ridge soaring.

For more details contact Peter Poole, tel 0883 743196, or Brian Spreckley on 0844 281487 (fax 0844 281580.

BGA 1994 TURNING POINT BOOKLET

Copies of the TP booklet will, as usual, be distributed at the BGA AGM at Crick on February 26 to club representatives and some spares may be available. Those clubs not collecting their copy at the AGM will be sent one by post.

Last year's booklet was very popular and went through four printings to satisfy demand. The 1994 list will follow a process of refinement rather than change. A few "fill in" points will be added such as previously active airfields which have now closed such as Abingdon and Greenham Common. The only changes to **existing** listed points will be where features have changed such as due to road or other developments.

Copies earlier than the 1993 version should be destroyed to avoid embarrassment and possible difficulties with tasks and claims. Users are reminded that major changes were made for the 1993 version. However, it is anticipated that no harm will result from continued use of the 1993 booklet. The differences in the 1994 version will be announced in the next issue of *S&G.*

Ian Strachan, *BGA TP co-ordinator*

BGA 1000 CLUB LOTTERY

The results of the **November** draw are: First prize - P J.B.Wilby (£86.75) with the runners up - J.J.Limb, Mrs O. Masters, A.R.Bartlett, A.E.Gibbs and B.Bateson - each winning £17.35.

December. First prize - S.Brown (£85) with the runners up - J.Simmonds, R.H.Dixon, F.J.Tucker, C.B.Hogarth and B. Morris - each winning £17.

EUROPEAN NEWSLETTER

The European Gliding Newsletter is launched this month to give information on places to fly, competition dates, venues and gliding events through Europe. For more information contact Brian Spreckley, European Gliding News, 106 High Street, Tetsworth, Oxon, OX9 7AE, tel 0844 281487, fax 0844 281580.

DATALOGGERS - A REVIEW AND FUTURE PLANS

The datalogger is a small unit that continuously records GPS position information at a pre-set rate which can provide in depth post flight analysis. In 1993 dataloggers were tried as a means of competition flight verification. The principal benefits are virtual elimination of film processing and ensuring competitors do not fly in areas excluded to them.

Review of 1993. The 1993 use of dataloggers was well received by competitors and organisers alike. The problems encountered were generally fairly minor and included; inaccurate latitude and longitude, TP co-ordinates mainly in Poland, incorrect GPS map datum selection, some GPSs going off line during radio transmission, missed position points and software bugs.

1994 Competitions. From a pilot's point of view, the only change to 1993 procedures is control at a TP. This is now by the line joining two consecutive position points cutting (in either direction) the bisector of the inbound and outbound tracks on the side opposite to those tracks and within 5km of the TP. As it is easy to establish by reference to the GPS that a TP has been correctly rounded, there are no penalty bands for near misses. As in 1993, the use of dataloggers is optional.

Participating organisers (Regionals at their discretion and all Nationals) are required to use an analysis program that has been approved by the BGA Competitions and Awards Committee. It is important that the program is submitted well before its intended use to allow time for assessment using test data and the subsequent cor-

rection of any anomalies discovered. The only other alteration is to derive finish times from datalogger information.

As we go to press the only dataloggers authorised by the BGA for 1994 use are EW and Skyforce; so far no analysis programs are approved for 1994.

1995 Competitions. Subject to results in 1994, dataloggers will be mandatory for all Nationals competitors. The analysis program will then check start heights and infringement of airspace excluded to competitors. It is planned to apply the following criteria in respect of the latter :-

1. All normal operating errors of the measuring equipment will be added together and applied in favour of the pilot.
2. Flight in any Class A, D, Purple, Prohibited, and Restricted (including Temporary) Airspace not having a glider VMC exemption, will be penalised.
3. Flight in standard 2000ft Aerodrome Traffic Zones (which may or may not require entry permission for intended landing), MATZs and Danger Areas will not be assessed for penalties.
4. The datum used for altitude calculation will be the launch grid and ambient pressure at take-off. For simplicity and practicality no adjustment will made or accepted for changes in sea level pressure during flight.
5. In the event of lost GPS position information for more than 2min (except satellite system failure evident from other dataloggers) the onus will be on the pilot to establish that no infringement occurred, in order to avoid penalty. In this event datalogger or barograph height record, timed photographs of prominent ground features and possibly corroborating evidence from other competitors may establish compliance.

The rules for 1995 will be finalised after input from 1994 competition forums and any other correspondence received on the subject.

What of the Future? Technology advances known to be in development include combined Nav, GPS and datalogger units with inflight

BGA ACCIDENT SUMMARY

Compiled by DAVID WRIGHT

Ref No.	Glider Type	BGA No.	Damage	Date Time	Place	Pilot/Crew Age	Pilot/Crew Injury	Pilot/Crew Hrs
63	K-13	2860	M	14.4.93 1500	North Weald	67	M	39.5

The approach was flown at 60kt due to the gusty crosswind. At about 15ft the airspeed fell rapidly and the glider dropped on to the runway in a nose down attitude. It then bounced back into the air twice before the pilot initiated a groundloop to avoid a parked glider.

64	K-8	2646	S	17.10.92 1545	Rattlesden	28	N	1.25

On his first flight in a K-8 the pilot made a normal flight until he opened the airbrakes. He had been briefed on differences between the K-7 and this glider but still felt they were not opening fully. He glanced down at the lever and in this time turned off line towards a parked glider and hit its tail. This swung the K-8 into the control bus.

65	Junior	3842	S	22.5.93 1325	Lasham	41	N	37

After signalling the winch launch was too fast the speed fell and the cable was released. The glider was seen to enter a steep dive, possibly the pilot's reaction to low *g*, then pull up violently causing severe wing flex. This was repeated three times before flying a low circuit and a safe landing. The left wing was found to be overstressed.

66	Venture T-61F	M/G G-BUHR	M	25.5.93 1830	Lleweni Parc	45 P2	N 48	57 N

During the ground run after landing the motor glider's propeller tip grounded and was damaged. The landing was seen to be normal with the tail on the ground and elevator fully up so the hit was thought to have been due to running into a hidden hole or rut that eroded the minimal tip clearance present on this type. Future landings to be engine off.

68	Stemme S10	M/G G-STEM	S	24.5.93 1400	Darmstadt (GDR)	68	N	1879

The motor glider was taking off crosswind when the upwind wing started to drop so the pilot corrected. As speed built up he raised the tail and at this stage the other wing dropped and the aircraft veered left as control was lost. The undercarriage collapsed and the fuselage fractured forward of the fin. The tail may have been lifted too early.

69	Ventus C	3785	M	29.5.93	Basingstoke	32	N	600

After getting too low on a cross-country the pilot chose a landing field. He noted that it was uphill but slightly downwind but on finals, with full airbrake, realised that it sloped more than he had anticipated. This combined with the tailwind resulted in a poor roundout and a heavy landing.

70	K-8s	2221	S	6.6.93 1235	Strathaven	36	N	28

The wingtip holder let go too soon on a winch launch. The winch hesitated then picked up as the glider's wing dropped on to the ground. By the time the pilot released the glider had swung around and was airborne. The canopy flew open and the glider veered into some nearby trees and was substantially damaged.

71	DG-400	M/G G-HAJJ	M	28.5.93	Perranporth	58	N	505+202pwr

On the approach the pilot looked down to confirm the wheel had been lowered then looked up to see that the rate of descent had increased and the speed decayed. He "took hold" of the airbrake lever and closed the brakes. Immediately the glider sunk rapidly and hit the runway heavily, collapsing the u/c. Flap lever was in -4° position.

72	Skylark 4	1210	S	5.6.93 1600	Clwydian Hills	46	M	68

The visiting pilot found himself low and unsure of his exact position so chose a field to land. He flew a cramped circuit due to nearby foothills and touched down two thirds of the way into the field. The glider overshot the field, went through a barbed wire fence and randown a 40ft gully into a stream.

thermal mapping and analysis features. There are already computer programs that replay a competition task showing all datalogger equipped gliders simultaneously, by this season in 3D. In addition to being entertaining there is educational potential. Possible future competition applications include calculation of task wind by averaging thermal drifts and use of achieved climb rates to adjust handicaps for the day.

It is not intended to make dataloggers mandatory in Regionals until the vast majority of competing gliders are GPS equipped nor, in the foreseeable future, eliminate cameras for back-up evidence.

The use of dataloggers for badge and record claims will be considered again if suitable security methods, such as a sealed unit with integral GPS engine, are devised for an environment which is much less controlled than competitions.

NB. Dataloggers used in competitions when mandatory will be required to derive altitude from a barometric pressure transducer. To assist designers of dataloggers and authors of analysis software, basic specifications for both are available from the Comp Committee *via* the BGA.

Phil Jeffery, *BGA Competitions and Awards Committee.*

GLIDING CERTIFICATES

ALL THREE DIAMONDS

No.	Name	Club	1993
409	Payne, G.K.	Booker	20.9

DIAMOND DISTANCE

NO.	NAME	CLUB	1993
1/612	Browning, T.P.	Lasham	13.8
1/613	Robertshaw, S.P.	Derby & Lancs	4.5
1/614	Milner, T.J.	Wolds (in Australia)	2.2

DIAMOND GOAL

No.	Name	Club	1993
2/2158	Callen, J.E.	London	28.8
2/2159	Dutton, S.	Lasham	17.8
2/2160	Spencer, P.D.	Lasham	24.8
2/2161	Westgate, G.C.	Buckminster	17.8
2/2162	Oliver, M.	Cotswold	30.6.
2/2163	Smith, J.	Devon & Somerset	24.8
2/2164	Hughes, M.E.	Coventry	17.8
2/2165	Griffiths, P.D.	Bannerdown	5.9
2/2166	O'Fee, P.E.	Bannerdown	5.9
2/2167	Woodman-Smith, M.	London	28.8
2/2168	Abraham, R.J.	London	17.8
2/2169	Hayden, F.	Cambridge Univ	17.8
2/2170	Norman, E.H.A.	Bicester	1.9
2/2171	Birch, J.T.	Cambridge Univ	28.8
2/2172	Tillett, R.	London	24.6
2/2173	Whitehouse, P.J.	Channel	24.5

DIAMOND HEIGHT

No.	Name	Club	1993
3/1135	Payne, G.K.	Booker	20.9
3/1136	Clempson, E.A.	SGU	16.10
3/1137	Binnie, G.J.	London	16.10

GOLD BADGE

No.	Name	Club	1993
1701	Harland, S.J.	Lasham	20.9
1702	Griffiths, P.D.	Bannerdown	5.9
1703	O'Fee, P.E.	Bannerdown	5.9
1704	Coughlan, J.R.	Bicester	16.10
1705	Britton, N.A.	Bidford	16.10
1706	Norman, E.H.A.	Bicester	1.9
1707	Milner, T.J.	Wolds	3.2
1708	Darlington, A.	Imperial College	30.9
1709	Burgoyne, P.	Coventry	14.10

73	Open Cirrus	3865	S	5.6.93 1645	Clwydian Hills	55	N	285

The visiting pilot was attempting to get back to the site when he spun and crashed into a large hawthorn bush which reduced the impact. The pilot appears to have entered an incipient spin while over ruddering an under banked turn near to a hill.

74	Astir CS77	3518	M	6.6.93 –	Nr Caton, Lancs	26	N	64

While on a cross-country the pilot had to make a field landing. On the approach he noticed that his chosen field had a steeper slope than he first thought. He decided to overshoot this and land in the next field. Too late he realised that this one had quite a deep crop and the glider groundlooped as the wing caught during the roundout.

75	Puchacz	–	N	**.6.93 1920	**Incident Report**	44	N	47min

The early solo pilot had just been given a check flight during which the instructor noted that aerotow climb rate was very poor. On his solo flight he was distracted during his checks and was not asked "are your brakes closed and locked?" During the aerotow the brakes came open and the pilot had to land in a rough area of the airfield.

76	Nimbus 2B	2756	S	5.6.93 1300	Britwell Salome	44	N	464

A set-aside field was selected for a field landing with last year's stubble visible through 3/8 green growth. However, on roundout the pilot saw that the growth was quite high and after a very rough ground run the left wing caught, causing a groundloop.

77	K-8	2219	M	6.6.93 1330	Bovington	50	N	2.5

The pilot signalled that the winch launch was too fast and at about 200ft the cable appeared to back release. After planning to turn through 270° he decided that he was too low and so chose to land ahead in an adjoining grass field. After touching down normally the glider's wing caught in tall grass, causing a groundloop.

78	Libelle	3750	S	5.6.93 1505	Crowland	43	N	42

As the aerotow started the wing dropped and the pilot was unable to stop it contacting the long grass. The glider swung around and the pilot had difficulty in grabbing the cable release before the glider rose sideways, breaking the rope. The rear fuselage fractured in the impact. Low experience on type, a crosswind and extended tips were factors.

79	PIK 20E	M/G -	S	23.6.93 1800	Co Kilkenny	54	N	298

While making a landing into a cut silage field another, landed, pilot radioed a warning to look out for wires. The wires were spotted across the threshold but too late to change field. As a result of a higher approach plus calm conditions he landed well into the field and had to initiate a groundloop to stop. During this the rear fuselage fractured.

80	Blanik	1326	S	26.6.93 1400	Bidford	24	N	6

The early solo pilot encountered heavy sink in the circuit and could not reach the airfield. The glider undershot into a crop field and the tailplane was broken.

81	K-23	3164	M	27.6.93 1502	Long Mynd	54	N	2.25

The pilot decided to land short as there were several other gliders further up the airfield. He touched down in a rough heather area, not normally used for landing, and with some drift on. There was an impact and the right wing was damaged near the root.

82	Std Cirrus	3775	S	5.6.93 1550	Marston	53	M	210

During a cross-country the pilot had to make a field landing. Turning his high key point at about 700ft he encountered heavy sink so turned in early. Despite this, the glider hit the top of the downwind fence and was brought to an abrupt halt as the wheel doors caught in the barbed wire .

83	K-13	1501	M	8.6.93 2045	Portmoak	30	N	362
					P2	?	N	0

The student had just rotated the glider into a rather steeper than ideal initial climb when a loud bang was heard. P1 took control and rapidly lowered the nose and released the cable. The chute flew across the left wing and jammed on the aileron. The glider slewed left and the pilot was unable to prevent a hard landing and groundloop.

84	IS-30	2634	W/O	27.6.93 –	Knettishall	66	F	553+
					P2	46	F	0

After a series of aerobatics manouevres and having completed a loop the glider was rolled inverted at about 800ft. The inverted glide continued until the glider crashed, killing both occupants. P1 may have suffered a heart attack. The inquest verdict was death through natural causes.

85	Astir CS77	3294	M	30.6.93 1350	Edgehill	47	N	350

The pilot made a normal, fully held off landing on the grass then continued over a small lip on to a crossing runway. At this point the cast metal undercarriage fractured and collapsed.

86	K-6CR	1412	W/O	19.6.93 1335	Nympsfield	0	M	22

The glider was seen to be rather low in the circuit but the pilot did not turn in early. He then encountered sink so put on speed to try and make the airfield. Trying to "hop over boundary wall" he touched a wingtip in the grass at 75kt and so turned the glider to avoid the wall. The wing hit the wall, turning the glider on to its back.

87	Pirat	2089	W/O	5.6.93 1730	North Weald	32	M	153

After a short flight the pilot was distracted by a loose strap and then found he was too low in the circuit. He put on speed to try and clear some street lights and reach the airfield. As he started to pull up the ground rushed up and the left wing hit long grass, cartwheeling the glider into the ground. Fatigue may have affected judgment.

88	Pegasus	3476	M	20.6.93 1530	Stoney Stratford	45	N	750

While on a competition flight the pilot had to make a field landing. During the ground run the glider ran into a barbed wire fence which he had not been able to see from the air. The posts were green and the cattle, which were in the other half of the field, were hidden behind some trees.

89	Vega T65A	2577	M	30.6.93 –	Nr Ripley, Yorks	32	N	125

The pilot had to make a field landing and flew around twice to check out the chosen field. After a normal approach he noticed there was a dip in the field and, before he could react, the glider hit the ground, breaking the undercarriage. The colour of the field and lack of sun/shadows made the unevenness difficult to see

90	K-6E	1522	S	27.6.93 1330	Sandown	66	N	59

Before the launch the pilot noted that the slight crosswind plus the offset hook might combine to swing the glider to the right during the aerotow. However, as the tow started it swung despite full left rudder and the glider ran into long grass beside the runway causing a groundloop and substantial damage before the pilot could release.

91	Pegasus 101A	3593	M	6.6.93 1600	Preston Capes	47	N	214

The pilot selected a pasture field and noted he would land uphill so increased speed on the approach to allow for the uphill roundout. However, the touchdown was heavy, probably the result of allowing the speed to decay in the final stages of the approach, and the wheel sunk into the soft ground. The glider stopped rapidly and tipped on to its nose.

92	ASW-19A	2361	S	28.6.93 1200	Nr Bedford	38	N	112

On a cross-country the pilot flew away from an airfield while searching for lift then had to select a small playing field to land in. He touched down normally but found the field also had a slight down slope and hit a wooden building at the end of the field.

93	K-7	3117	W/O	16.7.93 1200	Perranporth P2	56 39	N M	340 0

While instructing in clear air P1 failed to notice the glider was drifting downwind and that cloud was blocking his sight of the airfield. He flew directly back at speed but decided he had to land in the undershoot field. However, the headwind was too strong with curlover and he flew into power cables on the approach.

94	ASW-20	2848	W/O	20.6.93 1330	Cockfield,Suff'k	46	N	228

While on a cross-country the conditions deteriorated and the pilot had to land. After selecting a suitable field he made his checks and monitored his speed at 50kts. He had trouble trimming to this speed and stalled then spun while coming out of the final turn at 400ft. He was not able to make a full recovery before crashing at speed.

107	Discus Turbo S/S 3607	M		27.7.93 1615	Long Mynd	44	N	345

While the glider was being bungy launched a series of side gusts made it difficult for the wingtip holder to keep the wings level. They were level as the glider was released, but the left wing rose as soon as the launch started and the pilot could not stop it. He had to force the tip on to the ground to turn the glider and stop it running downhill

108	Pilatus B-4	1849	S	8.7.93 1420	Nr Tiverton	52	M	138

On a competition flight the pilot allowed himself to get low in a hilly area with poor fields. Rather late, he chose a convex sloping field and encountered severe sink on the approach. He closed the airbrakes and put the wheel up and just cleared the hedge. He lowered the wheel then stalled into the field from about 5ft.

109	Astir CS77	2480	M	20.7.93 –	Rufforth	57	N	80

On base leg the pilot opened the airbrakes and got an audio "gear" warning. He operated the gear lever again but still got a warning and was distracted from his circuit turns as he chose to land on the grass. He had to "extend" his glide to clear parked gliders. This and a strong wind gradient caused a hard landing which broke the locked down u/c.

110	Tutor	469	S	4.7.93 1800	Wormingford	51	N	155

The pilot, who normally flew a DG-200 glass glider, was making his first flight on this low performance type after a full briefing. He started his circuit at 3-400ft and did not cut straight back to land but followed a normal circuit pattern. The wing hit the ground in the final turn and the glider cartwheeled into the ground.

111	ASW-15B	3464	M	1.8.93 1400	Nr Rugby	44	N	912

The pilot hit heavy sink and headed for an area with better clouds "and fields". He found no lift and saw his first choice field had cables and the rest had crops. He chose to land up a sloping wheat field, closing the brakes just before touchdown to minimise damage. The glider landed tail first with no ground run damaging the low tailplane.

112	Kestrel 19	1689	M	17.7.93 1604	Halesland	40	N	730

After rigging and visual inspection the pilot sat in the cockpit while another pilot held the control surfaces for opposition checks. These appeared normal but after release off the winch the ailerons oscillated violently. Being too low to use his 'chute he stayed with the glider and, by careful use of flaps and rudder, just made a downwind arrival.

113	Dart 17R	1292	W/O	26.7.93 1535	Gransden Lodge	37	S	52

The first 300ft of the winch launch looked normal then the glider was seen to level off then ease back into the climb. The pilot then released, levelled the nose and started a turn. This progressively tightened until, at a very steep attitude, the glider struck the ground. It was thought low airspeed and the blustery conditions started a spin.

114	Open Cirrus	1543	M	4.8.93 1430	Bidford	57	N	125

The pilot found he could not reach the airfield so had to choose a field. On base leg he decided the next field looked better so moved to land in that. This field contained crop and, after holding off as long as possible above the crop, the glider landed heavily tail down.

115	K-18	–	M	8.7.93 1428	Tibenham	71	N	67

As the pilot was on the downwind leg he noticed a glider and tug on the runway so he decided to land on the large grass area alongside. On finals to the grass he saw the runway had been cleared so, at only 50ft, turned to land on it rather than complete a normal landing on the large grass area. He failed to round out and the glider landed heavily.

116	ASW-24	3422	W/O	31.7.93 1745	Nr Basingstoke	45	S	800

During a competition the pilot left his choice of field rather late and the one he chose had wires across it. He thought he had enough height to clear these but due to the effect of sink, possibly from curlover, he hit the wires with a wing. The glider crashed and the pilot was seriously injured.

1710	Stratton, N.	SGU	19.10
1711	Meeks, M.	Shenington	14.10

GOLD DISTANCE

Name	Club	1993
Callen, J.E.	London	28.8
Hancock, C.D.	Southdown	13.8
Adam, R.A.	Southdown	5.9
Dutton, S.	Lasham	17.8
Spencer, P.D.	Lasham	29.8
Westgate, G.C.	Buckminster	17.8
Oliver, M.	Cotswold	30.6
George, A.M.	Lasham	13.8
Hughes, M.E.	Coventry	17.8
Griffiths, P.D.	Bannerdown	5.9
O'Fee, P.E.	Bannerdown	5.9
Woodman-Smith, M.	London	28.8
Abraham, R.J.	London	17.8
Hayden, F.	Cambridge Univ	17.8
Parker, W.H.	Booker (in France)	13.8
Norman, E.H.A.	Bicester	1.9
Birch, J.T.	Cambridge Univ	28.8
Tillett, R.	London	24.6
Bull, I.O.	East Sussex	5.9
Whitehouse, P.J.	Channel	4.5

GOLD HEIGHT

Name	Club	1993
Harland, S.J.	Lasham	20.9
Knight, M.J.	Highland	30.9
Seward, M.	Fulmar	30.9
Coughlan, R.J.	Bicester	16.10
Britton, N.A.	Bidford	16.10
Milner, T.J.	Wolds (in Australia)	3.2
Richardson, J.	Northumbria	21.10
Darlington, A.	Imperial College	30.9
MacDonald, E.	SGU	21.10
Burgoyne, P.	Coventry	14.10
Lewicka, A.	Booker	16.10
Rudge, I.W.	SGU	16.10
Shallcross, R.	Kent	16.10
Grimsoell, A.	Bicester	16.10
Stratton, N.	SGU	19.10
Meeks, M.	Shenington	14.10

SILVER BADGE

No.	Name	Club	1993
9298	Butler, G.G.	Stratford on Avon	11.9
9299	Mellor, K.J.	Welland	14.8
9300	Simpson, D.A.	Essex & Suffolk	11.9
9301	Shaw, S.V.	Cornish	20.9
9302	Fresson, K.M.	Southdown	17.8
9303	Kaye, B.H.	Portsmouth Naval	4.9
9304	Perkins, D.	Upward Bound	28.8
9305	Oswald, J.J.R.	Portsmouth Naval	4.9
9306	Kishk, R.A.I.A.	Chiltens	28.8
9307	Petheram, R.	Devon & Somerset	5.9
9308	Gibbins, M.J.	Aquila	28.8
9309	Nisbet, D.C.	Oxford	30.7
9310	Coe, N.	Cotswold	24.8
9311	Clarke, R.J.	Cotswold	4.9
9312	Witt, C.J.	Briston & Glos	25.9
9313	Edwards, N.A.	Enstone	5.9
9314	Buck, C.	Oxford	13.8
9315	Whittingham, K.	Bidford	1.9
9316	Shailes, M.J.	Cotswold	31.7
9317	Pegman, J.L.H.	Borders	25.9
9318	Joyce, D.	Bristol & Glos	5.6
9319	Faver, T.	Cranwell	28.8
9320	Harris, P.C.	BFG Gliding Centre	29.8
9321	Cross, R.N.	Enstone	29.8
9322	Marett, J.B.	Vale of White Horse	11.9
9323	Miller, W.G.	Connel	16.10
9324	Hardy, I.	Southdown	23.10
9325	Judd, M.	Wrekin	24.8
9326	Grant, A.M.	SGU	21.10
9327	Barnes, T.	Bicester	16.10
9328	Grimes, G.	Lasham	14.8
9329	Luxton, H.	Booker	16.10
9330	Slater, G.	Phoenix	18.7
9331	Macfarlane, S.	SGU	21.10
9332	Carnet, M.	Southdown	28.8
9333	Croker, R.W.	Portsmouth Naval	11.8
9334	Brown, N.A.	Phoenix	16.4

UK CROSS-COUNTRY DIPLOMA

Complete

Name	Club	1993
Vincent, K.G.	Kent	29.8

Part 1

Name	Club	1993
Burtenshaw, G.	Southdown	5.9
William, S.J.	Southdown	4.9
Gibson, C.P.	Farnborough	28.8
Redshaw, R.P.	Lakes	26.8

WELL DONE JOAN

In the December1992 issue, p315, Joan Hartley wrote about how she overcame being almost totally deaf by using a "black box" designed by her husband so that she could be taught to glide. We are delighted to hear that she has gone solo at The Soaring Centre.

ADVERTISERS PLEASE NOTE

April-May deadlines
Display advertisements: February 23.
Classified advertisements: March 3.
Editorial copy is needed long before these dates. The latest we can accept club news and letters is February 8.
Gillian Bryce-Smith, *editor*

117	Blanik	3193	S	25.7.93 1200	Nr Sandown IOW	65	N	6

The pilot took an aerotow to try and soar a hill but found no lift. After a period looking for lift he started back to the airfield but ran into sink and found he could not make the runway. He chose a field then found he could not clear some tall trees so turned and landed in a wheat field. This damaged the tailplane and groundlooped the glider.

118	K-6E	2459	S	8.8.93 –	East Claydon	55	N	260

While on a cross-country the pilot had to make a field landing. A flat grass field was chosen carefully and a normal circuit and approach made. At 50ft, a large bull was seen near the approach path so a slight turn was started. The right wingtip caught in a small tree, spinning the glider into the ground from about10ft.

119	Ventus	3785	M	28.7.93 1945	Nr Basingstoke	50	N	733

On an aerotow retrieve the rope looped below the glider. The pilot opened the airbrakes too quickly and the weak link broke. The rope caught on a wing and by the time he had lost the rope he was down to 1200ft. Despite radio prompting by the tug pilot he ignored a good field, flew towards the airfield and damaged the glider landing in a poor field.

120	Club Astir	3226	M	1.8.93 1100	Lasham	27	N	49

The pilot held the glider on the ground for too long during the aerotow then became too high. Over-correcting, the glider bounced on the runway twice before the pilot released and landed heavily.

121	Jantar 2	–	N	**.7.93 1400	**Incident Report**	50	N	190

While thermalling the pilot heard a rattling noise and realised that the tailplane securing pin was loose. He flew a gentle circuit and the pin fell out on braking during the landing run. The pin had not been pushed fully home and locked. This was not picked up as the independent checks by another syndicate member were not carried out.

122	Puchacz	3948	M	13.6.93 2105	Camphill	37 P2 51	N N	323 30min

The student made a normal approach, slightly over-flared, but quickly corrected this. The glider landed normally, close to the intersection of two winch runs on the main wheel followed by the nose wheel. Soon after landing the glider rapidly pitched up. Initial inspection showed no damage but the nose wheel mountings were later found to be broken.

123	Std Cirrus	–	N	**.7.93 1115	**Incident Report**	29	N	400

The early part of the winch launch was normal but the pilot could not then rotate into a full climb. After releasing at 900ft the glider could not be flown slowly so was landed immediately. The elevator hook had been connected incorrectly and, while being impossible to inspect visually, gave little free play during positive checks.

124	K-23	2999	M	1.8.93 1445	Seaton, Leics	35	N	38

On a Silver distance flight the pilot had to make his first field landing. The one he chose, from 1200ft, turned out to be a rough, ploughed, set-aside field which was difficult to tell from a normal ploughed field.

125	K-18	2245	S	28.7.93 1400	Camphill	65	M	127

On his first flight on type the pilot soared the local ridge for an hour before conditions changed and he returned to land. He was a little high so used airbrake in the circuit, then found strong sink and was unable to stop the glider hitting a wall. He was not experienced at this site and had not obtained permission to fly or a briefing.

126	K-13	1650	S	7.8.93 1625	Nr Usk	41 P2 36	N N	? 91

P2 was flying the winch launch from the back seat on an AEI instructional flight when, at about 100ft, the winch power reduced. P2 lowered the nose and grabbed the cable release and pulled. The cable was still attached so he pulled again as the glider sunk rapidly then landed very heavily. He had in fact opened the airbrakes by mistake.

127	K-6CR	2312	N	6.8.93 1625	Wormingford	51	M	35

As the glider was rotated into the winch launch climb the canopy came open so, at about 200ft, the pilot released and tried to close it. He could not and, rather than manoeuvre sharply to land on the runway, decided to land directly ahead in a wheat crop field. The pilot may have been distracted after he shut the canopy and forgot to check it.

128	Vega	2577	S	18.8.93 1615	Galewood	47	M	29

The pilot, after a full briefing and check flights, was making his first flight on type. The circuit was normal until the flare which was started a little early and the glider settled rapidly, then bounced twice as the pilot over-corrected. The final, heavy impact was with nose and wheel together and this split the fuselage and caused other damage.

129	K-8	3118	S	17.8.93 1400	Nr Steyning	62	N	69

While attempting a 5hrs duration flight the pilot had to make a field landing in a stubble field. He circled the field and noted the wind direction. The approach was flown with half airbrake and touched down in the middle of the field. The pilot found that the field sloped slightly and was unable to stop before the glider hit the hedge.

130	K-13	1508	M	1.8.93 1600	Sandhill Farm	35 P2 28	N N	917 0

While in the circuit the instructor flew the glider into a simulated cable break, nose high attitude and gave P2 control. He lowered the nose then turned into a short extension, often used in this situation. However, with the speed from the recovery and no headwind he could not land. P1 took over to make a hurried field landing but caught a hedge.

131	K-18	2149	S	24.8.93 1210	Nr Booker	63	N	55

The pilot took an aerotow to 1500ft for local soaring but found no lift. He lost height trying to thermal and soon had to make a hurried field landing. The chosen field was large but sloped steeply uphill and the pilot did not allow enough speed for the uphill roundout. The result was a very heavy landing that substantially damaged the glider.

132	Puchacz	3948	W/O	13.8.93 1900	Camphill	38 P2 26	F F	? 0

The glider had been launched by winch,probably to between 1000 and 1200ft. It was seen spinning at about 600ft at the start of the downwind leg and crashed 300ft below the hilltop. The spin had stopped but there was insufficient height for recovery from the ensuing dive. The glider crashed at a nose down angle of about 70° killing both crew.

133	K-6cR	1216	W/O	19.8.93 1600	Sedlescombe	58	N	47

After winch launching the pilot decided to make a downwind landing near to the launch point. On finals he saw that a light aircraft was lined up so turned to the right. In doing this the wing caught in trees spinning the glider into the ground

134	Bocian 1E	–	M	18.7.93 –	Easterton	40	N	84

After a normal landing the pilot turned the glider right to clear the landing area for following gliders. This area of the airfield ran slightly downhill towards the trailers and parked gliders. The glider ran on down the slope and, despite the attempts of two members to stop it by holding the wings, it hit a parked glider.

135	Begfalke 2/55	1658	S	16.8.93 1430	Hackwood House	52	N	1850
					P2	46	N	20

After encountering sink the pilot had to make a field landing and chose a large stubble field. Just before landing it was noticed that there was a slight down slope and so the glider was gently turned across the slope to slow it down. A wingtip caught in the soft earth causing a groundloop.

136	Astir CS75	3283	S	28.8.93 1100	Lasham	31	N	24

The pilot made a normal approach but failed to roundout sufficiently to prevent the glider bouncing back into the air. It was then seen to fly level at about 6ft before stalling heavily on to the ground, collapsing the u/c.

137	Iris D77	2633	S	28.8.93 1715	Pocklington	26	N	99

This was a mid-air collision between two thermalling gliders (See also No. 138.) While local soaring the two gliders were at about 2400ft when the other pilot, who had been in a shallow turn around this glider, tightened his turn and lost sight of it. The left elevator was lost but the pilot managed to land safely with reduced control

138	Zugvogel	3558	M	28.8.93 1715	Pocklington	65	N	243

(See also No. 137.) This pilot had also been in a shallow turn around the other glider and tightened his turn and lost sight of it. The left wing hit the other's tailplane causing substantial damage. This glider also landed safely.

139	Kestrel 19	1943	M	23.8.93 1600	Edgehill	50	N	900

Just before roundout a vehicle pulled on to the runway about 50 yards ahead. The pilot moved to one side and deployed the brake 'chute as he touched down. The 'chute caused the glider to weathercock and the right wing hit a fence post at low speed.

140	Falke	M/G	M	17.8.93 1545	Hinton	38	N	420

The experienced glider pilot was on a navigation exercise on his 8th motor glider flight. On returning to base his first approach was too high so he went around. On his 2nd attempt he misjudged the roundout and bounced. He applied power again but the engine faltered and he had to land in a crop field. A factor may have been left hand on stick.

141	K-7	2851	M	28.8.93 1017	Winthorpe	64	N	2

The pilot had a good check flight and was allowed to fly solo. After a normal circuit and half airbrake approach he misjudged the flare and failed to roundout. The resulting heavy landing damaged the fuselage.

142	Pegasus	3368	S	30.7.93 1400	Abbots Morton	67	N	833

Down to 1400ft, the pilot chose a field some distance away. When he got nearer he saw it was surrounded by electricity cables so had to chose another. The choice was limited so he had to land in a wheat crop. The rear fuselage was broken by the groundloop caused by the crop.

143	Bocian 1E	1950	M	15.8.93 1553	Easterton	51	N	1200
					P2	50	N	2

P2 decided, correctly, to overfly three landed gliders to allow following, lower, traffic to land. A normal landing was made in an area not often used but during the ground run the glider ran over a bump which damaged the fuselage. The damage was thought to have been caused by worn u/c bungys and two large pilots allowing the fuselage to bottom.

144	Pilatus B-4	1780	W/O	14.8.93 1200	Bidford	44	M	19

The pilot pulled off from the aerotow at 1500ft then realised that he was out of gliding range of the airfield. The area had few landable fields, as most were under crop, so he chose the only pasture field available. On the final approach a wingtip hit a tree and the glider slewed sideways and crashed.

145	K-7	–	M	10.8.93 1300	Pocklington	52	N	18

The pilot was making a hangar flight in gusty conditions when the glider ballooned to about 15ft. He responded by moving the stick forward and closing the brakes. The glider landed heavily on the nose skid before oscillating down the runway.

146	Jantar Std 3	2917	M	25.8.93 1345	West Ilsley	36	n	376

During a cross-country the pilot decided to dump part of the waterballast. As he pulled the release the knob came off in his hand and could not be put back. Later, a field landing was made and the approach made at 65kt because of the extra weight. During the roundout the glider stalled and landed heavily, collapsing the undercarriage.

147	K-8	–	S	**.7.93 1430	**Incident Report**	17	N	?

While on a Silver distance attempt the pilot made a successful field landing. It was noted there were cattle in the field but not near the glider. After phoning for a retrieve the pilot returned to find the glider surrounded by two dozen bullocks which substantially damaged it.

148	K-8	2418	M	21.8.93 1230	Seighford,Staffs	60	N	4

At the start of the winch launch the glider veered to the right (into wind) and picked up the second cable on the short length of bolt protruding from the tail skid lock nut. This jammed on a cleat. The pilot released the launch cable then, with full forward stick and moving himself forward, just managed to land ahead safely.

149	Puchacz (X TWO)	3735	S	7.9.93 1521	Husbands Bosworth	35	N	5min

On his first solo flight the pilot flew a good launch and circuit but then failed to compensate for the crosswind present. The glider was seen to veer to the left of the normal landing area and, as the glider was low, the pilot did not turn the glider away from another parked glider which was hit with the wingtip.

150	Ventus B	3959	M	28.8.93 1600	Feshiebridge	32	N	265

A high final approach was set up to overfly a glider on the narrow runway. On short finals this was cleared and full airbrake was selected. With a high rate of descent and only 50kt the trailing edge airbrakes were closed just prior to the flare which resulted in a momentary loss of lift. The glider dropped from about 6ft and landed heavily.

151	K-13	–	N	**.6.93 –	**Incident Report** P2	0 0	N N	– –

The tug rope inadvertently fell off in the middle of the airfield, across the winch cable. The next launch picked up the rope, unbeknown to the crew, and was carried to the top of the launch before dropping away without causing any damage.

152	K-7	3331	M	5.9.93 –	Lyveden P2	34 40	N N	104 0

On the final approach the pilot allowed an undershoot to develop. The speed was allowed to decay while trying to "creep" over the airfield boundary. As a result the glider struck the raised edge of a track and pitched nose down then bounced back on to the tail skid.

153	K-7	2306	S	17.9.93 1612	Portmoak	62	N	4min

After eight check flights the instructor sent the pilot off on his first solo. The circuit up to the turn on to finals was good but on finals he found he was undershooting. He closed the airbrakes but still caught the tail on the boundary wire fence. He had used the altimeter in the circuit rather than glide angle judgment as he had been taught

154	Not applicable	–	N	**.8.93 1330	**Incident Report**	45	M	–

The glider had just released the winch cable and the winch driver had begun to wind in the cable. Almost immediately the cable on the drum began hitting the underside of the cab and started to break up. Pieces of cable came through the grill on the floor and caused multiple cuts and punctures to the driver. The grill also lifted preventing exit.

155	Super Cub	TUG G-	3P	**.9.93 1510	**Incident Report**	0	N	–

The normal aerotow tug approach crossed a public road. This had caused no problems until a tug pilot had to change the landing area due to an obstruction ahead. The change in direction caused a reduction in the clearance of the tow rope which the pilot failed to appreciate. The end of the rope damaged a car driving along the road.

156	Bocian	1951	S	26.9.93 1430	Crowland P2	61 48	N N	800 0

After the early student pilot had completed a series of turns P1 took control and headed back to the airfield. He decided he could not make it back so chose a good field, but had to land near the access gate. On finals, into a strong wind, he hit severe curlover from trees and a wingtip touched before the wheel and caused a severe groundloop.

157	Jantar Std	2413	M	28.9.93 1700	Aboyne	44	N	360

After a wave flight the pilot came to land after a number of other gliders and he decided to land short as the runway was obstructed. On short finals he encountered strong sink and despite closing the airbrakes undershot on to some rough ground 10m short of the runway. During the landing run the undercarriage collapsed.

158	K-6	2314	M	18.9.93 1155	North Hill	58	N	46

The pilot was approaching into a moderate wind at 47kt when he realised as he came to flare that the speed was too low. He shut the airbrakes but the glider stalled and landed heavily as it passed through the wind gradient. The tall pilot's head shattered the canopy and the forward fuselage was damaged.

159	K-13	2610	M	21.8.93 1800	Challock	43	N	600

While on a cross-country the pilot had to land in a cut corn field and hit some clumps of earth which holed the fuselage fabric. Upon inspection further u/c damage was found that may have been caused by a previous landing that had not been reported

160	K-8 & K-13	3434	M	8.8.93 1900	Challock	58	N	19

The pilot was making a "hangar landing" late in the day. The landing area was clear and the touchdown was made with the stick back and full airbrake. Immediately after this the glider hit a deep rut and became airborne again. While the pilot relanded the glider the wingtip hit the fin of a parked glider that had been out of sight on the approach.

F=Fatal; S=Serious; W/O=write Off; M=Minor; N=Nil.

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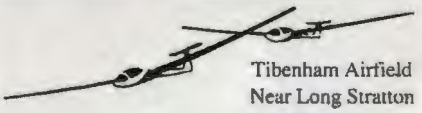

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Derrick Phillips (Std Cirrus) of Stratford on Avon GC photographed by Vernon Brown over Bishop Hill, Portmoak after a wave flight to 13 000ft. The glider was one of four in a fire at Snitterfield last January but has since been rebuilt.

Above: Glyndwr Soaring Club's Pawnee tug flown by CFI "Porki" Conyers and photographed by Geoff Holland from the club K-7. Below: Roger Smalley of Trent Valley GC after 500hrs of fun in his Swallow. Photo: Patrick Gogan.

CLUB NEWS

Copy and photographs for the April-May issue of S&G should be sent to the Editor, 281 Queen Edith's Way, Cambridge CB1 4NH, tel 0223 247725, fax 0223 413793, to arrive not later than February 8 and for the June-July issue to arrive not later than April 13.

GILLIAN BRYCE-SMITH
December 1

ANGUS (Arbroath)
We are progressing well in our move from Arbroath to our new site at Drumshade near Glamis.
G.N.

AQUILA (HInton in the Hedges)
We are running winch course for our members at reduced rates to encourage pilots to stay current over the winter and to give more intensive flying for *ab-initios*.

At our committee meeting David Price took over as social/*ab-initio* member from Bob Murray. Our thanks to Bob for his hard work over the past few years.

Our end of season general knowledge quiz was enjoyable and well attended. Our thanks to the organisers, Caryl Billingham and John Cooper.
S.K.

BANNERDOWN (RAF Keevil)
At the AGM which rounded off our first year at Keevil, the overall soundness of the club was confirmed. The Colerne cup was awarded jointly to Paul Griffiths and Peter O'Fee for their Diamond goal flights. John Dawson received the trophy for the most progress and Derek Seager the cup for best *ab-initio*. Chrissie Fenton was presented with a bouquet in appreciation of her soup dragon duties. Keith Derby won the trophy for member of the year for his invaluable work.

Honourary memberships, newly introduced to our constitution, were given to Sqd Ldr Steve Potter, OIC RAF Keevil, and to David Simeons and Derek Findlay for long and valued service.
D.C.F.

BRITISH FORCES GERMANY (Achmer Airfield)
Brian Trotter and Ian Smith have completed a successful course season although numbers were down due to members committed to Bosnia. Brian has taken over as CFI from Alan Harris and will be the Centre's full time civilian manager/CFI when he leaves the Army in March.

John Rayner, Tochi Marwaha and Peter Cant have gained AEI ratings - but we immediately lost Tochi and Pete due to postings to the UK.Philip Harris completed his Silver badge in August at the age of 16 years and 2 months.
A.H.

BLACK MOUNTAINS (Talgarth)
The wave has been coming thick and fast with climbs to above 10 000ft on four consecutive weekends.

Expeditions from Booker, Dunstable and Southdown and visitors from as far away as Germany and California enjoyed the Welsh mountains and the fine soaring conditions they produced.

The K-13 has been refurbished and looks very smart while the new office should soon be inhabitable. Martin Brockington is now an assistant instructor.
D.U.

BURN (Burn Airfield)
We welcome back to the club a Skylark 2 that was sold to Edgehill some three years ago; also our Super Falke that departed for repairs several months ago!

Tony Eastwood has his Bronze badge and Michael Flannery gained a Silver height at Aboyne.
P.N.

CAMBRIDGE UNIVERSITY (Gransden Lodge)
This term we have had an encouraging intake of University members who have enjoyed midweek flying.

We have a busy winter with social functions, lectures and building work. The firework night, pig roast and quiz night were successful.
M.H.L.

Obituary - Ray Haddon
It is with great sadness that we report the sudden death of Ray Haddon at the age of 55.

He was a full Cat instructor and a tug pilot and had shares in a Dart 17 and a Kestrel 19. He had been a member since the early 1960s and for many years was our course secretary. Last summer he had a very happy time as course instructor with the Kent GC.

Ray will be remembered as a great talker and a friend who had time for everyone and would give his help most willingly.

Our sympathy goes to his stepmother. He will be missed by us all.
Bryce Bryce-Smith

CLEVELANDS (RAF Dishforth)
Winter has arrived early - snow has already prevented flying, in November! Bob Jackson has managed to complete his Bronze however.

His work as an airline pilot has forced acting CFI Paul Whitehead to move south; best wishes and many thanks to him and his wife Polly (field treasurer) for their years' of work for the club. They will be much missed.

CFI Dick Cole has returned from the Falklands, and two other stalwarts, Jim McLean and Paul Mason, from a working sojourn in Italy. Joan Wilson, a visitor for many years, has joined us as soup dragon.
J.P.

CORNISH (Perranporth)
We plan a seven day week operation this summer and will be pleased to see visitors. Ernie, our DCFI, has regained the inter-club trophy from Culdrose.

Chris Willey has his 5hrs. The potential limit on take-offs has so far not affected our operations. We are so optimistic for 1994 we are celebrating with a dinner.
S.S.

Robin Worters of Connel GC flying his T-21, otherwise known as his "Bombus Monticola", over Beinn Lora. Photo: Malcolm Shaw.

Above: Terry Roberts in wave over Dartmoor in a K-8 with the wing of the Zugvogel, flown by his father Richard, just creeping into the picture. Both learned to fly from a*b-initio* with Dartmoor GC. Below: Bryan Morris photographed Bill Romeling after going solo with Alan Black (CFI) and Colin Wyte (chairman). ➡

CRANWELL (RAF Cranwell)
November 21 brought the first snow for some years to Cranwell with enjoyable flying over a picture postcard landscape.

Brian Halls and Steve Blake have gone solo. We have replaced our K-7 with a popular K-13 and our Discus is being re-gelled and should be back before spring.

Nick Claughton and his team continue their dedicated work on our Chipmunk's extended annual and refurbishment.
R.A.B.

DARTMOOR (Brentor)
The autumn easterly winds have produced wonderful wave conditions around our site. Josef Nobbs has gone solo; John Clark, Norman Wood and Pat Brady have their Bronze badges and Richard Roberts has a Silver height (see photograph).

We have raised £300 for a child to be treated in Texas for a brain tumour by a sponsored flying day.

The club has acquired a Zugvogel for solo pilots to improve cross-country flying and we have a lively Christmas social calendar.
F.G.M.

DEESIDE (Aboyne Airfield)
At our annual ceilidh dance trophies were awarded as follows:- jointly to Terry Slater and Glen Douglas (best gain of height); Steve Kentish (most meritorious flight); James Davidson (Deeside) the best cross-country according to National Ladder rules from any pilot from Deeside, Angus, Highland or Cairngorm GCs; jointly to Dave and Jack Pirie (all round contribution); James Davidson (club ladder) and Mary-Rose Smith (CFI's award for achievement).

October wave saw us at 22 500ft and in November at 18 000ft. Frank and Derek Cruikshank have their Bronze badges.
G.D.

DEVON & SOMERSET (North Hill)
Another beneficiary of "that day 1993" (June 24) was Tim Smart (Skylark 3B) who completed his 5hrs.

With the success of Enterprise, we followed with a poor August task week with only three flying days. Rex Grayling (K-6CR) won, waving handicap at Tim Gardner (DG-100) and Tim Bardon (SF-27). Then came the Oly 463 and the gang of K-6s. The best day was a Westbury-Halesland triangle over the Somerset Levels.

Retirements are here. CFI Chris Miller has handed over to Simon Minson after five years. David Minson stands down after even longer running the club computer. This was the latest spell in his long service to the club which has included instructor/committee member/chairman. Somewhere he has fitted in some private flying (Gold badge and Diamond goal.)

There are plans for a cross-country training week as well as our usual August task week.
I.D.K.

DUKERIES (Gamston Airport)
Mike Burrows has gone solo and several members enjoyed another expedition to Portmoak where David Urpeth gained his 5hrs. Peter Uden has bought a very nicely finished Std Cirrus.

The old Portakabins have been burned and the area cleared for the new one which will be used as a clubhouse.
J.C.P.

GLYNDWR (Denbigh)
We have had visitors from The Soaring Centre, RAF Cosford, Aston Down and Burn GCs. Paul Wheatley (The Soaring Centre) and John Sproat (Cosford) gained their 5hrs.

Our Pawnee tug has enabled us to utilise the northern ridges at Prestatyn and Bodelwyddan and we can now soar in all wind directions. Richie Toon (Cosford) soared the northern facing ridges to Anglesey - 4500ft in wave.

Alan Davies, Ben Long and Ian Hurle have gone solo. Our "practice" annual dinner was a great success for over 40 members and guests and we are now looking forward to the real thing on February 18.
G.P.

HEREFORDSHIRE (Shobdon Airfield)
Three traumatic months! First the Blanik was grounded with suspected main spar root end cracks and then the tug was u/s and a vital replacement wasn't available anywhere. The Blanik is now back in service but no luck yet with the tug.

But for the help of Barry Meeks with his tug from Edgehill and Derek Wilcox's Rallye from Cranfield we would be at a standstill. Our thanks to them both - during September and October we averaged more launches than normal for the height of summer.

When this is published we will be at the height of our wave season. Come and join us.
R.P.

LAKES (Walney Airfield)
Thanks to David North our annual dinner/prize-giving was a great success. Awards went to Dick Redhead (services to the club); Gordon Furness and Graham Welch jointly (best progress); Peter Redshaw (best cross-country and best gain of height); Peter Craven (best flight); Graham Sturgeon (best non-Silver badge flight) and Phil Gilbert (wooden spoon). After a fiercely fought fight, the club ladder shield was won by Neil Braithwaite.

Mick Mann has gone solo.
A.D.

LASHAM (Lasham Airfield)
We look set to be busy with us hosting our own Regionals from July 9 - 17 plus the International Vintage Glider Rally from August 6-14 and the Junior Nationals from August 18-26. And 1993 wasn't quiet with 250 000 cross-country kilometres flown including 143 300kms, 34 400kms, 21 500kms and almost 3000 trial flights.

This winter's trips north of the border didn't yield the usual crop of badges but were enjoyable. We have plans for a summer trip to Austria.

Discussions continue regarding hangar refurbishment and tug replacement.
G.N.G.

MIDLAND (Long Mynd)
During October we had visitors from Lasham and Husbands Bosworth and enjoyed some wave and cross-country flying. Our course season finished at the end of October.

The November fog cleared for our bonfire party, which was attended by some of the farmers whose fields we landed in during our August task week. Nick Swales has gained his Bronze badge.
A.R.E.

NENE VALLEY (RAF Upwood)
At our recent AGM most of the committee were re-elected and the secretary announced it was our most successful year with 2817 launches on 99 days.

The club has bought another K-7 to replace one of our fleet damaged in a trailer accident. Roger Emms, our new CFI, announced his plans for 1994 with more being encouraged to attempt their cross-country badge flights. It is also hoped there would be expeditions to ridge and wave sites.

Roger Thorogood has gone solo.
G.P.

NORFOLK (Tibenham)
Despite the indifferent autumn conditions we have continued to fly without too many problems thanks to our excellent runways. We have a K-8 to strengthen our single-seater fleet.

An excellent quiz night and bonfire party were well supported and enjoyed.

After 20 years we have managed to paint the hangar - our thanks to Neil Banks for this marathon task. We are about to remodel the clubhouse and toilets in preparation for a busy season.

Our annual dinner and award night is on February 19 and everyone is welcome. Ring the club for details.
K.E.P.

NORTHUMBRIA (Currock Hill)
October got off to a good start with a visit to Portmoak where John Richardson flew Silver distance and Gold height but missed out on a Diamond height by only 300ft. Meanwhile Dave Humphries gained his 5hrs.

Back at home the onset of winter with very heavy snowfalls in November has confined us to the ground with many members involved in repair jobs around the site. This has seen a big improvement in the access road.

Our Bourne winch has been away for a engine rebuild, continuing our improvement plan for increasing the launch rate.
J.T.C.

OXFORD (Weston on the Green)
At our AGM in November Brian Payne became vice-chairman, Howard Stone treasurer and Chris Buck and Peter Awcock joined the committee. Steve Evans stood down as CFI and Chris Emson has taken over.

The ladder trophy and the cup for the best height gain from Weston were won by Martin Hastings ; the cup for the most outstanding flight of the year went to Phil Hawkins for his 500km round Salisbury and Lincoln; the trophy for the first Silver duration of the year was won by Roger Pitman and the trophy for the best flight in a club glider went to Chris Emson and Howard Stone for their 300km in the Acro. The award for ser

vices to instructing went to John Gibbons and the flying brick award to Steve Evans for messing a TP photo on an otherwise excellent Diamond distance flight.

Congratulatory bottles were presented to Gordon Craig for his competition successes, to new instructors Howard Stone, Andy Butterfield and Andy Barnes and to Martin Cooper for almost getting his Diamond goal.
F.B.

PORTSMOUTH NAVAL (Lee on Solent)
Our facilities have improved considerably with the acquisition of a new clubhouse and we are eagerly awaiting our new Discus.

Simon Noel has gone solo; Steve Crampin has a Bronze badge and Julian Oswald a Silver badge.

Our thanks to Deeside for hosting an enjoyable expedition in October. Our Christmas dinner is in January.
J.P.

RATTLESDEN (Rattlesden Airfield)
It's all change at Rattlesden. Brian Griffiths has stood down as CFI after more than four years and we are grateful to him for his hard work and encouragement. Martin Raper takes over.

We were pleased that Humfrey Chamberlain was honoured by the Royal Aero Club at their recent awards ceremony. (See the October issue, p280.)

The Christmas dinner was very enjoyable and there have been a series of lectures organised by the CFI and instructors.
M.E.

Obituary - Jean Towse
We were all very saddened by the untimely death of Jean Towse, a real friend of the club. She was for many years the first point of contact as she ran so well the instruction courses and assisted with the social events, helped by her husband Alan, daughter Karen and son-in-law Mark. Our sincere condolences go to them all.
Mike Elmer

SHALBOURNE (Rivar Hill)
Our AGM in November was well attended but unfortunately three committee members have retired including Denis Maynard, our chairman. Steve Ottner has taken over with other committee newcomers being Neil Lloyd (equipment member), Graham King (aircraft member) and Alan Brand (airfield member).

Trophies were awarded to Alan Pettitt; Brian Vowell; Mark Wooldridge; Dave Owen; Rod Harris and Chris Owen, who also has his Silver height.
J.R.

SHROPSHIRE (Sleap)
We have had minimal flying this autumn - the worst on record. Dave Triplett and Andy Chapple now have a self launching glider, so we are able to invite another syndicate to join us. Please form and orderly queue.

After 47 years of fairly continuous gliding, Tony Adams flew a Gold height at Feshiebridge in October to complete his Gold badge. This must qualify for some sort of booby prize.
T.A.

SOUTHDOWN (Parham)
We have continued to enjoy a late season of wave flying and hill soaring with the ASH-25 being put to good use. Bob Adams, our field landing expert, has almost reached double figures this season. He is now generally at home among the south of England farming community.

We have a few new machines from a Turbo Discus to a self built wooden Pegasus flown by John Lee. Considering the recession we have done remarkably well to be only a little below budget.

We are now rat and mouse free thanks to Henry the airfield cat. Only red tape and airfield restrictions prevent him from going solo.
P.J.H.

TRENT VALLEY (Kirton in Lindsey)
We welcome our new CFI Cliff Whitwell. Roger Smalley has flown 500hrs in a Swallow (see photograph); John Kelsey has gone solo and David Bienez flew Silver distance in the Pirat.
M.P.G.

TWO RIVERS (RAF Laarbruch)
We have moved from our old premises and now have a large new clubhouse with excellent facilities.

We had a season of poor weather but"Spud" Hallam flew 500km in Poland; Tim Rommen has a Bronze badge; Julie Nethercott a Silver badge and Jason Curtis, Andy Brown, David Ratcliffe, Colin Langford, Paul Brailey and Grant Hamilton have gone solo. Alistair West has an AEI rating.

We had a two day mini Comp in August when German and Dutch clubs competed. It was a great success with the best weather for many weeks

The Open Class was won by Ian Smith/Roger Davies and Vince Mallon/Tim Rommen came 2nd in the Club Class. Our thanks to everyone especially Andy Gardiner and Roger Davies, the organisers.

We have had a large exodus of members to the UK and we thank them for all their hard work.
J.N.

ULSTER (Bellarena)
Aircraft and operations were moving to the new club owned site over December 4-5, later than planned but before expiry of the lease on our former field. By that time all the caravans had transferred, the toilet block was operational and the minor portions of the big, flat field which had been levelled and reseeded were greening nicely.

Easements have been granted by the authorities which permit incursions of the 0-2000ft otherwise prohibited zone around Magilligan jail to the north.

All club and privately owned aircraft fit easily, rigged within the 15 000sq ft hangar we have built; bring your aircraft as a visitor and we may be able to fit you in, too.

An appropriate time would be from April 1-10 for our task week and fly-in to mark the ceremonial opening.

Dublin and Dunstable contingents are already committed but there's room for you. Either winged or wingless, be there! Phone 0232 790666, 08494 33341 or 05047 62105 for details, including ferry deals.
R.R.R.

VALE OF WHITE HORSE (Sandhill Farm)
Gilbert Burge and Bernard Marret have AEI ratings. Our midweek flying is proving very popular and we should be a seven day week operation by the spring.

Our long suffering CFI Steve Foggin has handed over to our new full Cat instructor Gordon Walker to give more time for his own flying.

Steve first became CFI in 1973 and has done all but four years since then! We thank him sincerely for all his efforts on the field, flying and the maintenance of club gliders and equipment.
S.F.

YORK (Rufforth Airfield)
Following a very busy summer the autumn weather has been poor.

At the annual dinner trophies were awarded to Tom Stoker (best cross-country); Howard McDermott-Row (club ladder); Pete Ramsden (highest climb) and Colin Richardson (Silver spanner). Tony Simms provided the cabaret.
H.McD-R.

WAY OFF TRACK

You lost a sale, Bert!

Increasingly, in every field, if responding to advertisements, we're asked to contact simply "Pete", or "Sue". The creeping curse of pseudo familiarity, of glad-handing US-style buddyship, is not leaving even gliding unscathed.

Recently, I perused a new freesheet which has appeared in clubrooms round the country. It duplicates *S&G*'s useful function in making known what gliders are available on the second-hand market, even if its bizarre or non-existent punctuation often makes its small ads ambiguous or, at best, unclear. And, of course, it doesn't offer the benison of *Way Off Track*.

But by far the most irritating feature – not entirely absent, too, from the small ads in *S&G* – is the implied assumption by advertisers that they are the only Pete or Sue in their particular milieu. More than half those freesheet ads which carried any name at all had only a forename.

You've guessed it. I phoned a number and asked, let's say, for Bert (the name is deliberately changed to avoid embarrassing the advertiser). "Bert who?" my irascible interlocutor – clearly the operator of a busy PBX – inquired. "We've got several Berts here." It was the HQ of a large financial institution employing several hundred workers, she tartly explained. How should she know which particular Bert had a glider for sale?

I didn't persist and rang off. It only occurred to me later that, had I done so, the berkish Bert may have been able to offer the easiest of financial terms.

First names only are also beginning to appear in some club notes here – great if you're a member of the club submitting them and don't already know but not such a gripping read for 10000 other pilots within the BGA. (Hope you're enjoying the ASW-20, Stuart and Steve. Does Graham also like the DG-100, Dave?)

And if you're the Charlie waiting to bask in approbation for refitting the bar single-handed within a budget limited by a skinflint committee at only £4. 10, you don't want to be mistaken for the notorious Charlie who gained far wider fame by breaking the Bocian with an undershoot on to the local squire's roof.

Have a flutter this spring with the BGA 1000 Club Monthly Lottery. Details from the BGA office.

CLASSIFIED SECTION

TO PLACE AN ADVERTISEMENT IN THE CLASSIFIED SECTION, please send your remittance together with a copy of your wording to Tiffany Rolfe, BGA, Kimberley House, Vaughan Way, Leicester LE1 4SE (Tel 0533 531051 or Fax 0533 515939), before March 3 for next publication. Any advertisements received after this date will be carried forward to the next edition of S&G. Rates 70p per word with a minimum of £14.00. Black & White photographs accepted £6.00 extra. Box No. £3.00 extra. Prices include VAT.

FOR SALE

TWIN ASTIR TRAINER, basic instruments, tail wheel, aluminium trailer, parachutes, £16 200. **PIK-20D** instruments without radio and trailer, £9500. **ASW-19B**, with instruments and radio FSG-15 without trailer, wings newly painted '91, £12 000. **ASW-15B** with instruments, radio FSG-15, trailer, £8500, glider newly painted last year. Tel/Fax 010 358 17 21675.

DG-500/22 Elan two seater, high performance flapped sailplane. This machine was first flown in 1992. It is fully instrumented including Cambridge S Nav, Becker 720 Radio, Horizon, Boli Compass. The outfit includes all rigging and tow-out aids, two parachutes and Cobra trailer. Full outfit for sale, contact Simon Lewis on (W) 071 490 7171 or Bob King on (W) 0923 240525.

CARMAN 15WR, improved Libelle with Wortmann wing, powerful dual airbrakes, larger cockpit etc. oxygen, parachute, barograph. Solo rigging and tow out gear, excellent AMF trailer. £11 500. View Hus Bos. Phone 0604 880698.

DISCUS BT, hull only. Offers around £40 000. Tel 0844 34 4345 evenings, 0844 34 3036 daytime.

GROB ACRO 25 with instruments. Full set of AMF fittings. Many Acro III features. As new. £26 000. Tel 0844 34 4345 evenings, 0844 34 3036 daytime.

LS-7 HULL £28 500 (basic panel available). Tel 0844 34 4345 evenings, 0844 34 3036 daytime.

RF-4D Aerobatic. Good condition. Recently rebuilt. Low hours engine. £13 800. Tel 0844 34 4345 evenings, 0844 34 3036 daytime.

TRIMBLE ENSIGN still in box never used. £250. Tel 0844 34 4345 evenings, 0844 34 3036 daytime.

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ICOM IC-A20. EW Barograph. Martin Blake 0332 551496 (home) 0602 877622 (office).

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

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ADVERTISERS' INDEX

Airborne Composites	32	London GC	5
AMF	6	London Sailplanes LTd	6
Anglo Polish Sailplanes	7	Lowndes Lambert Ltd	12
Australian Soaring Centre	44	Medway Flight Training	44
Baltic Sailplanes	21, 53	McLean Aviation	10
Bennalla GC	45	Midland GC	47
Bidford GC	45	Newton Books	30
Black Mountains GC	54, 55	Norfolk GC	47, 55
Booker	37, 55, 56	Northumbriair	18
Bristol & Gloucestershire GC	46	North Yorkshire Sailplanes	12
BGA	5, 39	Oxfordshire Sportflying	46
Cair Aviation Ltd	4	Parker Sailplanes	4
Cambridge Aero Instruments	2	Piggott Bros	30
Cambridge University GC	5, 54	RD Aviation	IBC
Centreline	43	Rematic	30
Citroën	8-9	S&G	45
Peter Clifford	46	Schofield Aviation	53
Cotswolds Gliders	55	Scottish Gliding Union	42
Coventry GC	20, 46	Sedgwick Aviation	3
T. L. Clowes	12	Severn Valley Sailplanes	46
Derby & Lancs GC	46	Skywings	54
John Edwards	30	J. L. Smoker	20
Enstone Eagles GC	56	Shenington GC	51
European Soaring Club	54	Soaring Oxford Ltd	6
EW Avionics	2	Southern Sailplanes	OBC
Anthony Fidler	55	Skycraft Services	30
Goodison Glider Instruments	46	Stemme Motor Glider	13
Glider Instruments	12	Roger Targett	4
Glyndwr Soaring Club	45	Tan-y-Gyrt Hall	56
HT Communications	12	Thomas Sports Equipment	4
Hill Aviation	13	The Gliding Centre	55
ICOM	52	Brian Weare	44
Irvin Gt Britain	26	Wells Design	53
IMC	52	Tug Willson	46
JJ Associates	44	C. P. Witter	54
JSW Soaring	51	Wolds GC	45
Kent GC	46, 56	Yorkshire GC	IFC
Lasham GS	47	Zulu Glasstek	56

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>
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