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Cover: A triumphant Andy Davis, World Standard Class Champion, photographed for us by his father, Bill.

SAILPLANE & GLIDING

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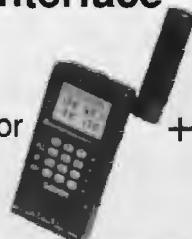
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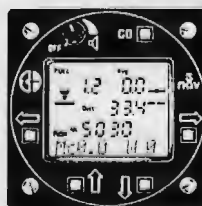
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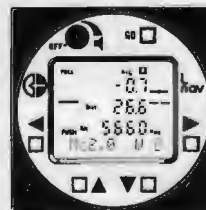
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YOUR LETTERS

MORE ON BADGE REQUIREMENTS

Dear Editor,

Here in South Africa we are in the process of upgrading our requirements for official observers. This has required a fairly full study of the latest **Sporting Code**. Like your June correspondent Gordon Kerr ("Frightened of Badge Attempts", p127) I was also fairly appalled by the requirements for a fixed camera and chinagraph mark for the earlier grade of badge cross-country - and even for the higher grades for that matter. World records and maybe National records perhaps, but really who cares if an individual cheats him/herself?

I thought Eric Smith's answer as a BGA official was pretty puerile. How many clubs have a Lasham type video photo interpretation system which, I note, only gives a "faint" showing of the chinagraph mark?

Fixed cameras do give better results, I agree. Does every club have to put universal camera mounts suitable for any member's camera in all their cross-country gliders?

I don't think much of Smith's reply on distance calculations either. I hope the BGA Executive will make representations to the FAI telling them not to be so stupid.

JOHN ELLIS, *Pietermaritzburg, South Africa*

A DUSTER BUILDER REPLIES

Dear Editor,

Surprisingly, (since I am one of that rare, indeed almost moribund, breed referred to in the last Tail Feathers, p194) I find I must agree with some of Platypus's thoughts on home-building.

While there are many reasons why you might consider building your own aircraft, the principal one must be that you want to. If this is not the case then you are almost certainly doomed to disappointment. If this is the case, however, you can cheerfully discount the value of your labour to zero in the same manner that we do not cost the value of the real time we spend gliding. Such creative accounting can be used to justify many of our excesses.

Unfortunately, I am not in a position to compare the cost effectiveness of operating a Libelle with that of my little Duster. I couldn't afford a Libelle in 1979 and I still can't afford one.

Anyone who owns a glider (especially one that has been thrashed around Australia) knows there is more expense involved than just buying the wretched thing. Because I built mine I can maintain it and have the confidence to insure it *third party only*. This little gem of information forms the final part of my briefing to anyone who flies it. I find it concentrates their mind wonderfully and produces some superb landings. You can have a go in mine Platypus, if I can have a go in yours.

Most years I use the money saved on insurance to buy a ferry ticket and enough diesel oil to get to the Alps where I seem to have become something of a curiosity. There are usually plenty of people who are interested enough to talk to me, and this helps a lot when you are less than fluent in a foreign tongue. Would this be the case if I took a Libelle? If I owned a Libelle could I afford that ferry ticket?

The Duster has certainly added something to my enjoyment of the sport which I can only struggle to quantify. "Satisfaction" is too simplistic and anyway I certainly don't feel less satisfied with flights in gliders I haven't built myself. Perhaps an example will help to explain what I am trying to say.

Some years ago, when the ASH-25 was a very new shape in the sky, I was joined in a thermal by one containing Hans-Werner Grosse. As we climbed together out of that beautiful valley, I like to think that he spent just a few moments wondering what mine was while I wondered what his was.

IAN BECKETT, *Taunton, Somerset*

TRAILER SNAKING

Dear Editor,

Phil Lever (see December, p309 and August, p189) has performed a useful service to the gliding movement by airing once again the matter of trailer snaking. This subject surfaces in S&G once every eight years or so - probably about the time it takes for the important key points to be forgotten around the clubs!

Whilst discussion of such exotica as temperature effect etc on snaking is certainly interesting, there are a number of fundamental points worth remembering which contribute to this problem, and which can be influenced by the driver.

1. The heavier and more powerful the towcar the better.
2. The shorter the distance from the rear axle to the ball the better (*ie* lightweight booted cars such as the Ford Orion are less than ideal towcars).
3. The stiffer the towcar rear suspension the better.
4. In general it is better to have more, rather than less, trailer nose weight. This should not, however, be overdone to the point where the towcar front axle is being unloaded and the steering affected.
5. I prefer stiff, well inflated, cross ply tyres on the trailer for stability.
6. A twin axle trailer will usually be more stable than a single axle.
7. Reduce the moment of inertia of the trailer as much as possible - *ie* reduce the pendulum effect by loading any movable weight to the centre, not the end of the trailer. Even better, load it in the car.

To sum up: If you want to speedily have a snaking accident, find an old, short wheelbase Land Rover with worn spring shackles and tow a heavy two-seater glider trailer with a reel of winch cable at the back. Select a stretch of motorway with a downslope emerging from a cutting. Drive down this with a good crosswind blowing and you will be away (look for the skid marks next time you drive on such a road).

The way to avoid such trauma is to invest in the meatiest tug car you can. For instance, I know of nothing better than the Toyota Landcruiser VX for peace of mind towing - a truly awesome tow vehicle.

However, most people will have to tow with what they have, so what about stabilisers?

A stabiliser will help to disguise a problem, which should not be there if the above points are heeded.

Most stabilisers work on the principle of introducing a yaw damping moment - generally by means of friction linings. One of the most popular and effective is the Bulldog stabiliser from Leisurecraft.

A very clever geometric device which moves the effective centre of rotation of the coupling head forward some 18in is the Trapezium - an effective but expensive installation.

These devices all rely on elements being fitted to both the car and the trailer - not a suitable solution in a typical gliding club where any towcar may need to tow any trailer. The best way round this problem is to employ one of the new German trailer coupling heads which actually grip the 50mm coupling ball to provide damping force. The best example of these is the AL-KO 2000.

Trailer smashes are not reported in our accident statistics, but in some years (from what one hears) the damage done to gliders on the roads is a very significant proportion of damage due to flying accidents. If I were an insurer I would only cover a glider on the road if its trailer were fitted with an approved coupling head damper.

Why don't we protect our expensive toys better?

RODNEY WITTER, *Witter Towbars, Chester*

Dear Editor,

I have read with interest the various letters on trailer behaviour in recent issues. These have explained some of the causes of car instability but what is it that makes one trailer unstable while another tows impeccably?

Involvement in the design and building of a number of trailers, which happily have all towed well, have lead me to some conclusions.

What would be the ideal specification for a stable combination? For the car; long wheelbase, minimum rear overhang, handling bias towards understeer. For the trailer; (all other considerations aside) wheels at the rear - which is where they are on every 40 ton articulated lorry you have ever seen.

For reasons of balance, practicality demands that the wheels be around the centre of the trailer. On clamshell-type trailers, they are in fact often placed well forward of centre, so the trailer can be balanced with the wing roots at the front.

For many owners, the ease of rigging this allows outweighs any towing disadvantage, while modern lightweight designs minimise instability in any case.

Why should there be any instability if the trailer mass is well balanced in the first place? I believe that this has to do with the position of the wheels relative to the aerodynamic centre of pressure (if this is the correct term in this case). My conclusion (probably over-simplified) is that if the wheels are behind this point, the trailer will be positively stable, and vice versa.

Finding the centre of pressure accurately would be a job for someone with a wind tunnel. However, at least with the box-type trailer traditionally home-built in the UK, a simple way to ensure the best possible stability is to arrange the components so that their collective C of G is as far *back* as possible (*ie* wing roots to the rear, also tailplane, spare tyre, etc), and

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then to place the axle as far back as a reasonable towbar loading will allow.

If the resulting wheel centre can be 100/150mm behind the centre line of the trailer box, it should be stable even at high speeds and with a minimal weight on the towbar.

Another aid to aerodynamic stability is to construct the towbar so as to give the trailer floor a slight nose down attitude when on tow. This has much the same effect as an air-dam on the front of a car, and does not noticeably add to the drag. Clearly, overall shape can also affect stability.

Even those readers who have never exceeded speed limits (all three of them!) should be interested in this subject: the faster a trailer can safely be towed, the greater the safety margin at the legal limits and in difficult conditions. I for one hope that readers who know more than I do about high speed stability will write and tell us.

ALAN SANDS, *St Giron, France*

THE BUY GERMAN QUESTION

Dear Editor,

Brennig asked in the June issue, p154, "Why do we have to buy German?" when he must be aware that the answer was provided many years ago by Sir Michael Edwards when he was in charge of what was left of the British motor industry and stated, "Britain does not have the engineering capability."

This answer still arouses such disbelief among us Brits that it is universally ignored, particularly by those in a position to remedy it. I find myself in agreement with the historian Corelli Barnett (see his *The Audit of War*) that the cause is to be found in our social attitude to engineering as a profession. My previous letter (last issue, p191) was written in the hope that I might find some support for this view.

CHARLES ELLIS, *Ilford, Essex*

S&G YEARBOOK

Dear Editor,

Many congratulations on this year's issue of the Yearbook.

The club directory compiled by Steve Longland is an excellent map and deserves extracting for the clubhouse wall. Please could it be printed on the centre pages next time to facilitate this?

RODNEY WITTER, *Chester*

(Thank you Rodney for your kind comments but sadly we have decided to stop the Yearbook after giving it a three year trial. It didn't sell as well as we had hoped and despite all our attempts at promoting it, some S&G readers still don't know it exists. However, we will be putting the vital information into the magazine, giving readers extra value in future. Ed.)

LAUNCH FAILURE

Dear Editor,

In reply to Bill Dean's letter in the last issue, p187, for the past 15 years or so the pre take-off checks at Mendip GC have been CB SIFTE CB. The "E" in this case is for "Exercise and Emergencies" and reads as follows:-

"Check the nature of the exercise is understood and consider the action required in event

of a launch failure."

This ensures (as far as possible) that every pilot - whether dual or solo - not only considers the possibility of a launch failure and the subsequent actions but also plans what to do should the launch be successful! A purpose for every flight.

The position of this item in the checks is obviously very important and placing it just prior to "Canopy and Brakes" keeps it fresh in the mind.

Finally, am I not correct in thinking that this addition to the pre take-off checks was a general recommendation from the BGA many years ago? Whatever, it certainly works for us and I feel it to be the formal solution to the problem.

PETER TURNER, *CFI of Mendip GC*

UTTER RUBBISH

Dear Editor,

Like Pete Disdale (August issue, p187) I rarely write to the magazine, but consider a lot of what has been written by so-called experts as utter rubbish and no way represents the real world of flying training or club organisation. However, after the last issue I am incensed that Mr Dean (p191) can be given credence. He has obviously never seen a glider launched with its wing on the ground and the resulting cartwheel and badly damaged glider and pilot.

As for anything else added to the end of our check list, well I suppose we could add on a few prayers.

There, that feels better!

TERRY JOINT, *CFI of Lasham GS*

TOWARDS A NEW STANDARD CLASS

Dear Editor,

The idea behind the Standard Class was to keep costs down by limiting the span to 15m but this hasn't occurred since designers try to squeeze the maximum performance from that specification. There is a similar situation in the yachting world where you have one design, development and restricted Classes etc. The only winner is the manufacturer who with a restricted market isn't interested in keeping costs down.

I propose therefore a new Standard Class restricted to an L/D of 40 at 50kt, but the shape and size left free so that designers can work towards the lowest cost. For a start I want a standard cockpit. The bum dome would be a one piece moulding in polycarbonate with frp inserts for strength and the canopy an injection moulding in perspex or polycarbonate which fits so perfectly you can't see the join. The rear end face is behind the pilot and bolts on to a bulkhead at the front of the fuselage. This interface and everything ahead of it would be standardised and cheap to manufacture. The nose, which is often damaged in prangs, could be replaced by a new one.

All aerofoil sections would be extruded, but the stiffening spars within them would be machined I-beams or the like, glued into slots within the section. The lack of any taper on the section is a disadvantage, but if high aspect ratios can be attained a Whitcomb winglet stamped out of plastic and stuck into the end of the section should cut some of the losses. The

rudder and tail would be made in the same way.

The rear fuselage would be an extruded tube. The main design problem is the section between the wing roots holding the controls, undercarriage etc. This would have to be in two halves split in the centre line and bolted together. Ideally it should also be a polypropylene injection moulding reinforced with GRP laid into slots or grooves moulded into the structure.

It might not look very pretty but it might be a great deal cheaper than the current crop of gliders. I would like to see the instrument panel replaced by one or more LCDs with all the instrumentation run by an integrated package on the grounds that electronics are now much more reliable than the current crop of WW2 specification instruments and displays.

The upper part of the LCD would be above the centre line, transparent and function as a head up display. A lot of cheap and reliable electronics are produced for the car trade such as accelerometers. With enough of these you could do without gyro instruments. Used differentially you can measure pitch, roll and yaw combined and climb and acceleration - integrate these parameters and you measure speed, altitude, position etc. You will get cumulative errors, which the pilot or a GPS system can extract so that you get automatic error correction.

A glider without either a turbo or self launching ability is a big mistake, but why pay a lot of money for an aircraft engine when a lawn-mower engine might do as well? Some of the fans which suck air through car radiators are beautifully made - one of these bolted on to a grass strimmer might make a perfectly good turbo.

In short, with a fixed market the manufacturers aren't interested in cutting costs. The initiative must come from us. It is vital to keep down the cost of gliding. One year at Feuntmilanos, Spain, the tugs were U/S but launches, with the double drum winch, and the rate of contacting thermals was unchanged. If all gliders had turbos they could be winch launched to 1000ft and motor around until they found lift.

In all this I admit I am not an expert, but if a duffer like myself can come up with ideas like this what could some of the real experts, of whom there are many in the gliding movement, produce?

BRENNIG JAMES, *Marlow Common, Berks*

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. It saves time and bother if all contributions are sent to the editorial office at Cambridge and not to the BGA.

BGA Shopping: How about cutting a dash in a BGA "beefy" T-shirt in 100% cotton (made by Hanes in the USA) for quality wear? They are royal blue with a white glider motif and cost £6.50 plus 45p for p&p. Or on those quiet non flying days you can always impress with your glider playing cards - T-21, T-31, Kite or Cadet backs. They are £2.55 per pack plus 40p postage.

Lasham after flying over it 100 times in 32 seasons then I didn't deserve a Bronze badge, let alone a 750km diploma.

Having lived on the south coast and soared over Devon years ago, Robin was keen for us to try the ragged edges of the sea breeze front at Exmouth (350km). This was not the feast that we hoped for and after a number of not very profitable nibbles, the ASH-25 having caught up with me south of Chard (380km), we headed inland and began some pair flying in earnest. The leeching-theory worked fine for 40min or so, then Robin cored directly into 7kt without a second lost in searching. Ironically this was in the very area where he had got stuck 5hrs earlier. Four turns took him to 5000ft and and I never saw him again, except briefly as he flew far above me, going in the opposite direction, on the last two legs. He gave me the co-ordinates for TP three (Hinckley, near Coventry, 667km) and vanished. Damn it, there are four legs to this blasted thing?

Teatime treat

This was the most consistently excellent part of the day. At Lasham (518km) the local gliders were bathing in splendid lift: 5kt to 5000ft at 4.45pm. "We're in with a shout if we make Lasham before five" Robin had said as we passed Andover heading east. Well, *he* certainly was in with a shout, romping ahead under fat streets. I was less sure for myself, but his weather reports were helpful and encouraging, despite the widening gap between us. By seven o'clock it was distinctly dying, the remaining thermals were getting further apart and to get low would be a disaster.

Robin had rounded the last turn and was climbing comfortably to meet the glide path for home, to land at 7.20. As he touched down my own last climb was just beginning, an agonisingly slow 57ft/min according to the EW barograph, near Towcester (715km). One ft/sec! Other gliders would simply not have risen at all. The actual rate of climb bothered me less than the fear that it might just peter out insufficiently high and dump me in a field at dusk with only 749km in the bag. (I was intrigued to have for 10min or so the company of what looked like a side-by-side powered glider with a pusher prop located behind the wing and above the tailboom. They were circling too far below for me to tell whether they were soaring or pushing. Anyone know what that was?) Finally the Cambridge MNav assured me that me that I could get in comfortably, unaware of how much unmentionable garbage had been stuck to the wing, and I kissed the tattered and exhausted cloud good-

bye, and tiptoed homewards. Whatever else people say about June, the days do go on and on.

An uncorking finish to a corking day

At exactly 8.00pm, 9hrs 20min and three pee-bags after take off, I rounded the Dunstable clubhouse where a sizeable knot of members had gathered, and landed to a champagne reception for the two pilots and the ASH-25's navigator, rising star Henry Rebbeck. This elegant tribute had been arranged at almost no notice by Siobhan May.

As I said, it's marvellous to have really organised people around the place.

A BIT (BYTE) TOO FAR OR HOW NOT TO RECORD YOUR 750KM

Dave Caunt gives his account of the day

Wednesday, June 23, 8pm – G and Ts in the garden, watching the last cumulus decay when it dawned on me tomorrow was the day.

Thursday, June 24 – Beating the dawn chorus, the Nimbus 2 was ready and watered by 8.30am. Which task would it be? York was out as a front was approaching from the north. A double O/R was the answer. Lake Vrynwy, Stokenchurch mast, Long Mynd clubhouse and back to Booker – 771km. Punch TPs into GPS. Switch on EW recorder set to 10sec (Yes, I obviously did get up too early.)

It was a good day!

Launch at 1054 to 3000ft. Cloudbase was 2000ft above Booker. Glide off towards Oxford hoping it was going to work. First climb at Wheatley 4kt – it was a good day!

Wales. Thermals are always different, still, Welshpool by noon and only a few more minutes to Lake Vrynwy. I forgot all about the bad witch who lives in Lake Vrynwy. As I climbed at Welshpool the sky went overcast and the headwind freshened to 17kt (you can tell this with a GPS). The next hour round that damn dam and back to Welshpool was, to put it mildly, a struggle.

Stokenchurch at 3.50pm. They thought I was mad at Booker setting off for the Mynd but that's what a 750 is all about. Ten minutes later – 6kt to 5000ft. The day was improving. Wrong again, that was the best of the day!

Back to Wales. Clee Hill. Had a close inspection of the aerial which was rotating at about the same speed as I was. Watered a field short of the Mynd and took photograph at 6.08pm.

Homeward bound. From Clee Hill the sky had sparse cumulus to the east but I started to have doubts. Worcester had a huge black bottomed cloud which would give me a big step home.

Once again counting chickens was bad news. Finding a climb took ages and it was only 2kt. As it petered out I headed closer to home. Bidford seemed inviting but after scratching around a weak climb put me within gliding distance of Enstone. The last clouds in the sky were over Chipping Norton so I headed that way. Once more the merest hint of lift and very very slowly I gained height and drifted on the light breeze towards home. There was no chance of any more climbs and as I climbed I realised I had dropped the most awful clanger. I had been airborne for over 10hrs and on a 10sec interval my EW memory would be full. That was the most disappointing moment of my gliding career. Still if I could do over 740km I'd know ...

For the last 20min the THERMS (Thursday Evening Rain Making Society) had been willing me home. The lift petered out and I started gliding towards the Chilterns. I even deviated to go over a couple of bonfires in Kidlington to no avail.

Knowing the whole task had been 771km I reset the GPS to kms and watched them click down as I glided towards Booker. As I passed through 21km I had done it. I carried on until I passed a suitable field, then turned in and landed. It was 8.41pm. I had been airborne for 10hrs 41min and covered 753km. When I opened the canopy and climbed out my worst fears were confirmed. The EW had switched off with a full memory.

The farmer and his wife were such a wonderful couple; they changed the end of the day and made it perfect.

Footnote

The EW Barograph on a 10sec interval will record height and GPS data for just over 10hrs. If there is a GPS mixed fix this will occupy four times the memory of a correct fix. In my case the EW ran out of space after 9hrs and 6min. The worst case scenario would be a continuous missed fix problem reducing time available by a factor of four – ie: 10hrs could become 2½hrs. For future 750 attempts my GPS will not be connected to my EW even on 30sec.

THE DUSTER

Ian Beckett wasn't left behind in his home-build

And at the other end of the spectrum there was me. I do not own a whizzo glider. This is not because I am one of those "if it's not done in a Dagling it's worth n'owt" types, it's simply that I can't afford one. Neither am I a very good pilot (ask the instructor in the K-13 I confronted in the circuit at L***** the other weekend). I write these words not as self effacing nonsense but as a message of hope to all those other not very good pilots out there with arthritic gliders – *it can happen to you!*

I suppose it all started when they asked me to be club ladder steward. Now a club ladder steward who is not on the club ladder is hardly likely to generate a lot of respect for the scheme and I decided to rectify the situation forthwith. An O/R to Salisbury which collapsed at Yeovilton

Some statistics

Launch Dunstable	km
To Brent Tor	289
To Lasham	229
To Hinckley	149
To Dunstable	91
TOTAL	758

Pilots	Time on task	km/h
Robin May,		
Henry Rebbeck	Hrs Min	
ASH-25	8 40	87
Mike Bird, ASW-22	9 20	81

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placed me firmly on the bottom of the ladder, and there is only one way you can go from there. The following weekend a lucky goal flight to L***** popped me up to somewhere in the middle and I was beginning to acquire a taste for it.

Then came June 24. After a brief and successful struggle with my conscience at the office, I arrived at the club to discover that Ron Johns was going to attempt a 300km with Phil Morrison in the K-21. With the thought that this would give me a lot of ladder points I photographed the declaration board and the rest, as they say, is history.

Only two things of note happened during the flight. The first was that after 80km I caught up the K-21, which was a surprise to both of us. The second was that in the early afternoon somewhere between Yeovil and Salisbury I watched an ASW-22 slide past just above the trees heading south-west. "He won't get very far if he doesn't get some height" I thought smugly from the security of cloudbase, and headed on towards Old Sarum. Little did I know.

One of the forgotten pleasures of flying low performance gliders is that you don't have to get anxious about which thermals to use for optimum speed. On an average day with cloudbase at 3500ft agl and climbs regularly spaced at intervals of 4 to 6km, I can afford to discard one thermal. This does mean, however, that I am virtually committed to take the next one come what may. If I choose not to take that next one, my last opportunity will be while in circuit for a field, and we are all familiar with the palpitations that can cause.

Another pleasure is that you can "eyeball" final glides. This saves an awful amount of mental arithmetic and you have no difficulty in knowing which way to point the glider. Even so a well judged final glide is stimulating and resisting the urge to loop after rocketing (?) across the air-field boundary, I landed in an euphoric haze some 10min behind the two-seater. Phil was wandering around telling everyone that he couldn't understand why people made so much fuss about Diamond goal flights and he was going to do his at the weekend. Ron sat on the grass, shaking his head and giggling.

"*Hammerwetter*"* was Tom Zealley's comment with a twinkle in his eye, but in fact I didn't think it was a particularly spectacular day. The two principal features which led to the success of the flight were the almost total lack of wind and the regular spacing and consistency of the lift. The flight was carried out in classic climb glide fashion (most cross-country flights in low performance gliders are) and the subsequent analysis revealed the following:

Task length 302km, flight time 5½ hrs, average speed 55km/h, total number of climbs taken 37, operating height band 3000 – 4500ft asl, average overall rate of climb about 2.5kt, best rate of climb achieved about 6kt.

This data was not downloaded from a NAV/GPS/SKY GOLD computer/vario system. It was gleaned in ancient fashion from the barograph trace and a grubby sheet of graph paper containing a piece of pure fantasy masquerad-

ing as the designers "estimate of the polar curve (calculated)."

It is now over nine years since I first flew the little Duster and while my memories can produce flights of greater beauty, I don't believe any since the very first has given me such a feeling of raw achievement. I could get to like this.

So there you are, if I can do it anyone can. But you must be flying and you must be trying or it will not happen.

THE MET STORY OF JUNE 24

Tom Bradbury's assessment

All the Met factors fitted the classic 500km pattern for the UK.

1. Pressure about 1024mb.
2. High/Low ratio of 0.82.
- These two items put the day in the "A" class.
3. Wind mainly less than 10kt.
4. Generally slight anticyclonic curvature of the isobars.
5. Fall of temperature between the surface maximum and 5000ft was about 15°C.
6. Temp/Dew point difference 11-14°C suggesting cloudbase 4400-5600ft by mid afternoon.

Items 5 and 6 suggest that "top ten" speeds of 90km/h would be possible for a 300km contest day. In fact the low cloudbase in the first couple of hours and a few residual patches of spreadout over Wales caused some reduction of speed for early starters who were aiming for 500-750km.

Observations

The moist air formed a patch of low stratus over SE England but this was not widespread and it burned off fairly quickly. There was no significant early morning inversion so thermals started very early and the cloudbase was (at first) too low for comfort. Some pilots set off on task with only 1500ft between cloudbase and ground level, others found the cloudbase came down to 1800ft during the first hour after departure.

As the temperature rose and the dew points went down there was a steady rise of cloudbase and most people found very good conditions by noon, but there were still some dips in the cloudbase till early afternoon. From then on well formed cu gave good lift with some useful cloud lines and no serious gaps to cross.

The gaps began to widen around 1700 but usable clouds existed until about 1930; perhaps even later in a few places.

What had changed?

For many days there had been a rather moist unstable layer capped by a solid inversion. This allowed a rapid development of cu, sometimes a couple of hours after sunrise, followed by vast areas of spreadout which cut off the sun. Nothing seemed likely to alter the situation until the high moved in from the Atlantic.

This long awaited high was delayed by a southward moving trough bringing much deeper cold air which gave showers and even a thunderstorm over NE England on Wednesday. This

temporarily destroyed the persistent inversion but still left the air very moist. The crucial change showed up on the upper air soundings. On Thursday morning the dreaded inversion still showed up at Aberporth on the Welsh coast but it no longer troubled most of England. The chart for 06GMT on June 24 (Fig 1) showed that spreadout still covered the NW with a rather narrow tongue extending across Ireland to Pembrokeshire. A long awaited clear zone separated this tongue from the showery spreadout over Scotland, the North Sea and parts of eastern England.

A tephigram (not published) shows the comparison between the previous spreadout days and the conditions on Thursday, June 24. The important change was the destruction of the big inversion. This allowed clouds to build higher without a solid lid to encourage spreadout. As a result there was much more sunshine, maximum temperatures were higher and the dew points dropped a little.

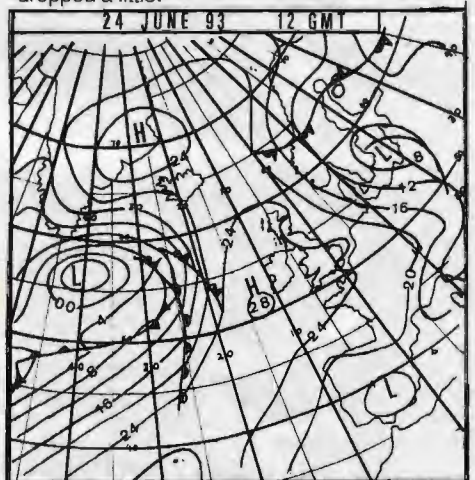


Fig 2

Fig 2 shows the Bracknell analysis for 12GMT. Although most signs were favourable the dew points were not at all uniform. They varied from 4 to 10°C at first but later in the day became more consistent at 6 or 7°C. The only poor conditions were over Scotland and eastern England where the air was still unstable enough for showers and it was so moist that clouds never broke up enough.

And next day?

After one splendid day everyone makes optimistic plans for a repetition. Unfortunately the great day often happens just before the next front arrives to spoil the weather. In fact Friday, June 25, was still adequate for fairly long flights but was spoiled by a lower inversion making clouds shallow and short lived. Then the spread of thick cirrostratus ahead of an approaching warm front spoiled the chance of another long day's soaring. Although the arrival of the cirrus did not immediately check the thermals it reduced their strength and resulted in an early end to the day. Unlike the previous day when it was still soarable at 1930, Friday's soaring ended in many places by about 1700. The NW lost the thermals first whilst in the SE thermals survived a little longer.

* (A German expression for the sort of weather in which you share thermals with sledgehammers, barn doors, T-31s and other normally earthbound debris.)

The ideal cumulus is distressingly rare. Most people know what it should look like:

It has a flat level base, a crisply defined bubbly top with no hairy bits or fuzzy patches and a cross-section rather like an equilateral triangle. It is neither too tall nor too flat. It is evenly distributed like trees in a well kept orchard. If high resolution satellite pictures are any guide this state of affairs is uncommon over the UK. To get these ideal cumuli requires a moderate depth of instability, air which is relatively dry and a wind field with little vertical shear.

For most of the summer we have to put up with an inferior brand of cloud and learn to make the best of it. Photos A and B show just two of a range of poor clouds. Most of the nearby clouds in A have decaying bases. B has no proper base at all, just a bubbly top.

Life of a cumulus

Judging by the radio chatter some pilots have an exaggerated idea of how long a thermal lasts. One pilot will call a partner from many miles away to give the location of a thermal. Most thermals will usually have changed or died out long before the partner gets there. But with luck another may grow in the vicinity to support the laggardly pilot.

It is well to be aware of the life span of cumuli; one can get badly out of phase by sticking too long in a weak thermal, planning to step across to a better looking cloud after gaining a little more height. By the time you at last make the move the next cloud has grown tired of waiting and has shut up shop.

Cu often look better from the side

If you look back at the feeble cloud you have just left it may appear much better now. Perhaps it had a new injection of thermals since you left it. Be warned; many cu look much better from the side than from below. Some apparently well formed clouds look fine from a distance; when you arrive below them they turn out to be badly decayed. However, if your last cloud had lost all its lift before you left it will usually be dissolving into shreds when you look back.

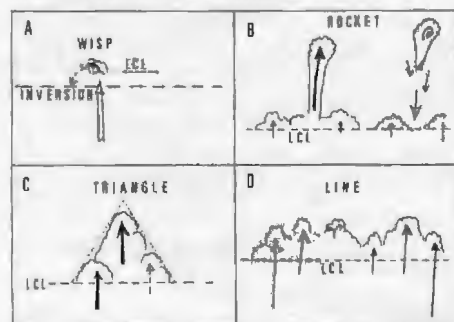


Fig 1. Four examples of clouds with different life times.

Fig 1 shows sketches of cumuli arranged in order of their persistence. Note: LCL stands for Lifted Condensation Level, the level at which air carried up from near the surface starts to form cloud. The term is used to distinguish it from condensation levels due to the lifting of air which started from much higher up. For example altocu

LOOKING FOR LIFT

Some research with powered aircraft suggests that in a field of cumulus cloud only about 10% of the cloudy air contains useful lift. When there is a lot of moderate sized cumuli one can expect at least half the clouds to have little or no lift under them when you arrive. Here are some suggestions meant for first cross-country pilots looking for lift under cumulus

form when medium level air is lifted above a different condensation level.

Sketch A: It is common for the ephemeral puffs or wisps of white which appear just above a strong inversion to disperse in under a minute. By the time you have spotted them the thermal is almost finished. With luck there will be another one along soon. However, if the puff formed just below the inversion (where the air is usually more moist) it often marks a new thermal which lasts just long enough to give a climb.

Sketch B: Tall narrow cu nearly always have a brief life. These "rocket clouds" shoot up in five minutes or less and dissolve two minutes later. Photo C shows a growing tower on the left and a collapsing one on the right. The proper name for these towers is "castellanus"; I think rocket is a more entertaining description.

Sketch C: Cumulus with a roughly triangular shape have a moderate lifetime; many seem to survive ten or fifteen minutes but they may be revived by fresh thermals. When this happens you can watch them start to decay and then rebuild in a different shape.

Sketch D: Cu which form a line often consist of several turrets side by side and these may last half an hour or more, especially if they have formed over a line of hills with sunny slopes.

What controls the life span

The life time depends on:

1. The mass of air in the cloud and the number of thermals which continue to refresh it. The bigger a cloud grows the longer it takes to dissolve but it may become almost inert for the last part of its life.
2. How dry the surrounding air is. Evaporation is slower in moist air so the cumuli take longer to evaporate. In contrast cu which penetrate into very dry air (often found above an inversion) disperse very quickly.

In the morning there is seldom a large reservoir of warm air waiting to form thermals. As a result clouds may only receive one or two thermals. The poor little cumulus is starved of energy and soon decays.

In the afternoon cumuli are usually fed by many more thermals so their lifetime is longer. Time lapse films show these cumuli are maintained by several new surges of lift. Any one ther-

mal has a short life but the general effect is to produce a moderate sized cloud with a life time of 15 to 30 minutes.

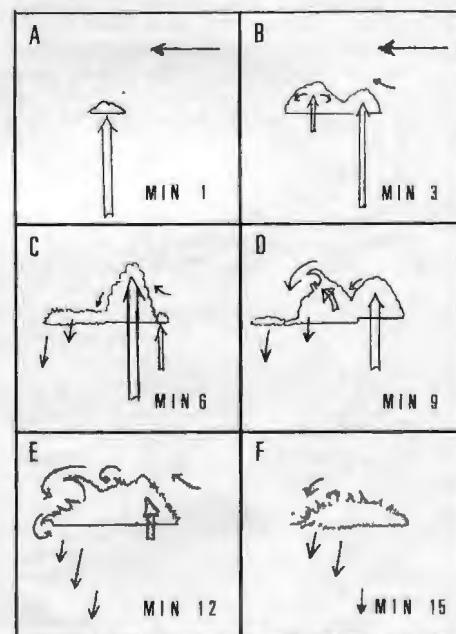


Fig 2. Life cycle of a small to middling sized cumulus.

Fig 2 shows a quarter of an hour in the life of a cumulus:

A is at minute one, a few seconds after the puff forms. If you are nearby this is the cloud to aim for because the thermal is usually fresh and vigorous.

B is at minute three; a second thermal has shot up to produce another little cu along side. It usually appears on the upwind side.

C at minute six shows the second thermal becoming dominant and making a taller cloud.

D at minute nine shows this taller turret curling over in the wind aloft and perhaps forming a short lived hook. Meanwhile a new thermal has produced another cell, sometimes with a small step between the two cloudbases.

E at minute 12 shows the first signs of degeneration. Hooklets, spiky prongs and fuzzy edges



A. Less than half the clouds give useful lift.



B. No good lift at cloudbase; the bubble of lift is all at the top.



C. Short lived rocket cloud shooting up from a cu (left) and collapsed rocket (right).

are usually signs of the dry wind aloft twisting the cloud top over and evaporating the bubbly domes into spikes or hairy bits.

F is the last stage before the cloud disappears. All sign of cu has gone leaving a wispy mess with only sink under it.

Long lived clouds

A cu-nim large enough to produce a substantial shower can grow to maturity within half an hour, and (if no fresh supplies arrive) collapse into shreds soon afterwards. Monster cu-nim which develop into "supercells" no longer depend on a stream of individual thermals. These clouds form in a type of wind shear which separates the warm moist updraft from cold rain bearing downdrafts. The lift becomes a continuous process like a steeply sloping conveyor belt. Near the top the conveyor belt becomes almost vertical. At the top it turns horizontal as it encounters a much stronger wind which blows the air away as a long anvil shaped cloud. The strong wind seems to act like an extractor fan carrying the air away instead of letting it fall back as sink. (But there are still areas of ferocious sink elsewhere!) As a result these monsters have a life time of many hours; they can persist through the night and keep going even if the storm moves over the sea.

Regions of lift

Small cu, whose radius is little more than the radius of the thermal feeding them, nearly always have the lift almost directly under the cloud, or slightly to one side. Even in a fresh breeze thermals do not tilt very much unless the lift has become very weak. But they do move at about the speed of the low level wind. As a result the path of a glider circling in drifting lift is often far from vertical.

When looking for lift low down it is usually best to try upwind of the small cu. This is not necessarily because the thermal slopes downwind but because even little cu are often maintained by a series of thermals. These tend to break away from a favoured region as a series of narrow plumes which follow one another up. As they go

higher the plumes may amalgamate into a broader thermal and form a vortex ring "bubble" at the head of the rising column.

The latest plume is usually furthest upwind; it works very low down (but is usually desperately narrow). Earlier plumes broaden out but they soon become detached from the surface. Thus by flying into wind there is a chance of running into a younger plume lower down. If you fly downwind from a lost thermal the next plume is likely to be above your level.

Which side is the lift?

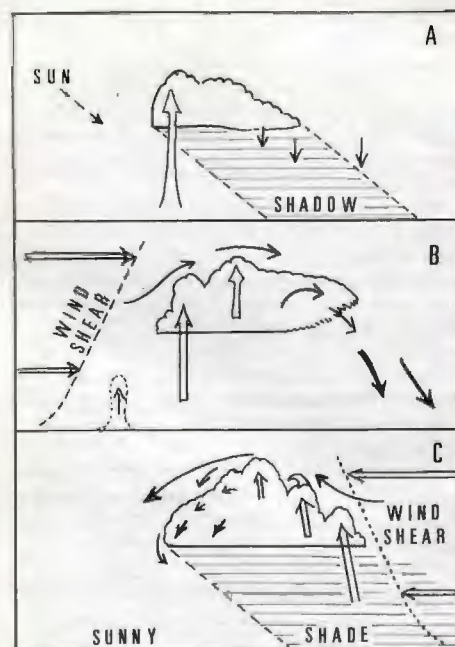


Fig 3. Regions of lift depending on sunny side and upshear sides of a cloud.

Fig 3 illustrates some possibilities:

A shows lift under the sunny side of a cloud. Much of the ground is shaded by the cloud; if the



D. Doughnut cloud; the hole formed when the rocket collapsed.



E. Vigorous cu with strong lift but tops bent over by wind shear.

cloud is very slow moving this shaded ground tends to cool off and inhibit thermals. The best lift is then most likely on the sunny side.

B is an example of the effect of wind shear. The arrows on the left show windspeed increasing with height. When this happens almost all the new thermals start on the upshear side. The cloud reaches its greatest height near the mid-

F. Long extension of cu top due to wind shear.

G. Whiskery bits marking the region of strong lift under dark based cu.

H. Whiskers where new lift formed ahead of a shower.



die and from then on decays so that the down-shear side has collapsing cloud and much sink. One can often find the best lift by circling half in sunshine and half under cloud on the upshear side. This is convenient if the route lies downwind because one comes to lift first. Going upwind one first meets sink on the lee side and then has to fly under a large area of cloud before finding lift.

C illustrates the problem when the shear is reversed. Now the best lift has moved to the shady side and the sunny side has the sink. If the two effects are both weak the cloud may not have a "best" side to approach.

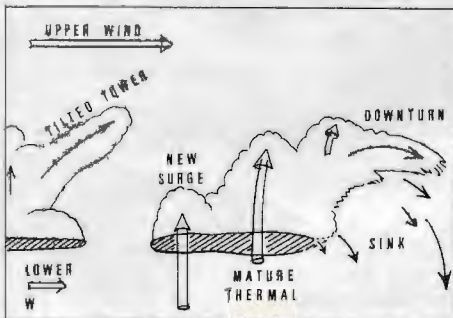


Fig 4. Example of lift in wind shear.

Fig 4 is an enlarged version of 3B based on photos E and F. The appearance of tilted towers of cu show which way the wind aloft is sheared. The cloud has the newest lift on the left; mature thermals produce the main turret near the middle. On the right an earlier thermal has just peaked. Here lift only exists at the summit; there is none low down. Finally the oldest bit of cloud enters the down turn and dissolves in sink.

Lift under larger clouds

When clouds grow larger it becomes increasingly difficult to locate the lift. The level base maintains its appearance for several minutes after a good thermal has drawn up its tail; then it may not be obvious where the next active thermal will enter.

Steps, tendrils and whiskers

Fig 5 shows four indications:

A is an occasion when a large long lived cu has approached the inert stage and only gives weak lift, but a brand new thermal rises off much warmer ground close by. If this new thermal

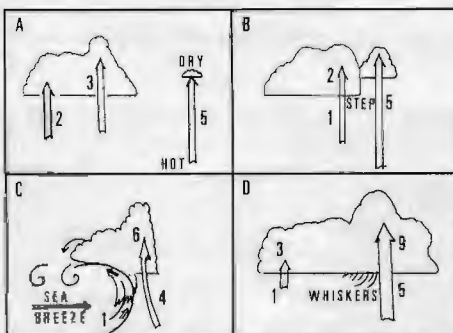


Fig 5. Cloud steps, tendrils and whiskers.

starts off with a big excess of temperature and also carries a large mass of air it does not cool down so quickly as the smaller thermals. As a result it has a higher LCL. Such clouds mark where the best lift occurs and are often worth trying. The figures beside the arrows suggest the lift in knots. They are comparative rather than absolute values.

B shows a similar effect where the new cloud joins the old and feeble one. There is a step in the cloudbase with weak lift under the lower section and strong lift under the high base.

C shows a different kind of step caused by a sea breeze front. The damp sea air has a much lower LCL than the dry land air. When it meets the front the sea air rises rather slowly and eventually turns back seawards into a turbulent region. At the boundary one finds tendrils of cloud. The lift is usually very close to the tendrils on the landward side. It is unusual to see a continuous line of tendrils; they are more often found in patches.

D illustrates whiskers. These are effectively the kind of tendrils formed when there is no contrast of air. Whiskers develop close to the region where strong lift is entering the cloudbase. They are often hard to see from low down but one may spot them when looking slantwise at the cloudbase. They show up best when silhouetted against a brighter cloud in the distance. See photos G and H.

Thunderstorms and heavy showers may develop quite long and straggly whiskers. These can be seen to grow at a slanting angle. It may be that the gust front ahead of a shower has triggered off a new surge of lift by undercutting moister air. It can also be due to moister air from part of an old cloud which had recently evaporated due to prolonged sink. This moist patch is then drawn into the inflow of the new thermal. Whatever the reason whiskers are nearly always a good sign of lift.

If the whiskers grow thick and long and seem to be turning into a full sized beard it may be wise to keep out of cloud unless you are determined to fly in a cumulonimbus.

Rocket clouds and doughnut rings

I call them rocket clouds because they go shooting up far above all their companions and either disappear in a line of shreds or vanish as a little puff. In either case the air comes falling back producing an area of strong sink; the sink can be so strong that it punches a hole in the original cloud. Then one may see a doughnut cloud forming a ring with a hole in it. One does not usually see this shape until very close under the cloud. One pilot flew under what seemed, from a mile away, to be a well shaped cloud only to find it had no centre. He looked up through the ring of clear air and saw a Boeing 747 cross the gap miles higher up.

Rocket clouds form when the energy increases upwards. The narrow rocket is easily evaporated when it shoots up into the dry air. To be successful clouds need to surround themselves with a group of companions. These keep the growing cloud in a moist environment for the first part of its ascent and prevent premature evaporation. It is seldom worth flying directly under a rocket cloud; by the time you have

reached it the lift has long gone and only sink remains. Adjacent clouds may get a boost when the sink spreads out near the ground and sets off fresh thermals.

A feature of isolated rocket clouds is their lack of a firm base. The base degenerates shortly after the rocket lifts off. This is a sign that there is a lot more energy available well above cloud-base than low down. Lift is quite weak when the rocket sets off but becomes very strong higher up. Acceleration is rapid but the cloud is often too narrow to circle in, even if you catch it at the start. I believe that rocket clouds mean that the lift will be patchy, short lived and difficult to use. (Especially in the morning.)

Going into cloud

There have recently been articles on instrument flying techniques. Here are two extra points:

1. It is seldom worth going up into cloud unless you are already in strong lift. Cloud flying in weak lift is often a waste of time. One may hope the lift will get stronger the higher you go. Don't bet on it. If you are well centred in strong lift before entry it often does improve with height. Weak lift too often stays weak and you are left blundering around in a vain search for the main core.
2. If you locate the central core the lift can become remarkably smooth and easy to fly. As you near the cloud top the lift gets rough and finally becomes very turbulent. Full controls may not be enough to keep you in a steady circle and some clouds will throw you out close to the top.

A summary of some general rules

1. Most small and medium sized cu have a short active life so one needs to have an alternative cloud in mind for times when the original choice proves dud.
2. Lift is more likely on the sunny side of a large cu.
3. Lift is often found on the windward side of cumuli, especially if there is an increase of wind-speed with height. This shear almost always produces lift at the upshear side and sink at the downshear end. Time lapse films show that in strong winds these clouds have a rolling motion, rising on the windward side and descending on the lee side.
4. If the upshear side is also the sunny side there is an even better chance of finding the lift entering there.
5. If the sun is on one side but the wind shear is on the opposite side the odds seem to favour the upshear side. Lift then works best on the cloudy side but it may have a zig-zag pattern distorting the lift.
6. Shower clouds tend to produce a gust front blowing off ahead. The gust front triggers off new thermals so the cloud moves partly by setting off new areas of lift in front of it. As the cloud shadow arrives new thermals may be triggered off. This seems to work even if the cloud is not large enough to give a shower. Pilots tacking up and down a ridge often find they can at last get away when the shadow of a big cloud arrives.
7. No set of rules can cover all the possibilities; one may find lift in unexpected places. The flanks of a big cumulus line sometimes give weak lift in clear air. This seems to occur when the cloud is

LOOKING FOR LIFT

growing; if the cloud line is near your planned track it is a splendid bonus.

8. Try to "follow the energy" by flying under as many good looking cu as possible without making a major diversion. Flying straight down the track marked on a map may look shorter but turn out much slower if you meet heavy sink out in the blue between cloud lines.

9. Lift is not confined to well established cu, it may surge up under you in unexpected places such as gaps in a cloud line which are about to be filled in by new thermals.

Finally

Do not be impatient to set off for Silver distance the moment thermals start. Morning cumuli are often short lived and difficult to work. By mid afternoon cumulus nearly always have a higher base and longer life. The thermals are larger and easier to work. Many pilots have found themselves down in a field within twenty miles through starting too soon.



REVIEW

September Icarus and Other Sonnets by Michael Erdman and available at £15 plus £2 p&p from Michael, 58 Lawrence Road, Hove, East Sussex BN3 5QD

Michael Erdman, the Southdown GC glider pilot who has written several poems for *S&G* over the years, has published an elegant collection of his work divided into several sections from war to drawing and painting with 19 on gliding and soaring. He has been a most prolific poet over the years with more than 60 sonnets in this book.

But one gets the feeling that gliding is a special love and Michael writes with feeling on so many subjects of the sport from an appreciation of Derek Piggott, described as the "Teacher of teachers" to a first loop.

THIRD TIME FOR TIM

Tim Macfadyen, flying an ASW-20 *hors concours*, again won the Spanish 15 Metre Nationals held at Monflorite. It is the third time Tim, who is a member of the Cotswold GC, has won this competition.

The Spanish Champion in the Class was Ricardo Rodríguez Menchero who, with other old friends in Spain, was as helpful and welcoming as ever.

The weather was disappointing with only three competition days out of the six, a fourth outland-ing day being no contest. Tasks were of 300km or less. After the competition pilots of various nationalities made flights of over 500km with Club Loreto, Tim's best being 670km. - *Geralyn Macfadyen*.

AVIATION PAINTING AWARD

Roy Layzell, also of the Cotswold GC, has won a £1000 award for the aviation painting of the year. His painting of a Gloster Meteor was shown at the Guild of Aviation Artists annual exhibition. (See also Cotswold GC's report.)

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Approaching Borlänge the road rises and the wooded hills, surrounded by stretches of water, made one wonder what kind of landing problems might be encountered. Someone had landed on water the week before. The French had just flown their first Swedish 1000km and the Lithuanian Antonov 2 had been used for some dramatic towing before our arrival.

This is a commercial, military and gliding field. Domestic flights from Stockholm land almost every hour, parachutists fall to earth and gliders competed at world level, all existing satisfactorily together through sensible planning and regulation.

The opening ceremony on Sunday, June 12, was all but washed out by torrential rain. The airshow was spectacular as the aircraft had to fly even lower than planned and the pair of gliders doing aerobatics did their first movements in and out of the clouds. The airfield is 150m asl so we knew the wet cloud was **very low**.

Day 1, Monday, June 13, started equally unpromisingly. The pilots had lost two practice days to weather and didn't take off until 1300hrs. It rained all around me as I watched and then nice looking cloud streets developed.

There was gloom as Mariusz Pozniak (SZD 55-1), the talented young Pole, was the first to land out in the Championships, and shock as Karl Striedieck (ASW-24) USA followed shortly after. All the Open Class got home.

Andy Davis said it had been a long struggle down the first leg into the southerly TP with showers all the way. Then it all opened up into magnificent streets and anyone still up at that point was able to shoot along. Thirty miles later he had 8-9kt up to a 5000ft cloudbase and was at 6000ft without turning.

It was super fun and a superb flight he said he would always remember. Alister Kay (ASH-25) agreed. Chris Rollings (SZD-55) had a GPS failure which he had feared from earlier grem-lins.

Goran Ax (ASW-22BL), Sweden, was 1st in the Open Class at 123.92km/h; Leonardo Brigliadori (Discus), Italy, led the Standard Class with 114.32km/h and David Jansen (LS-6A), Austria, also flew at 114.23km/h to head the 15 Metre Class.

A bright start on June 14 was deceptive as stratus slipped in quickly with showers all around

WORLD GLIDING CHAMPIONSHIPS

Borlänge, Sweden, June 12-26

Angela reports on a contest which saw Andy Davis as the World Standard Class Champion and three other British pilots highly placed



The Standard Class winners with a triumphant Andy Davis in the centre.

the bowl of hills that look down on Borlänge. Soon pilots were dropping all over the place and Klaus Holighaus (Nimbus 4m), Germany, complained that snow fell on him.

Andy Davis was credited by Martyn Wells (LS-6c) with helping his team mates as he floated towards his land out - calling that he was in heavy sink, he gave them the warning which helped them stay aloft. Martyn's assessment of the day was "horrible."

It had been great out to the west but Justin Wills (LS-6) said there was a lot of sink on the final glide. Dave Watt (ASW-24) was another unfortunate to land out.

Jan Andersen (Nimbus 4), Denmark won the Open with 103.82km/h; Martin Theisinger (LS-6A), Germany, the 15 Metre Class at 96.26km/h and Baer Selen (ASW-24), Holland, the Standard Class with 87.89km/h.

By Tuesday, June 15, the rain was getting very tedious and we heard the sun was shining only 50km away. Tasks were cancelled and that night there was a huge drop in temperature to less than 0°.

Day 3, Wednesday, June 16, started with fog

but the Met man said it would be really warm. However, the scattered showers soon started scattering themselves on the contest area again. We watched the landout board became two pages long and knew it would be quite something if anyone got back.

The fields were filling up. The roads were clogged with trailers and Fred Weinholz knew that his bet with the stewards about the chances of 15% getting back was safe.

The sky changed from dark black to brightly lit cloud streets and back again and we saw a little procession of six gliders creeping very slowly towards the TP near the city. Their stately progress was more in keeping with a Lord Mayor's show than a racing contest but at last, with only seven Standard, two 15 Metre and five Open gliders back we started to get landings.

A flushed and excited Andy Davis streaked in moments later and was declared the Standard Class day winner at 66.54km/h. He said it had been the most scary flight of his competition career, having to take a guess which side of a rain shower might be working. Nevertheless the day wasn't devalued and the 1000pts put Andy in 3rd place overall which was real compensation for Monday's bad luck.

LEADING RESULTS

Open Class	Country	Glider	Pts
1 Centka, J.	Poland	ASW-22B	9897
2 Göran, A.	Sweden	ASW-22BL	9525
3 Spreckley, B.	GB	ASH-25	9391
6 Kay, A.	GB	ASH-25	9040

15 Metre	Country	Glider	Pts
1= Gerbaud, G.	France	LS-6B	8220
1= Napoleon, E.	France	LS-6B	8220
3 Janowitsch, W.	Austria	Ventus B	8216
6 Wills, J.	GB	LS-6	8049
14 Wells, M.	GB	LS-6c	7771

Standard	Country	Glider	Pts
1 Davis, A.	GB	Discus B	7285
2 Borgmann, E.	Holland	Discus BT	7059
3 Rubaj, T.	Poland	SZD 55-1	7002
22 Watt, D.	GB	ASW-24	6182
40 Rollings, C.	GB	SZD-55	5060

The full results were in the last issue, p192.



Angela took this photo to give an idea of the Swedish sky on a good day.



Gillian and Justin Wills with Klaus Holighaus (left) sheltering from the rain at the opening ceremony. Photo: Angela.



Alister Kay (ASH-25) flying in his first World Championships. Photo: Gillian Spreckley.

A big surprise amongst the survivors was Japan's Mokoto Ichikawa (SZD 55-1), an inexperienced but fast learning young pilot, whose team is benefiting from the wide experience of Stan Witek. Karl Striedieck was having a disastrous Comp, landing out for the third time in three days. As the pilots landed they were bathed in an exquisite rainbow arching across the airfield.

Pavol Cerny (Ventus C) Slovakia, won the 15 Metre Class with 61.76km/h and Stanislaw Wujczak (ASW-22B) Poland, the Open at 71.14km/h.

The shock news was that Hungarian Bela Guraly (Nimbus 3) had been disqualified for photo irregularities which led the staff to conclude he had been cheating. His 2nd place the day before had seemed too good to be true.

A cold front had passed through overnight followed by colder, drier air on **Day 4, June 17**. Plenty of cu were due and showers likely.

The hills and cloudscapes were a photographer's dream but a pilot's nightmare. As they took off at about 1400hrs one part of the sky was spectacular cu and the other had fat swathes of grey curtaining the slopes. The cu increased but radio calls spoke of a big blue hole swallowing the Open Class and rain falling on the 15 Metre Class. Only one Open Class glider didn't make it, 16 of the 15 Metre Class and one Standard Class pilot landed 0.3km short.

Ingo Rønner (ASW-22BEL) Australia, found

Below left: The opening ceremony, I to r, Andy Davis, Andy Lincoln (team manager), Chris Rollings and Gillian Spreckley. Below right: Hanes Linke (competition director), John Roake (IGC vice-president), centre, and Fred Weinholtz (IGC secretary).



Gillian and Brian in their ASH-25 in which they came 3rd.

form at last with a 118.10km/h win in the Open Class; Birger Bulukin (LS-6) Norway headed the 15 Metre Class with 94.91km/h and Stig Øye (Discus B) Denmark, won the Standard Class with 107.9km/h.

At this point the Finns led the 15 Metre and Standard Classes, possibly due to their greater familiarity with flying over unlandable landscapes!

Friday, Day 5, was cold, dry with a 30kt NW airflow and alto-cu just south moving E. It was similar to the previous day which meant another nail biting trip while we were left to photograph

some of the most confusingly beautiful skies you will ever see.

The cloud streets seemed to stretch to infinity but it wasn't quite like that on track. The 15 Metre Class encountered snow (we were only 6hrs drive from the Arctic Circle). All of a sudden everything disappeared - crews, competitors the sky in a white-out. Some 12 landed out but those who got away early had more fun and much faster runs. Jan Anderson won the Open Class with 126.11km/h; Brad Edwards (LS-6B) Australia, led the 15 Metre field with 113.30km/h and Jean-Claud Lopitiaux (Crystal) France, the Standard Class at 116.15km/h. Andy was in 2nd place overall.

On Day 6, June 19, the forecast was for the thermals to stop early. Andy streaking home to win at 127.24km/h and gain the overall lead, said he had a lot of luck - Dave Watt (ASW-24) was 0.51km/h behind for 2nd place..

Klaus Holighaus (Nimbus 4M) Germany, seemed to have made the right choice by leaving later and won the Open Class with 130.54km/h. Birger Bulukin was 1st in the 15 Metre Class with 133.77km/h.

There was unpleasantness over alleged cloud flying, firmly denied, but, as Andy said, what is the definition of cloud flying when the cloudbase is so low and clouds are forming round you? Quite often it was possible to see the ground yet be on the opposite side of a cloud from another pilot. The previous day gliders has also been heavy with ice.

There was no flying on the Sunday thanks to the warm front (who said warm?) which brought more rain. But controversy loomed. The Poles,



Janusz Centka and Stan Wujczak, had been charged 100pts each for dangerous flying in cloud near the start point, dropping Janusz (the defending Open Class Champion) back to 2nd place. The sticking point was the definition of cloud flying, a very imprecise term when the variation in cloudbase was considered. Many pilots said they were unable to avoid flying through wisps of cloud on numerous occasions when taking start photos. One even told me he found himself circling in cloud which was forming as he climbed in his thermal.

At the jury meeting Stan found himself in the frustrating position of having his GPS readout available in his defence, yet unable to use it as GPS was only being evaluated and promises had been made that it couldn't be used as evidence.

Incidentally, photo assessors were noticing the trend to cut in much closer to TPs for photos, skimming in on a GPS heading.

Day 7, Tuesday, June 22, was like a typical March day in England with a brisk wind and bright sun.

In the Standard Class it was Britain's day again with a win for Andy at 111.82km/h and a 3rd for Dave Watt. As usual Andy was supported by his whole family - his parents Bill and Aileen muffled up against the biting wind to help his wife Lynn and little Matthew cheer their man on.

Alister Kay (ASH-25) completed the Open Class in 121.16km/h for 5th place and 3rd overall behind the winner Jan Anderson at 124.87km/h. Brian Spreckley (ASH-25) was hugely enjoying having his wife Gill co-piloting and navigating and came 6th at 121.84 and 4th overall. Giorgio Galetto (LS-6A) Italy, led the 15 Metre Class with 113.45km/h.

Day 8, Wednesday, June 23. All Swedes must qualify for a 200m citizens' swimming badge and at briefing Georg Schuster, Austria, received the badge in recognition of having

Andy's win was very popular among those who had seen him work towards it over so many years. I heard many comments about it being long deserved.

Brian's achievement too must have been very special for him. To have been on the podium once as World Champion then to win another medal in a two-seater with your wife, when it was all for fun, was great.

TASKS

Open Class: Day 1: 347.8km, 100, 53, 44, 21, 43, 199. Day 2: 304km, 103, 45, 26, 38, 28, 199. Day 3: 366.7km, 103, 12, 25, 31, 43, 199. Day 4: 316.6km, 103, 46, 29, 42, 199. Day 5: 454.2km, 105, 45, 60, 58, 46, 199. Day 6: 309.7km, 105, 50, 40, 57, 43, 199. Day 7: 353.9km, 107, 8, 24, 35, 28, 199. Day 8: 364km, 104, 16, 26, 31, 28, 199. Day 9: 368.8km, 104, 57, 35, 46, 199. Day 10: 402.1km, 105, 31, 9, 6, 42, 199. Day 11: 415.1km, 104, 46, 29, 12, 43, 199.

15 Metre Class: Day 1: 332.8km, 50, 35, 11, 43, 199. Day 2: 295.1km, 102, 45, 26, 38, 28, 103. Day 3: 330.3km, 100, 13, 24, 35, 48, 199. Day 4: 275.7km, 100, 44, 22, 43, 199. Day 5: 388.9km, 103, 38, 60, 57, 42, 199. Day 6: 343.2km, 100, 41, 52, 56, 28, 199. Day 7: 337.7km, 103, 8, 32, 31, 28, 199. Day 8: 384.3km, 103, 8, 30, 22, 43, 199. Day 9: 311km, 103, 56, 39, 46, 199. Day 10: 400.5km, 103, 41, 29, 10, 28, 199.

Standard Class: Day 1: 287.8km, 100, 48, 31, 15, 43, 199. Day 2: 217.7km, 107, 49, 37, 40, 43, 199. Day 3: 328.1km, 103, 15, 26, 29, 28, 199. Day 4: 240.6km, 104, 46, 35, 28, 199. Day 5: 415.3km, 107, 56, 37, 53, 44, 199. Day 6: 312.7km, 103, 39, 52, 57, 48, 199. Day 7: 302.6km, 100, 10, 17, 35, 43, 199. Day 8: 297.6km, 100, 56, 42, 41, 28, 199. Day 9: 361.3km, 100, 44, 22, 12, 42, 199. The TPs are shown on Steve Longland's map.

swum his ASW-24, one arm hooked over the cockpit lip, to one side of his landing lake.

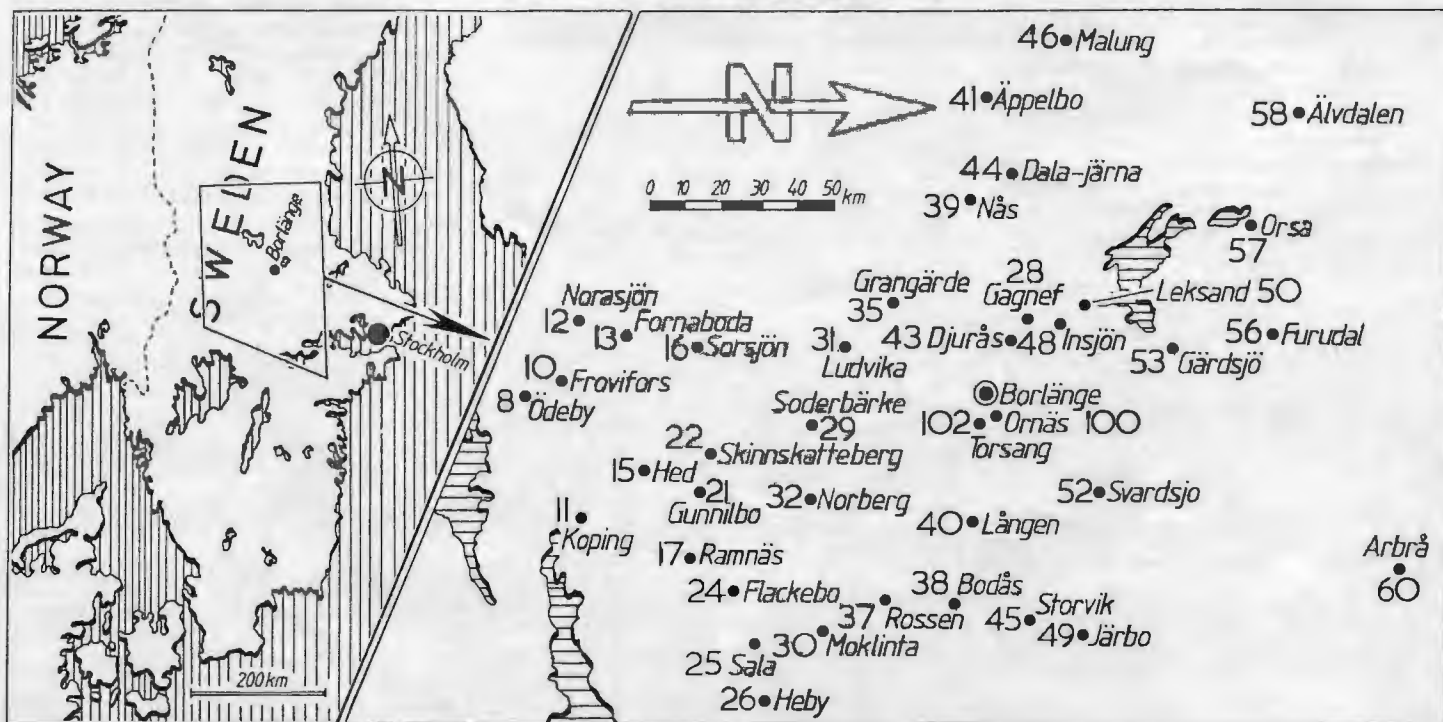
The Standard Class was cancelled and the Open launch delayed as cloudbase sullenly refused to rise. Still only seven 15 Metre gliders failed to return and the entire Open Class got home, led by Jan Anderson at 98.64km/h for his fourth day win to skip into joint 1st place with Göran Ax, who was 10min slower than Centka. So the nail biting went on as only 36pts lay between them and Centka. Stefano Ghiorzo (LS-6) Italy, won the 15 Metre Class at 97.36km/h with Martyn Wells 2nd at 97.30, just 06 behind.

The extraordinarily complex weather continued on **Day 9, Thursday, June 24** and there was quite a shake-up in the ratings.

Federico Blätter, of Switzerland, plopped his Nimbus 3 into a treacherous swamp. It was impossible to swim in and too dangerous to try to wade, so he had to sit there until helicoptered off. He spent the next two days pondering with the army and emergency services how to retrieve the glider. Eventually the trailer was got to the glider which was derigged, stowed and the whole combination helicoptered out. A few Swiss gnomes will be busy working out the cost of that exercise.

By 145hrs there still hadn't been radio contact from Ake Petterson. Three aeroplanes set off to find him. He had landed in a lake and spent two hours plodding towards civilisation, spraining his ankle on the way. Undaunted, he flew the next day after his cockpit had been mended and managed 37th place in the 15 Metre Class, though it dragged him back from 2nd to 15th.

After all this drama it was the Brits on top again. Justin Wills (LS-6) won the 15 Metre at 105.82km/h and Martyn Wells was 2nd at 104.94. Andy was joint 6th to retain his comfortable 300pt lead with a win for Josef Kosar (Discus), Slovenia, at 73.97km/h. Stan Wujczak won the Open Class at 107.51km/h.



June 25 was Day 10 for the Open Class and the night of Midsummer celebrations. It was all change again in the scores. The Class struggled with cloudbase down to 800m and rain spotting the spectators. Instead of conditions turning out better than forecast as on so many days, this day they were actually worse and the other Classes were cancelled.

The outlandings started as the airfield grew grey and chill. Midsummer's Eve was more like bonfire night. The survivors crept on, struggling against almost unflyable conditions. By 2000hrs most were down including Ax and Anderson but Ingo Renner and Janusz Centka hadn't given up. Then Ingo called in. Could Janusz get back? The tension was extreme. No, he didn't quite do it but had 80km more in the bag than his nearest rival and, best of all, his 2pt lead had improved to 330 ahead of Ax, now 180pts ahead of Anderson. And who was his nearest rival? Brian Spreckley with 313.7km.

And so to the final day, June 26. I was frozen to the spot as the mike spluttered into life announcing a mid-air collision involving European Champion and this year's Lilienthal medal nominee, Franciszek Kepka ((SZD-56) and Birger Bulukin. They were still flying and would land back. There was awful anxiety until Franek, with part of an aileron sliced off, made his textbook landing. Birger wanted to fly on, considering his glider airworthy, but the director, Alf Ingersson Tor, ordered him back.

Ironically I helped fill out the accident form on Franek's glider with PZL chief engineer, January Roman. Before I reached home from Sweden he would be killed flying in Bielsko and on my first day back I went to his funeral.

So there it was, a cliff hanger until late evening. Twenty-five of the 15 Metre pilots landed out. It was a long way to go (400.5km) in the conditions and especial credit to Justin Wills for a fine win, even, for him, at a derisory 86.14km/h.

Hard on his heels was Martyn Wells at 85.73km/h. And all evening we hovered round the TV screen with the computed results, as it started to become clear that a novel situation was developing - a three Class four Champion event. Yes, rewarded for all they put into their team effort, the French were going to have two men at the top of the 15 Metre Class. Joint first went to Gilbert Gerbaud and Eric Napoleon, both flying LS-6bs. Napoleon had known lows and highs during the two weeks but starting with a good score was able to survive. Only 4pts kept Wolfgang Janowitsch (Ventus B) from Austria joining them.

The Standard Class result was what we had been hoping for and really expected. Andy Davis, despite being only 15th this day, had a safe lead and finally got his long deserved Gold. And what of the Open Class in this final act? A three man win, Stan Wujczak, Gerard Lherm (Nimbus 4) France and Ray Gimmey (Nimbus 4) USA all had 1000pts. Klaus Holighaus was 4th and Centka 5th, clinching his 2nd Gold in a row. Ax and Anderson, 14th and 21st, altered the places once more giving Brian Spreckley, our former World Champion, a 3rd place. Anderson had won four days and Wujczak three, but this was an event where such tricks were spun by the elements that even Andy had swung between 1st and 20th on different days.

THE BACK SEAT PILOT

Gillian gives her impressions of the Championships in which flew with husband Brian who came 3rd in the Open Class

I was very fortunate to be able to fly with Brian in the back seat of the ASH-25, and what a spectacle it was. We each had a GPS and my main duties were spotting other gaggles, monitoring navigation and landing out possibilities. As important but less interesting was handing out toffees, water and other consumables.

We had two exciting, that is to say marginal, final glides - one into another airfield surrounded by trees for ten miles with only a mine slag heap as an alternative. A marginal final glide became fraught when we realised that there was a small hill between us and the airfield - we arrived at 300ft.

The excitement on all days was watching "the race" - one often spotted another Class in the distance scooting in a different direction, gliders swooping in beautiful chandeliers at the TPs and at the end of the tasks the Classes merged at the final TPs before the rush to the line.

We arrived in Sweden in trepidation. Tales of poor outlanding possibilities due to extensive forests and lakes were entirely true and after the first practice day many pilots felt this wasn't an entirely suitable place for a competition.

However, despite many discussions on how best to land in a lake, what precautions one should take and how to get out of the glider should it sink, once the competition started not another word was said. And the two gliders that did land in water were both flying the next day. The lack of out landings was testimony to the care taken most of the time by most of the competitors.

The weather was also a worry before we arrived. We drove for 1500 miles due north from our base in France. Surely we were going the wrong way? These fears were dismissed with 8000ft cloud streets as far as the eye could see. The visibility on most days was unlimited - surely the most important attribute of a beautiful gliding day.

Waiting to start in the middle of Sweden we could see the snow on the mountains in Norway. The airmass was dry but stable, originating from the North Pole. Although it was hot during the practice week, once the competition started temperatures returned to normal with at least 5000ft

So a new Gold medal had to be made for the French; there were nine contest days for the Standard Class, ten for the 15 Metre and 11 for the Open; a triumph of determined planning against all the odds by the Swedish organisers; and for the rest of us a contest memorable not only for the success of our own but the daily battle of the giants which kept us enthralled until the very last.

cloudbases at some stages in the flight. While all but one day had showers, these only affected 30% of the tasks. The best average we saw was 11.8kt.

For all pilots the most challenging aspect is figuring out the new environment. If they can do this quickly they stand to gain valuable points early in the race. Within the first three days it became obvious that the northern Europeans could cope better with the uncertainty of the showers. Andy's first win came on Day 3 and some of the great names began to tumble, notably the US and Australian pilots were having trouble.

There was team flying, particularly from the French, Poles and British but it is now much looser and on few days did pilots flying together finish together. If you check the points you will see that only on the last day did the Frenchmen Gerbaud and Napoleon have the same points. Amazingly they also started the day joint 5th despite their scores on some days being as much as 600pts difference. But even if pilots team flying became slightly separated they were still able to pass useful information.

Comparing the Worlds with the Nationals, perhaps the biggest difference is the scale of what is at stake. Despite this the spirit is unique - a reunion of friends, many of whom have flown more than six Worlds. Even Andy, at the tender age of 38, has flown seven Worlds.

To me the most surprising part of the competition was talking to pilots of their day wins. Not always tales of dare devil flying but sometimes of mistakes.

Jan Anderson admitted he had started with others in a dangerous situation when low cloud obscured the start and other gliders. He found five miles down track that his cameras didn't need to be wound on. Had he taken his start photos? With the panic to avoid the other starters he feared he had forgotten. A later restart won him the day!

He also had a disappointing last day, starting a few points above us in 3rd place. He couldn't get a good altitude to start and eventually went later at 2500ft, the base being 3800ft. He never really got going and landed one field short of the finish, 90min after we finished. Disappointed? Sure, but he still had a smile when we went to see him in his field - a real sportsman.

It is impossible to describe the excitement of participating in a World Championships, whether as pilot or crew. In Sweden the British team had the added exhilaration of a World Champion. Certainly it is an aspect of gliding few have the fortune to experience, but if you ever have the chance, even just to visit such an event, it really is worth it.

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The diamond shaped contest area, some 500km long by 250km wide, consisted mainly of rolling forested hills cut by valleys running from north-west to south-east. Thousands of lakes, small and large, were dotted amongst the forest. The terrain rose steadily from sea level in the south and east, with hilltops at 1500ft near Borlänge to over 3000ft to the west and north.

Locally around Borlänge and its river valley fields were large and plentiful, but with the exception of the farming areas far to the south and east, were generally few and far between. The dreaded 100km forest to the west of Borlänge had a particularly fearsome reputation.

Although the organisers tried to avoid setting tasks over the more inhospitable areas on the marginal days, all the pilots at some stage experienced frighteningly low points pressing on over the intimidating terrain. There was much discussion about the possibility of forced landing in one of the many lakes. As this seemed infinitely preferable to a tree top crash many pilots equipped themselves with survival kits and life jackets (or rubber rings - nice one Martyn!!).

Three lake landings were made during the contest period, as recommended with the wheel down into deep water, and in each case the pilot and glider were safely recovered. (See also Angela's report.) Thankfully nobody landed in the tree tops.

The weather varied greatly, not only from day to day but hour by hour. At its best it was superb with 100km visibility, 8kt thermals and 8000ft cloudbase, but only for short stretches. Nearby low pressure dominated the weather and ensured that every day there was some kind of problem, mainly spreadout, but also rain showers and occasionally hail and thunder. The cold, unstable air produced many surprises, in particular its ability to generate thermals within minutes of the sun breaking through a dead looking sky.

My overwhelming memory of Sweden will always be the incredible visibility. An aerotow up and out of the Borlänge valley opened up an almost unlimited scene of forested hills dotted with lakes of all shapes and sizes. Climbing higher in the first thermals brought distant snow covered mountains into view with the curvature of the Earth clearly discernible in the crystal clear air.

Typically cloudbase over the hills around Borlänge would be 5000ft msl with 3 to 4kt thermals. Moving to the west over the higher ground cloudbase would rise rapidly to 6-7000ft with 6kt thermals. On many occasions cloud streets formed with an alignment of NW to SE mirroring the underlying terrain. Sea breeze effects were common around the larger lakes with lines of convergence often lying over the hills between adjacent lakes.

Having initially flown west we often turned south towards the low lying arable land around Örebro. Conditions here at best were similar to the UK, but the wet ground frequently triggered many showers which often obliterated our southern TPs requiring patience and flexibility to safely negotiate the turn. Tasks would then usually return northwards towards the drier, stronger weather before gliding back into Borlänge from the west.

In the Standard Class the Discus was numerically the strongest sailplane type and in my opinion is still the best all round performer. The

REFLECTIONS ON SWEDEN

Andy, the Standard Class World Champion, gives his view of the competition which gave him a long deserved victory

wingletted LS-7s and ASW-24s did not appear to pack the expected performance although their climbing ability has improved noticeably. Interestingly the highest placed LS-7 did not have winglets.

The new French Crystal climbed well but did not appear to have anything extra to offer in the cruise. The SZD-55 was particularly impressive in rain and snow and seems to tolerate a dirty wing better than the other types.

There were several newcomers in the 15 Metre Class and many were fitted with winglets, but none appeared to outperform the LS-6. Pilot reports suggest that the ASW-22BCL is perhaps the pick of the bunch in the Open Class

**It produces a higher
that average speed than
one glider flying alone**

For the second time Dave Watt and I were team mates in the Standard Class, and we quickly settled back into the loose team flying we practised in Uvalde. Although not exactly formation flying, we did endeavour to start together and generally remained within one to two minutes of each other throughout the flight.

There is no doubt that this sort of co-operation works well with the trailing glider usually catching and passing the leader by taking advantage of the stream of information coming back from the leader. The resultant leap-frogging produces a far higher average speed than one glider flying alone, to the mutual benefit of both team mates.

Generally there was a great deal of communication and exchange of information between all the British pilots, with Brian and Al often team flying. I am convinced that my success was greatly due to the help received from the other pilots, particularly Dave. It was his unselfish and crucial feedback on Day 3 which enabled me to avoid the mass landout which sunk most of the main Standard Class contenders.

Despite a comfortable lead, the contest remained tense right to the end. The last day produced some very fickle weather to such an extent that the top three in the 15 Metre Class all landed out. Although flying conservatively with the object of just finishing, and waiting for

15 minutes at one stage for a large gaggle to catch up before crossing a big blue hole in the lee of a shower, I still experienced several uncomfortable low points over the forests.

Following a long glide through dead air into the last TP, the distant cumulus were impossibly far away. My only chance, a single shaft of sunshine striking a wooded hillside to the north of track, was just within range.

At best glide the Discus carried me towards it. Suddenly a small cumulus appeared overhead and 500ft above the hilltop I was relieved to pull up into a 3kt core. From the top of the last climb it was a straightforward run over the hill back to the finish line at Borlänge.

To win you need luck. I was lucky at that last TP for just 15 minutes later it was impossible and both Dave and Chris landed out there.

It is almost impossible to describe the feeling of satisfaction on becoming World Champion after so many previous disappointments. So many people have helped over the years from everyone who has contributed to the British team fund to my fellow club members, family and friends.

My special thanks go to the other British team members, to Martin Greathead my crew, my parents for years' of encouragement but above all to Lyn for her patience, help and very real sacrifice for an impossibly long time.



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SAILPLANE DEVELOPMENT PANEL

During the World Championships the Sailplane Development Panel and the OSTIV Congress were meeting and this report is by Cedric, a member of the Panel. On the next page Frank Irving covers the OSTIV Congress as a whole

This meeting was from June 14 to 16 preceded by a Crashworthiness sub-committee. As usual it was fairly hard going with airworthiness standards (OSTIVAS) taking the majority of the time.

The longest discussion was on crash landing loads, particularly relating to the head-on landing case. There was a strong feeling that the present 6g should be increased.

Gerhard Waibel advocated a very strong cockpit with weaker zones ahead and aft, in other words the pilot should be enclosed in a safety cage.

One problem was deciding how best to get rid of some of the energy of the crash by encouraging parts of the glider aft of the cockpit to break off (but not enter the cockpit area). Another was to find ways of demonstrating compliance with whatever numbers we finally choose without a cockpit having to be tested to destruction.

The normal landing standards were also considered as they hadn't been looked at for some years - for example there are no specific cases for nose wheels.

A few proposals were adopted from both the above, but the majority will need at least one more meeting to resolve.

There was a good deal of support for Frank Irving's proposal for flight manuals to state recommended winch launch speeds calculated from stall speeds and a factor depending on weak link strengths in relation to the weight of the glider. This was first discussed at the previous meeting and published in *Technical Soaring*.

Frank's other paper (given later in the OSTIV congress) advocates increases in maximum winch launch speeds and weak link strengths which seemingly are possible within present structural limits. Designers are to make more detailed checks on the latter point.


Amendment of the flutter prevention standards to include the effect of altitude was agreed on the basis of ideas from Poland and the UK. Precise wording has only been worked out subsequently. The new rules embrace the present European practice of reducing never exceed speed above 3000m on a constant true speed basis, but allow something less restrictive where it can be justified by detailed analysis.

Standards for waterballast systems were decided and those for electrical systems updated.

As a result of this and the previous meeting,

the third amendment to the current (1986) edition of OSTIVAS, already in preparation, will include changes to the general crash loads (including higher values for the supports of motor glider engines located behind the cockpit unless designed to fail so that the engine does not enter the cockpit area); stall behaviour and stall warning (with more emphasis on the former, and the latter now to include a time based rule as an alternative to the existing speed based one, applicable particularly where the stall is rather indefinite); never exceed speed at low altitude (now the same as in JAR 22); accessibility; corrosion protection and powered glider take-off performance in "hot and high" conditions.

Andreas Deutsch reviewed the development of flight documentation systems, the idea being that more advanced systems should be used for more advanced tasks. An amendment to the **Sporting Code** has been proposed with the global positioning system included in the rules. But first the system needs a technical specification to be agreed.

Tow plane upsets were discussed yet again. The proposed JAR 22 amendment was not felt to be very practical by most of the Panel. No one could suggest a simple test to check the glider sensitivity that would be safe to use as a routine measure. The Panel concluded that from the design point of view we have done all we can by dealing with the tow hook position. The rest of the solution lies in pilot training. 

Sailplane & Gliding

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SOARING INTELLECTS

The XXIII OSTIV Congress

There is a tradition, now 45 years-old, that an OSTIV Congress is held alongside each World Gliding Championships. This tradition is enshrined in a rule of the FAI, that acceptance of an offer to organise a WGC requires the simultaneous organisation of an OSTIV Congress. And so at Borlänge we gathered at the Tunet School, conveniently near the airfield, for the opening ceremony on June 17. For some of us, this simply represented a change of gear, for we had already been meeting as the Sailplane Development Panel (SDP): see Cedric Vernon's report on opposite page.

This account is confined to the more important of the technical papers, after which Cedric and I returned to the UK, thus missing the Meteorology. For obvious reasons, only the briefest summaries can be given: the full papers will eventually appear in *Technical Soaring*.

Gerhard wins OSTIV prize

The opening followed traditional lines. Manfred Reinhardt, president of OSTIV, welcomed us and there were further addresses by the director of the WGC, the mayor of Borlänge and the vice-president of the IGC, who were all delighted to see us. Then came the presentation of awards; the OSTIV prize to Gerhard Waibel for his "exceptional contribution to sailplane pilot safety" and OSTIV diplomas to Wolf Röger and Philippe Stabenau for their Uvalde paper on canopy jettisoning systems, and more diplomas to Alastair Williams and Joerg Hacker for their paper entitled "Inside Thermals".

Gerhard's prize was in recognition of his work in applying current ideas on crashworthiness to the design of the fuselage structure of the ASW-24E. Then Bill Scull, in his capacity as chairman of the Training and Safety Panel, gave the keynote address on "Safety through Knowledge", an abbreviated version of his paper for the Congress and mainly concerned with the BGA safety campaign in 1992. Indeed, safety was a theme which permeated much of the proceedings of the SDP and the Congress itself. The day was rounded-off by a reception hosted by the mayor of Borlänge.

The Congress started in earnest on the following morning with a paper by Ingo Westerboer entitled "Thermals for Everyone". He visualised paragliders, hang gliders and sailplanes happily sharing a thermal by adjusting their bank angles so that they all went around the centre at the same angular velocity. It all seemed rather too idealised and I hope that the author will not think me unkind if I mention the rather unconventional English usage in his summary: "Finally It is discussed how to fly safely into a pulk of gliders and hang gliders and how to dislocate within such a pulk." Thence to the WGC briefing, whose businesslike character was occasionally enlivened by remarks such as "Today will be the warmest since the start of the Championships. The temperature will reach 17°." (Hollow laughter from the masses huddled in their arctic clothing.)

I then presented "The Choice of Limitations for Winch Launching", based on a previous paper relating to the stalling and weak link failure boundaries during such launches. A case was argued for increasing the minimum weak link strength to 1.6 times the weight of the glider and increasing the maximum winch launching speed (currently not less than 110km/h) to some value such as twice the stalling speed.

"Glider Recovery Systems" by Professor Röger of Aachen started by observing that attempting a conventional baling out from a glider after structural damage could severely impair your health, even starting at 2000ft. He therefore investigated a pilot rescue system and a glider recovery system. Initially, in both systems, a parachute stabilises the tumbling glider to a steady-state descent. In the first system, the same parachute then tweaks the pilot out of the cockpit and he descends at about 6m/s. In the second system, the parachute area is about five times that of the first and lowers the damaged glider and pilot together.

There seem to be considerable problems involved in landing them in an orderly fashion. Initial deployment of the parachute in either system requires some explosive device to fire it clear of the tail, which would seem to invite a whole batch of new regulations and perhaps occasional holes in the hangar roof. (See also the article in the last issue, p202, by Peter Saundby.)

Martin Sperber's "Restraint Systems in Gliders" continued his excellent work on seat belts. It specified the layout of seat belts and their anchorage points to prevent submarining. He also showed that loads on the spine in stalling in accidents can be greatly reduced by having an energy absorbing seat pan with 60mm of aluminium honeycomb beneath. A slightly deeper fuselage would be needed but if everybody had it, would it matter?

Tony Segal's paper on "Anthropometry and Glider Cockpit Design" was presented by that extreme illustration of the topic, Bill Scull. A series of important measurements of the human body, male and female, were tabulated as percentiles. The relevance of the measurements to various features of cockpit design were considered with the aim of indicating how a cockpit could be designed to accommodate a very large range of pilot sizes without recourse to potentially dangerous padding.

We promised not to divulge the results of Ed Crawley's "Scaled Experimental Measurement

of Ridge Lift" until he had triumphed in the summer's ridge running. To fly fast, you want to be in the region of strongest lift, so he had made wind tunnel tests to find where it is, complete with simulated trees and the Earth's boundary layer. It is not quite where you might expect it to be: all will be revealed in *Technical Soaring* – eventually.

In view of continued efforts to write meaningful standards on flutter, this remains a hot topic. W. Chajec of PZL presented "Critical Flutter Speed of Sailplanes Calculated for High Altitudes: Examples of Computation" based on sums done for the SZD-55 and -56, the KR-03A (a metal two-seater trainer) and the PW-5, winner of the World Class competition.

Critical flutter speed

Flutter modes likely to be troublesome all involved oscillations of control surfaces and there was one case in which the critical flutter speed lay well below even the constant true airspeed limit at some heights. Fortunately this could be eliminated by a slight increase in rudder mass balance. It was pointed out that, once the computer is set up to investigate flutter at one particular height (3000m, perhaps), little extra work is involved in investigating other heights. If this is done, it may be that speed limits less restrictive than the constant TAS rule could be applied. There was also an explanation of the curious mass-balancing of the elevator of the SZD-56 and there was a kind mention of a proposal of mine to the SDP. Some generally similar ideas were expounded by Joachim Kuettner, Walter Stender and Fritz Kiessling in the context of wave flying. It proposed that the never-exceed speed at great heights should be half-way between constant EAS and TAS limits.

There were two speculative papers, one relating to instrumentation and the other on the continuous measurement of the performance curve, bugs and all, during normal flight. We will await further results, since in neither case did the hardware exist and some of it seemed pretty unlikely.

Alan Patching gave us the latest news of the fatigue testing of a Janus wing at RMIT, Melbourne. Heartening results were that all progressive damage to composite materials during the simulated 30000hrs were detected using simple non-destructive inspection techniques and all standard repair techniques employed to date were validated. In this context, Weislaw Stafiej explained how it was possible to estimate the fatigue characteristics of a structure by comparison with a basic one of known characteristics. And Christoph Kenschke of DLR presented an excellent paper on the "Influence of Moisture on Composite Materials". Depending on the stress level, moisture could have a drastic effect on the fatigue life of glass-epoxy specimens. Tubular specimens of carbon-epoxy and aramid-epoxy, tested in interlaminar shear, showed no change in the fatigue and static-strength properties. A carbon wing structure was tested after ten years' exposure, a life test for a 6000hr certi-

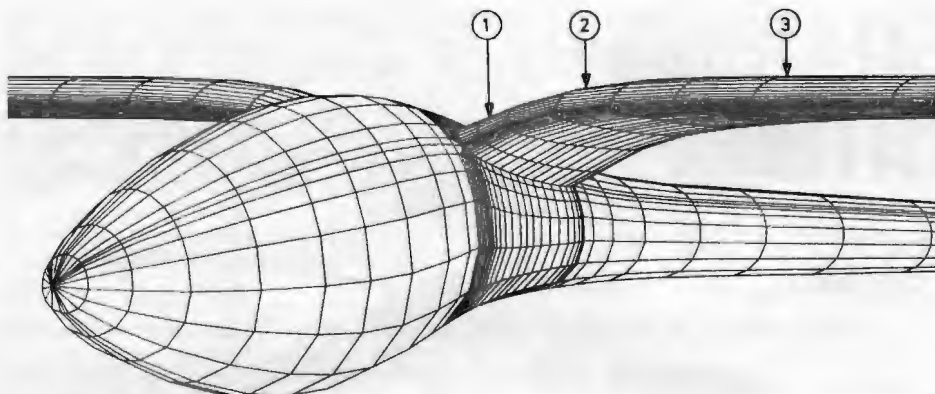
fication and a previous residual strength test. The second test showed the strength to be about 5% lower than previously, which was thought to be due to the preloadings rather than to humidity.

David Marsden of the University of Alberta displayed the results of wind tunnel tests of the UAG92 17/SF wing section with a 25%-chord slotted flap, designed for the variable-geometry "Minisigma". It had lower drag, flap-in and flap-out, than the FX-VC 170 section of Sigma but less maximum lift than the slotted flap variant of this section.

In 1983, Dick Johnson proposed a simple trailing edge pitot rake intended to indicate optimum flap settings. Dieter Althaus of Stuttgart University presented some wind tunnel tests which showed that it yielded an incorrect drag bucket and could not function as desired. He also gave details of an Improved device which, whilst not giving an accurate measure of the drag, indicated the low drag bucket accurately enough.

A vortex system

To my mind, the most interesting paper was that of Loek Boermans, Delft, and K. Kubrynski, Warsaw, on "Aerodynamic Design of Wing Fuselage Combinations". With the conventional layout, there is an increase in the angle of attack near the wing roots due to increased upwash along the fuselage sides. Also, turbulent boundary layer on the fuselage causes separation as it approaches the wing root stagnation point, producing a vortex system wrapped around the wing root. The first of these effects can be greatly diminished by using a shoulder wing curved in the spanwise sense along a line perpendicular to the streamlines of the cross flow velocity component. The result is a "gull wing", but with a very short "gulled" portion near the root. The result looked most elegant. This geometry is hardly compatible with a straight flap hinge line, so an alternative is to use the conventional arrangement but with subtle changes of section shape and twist towards the root. Wind tunnel tests will take place later this year.



The shape of things to come? The wing/fuselage junction proposed by Professor Loek Boermans to reduce the magnifying effect of the fuselage on the angle of attack near the root. The numbers refer to the locations of calculated velocity distributions.

Another fascinating paper, by Michael Rehmet of Stuttgart, was concerned with the development of a self launching solar powered sailplane. It was to be self launching with battery power, climbing at 2m/s to at least 500m. It should then be able to maintain level flight using the power from solar cells, with a payload of 60 to 90kg and with load factors of +4.0/-2.6. The proposed machine had twin tail-booms and a pusher propeller. The span was 22.4m with an empty mass of 160kg. Somewhat similar in concept was "Sunseeker", described by Eric Raymond and Kurt Heinzmann. The prototype had a span of only 16.6m and had made a series of flights from California to North Carolina.

Professor Richard Eppler, in his paper entitled "What Price Performance?", investigated the economics of sailplane performance and concluded that the optimum price-performance ratio would probably be provided by an unflapped machine of about 18m span.

Robert Weien and Peter Harmer of the RAF Institute of Aviation Medicine are investigating the "Incidence of Decompression Sickness (DCS) in High Altitude Glider Operations". DCS is due to the formation of nitrogen bubbles in the blood and tissues when the external pressure is reduced.

The circumstances of glider wave flying and the heights attained suggest that the DCS should be occurring although no cases have been reported: it is suggested that this is because the symptoms are not recognised. A survey is to be undertaken at wave sites in the UK and elsewhere to estimate the incidence of DCS, so expect to be included if you are going to one of the obvious sites this coming winter.

The traditional Excursion occurred on June 21 to the Siljan Lake area and the Falun copper mine, full of great subterranean caverns, dripping water and tourists in hard hats and orange capes.

On the surface, there was a vast crater where the workings caved-in some hundreds of years ago. Our beautiful lady guide explained that there were no casualties because, although the miners worked seven days a week with only Christmas and Midsummer Days off, the cave-in happened on a Midsummer Day.

Small voice from the gloom: "But today is Midsummer Day!"

Beautiful lady guide: "In Sweden, Midsummer Day is not officially until two more days."

We were greatly comforted.

The organisation of the Congress, so smooth as to be invisible, was the responsibility of Jan-Eric Olsson. Since it was superimposed on his WGC duties relating to the finish line, photo interpretation and scoring, it was a remarkable feat.

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Enstone Eagles GC has successfully run another gliding competition. The British weather, true to form, ensured that many of the exciting stories were told by retrieve crews rather than the pilots.

It was due to Ken Sparkes, who surpassed himself as director and task setter, that five competition days were possible.

The competition was opened by George Metcalfe, chairman of Lasham GC and winner of the Overseas Nationals Class B. The day was then scrubbed and you could see the resignation on the pilots' faces.

Day 1, Sunday, July 11.

A cool, unstable, moderate to fresh NW airstream with visibility up to 30km, 4/8 cu with a risk of occasional showers. Moderate thermals were forecast.

Task: 319.42km quadrilateral, Norman Cross, Six Mile Bottom, Lutterworth.

The day didn't start very auspiciously with ten pilots pulling off the grid and six returning for a relight. Everyone landed out and the day was devalued - most pilots landed at Cambridge after a high cu-nim developed and rained them out of the sky.

Director's comment: "The weather was not as advertised".

Retrieve story: Vic Tull spent the whole night derigging his Kestrel 19 and carrying it out of the field.

Day 2, Monday, July 12.

A ridge of high pressure was building from the west ahead of an Atlantic frontal system. A stabilising westerly airflow was covering England and Wales. Spreadout was forecast for the afternoon but the airmass would be sufficiently unstable for thermals to continue under the spreadout until late afternoon.

Task: 322.8km quadrilateral, Oxford East, Lasham, Eyebrook.

This was another difficult day. Only 11 completed the task with a number of quality pilots landing at Lasham. Those that did return said how mentally draining the flight was with many thermals barely strong enough for them to maintain height. Alister Kay won the day and for him the highlight of the flight was listening to Ralph Jones instructing the Americans on how to run the Upper Heyford MRA and to Graham McAndrew giving Mike Throssell a lesson on how to work his LNav. It was also surprising that one pilot used only one camera on which the film was ruined and so lost all points for the day - when will they learn!

Directors comment: "I was impressed with the tenacity and patience on a particularly difficult day - some pilots were airborne for 5hrs 30min".

Retrieve story: Ted Lysakowski had to leave his Nimbus 30M in the field overnight as it was too boggy for an aerotow retrieve and access was poor.

Day 3, Wednesday July 14

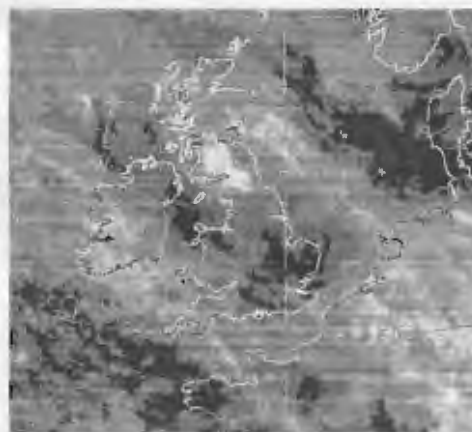
A waving cold front moving east with associated wave expected. Cloud thinning later and weak thermals may develop as the cloud thins.

Task: 151.94km triangle, Winchcombe, Watford Gap.

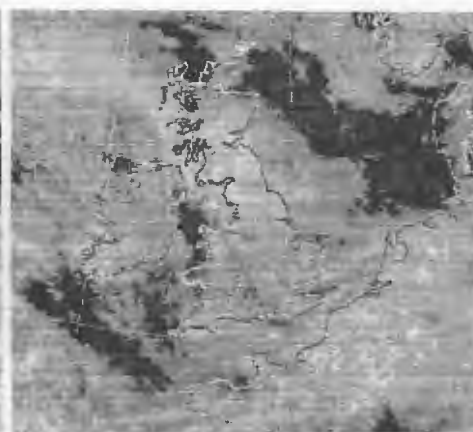
This was the day of "the window", see Meteostat above. Ken was certain it would arrive but many of the pilots (who are confirmed

OPEN CLASS NATIONALS

Enstone Eagles GC - July 10-18



1-R A Meteosat at 1100hrs on July 14.



VIS

pessimists) were not so sure. Ken persevered and set the task. It was certainly interesting for the crews and spectators immediately after the launch as we watched 18 gliders in one thermal with not more than 500ft separating them. Listening to the chatter on the radio I didn't think the pilots were enjoying it so much.

John Cardiff, who won the day, set off on task from a 2800ft cloudbase getting increasingly low to about 2300ft at the 2nd TP. Having water in his vario seemed to help him as he only took the strongest thermals (weakest ones not registering).

Several gliders gaggle flying certainly helped those who did get back as this again was a survival day rather than a racing one. Only five returned to Enstone and they all started as soon as the startline opened.

Returned thinking no one else had started

All the others left it too late and ran out of day. Alister Kay was surprised Ralph Jones hadn't beaten him having seen him relatively high on the first leg and doing well. Ralph, however, had later returned thinking no one else had started.

Director's comment: "This is the first time I have had to set a devalued task."

Retrieve story: Chris Pullen (ASH-25) made the mistake of landing in a field that involved two farmers. Although much discussion took place and both said they were happy about the retrieve, one farmer suddenly changed his mind. He sat on the gate after securing it and wouldn't allow the trailer out of the field.

After much trauma Chris and his crew eventually found another exit and left at 11pm after a 5pm landing. Chris was quite determined that

his engine was going to be put back in (and left in) as soon as possible.

Day 4, Friday, July 16

A front over Scotland moving away NE leaving a moist SW airflow. A trough off the west coast was forecast to move ENE across central southern England and Wales. The timing of the trough clearance was difficult although "possible" soaring conditions developing in the afternoon. Winds would strengthen and veer during the afternoon with some isolated showers.

Task: 175.1km quadrilateral, Northleach, Crick, Northampton South.

The pilots looked at Ken aghast thinking he must be mad but at 2pm the group was launched.

Many of the pilots flew without water. John Glossop, the day's winner, was one of these. He started last which was a good decision coinciding with the clearance. John said "This was a day of constant decision making. You were constantly at silly heights wondering when you were going to land".

The last leg was the key to John's win with Alister Kay and Robin May both 200ft above him choosing to go north off track while John went south off track and was soon 700ft above them. A good performance by Derren Francis in the RAF's Ventus ensured he finished 2nd under handicap.

Directors' comment: "Oh no. Not another short task".

Retrieve story: Surprisingly no real story; most pilots completed the task.

Day 5, Saturday, July 17

A week ridge of high pressure will build from the west during the day. Visibility generally 25km with 4-7/8 cu. Amounts of convection cloud tending to decrease during the day with gradually increasing amounts of high cloud later. Airmass moist and unstable below 6000ft.

Task: 326.4km quadrilateral, Kettering, Chilton, Chinnor.

At last some excitement showing on the pilots' faces, but it was clear it was just going to be a window of good weather, probably not lasting more than 2-3hrs. The first leg was difficult with everyone getting low at Kettering. Alister Kay and Barry Elliott were down to 500ft and only patience enabled them to stay in the race. Progress to Milton Keynes was slow; those that reached there first at last found some racing weather. Those who were slower ran out of day with an inevitable landout. The day was again devalued.

Director's comment: "If only we could have had the weather we had in Poland."

Retrieve story: Vic Tull landed his Kestrel 19 in a field that required more than his brother to help lift the glider out. So Toby Harris and Bob Northover also spent many hours helping Vic lift it over bridges and fences.

Despite poor weather conditions gliding was again the winner in this competition with everyone willing to help. Alister Kay was deservedly the winner flying consistently well.

On behalf of the pilots Alister thanked Ken Sparks for a magnificent job made more difficult

due to the lack of an on site Met man (I feel we must start paying for Met men at Comps - our pilots deserve this and organisers must start budgeting for this service).

Enstone Eagles GC must be congratulated on the excellent infrastructure provided for the competition. Some fun was given by Graham Skelly who has written an interesting program. Once fed with the logger information of the individual flights we could watch gliders racing around the task from our armchairs. Who knows this could be the next fun raising race evening to replace the horses.

FINAL RESULTS

Open Class Nationals

Pos	Pilot	Glider	Day 1.11.7 319.4km ■ Norman Cross, Six Mile Bottom, Lutterworth			Day 2.12.7 322.8km ■ Oxford East, Lasham, Eyebrook			Day 3.14.7 151.9km ▲ Winchcombe, Watford Gap			Day 4.16.7 175.1km ■ Northleach, Crick, Northampton South			Day 5.17.7 326.4km ■ Kettering, Chilton, Chinnor			Total Pts
			Dist	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	
1	Kay, A. E.	ASH-25	249.5	1=	510	70.9	1	952	84.6	2	517	83.4	2	744	91.0	1	876	3599
2	Jones, S. G.	Nimbus 3pr	180.3	10=	337	61.7	5	898	83.8	3	516	76.4	8	685	79.4	3	795	3231
3	Innes, D. S.	Nimbus 3r	249.5	1=	510	58.3	8	878	68.8	5	493	81.8	14	651*	84.4	13	690	3222
4	May, R. C.	ASH-25	228.3	8	457	61.2	7	895	83.5	4	515	82.3	3=	735	(306.8)	18	512	3114
5	Pullen, C. J.	ASH-25	180.3	10=	337	62.4	4	902	(116.7)	8	358	81.7	5	729	84.3	14	689	3015
6	Gorringe, J. P.	ASH-25	240.6	5	487	(270.5)	14	618	(108.9)	10=	335	75.0	9	673	78.4	4	788	2901
7	Cardiff, J. D.	ASW-22	245.7	4	500	(138.1)	27	268	88.2	1	519	82.3	3=	735	81.0	2	806	2828
8	Elliott, B.	Nimbus 3pr	180.3	10=	337	61.7	6	897	86.3	19	210	64.5	18	586	74.1	5	758	2788
9	Davies, F. J.	LS-6c	228.3	7	437*	56.8	9	869	(29.4)	27=	87	60.8	20	555	73.0	6=	750	2698
10	Throssel, M. G.	Ventus 17.6	163.3	15	294	63.9	2	911	81.8	15	255	(134.1)	29	262	72.1	8	744	2466
11	Lysakowski, E. R.	Nimbus 30m	140.6	30=	244	(284.3)	12=	651	(73.3)	17=	230	74.1	10	666	59.1	17	653	2444
12	Francis, D. P.	Ventus 17.6	144.8	19=	252	(284.3)	12=	651	29.4	27=	87	73.2	12	659	73.0	6=	750	2399
13	Glossop, J. D. J.	Nimbus 3pr	249.5	1=	510	(89.2)	26=	134	(85.1)	20	206	90.2	1	801	60.6	15=	683	2314
14	Davis, C. M.	Nimbus 2	176.7	13	328	62.8	3	904	(18.9)	32=	34	55.6	22	511	(296.7)	20	489	2266
15	McAndrew, G. M.	DG-500	144.8	19=	252	56.7	10	860*	(73.3)	17=	230	(103.3)	30=	187	70.3	10	731	2260
16	Caunt, D.	Nimbus 2	131.8	33	226	(251.3)	15	573	(116.9)	7	359	72.6	13	654	(272.0)	21	441	2253
17	Gardner, T. R.	Nimbus 3	161.5	16	290	(204.1)	18	448	(104.8)	13	323	88.9	19	583*	(300.5)	19	498	2142
18	Dobson, J. B.	LS-6c	144.8	19=	252	(189.3)	23	407	(57.7)	22=	184	64.9	17	589	60.6	15=	683	2096
19	Jones, R.	Nimbus 4	144.8	19=	252	(289.9)	11	864	(133.7)	6	408	73.8	11	684	(58.8)	33=	48	2036
20	Wells, S. M.	LS-6c	204.0	8	396	(212.9)	16=	472	(114.4)	9	351	70.2	16	633	(118.3)	25	161	2013
21	Owen, B. H.	ASH-25	144.8	19=	252	(185.7)	24=	388	(86.8)	14	270	77.4	7	694	(205.0)	22	336	1950
22	Thick, M. G.	ASH-25	182.3	9	342	(0.0)	34=	0*	(50.1)	25	162	77.8	6	697	70.7	9	734	1935
23	Walsh, A. P.	DG-400	144.8	19=	252	(194.0)	21	420	(18.9)	32=	34	(142.2)	25=	294	65.8	12	699	1699
24	Slater, T. W.	ASH-25	153.8	18	271	(202.2)	19	442	(57.7)	22=	184	70.7	15	637	(108.6)	26=	141	1675
25	Thompson, M. H.	Nimbus 30m	144.8	19=	252	(166.3)	26	345	(15.5)	34	17	(142.2)	25=	294	70.1	11	730	1638
26	Findon, D. E.	Nimbus 2c	144.8	19=	252	(185.8)	24=	398	(76.1)	16	239	57.1	21	524	(86.7)	32	69	1472
27	Giddins, J. B.	DG-202/17c	144.8	19=	252	(195.0)	20	423	(108.7)	10=	335	(141.6)	27	291	(97.7)	30	76*	1377
28	Roberts, D. G.	ASW-20del	159.1	17	284	(212.9)	16=	472	(108.7)	10=	335	(43.1)	33	94	(76.8)	28=	77	1262
29	Sheard, P. G.	Ventus 16.6	144.8	19=	252	(89.2)	28=	134	(59.4)	21	189	(140.1)	28	285	(175.2)	23	278	1136
30	Atkinson, P.	LS-4	140.6	30=	244	(190.3)	22	410	(22.6)	29	53	(146.6)	23	311	(69.7)	31	63	1081
31	Boydson, M. V.	Nimbus 30m	164.4	14	297	(89.2)	28=	134	(57.7)	22=	184	(144.6)	24	303	(108.6)	26=	141	1059
32	Meagher, M. W.	Pegasus	112.8	34	188	(55.7)	33	65	(21.6)	30=	48	(103.3)	30=	187	(158.2)	24	241	729
33	Garrity, A. J.	Ventus 17.6	144.8	19=	252	(89.2)	28=	134	(40.6)	26	134	(29.5)	35	73	(0.0)	35	0	593
34	Gardiner, D. K.	Kestrel 19	DNF	35		(75.7)	32	107	(21.6)	30=	48	(134.1)	32	182*	(58.8)	33=	48	385
35	Tull, V. F. G.	Kestrel 19	132.7	32	228	DNF	34=		DNF	35		(30.1)	34	74	(76.6)	28=	77	379

* = penalty DNF = did not fly BGA Competition Scoring Program by Specialists Systems Ltd

We regret that in the last issue, p198, the Overseas Handicapped Nationals results had Class A printed twice and Class B left out, hence the table below.

FINAL RESULTS

Overseas Handicapped Nationals

Class B

Pos	Pilot	Glider	Day 1.17.5 447.6km ■ Lipki, Grochowice, Michalkow			Day 2.18.5 228.8km ■ Srem, Twardogora, Gostyn			Day 3.19.5 341.5km ■ Przytoczna, Siedlisko, Lwowek			Day 4.20.5 367.4km ■ Gostyn, Szymanow, Struzka			Day 5.21.5 508.2km ■ Tuczno, Chelmce, Modliszewo			Day 6.25.5 342.8km polygon Przytoczna, Przylep, Siedlec, Lubin			Total Pts
			Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	
1	Metcalfe, G. C.	ASW-24	66.8	4	971	84.7	2	915*	111.2	2	984	123.9	1	1000	109.4	1	1000	92.6	1	991	5861
2	Jeffery, P.	LS-7wt	67.1	3	974	90.2	1	1000	107.1	3	929	119.0	2	941	102.1	3	943	76.5	9	751*	5538
3	Barker, K. D.	Discus	67.7	1	979	81.6	4	897	112.4	1	1000	104.0	=11	759	86.3	7	819	89.4	3	947	5401
4	Hallam, J.	Discus	65.0	5	955	78.9	6	865	100.6	6	842	117.5	5	903*	92.4	5	867	83.7	6	870	5302
5	Glossop, J. D. J.	Discus BT	(364.4)	11	555	82.7	3	911	99.8	7	831	112.0	6	857	102.5	2	946	93.3	2	980*	5080
6	Crabb, P.	LS-7	69.9	8	600*	67.4	8	728	102.5	5	867	117.4	4	922	100.3	4	929	84.9	5	886	4832
7	Weir, N.	Discus	(368.0)	9	561	79.7	5	875	103.1	4	876	118.7	3	937	(521.3)	10	547	86.4	4	906	4702
8	Oleander, S.	LS-7	(407.4)	6	624	74.6	7	814	89.3	11	691	105.8	10	781	83.1	8	754	75.7	8	760	4464
9	Hood, L.	Janus C	(367.3)	10	560	65.6	9	708	94.6	9	762	106.3	9	787	89.2	6	842	72.0	11	710	4369
10	Strathern, M.	LS-7wt	67.2	2	975	(168.9)	13	282	97.4	8	799	104.0	=11	759	(508.5)	11	533	80.5	7	827	4175
11	Moulang, A.	ASW-20	(396.8)	7	607	(181.5)	12	306	94.4	10	760	103.5	7	814	(531.1)	9	558	72.6	10	719	3764
12	Freestone, I. P.	Libelle	(280.2)	13	387	65.3	10	704	82.4	14	598	98.7	13	895	(91.7)	14	78	(305.9)	12	371	2834
13	Cuning, M. F.	Twm Astir	305.7	12	480	(245.3)	11	427	87.8	12	671	107.9	8	806	(397.8)	13	413	(0.0)	14	0	2777
14	Beardsley, G. C.	LS-4a	(259.2)	14	386	(143.4)	14	234	85.4	13	640	97.6	14	881	(454.2)	12	474	(233.5)	13	250	2665

The competition was opened on Saturday, July 24 by Donald Spiers of the Ministry of Defence. The weather was poor with no prospects of improvement and at lunch time flying was scrubbed. The Met forecasting was done remotely by Derek Sear from Dunstable, an arrangement which seemed to work quite well, aided by on-site satellite pictures and weather radar scans courtesy of photo assessor John Bell and Jill Harmer of the Met Office respectively.

The Nationals had five contest days. The Lasham Regionals, run in parallel, had five days in Class A and four days in Class B. Overall the weather was changeable but consistently windy. As one competitor remarked, several dull starts still produced a contest day, whilst a sunny start meant that something would go wrong fairly soon!

Day 1, Sunday, July 25.

Task: 159km O/R Chicklade A350/A303

The forecast predicted a strong wind 300°/25kt with a poor mixture of spreadout and showers. The task setting computer program called for a 50km task so a minimum distance alternative TP O/R was originally set to allow for avoiding duff patches but the alternative TP at Shaftesbury had to be cancelled due to the proximity of a Compton Abbas fly-in.

Actual conditions were better than forecast with streeting; a 3500ft cloudbase and 3-4kt thermals. In the strong wind everyone who reached the TP finished the task (37 finishers) with the stop-watch unable to split Graham McAndrew and Peter Sheard (both Discus) at 68.8km/h. Tim Scott (LS-7) was 3rd at 60.7km/h.
1=G.McAndrew & P. Sheard 922
3 T. Scott 788

Day 2, Monday, July 26.

Task: 161km O/R Bicester rail bridge.

A difficult day with almost every pilot having at least one relight in the mixture of overcast and strong WNW wind. Only 20 pilots passed X and only four passed the turn with the top three all landing on the disused airfield at Oakley, east of Oxford. Joint winners were Phil Gaisford, Ray Payne (both Discus) and Chris Rollings (SZD-55) at 95.3km.

Day 2 pts

1=P.Gaisford	326	G.McAndrew	1210
1=R.Payne	326	P.Gaisford	1111
1=C.Rollings	326	N.Weir	1059

Overall

Day 3, Wednesday, July 28.

Task: 155km goal flight via Didcot and Northampton to Bicester.

The Met situation showed a weak cold front lying EW across southern England clearing Lasham during the morning but returning as a warm front from the SW in the late afternoon. It was apparent that a contest day would be more likely with a remote finish to avoid the clag cutting off the return leg, so the finish at Bicester Airfield was set.

Pete Stratten, DCFI at Bicester, kindly agreed to this and helped with arranging accommodation for the remote finish line and control. Calls to Dunstable and Bicester confirmed soaring conditions to the north by late morning. The first 40km were fairly overcast requiring careful fly-

GEC MARCONI AVIONICS

STANDARD CLASS NATIONALS

Lasham - July 24 to August 1

Roy Pentecost was the contest director. He has been gliding for 20 years, gaining all three Diamonds in 2100hrs. He normally flies at Lasham, sharing an LS-6 with his wife, Alix. This was his debut as a competition director.

ing, with reasonable conditions after the first turn making it a racing task with 36 finishers. Phil Gaisford's landing near Goring on the first leg ultimately cost him a top 3rd overall place. Fastest was Graham McAndrew at 69.2km followed by Tim Scott (65.6km/h) and Dennis Campbell (Discus) at 64.1km/h.

Day 3pts

1 G.McAndrew	894	G.McAndrew	2104
2 T.Scott	842	N.Weir	1819
3 D.Campbell	820	M.Young	1817

Overall

Day 4, Friday, July 30.

Task: 276km dog leg O/R Chieveley, Pitsford, Chieveley.

A cold front cleared Lasham to the SE at dawn followed by an unstable flow with forecast of some showers (especially in the west) and some spreadout. The early sky looked promising and a revised Met forecast gave 4kt thermals to 4500ft and very few showers. Just as an increased task size was under consideration a thick band of cirrus approached from the SSW; the front had a wave which was going to obscure the SE of the task area.

For most of the day Lasham lay under the cirrus with only weak thermals locally but with good conditions always visible to the NW. On track conditions were average to good with occasional 5-6kt thermals to a 5000ft cloudbase.

Mike Young (Discus) started as early as possible and was the first finisher at 83.2km/h. His smile grew wider for each of the 20min that it took the chasing pack to arrive. Graham Smith (LS-7) led this group at 77km/h and George Metcalfe (ASW-24) was next at 76.6km/h.

Day 4 pts

1 M.Young	1000	G.McAndrew	2917
2 G.Smith	889	M.Young	2817
3 G.Metcalfe	882	N.Weir	2624

Overall

Saturday, July 31, no contest day.

After several days of predicting a good final weekend, the British weather again gave a twist with a moist airmass causing extensive spreadout and showers, all in a 25kt NW wind - although brief sunny patches gave 4kt thermals to 3000ft. By startline open time a heavy band of showers was immediately upwind. Barrie Elliott's effort in the Discus earned him a prize but no points.

To end a frustrating day, Chris Lyttleton (ASW-24) had a field landing accident when he hit power wires, breaking his leg and extensively damaging the glider. Prompt action by a team lead by Terry Joint and assistance from a coastguard helicopter resulted in Chris being transported to Basingstoke General Hospital.

Day 5, Sunday, August 1.

Task: 233km triangle, Devizes, Westcott.

Another promising start degraded into somewhat of a struggle for many. Large amounts of cloud with a base lowering below 2000ft made rounding Devizes a trial but with few casualties. However, on the last leg some over development and a strengthening headwind brought down several including Mike Young and Neville Weir (Discus). In all 34 finished with Dennis Campbell the day winner at 77.7km/h followed by Steve White (LS-7) at 76.4km/h and Peter Sheard with 74.8km/h. Graham McAndrew's 4th place was good enough to secure 1st place overall. His consistent flying with placings in the top five every day made him a worthy Champion by a margin of almost 500pts overall.

Day 5 pts

1 D.Campbell	1000	G.McAndrew	3916
2 S.White	980	P.Sheard	3437
3 P.Sheard	957	D.Campbell	3278

Overall

Lasham Regionals

The Regionals Class A was won by Phil King (LS-7) with 3240pts followed by Alistair Nunn (ASW-17) 3052 and Chris Starkey (Discus) 3030. Class B was won by Tim Browning (Std Cirrus) 2435, 2nd was Zenon Marcynski (SZD-55) 2331 and 3rd was Paul Shelton (Discus) with 2213pts.

Prizes in all Classes were presented at the closing ceremony by Derek Bickerson, managing director of GEC Marconi Avionics, who sponsored the competition.

FINAL RESULTS

Standard Class Nationals

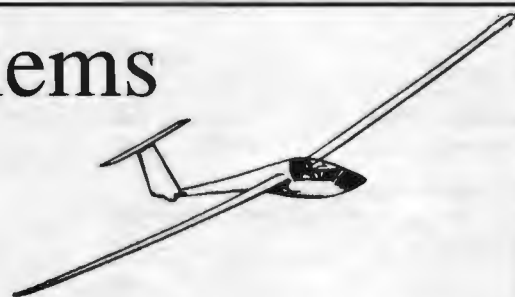
			Day 1.25.7 159 O/R Chicklade			Day 2.26.7 161 km O/R Bicester			Day 3.28.7 155km goal via Didcot, Northampton & Bicester			Day 4.30.7 276km dog leg O/R Chieveley, Pitsford, Chieveley			Day 5.1.8 233km ▲ Devizes, Westcott			Total Pts
Pos	Pilot	Glider	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	
1	McAndrew, G.	Discus	68.8	1=	922	82	5=	288	69.2	1	894	75.8	4	867	74	4=	945	3916
2	Sheard, P. G.	Discus	68.8	1=	922	0	21=	0	63.2	5	806	69.4	22	752	74.8	3	957	3437
3	Campbell, D. R.	Discus	51.9	15=	643	0	21=	0	64.1	3	820	72.9	6	815	77.7	1	1000	3278
4	Lysakowski, E. R.	Discus	46	27	544	82.1	5=	288	63.7	4	813	70.8	15=	778	65.3	16	814	3237
5	White, S. A.	LS-7	48.8	20=	592	44.5	13	131	59.7	14	755	69.9	18=	762	76.4	2	980	3220
6	Young, M. J.	Discus	58.5	6	752	82.1	5=	288	61.2	10	777	83.2	1	1000	(205.3)	38=	360	3177
7	Rollings, C. C.	SZD-55	50	19	610	95.3	1=	326	58.7	17	741	64.2	36	658	66.6	13	834	3169
8	Durham, M. W.	LS-7	58.3	8	749	0	21=	0	62.2	8	792	70.9	15=	778	67.4	12	846	3165
9	Cheetham, R. A.	LS-7	57.1	10	728	40.1	15	112	62.7	6	800	66.7	31	703	60.8	20	748	3091
10	Kay, W. M.	ASH-24	58.4	7	750	82.1	5=	288	48.9	29	597	62.4	41	825	66	14	825	3085
11	Scott, T.	LS-7	60.7	3	788	0	21=	0	65.6	2	842	68.4	27	734	58.5	23	713	3077
12	Brice, P. F.	ASW-24	55.7	12	706	19.6	19	26	52.5	23	649	72.1	10	801	69.4	6	876	3058
13	Weir, N. A.	Discus	59.7	5	771	82.1	5=	288	60	13	760	72.3	9	805	(227.7)	35	409	3033
14	Smith, E. R.	LS-4	41.9	33	477	0	21=	0	60.1	12	761	68.9	23	743	74	4=	945	2926
15	Davis, P.	Discus	54.7	14	689	0	21=	0	48.2	30	587	69.8	21	758	64.8	17	808	2842
16	Gaisford, P. A.	Discus	60.5	4	785	95.3	1=	326	(38.7)	38	102	74.5	5	844	61.2	19	754	2811
17	Smith, G.	LS-7WL	45	28	528	92	4	317	57	18	716	77	2	889	(204.6)	40	359	2809
18	Walker, P. B.	LS-7	55	13	693	82.1	5=	288	45.2	32	498	67.3	34	663	54.2	29	649	2791
19	Payne, R. D.	Discus	42.4	31	485	95.3	1=	326	(130.8)	36	337	70.5	17	772	68.2	10	859	2779
20	Edyvean, J. R.	Discus	43.4	30	502	0	21=	0	55.4	21	692	67.3	29	715	68.6	8	864	2773
21	Mitchell, T. M.	Discus	50	18	611	0	21=	0	60.7	11	769	66.8	30	705	54.9	27	660	2745
22	Craig, G. W.	LS-4A	44	29	511	0	21=	0	59.3	19	704	70	18=	762	60.4	21	742	2719
23	Crabb, S. J.	LS-7	(66.9)	39	220	82.1	5=	288	52.4	24	648	61.8	42	615	67.8	11	852	2623
24	le Roux, D.	Std Cirrus	46.8	25	558	43.2	14	125	50.1	28	614	62.4	40	626	53.2	31	634	2557
25	Fritchie, P. C.	LS-4	51.9	15=	643	23.4	16	42	51.8	26	639	72.7	7	812	(205.3)	38=	360	2496
26	Jones, S. G.	Discus	(24.8)	43	61	0	21=	0	61.4	9	780	69.8	20	759	68.9	7	868	2488
27	Aspland, W.	ASW-19a	36.3	37	385	0	21=	0	51.9	25	641	68.7	24=	739	57.7	25	701	2466
28	Alldis, C. J.	LS-4	48.1	22	579	0	21=	0	53.2	22	660	72.5	8	809	(203.3)	41	356	2404
29	Elliott, B.	Discus	(75.3)	38	252	0	21=	0	50.5	31	575	71.4	14	788	57.5	26	698	2313
30	Strathern, M.	LS-7	57.8	9	740	7.7	21=	0	(45.5)	37	123	68.7	24=	739	61.2	24	704	2306
31	de Court, J. W.	Discus	42.1	32	480	0	21=	0	59.5	15	753	63.7	38	650	(213.5)	36	378	2261
32	Parker, S. J. C.	LS-4	46.6	26	554	0	21=	0	(16.8)	42	22	72	12	799	88.4	9	861	2236
33	Marren, J. R.	LS-7	(52.2)	41	165	0	21=	0	59	16	745	61.5	43	609	58.6	22	715	2234
34	Slingsmore, G. P.	Discus	40.7	34	458	0	21=	0	37	34	377	69.8	24=	739	53.9	30	645	2219
35	Beringer, J.	Pegasus	37.8	36	409	0	21=	0	(133.8)	35	344	63.1	39	638	65.5	15	818	2209
36	Atkinson, K. R.	Discus	51.1	17	630	0	21=	0	51	27	627	59.4	44	571	(173.5)	42	240	2088
37	Crabb, P. G.	Pegasus	(20.7)	44	45	27.8	17	60	62.5	7	797	65.8	32	688	61.9	34	484	2054
38	Metcalfe, G. C.	ASW-24	(38.8)	42	106	59.3	12	193	(43.3)	40	70	78.6	3	882	62.4	18	771	2022
39	Booth, D. A.	DG-300	46.9	24	560	0	21=	0	(15.4)	43=	18	68.4	28	733	50.6	32	596	1907
40	Jeffery, P.	LS-7	56	11	710	12.7	21=	0	(38.4)	39	98	72.1	11	800	(130.4)	43	224	1832
41	Langrick, J.	LS-4	47.9	23	576	0	21=	0	(15.5)	43=	18	64.4	35	661	55.1	33	513	1768
42	Jones, R.	Discus	38.1	35	415	15.1	20	7	39.6	33	416	71.7	13	793	(25.5)	44	36	1667
43	Arnall, R.	Discus	(14.6)	45	22	28.5	16	63	55.8	20	698	65.3	45	378	(210)	37	370	1531
44	Eade, D. J.	LS-4	(67.7)	40	177	0	21=	0	(21.8)	41	40	64	37	654	54.8	28	658	1529
45	Lytelton, C. C.	ASW-24	46.8	20=	592	0	21=	0	(15.6)	43=	18	65	33	672	DNF	45	0	1282

BGA Competition Scoring Program by Specialist Systems Ltd

The Regionals Results will be in the next issue. We are grateful to all the scorers for sending them, with a special thank you to Tim Newport-Peace of Specialist Systems Ltd who has devised a program which is in line with our format.

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COMPETITION ENTERPRISE

North Hill, July 3-10

**John, the inspired task setter,
sums up another enjoyable and
successful Enterprise**

Twenty years ago Philip Wills opened the first Competition Enterprise at North Hill. This year's meeting was a true reflection of Philip's vision - Fun, Flying and Friends. Each day brought its own character and its own front flyers - Nick Gaunt (LS-6), John Cadman (Libelle), Gerry Martin (Cirrus 17.7), Chris Nicholas (K-6E), Justin Wills (LS-4), Damian Le Roux (the Devon & Somerset GC's Junior) and Chris Simpson/Pete Osbourne (ASH-25) - which meant that we flew on seven days out of eight. Another bonus for the 20th anniversary.

With a mixture of Meteosat - "Tom Bradbury remote" and luck, we had a pretty healthy idea of what the weather might do for us. It wasn't booming but always interesting.

The first day produced the task setter's nightmare, a good soaring day everywhere except for a ten mile wide corridor exactly along the first leg! Even I couldn't change the task because there were half a dozen stalwarts trying various routes until late evening.

Only Nick Gaunt made it. The whole week was characterised by a limited area of thermal activity culminat-



A K-21 flown by Ron Johns and Chris Wood.

ing on the final Saturday when thunderstorms were raging at Bristol and Salisbury, while we flew up to 430km locally on a series of O/Rs to stay in the soarable region.

That was the day we got on to page three of the *Sun*. On a little square, covering a vital part of the young lady, it said: "Yesterday (which was wrong, it was Thursday) nine gliders (which was wrong, there were only six) landed on the 5th tee of Bridport Golf Course (which was wrong, it was not even on the golf course, but adjacent!) because the wind dropped (no comment!). Is that par for the course?"

That was a fun day too. It was blue to 2500ft and they flew along the south coast to Lulworth Cove, photographing all the best beaches. No one got all the way home, but everyone had a wonderful day of new expe-

riences on the cliffs of Lyme Bay.

The local TV featured the task and condensed it into a five minute spot which got most things right and was fun. We were lucky enough to get a copy of the "rushes", which for those of us in the pictures makes a unique two hour record of the flavour of the day.

For the record, as usual everybody won, but, as usual, John Cadman won more than anyone else for the 4th time. This time, however, he had some help from Tim Harrison and the *Telegraph* trophy will have a new name engraved on it.

Justin Wills, refreshed by an orgy of fishing in Scotland, arrived with glider from the World Champs on Wednesday, and even he couldn't catch up with the best of the rest, though he made it to 11th.

As usual again, there had to be a tie for 2nd place between Gerry Martin and Damian Le Roux, - no mean achievement flying a Junior.

**John Cadman, the Enterprise Champion,
waiting for the tug.**



A Blanik crewed by Les Bradley (front) and Nick Kelly. All photos by Mark Gray.





A↑ E↓



B↑

F↓



C↑



H↓

THE COMPETITION SCENE

A. The Open Class grid on Day 3. Photo: Mark Holland. B. Derren Francis, 2nd on two Open Class days and the winner of the Handicap cup, Photo: Mark. C. Graham McAndrew being presented with the Standard Class Champion's cup by Derek Bickerson, managing director of GEC Marconi Avionics, the sponsors. Photo: Terry Joint. D. Robin May (ASH-25) finishing on Day 4 of the Open Class. Photo: Mark. E. Open Class grid on Day 5. Photo: Mark. F. Warren Kay (ASW-24) finishing in the Standard Class. Photo: Terry. G. David Innes (Nimbus 3T) concentrating hard at the Open Class. Photo: Mark. H. Alister Kay (ASH-25), Open Class Champion. Photo: Mark who caught Barrie Elliott (I) having a quiet moment during the Open Class Nationals. J. The Enstone Eagles cable retrieve team waiting for a gap in the cloud to start launching at the Open Class Nationals. Photo: Lorna Bevan. K. John Glossop and Barbara West (Nimbus DT) winning Day 4 at the Open Class Nationals. Photo: Mark.



I↓





D↑

G↓



J↓



K↓



Fabric techniques have changed little over the years. Synthetic fibres such as Ceconite, Diatex, Aerolene and Dacron have been in use for quite some time and are well proven materials and in common use for re-covering wooden gliders.

The normal method of sealing these fabrics is by using dopes and adhesives which are nitro-cellulose based. But they are messy to use, temperature sensitive and give off rather unpleasant cellulose fumes during the lengthy doping process.

It was while visiting the 1992 Popular Flying Association Rally at Wroughton that I came across an alternative method of sealing fabric pioneered in the USA. The scheme didn't use any of the old cellulose dopes and the standard of paint finish on display looked of very high quality and just the thing for gliders.

This was the Ceconite 7600 process which utilises a water based cement and filler coat.

Captions: The K-13 is ready for the first flight. B. Two coats of water based cement are painted on the fuselage tubes. C. The yellow 7600 epoxy coated fabric is attached to the fuselage. D. The underside of the aircraft is covered with fabric and is now ready for heat tensioning. E. Large sections of fabric are used to save time when covering the fuselage. F. Sandy irons the fabric on tightly. Ordinary Ceconite 101 is used in the cockpit area and this needs an extra coat of filler but doesn't affect the finish. G. Grey filler is foam brushed on the fuselage with just an hour between coats. The fuselage final coat is a dark colour so it is acceptable to use grey.

MODERN FABRIC TECHNIQUES IN GLIDERS

Sandy, the Cambridge University GC's former ground engineer, describes a new method of re-covering gliders - the Ceconite 7600 process - which he has used with great success on the club gliders



B ↓



A ↑ C ↓



D ↓



E ↓



F ↓



G ↓



If, like me, you are somewhat apprehensive about water being used in fabric adhesive then rest assured that the H₂O is only a carrier for the cement and filler and evaporates during the drying process.

I decided to try it on a K-8 I was about to completely refabricate. The previous year I had recovered a K-8 using standard ceconite and dope and this would give a direct comparison of cost, weight and man hours involved.

The glider was stripped down and prepared for the fabric. The first step was to apply the water based cement which was painted on in thin layers with approximately one hour between coats. The cement is green and applied in sections on the wings and all the fuselage tubes where the fabric touches. When the cement is dry the fabric is bonded to the airframe in the next stage of the process.

The chemical activator is painted on top of the cement and forms the adhesive. The fabric is then positioned in place and takes a few minutes to adhere, but you must wait at least one hour before heat tensioning the Ceconite with an iron or heat gun. This part of the process is slower than the one part adhesive used in the old system.

The 7600 fabric is coated with an epoxy to fill the weave which means less filler coat is used before painting and this helps in weight reduction. It also retards ultraviolet light which deteriorates the fabric. The fabric is slightly more expensive than standard Ceconite of the same thickness.

Once the fabric work is completed the filler coat is applied. It is in grey and blue, the latter for when the finish paint is a light colour. As the filler base is also water based it can be watered down for spraying on to the airframe. However, it is difficult to prevent runs so I used foam brushes to paint the filler on to the surfaces. This is a cheap and effective way and the 4in foam brushes prevent brush marks. We found four coats of filler with one hour between each was enough to totally fill the weave. This means minimal rubbing down before the glider's final coat of paint.

For the final rubbing down we used 1200 grade wet and dry and plenty of water. After drying the aircraft is ready for the final paint. We sprayed synthetic polyurethane directly on top of the filler which gives a good gloss finish. The scheme is also compatible with two pack nitro-

cellulose and butyrate paints, though I haven't tried this yet.

In the last six months I have used this scheme on four gliders without any problems with paint cracking or peeling despite heavy club use. So is the scheme worthwhile? The table below shows how the old and new compare:-

7600 System			Ceconite and dope		
Quantity	Item	Cost	Quantity	Item	Cost
10yds	fabric	£62	10yds	fabric	£50
25yds	fabric	£155	25yds	fabric	£155
5 litres (l)	cement	£40	5l	adhesive	£40
2.5l	activator	£2	15l	dope	£75
8l	filler	£7	5 l silver dope		£25
2 rolls	fabric tape	£20	2 rolls fabric tape		£20
10l	polyurethane	£85	10l polyurethane		£85
5l thinners		£1	15l thinners		£39
6 foam brushes					
Total £470			Total £489		
Suppliers: Classic Air Spares, Bromham, Beds					
MK43 8PR and London Sailplanes, Dunstable, Beds LU6 2JP					

Summary

The new 7600 system is fairly straightforward to use and not critical to temperature in the same way as the cellulose method (low temperatures cause dope to blush). The cost of the material is about the same and the cement and filler is pleasant to work with. A weight reduction of 10% was achieved and the final finish was better than the old method. The downside is the process is slower and the cement and activator are similar colours which can cause confusion. Also the activator has a strong odour. However, exposure to this is minimal in this process.

(Sandy makes the point that he has no business connections with any of the suppliers and the views expressed on this process are entirely his own.)

MARY IN THE NATIONALS

A Worm's Eye View

"Coming in 5th overall at Husbands Bosworth last summer will get you a place in the Nationals!" That's what they said, and sure enough, I had a letter from the BGA in February that notified I was definitely in the Open Class Nationals and on the waiting lists for the other two. I sent off my money to Ken Sparks. Graham McAndrew offered his opinion. "You'd be much better off flying in a Regionals next summer, Mary. A Nationals would be too discouraging if you end up at the bottom."

Yes, but twenty years from now, when I'm tottering around on my Zimmer frame, I'll be able to croak "I was once a Nationals Pilot!!"

When I told director Ken Sparks I was entering the Open Class with a Pegasus he assured me I would land out every day, or the other competitors would complain he'd underset the task.

A good crew would be essential. Tony Price, 25 years-old, a Rugby player and student at the Oxford Poly, never been up in a glider but could drive a horsebox, was willing and able. He can cook, too! As Tony is my student lodger, we planned to drive out to Enstone daily from Oxford.

I was very twitched the first day. Michael Fish was talking about thunderstorms and 45kt winds. Didn't fancy that. "Should I rig?" I asked Ken Sparks, on arrival. "Shouldn't bother if I were you, I probably won't be setting a task today." So we didn't, which psyched out Chris Pullen and all the other big wing boys who were fussing and fettling. Takes them an hour to rig. Takes us 15min.

On Sunday Ken set a 300km; Norman Cross, near Peterborough, Six Mile Bottom, near Cambridge, Lutterworth and home. I got to Peterborough okay, but the gloom on track looked hopeless. I hung about for an hour hoping for some improvement, and ended up visiting the friendly folks at Nene Valley GC. "You're last!" said Ken, when I checked in. "No I'm not," I retorted; Dave Gardiner DNF, so I beat one already. Second from the bottom, *not* last.

Everybody landed out, including Mike Thick in his ASH-25; Mike had an aerotow back, and when the calculator assured him he had enough height to get back to Enstone, he came off tow and landed in a bean field half a mile short. 171 was plastered with beans. They reamed out quart of beans from the nose with a high tech

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"...making sure that 130 fine Friesians didn't realise that the electric wire surrounding 987 was only a piece of string." Photo: Mary.

coat hanger. Poor Mike. Next day his cameras failed to function, so he was last. Vic Tull spent the entire previous night extracting his Kestrel from a muddy cornfield near Cambridge piece by piece, returning by dawn's early light, so Vic DNF on Day 2, which was two I beat on Day 2.

Ken had set another 300km. I was right up with the big boys to Didcot, but they went right and I went left after that, seduced by a cloud street that went to Reading and then fizzled. The only lift I could find over Reading, at 800ft, was directly over the crematorium at Caversham, and I couldn't stop thinking about the good friend who had gone up that chimney and all the stupid jokes we had made about "Joe's last thermal." I went completely to pieces and landed in a field, knees knocking. First time I've field landed in two years, but it was a good one, only the farmer said he had to put the cows out after milking. So I spent the next two hours making sure that 130 fine Friesian milkers didn't realise that the electric wire surrounding 987 was only a piece of string. My crew said if there was any ash on that glider I could wash it myself.

Not bad for a granny!

The wind got up pretty fiercely after that. Can you imagine going cross-country on a day with a 20kt wind and 2300ft cloudbase? We did, and five gliders got round. I got 21km into wind before visiting a farmer, which was a little bit farther than Clive Davis in his Nimbus 2, Tony Walsh in his DG-400, and Mark Thompson in his Nimbus 3. Vic Tull DNF again, so that was four gliders behind me on Day 3! Not bad for a granny in a Pegasus! Chris Pullen was cheesed off, he doesn't like landing out in his ASH. He's only landed out three times ever! I said that landing out was part of Gliding's Rich Tapestry, but Chris, having spent all that money on a glider with a handy pop-up get-you-home device, couldn't see the point.

Day 4 was just as windy. But the streets were working and I got round the first turn. Should have followed the ridge after that for best energy, but I had only just figured out how to use the Garmin, newly installed that day. Thank you John Giddins! It worked a treat, but the direct

course to TP-2 is not necessarily the way to get there, so I ended up grovelling for ages near Daventry, where the only available pastures were evenly sprinkled with sheep. The DG-500 in the field at the second TP cheered me up, but but I couldn't find a decent climb after that, so trickled on downwind for a safe landing at Husbands Bosworth. That day 987 beat five gliders with higher handicaps, including one flown by a national coach!

Beware of dog!

Pete Sheard, after a hairy landing in a very small field, approached the farmhouse and found a sign that said "Beware of Dog! Remain in car and sound the horn!" The mastiff in question, a cross between a Pit Bull and a Great Dane, took Pete by the trouser leg and removed him from the premises. Rescued by the farmer, Pete explained why he couldn't stay in the car.

Attempting for the first time to put water in the wings, I ended up with wet feet and borrowed a pair of socks from John Cardiff. Somehow, flying with John Cardiff's socks on gave me confidence! Saturday would be the big one – the only one! You can go well with water, I discovered. As far as Kettering, anyhow. The entire fleet spent the next flat 40min spiralling slowly downwind at 900ft. I ended up all by myself near Peterborough before reviving and tracking upwind back to the TP.

One glider down there, and several more at Sywell. Ho ho! Hang in there, Mary! I had to go north to get south, and not until Milton Keynes could I send a call to my crew that I was still aloft. Landed at Benson, 24th for the day out of 35. Beat Ralph Jones! (and others).

On Sunday I was too tired to safely fly, so didn't rig; the others rigged, gridded and scrubbed.

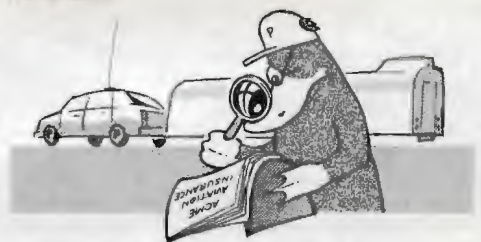
Overall, I ended up 32nd out of 35, with only 729pts. Flew on impossible days and got somewhere. Learned how to fly with water and how to use a GPS. Although the final result is less than impressive, it was great fun and tremendously challenging, and Tony says he'll crew for me at Husbands Bosworth – they've let me in the 15 Metre Nationals. Do you think John Cardiff would lend me his socks?

TAIL FEATHERS

Bloody competitions

Competition flying does not bother me, but competitions do bother me. What I mean is the flying from A to B and back again is the easiest part; the most stressful part of the contest is coping with the mountain of detail under which the sadistic organisers and other bureaucrats bury you:

Panic two days before the Championships in Patagonia when you find that your insurance cover specifically excludes Patagonia, and the insurance agent has gone on holiday and is unreachable.



Excludes Patagonia.

Hysteria when you notice that your ground radio licence has been mislaid, so you can talk to your crew but they can't reply.

Apoplexy when the Transylvanian border guards tell you that you are very naughty trying to import a glider into Transylvania illegally and they are going to impound it for two weeks. (The fact that it was made in Transylvania and you have a written personal invitation from the Transylvanian president to take part in their Nationals makes no impression.)

etc etc etc

The list is endless.

Then the contest proper starts – if you ever get there and if your documentation is accepted. However, your misery is only just beginning. Indeed the chief reason for the vast popularity of two-seaters is the need for a private secretary/lawyer to carry – and ideally to memorize – all the rulebooks.

Smile, please, and watch the birdy

Photographs must be the biggest cause of grief in Comps flying, in the same way that rum used to be the biggest source of trouble in the British Navy. All of the following have been done by the very best pilots:

Taking photos of the right TP from the wrong angle. I have donated far more points to my fellow-contestants by out-of-sector pictures than by my flying errors.

Being in the right sector but somehow failing



Cause of grief.

to get the TP itself on to that little 36mm by 24mm rectangle.

Failing to photograph the clock after you have landed. After a hard day's work a pilot should be allowed to roll out of his cockpit and stagger off to the bar without having to remember such nonsense.

Forgetting to put any film in either camera.

Finding out after processing that although the time appears correctly on the camera back, the processed film is not registering the time.

Having a camera that switches from hours/minutes to date without your noticing it.

Mounting the cameras on the wrong side.

Having your cameras stolen after a field landing.

Taking the film out of the camera before an official has witnessed this solemn event.

Forgetting which start sector to photograph.

Running out of film, especially on a post task.

(Forgetting which way to circle before the start is not much of a problem, since the other competitors will gently remind you with the politeness for which contest pilots are famed, even in moments of imminent danger.)



Gently remind you.

More pressure

Barographs are another source of pain:

You find that a barograph acceptable for contests in one country is not accepted in another country.

If it is clockwork, you have the opportunity variously to forget to ink it, smoke it, wind it, seal it or get it witnessed.

You can put a clockwork baro in the wrong way up, so that the stylus is hanging under the foil and not touching it.

If it is electronic, its battery dies or its memory gets indigestion, so it stops recording half an hour after it has been switched on.

In either case, you can forget to switch the baro on, or can do all the above things correctly but for one small error – you simply forget to put the barograph in the glider before take off.

etc etc etc

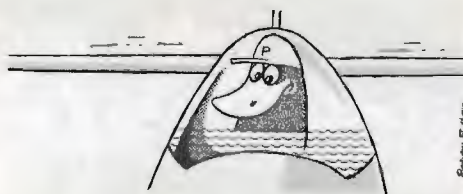
The "Gormless Pilots' Salvation" to the rescue?

You are going to say the GPS will put an end to all that stress, worry and opportunity for mistakes that cameras and barographs have caused up till now.

Good heavens, when were you born?

Water, water everywhere

Having an aversion to water, I personally have never got into trouble for having too much of the horrible stuff sloshing about in my glider, but some people do. (When I use ballast I have trouble with the electrics and/or the pipes and most of it ends up in the cockpit, so I do not usually



In the cockpit.

bother with it in temperate latitudes. In hot countries it is different: a soaking wet cockpit is rather pleasant.) But the fuss everyone makes about it! The time wasted at the 1991 World Champs in committees arguing about small quantities of this supposedly magic fluid amazed me. We all know that it takes 100 litres to make any measurable difference to sailplane performance, but the amounts that are the subject of heated debate by distinguished panels of arbitrators could be drunk by a baby camel in ten seconds.

Finishes are the end

Finish lines give me a lot of trouble, especially if I arrive before everyone else, or, more likely, after everyone else. What I like about a sailplane with nearly 60:1 glide ratio is that it gives me plenty of options when I fail to cross the correct finish line at the correct height from the correct direction. If I do not hear those sweet words "Platyplaneur, good finish!" I can do a dozen leisurely figure-eights around different parts of the field in the hope that one of them intersects the finish line before the ground comes up and hits me. On the other hand this does not go down well with the business jets, helicopters and parachutists that are trying to use the same aerodrome. In ordinary day-to-day gliding, if the manner of your flying indicates evident mental confusion, the people in charge on the ground are only too eager to tell you where to go and what to do with your big toy in the interests of safety. In contests, however, the officials are sworn to silence, apart from telling you tersely that you have not done a proper finish. My crew are now briefed to station themselves next to the finish line observers with a transmitter (the licence having been found in the cat basket at the last moment) ready to prevent me doing something truly stupid.

Needed: room for a filing cabinet

Of course, all the necessary information is usually printed out and given to the pilots, so you can end up with a sheaf of paper – make sure you have shredded yesterday's sheaf of paper – which I now bind together in a folder. Then after launching I find that the folder has slid irretrievably down behind the seat. Hence the popularity of doppel-sitzers with secretaries, as I said.

Homeward bound

Thank God it's over: we've only lost 500 penalty points, a personal best, and our plastic bomber is still in one piece. Now we can drive home without a care in the world. Goodbye, dreary BGA Rulebook! Adieu, nitpicking officials and pedantic scorers!

Hold on, what's that car with the flashing blue light on top, and can that siren possibly be wailing for us?

"Good evening, sir. Yes, it is a beautiful evening for the time of year, really lovely. Did you know – just a second while I get my big notebook out, this chat is going to be a rather lengthy one – that your trailer (a) has a malfunctioning brakelight? (b) has a number plate different from the one on the car? (c) was being towed at 30% over the speed limit for trailers? (d) appears to be overweight for the size of car? (e) is being driven by someone who appears to have been celebrating recently...?"



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ROYAL AERO CLUB AWARDS



Chris Garton (right) and Humfrey Chamberlain were honoured by the Royal Aero Club at their recent annual awards ceremony in London. They were presented with Certificates of Merit by Christopher Chataway, chairman of the CAA, (in the middle). The Certificates were to mark all the hard work put in by Chris as chairman of the BGA Airspace Committee and Humfrey as chairman of the BGA Development Committee, over the previous five years.

BGA 1000 CLUB LOTTERY

The results of the July draw are: First prize - C.C.Smith (£100.25) with the runners up - N. B.Sharman, R.C.Tatlow, P. Mellor, R.G.Bray and A.B.Wood - each winning £20.5.

August: First prize - J. Gorringe (£99.75) with the runners up - A.E.Congreve, C.Robinson, G.James, J.Wilshire and S.Lynn - each winning £19.95.

FATAL ACCIDENTS

The pilot, Ernie Cunningham of Norfolk GC, and crew member, B. Crawford, were killed when the IS-30 glider they were flying crashed at Knettishall on Sunday, June 27.

During an aerobatic sequence the glider was rolled inverted after completing a loop at about 700ft. The inverted glide continued without any apparent attempt to recover until it crashed.

The accident is being investigated with the assistance of Air Accidents Investigation Branch (AIB), Department of Transport.

Then on August 13 an instructor, Richard Clare, and student, Martin Dillon, were killed when a Puchacz crashed at Camphill, the Derby & Lincs GC site.

The glider had been winch launched to probably between 1000 to 1200ft. It was seen spinning at about 600ft at the start of the downwind leg and crashed 300ft below the hilltop just to the west of the site. 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°.

The accident is being investigated by the BGA.

Bill Scull, BGA director of operations

GLIDING CERTIFICATES

ALL THREE DIAMONDS

No.	Name	Club	1993
394	Cole, R.T.	Clevedons	21.5
395	Wright, A.C.	Yorkshire	3.5
396	Browne, R.A.	Cranwell	21.5
397	Salmon, D.A.	Derby & Lincs	4.5
398	Cole, R.A.	Clevedons	21.5
399	Hallam, J.A.	Two Rivers	21.5
400	Francis, D.P.	Bicester	4.5
401	Hearn, J.B.	SSA	2.2
402	Smith, L.P.	Bristol & Glos	24.6

DIAMOND DISTANCE

No.	Name	Club	1993
1/588	Wright, A.C.	Yorkshire	3.5
1/589	Browne, R.A.	Cranwell	21.5
1/590	Salmon, D.A.	Derby & Lincs	4.5
1/591	Cole, R.A.	Clevedons	21.5
1/592	Lee, M.E.	Cranwell	21.5
1/593	Hallam, J.A.	Two Rivers	21.5
1/594	Eyles, S.J.	Booker	3.2
1/595	Wheeler, C.W.A.	(in Australia)	4.5
1/596	Francis, D.P.	Anglia	4.5
1/597	Smith, L.P.	Bicester	24.6
1/598	Harris, T.D.	Bristol & Glos	4.5

DIAMOND GOAL

No.	Name	Club	1993
2/2102	Brewis, P.W.S.	Midland	3.5
2/2103	Freestone, I.	Coventry	4.5
2/2104	Garside, J.	Kent	21.5
2/2105	Wide, R.K.	(in Poland)	18.12.92
2/2106	Davies, R.M.	Two Rivers	4.5
2/2107	Bennett, R.	(in Australia)	4.5
2/2108	Warbey, H.J.	Four Counties	4.5
2/2109	Carruthers, I.J.	Midland	24.6
2/2110	Bland, M.R.	Black Mountains	24.6
2/2111	Coles, E.A.	Bidford	25.6
2/2112	Croll, G.J.	Bidford	4.5
2/2113	Ward, P.J.	London	24.6

2/2114	Beckett, I.	Devon & Somerset	24.6
2/2115	Chant, M.	Devon & Somerset	24.6
2/2116	Watkins, B.	Booker	25.6
2/2117	Wardle, S.C.	Lasham	24.6
2/2118	Wallis, K.S.	(in Australia)	18.12.92
2/2119	Underwood, G.J.T.	Pegasus	3.5

DIAMOND HEIGHT

No.	Name	Club	1993
3/1130	Rebbeck, H.A.	London	19.12.92
3/1131	Heam, J.B.	(in New Zealand)	2.2
3/1132	Randall, T.	SSA	10.6
3/1133	Peddle, G.D.	(in USA)	8.7

GOLD BADGE

No.	Name	Club	1993
1673	Rebbeck, H.A.	London	19.12.92
1674	Garside, J.	Kent	21.5
1675	Davis, R.M.	Four Counties	4.5
1676	Bennett, R.	Midland	4.5
1677	Warbey, H.J.	Black Mountains	3.5
1678	Carruthers, I.J.	Bidford	24.6
1679	Ward, P.J.	Cotswold	20.6
1680	Chant, M.	Devon & Somerset	24.6
1681	Wallis, K.	Pegasus	3.3
1682	Underwood, J.G. T.	Midland	3.5
1683	Evans, A.G.	Clevedons	20.3

GOLD DISTANCE

Name	Club	1993
Brewis, P.W.S.	Midland	3.5
Freestone, I.	Coventry	4.5
Garside, J.	Kent	21.5
Wide, R.K.	(in Poland)	18.12
Davis, R.M.	Two Rivers	4.5
Bennett, R.	(in Australia)	4.5
Warbey, H.J.	Four Counties	4.5
Carruthers, I.J.	(in France)	3.5
Bland, D.M.	Midland	24.6
Coles, E.A.	Black Mountains	24.6
Croll, G.J.	Bidford	25.6
Ward, P.J.	London	4.5
Beckett, I.	Rattlesden	24.6
Chant, M.	Cotswold	20.6
Watkins, B.	Devon & Somerset	24.6
Wardle, S.C.	Devon & Somerset	24.6
Wallis, K.	Booker	25.8
Underwood, C.J.T.	Lasham	24.8
	Pegasus	16.12
	(in Australia)	3.5

GOLD HEIGHT

Name	Club	1993
Rebbeck, H.A.	London	19.12
	(in New Zealand)	
Avery, P.C.	Fenland	17.3
Young, S.M.	Highland	31.3
Carter, C.	Midland	31.5
Davis, R.M.	Four Counties	25.3
Webb, M.P.	Staffordshire	31.5
Randall, T.	P'smouth Naval	10.6
	(in USA)	
Wallis, K.	Pegasus	3.3
	(in France)	
Douglas, J.	Deeside	26.6
Jones, D.W.	North Wales	31.5
Evans, A.G.	Cleveland	20.3

SILVER BADGE

No.	Name	Club	1993
9122	Bolt, S.	Devon & Somerset	3.5
9123	Wilson, M.	Wyvern	2.5
9124	Fox, M.R.	Wolds	22.5
9125	Neil, W.B.	Deeside	13.2
9126	Neil, D.F.	South Wales	15.5
9127	Hodges, A.	Derby & Lancs	3.5
9128	Weaver, R.W.	South Wales	3.5
9129	Collins, J.D.	Midland	2.5
9130	Edwards, A.	Midland	31.5
9131	Booth, G.	Essex	5.6
9132	Garwood, M.R.	The Gliding Centre	21.5
9133	Thompson, S.R.	Deeside	24.5
9134	Lambert, R.M.	Cairngorm	5.6
9135	Parsons, M.	Stratford	19.5
9136	Palmer, R.	London	29.5
9137	Evans, M.	Newark & Notts	5.6
9138	Clark, P.	Surrey & Hants	6.6
9139	Laing, A.	Wolds	17.6
9140	Hirst, A.A.	Booker	5.6
9141	Skinner, S.A.	Booker	20.6
9142	Heath-Webb, R.	Staffordshire	18.6
9143	Darlington, A.	Imperial College	3.5
9144	Mowat, G.N.	Lasham	24.6
9145	Cant, P.	BFGGC	23.6
9146	Carnegie, D.	Cambridge Univ	25.6
9147	Rossiter, M.	South Wales	3.5
9148	Slater, R.	Bidford	25.6
9149	McLaughlin, W.	Staffordshire	13.6
9150	Dean, N.	Humber	29.5
9151	Trotter, I.M.	SGU	27.6
9152	Taylor, F.C.	Thrupton	20.6
9153	Ward, L.	Nene Valley	27.6
9154	Harbour, M.	Derby & Lancs	27.6
9155	Stewart, G.D.	Cleveland	27.6
9156	Jones, B.D.	Bidford	24.6
9157	Keen, I.	Lasham	20.6
9158	Tyack, R.	Vale of W H	28.6
9159	Bradley, M. B.	Kent	20.6
9160	Cooper, D.	Booker	28.6
9161	Dawson, P.A.	Bannerdown	19.6
9162	Brooks, M.P.	Southdown	27.6
9163	Pegg, F.P.	Bicester	13.6
9164	Randall, T.	P'smouth Naval	6.6
9165	Bartlett, A.R.	Rattlesden	4.7
9166	Cushway, D.M.	Kent	7.7
9167	Platt, F.D.	Midland	6.7
9168	Clark, A.M.	Kent	7.7
9169	Hartley, D.T.	Coventry	25.6
9170	Valentine, S.	Bidford	5.7
9171	Hamlet, B.	Derby & Lancs	17.4
9172	Morrison, P.	Devon & Somerset	7.7

9173	Kennard, B.	Norfolk	24.6
9174	Vowell, B.R.	Shalbourne	7.7
9175	Glover, C.	Coventry	24.6
9176	Morris, R.	London	25.6
9177	Bick, F.	Deeside	27.7
9178	Bull, P.A.E.	Booker	4.7
9179	Alexander, A.R.	Blackpool & Fylde	31.5
9180	Hodkinson, N.W.	Derby & Lancs	10.4
9181	Moonie, H.L.	Cranwell	24.6
9182	Seymour, R.	Coltswood	17.7
9183	Armstrong, A.	Essex	19.6
9184	Taylor, P.W.	P'smouth & Naval	11.7

UK CROSS-COUNTRY DIPLOMA

Part 1	Name	Club	1993
	Hanna, R.H.	Ulster	3.5
	Grimsdell, A.W.	Oxford Univ	18.5
	Weaver, R.W.	South Wales	3.5
	Collins, J.D.	Midland	2.5
	Selway, R.J.	Bristol & Glos	2.5
	Robertson, A.	Cairngorm	5.6
	Bearns, D.	Kent	20.6
	Crow, B.	South Wales	3.5
	Burden, R.J.	Kent	25.6
	Lamb, J.	Ulster	3.5
	Clark, P.A.	Lasham	4.7
	MacDonald, E.	SGU	7.7

ADVERTISERS PLEASE NOTE

Debbie, your contact for display and classified advertisements.

October-November deadlines

Display advertisements October 22

Classified advertisements November 3

Editorial copy is needed long before these dates. Our main deadline is September 30 with club news and letters accepted up to October 12.

Gillian Bryce-Smith, *editor*

NATIONAL LADDER

The National ladder scores to the end of July show what a good May and June we had followed by a disappointing spell. Ed Johnston, the national ladder steward, gives a table of best flights for the BGA annual trophies and not one was flown in July.

For those wanting to know what the competition is like, Mike Bird's 758.1km in an ASW-22 so far claims the longest distance; Richard Baker's 504.4km in a Discus the longest triangle; Ed Downham's 504.2km at 97km/h in an LS-7 the fastest 500km; Robin Tillet's 305.8km the longest flight by a female; Mike Young's 328.7km at 93km/h in a Discus the fastest 300km; Andy Wright's 525km on May 3 the earliest Diamond distance; Neil Foreman's 10 900ft the maximum height; David Storer's 576.7km in a Kestrel 19 the longest O/R and the 758.1km at 87.4km/h in an ASH-25 by Robin May and Henry Rebbeck the longest two-seater flight.

Open Ladder

Leading pilot	Club	Flts	Pts
1. E. Downham	London	4	9174
2. G. Smith	London	4	8804
3. R. May	London	4	7009
4. W. Kay	London	4	6963
5. P. Jeffery	Cambridge Univ	4	6951
6. B. King	London	4	6497

Weekend Ladder

Leading pilot	Club	Flts	Pts
1. P. Jeffery	Cambridge Univ	4	4910
2. J. Bridge	Cambridge Univ	4	4626
3. J.D.J. Glossop	Cambridge Univ	3	3706
4. M. Young	Cambridge Univ	4	3627
5. R. Palmer	Bidford	4	3612
6. A. Grimley	Bidford	4	3205

BGA SHOP

1994 CALENDARS – In response to popular demand we shall be stocking the SSA Calendar again for 1994. We are the sole importer and have a limited supply so order now at £8.00 each (plus 50p post & packing).

GLIDING SWEATSHIRTS – An exciting new design this autumn only available from the BGA. Full colour glider graphic on the front of good quality dark grey sweats in M, L, XL or XXL at £13.00 each (plus 50p post & packing).

ALSO – New edition of Cross Country Soaring (H. Reichmann) for £29.50, leather credit card holders £4.70, packs of cards with glider backs £2.95, latest Southern England 1/2 mill. map (paper £9, laminated £9.50).

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£97. PZL TE Compensator £25.90, Stainless
Steel Total Energy Probes £18.60,
Reconditioned Sensitive Altimeters 30,000'
£157. New IFR 20,000 Altimeters £159.90.
Surplus T/Slips, Glider Rate, with 12V
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T/Slips £144. New Miniature 60ma low power
consumption 12V PZL Turn & Slip £259.
Reconditioned Bendix 3½" Artificial Horizons
with adjustable pitch datum and new inverter
£349. Airpath Panel Mount Compasses re-
conditioned £43, new £48.90. New IFR
Pedestal Mount Compasses £64. Ex Ministry
Accelerometers Standard Size £82, New IFR
Mini Accelerometers £169.00.

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BGA ACCIDENT SUMMARY

Compiled by DAVID WRIGHT

Ref No.	Glider Type	BGA No.	Damage	Date Time	Place	Pilot/Crew		
						Age	Injury	Hrs
31	K-6CR	1256	S	3.4.93 1253	Easterton	46	N	65

During an aerotow in a crosswind of 15 gusting to 25kt the pilot applied full left rudder to counter the crosswind. At about 10 yards into the run the left wing lifted rapidly despite full left stick. The right wingtip hit the ground and the glider yawed around as the cable was released. "Experienced pilots" only were intended to be flying.

32	Kestrel 19	—	N	—4.93 1300	Incident Report	62	N	6000
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At about 150ft into the aerotow take-off run the pilot decided that the "aircraft felt wrong" and so he released the rope before becoming airborne. The locking bolt on the tailplane was not fully locked.

33	Bocian	1843	M	27.3.93 1530	Aboyne	30 P2 18	N N	960 7
----	--------	------	---	-----------------	--------	-------------	--------	----------

On a Bronze badge training flight P2 was practising field landings on the grass runway. After two good landings the glider was seen to clear a public road with little height to spare. Then, flying slowly and yawing, appeared to stall and landed heavily short of the normal threshold. The glider pitched down and broke the nose skid.

34	K-6CR	2313	M	18.3.93 1500	North Hill	71	M	61
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The cloudbase was dropping and a squall approaching so the pilot decided to stop ridge soaring and return to the airfield. With rain obscuring his forward vision and two gliders landed ahead he made a rather "automatic" circuit and did not realise how low he was until finding sink on finals. He had to turn short into a field and spun off the turn.

35	T-21	2975	M	28.2.93 —	Brentor	56 P2 45	N N	1426 0
----	------	------	---	--------------	---------	-------------	--------	-----------

P2 was flying the approach in the open two-seater with P1 operating the spoilers. The speed was allowed to build to 55kt and although the student judged the round out height correctly the glider ballooned 4 to 5ft. P1 closed the brakes and applied corrective rudder. The glider unexpectedly yawed and pitched down into the runway.

36	Falke	M/G G-AZPC	M	16.3.93 1200	Edge Hill	44	N	451
----	-------	------------	---	-----------------	-----------	----	---	-----

The experienced glider pilot was making his first solo motor glider landing when the aircraft bounced. Instead of holding the stick back he allowed the nose to fall slightly before rolling to a stop. After taxiing off the runway the engine was shut down without any unusual signs. However, it was then seen that a 1/2in of each tip was missing.

37	ASW-15	3306	M	8.3.93 1500	Sandhill Farm	69	N	229
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The pilot was making his second flight on type when he was seen to retract the wheel as he turned finals. He found the glider would not lose height or slow down and overshot the field. He turned into a stub area but over flew the boundary hedge and landed in a field. As the glider landed he realised the wheel was up and the brakes were still in.

38	K-18	2910	M	28.3.93 1030	Sandhill Farm	0	—	—
----	------	------	---	-----------------	---------------	---	---	---

As the result of a DI the trailing edge of the rudder was found to be cracked. Removal of the fabric revealed that three ribs were also broken. It was thought the rudder had been hit by a "dumper truck" retrieve vehicle. No one had reported causing the damage.

39	Jantar 2e	2971	S	10.4.93 1415	Bredon	28	N	293
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On a cross-country flight the pilot choose a field from 1800ft. However, this was then rejected due to power cables and a sports field of a rugby and two football pitches was selected. On approach the pilot found they were not full size pitches but "children sized" and overshot the field into trees.

40	Astir CS77	—	S?	3.4.93 1433	BURN	26	N	53
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On his second flight on type the pilot landed a little fast and allowed the glider to balloon back into the air. With little brake extended the glider bounced heavily several times before hitting with drift and catching a wingtip in the grass, resulting in a severe groundloop.

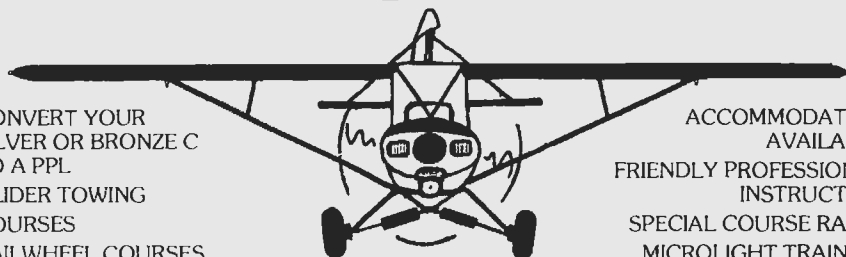
41	Twin Astir	2323	M	13.3.93 1630	Sleep	48 P2 25	N N	1150 0
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After a normal approach and landing the undercarriage collapsed causing damage to the underside of the fuselage and the gear doors. This early model Twin Astir's retraction system had given problems before as it was possible to strain the down-lock and visual inspection was impractical. The result is the undercarriage collapses. Design now better.

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

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HISTORIC SAILPLANE GROUP



At a meeting of the London GC's Historic Sailplane Group, nine pilots who flew at Dunstable in the 1930s met at the site in June for lunch and a chance to renew their acquaintance with ten vintage gliders from their era. In the photograph above they are, from l to r, Dan Smith, Laddie Marmol, John Sproule, Beryl Stephenson, Ann Welch, Geoffrey Stephenson, Buster Briggs, Charles Ellis and Lorne Welch.

LAMINATED MODEL



We showed a photo of one of Peter Ward's laminated wood sculptures in the last issue, p200, as part of a feature on the Guild of Aviation Artist's exhibition. Since then there has been further interest in his work and we asked Peter for another example. The photo above is of a Fafnir.

Peter, a full Cat, was a member of Marchington GC where he flew a Libelle. He says he has now retired from work and flying but spends his time landscape painting in watercolours as well as wood carving. His models are owned privately as well as being used as trophies in this country and abroad.

Each model takes between 40 and 50 man hours to construct, spread over some three months, and Peter uses four templates and three gluing jigs to build up the laminations.

MEDAL WINNER



Our photograph is of Franciszek Kepka of Poland who was awarded the Lillenthal medal by the International Gliding Commission at their March meeting. Franciszek is the current European Standard Class Champion and a veteran World Championships competitor where he has won Bronze medals on several occasions.

BGA AGM

*A date for your diary.
The BGA AGM and dinner-
dance will be on Saturday,
February 26, at the Forte
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be announced later*

*Below are a few
of the items we don't
C of A or repair!*



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THE SCHANZ COMPASS

An evaluation by Max, a Lasham instructor who flies a Ventus CT, has a Gold badge and two Diamonds and went solo in the 1950s at Kenley with the ATC

Fifteen years ago Manfred Schanz designed a dip circle compass to make it easier to leave clouds on the correct heading. But it is relatively unknown because of the inventor's designing skills being better than his distribution methods. However, he has recently been persuaded to make them available to the world market at a comparable price to the better known Bohli.

One does not need to have passed the Bronze badge test to know that conventional compasses suffer from considerable acceleration and turning errors. This compass and the Bohli attempt to overcome these errors, usually by their method of suspension. The previously elusive Schanz is easier to read and has some extra advantages.

The Schanz compensates for the local dip of the Earth's magnetic field. At the Equator a magnetic needle will lay horizontally and at the Poles try to point vertically. The Schanz's unique dual axis suspension method transfers the attitude



dependence to the relative position of the aircraft itself. This in turn is compensated by adjustments in pitch and bank via two knobs on the panel. The pitch is adjusted to a spirit level bubble and the bank to the horizon.

The instrument is normally mounted on top of the panel and the rose reflected in an adjustable mirror. If necessary it can be mounted on the panel itself without the remote control rods.

The same compass is usable world-wide in either hemisphere.

When circling with a Schanz one can roll out immediately on to the desired heading and to help the pilot there are red, yellow and green tags or "bugs" to set predetermined headings.

For TP photography there are spare white tags which can be set at the bisector's heading so that the photograph can be taken accurately.

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EXPANSION IN RECESSION

Barry, Mendip GC's chairman, describes how they have progressed with their Halesland site

When Mendip GC was given notice to quit their site at Weston Super Mare Airfield in January 1988 some members thought that was the end of gliding in our area. Others took it as an ideal opportunity to move further inland away from the sea breezes and on to a ridge site.

The big problem was we didn't have any spare cash. Our club had suffered from the "fat, dumb and happy" syndrome in that although we didn't have a lease at Weston, we didn't pay any rent either. And we were quite happy to continue that way, making no provision for the future. But now we rapidly formed a site committee which started searching the Mendip hills for a suitable site.

Halesland, which is near the Cheddar Gorge, had been an advanced soaring site for the Air Cadets since the early 1950s, but hadn't been used for gliding since the upgrade of their fleet in 1986. It was deemed unsuitable because of its rough surface and short runway (800m stone wall to stone wall). Although it was on our list of options, we weren't too keen to seriously consider it as a new home for the same reasons.

After much time and energy hunting for possible sites, Halesland began to look more attractive, especially its 25km long south facing ridge. We asked the leaseholders, the MoD, if we could use it for a trial period and after protracted negotiations with the Property Services Agency (PSA) and the Headquarters of the Air Cadets we were



A photograph of the site showing the extension.

given temporary permission, but couldn't use the buildings. Our first flight from Halesland was on a cold, wet and windy day in July 1988 - Mendip GC was in business again.

Further negotiations with the PSA resulted in the termination of their lease and our agreement of a 30 year lease with the landowner. This included the use of the hangar and a wooden building which we have converted into a clubhouse.

We ploughed, levelled and reseeded to make the landing areas more comfortable, but the short length of the field was a safety and launch height problem.

A solution presented itself last December when a committee member discovered that the Countryside Stewardship Scheme gives grants for the preservation of natural habitat and sites of special interest and natural beauty.

With our landlord we applied for a grant which subject to certain conditions was agreed. At this time we asked our landlord whether we could extend operations in to a field at the west end of the site to increase our runway length by 200m.

The extension would mean demolishing a dry stone wall which the CC insisted must be rebuilt on an alternative position. We estimated the cost of all the preparatory work would be around £10 000. Although the rental for the additional area would be covered by the grant, the capital cost would have to come from club funds and, due to the recession, these were quite low.

There was considerable resistance from some members who were concerned about the

cost when club receipts were on the decline. However, the arguments for the long term benefits prevailed, thanks in part to a timely visit by Bill Scull who was very supportive.

We now have our extension, are regularly achieving an extra 300ft on the launch and launch failures are not nearly so daunting. ✕

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CLUB NEWS



James Warren of East Sussex GC who went solo on his 16th birthday, photographed with his father Roger, a full Cat instructor.



Andrea Walker with her instructor Bruno Brown after going solo at Glyndwr GC.



Above: 16 year-old Sarah Witton, who soloed at the Mynd, is the third generation to fly with the Midland GC. She is Alison Rowson's daughter, granddaughter of the late Robin Bull and Diana King's niece. Below: Eamonn Murphy (Peterborough & Spalding GC) being presented with his wings by instructor Richard Kilham.



Copy and photographs for the December-January 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 October 12 and for the February-March issue to arrive not later than November 30.

GILLIAN BRYCE-SMITH
August 11

AQUILA (Hinton in the Hedges)

Ian Hammonds has a Bronze badge and more cross-countries have been flown this year. Our new winch is giving good launches and membership has recently increased by at least ten.

We came 2nd overall in our first year in the Inter-Club League.

S.K.

BANNERDOWN (RAF Keevil)

Improvements continue with new toilets and showers and the refurbished clubroom with bar. We have a steady flow of new members and evening parties are helping to offset lost income from poor weather.

Dave Wild soloed on his birthday and Philip and John Dawson completed their Silver badges with 5hrs and height respectively. Mel Dawson (Ventus A) won Class A at the Western Regionals and Chris Terry (LS-4) Class B.

Our first season at Keevil will be rounded off by an open day in September.

D.C.F.

BATH, WILTS & NORTH DORSET (The Park)

We have run three successful two-seater courses, mainly for members. A three day course for schoolchildren was well received and we hope it will be the start of links with other schools. A soaring week in July gave only one flying day.

Les Mott, Mark Smith and Kathy Rourke have gone solo; Ron Weaver, Geoff Humphries and Ken Hawker have re-soloed after a long spell from gliding; Nigel Warren has a Silver badge and Alistair McGregor an AEI rating.

We were 2nd to Halesland in the Inter-Club League who won at their first attempt. Twice weekly evening trial lessons are popular and lucrative.

S.G.

Martin Ainge, aged 80, who recently flew in the Wolds GC's K-21 nearly 50 years after his last glider flight - in a Horsa. He is photographed with his daughter, Helen Roddie, and grandchildren Sam and Hannah.



Lisa Knights after going solo at the Devon & Somerset GC with her instructor, Alan Holland.



Above: William Malpas (left) with Burn GC member Bob Peaks Woods landing at Angers, France, after taking Bob on a 300km triangle in his ASH-25. Below: The rescue of Lincolnshire GC's Bocian, after an ill-fated expedition to Sutton Bank. L to r, Terry Mottishead, John Kitchen and Harry Fleet.



We would be grateful if reporters using the fax would also post their copy as a back up. This issue two have been completely ruined and we have no idea where they came from. Also, please would everyone give a telephone number in case of queries.

BLACKPOOL & FYLDE (Chipping Airfield)

We are still awaiting the outcome of a very difficult tug planning appeal which lasted four days.

Roger Alexander has a Silver badge; Simon Rishton Silver height and duration; Lee Mitchell a Bronze badge and a Churchill award and Tony Arrowsmith has gone solo.

Inter club rivalry continues with Barry Purslow and Tom Littler reclaiming our picture from Lakes GC, in their K-21, quickly followed by Darren Evans claiming a second one in his DG-200. John Wood from Sutton Bank then reclaimed our clock.

Our annual visitors from Brackley GC had an interesting week - a warm welcome awaits all our visitors.

S.R.

Obituary - Alister Murray

It was with great sadness that we heard of the long illness and death of Alister earlier this year. He had not been active for some time but will be remembered by the SGU where he was an instructor from 1968 to 1979. As an encouraging instructor with us he guided members through their early stages of learning.

Alister will be remembered for his independence, his broad Scottish accent and his love of socialising. Our thoughts go out to his wife and family.

Steve Robinson

BOOKER (Wycombe Air Park)

We have ordered a Duo Discus, set up a joint arrangement to operate the Falke giving us almost full time access to a motor glider again and will be selling one of our five K-13s this autumn.

Well done the British team but our sympathy to Dave Caunt on his gallant 750km flight in his Nimbus (see p254).

R.N.

BORDERS (Galewood)

Bob Cassidy and Bill Stephen are refurbishing a Motor Falke. We have been busy with air expe-

Two of Cambridge University GC's cadets, Natalie Northwood (left) and April Considine who went solo on their 16th birthdays on consecutive days.



Brian Lee, the son of George Lee the three times World Champion, after going solo at Bicester. He is photographed with his instructor, Dick Stratton (BGA chief technical officer).



Southdown GC say they are considering a new tug, an Antonov AN-2, which could do the work of three of their aircraft but wouldn't fit in the hangar.



Above: Sam Underhill of Oxford GC, who went solo soon after his 16th birthday, with John Gibbons, his instructor. Below: The last of Cleveland's GC's flying Stewarts, 16 year-old Zoe with father Dave (who sent her solo) and brother Glen.



rience flights following our Christmas gift voucher sales, resulting in several new members.

The Gas Board have had their pumping station planning permission refused following a report by the Health & Safety Executive stating that the two activities were incompatible. We expect them to appeal, so we are not out of the wood yet.

Competition Enterprise organisers are coming to sample our October wave.
R.C.

BRISTOL & GLOUCESTERSHIRE (Nympsfield)

Commissions to the Booker World Championship team who came 2nd to Nympsfield - well done Andy Davis, our resident World Champion.

The Western Regionals run by Steve Parker and his team were an outstanding success and our Inter-Club team look set to repeat our successes of the past three years.

Sarah Little and Marguerite Habgood have gone solo and Simon Roberts, Dave Barker and Laurie Smith flew their first 500kms on June 24.

The bar is under club management - our thanks to caterers Jay and Gary for their considerable efforts.

Our courses have picked up after some judicious restructuring and our thanks to Colin Golding who replaced Bob Cunningham (chairman) during his illness.

Field levelling is going well. The first regraded strip is in use and may be widened for larger span gliders.
S.I.D.

BUCKMINSTER (Saltby Airfield)

The Inter-University task week, hosted by Nottingham Trent University, was a success making the best of mediocre conditions. Unfortunately our club K-8 was given harsh treatment from bullocks after a field landing.

An ASW-16, FK-3 and K-23 have arrived.
M.E.

BURN (Burn Airfield)

David White organised a successful open weekend on July 24 - 25 with 170 trial flights and at least six new members.

Colin Stoves has Silver distance and Nigel Pamplin has joined the committee. Once again intruders battled with our clubhouse alarm system, but this time fled empty handed.
P.N.

CAIRNGORM (Feshlebridge)

Alan Mossman abandoned Diamond distance within sight of his final TP but returned to set the new club distance record of 382km. Ray Lambert flew P2 in the Northern Regionals in the SGA ASH-25, as did Alistair Robertson in the Open Class Nationals.

Others attended the BGA cross-country course in Wales; Competition Enterprise at North Hill and have been on expeditions to France and Spain.

We have sponsored another two students and our thanks to Alistair Morrison and Andy Carter for running a successful five day beginners' course.
P.C.

CAMBRIDGE (Gransden Lodge)

The hangar has been painted; we have two USAF aircraft vehicles to tow the winch; a Grob Acro and a second tow out vehicle.

We now have evening flying seven days a week and courses have brought new members. Cadets April Considine, Natalie Northwood, Sophie Masey, Kevin Levitt and Andrew Crichton have soloed as have Vic Spencer, John Strebrakowski, Stuart Crawshaw and John Hassell; Chris Cheney and Mike Atkins have a Bronze badge and Keitha Castle Silver distance and height. Instructors Mike and Sue Woolard and Andy Mercy have joined us.

Sandy Torrance, deputy CFI, ground engineer and course instructor is moving to Perth. We are especially grateful for the excellent state of the club fleet and he will be greatly missed.
M.H.L.

CHANNEL (Waldershare Park)

Our launch rate has improved with the summer weather. The arrival of Ian Keyser's K-7/10 is timely with the first of the K-7s due for C of A.

We have many volunteers for field recognition exercises in the syndicated motor gliders.
N.O.A.

CLEVELANDS (RAF Dishforth)

Leeds University have bought our K-7 and are selling their K-2. Jimmy Taylor and Zoe Stewart have gone solo, Zoe after her 16th birthday (it rained on the day so we had a barbecue instead!).

Within a week she had both Bronze legs while her brother Glen completed his Silver badge with a distance flight and added a Gold height. Eddie Edwards also has Gold height and Mark Evans is now a motor glider instructor.

Paul Whitehead is acting CFI (again) during Dick Cole's absence in the Falklands.
J.P.

COTSWOLD (Aston Down)

Philip Andrews, Dave Brennan, Graham Champken, Hannah Clegg, Alistair Cook, Robin Harrison, Robert Mousley and Geoff Woods have gone solo and Mike Hillard has resoloed. Paul Boylan and Mike Shailes have their Silver badges and Peter Ward and Mike Oliver have flown Diamond goal.

Chris Marsh won the Sport Class and Paul Gentil won Open Class at our mini Comp in July. Southdown GC enjoyed their annual task week with us during the first week of August.

Ed Johnstone came 2nd in the Overseas Nationals and Roy Layzell won 1st prize at his first showing at the Guild of Aviation Artists exhibition with a painting of two Meteors.
M.S.

CULDROSE (RNAS Culdrose, Helston)

The clubhouse was flooded with rain water and beer in June due to circumstances beyond our control. Steve Coulthard has Silver distance and duration and Steve Kitchen has his Bronze badge and gained Silver height at Cerdanya.

Our thanks to those who fitted a new engine to our Chipmunk tug, including John Smith, Ian Mack and Pat Eadie, and to Mike, Ian and JJ for work on the Jaguar towcar and tow truck.
R.A.

DARTMOOR (Brentor)

We have recruited our oldest member, Ruby Boundy, aged 86, giving us three generations of one family flying from Brentor on the same day - Ray and his son Ben are qualified pilots but we do not expect Ruby to go solo like her son and grandson. Dave Wallace and Ken Bastonville have gone solo; Steve Bolt is doing an AEI course and John Bolt is an instructor.

We are celebrating our tenth anniversary with a flying day, ending with a barbecue and social in our new club hut.
F.G.M.

DEESIDE (Aboyne Airfield)

We have bought a towing van and a fire engine equipped with two foam hoses, first aid kits and bolt cutters.

Two search and rescue helicopters have been based at the site during the search for a missing aircraft as well as a Spitfire taking part in the Battle of Britain centenary celebrations.

Mary Rose-Smith has resoloed; Ben Vdick has a Bronze badge; Peter Bakke and Robert Mills Bronze legs and Susan Waring Silver height. Fiona Bick flew to Dundee Airport to complete her Silver badge and arrived at 9pm to find the airport closed with the gates locked. She then had trailer problems on the retrieve.

The wave continues to give good soaring with 21 000ft in June and 18 100ft in July.
G.D.

DEVON & SOMERSET (North Hill)

With a successful Competition Enterprise behind us, our thanks to Sandy Harrup for her hard work as organising secretary. We are delighted she has been awarded an International Air Tattoo flying scholarship for the disabled and will be training in the USA during the autumn.

M. Flower and P. Baldwin have gone solo. Derek Palmer has 5hrs and Stuart Procter, Phil Morrison, Simon Leeson and Martin Woolner flew Silver distance, Stuart and Phil to complete their Silver badges.

Midsummer Day (June 24) was good. Ian Beckett flew a 302km triangle for Gold distance/Diamond goal (see p253), in company with Malcolm Chant (ASW-20L), Ron Johns (K-21) and Tim Gardner (DG-100). Malcolm is also claiming Gold distance/Diamond goal for this Gold badge.

We have had some enjoyable barbecue/social evenings when grounded by bad weather.
J.D.K.

DORSET (Eyres Field)

We have had more flying this year than at Old Sarum over the same period, despite the weather. The new area is very thermic with sea breeze effects adding to the excitement, but alas sometimes killing off activity in the afternoon.

Thanks to Bob Collins we have a system of duty teams; we have been flying some appreciative groups of disabled and the clubhouse is being decorated.
G.G.S.

DUKERIES (Gamston Airport)

We have a toilet block alongside the hangar - our thanks to David Clarke, Graham Goucher and helpers. Keith Gregory and Keith Hebdon

are assistant instructors. Our Friday flying evenings have been hit by inclement weather. Adele, Brian, Tom and David have re-covered their Swallow most beautifully. J.C.P.

EAST SUSSEX (Ringmer)

The open weekend organised by Henry Weston was a great success introducing over 100 to gliding and raising a considerable amount for the fund for the second hangar.

The ever controversial club newsletter has returned, this time with Malcolm Williamson as the editor. Mike Burgess has an AEI rating and James Warren went solo on his 16th birthday under the watchful eye of his father, Roger, a full Cat instructor. L.M.

ENSTONE EAGLES (Enstone Airfield)

Thanks to hard work and expertise of members the Open Nationals were a success despite the awful weather with five out of nine competition days. The courses were well attended with one student going solo after four days.

David Price has soloed; Lorna Bevan has a Bronze badge and Neil Edwards a Silver distance and 5hrs. Our three month introductory membership scheme is very popular. Many of last years *ab-initio*s are solo and in syndicates, dramatically reducing club two-seater queues. L.J.B.

ESSEX & SUFFOLK (Wormingford)

At last we have permission for our new entrance and clubhouse and we will start building in August. Vivien Haley is now the safety officer; Paul Rice a full Cat; Andrew Wilson (University club) has gone solo; Steve Harris and Rupert Price have Bronze badges; Ken Bye 5hrs to complete his Silver badge; Brian MacLean has Silver height and John Friend an AEI rating.

Paul Rice was 3rd in the Eastern Regionals and qualified for the 15 Metre Class Nationals. Visitors (with or without gliders) are welcome. M.F.

FULMAR (RAF Kinloss)

Good summer wave has given us flights to 12 000ft and trial lesson flights up to 8 000ft.

Fiona Gillespie and Mark Pearce have gone solo and Bob Farmer has resoloed. Scott Sweeny and Mark Wittaker have Silver heights and Mike Seward an AEI rating.

Our thanks to Scott Harris, Jonathon Joynton and Garry Moxham for giving the club gliders Cs of A and Eddie Pratt for refurbishing the K8 trailer. B.F.G.

GLYNDWR (Denbigh)

We have had excellent ridge wave and thermal flying over the last few weeks.

John Dean, Geoff Balshaw, Dave Jones and "big" Dave Jones have assistant Cat ratings; Andrea Walker and Bill Denton (Bangor University) have gone solo; Roger Salmon, Brian Allan, George Davies, Dave Townsend, Brian Boniface, Mike Sanders and Chris Butler have their 5hrs, Chris also flying to 10 000ft; Geoff Balshaw, Peter Manchett and Dave Townsend have Gold heights and Dave Lorraine has a PPL

and full Cat rating.

We are now running three and five day *ab-initio* courses with several pupils taking advantage of the excellent courses run by "Porki" Conyers.

Our Pawnee tug has arrived in time for the autumn wave. G.P.

HEREFORDSHIRE (Shobdon Airfield)

Despite poor weather we have had some good soaring days with few complete days lost. We lack *ab-initio*s but attract a steady flow of visitors wanting trial flights amongst the Welsh foothills.

Launching from the main runway works very smoothly and we thank Shobdon Air Traffic Control for their co-operation in slotting us into the powered traffic safely and expeditiously. R.P.

HUMBER (RAF Scampton)

We have had a good flying start to August and a contingent have flown in the Inter-Services. John Dobson (LS-6) gave a good performance against the big ships in the Open Nationals.

Nick Dean completed his Silver badge with an O/R in the K-8. James Copple and Andy Batchelor have gone solo with Andy Jarvis resoloing. D.M.R.

KENT (Challock)

We had a good week for the BGA soaring and cross-country course with members enjoying flying the DG-500 and Discus.

Derek Cushway and Martin Bradley completed Silver badges with their 5hrs. We have wave expeditions to Portmoak and Aboyne. A.R.V.

Obituary - R H Judd

"Robbie", as he was known to all of us, died recently and unexpectedly in hospital.

He joined us in 1965 and joined the Moulton brothers in the Dart 17r, ASW-15a and ASW-20 syndicates. A very careful and conscientious carpenter, there are many examples in the clubhouse of his fine work.

"Robbie" was a stalwart member who will be greatly missed, especially by Ron Cousins for whom he crewed at the Regionals for 18 years.

A. R. Verity

LASHAM (Lasham Airfield)

Our longest day on June 20 was very active and enjoyable - 187 winch launches and 193 aerotows, 42 of which were trial flights. We began at 4.07am with an aerobatic display by members with the final launch at 9.50am, followed by parrying into the small hours. Our thanks to everyone.

We have had successful visits to Cerdanya (Spain) and Dannstadt (Germany).

Robin Cole, who gained his A certificate in 1937, completed his set of Diamonds with a 500km flight. Within two days his syndicate partner, Tony Mattin, flew his 500km badge flight - also in the Ventus T.

The British Gliding Aerobatic Championships, organised by our own Messrs Mummery and Short, were held again at RAF Odiham and were very enjoyable. Our thanks to Odiham and

Kestrel GC for the use of their facilities. G.N.G.

LINCOLNSHIRE (Strubby Airfield)

Peter Mansfield has gone solo; Steve Crozier has part 1 of his 100km diploma; Alan Ely set a new site altitude record by going to 10 000ft in cloud covered in ice; Dick Hannigan and Mick Tomlinson (Bocian) returned from Trent Valley GC with the rose bowl and Mick Fairburn has Silver distance. R.G.S.

MENDIP (Halesland Airfield)

We have an influx of new members and have also won our Inter-Club League at our first attempt, which has been encouraging.

Gill Haggerty and Mathew Davies have gone solo, Gill gaining a Bronze leg. John Schroeder, Tom Fisher, Gordon Dennis, Mel Smith and Paul Renshaw have Bronze legs.

Dawn to dusk day saw over 100 launches. Our five year celebration of being at Halesland saw lots of families and friends being flown.

We are suspending reciprocal membership charges in line with several other clubs to encourage visiting pilots. G.W.S.

MIDLAND (Long Mynd)

Sally Kerr and Sarah Witton have soloed and Brian Cleugh and Clive Dunkey have Bronze badges. Dave Cummings, Audrey Laing, John Dodswell and Colin Graham have durations and Derek Platt and Mike Terry have completed Silver badges with distances, Derek's flown in wave.

Paul Stanley gained Gold distance and Simon Adlard flew 545km on June 24. Denise Hughes, Rowan Griffin and Paul Stanley have AEI ratings.

We have had a number of good wave days with cross-countries and heights flown. John Stuart achieved a long held ambition by flying in wave to Cader Idris and back with Derek Platt on July 5. A.R.E.

NENE VALLEY (RAF Upwood)

Our open day was a great success - thanks to all concerned.

Frank Lock has gone solo and gained both Bronze legs; James Clarke has a Bronze badge and Silver height and Les Ward his 5hrs for the Silver badge. Roger Emms is now CFI. G.P.

NORFOLK (Tibenhams)

The Eastern Regionals produced a six day contest in difficult conditions. Next year we intend running a two-seater competition during the Regionals so if wishing to use our north-easterlies for distance records book early.

We were pleased to host disabled and underprivileged children from a local special school and they were flown by their teacher Ray Hart (one of our instructors).

Sue Cook from the BBC's holiday programme was a "pupil" on one of our first courses and the film will be screened in December.

We were all stunned by the death of Ernie Cunningham. We have lost a founder member,



Dave Wood, Channel GC's chief honorary engineer, removing a squeak.



Ulster GC's enormous blister hangar.



Deeside GC's fire vehicle.



Portsmouth Naval GC's highly successful instructors' course. L to r: Keith Walton, Tony World, Graham Tucker, Roy Gaunt (examiner), Geoff Clark and Peter Brown.



Above: Marguerite Habgood and below Sarah Little, both of Bristol & Gloucestershire GC, after going solo.



A K-6C flown by Chris Florentini of Surrey Hills GC over the Long Mynd. Photo taken by Sue Abbott from Mike Abbott's K-13 flown by Stewart Abbott.



Above: Vale of White Horse GC instructor Stuart Roper about to give another air experience flight. Below: (left) Snoopy with Eric Arthur of Norfolk GC preparing for his "out"....and (right) the "return" with Roger Gretton of Peterborough & Spalding GC.



Below: Shalbourne Soaring Society rigged a glider in a Tesco carpark to bring attention to their open day. Julian Griffiths (left), the shop's deputy manager and Peter Hargrave, manager, are photographed with the Swales SD3-15T



friend and gentleman pilot who will be greatly missed. There will be a memorial service at Tibenham on October 9.
K.P.

Obituary - Ernest (Joe) Cunningham



It is with extreme sadness that we report the death of Ernie as a result of a gliding accident at Knettleshall on Sunday, June 27.

He was responsible for gathering our founder members in 1959 and remained an active and enthusiastic member through the ensuing years. We recognised his services to the club with a life membership in 1992.

Ernie's passion for aviation, and gliding in particular, started in 1945 when he learned to fly on primary gliders. He was an accomplished pilot, admired throughout the gliding world for his aerobatic skills.

He was always relaxed, cheerful and with a natural sense of humour it was a pleasure to be in his company. As a probation officer, he had care, compassion and understanding.

We shall all miss this exceptionally likeable, gentle man. Our sympathy goes to Margaret, Nicky, Mary and Simon.

Graham Ashworth

NORTHUMBRIA (Currock Hill)

Thermals have been poor but we have had wave with climbs to over 10 000ft. Steve Fairly narrowly missed Diamond height but Phil Slater and Wilf Turnbull gained Silver heights.

The busy evening flying has given us a good supply of new members. Keith Bell, Rodger Winley and Lyn Greenwood have SLMG PPLs and Colin Tweddle an AEI rating. The club bar has been renovated by the social club.
J.T.C.

NORTH WALES (Bryn Gwyn Bach)

Pete Parry, Jeff Royle, Jason Dillastone and Bob Robertson have gone solo; Bill Snow has a Bronze leg and Dave Jones joins the instructors. "J.P." Perrin went to 9000ft on his first day back after a three month break and on the next two clocked over 5hrs.

Ken Payne, with course members, took the Blanik to 11 000ft on successive flights.
D.J.

OXFORD (Weston on the Green)

Sam Underhill went solo two weeks after his 16th birthday and gained both Bronze legs within a month. Terry Young has also soloed. Chrissy

Milner has a Bronze badge; Terry Cain his 5hrs and Colin Baines Silver distance.

Andy Barnes (K-6E) just missed Diamond goal but managed Gold distance and Gordon Craig, after saying he might crew at the Irish Nationals, returned having won them!
F.B.

PETERBOROUGH & SPALDING (Crowland Airfield)

Snoopy, that much travelled canine, was retrieved after a short sojourn at Tibenham by Dick Thirkill. Then on July 11 Norfolk GC chairman, Eric Arthur, claimed Snoopy but meanwhile our chairman, Roger Gretton, had landed at Tibenham waiting to get him back after Snoopy's epic 184km O/R.

Eamonn Murphy has gone solo.
R.G.T.

PORTSMOUTH NAVAL (Lee on Solent)

We have had a busy and successful few months. Pete Brown, Geoff Clark, Graham Tucker, Keith Walton and Tony World have gained their assistant Cat ratings on our first instructors' course.

Kevin Noel, Greg Miller and John Tanner have gone solo; Glyn Jaques, Peter Hollamby, Beverley Kaye, Keith Howard, John Bradbury and Richard Noyce have Bronze badges and Terry Randall gained Diamond height at Minden. Terry, as well as Sarah Sturgess and Phil Taylor, has a Silver badge. Our thanks to the RAFGSA at Bicester for hosting a successful expedition.
J.P.

RATTLESDEN (Rattlesden Airfield)

We had a good weekend hosting the Inter-Club League organised by Martin Aldridge, with a barbecue arranged by Martin Yates.

David Simpson and Trevor Gradey has Silver distance; Alan Towse has resoloed and Reg Smith has joined the Skylark syndicate with David King.

Mid week flying is proving very popular.
M.E.

SACKVILLE (Riseley, Beds)

Within three hours of our winch breaking we bought a Rover SDI from a member which was cut in two and welded to the good half of the existing winch. It was giving excellent launches just 3hrs 30min later.

Tim and David Wilkinson aerotowed a pink K-2 to the Isle of Man (220nm) to help launch a

S&G YEARBOOK IS OUT

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new club at Jurby. Recent solos include Chris Murgatroyd and Nigel Cowley.
D.C.W.

SHALBOURNE (Rivar Hill)

To help advertise our July open day, we rigged our Swales SD3T in the Tesco carpark at Newbury. It created a lot of interest and our dawn to dusk open day was a great success - our thanks to everyone involved.

Alan Cook has a Bronze leg; Peter Mortimer, Alan Brind and Rob Jarvis have Bronze badges; Chris Owen has gone solo; Andrew Howard and Mike Kingston have resoloed and Brian Vowell completed his Silver badge with a 5hrs.
J.R.

SOUTHDOWN (Parham)

We were shocked to hear of the death of Vic Davis (see obituary).

We started the season well with a host of cross-counties, some in excess of 300km, but the lack of good soaring later drove some members abroad. Kevin Frasson gained Silver height and duration at Cerdanya, Spain, and Mike Garwood flew Silver distance in Poland. Kevin Pickering (Cirrus) came 4th in the Lasham Regionals.

Graham Noble (Skylark 4) landed on Seaford College cricket pitch. Michael Erdman, our resident poet, has published a volume of poems obtainable from the club (see review in this issue).
R.W. & P.J.H.

Obituary - Vic Davies

Vic was killed while doing what he loved best. His Taylor Titch plane crashed during bad weather on a mountainside in France while returning home after more record breaking flights on the continent. He had a passion for flying whether it was tugging, flying his L-Spatz or piloting his Titch.

A retired oil tanker captain, he was introduced to gliding by Ron King. He had that wonderful ability to make people laugh with jokes and tails of his shipping adventures and his recitations were legendary!

Vic loved to help on any glider repair work and was great company, whatever the task. He will be sorely missed at the club.

R Walker

SOUTH WALES (Usk)

Our annual open day was a resounding success thanks to Jane Paul and her team with 70 trial flights, despite the weather. Our thanks also to the aeromodellers for their display.

The task week, organised by Colin Broom, was won by Dave Jobbinsin (Diamond Class), Dave Jeffries (Intermediate Class) and Jim Marsh (Standard Class). We also hosted the Inter-Club League.

Evening trial lessons have been well booked; summer mid week courses are well underway and we have launch facilities seven days a week, thanks to dedicated tug pilots.
N.S.J.

STRATFORD ON AVON (Snitterfield Airfield)

Despite bad weather, Mathew Tod and Richard Williams have gone solo with Bob Oldershaw resoloing after a two year break. Roy and Sandra

Wood, Brian Tebbitt and Bob Gibson have Bronze badges and Rob Halton, Trevor Howell and Mark Parsons Silver badges.

Thanks to Bob Hill, Peter Kenealy and winch master Phil Pickett, our new winch is totally compatible with our old winch and gives us flexible four drum capacity with super smooth launches.

For six weeks we have run a seven day operation, including courses and a task week. Thanks to all involved. New syndicate aircraft include an ASW-15 for Joe Kaval and Sharon Edlin and a Discus for Ron and Mita Barnes.

Brian Marsh was 14th in the European Junior Nationals.
J.G.B.

SURREY HILLS (Kenley Airfield)

The season is going very well with a steady increase in membership. Our longest day was a great success with 133 launches and the Bocian flew for over 1hr landing at 9.15pm. I had 45min in the K-8 and was still at my desk by 9am. The barbecue breakfast was enjoyed by all.

Peter Freeman and Dennis Henley have Bronze badges and Ian Crag and Peter Cole have gone solo. We have had weekend expeditions to Lasham, Parham and Enstone.

We need more air experience instructors during the week day. Anyone interested contact the club on 081-763-0091.

T.P.

THE SOARING CENTRE (Husbands Bosworth)

Nicola Hill went solo on her 16th birthday after one of our residential courses. Andy Fry gained his Silver badge in one flight only to find his photos did not turn out, but he flew his distance a week later. Ian Freestone struggled to fly his first 300km and a few weeks later did three more in three days at the Overseas Nationals in Poland.

John Cadman (Libelle) won Competition Enterprise for the third time at North Hill. Our pilots also competed in the Nationals and overseas competitions.

T.W.

ULSTER (Bellarena)

By August 8 Big Blister, the 150ft x 100ft hangar on our new field, was almost complete, lacking only the doors, and the foundations of the toilet/shower block were dug. We planned to move over in October, the lease on the present site expiring on December 31.

If you've visited us before, by road or air, you will find the new strip easily - it's only half a mile further north and apart from 1260ft Binevenagh itself the hangar is the biggest thing in sight.

For the first time in its 63 years, the UGC will own its airfield and we are excited by the development impetus which site security should bring.

On August 6 we ran a special weekday session for the holiday programme "Bon Voyage." Since this is a UTV/RTE co-production, it is transmitted both north and south and we hope it may attract potential members from the Republic.
R.R.R.

VALE OF WHITE HORSE (Sandhill Farm)

Simon Apps and mother and son Pauline and David Leach have gone solo, David on his 16th birthday. Roger Tyack flew Silver distance and

duration and Sue Foggin Silver distance, completing their badges.

The June open day was a great success enabling us to get our hangar painted. We have an expedition in September to Sutton Bank and our instructor John Ashcroft came 5th in the Western Regionals. Although only 3rd in the Inter-Club League, it was very enjoyable and our thanks to Steve Parsonage, the organiser.
S.F.

616 VGS (RAF Henlow)

We are holding our 35th anniversary and dinner-dance on November 6 at the Officers' Mess RAF Henlow. Past members of staff are welcome. Please contact B Arbuthnott, 13 Newtown, Kimbolton, Cambs PE18 0HY.
A.W.

WELLAND (Lyveden)

Our BGA soaring course and flying week was spoilt by the weather. Chris Hatton and Keith Mellor have Bronze badges and Mick Nunley has gone solo.
R.H.S.

WOLDS (Pocklington Airfield)

Gordon Bassey has his Silver badge; Alan Grinter an AEI rating and Bob Fox came 9th in the Overseas Nationals. Heather Norrison won the Novice Class at the Northern Regionals and Derrick Roddie flew a 300km in the club K-8.
N.R.A.

YORK (Rufforth Airfield)

We have had an excellent summer with visits from the Fournier Club of Europe and the Highland GC who brought the ASH-25 to enjoy English thermals but sadly had to make do with Penrith wave.

We are again running autumn training courses. Geoff Daunt and Robert Newall have gone solo.
H.McD-R.

YORKSHIRE (Sutton Bank)

Despite the poor weather during the Northerns there were four competition days. Mike Brook won the Sport Class and Jon Gatfield the Open Class.

Unsettled July weather brought several good ridge and wave days and Barry Ogleby completed his first 300km flight in wave. Jo Goodall and Andy Wiggins went solo.

We have had many visitors and are always pleased to welcome groups or individuals.
C.L.



PHOTOGRAPHS

Good quality colour prints reproduce well and are ideal for this section of the magazine. But please caption them, writing on a label before sticking it on the back of the photograph. Too often photographs are ruined by the heavy handed pressing so hard their writing shows through.

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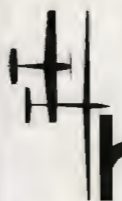
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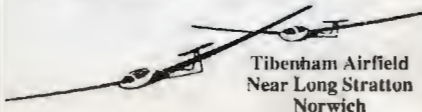
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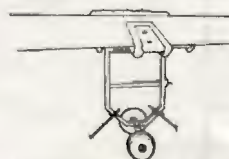
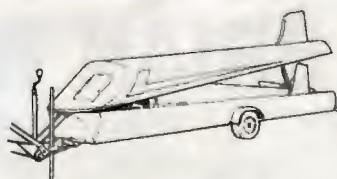
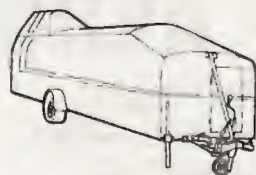
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WAY OFF TRACK



A contested Bill

If one is to believe the posh papers' lobby correspondents and parliamentary sketchwriters, Bill Walker, the MP for Perth who's Our Man at Westminster, was given a very hard time by his party's whips on July 22.

Though ill for months and leaving his sickbed to vote in the two crucial Maastricht divisions, Bill was seen to be manhandled, obstructed, pumelled and berated by grey-suited thugs anxious to propel him through a lobby into which he did not want to go.

To try to intimidate a feisty Scot – and one, moreover, who flew Typhoons and Tempests in combat – takes a certain amount of guts, which the government's heavies were presumably able to summon on this occasion as they were dealing with an invalid.

Whether we're aware of it or not, most of us in gliding have cause to be grateful to Bill Walker, my own club in particular. In collaboration with our constituency MP, Willie Ross, and the BGA's Bill Scull – there were three Bills for this job – it was he who put in the persuasive hot chat with the relevant Minister which led to an unexpectedly generous grant towards the purchase of the new Bellarena site.

So perhaps these unpleasant party apparatchiks should know that he enjoys the respect of a substantial and disciplined sporting movement which commands, moreover, a great deal of bulky kit.

A parliamentary lobby in protest at any recurrence with, say, 300 trailers and towcars, could produce the kind of civic chaos and urban paralysis of which angry French farmers are the acknowledged masters – without the messy gallic

refinement of British and Irish lamb, or Spanish vegetables, *flambéed* on the roadways with diesel oil.

Even something on a smaller scale might be worthwhile. Six or eight glider trailers parked willy-nilly in Smith Square – perhaps with one or two bearing Belfast number plates to add an extra *frisson* – could quite spoil the Conservative Central Office day.

It's all in the name

Clearly, intensive marketing and image building have come at last to British gliding. The richer clubs are now resorting to full-page four-colour advertising – viz, the Yorkshire GC's inside front cover in the last *S&G* – whereas a few years ago two or three column inches in the classified ads would have been thought to suffice. Club brochures are ever more lavish. The 'nineties are here. Image is everything.

There are other manifestations of the trend. Years after moving to HusBos, the Coventry GC has recognised its name was misleading. It has been formally reborn as The Soaring Centre.

Though this might provoke outrage or derision at some other sites, stalwarts of which feel their particular patch has first claim to be regarded as the soaring centre, it is perhaps one better than Hinton's The Gliding Centre.

While Hinton's moniker is redolent of earnest training, circuits and sink, Coventry GC's new name at least suggests that sometime you might actually be going UP. Hitherto, only the Enstone Eagles, among all BGA clubs, have had a name any more commercially sexy and imaginative than the predictable and leaden Sinkshire GC.

All of which leads me to wonder whether we will have to follow the hype-hype trend and find a catchy and marketable title when we inaugurate the new site later this year. Our actual place-name, Bellarena, is both euphonious and apt – it means beautiful beach in Italian and, indeed, the beach is both large and beautiful.

But the problem is that when you say "Bellarena" to anyone but those who live in the immediate vicinity they invariably hear it as "Ballymena". And then you have an image problem – in spades.

Residents of that entirely worthy Co Antrim town have a reputation the length and breadth of Ireland for sharing the Aberdonians' attitude to their money – but not for sharing the money itself. Not to beat about the bankbook, they are reputed to be mean.

And when they protest, sometimes truthfully, that this is a foul calumny and they are generosity personified, they immediately feel the weight of the second cross they have to bear.

For any true-born Ballymena man or woman has only to utter three or four words to be lampooned for their accent which is, thankfully, unique.

A bit like Brum.

So this is the question. Under what name do we promote what will be the newest and finest club-owned, utterly secure, freehold gliding and soaring site in these islands?

We're on one shore of a flat, distinctive and

triangular peninsula and we're close to its tip. Soar Point?

World winner

The weather at this year's Paris air show was nightmarish. It began with temperatures through the roof and stultifying humidity.

There followed days of torrential rain, very low cloud and gales which sent chalet roofs flying across the static park; toppled flagpoles on to unprotected heads and brought both paying punters and high-price aerospace execs crashing to the ground.

The nightmare almost finished Penguin off: he returned with a very persistent chest infection which demanded several weeks of Hen Penguin's TLC.

So I didn't pad le Bourget's acres with my shining enthusiasm and diligence of old. The only gliding exhibit to attract my interest was Polish PZL-Swidnik's PW-5 prototype, flushed with its recent success at Capetown where the IGC voted it the winner of the World Class international design competition. An official FAI letter was evidence that the Poles had a world beater on their hands.

It looked very pretty on its first public appearance and reflected credit on the design team at Warsaw Technical University, led by Roman Switkiewicz.

PZL-Swidnik, well known for helicopters too, spoke of having a first production batch of ten underway, which should be ready for the market by the time this is read.

Data cited for the easily rigged pod-and-boom PW-5 included a stalling speed of only 33.5kt; a VNE of 120kt, and a best glide ratio at 43kt of 33:1. Min sink was given as 0.64m/sec at 39kt, rising to 1m/sec at 54kt.

Span is 44ft; empty weight is only 367lb and maximum t/o weight is 617lb. Construction is wholly of GRP.

The radio doctor

Brennig James was asked, through a letter in a recent *S&G*, why he chose to become a doctor rather than an engineer.

Charles Ellis's question could have been asked with even greater force of David Foster, such is Doc Foster's genius with and encyclopaedic knowledge of radio.

I wasn't in the least surprised by the style of Doc's recent article conveying all that you would ever need to know about lead/acid gel cells. There was no space-wasting introduction, summary or intervening guff – just 26 terse and distinct paragraphs, every one a nugget of know-how on an arcane subject of which most glider pilots are sublimely ignorant, often to their cost.

It was all one with the man who swore to me, one non-flying day at Talgarth, that he had gone through his whole career as a civilian GP and an RAF MO using only three stock phrases in his surgery:

There's a lot of it about;
Keep taking the tablets;
And don't ride a bicycle.

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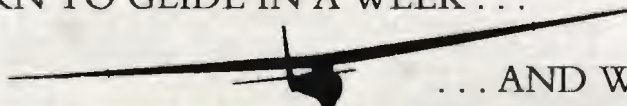
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Jed Edyvean (Ventus) 2nd, 3081pts, and
Duncan Macpherson (ASW-20) 3rd with
3084pts. The report will be in the next issue.

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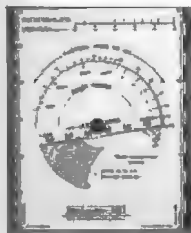
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