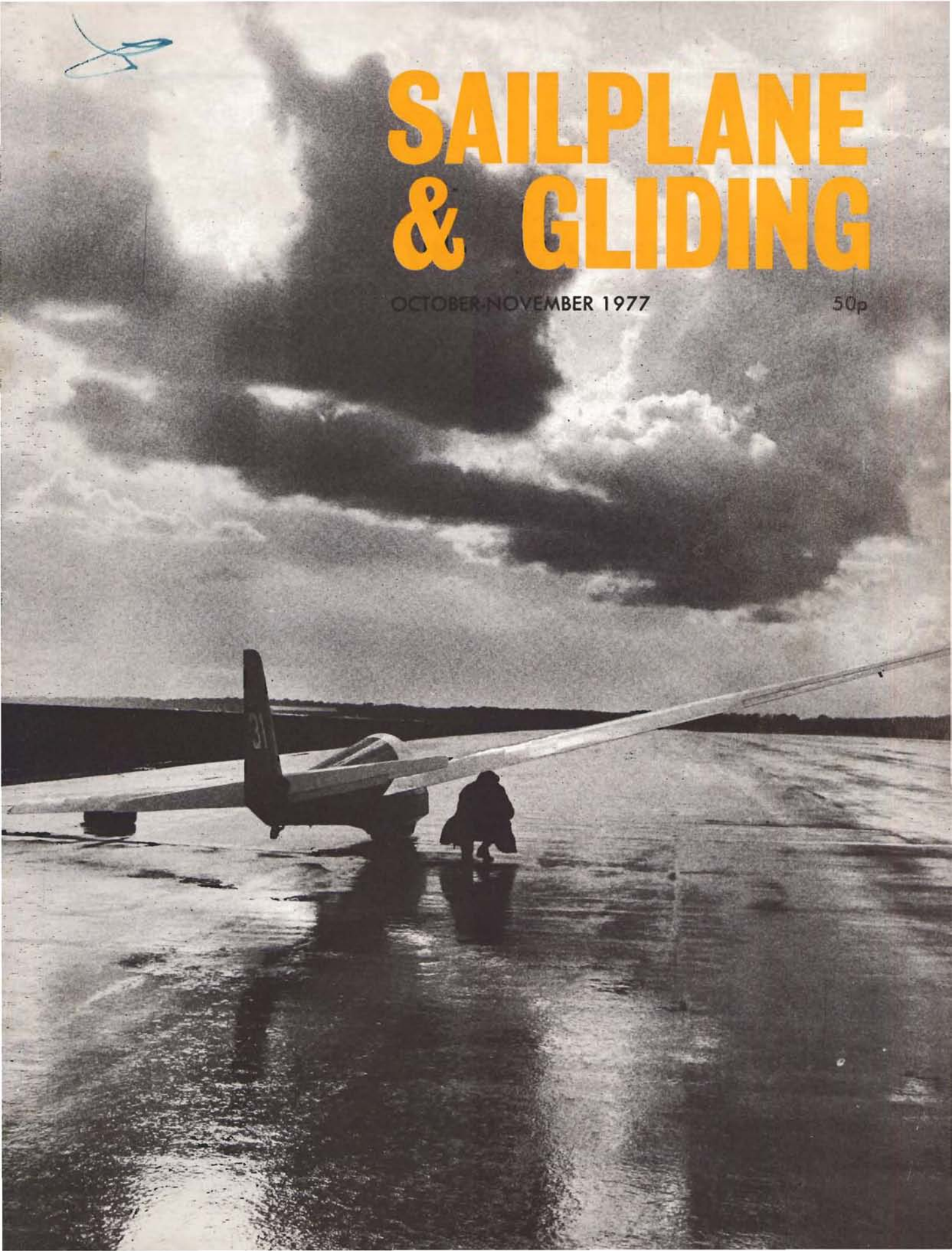
SAILPLANE & GLIDING

OCTOBER-NOVEMBER 1977 50p



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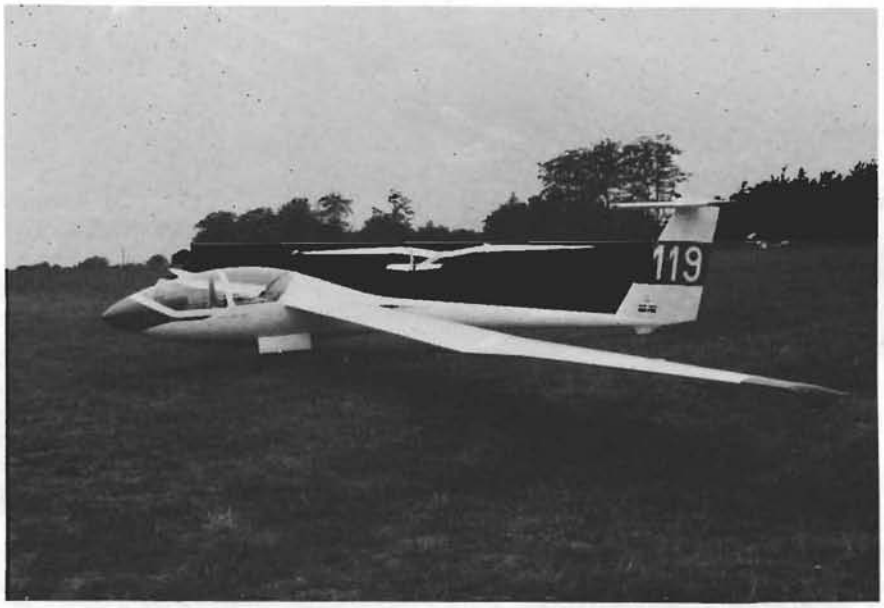

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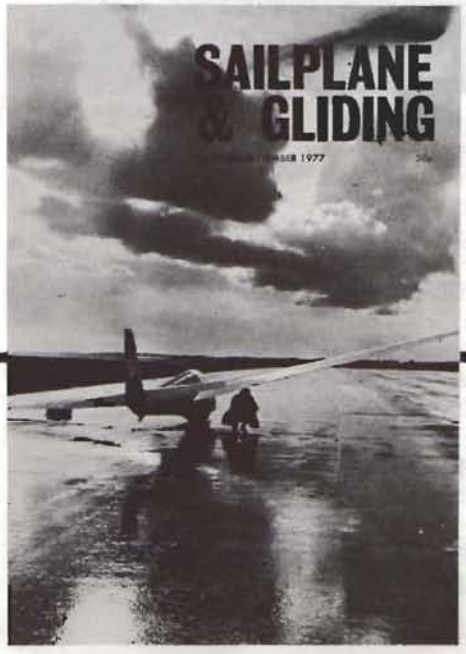

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WAVE AT 14 000 OVER BASINGSTOKE

WHERE? YES—BASINGSTOKE

ALAN PURNELL

It always pays to be on the look out for wave. It's nice to fly straight and level and slow - a welcome change from circling and belting through the sky in all that thermic turbulence. I take pride in showing my friends these barograph traces pointing with great glee to a section of trace that looks like a novice's attempt at five hours in weak thermals saying that I didn't circle for an hour or two hours or whatever. Mind you it's not always wave that makes the change - once I did a 100km triangle in a sea breeze front - think about it - yes, it moved. Another time, a mixture of thermal streets and weak wave effects turned a gentle wander back from Wales to Lasham into one long glide - all 200km of it, arriving back at about the same height I started (4000ft) - a glide angle of 1:2000. I have even found wave in nil surface wind conditions at Brize Norton (there was some sort of north-easter above 5000ft) and used it for about one quarter of a 300km triangle.

Wave has been found surprisingly often at Lasham usually in a south-westerly or north-wester - the latter producing the "big" stuff. Thermal activity enhanced in the wave crests plus a cloud climb produce the stepping stone to the usable wave. Once over the top of the cumulus the pattern of lift very often becomes obvious unless the wave turns out to be one of the dreaded "moving" ones. My (and Lasham's) previous best was 11600ft asl in a north-westerly during a week when a batch of Portmoakians were staying at Lasham - none of them found it though.

Now what about this 14000 day. It was April 13 and it did not augur well. I like to be woken up by bright sunlight or a wandering hand but this morning it was by the raucous clanging of the alarm clock. A stagger to the window only revealed a dull and lifeless sky. It even rained and it was blowing - really blowing. During the morning the cold front which caused all the gloom cleared, the sky brightened and cumulus appeared and it blew even harder. Was it Shakespeare who wrote "Rough winds do shake the darling buds of April" or something like that? Or was it H. E. Bates? The Volmet was giving 30kts at Bournemouth. Not a day for a decent cross-country I muttered to myself and stayed at home and did a useful morning's work. At lunchtime with the cumulus looking more attractive I was munching a sandwich when over the radio I heard Hugh Hilditch over Swindon already 40 miles from Lasham. "I've flown here without circling," he chirped, "cloudbase is already over 5000ft".

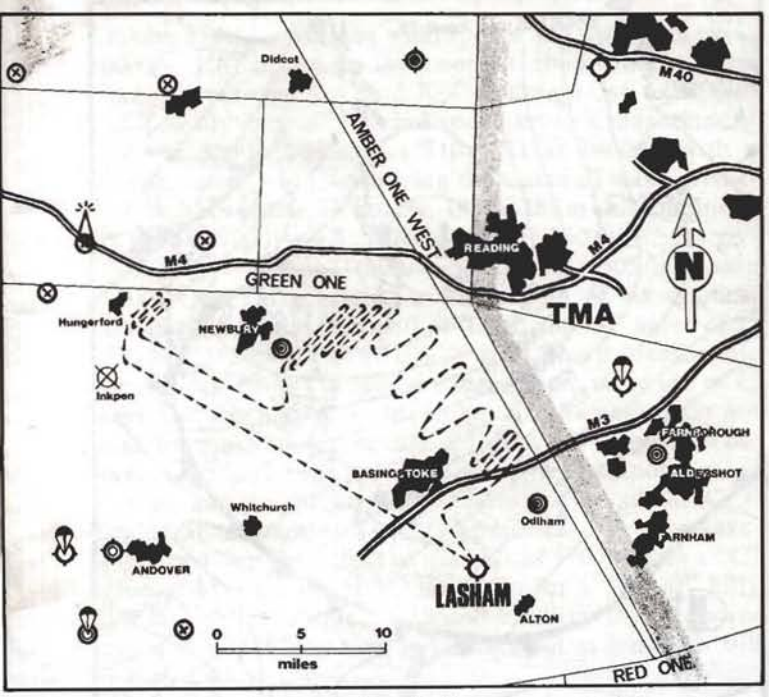
I didn't need any more prompting and suppressing the dreaded "missing out" feeling dashed to Lasham to rig the Nimbus amongst the swirling gusts at the car launch point. That was another mistake since I ignominiously fell to earth from the car launch and endeavoured to sidle up the aerotow point for a chuck there instead. I still think I was launched into the sink between streets - anyway that's my story and I'm sticking to it.

The aerotow at 3.15pm was eventful enough in that I left the seat in the turbulence beside the trees and had a wonderful view of cloud streets disappearing over the horizon to the north-west. Cloudbase at 6000ft asl was achieved in a series of jerks each consisting of a good climb followed by a short dash along the street. There must have been four of these, gaining me 1000-1500ft in each until the lift dropped. This probably augured wave activity but with the streets looking so obvious I wasn't thinking about wave at all.

Cloud tops *Photo: Alan Purnell*

The next 45 minutes were spent dolphining to Inkpen (25 miles) and talking to Hugh who had just left a wave at Hereford. He climbed to 14000ft asl there until an $\frac{8}{8}$ cloud layer dashed in and spoiled everything. By the time I arrived at Hungerford three things happened - the street disappeared, the $\frac{8}{8}$ edge had arrived and Hugh was back overhead in weak wave.

Normally in these circumstances I would expect to climb in cloud, come out carefully on the upwind side, slope soar the cloud edge and climb up sedately. But no such luck. The cloud tops looked wavy all right but there was not much lift. I tried closer to the cloud, the wing dipping in occasionally as I got too close. This was an improvement but not much, so with fingers firmly crossed and Hugh well out of the way I slipped inside the cloud and "slopesoared" the cloud from the inside. This paid off handsomely and was soon high



enough to soar it conventionally in a decent 2kt lift to above the tops.

It is always at this stage that things become obvious. Above the cloud the wave gaps become prominent and the smooth cloud tops make one wonder why one had so much difficulty. The climb proceeded nervously to 8500ft whereupon the gaps closed up and Hugh and I were left sinking back into the clouds which had suddenly reincarnated into familiar cumulus again. Hugh dashed off downwind to north of Whitchurch where he found another gap and some weak lift. After making sure he was in clear air I followed on dead reckoning and was just arriving at Whitchurch through considerable down when Hugh called to say he wasn't there at all but further north. I wasn't actually lured to my downfall since I was still at 6000ft but even so I now know the feeling. More accurate positioning reporting eventually got us together but as before only weak lift was available before the gap closed yet again.

By this time Hugh was complaining of a headache presumably due to lack of oxygen earlier, and he went off back to Lasham, leaving me to forage for myself. Down below cloudbase again I had the opportunity to spy for sunny patches and went for one at Newbury. This was a much larger gap than the others and it proved to be more permanent than the earlier ones giving 2kt lift at the downwind edge. Again it paid to slope soar half in and half out of the cloud to get maximum lift (up to 4kt in patches) – a most exhilarating and picturesque experience with the Nimbus' shadow, surrounded by a rainbow style halo, flitting back and forth as the serrated cloud receded and protruded – occasionally looming threateningly large as the wing clipped the edge. Clear of the tops at 8000ft there was a completely clear blue sky above. To the west it was $\frac{8}{8}$ with what appeared to be unbroken stratocumulus but to the east there were large wave slots with pieces of classic lenticular shapes between. The gap I was over stretched from Newbury to east of Reading and others downwind appeared to be over the Farnborough, Farnham area. I gaily called to the world at large over the radio that there was wave for the having over Newbury but there was no response from any sailplane whatsoever. Only Tony Hanfrey going home from work answered enviously. It was a shame that there was no one else around to share my good luck.

The A4 became a handy marker as I beat up and down it a few times almost directly over the lenticular top rather than the edge. It seemed wise to stop at Green One (airway) edge as at that height I could see silvery shapes flitting between their marker beacons. The whole system eventually started to shift downwind once the altimeter touched 12000ft and the gaps yet again began to close. The lift weakened and I was reduced to executing short beats and figures of eight in the best areas. I had to be careful now. With the whole system drifting east and the holes closing fast I had to be sure not to fly into Green One or into the high-level Amber One west or more important the London TMA to the east. Tony Hanfrey confirmed that the base still looked high so I didn't mind being above cloud. I could still pinpoint my position with reference to Farnborough-Aldershot conurbation and the occasional glimpse of the M3 but at 14100 asl and the slot completely gone, discretion got the better of me and I resolved to beat upwind and find a suitable place to descend.

The panel photographed during the flight.

In retrospect this was a very wise thing to do since the measured wind at that height was over 60kt. Also there was danger of anoxia blurring my decision-making processes even though I am normally happy at 15000ft provided I'm nice and warm. Funnily enough, all the photographs I took at height came out perfectly, even though I had to continually change focus, aperture and shutter speeds several times as I alternately took photos of the panel and the cloudscape outside. The couple that were spoiled were the first ones taken – at 8000ft – well below anoxia level. I also remembered to take the lens cap off – quite a feat for me as my cine film "Lasham through the Lens Cap" will testify. My wave soaring wasn't helped by trying to take pictures of the panel either. Have you ever tried when the sun is in the west and you're wave soaring in a north-wester? To illuminate the panel I had to turn downwind for a few moments and in a 60kt wind that soon plays havoc with the rate of climb.

At this stage the time was about 6pm and I was looking forward to a couple of hours of slow descent enjoying the cloudscape and the evening sunshine. I once managed to land after the hangar doors were shut for the night, but that's a different story.

I am not too sure when things started to go wrong. The

important considerations were the following: I had to ensure I didn't drift back into the TMA or sideways into either Green One 12 miles to the north or Red One 16 miles to the south; I wanted to keep any descent through cloud to the minimum; I wanted to come out of cloud within reach of Lasham; I wanted to float around once below cloud and enjoy the evening. So I had to get the speed right and more important get the direction right. I knew I was over Hook on the edge of Amber One West so I set up 100kt at 300° and set off keeping my eyes open for a gap or at least a thinner piece of cloud. A thin bit did appear quite soon but it was tiny and if I circled down there I judged I might be drifted backwards downwind into the TMA before I finally broke cloud so I left it and pressed on. No more gaps appeared so, with the cloud tops higher than I expected at 12000ft, I opened the brakes, called on the radio to an empty sky, and plunged ignominiously into cloud, eyes glued to the artificial horizon and a strangely wandering compass, over where I judged Basingstoke should be.

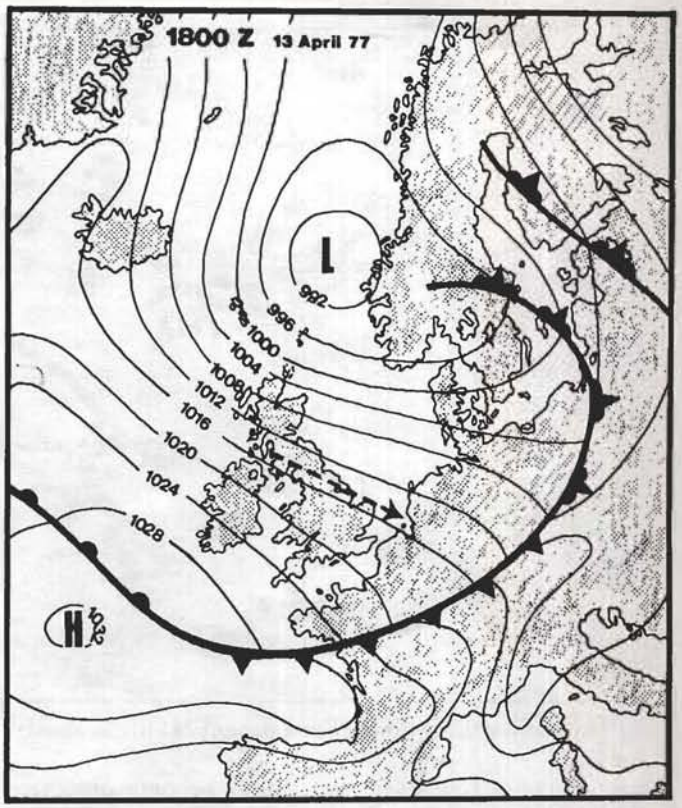
As it turned out I could not have chosen a worse place to descend – I think it must have been the remnants of a rather vigorous and a particularly unstable cloud street and I was flying along it. With full brake and 70kt on the clock the descent was fast enough but with 6000ft of cloud to cover it took some time and the canopy began to ice up. The slip string on the canopy formed a fantastic forward facing stalagtite (or is it stalagmite? – is there even a word for a horizontal one?) of ice pointing into the airstream. I really couldn't do anything other than persevere so eventually I broke cloud at about 6000ft just east of Basingstoke covered with ice. It was now that I discovered that I could not shut the brakes so bang went my anticipated evening wander. Working the brake lever gradually broke up most of the ice but even so they would not close the last inch.

Looking up from below cloud the whole sky appeared very murky indeed. There were a few pencil sunbeams ten miles to the west highlighting holes in the cloud so small it was highly unlikely that I would have found them even if I could have penetrated that far up wind. It was still relatively clear to the east. The whole scene reminded me of Portmoak on a day when one could stay above cloud all day, yet from below the gloomy scene of almost unbroken grey billowing stratocumulus base belied the delights that lay above.

The whole area was probably in some sort of weak wave down so with the ice and partly open brakes that 6000ft went at an average of 3kt in about 20 minutes and I ended up back outside the hangar at Lasham 40 minutes after my high point suffering from an acute state of severe anticlimax.

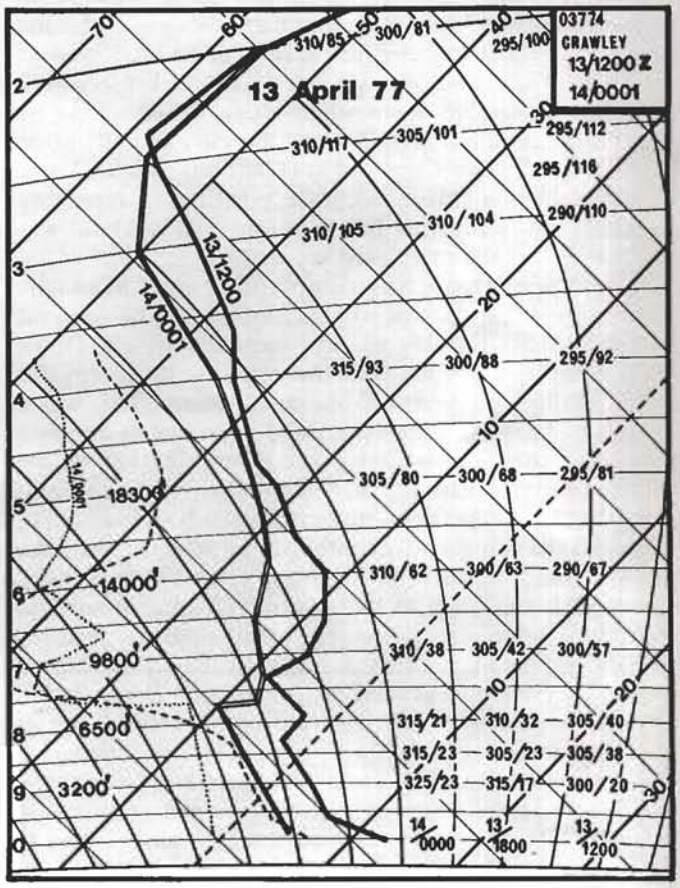
Now let's attempt to analyse the day. Why did the wave happen so far from any mountainous area? Why did it shift? Where did all the $\frac{8}{8}$ocktas rubbish come from? Should it have been forecast?

All the following Met information was kindly and efficiently supplied by Tom Bradbury. Starting with the general situation let us examine the synoptic chart for 18.00Z. This shows an anticyclone (1032mb) about 400 miles SW of Ireland with a low (990mb) 200 miles NE of Shetland, giving almost straight isobars at 300° straight across the country with virtually no bends. The upper jet stream runs approximately from Glasgow to the Wash and gave wind speeds of 124kt at 30000ft. The cold front which gave the rain over S England at 09.00 was 200 miles south of



Lasham by 18.00. It bent back on itself to form a warm front parallel to the general UK wind direction though still a long way away 300 miles SW of Ireland.

Unfortunately I do not have the 18.00 Crawley tephigram but Tom did acquire the later one at 00.01 (April 14) for



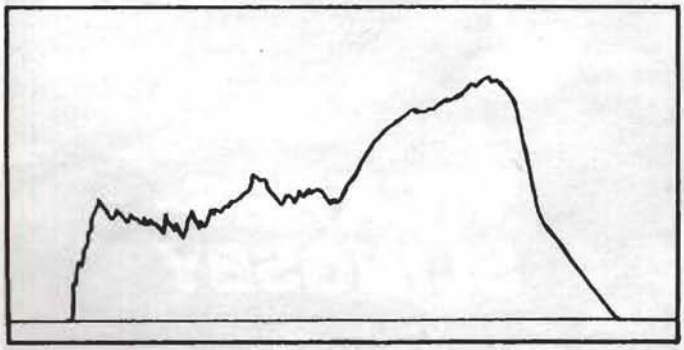
Crawley together with the wind speeds and directions up to 40000ft. This shows an inversion at about 7500ft, wind directions between 325° and 305° all the way up to 38000ft and a steady increase in wind speed up to a maximum of 117kt at 35000ft. It shows 310/62kt at 14000ft with a temperature of -14°C. Applying the Casswell wave prediction formula (S&G, February, 1974 p28) to the conditions we have T(1000) = +5, T(700) = -11, U(850) = 315/23 giving L(850) = 9.5; also T(300) = -50, U(300) = 305/80 giving L(500) = 30. These predict a wavelength of six nautical miles, height of maximum lift of 7000ft and "C" value of 25 (max lift 25*20 = 5kt for a "1000ft" hill). This is a reasonable "prediction" since I judged the wavelength to be ten to 15 miles and the maximum lift to be 6kt at 8500ft. I do not think too much should be inferred from this except that the wave could have been predicted from the conditions.

If we assume the air at Aughton (Liverpool) at 12.00 arrived at Lasham at 18.00 the prediction gave a wavelength of 17nm the height of max lift as 17000ft and a "C" value of 15 (max lift of 15*30 = 4.5kt for a "1000ft" hill). This doesn't really agree at all and indicates that the wave system would be too high to contact but at least it is still predicted wave.

Pressure Height mb	Approx Height feet	Crawley 18.00 April 13	Crawley 00.01 April 14	Aughton 12.00 April 13
900	3200	305/33	325/23	300/20
850	4700	305/38	315/23	305/38
800	6500	300/41	315/21	305/40
700	9800	305/47	310/38	300/57
600	14000	300/69	310/62	290/67
500	18300	300/84	305/80	295/81
400	23500	305/111	315/93	295/92
300	29500	305/124	310/105	290/110
250	34000	305/87	310/117	295/112
200	38600	290/65	310/85	295/100

Wind speed and directions at Crawley (18.00 and 00.01) and Aughton (12.00)

Another question – where did all the eight oktas come from when previously it had been a beautiful 1-2 oktas of streeting cumulus? No one knows – it simply appeared. It must have been an old front, too weak to show up on the charts, bringing in a subtle change of air to trigger off the wave which then moved with the edge.



Alan's barograph trace of the flight.

Finally – was it forecast for Lasham that morning? Well, no it wasn't. The forecast clearly stated – lee wave activity – NIL – but I suppose the Met man foresaw the fantastic thermals, the high cloudbase and nicely rounded cu amidst all that wonderfully unstable air and didn't even consider wave – would you?

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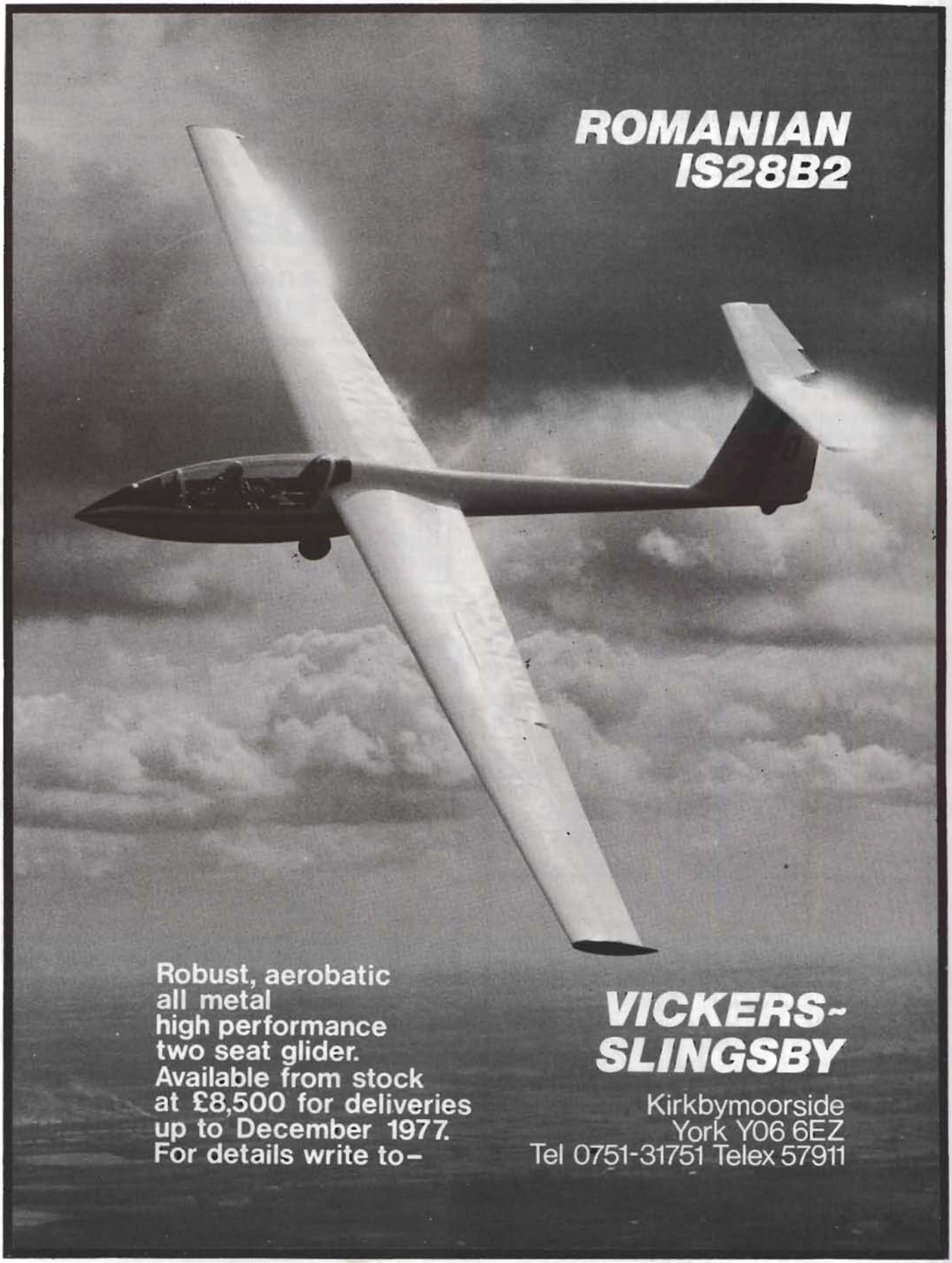
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ACCIDENT REVIEW – Even More About Launch Accidents

BILL SCULL, Senior National Coach, says the reason for yet another article on this theme is because of the appalling record of accidents in this category during the last year.

Launch failure accidents continually exercise the minds of the Safety Panel members and a rather more detailed analysis has been made. Numerically the worst categories of accident are failure to recover from a failed launch (18), faults in approach control (16) and failure of the instructor to take over the control in time. Having more detailed statistics leads one into the temptation of jumping to all sorts of conclusions. Accidents by age, for instance show almost uniform spread between the ages of 21 and 55: conclusion; that there aren't many people outside that age bracket who glide. Best not pursue that one.

What about experience (P1hrs is the usual guide)? This looks more likely to lead to a conclusion. Seventy-three accidents out of 137 happened to pilots with less than 100hrs. Of the remainder (137-73 = 64), 43 are to pilots with more than 200hrs and "only" 19 to pilots with more than 500hrs. This is only significant, of course, if we know how many pilots there are with more than 500 hrs; we don't, so the statistic isn't all that meaningful.

The next "fumble" with figures yielded something more significant. The question was "Is there any common denominator in the winch/autotow launch failure category?" There was! Of 13 accidents, only one was from a failure at 300ft, one at 150ft (in both cases the gliders spun) and the rest were at an average height of 40ft. The causes were over-controlling. premature use of airbrakes, failure to recognise the failure and slowness to react, and the wind gradient. Deeper analysis is not necessary, but it is worth reminding you of a few fundamentals.

Over-controlling

The factors which stem in part from basic training and contribute to this category are:-

a) A lack of confidence which in turn gives rise to nervousness or tension. Even though a pilot may be competent, unless he believes it he will lack confidence. Although it is not always easy to assess a student's degree of confidence, instructors should be aware of this factor.

b) Basic training may place too much emphasis on "stuffing the nose down" so that irrespective of height a pilot takes the recovery action which is only appropriate to the fully developed climb. If this recovery action is necessary then obviously the glider is being climbed too steeply for the height (in the height band that we are considering ie up to 100ft); if the speed is low, then the problems may be compounded by the wind gradient.

Wind gradient

The likely loss of speed if there should be a failure in the wind gradient is allowed for by a safety margin of speed. For example, if it is safe to climb gently at a speed of 40/42kt when there is no wind gradient, 45kt should be the minimum speed to climb at all if there is a gradient (for the majority of gliders). The related point not appreciated by many pilots is that if the glider is climbed gently at, say, 40kt in a wind gradient this will soon give the glider a high airspeed – a bonus from the gradient when climbing through it. This "bonus" will be lost on the way down should there be a failure in the gradient. If the glider has an airspeed of only 40kt – 5 gained from the gradient, then a heavy landing will result even if there is no delay in recognising the failure.

Premature use of airbrakes

Much has been written about mis-use of airbrakes; the fundamental point is that basic training, for a variety of reasons which are understandable but not justifiable, builds a pilot's habit pattern for operating the airbrakes without thinking, whether it is necessary to use them or not. This is strictly a reflex action and the only way in which the tendency to do it can be offset or counteracted is by creating, during basic training, as many occasions as possible where the brakes should not or must not be used. These situations should arise on conventional approaches (albeit lower or further back than usual) as well as on launch failures/cable breaks, both real and simulated.

Recognition of the failure

First thoughts on this aspect as a causal factor were that the autotow must be the type of launch in which it would be more difficult to recognise the failure (*ie* compared with winch launch). A check of the reports revealed that of 13 accidents nine were from winch launches, three from reverse pulley autotows and one from a straight autotow. Without knowing the proportion of total launches in each category, one cannot draw conclusions. In all probability, there is no significance in the type of launch so don't be deluded into thinking that because your club does simple autotow, that the risks are insignificant. The message is obvious; if you suspect a failure treat it as such and release in good time – do not travel hopefully!

A note of caution for instructors.

Having become aware of an area of high risk (if you weren't already) beware of giving simulated failures in this critical height band unless you have margins to allow for:- a) the slowness of the student to react, b) wind gradient and the likely loss of speed, c) time and reserves to allow for taking over control.

Taking over control, or anticipation of doing so, must guard against:- a) over-controlling – stuffing the nose down when there is insufficient height to do so and b) a reflex opening of the airbrakes.

Only with these safeguards, plus a margin of speed to allow for the student's slowness and the wind gradient, can the exercise be safely undertaken.

Improvement of the accident rate – safer flying, can only come about by greater awareness of the risks and improvements in training.

IF PIGS COULD FLY
(the PIK 20D)

If pigs could fly, I'd fly a pig
To foreign countries, small and big –
To Italy and Spain
To Austria, where cowbells ring
To Germany, where people sing –
And then come home again.

(With acknowledgements to James Reeves)

DAVID CARROW

The syndicate celebrated its Silver Piggiversary in November 1975. With only one exception, all past and present syndicate members attended, plus two distinguished Pigjockeys and Ken, our Pigfettler. With ladies, we totalled 20 as befits the contest number. Among the party games, Nicholas produced his pocket Hewlett-Packard, programmed for a moon landing . . .

Whilst Bob and I have no aspirations to take our Pig into orbit, we have always sought for technological advances. Percy, our original Kite 11, flew at Cambridge in the early 1950s with a laminar section sleeve on one wing; Guinea Pig was a prototype Dart and, last autumn, after three seasons with Super Pig, we felt that the next move (one almost uses the word investment) should be to the new *"Classe Course"*. Accordingly Piglet, the ninth serial PIK 20D, duly arrived from Finland, *via* Bottisham, at the turn of the year.

Buying an early production glider is always a risk; one recalls the original ghastly hydraulic wheel retraction on our Dart – and we have by no means escaped problems this time. However Eiri Avion and John Hulme have, like Slingsbys, rallied round. After a season in the beast, including an undistinguished dabble at Vinon, how does this new 15m Unrestricted Class PIK shape up?

Extraordinary stability and controllability

For me the overwhelmingly favourable feature is the manner in which the glider "rides" turbulent thermals. Stability and controllability, wet or dry, are quite extraordinary; this is the only glider where I have never – to date – suffered from *mal de l'air*.

In lead-sled mode, the startline performance at 140kt (V_{NE} is 158kt) is fabulous, much easier to put through the "window" than a Kestrel, whilst at 70/90kt the penetration is indistinguishable from a Kestrel 19. But the climb with full water is definitely on the slow side and there is also no doubt that in difficult weather a good "big-un" will always beat a good "littl'un" when tiptoeing through the clag. Note that the full span flapperons, whilst splendid lift enhancers, in no way assist Max L/D; their value at low speed lies in reducing the radius of turn with the comparatively high wing loadings (dry circling speed 42kt, wet 48/50kt).

A splendid feature of the 20D is that the flapbone's connected to the stickbone (by a spring actually!). One launches with three-quarter forward trim and, after release, trims out at 55kt and zero flap. Thereafter (until the approach) one *totally forgets* the trimmer, using the flaplever to control the speed all the way between circling (+8° or even +12°) and the start/finish line dash (–12°). The glider settles quickly and stably at the correct speed for each flap setting and the "dolphin mode" cockpit workload is minimal.

The undercarriage produces lots of drag and the maximum landing flapperon setting of + 16° still more, giving an "intermediate class" circuit pattern (trim three-quarters forward again for landing and approach at 50kt). The top surface only DFS airbrakes are superb and for a real "precautionary" one touches down three point with the stick mounted wheelbrake grip well squeezed, the airbrakes right out and – instantly after touchdown – the left hand leaving the airbrake lever extended and pushing the flaplever right through to –12°.

This has three effects: first it dumps lift so the wheelbrake can really bite, second it moves the centre of pressure firmly aft thus inhibiting nosing over (on our Piglet full wheelbrake is possible even when adjusted to competition trim), thirdly one has aileron control to roll out to a standstill with wings level. I had two frantically difficult field landings at Vinon – *pas de problème!*

It has long been a hobby-horse of mine that the Standard Class rules disallowing flaps have led to gliders with dangerously poor field approach and landing characteristics – I was right! Actually the flapperons get sluggish at + 16° and I use +12° flap till finally committed. Oh yes, and the stall (35kt dry) is as viceless as one would expect from the Wortmann FX67 sections. Definitely the best glider I've ever flown for putting into a small field.

Snags? Yes, of course. The rigging is still disappointingly temperamental, even after much practice (and it includes five fiddly ball connectors and seven safety pins!). Inside, the seatpan is marginally narrow and, although there is ample legroom, the ergonomics are somehow awry for both me and others (*eg* one can only *just* reach the panel switches, whilst the u/c retraction lever – still almost impossibly stiff on our glider despite much amelioration – comes too far aft: these being mutually exclusive parameters!).

On aerotow take-off the CG towhook calls for very precise lining up and great directional care; once in the air it is rather easy to porpoise, until one is fully conversant with the type. One should start the take-off run with –8° flap, and leave the tail dragging until around 35/40kt (particularly if wet or if there is no wind, or both!). Thereafter gentle flap

movement to + 4° or + 8° will unstick the glider, still pretty tail down. Do *not,* in my experience, try to get the tail up with the elevator (as one does with a Kestrel at say 20/25kt); it can lead to instability and a ground loop. I had some trouble till I developed this technique.

Incidentally, with full water, do brief the tug to reach at least 60kt before climbing – otherwise an interesting evolution will result, as my Lasham friends can testify.

Finally the PIK trailer as supplied is light and tows well, but it's expensive and ours is really rather badly made and finished, with inadequately developed fittings.

To summarise, well . . . yes, if we can really cure the rigging problems and provided the wings don't pickle again, it's a very good ship indeed. Rapture inevitably a shade modified by the performance comparison with Super Pig (carbon fibre Kestrel 19) which was a fabulous beast! But don't get me wrong, the PIK 20D, as a third generation "plastic" ship, is as important a landmark in the 15m Class as the Skylark 3, the Dart 17R and the Kestrel 17 were in the Open. This Unrestricted 15m Class is also, without question, the direction in which gliders are going, both in the UK and Europe.

Empty weights, with carbon fibres and improving designs will eventually come down to around 400lbs. Lastly, my personal vote goes, at this time, to the PIK flap cum top surface DFS airbrake approach control system, in preference to the Hornet/Mosquito trailing edge airbrakes. But we shall see!

OUR FREEDOM TO GLIDE

ROGER BARRETT

"The airspace problem is probably the most serious gliding is confronted with. It must be dealt with seriously and very soon . . . The outlook is depressing, but not hopeless."

These extracts from a recent report to CIVV (the FAI's gliding committee) by R. N. Buck (USA), highlight that the BGA is not alone in having to fight the continuing threat to our freedom to soar cross-country.

A few months ago the BGA Executive Committee decided it might be useful for us to stand back for a moment from the day-to-day airspace battles and think about our long-term objectives. An airspace policy working party was set up with Rex Pilcher (Chairman of the BGA Airspace Committee), Mike Bird, John Ellis, Roger Neaves, Bill Scull, Lemmy Tanner and Tom Zealley as members and their proposals have now been considered and accepted by the Executive.

The aim

The BGA has always firmly adopted a rational approach to airspace, most notably of course in the 1960s when Nick Goodhart and Philip Wills struggled to get general acceptance of an analytical approach to the risk of a mid-air collision between a passenger-carrying aircraft and a glider. We have had many set-backs because it is all too easy for other airspace interests to pay lip-service to this way of looking at a problem whilst in practice not hesitating to use their superior numbers, funds and clout to get their own way; logic may or may not be part of their arguments. Notwithstanding all the disappointments we still feel our best chance of success is to continue down this same road. The terms of reference of our Airspace Committee will now therefore include the following:

> **To ensure for glider pilots the maximum freedom for local and cross-country flying consistent with levels of risk currently accepted by the Civil Aviation Authority in all other aspects of air safety.**

The "other aspects" refer to quantifiable levels of risk that society – represented by a public body, the CAA – accept so far as, for example, complete engine or structural failure of a powered aircraft are concerned.

Specific objectives

Turning now to more specific objectives, we have agreed the most important of these are:

> *To retain existing airspace exemptions, and resist the introduction of additional regulated airspace from which gliders are excluded when it does not conform with the terms of reference quoted above*

and

> *To examine existing regulated airspace, and where it does not meet the known criteria used to provide legislation for that form of airspace, make active representation consistent with the above terms of reference.*

Ways and means

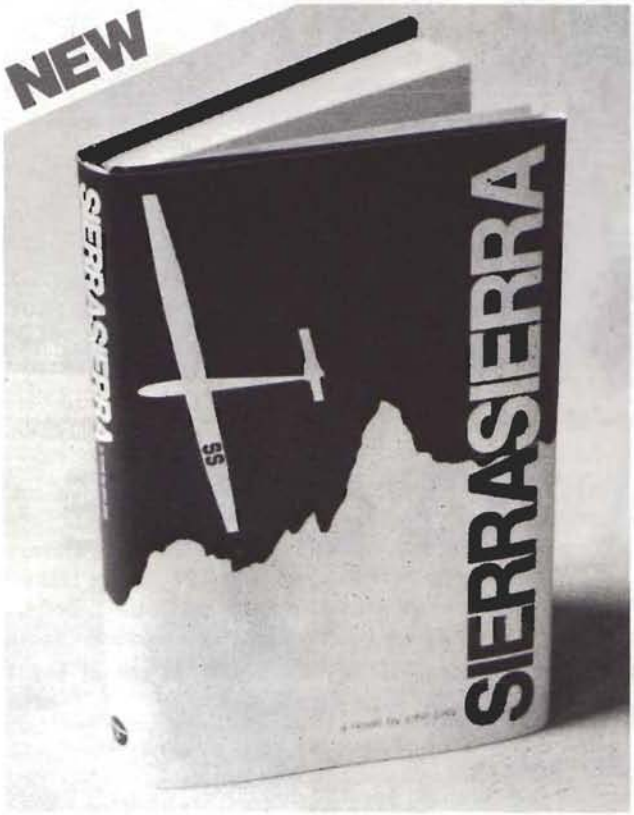
Actions we shall be taking to try to achieve our objectives include:

Statistics. Examining the potential for using more comprehensive statistics regarding glider flights within regulated airspace.

Radio communications. Studying the implications and the technical possibilities of the further use of radio communications with ATC agencies.

Glider conspicuity. Improvements are already being made by many owners. 1977 is the last year we shall see all-white plastic gliders in BGA competitions and owners of gliders flying outside competitions are also strongly urged to adopt the recommended colour patterns (the latest edition of BGA *Laws and Rules* has been suitably amended).

Public relations. It is vital that public opinion should respond as sympathetically as possible to gliding. In the past we have not come out very well in stories about "airmisses" as it is all too easy for the media to quote spokesmen representing other aviation interests without the glider pilot's side of the story being properly put over.



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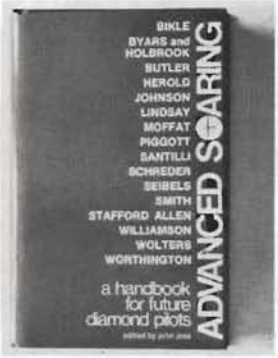

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Too often we found out far too late to be quoted there was no risk of collision at all. CFIs and Chairmen of clubs have been circulated with advice on what action to take regarding the media if a glider is involved in an airmiss.

It is worth remembering that there are three categories of airmiss and the classification of an incident into a particular category is only done by the Joint Airmiss Working Group when all the facts have been obtained. The categories are: (A) Actual risk of collision; (B) Possible risk of collision and (C) No risk of collision. Just because an airmiss report is filed does not prove there was any risk of collision. The popular press do not appreciate the significance of this and are likely to use the phrase "near-miss", which in the case of categories B and C would either be incorrect or misleading.

If you ever consider filing an airmiss report or have one filed against you, always refer the matter *as soon as possible* to your CFI, another club official who has read the BGA briefing notes or to the BGA office who can put you in touch with someone who is experienced in these matters.

Representation. Rex Pilcher represents the BGA on the National Air Traffic Management Advisory Committee (NATMAC) which has the aim of "assisting the National Air Traffic Services (NATS) in the development of airspace policies, configurations and procedures in order that due attention may be given to the various requirements of all the national users of UK airspace, civil and military".

NATMAC can be a valuable and effective committee. It is possibly unique in the world and shows that at least one small part of the bureaucracy in Britain believes in governing with the active consent of the governed, rather than by authoritarian regulation. Changes in controlled airspace are discussed, often modified – and even occasionally dropped – after NATS has heard objections and new proposals from all the aviation interests represented.

NATMAC is, in the end, only an advisory body but in our experience NATS and the CAA do normally take notice of rational arguments presented by us or other general aviation bodies at this forum.

Encouraged by Philip Wills (when he was Chairman of the Royal Aero Club last year) NATS has adopted a standard way of tackling important papers concerning possible changes in legislation. Professionally acceptable evidence and informed views on the current problem are circulated, together with a review of a number of possible solutions with their cost implications and a final NATS "preferred" solution presented in fair detail so everyone can see the effect on their own operations. If you refer back to our own Airspace Committee's terms of reference and objectives you will see this analytical approach to future problems could have considerable implications for the BGA. We believe it should be encouraged and is a model other organisations might well copy.

And if all this seems a long way away from the kind of gliding you do at the moment, remember the rate at which change is taking place. In the last ten years the number of gliders in Britain has more than doubled and the total cross-country distance flown in 1976 reached a record 720000 kilometres – which is almost an out-and-return to the moon.

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Variometer Readings during Pitching Manoeuvres

FRANK IRVING

The theory and the advantage of the total energy variometer are too well-known to require explanation at length. Briefly, if the "static" side of a variometer is connected to a device – a venturi or a Brunswick tube – providing a pressure equal to the local static pressure less the dynamic head, then the variometer will no longer show rates of change of true height but rates of change of energy height, h_e, where

$$h_e = h + U^2/2g,$$

and represents the sum of the potential and kinetic energies per unit weight of the sailplane. The variometer shows the rate at which energy height is increasing due to the extraction of energy from the motions of the atmosphere less the rate at which it is being dissipated by the drag. In still air, the variometer will therefore show a rate of descent which is in fact equal to the rate of energy loss due to drag per unit weight of the sailplane under the conditions prevailing at that instant. For example, if the load factor is substantially unity and the rate of sink at a *steady* speed of 70kt in still air is 2½kt, then a total energy variometer would be expected to show 2½kt sink when the speed is 70kt, *even if the speed is changing*. In fact, if some sort of pull-up manoeuvre is going on, there might be a large transient rate of climb (increasing potential energy), more than outweighed by the rate at which the kinetic energy is decreasing as the glider slows down. As everybody knows by now, it is the rate of change of energy height, not of true height, which is of primary interest to the pilot. So, if the pilot slows down, by means of some gentle manoeuvre in still air, from 100kt to 50kt, he would reasonably expect to see an initial variometer reading of say 6kt sink, gently decreasing to 1½kt sink, or thereabouts.

However, if he indulged in some fairly fierce pull-up/push-over manoeuvre, the load factor might be appreciably more than unity at the beginning of the manoeuvre. The induced drag would correspondingly increase and so would the indication of the variometer. Indeed, with a 2*g* pull-up, the initial reading of the vario would probably be nearly 7kt. In these circumstances, it is easy to suppose that the total energy head is over-compensating (*ie* producing a suction of more than the dynamic head), since too much suction would produce an increased sink reading on reducing speed, even at a load factor of unity. By the same token, a push-over produces a load factor less than unity, a corresponding decrease in the induced drag and a smaller indicated rate of sink than at the same speed in steady flight.

Fig 1 illustrates in detail what would happen in such a manoeuvre for a Standard Class sailplane having a Max (L/D) of 35 at 50kt. The manoeuvre consists of a 2*g* pull-up followed by a push-over at 0.4*g*. It starts and ends in level flight, to simplify the calculations. The initial speed is 100kt, the final speed about 52kt. This is a more vigorous manoeuvre than one would normally desire in the course of a normal flight, but it serves to illustrate the effects. The middle curve shows the geometry of the flight path with times superimposed. The lowest curve is the assumed variation of load factor whilst the upper curves show (a) actual variometer readings and (b) what the variometer readings would have been if the load factor had always been unity. It is clear that the variometer might be suspected of over-reading during the pull-up and under-reading during the push-over although it is in fact giving correct indications.

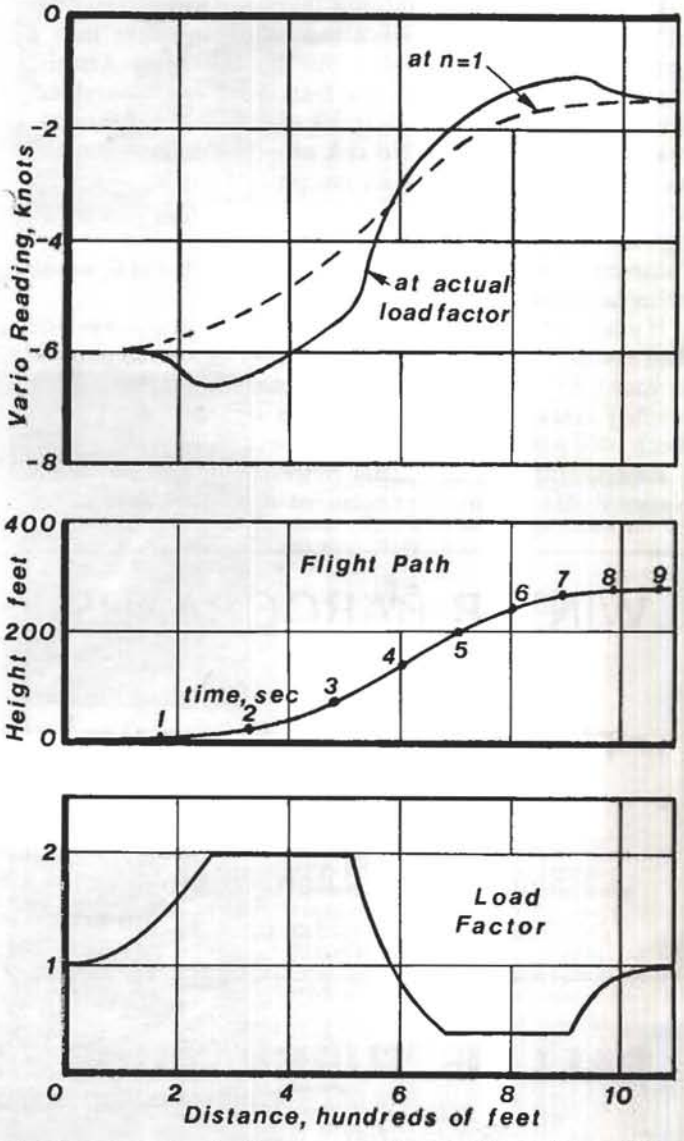

Fig 1. A vigorous pull-up/push-over manoeuvre in a typical Standard Class sailplane starting at 100kt and ending at 51.6kt. The upper curves show the effect of the varying load factor on the reading of a total-energy variometer. The initial effect of the pull-up is to increase the indicated rate of sink by 1.1kt: towards the end of the push-over the variometer shows about 0.5kt less than in steady flight.

More generally, the difference between the variometer readings at load factors of n and unity is given by:

$$(dh_e/dt)_n - (dh_e/dt)_1 = -U_o^2(n^2-1)/2U(L/D)_{max},$$

where

U_o = speed for $(L/D)_{max}$ at n = 1.0.
U = speed
n = load factor, *ie* lift ÷ weight.

Fig 2 shows curves corresponding to this expression for the same sailplane.

The moral of all this is that even "perfect" total energy variometers can produce readings during unsteady manoeuvres which differ significantly from what the pilot might expect. In particular, the increased sink reading

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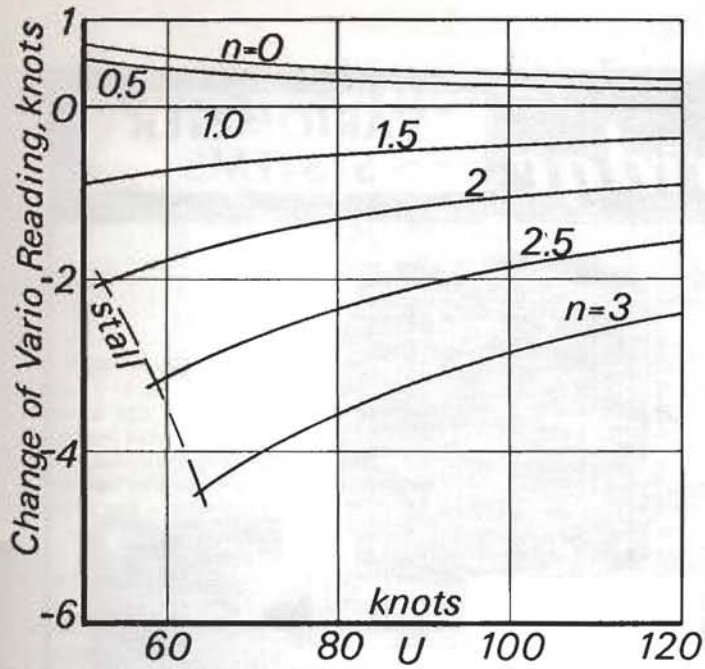

Fig 2. Curves showing the effect of load factor on the variometer indications of a typical Standard Class sailplane. At 80kt and a load factor of 2.5, the variometer would show 2.3kt more sink than in steady flight at the same speed.

at the beginning of a pull-up can give the impression that the total-energy head is over-compensating. Although this has all been written as if the variometer used an external source of suction, similar effects are produced by diaphragm-type total-energy compensators. Only manoeuvres in still air have been considered: obviously, in real life, these effects are superimposed on whatever readings are produced by the motions of the atmosphere.

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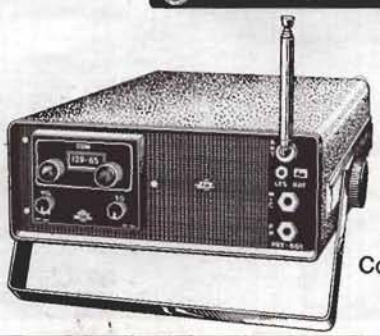

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Britain's Airborne Invasion of France - 1977

DICKIE FEAKES, British Team Manager, reports on the French Nationals and WILLIAM MALPAS, who lives in Paris, continues the story of UK participation in French Competitions this year.

The French National Championships were held at Chateauroux from August 4-14. In the Standard Class (Restricted 15m) 28 Frenchmen competed with 11 foreign pilots of World Class status. All the foreign competitors had either been selected to represent their countries in the next World Championships or were on shortlists to do so.

The organisers used the competition as a dry run for the World Champs next year and in general everything went very smoothly. Ten competition days were achieved covering some 3948km in the Open and Unrestricted Class and 3267km in the Restricted 15m Class, only one task set for the Open and Unrestricted Class being less than 300km.

The UK representatives were George Burton (Kestrel 22) and John Delafield (Nimbus 2). After nine competition days George Burton was lying tenth and John second, only 66 points behind the leader, F. Henry (Nimbus 2) of France.

On the tenth and last day both British pilots took late starts and had the misfortune to get caught by poor conditions near the first turning point. This slowed them down causing John to be some 34km short of the airfield when convection ceased at 18.30. George just managed to complete the task, ending up sixth overall with 8889 points, while John had dropped to tenth place with 8733 points. F. Henry consolidated his winning position, achieving 9290 points out of a maximum of 10000.

Other Class winners were: 15m, Stouffs (LS-3), Belgium, and Standard Class, Recule (Std Libelle), France.

☆☆☆☆

WILLIAM MALPAS, who described the French Nationals as "the mini-World Championships", completes the account.

Apart from the resident spies, Eddie Vann and Paul Loewenstein at Bailleau, and your correspondent at Buno, we have seen record numbers of Brits flying in the "Coupe d'Europe" at Angers (9), and at Vinon (8) - this year promoted officially to the status of "Coupe du Monde de Vol á Voile en Montagne" (World Mountain Soaring Championship). In addition, there have been several visitors to various airfields. (Who is the "tall blond Irishman" at Challes who sent me mysterious greetings?) The assault was spearheaded, as is proper, by our Chairman, who, with friends, spent a fortnight at Sisteron collecting a Diamond height, flying the local club ships.

Apart from Roger Barrett's Diamond, what are the highlights of this summer's invasion? First, until August the weather was bad, although Vinon with its special weather had eight good tasks. Secondly, Paul Loewenstein, flying a "Libelle-Club version" achieved an honourable ninth position in the Regional Competition at Bailleau, flying against 45 others, mostly in much more powerful machines. (The French do not believe in handicaps.)

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On the debit side, one of our British Team squad, Simon Redman, had a collision on the first day at Angers and parachuted to safety from his stricken LS-3. The German pilot of the other machine was able to land safely, and continued the Competition. In poor, and uncertain weather, with only three tasks flown, none of our pilots finished "in the frame", although Ted Lysakowski, in his first visit to Angers, finished sixth out of 23 in the Open Class, and Steve White won one task. Among the "might-have-beens" was Bernard Fitchett who had the bad luck to fall down on one final glide in the dead air behind a storm. If the final glide had worked, such is the lottery of three-day events, he could have won the competition instead of finishing tenth.

Justin's fine victory at Vinon

Thirdly, and very much on the credit side was Justin Will's fine victory in the 15m Racing Class at Vinon. There were only seven other competitors to beat, but it was his way of going about it which was very convincing. He won with 6516pts; with Pronzati (Italy) 5587, second, and Doutreloux (Belgium) 5158, third. He won four of the eight tasks, including the final Cat's Cradle when he made 621km - further than any of the Open Class pilots, who included the German Champion, Walter Neubert. In addition to all this (and here I confess some local knowledge is necessary to appreciate the performance, but I'll tell the story anyway), he was one of only four pilots to complete the very difficult fourth task which was shared with the Standard Class. Thirty four pilots set off in good conditions to do a 308km out-and-return to a TP near Grenoble. However, as is often the case, at the climatic barrier between the Southern and the Northern Alps cloudbase descended from 3000-3500m asl to 1700m asl, the wind changed from southerly to northerly and everything ahead looked very murky indeed. So much so that after various ingenious attempts to turn a pigs-ear into a silk-purse, more than half of the Standard Class turned round and went home.

Many pressed on and Justin jumped from little ridge to little ridge, photographed the TP from below (it is already at the *foot* of the mountains!) and shared a small hill at the Col Bayard with radio controlled gliders before staggering back into the good conditions in the Southern Alps. His throat sounded dry when he proudly announced *"Vinon de Numéro Un - Sur arrivée - Deux minutes"*. He was joined by three Standard Class pilots; all very enterprising. *Chapeaù!*

A word of praise too for James Brennig, as the French insist in calling him, who flew hors concours in his motor glider (SF-27). He was supposed to be doing the Standard Class tasks, but usually chose to do the larger ones, only rarely starting the motor to fly home. The despairing scorer did his best and calculated that Brennig would have finished about eighth in the Standard Class had he done as he was told, and had he produced evidence of no motor, etc. I'll leave Brennig to perhaps tell his own story of how he landed in the Briançonnais (peaks at 3000m, ground at 1500m), in the *only* field for 30km around and how he was retrieved by the nearest gliding club. (He came from the UK by air without a car, crew or trailer!)

I'll spare you the table of results and list of foreign names and turning points. They can be found in other magazines such as *"Aviasport"* and *"Aviation International"*. This omission will give me space for two "commercials".

First, the gliding club at Roanne is very keen to welcome visitors. It is located 70km to the north-west of Lyons, close to the Massif Central, and has good wave and thermal flying possibilities. Would be visitors should contact: M. Defaux, Les Ailes Roannaises (BP.198) 42300 Roanne.

Secondly, very few Brits have taken advantage of the excellent introduction to mountain flying, provided by the French National Centre at St. Auban. Monsieur Apercé, the Chef du Centre, would be very happy to welcome British pilots to the regular courses which happen all year round. Address: Centre National de Formation Aéronautique, 04600 Saint-Auban sur Durance, France.

Competition Enterprise

PHILIP WILLS

I must apologise in advance for any defects in this year's report on Competition Enterprise, but I have had to make up this account whilst lying flat on my back in a caravan owing to a serious defect in my starboard leg. So I am only able to include any news which has been brought to me by friends and acquaintances.

For the first time, more entries were received than the club was able to accept, so that some 15 or 16 applicants had to be refused. However, 39 aircraft, with their pilots and crew assembled at North Hill on Saturday, June 11, in pretty rotten weather.

They were somewhat surprised when John Fielden led in and introduced two large dogs standing on their hind legs, which he introduced as VIPs from South Africa. The animals then emitted a series of blood curdling barks and howls, and were subsequently derobed to reveal the faces of Mikes Carlton and Pope.

Someone in the audience raised a very cogent question as to whether the regulations regarding rabies had been properly carried out, which made us realise that Enterprise was starting off by breaking some of the sternest rules in the whole of our great country.

The weather system looked pretty grim, and there was no question of flying on the first day. But on Sunday Mike Garrod thought there would be a difficult corridor running north and south with marginal conditions, with poorer weather to the east, and cloud coming in from the west.

John therefore set two alternative tasks. The first was a pilot selected goal flight scoring two points per kilometre; the second a pilot selected turning point, with return to land at Nympsfield. Marks were one point per kilometre on the outward leg, and two points per kilometre on the second leg.

Take-off started around 11.30, with quite good cumulus conditions but rather low cloudbase. However as they flew north pilots found indeed that conditions were difficult and the majority of the field landed in the region south-east of Bristol.

The longest flight by a very long chalk was by Tony Maitland in his Diamant. This was largely because Tony was the only person on the field who knew that the Special Rule Zone and flight corridor between Rhoose and Bristol had just been cancelled. He was therefore able to climb to a good height before crossing the Severn, and then found conditions improved very rapidly. In fact when he landed at Wrexham he was surprised and maddened, because the conditions ahead looked still superlatively good. However, the distance he had covered brought him in with first place by nearly 100 points, with a total of 230 points for the day.

Justin Wills covered the second longest distance, but had to break off his flight at what he thought was the airway ceiling before crossing the Severn, so landed near Monmouth. This brought him 110 marks, but only third place. For Guy Ballard, showing the very enterprise which is the purpose of our meeting, had had the bright idea of declaring Dunkeswell, about five miles east of North Hill, as his turning point. From that point onwards therefore, his K-6E gained him points at double the rate of everyone else, and he landed at Weston-super-Mare to achieve 139 points and second place for the day.

John Jefferson met up with the unluckiest hare in the whole of hare history, by landing in a field where the unfortunate beast was crouching. Observing a huge bird flying over him, the animal stood stockstill, and three seconds later was swept up into John's landing parachute, losing its life thereby. Someone in the audience the following day, when this story was recited, commented that this was what one had to expect when landing in a hare-field.

The next day was absolutely hopeless, and had to be cancelled. Tuesday, June 14, was even worse, but livened up by John Fielden setting a species of treasure hunt with the competitors ending up at Dunkeswell, and doing complicated and impossible things with their trailers. This got marked, but not enough to upset the final results.

Wednesday – absolutely grey, rainless and no wind. Someone thought that mackerel might like it that way, and sure enough a party returned from Beer that evening with 26 fish.

Thursday – hopeless again, so another game involving a lot of travelling on the ground. In the evening a mediaeval banquet at the Salston Hotel, with the extraordinary eight piece Fielden Band accompanying.

Friday – useless. Could this be mid-summer? Hopes that Saturday might give flying at Usk; but Kitty and I would not be mobile enough, so we went sadly home.

What happened on Saturday is described by John Fielden below.

So there it was – a disaster in all but fact. For everyone enjoyed themselves no end, and are already planning for 1978 – possibly in July since June has done us so badly, and Met statistics seem to favour a month later.

Tony Maitland won the plate – to become first non-Wills winner. All the other prizes were awarded, but the list got lost in the post.

May I close on a personal note. I have had a horrid nine months, laid up with sciatica and worse, and have received dozens of cards, letters and other kinds of friendships. I can't reply individually lying on my back, so may I thank here all those who have shown me so much kindness.

USK DAY – Friday, June 17

JOHN FIELDEN

Weather still hopeless, ⅝ drizzle, cloudbase 1000ft at North Hill. Wind NE, 10kt, perhaps.

Set Race. USK (release point near Abergavenny) to Brecon and thence to Shobdon, 110km. Trailers left for Usk. Chris Simpson and I were to fly up in the Calif, towed by Mike Carlton in the Andreasson Super BA-4B. Ready for launch. Wing tip lady retreated into car. The BA-4B retreated to the end of the tow rope and disappeared behind the pouring rain. We set off across North Hill, Chris calling airspeed in true airline fashion appropriate to the Calif. At 60kt "rotation" there was a bang and the tail hit the ground, but the thundering of the wheels protesting at North Hill's surface continued unabated. The Calif doesn't like wet wings. At 65kt it went quiet. At 70kt the BA-4B climbed up the trees on the boundary of North Hill and we followed. At 300ft Chris raised the undercarriage and we were on our way. Cloudbase was 1800ft asl. It stopped raining at Taunton.

We tried the airbrakes over the Bristol Channel when the BA-4B looked as big as a Tiger Moth and there was a very horrid shuddering, creaking and popping sound (as of rivets being expelled). We shut them quick! There was now a strange tapping and whistling noise coming from the wings. The Bristol Channel took on Atlantic like proportions. A few quick waggles of the brake lever silenced the noise and Wales became accessible again. We landed at Usk, cloudbase 2000ft, ⅝! No wind worth mentioning and visibility not more than 5km. Mike Carlton said "Oh yes it does make rather a noise when you open the brakes at 90kt – just a few waggles of the brake lever will clear it!"

We had the usual fantastic welcome to the field at Usk. Ivor Shattock had organised everything to the extent of even adorning the Motorway signs and others on the way to Usk with a little red G to mark each turn off. It was only my error in the morning briefing which misled some of the trailers.

Some half-a-dozen South Wales GC members were helping Ivor to organise the trailers and tugs so that a mass rigging exercise would leave room for launching.

The starting order was pilot selected and time was going by. No one seemed to want to start! There was no wind at Usk (the tree top leaves were **just** moving). There was no mentionable cloudbase (around 2000ft asl – hills go to nearly 3000ft).

There was no mentionable visibility (the hills were quite invisible). I had already stretched Ivor's goodwill to the limit but even more was willingly forthcoming when I suggested thot Ivor act as "snifter" to prove that the system would work. Ivor was launched and disappeared into the murk. At 2000ft he could hardly see the ground. He set off for the "Blorange", the 2000ft mountain south of Abergavenny. He climbed to the top. I osked him to make a foray up the valley towords Brecon – o very long silence followed as the radio waves refused to go round the corner of the mountains, but at last he had come back to the Blorange and could talk to us. "Yes it was working up the valley but not easily." Then the master of Welsh understatement – "It's OK to send them John – in a slow trickle – volunteers first."

That may have been meant to be discouraging but to "Enterprisers" it was a red rag to a bull. The volunteers were everyone there – even Chris Simpson, who had used up o yeor's supply of adrenalin on the Calif take-off and tow and had declared his total lack of ridge soaring experience, was rigged and ready. The slow trickle become a flood and there was a danger at one stage that there may hove been too many gliders on the slopes of the Blorange. I don't think it ever got to more than six and as it is several miles long there was never a crowd, but everyone was made aware of the danger in such poor visibility.

"Be kind to Tutors" week

Someone had produced a T shirt with "Flying glass hurts your eyes" on the front and o Tutor silhouette on the back, so we decided to have a "be kind to Tutors" week. On this occasion the Tiger Moth had been briefed to drop the Tutor in lift on the Blorange. The lift was rather weak ond the Tutor had o lot of built-in sink, so before long he was soaring below the level of the canal. This is high for a canal but low for a glider! He was however soon to be encouroged by the sight of a Kestrel bearing the mighty Chris floating by, below him, whilst the barges floated by, above him.

Chris was proving two things:

1) His stotements are always based on truth (vide – "I have a total lack of ridge soaring experience").
2) He learns fast.

Thirty minutes and two gallons of sweat later Chris wos ot the top of the Blorange. Meanwhile down at the canal the Tutor continued his lonely vigil.

By now the Blorange was nearly empty of its load of gliders. The very bold ones had disappeared up the volley towards Brecon whilst the bold ones had crossed over the volley to continue stroight along the Black Mountains soaring on the protruding fingers which point SE.

The problem was not staying up, it was navigation. Close to each rock face – unable to get above the level of the top because of cloud, and unable to see the next ridge to cross to, a lot of fumbles occurred when gliders disappeared up the wrong valleys to either deodends or so sheltered that the breeze stopped blowing. There wos a great deal of hasty retreating done. The most astonishing was K-6ε (177) flown by Paul Ricker. He went up the valley towards Brecon and got in the wrong volley somewhere and quietly soared his way right through the Black Mountains to finish up just SW of hay on Wye without going near Brecon. A very creditable flight indeed.

The valley to the west of Crickhowell proved to be very very difficult and only two pilots, Justin Wills and Ivor Shattock, managed to cross the difficult gap. They rounded Brecon and couldn't cross the gap to get back to Abergaveny *en route* for Shobdon. The rest of the intrepid bunch continued north along the Black Mountains and we soon heard radio calls from Lord Hereford's Knob at 2300 to 2500ft. In theory against the light wind this was high enough to reach Shobdon. In the event the weother conspired to beat them completely. I rang Shobdon to alert them when I heard the radio calls and the response was of sheer incredulousness. "They can't get in here – the visibility is less than 500 yards – the airfield has been closed for two hours."

In the event Mike Pope, Chris Simpson, Mike Carlton, Ken Wilkinson and Tony Maitland all landed more or less together (three in one field) within four miles of Shobdon, each of them vouching for the necessity of an ILS approach to their chosen field in rapidly deteriorating visibility.

Once again Usk had given us the chance to fly an exciting ond interesting task on a day when oeroplanes weren't flying and the weather looked inconceivably bad.

A note on accidents would be in order. There were two gliders damaged and in neither case was the noture of the tosk or the terroin in **any** woy involved. One was a straightforward hitting a tuft of grass with a wing tip just after touch down and groundlooping. The other the crew asked the pilot not to lond in his chosen field becouse they thought they couldn't reach it. The last minute change together with an "opted for" wheels up londing produced minor damage.

My own feelings are that it is a shame that we only tend to use Usk when the weather is so bad. In good visibility and a 15kt wind mony really big mountoin tasks would be possible in that region.

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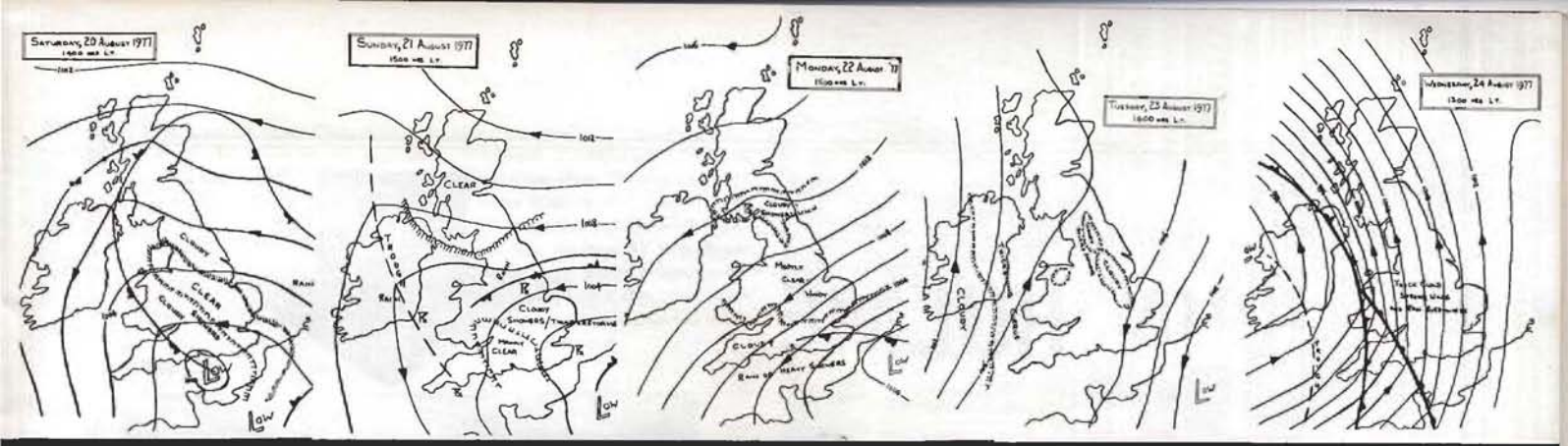

EUROGLIDE 1977 Husbands Bosworth August 20-29

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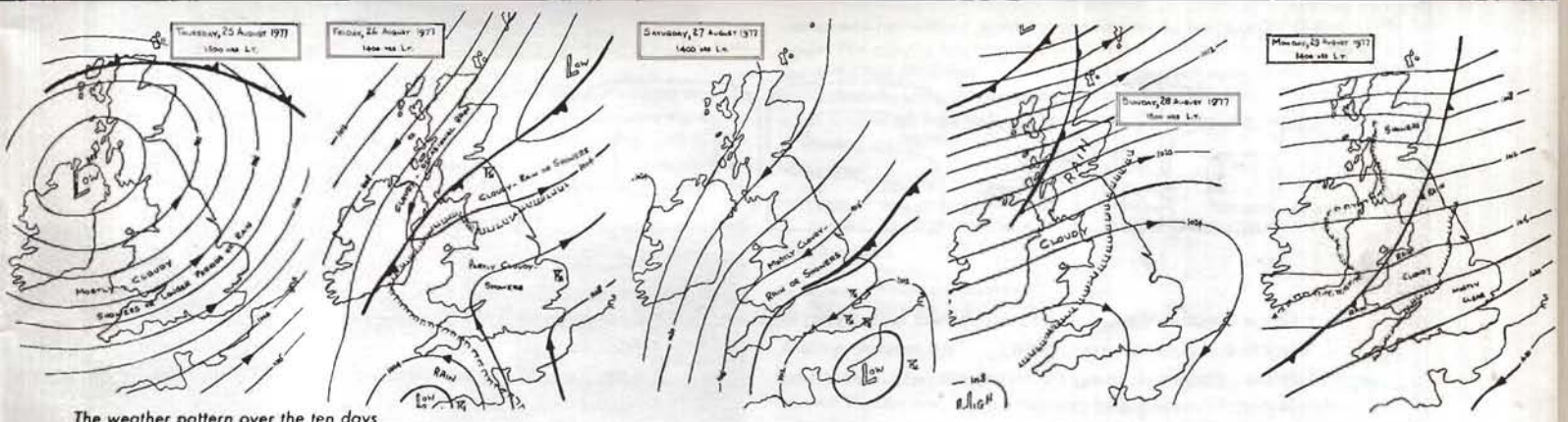

The weather pattern over the ten days.

Late August may not always be the best time of the year to hold a National contest but in the context of the rest of 1977 the weather was good – five days flying for the Open Class and six for the Standard Classes.

Four Classes – the same as the Nationals – Open, 15m Racing Class, 15m Restricted Class (Standard) and the Sports Class, with Charles Ellis' red Dart initiating the Sports Class.

With ten out of the 12 short listed British Team members flying (George Burton, John Cardiff, Bernard Fitchett, Chris Garton, Ralph Jones, George Lee, Chris Rollings, Ron Sandford, Steve White and John Williamson) and with team voting coming up, the competition looked taugh. Also with ten new 15m flapped gliders flying, a new breed seems to be evolving. The Open Class pilots seemed to wonder how to shake the new 15m racing ships off their tails some days.

Husbands Bosworth was the site, Coventry Gliding Club the hosts. Claude Woodhouse directed with Lemmy Tanner task setting at the beginning of the contest. Claude took over the tasks after the first two days and certainly chose some very good tasks, utilising the very best of the weather. It made for some very contented pilots.

Sir Peter Scott opened the sixth Euroglide on the Saturday morning at first briefing. He recounted his own competition experiences up to the time he gave up flying after coming a close second to John Delafield in the 1968 Nationals at Husbands Bosworth. Two foreign entrants were welcomed: Ralf Brodbeck and his crew Peter from West Germany flying a DG-200 and John Hulls from the States in his new ASW-20.

Saturday, August 20

Day 1, 15m Classes: 144km out-and-return to Blithfield reservoir.

A low centered on Hampshire provided a lot of top cover and a day that didn't dawn very bright. However, despite damp forecasts it perked up late morning and the grid was duly arranged. The occluded front slipped away to the SW and soaring conditions were reported at 11am by John Williamson taking his first flight in his borrowed Mosquito. The 15m Classes were launched under small straggly cumulus and the Open Class was scrubbed at 2pm. Cumulus developed quickly during the next hour or so and the first racing ship back over the line was Andrew Davis in his new Mini Nimbus followed by John Cardiff in his Std Libelle.

Leading results:

15m Class

1	Rollings	PIK 20	93.72km/h
2	Davis (HC)	Nimbus 15	93.26km/h
3	Wills	Masquito	87.46km/h

15m Restricted

1	Cardiff	Std Libelle	84.57km/h
2	Hackett	Std Jantor	84.10km/h
3	Murdoch	Std Cirrus	74.31km/h

Sir Peter and Lady Scott with Chris Simpson, far left, and John Williamson. Photo: Dee Reeves.

Monday, August 22

Day 1, Open Class – Day 2, 15m Classes. Open Class: 213km out-and-return to Gainsborough (Railbridge over road). 15m Classes: 150km out-and-return to Winthorpe A1/A46 flyover.

The moderate NE wind meant the 15m Class pilots had to battle all the way to

JOHN HULME

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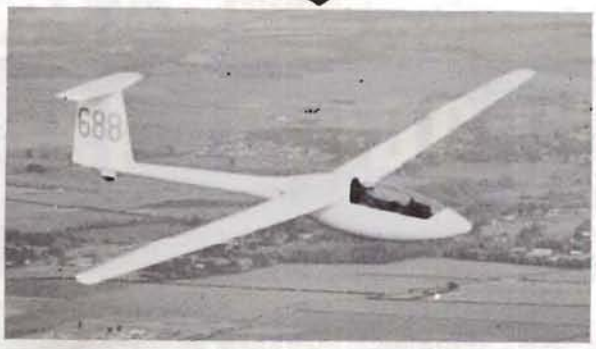

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Winthorpe, while the Open Class pilots were reporting good 4-6kt thermals to the TP with tricky conditions on the way back. This made a substantial difference between the speeds of the 15m ships and the Open Class ships. George Lee sped round at some 92km/h for the Open Class and Steve White made 71km/h in the Mini Nimbus. Nearly half the Standard Class pilots landed out. Several Open Class ships did well to finish back on the airfield late in the day. Alf Warminger did not get back until 7pm after gliding it out via Lutterworth and Rex Pilcher crept back at 7.30pm. Andy Miller, flying the RAF Kestrel 269, had a very late restart due to confusion over his first start. Although he lodged a protest after the event he only received a handful of points after inevitably landing out.

Leading results:

Open Class

1	Lee	ASW-17	92.24km/h
2	Fitchett	ASW-17	89.20km/h
3	Jones	Nimbus 2	85.92km/h

15m Class

1	White	Nimbus 15	71.70km/h
2	Wills	Mosquito	65.13km/h
3	Davis (HC)	Nimbus 15	70.89km/h

15m Restricted

1	Cardiff	Std Libelle	63.41km/h
2	Sheard	Std Cirrus	56.59km/h
3	Hackett	Std Jantar	56.24km/h

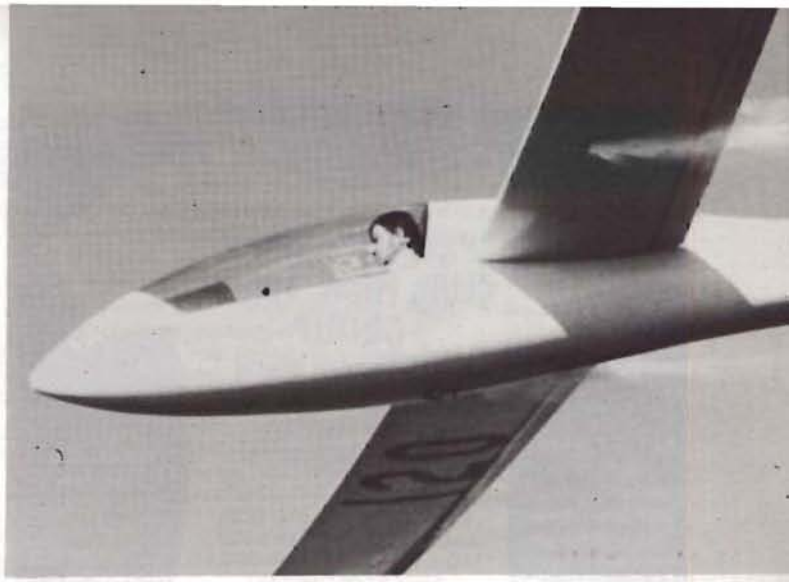
Tuesday, August 23

Day 2, Open Class – Day 3, 15m Classes. Open Class – 349km quadrilateral, Blithfield reservoir, Whitchurch, Northleach. 15m Classes – 287km quadrilateral, Blithfield reservoir, Whitchurch, Stratford.

With the wind N-NE the day looked good early on, but the cloud started to spread out and conditions deteriorated with thermals being weaker than expected.

Most pilots seemed to want to start early with large gaggles rushing through the line. However, George Lee, Brian Spreckley and Ralph Jones were the last to leave in the Open Class with Andrew Davis in his Nimbus 15 coming back to start at 13.51 – some 20 minutes later than anyone else. Andrew had already been some 15-20 miles on track when he decided to come back for a restart. His restart was not without problems and he wasted valuable time crossing the line again. Ten minutes later would have been too late as there was shower spread out at the first TP. Those in the Open Class who left early found good conditions to Northleach, using cloud streets that were lying NS. Most of them had to glide it out back to HB from half way down the last leg and the cloud disappeared.

John Hulls, the visitor from the USA, in the cockpit of his ASW-20. Photo: B. H. Bryce-Smith



Ted Lysakowski letting his waterballast go on final glide. Photo: Hans Smit.

Leading results:

Open Class

1	Lee	ASW-17	90.23km/h
2	Garton	ASW-17	88.87km/h
3	Spreckley	Kestrel 19	87.67km/h

15m Class

1	Davis (HC)	Nimbus 15	77.6km/h
2	White	Nimbus 15	76.34km/h
3	Williamson	Mosquito	74.33km/h

15m Restricted

1	Aldous	Std Cirrus	74.51km/h
2	Sheard	Std Cirrus	72.56km/h
3	Wells	Std Libelle	66.82km/h

Friday, August 26

Day 3, Open Class – Day 4, 15m Classes. Open Class – triangle with alternative second TP, Duxford, Melton Mowbray (231km) or Duxford, Markfield (244km). 15m Classes – triangle with alternative second TP, Caxton Gibbett, Melton Mowbray (185km) or Caxton Gibbett, Markfield (197.5km).

Claude Woodhouse set an alternative TP triangle as shower spread out was likely to be a problem. This turned out to be the case with the first TP for the Open Class obscured by large showers forcing some pilots to wait a long time before snapping their pictures and one or two more to land. Bernard Fitchett in the ASW-17 only took seven thermals to complete the task – five of which were cloud climbs. He started half an hour later that the rest of his Class and managed to get a good cloud climb near the first TP. He could then skirt round the shower.

Peter Sheard, Std Cirrus, was day winner and didn't cloud climb at all, making an interesting comparison. His lowest point was 1800ft half way up the second leg followed by a marginal final glide. This was his first day win in a National contest. Martin Wells followed consistently in second place.

John Hulls, ASW-20, was caught out in the showers and commented that it was the first time he had ever experienced rain in a contest. After his home gliding site, navigation also was a big problem. In the USA he has all his favourite tasks mapped out on the leg of a pair of jeans. "Navigation is easy with only a major

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highway, railway and mountains and a popular TP being a missian called 'White Dave of the Desert'."

Leading results:

Open Class

1	Fitchett	ASW-17	99.73km/h
2	Lee	ASW-17	92.05km/h
3	Garton	Nimbus 2	86.85km/h

15m Restricted

1	Sheard	Std Cirrus	80.15km/h
2	Wells	Std Libelle	78.71km/h
3	Aldous	Std Cirrus	74.47km/h

15m Class

1	Wills	Mosquito	93.73km/h
2	White	Nimbus 15	82.18km/h
3	Davis (HC)	Nimbus 15	79.85km/h

Sunday, August 28

Day 4, Open Class – Day 5, 15m Classes.

Sunday looked the perfect day so far in 1977. A magnificent sky filled with small well formed cumulus as far as the eye could see. Cloudbase going up to 5000ft.

Claude came up trumps yet again with the task: a 360km quadrilateral for all Classes – Bicester, Pewsey, Caxton Gibbett.

Most competitors seemed to find the going good to Bicester but slower from Oxford to Marlborough where the cloud had spread out somewhat and conditions weakened. The Pewsey area was good with tricky conditions near Didcot which then improved again to the third TP. The cu seemed to disappear from the NW and clear at the time most pilots were on the last leg. Good times were achieved in all Classes with George Lee running in at 101km/h in the Open Class, but having to take second position for the day after a photographic penalty of 50 points.

Leading results:

Open Class

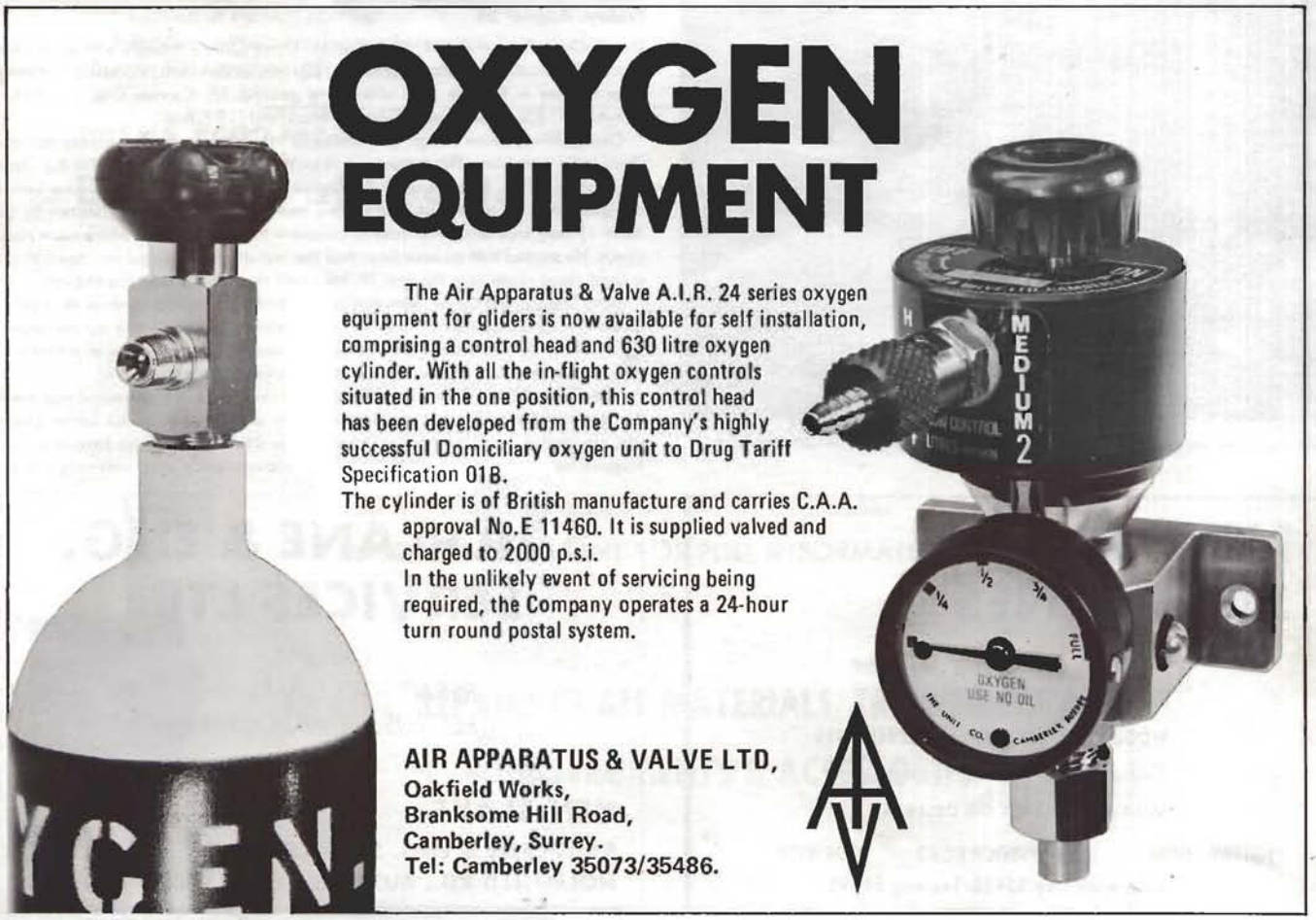
1	Lee*	ASW-17	101.13km/h
2	Fitchett	ASW-17	99.04km/h
3	Burton	Kestrel 22	98.79km/h

15m Restricted

1	Aldous	Std Cirrus	79.89km/h
2	Hackett	Std Jantar	77.70km/h
3	Stone	Std Cirrus	76.53km/h

15m Class

1	Wills	Mosquito	88.30km/h
2	Williamson	Mosquito	87.92km/h
3	Rollings	PIK 20	84.41km/h



A dramatic shot by Hans Smit of the last minutes of a flight.

Monday, August 29

Day 5, Open Class – Day 6, 15m Classes. Open Class – 183km out-and-return to Duxford. 15m Classes – 137km out-and-return to Caxton Gibbett.

Everyone wanted to fly on the last day with only handfuls of points separating pilots in each Class.

The front that had been due to come in from the NW on Sunday hadn't appeared and Monday looked good. Low stratus formed into thin clouds with wave activity making thermals unpredictable. George Burton (Kestrel 22) used the weak wave lift on the windward side of the clouds prior to starting and was probably the only pilot to start at maximum height. The Open Class found the first TP difficult with blue thermals and early starters found things hadn't really brewed up as expected. Bernard Fitchett left late at 14.30 and still managed a winning speed of 81km/h with one low point of 800ft agl. George Lee diverted off track to some clouds which didn't work and had to take weaker lift, thereby losing valuable time. Stubble fires saved many and one or two marginal final glides resulted in out landings fields away.

John Williamson was among early finishers in his Class winning with 71.75km/h closely followed by Steve White. Justin Wills crept in at 55kt on a marginal final glide ensuring his overall win. And Richard Aldous and Peter Sheard battled it out again for first and second place respectively.

Chris Garton plopped on to the airfield just in time for prizegiving at 19.00hrs. He had come back for a late start not having had his earlier time confirmed and spent some half-an-hour at several hundred feet in a stubble fire before creeping back to base.

To sum up

Open Class

Bernard Fitchett won his sixth successive Euroglide contest after yet another close fight with George Lee. Brian Spreckley flew exceptionally well to be placed third in his Kestrel 19.

15m Racing Class

Justin Wills took the prize after being beaten into second place last year. Obviously a good year as he also won the French Mountain Soaring Contest at Vinon in his new Mosquito. Andrew Davis was with the leaders on several days – which, at 21 years of age in your second year of National contests, is no mean feat.

15m Restricted Class

Richard Aldous won three out of the six days to have a well deserved win. Peter Sheard, who flew in the Nationals for the first time this year, chased hard for second with Martin Wells (second in the Nationals) coming third.

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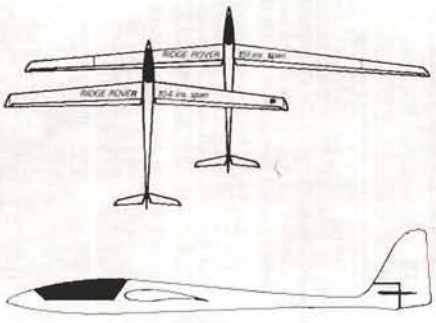

This machine is the tops in large sleek low drag Sailplane design that is equally at home on the slope, in light or strong winds or flat field thermal flying. This all new British design has several outstanding features: detachable outer wing panels enabling you to vary the span and wing loading to suit the conditions. Electronic mixer supplied as standard which gives you aileron control plus **full span flaps!** (variable camber – or trimmable trailing edge) making this one of the most advanced 4 or 5 function Sailplane kits on the market. The kit also contains some of the most de-luxe items available: Dodgson Aileron Linkage (U.S.A.) Graupner Brass and Steel Strip wing joiner, all moving tail-plane Horn plus 2 wing retainers (Germany) Releasable Tow Hook (G.B.) Ready veneered foam wings, Fin and Stab. All machined parts totally pre-shaped and one of the best finished F.G. Fuselages to be seen in any British Sailplane kit plus, of course, all necessary hardware; Quick links, hinges, epoxy, etc. Brief specifications: Short wing 104" span. Aspect ratio: 14 to 1 (wing loading 12 ozs. sq. ft.). Big wing: 151 span. Aspect ratio: 21 to 1 (wing loading 9 ozs. sq. ft.). Wing sections: Wartmann (root) Eppler (mid-chord to the tip). Total wing area: 1152 sq. ins. Prototypes have proved to have a fabulous performance with one of the **best glide angles** of any model Sailplane kit currently on sale anywhere! Quote from January *Radio Modeller* kit review, "all in all a most impressive kit for what is undoubtedly a most elegant, efficient and highly developed R/C Sailplane". Available from your dealer or direct. Price £86.18 inc. V.A.T.

"Solent Sailplanes" are setting new standards in high performance large ¼ and ⅛ scale Sailplanes. The 5-metre **"DG-100"** seen here features an Epoxy Glass Fuselage, foam wing with carbon fibre spar, also carbon fibre lacing built into the Glass Wing Skin! Assembled and ready installed top surface Airbrakes, a Retract wheel unit, plus provision for Aero-Towing! And water ballast! In addition the wing uses the scale Wortmann Sections! (The machine shown here was placed **first** in the recent Crooks Peak National Scale Competition!). Other models now available: **"SB-10"**, **"Glassflugel-604"**, **"Jantar-1,"** **"ASW-17"**.

* Coming soon an all glass **"DG-200"** and **"SB-10"!**

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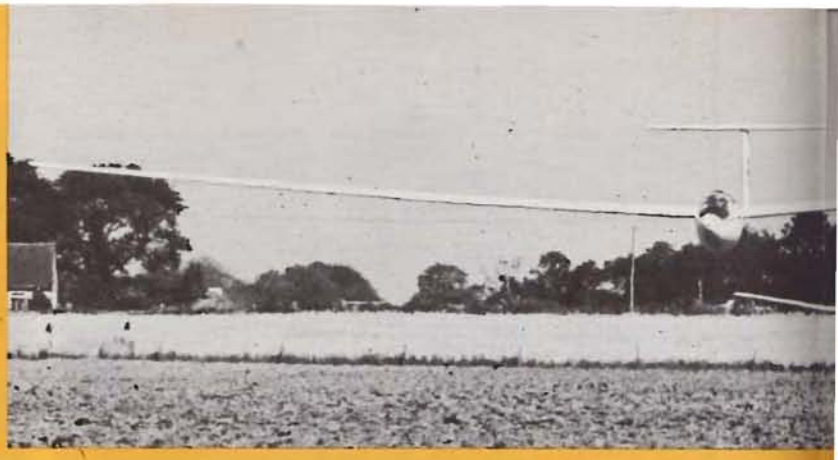
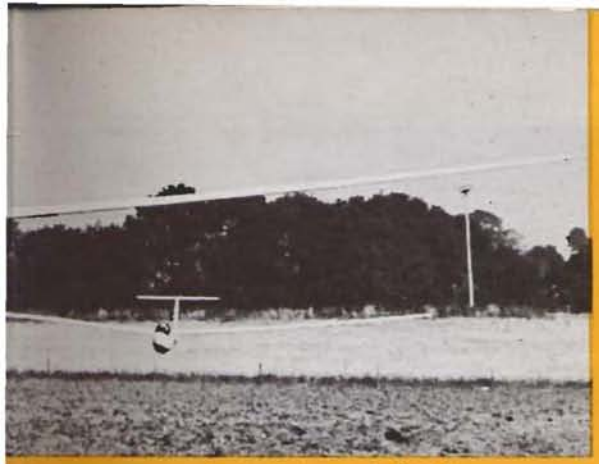
Rex Pilcher, Chairman of the BGA Airspace Committee. Photo: B. H. Bryce-Smith.



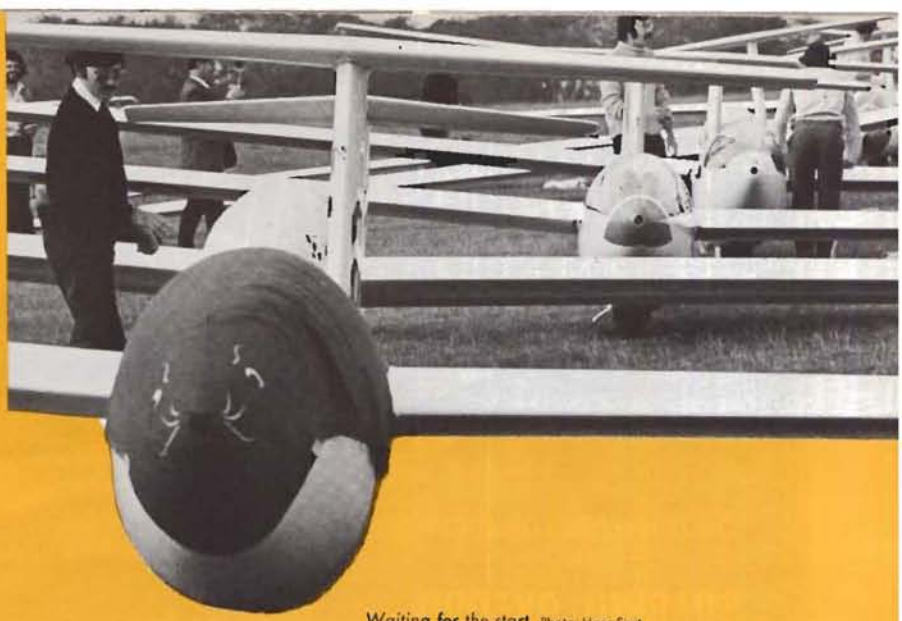
Bernard Fitchett, Open Class Champion. Photo: Dee Reeves.

Claude Woodhouse, Contest Director. Photo: Dee Reeves.

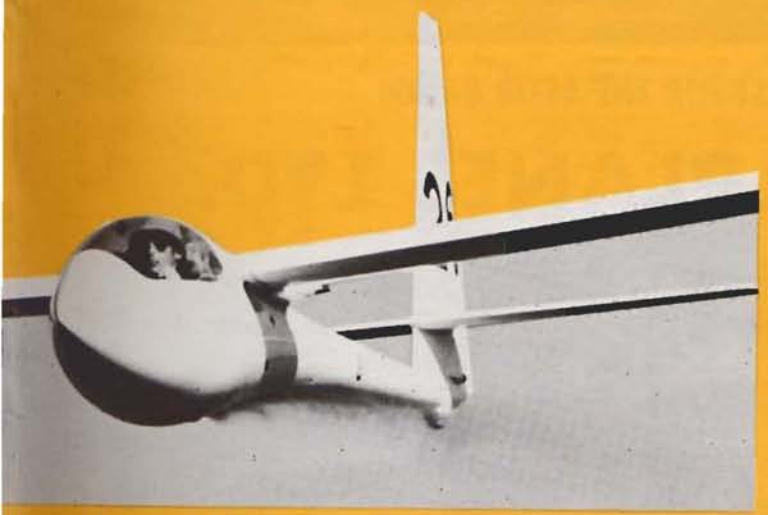
EUROGLIDE 1977



Low and fast across the finish line. Photo: Hans Smit.



Waiting for the start. Photo: Hans Smit.



George Lee on *final glide.* Photo: Hans Smit.

Brian Spreckley and crew. Photo: B. H. Bryce-Smith.

Justin Wills, winner of the 15m Unrestricted Class, with Gillian Howe. Photo: Hans Smit.

Clare, crewing for Richard Aldous. Photo: Dee Reeves.

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FINAL RESULTS – OPEN CLASS

Pilot	Glider	DAY 1 22.8 213 km ⟷ Gainsborough			DAY 2 23.8 349 km ■ Blithfield, Whitchurch, Northleach			DAY 3 26.8 231.5 km ▲ Duxford, Melton Mowbray or 244 km ▲ Duxford, Markfield			DAY 4 28.8 356.5 km ■ Bicester, Pawsey, Caxton Gibbett			DAY 5 29.8 183 km ⟷ Duxford			Total Points	Final Pos
		Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos		
Fitchett, B.	ASW-17	963	89.20	2	957	86.23	4	1000	99.73	1	969	99.04	1	1000	81.98	1	4889	1
Lee, D. G.	ASW-17	1000	92.24	1	1000	90.23	1	902	92.05	2	950*	101.13	3	918	75.10	5	4770	2
Spreckley, B. T.	Kestrel 19	855	80.38	5	972	87.67	3	825	86.04	4	810	88.24	12	931	76.30	3	4393	3
Garton, C.	Nimbus 2	867	81.36	4	985	88.87	2	835	86.85	3	949	97.72	4	716	58.24	12	4352	4
Burton, G. E.	Kestrel 22	795	75.42	9	926	83.49	5	634	71.07	13	966	98.79	2	930	76.13	4	4251	5
Lysakowski, E. R.	Nimbus 2	845	79.50	7	915	82.39	7	542	63.90	14	921	95.78	5	965	79.19	2	4188	6
Glossop, J. D. J.	Kestrel 19	846	79.62	6	917	82.52	6	754	80.46	8	843	90.51	9	822	67.08	8	4182	7
Jones, R.	Nimbus 2	922	85.92	3	839	75.46	10	721	77.88	11	919	95.71	6	777	63.33	10	4178	8
Camp, G. W. G.	Nimbus 2	705	68.11	11	886	79.75	8	800	84.12	6	797*	90.78	13	873	71.34	6	4061	9
Kay, A.	Jantar 2	670	65.20	13	776	69.54	13	774	82.04	7	862	91.78	8	723	58.83	11	3805	10
Pozerskis, P.	ASW 17	542	54.71	14	483	(331.5)	16	803	84.42	5	811	88.40	11	859	70.22	7	3498	11
Robertson, D. J.	Kestrel 19	693	67.09	12	416	(290)	19	721	77.92	10	817	88.80	10	811	66.20	9	3458	12
Roberts, D. G.	Kestrel 19	722	69.43	10	799	71.74	12	690	75.54	12	769	85.57	15	325	(146)	16	3305	13
Lilburn, D. W.	Kestrel 19	818	77.30	8	870	78.25	9	529	62.89	15	709	81.54	16	241	(116)	18=	3167	14
Pitcher, R. R.	Nimbus 2	437	45.07	16	830	74.50	11	122	(112)	18	865	92.07	7	367	(161)	15	2621	15
Miller, A. S.	Kestrel 19	37	(45.5)	20	506	(347.5)	14	740	79.42	9	796	87.41	14	245	(117.5)	17	2324	16
Herringshaw, G.	Kestrel 19	97	(70.5)	19	384	(270.5)	20	509	61.30	16	591	73.48	19	642	52.04	13	2223	17
Warminger, A. H.	Kestrel 19	458	47.85	15	481	(330)	17	108	(102.5)	19	628	76.05	17	393	(170.5)	14	2068	18
Docherty, T. P.	Kestrel 19	144	(90.5)	18	485	(333)	15	395	52.42	17	622*	79.00	18	241	(116)	18=	1887	19
Pope, M. H. B.	Kestrel 19	393	(194.5)	17	427	(297)	18	58	(68.5)	20	574	72.40	20	241	(116)	18=	1693	20

15M CLASS

Pilot	Glider	DAY 1 20.8 144 km ⟷ Blithfield			DAY 2 22.8 150 km ⟷ Winthorpe			DAY 3 23.8 287 km ■ Blithfield, Whitchurch, Stratford			DAY 4 26.8 185 km ▲ Caxton Gibbett & Markfield or 197.5 km ▲ Caxton Gibbett & Markfield			DAY 5 28.8 356.5 km ■ Bicester, Pawsey, Caxton Gibbett			DAY 6 29.8 137 km ⟷ Caxton Gibbett			Total Points	Final Pos
		Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos		
Wills, J.	Mosquito	920	87.46	2	717	65.13	2	961	73.85	3	1000	93.73	1	1000	88.30	1	903	64.48	5	5501	1
White, S. A.	Nimbus 15	816	79.38	5	780	71.70	1	1000	76.34	1	845	82.18	2	943	84.33	4	997	71.52	2	5381	2
Williamson, J. S.	Mosquito	368	(135)	8	687	61.95	3	969	74.33	2	807	79.38	3	995	87.92	2	1000	71.75	1	4826	3
Rollings, C. C.	Pik 20B	1000	93.72	1	588	51.51	6	882	68.75	4	720	72.82	5	945	84.41	3	258	(98)	8	4393	4
Hanfrey, A. W.	Mosquito	819	79.58	4	591	51.84	5	749*	66.61	7	370	43.01	8	846	77.51	5	921	65.85	4	4296	5
Sandford, R. A.	Pik 20B	621	64.14	7	616	54.46	4	824	65.05	5	759	75.78	4	745	70.47	7	627	43.81	7	4182	6
Brodbeck, R.	DG-200	656	66.81	6	84	(53)	7	796*	66.45	6	462	53.68	7	796	73.97	6	957	68.52	3	3751	7
Cockburn, D.	Pik 20D	833	80.73	3	79	(51.5)	8	32	(55)	8	701	71.56	6	323	(341.5)	8	722	50.97	6	2690	8
Hors Concours																					
Davis, A. J.	Nimbus 15	994	93.26	(2)	772	70.89	(2)	1011	77.06	(1)	814	79.85	(3)	897	81.09	(5)	904	64.57	(6)	5392	(2)
Hulls, J. R.	ASW-20	472*	60.24	(8)	0	(28.5)	(10)	647*	56.91	(8)	227	(151)	(9)	30*	(58.5)	(9)	914	65.34	(5)	2290	(9)
15m RESTRICTED CLASS																					
Aldous, R. F.	Std Cirrus	740	73.37	5	617	54.57	5	971	74.51	1	742	74.47	3	880	79.89	1	974	69.79	1	4924	1
Sheard, P. G.	Std Cirrus	726	72.38	6	636	56.59	2	941	72.56	2	817	80.15	1	821	75.78	4	902	64.42	2	4843	2
Wells, M. D.	Std Libelle	719	71.75	7	622	55.17	4	852	66.82	3	798	78.71	2	808	74.84	5	860	61.26	5	4659	3
Hackett, N. G.	Std Jantar	876	84.10	2	633	56.24	3	802	63.62	6	662	68.63	7	849	77.70	2	672	47.19	7	4494	4
Cardiff, J. D.	Std Libelle	882	84.57	1	701	63.41	1	818	64.67	4	533	58.94	12	803	74.51	6	330	(117)	12	4067	5
Waller, C. J. N.	Std Cirrus	742	73.59	4	561	48.74	7	808	63.98	5	256	(116.5)	16	795	73.89	7	893	63.78	3	4055	6
Burton, A. J.	Std Libelle	648	66.23	8	79	(51.5)	11	771	61.58	9	556	60.77	9	790	73.58	8	877	62.54	4	3721	7
Campbell, D. R.	Std Libelle	587	61.49	9	444	36.44	8	800	63.55	7	541	59.59	10	637	62.83	12	338	(119)	11	3347	8
Stone, A. J.	Std Cirrus	569	60.07	11	DNF			DNF			704	71.75	4	832	76.53	3	627	43.81	8	2732	9=
Phillips, D. M.	Std Libelle	580	61.41	10	608	53.67	6	260*	(254.5)	14	276	(177.5)	14	606	60.66	13	402	(136)	9	2732	9=
McLuckie, R.	Std Cirrus	0	(29)	15	0	(20.5)	14	760	60.92	11	689	70.56	5	761	71.53	9	277	(103)	14	2487	11
Lidbury, D. P. G.	Astir C.S.	0	(20)	16	27	(37.5)	12=	761	61.02	10	573	61.91	8	744	70.40	10	372	(128)	10	2477	12
Murdoch, I. H.	Std Cirrus	752	74.31	3	340	(123)	9	0	0	15	684	70.24	6	696	67.01	11	0	0	16	2472	13
Brownlow, J.	Astir CS	142*	67.99	14	27	(37.5)	12=	777	61.95	8	262	(170)	15	337	(355)	14	844	60.16	6	2389	14
Odell, J. H.	Std Cirrus	300	(115.5)	12	0	(17.5)	15	693	56.63	12	463	53.79	13	334	(352.5)	16	279	(103.5)	13	2069	15
Kenworthy, A. J.	DG-100	154	(74)	13	337	(112)	10	404	(285.5)	13	539	59.46	11	335	(353)	15	266	(100)	15	2035	16

* = Photographic penalty; DNF = Did not fly.

SPORTS CLASS

Pilot	Glider	DAY 1 20.8 144 km ⟷ Blithfield			DAY 2 22.8 150 km ⟷ Winorpe			DAY 3 23.8 287 km ■ Blithfield, Whitchurch, Stratford			DAY 4 26.8 185 km ▲ Caxton Gibbett Melton Mowbray or 197.5 km ▲ Caxton Gibbett Markfield			DAY 5 28.8 356.5 km ▲ Bicester, Pawsey, Caxton Gibbett			DAY 6 29.8 137 km ⟷ Caxton Gibbett			Total Points	Final Pos
		Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos	Pts	Speed (Dist)	Pos		
Wills, J.	Mosquito	909	80.53	4	778	58.78	3	918	69.35	5	1000	88.01	1	1000	82.67	1	857	59.37	12	5462	1
White, S. A.	Nimbus 15	807	73.09	11	846	64.71	2	955	71.68	3	845	77.16	4	943	78.95	5	946	65.86	4	5342	2
Aldous, R. F.	Std Cirrus	810	73.37	9	730	54.57	8	1000	74.51	1	806	74.47	6	957	79.88	3	1000	69.79	1	5303	3
Sheard, P. G.	Std Cirrus	797	72.38	12	753	56.59	5	969	72.56	2	888	80.15	3	895	75.78	11	926	64.42	5	5228	4
Wells, M. D.	Std Libelle	818	73.89	7	761	57.28	4	901	68.32	6	892	80.48	2	908	76.60	7	907	63.09	8	5187	5
Williamson, J. S.	Mosquito	295	(124.5)	20	746	55.91	6	925	69.79	4	807	74.54	5	994	82.32	2	969	66.07	2	4736	6
Hackett, N. G.	Std Jantar	926	81.73	3	726	54.23	9	804	62.25	12	701	67.15	14	898	75.94	10	671	45.86	14	4726	7
Cardiff, J. D.	Std Libelle	1000	87.11	1	860	65.84	1	866	66.12	8	603	60.27	18	902	76.26	9	323	(120)	19	4554	8
Hanfrey, A. W.	Mosquito	809	73.28	10	642	46.79	12	709*	62.54	19	587	59.16	19	846	72.57	13	874	60.64	10	4467	9
Waller, C. J. N.	Std Cirrus	814	73.59	8	664	48.74	11	832	63.98	11	255	(166.5)	25	866	73.88	12	917	63.78	6	4348	10
Rollings, C. C.	Pik 20B	989	86.30	2	638	46.49	13	841	64.55	9	718	68.37	11	945	79.03	4	215	(90)	24	4346	11
Burton, A. J.	Std Libelle	768	70.31	13	91	(56)	18	839	64.41	10	651	63.67	15	916	77.12	6	953	66.39	3	4218	12
Sandford, R. A.	Pik 20B	614	59.06	19	668	49.14	10	786	61.07	14	758	71.15	8	745	65.97	18	595	40.34	15	4166	13
Campbell, D. R.	Std Libelle	700	65.29	14	556	39.35	14	872	66.47	7	632	62.33	16	744	65.86	19	344	(126)	18	3848	14
Brodbeck, R.	DG-200	647	61.52	16	62	(48)	19	756*	62.39	17	462	50.40	22	795	69.26	16	908	63.09	7	3630	15
Stone, A. J.	Std Cirrus	628	60.07	18	DNF			DNF			767	71.75	7	907	76.52	8	885	61.39	9	3187	16
Phillips, D. M.	Std Libelle	671	63.25	15	744	55.73	7	262*	(260)	21	283	(181.5)	23	685	62.08	20	391	(139)	16	3036	17
Murdoch, I. H.	Std Cirrus	824	74.31	6	324	(123)	15	0	0	24	745	70.24	10	761	67.00	17	0	0	25	2654	18
McLuckie, R.	Std Cirrus	0	(29)	24	0	(20.5)	23	785	60.92	16	751	70.56	9	830	71.53	14	262	(103)	22	2628	19
Lidbury, D. P. G.	Astir CS	0	(20)	25	26	(37.5)	21=	785	61.02	15	626	61.91	17	814	70.40	15	351	(128)	17	2602	20
Cockburn, D.	Pik 20D	824	74.34	5	56	(46)	20	27	(51.5)	23	701	67.19	13	280	(320)	25	685	43.93	13	2573	21
Ellis, C. A. P.	Dart 17R	639*	64.58	17	146	(72)	17	79	(84.0)	22	710	67.80	12	603	57.66	21	316	(118.5)	20	2493	22
Brownlow, J.	Astir CS	137*	67.99	23	26	(37.5)	21=	799	61.95	13	262	(170)	24	314	(355)	22	868	60.16	11	2406	23
Odell, J. H.	Std Cirrus	267	(115.5)	21	0	(17.5)	24	715	56.63	18	510	53.79	21	311	(352.5)	24	264	(103.5)	21	2067	24
Kenworthy, A. J.	DG-100	138	(74)	22	285	(112)	16	404	(285.5)	20	582	58.82	20	312	(353)	23	251	(100)	23	1972	25
Hors Concours																					
Davis, A. J.	Nimbus 15	982	85.87	(3)	838	63.98	(3)	966	72.35	(3)	814	74.98	(5)	897	75.92	(11)	856	59.46	(13)	5353	(2)
Hulls, J. R.	ASW-20	464*	55.47	(20)	0	(26)	(23)	614*	53.43	(20)	226	151	(26)	28*	57.33	(26)	867	60.17	(12)	2199	(24)

REGIONALS' – RESULTS

WESTERN REGIONALS – Nympsfield, June 18-26

No.	Pilot	Sailplane	H'cap	Day 1.22.6 95½km ▲	2.26.6 208km ▲	Total Points
1	Crawshaw, G.	98	DG-100	906	1000	1960
2	Lusted, E.	100	DG-100	1000	815	1815
3	Dobson, B. F.	106	PIK 20	926	887	1813
4	Bradbury, T. A. M.	96	Std Libelle	900	898	1798
5	Smith, P. J.	98	Std Libelle			
	James, P. W.			722	910	1632
6	Parker, S. J. C.	100	Std Cirrus	739	842	1581
7	Tull, V. F. G.	116	Kestrel 19	773	747	1520
8	Webster, J. W. A.	90	K-6e	661	830	1491
9	Aldridge, K. R.	106	PIK 20	517	973	1490
10	Smoker, J. L.	116	Kestrel 19	659	728	1387
11	Pennycuick, C. J.	102	Cirrus 17m	375	916	1291
12	Atkinson, G. B.	116	Kestrel 19	874	162	1036
13	Corbett, G.	82	Pirat	599	416	1015
14	Davis, D.	106	Nimbus 15	743	206	949
15	Roberts, D. G.	116	Kestrel 19	67	790	857
16	Purser, H. J.	84	EoN 465	764	91	855
17	Meyer, W.	98	Std Libelle	592	216	808
18	Beer, C.	94	Dart 17R	600	203	803
19	Jefferyes, M. B.	82	Pirat	334	319	653
20	Vennard, D. A.	74	Bocian			
	Ratcliffe, B.			196	232	428
21	Roberts, D. W. H.	90	K-6E	395	-	395
22	Hegner, A.	96	Std Libelle	389	-	389
23	Foster, N.	106	PIK 20	91	65	156
24	Dimock, H. R.	106	Mosquito	3	108	111
25	Luck, V.	86	Skylark 4	49	*	49

* = claim form or film not returned on last day.

NORTHERN REGIONALS, Sutton Bank, August 6-14

No.	Pilot	Sailplane	H'cap	Day 1.6.8 117km ⇄	2.7.8 102km ▲	3.9.8 305km ⇄	4.10.8 134km ⇄	5.11.8 120km ⇄	6.12.8 107km ▲	Total Points
1	Carter, M. E.	90	K-6E	861	520	904	895	851	504	4535
2	Gaunt, N.	98	DG-100	953	469	812	820	1000	447	4501
3	Sharman, R.	82	Consort	840	550	948	779	851	470	4438
4	Taylor, J.	100	Std Cirrus	841	308	893	922	928	430	4322
5	Torode, H. A.	100	SHK	1000	506	808	877	695	419	4305
6	Hart, J.	84	K-6CR	847	462	764	842	798	549	4262
7	Woodford, J. M.	98	ASW-15	961	66	937	962	759	453	4138
8	Blackmore, R.	102	Std Jantar	792	462	830	809	680	453	4026
9	Collins, P. S.	82	Olympia 463	949	220	875	1000	677	0	3721
10	St. Pierre, A. H. G.	76	Blanik	524	161	907	835	930	232	3589
11	Bleaken, L.	114	Kestrel 19	943	7	753	806	812	181	3502
12	Mortimer, R.	114	Jantar 1	804	425	664	612	564	351	3420
13	Jackson, R.	88	Dart 15	774	198	808	759	761	96	3396
14	Beck, J.	90	SD-3	377	381	793	820	637	266	3274
15	Smith, D.	96	Cobra 15	346	476	701	740	646	362	3271
16	Robson, R.	110	Kestrel 17	670	73	620	786	826	272	3247
17	Hulme, A. J.	106	PIK 20B	727	330	661	800	719	0	3237
18	Townsend, A.	88	Dart 15	407	51	812	824	786	277	3157
19	Ramsden, P.	116	Kestrel 19	692	293	520	829	151	550	3035
20	Purser, H.	84	Olympia 465	445	0	897	728	841	108	3019
21	Purves, J. M.	76	Blanik	852	381	52	915	414	385	2999
22	Smith, G.	84	Skylark 3	277	330	815	621	743	108	2894
23	Fox, R. L.	96	Cobra 15	774	-	804	-	642	-	
	Durman, J.			-	476	-	19	-	0	2715
24	Spink, E.	98	DG-100	798	337	0	599	649	232	2615
25	Duffin, E. R.	78	Skylark 2B	479	0	1000	699	411	0	2589
26	Simms, J. A.	106	PIK 20B	886	234	487	559	214	125	2505
27	Hayes, J.	90	SD-3	356	-	-	428	-	11	
	Armstrong, T.			-	0	823	-	858	-	2476
28	Evans, B.	100	Astir CS	803	-	528	-	712	-	
	Cook, R.			-	0	-	314	-	69	2426
29	Swales, A.	96	Cobra 15	569	-	667	559	-		
	Quinn, M.			-	29	-	481	-	96	2401
30	Evison, G.	100	SHK	712	0	690	472	130	391	2395
31	Raom, E.	84	K-6CR	250	7	-	-	-	-	
	Stott, B.			-	-	738	528	355	441	2319
32	Reed, J.	86	Skylark 4	425	-	-	103	277	-	
	Hayes, D.			-	0	886	-	-	515	2206
33	Chaplin, D.	76	K-13	534	168	52	695	400	260	2109
34	Taylor, C.	82	Gipsy	236	7	834	581	372	28	2058
35	Russell, F.	116	Kestrel 19	116	0	679	66	771	362	1994
36	Giles, E. F.	94	Foka	586	0	26	619	722	0	1953
37	Mowson, J.	106	PIK 20B	569	0	491	592	204	0	1856
38	Abbott, J.	76	Blanik	890	58	33	DNF	344	0	1325
39	Evans, N.	98	Astir CS	0	-	41	-	214	-	
	Field, S.			-	0	-	437	-	74	766
40	Byrne, C.	86	Skylark 4	414	0	22	DNF	DNF	DNF	436

DNF = did not fly

LASHAM REGIONALS, July 30 – August 8

GROUP A

No.	Pilot	Sailplane	H'cap	Day 1.30.7 179.2km ▲	2.31.7 124.9km ▲	3.1.8 145.5km ▲	4.2.8 206.8km ▲	5.3.8 136.4km ▲	6.4.8 143.2km ▲	Total Points
1	Watson, A. J.	98	Std Libelle	925	0	1000	652	1000	100	3677
2	Forrest, R. G.	84	Skylark 3F	666	.382	917	890	772	4	3631
3	Parry, N.	94	Dart 17R	831	175	850	744	822	57	3479
4	Piggott, A. D.	82	Pirat	1000	288	-	624	-	-	
	Saunders, D.			-	-	894	-	-	0	
	Bicknell, S.			-	-	-	-	609	-	3415
5	Blacklin, P. A.	96	Std Libelle	800	160	988	572	691	92	3303
6	Keogh, B.	98	Libelle 2018	749	400	870	542	633	15	3209
7	Watson, T.	96	Std Libelle	694	84	-	555	925	-	
	Watson, B.			-	-	796	-	-	0	3054
8	Cherril, J. D.	100	Astir CS	-	137	-	536	-	60	
	Hynes, K.			723	-	583	-	692	-	2731
9	Williams, D. J.	100	Astir CS	694	33	756	543	644	0	
	Roberts, P.			-	-	-	-	-	-	
	Tipney, C. J.			-	-	-	-	-	-	2670
10	McGill, J.	90	K-6E	-	-	-	-	749	0	
	Roberts, D.			538	147*	625	466	-	-	2525
11	Jackson, R. D.	90	K-6E	703	-	611	-	716	-	
	Elkin, D. E.			-	126	-	269	-	0	2425
12	Bridges, R. C.	84	Skylark 3B	781	105	668	214	592	44	2404
13	Marczynski, Z.	100	Std Cirrus	457	104	663	162	983	8	2377
14	Hall, F. J. F.	82	K-13	573	0	478	387	633	0	2101
15	Wilks, E.	94	Dart 17R	508	362	571	436	DNF	0	1877
16	Burne, A. C.	96	Std Libelle	762	68	278	266	473	0	1847
17	Wickens, B. B.	86	Skylark 4	443	50	589	94	638	0	1814
18	Newall, P. M.	100	Astir CS	433	28	79	79	477	23	1119
19	Watson, R.	94	Dart 17R	56	-	451	-	290*	0	
	Berry, C.			-	0	-	241	-	-	1044
20	Sampson, D. L. H.	100	Astir CS	0	0	264	0	489	0	753

GROUP B

No.	Pilot	Sailplane	H'cap	Day 1.30.7 236.3km ▲	2.31.7 148.2km ▲	3.1.8 179.2km ▲	4.2.8 291.1km ▲	5.3.8 149.2km ▲	6.4.8 143.2km ▲	Total Points
1	Jones, R.	118	Nimbus 2	1000	400	955	517	1000	357	4229
2	Foot, R. A.	118	Nimbus 2	860	382	765	793	810	339	3949
3	Gaunt, T. R.	102+	Std Cirrus	742	0	846	655	949	270	3512
4	Purdie, P. G. H.	104	Cirrus	829	0	897	634	497	333	3190
5	Honfrey, A. W.	106	Mosquito	927	0	1000	503	631	78	3139
6	Street, C.	102	Phoebus 17	735	172	643	738	569	257	3114
7	Day, C. G.	114	Jantar 19	751	92	613	618	601	219	2894
8	Parker, I. D.	114	Kestrel 19	785	-	801	-	499	-	-
	Walker, D.			-	0	-	459	-	337	2881
9	Docherty, T. P.	116	Kestrel 19	709	0	760	669	552	91	2781
10	Linee, T. E.	116	Kestrel 19	658	86	889	528	479	0	2640
11	Barrett, R. V.	104	Cirrus	750	91	683	604	372	46	2546
12	Fleming, A. M.	106	Nimbus 15	129	374	711	492	712	0	2418
13	Mason, E.	116	Kestrel 19	545	362	802	60	538	26	2333
14	Cousins, R.	116	Kestrel 19	629	69	870	144*	513	92	2317
15	Young, S.	118	Nimbus 2	837	368	426*	439	181	57	2308
16	Frampton, J.	118	Kestrel 20	870	0	-	-	-	-	
	Plunkett, G. P.			-	-	640	517	82	38	2147
17	Partington, J.	104	Cirrus	-	0	-	-	-	-	
	Clutterbuck, A.			643	-	365*	195	478	0	1681
18	Backwell, C.	100	SHK	-	0	537	641	-	0	
	Curry, A.			0	-	-	-	399	-	1477
19	Luke, J. M.	104	Cirrus	360	0	286	515	287	0	1448
20	Gardiner, D.	104	Cirrus	151	0	530	0	412	0	1093
21	Carlton, M. R.	112	Calif A-21	DNF	DNF	-	469	DNF	0	
	Scull, W. G.					548	-		-	1017

DNF = did not fly; + = under local rules; * = photographic penalty.

PORTMOAK REGIONALS, August 2-10

No.	Pilot	Sailplane	H'cap	Day 1.3.7 178km ▲	2.4.7 124km ⇄	3.7.7 109km ⇄	Total Points
1	Marshall, R.	102	Phoebus 17	-	743	-	
	Meiklejahn, N.			721	-	752	2216
2	Findan, D.	98	Std Libelle	1000	71	1000	2071
3	Jarvis, R.	90	K-6E	-	833	739	
	White, A.			469	-	-	2041
4	Gardiner, D. K.	102	Cirrus	327	708	712	1747
5	Chisholm, J.	100	DG-100	263	712	667	1642
6	Meyer, J.	98	Std Libelle	320	128	837	1285
7	Luke, J.	84	K-6CR	251	22	655	928
8	Shaw, M.	98	ASW-15	-	-	-	
	Fleming, I. F.			225	-	-	
	Ratcliffe, D.			-	210	-	435
9	Bower, P.	84	Skylark 3B	-	-	-	
	Hunter, J.			362	-	-	362
10	Hempseed, J.	96	Std Libelle	0	0	0	0

(We regret that on going to press two sets of results were still not available to us.)

A Spalinger 18 with a Dutch owned Slingsby Prefect in front.

Leigh Hood in a K-3.

The C-800 from France. Photos: F. K. Russ

FIFTH VINTAGE INTERNATIONAL

A. E. SLATER

More vintage gliders from more countries than ever before assembled at Münster, historic capital of Westphalia in NW Germany, from July 9 to 17. From countries newly represented, the Dutch brought two Slingsby Prefects but left behind their entry of a T-21 Sedbergh, while the French brought a C-800 two-seater and an open primary SG-38 which soon established itself as the darling of the meeting. One-third of the 12 German entries were Grunau Babys: the others were Mü 13D and 17, Minimoa, Cumulus 3r, Weihe 50, Olympia-Meise, Std Libelle and a modified East German type which was not strictly vintage.

Also non-vintage was a motorised Mü 23 owned by Alan Davy, a British lecturer (in German) at Münster University, who kindly took up journalists to photograph circling gliders – an awkward task in convectional turbulence.

The Swiss entries were: Minimoa, Spyr Va, Weihe 50, Meise, Moswey 3, and two Spalinger 18s. British entries were Minimoa (John Coxon), Olympia-Meise (Toby Fisher), EoN Baby (Peter Moran), Kite 2 (Rodi Morgan), Weihe 50 (Francis Russell) and Kranich (Chris Wills).

Frances Furlong, Vintage Club Secretary, brought a large tent which, inside and out, soon became an international social centre where sandwiches and hot drinks were dispensed to the benefit of club funds. Teams which did not stay in Münster mostly parked in tents and caravans on the airfield or in an adjoining wood.

Most people arrived on Saturday, July 9, and on Sunday great crowds turned up for an official opening, including notabilities such as Hans Jakobs, brilliant designer of the 1930s. The airfield, many miles out of Münster, is grass-covered, with hangars, offices and a restaurant along one side.

On Monday, 11, a reception by Münster's Burgomeister was laid on at 9am for all who could find his Rathaus in time. Later in the week he paid an official visit to the Rally. Many, many years ago, in a certain country, the local Mayor performed the official opening of a new gliding club by taking a hefty auto-launch in the club's new open primary glider: he performed the first half of a loop and then fell out of his seat. Münster's Mayor was luckier: he had a fine aerial view of his native city from a safe perch in a two-seater.

Monday's task was a circuit round Münster's outskirts: pilots were given a chart showing eight turning points, and had to record on it how many tennis courts they could see from each one. Under a cloudless sky, ten got round the course, Ted Hull being the winner in his Kite 1.

On Tuesday everyone was invited to Oerlinghausen Gliding Centre, reputed the largest in Europe, by air or road. But it had to be road for all, owing to poor lift to only 1700ft.

Wednesday's task was a spot-landing contest in both time and space. Pilots had to fly for exactly 30 minutes and then touch down (not come to rest) exactly on the spot. Penalty for inaccuracy was one point per minute of time or per metre of distance. Competitors were national teams of three and Germany's No. 1 team won with a Weihe, Mü 17 and Meise. Medals for individual performances went to Vermeer (Prefect), Nurville (C-800) and Rodi Morgan (Kite).

That night all were invited to a roast pork barbecue at the local tennis club.

Thursday's weather was too poor for a task but nobody was bored and there was much flying of each other's gliders. That night the British laid on a hangar party in conjunction with the Dutch, who crossed their near-by frontier and returned with a rich variety of cheeses, and the French, who similarly brought their local wines. After food and entertainments everyone settled in to a dancing session which continued into the small hours.

Friday was again taskless, though Rodi Morgan got 3400ft in his Kite 2. The CO of an RAF base 50km away said anyone landing there would be welcomed and given a tow back, but nobody made it.

Saturday's task was duration but please land by 16.00 hrs for the prizegiving ceremony. At this Werner von Arx of Switzerland was declared overall winner with the oldest glider at the rally, his 1936 Minimoa. The meeting had been most capably organised under the direction of Paul Serries of Münster.

LOMOND COUNTRY INN

KINNESWOOD 1 Mile from Scottish Gliding Union, Portmoak

Recently built bedrooms, complete with shower, toilet, TV, radio, etc. at very reasonable prices and a first-class a la carte menu available every evening. Last orders 9.30pm.

Telephone: SCOTLANDWELL (059 284) 253 or 371

BGA & general news

NEW COMPETITIONS COMMITTEE CHAIRMAN

GORDON CAMP

In August Lemmy Tanner resigned as Chairman of the BGA Competitions and Badges Committee (Flying Committee as was). His job has taken him to Aberdeen so he won't be very accessible for a while. Thanks, Lemmy, for chairing your committee so ably for the last year and for coping so well with the problems, great and small, that came your way.

The Executive Committee has appointed Gordon Camp to take over from Lemmy. Gordon has been gliding since 1959, first at the London Club and since 1965 with the RAFGSA. He has an excellent background for the post, having flown in ten Nationals or Euroglide competitions since 1964, been Competitions Secretary of the RAFGSA Executive Council since 1973 and a member of the BGA Comps and Badges Committee for the last year. We wish him a nice, quiet time in what is traditionally one of the "hot seats" in the BGA!

Roger Q. Barrett,
Chairman of the BGA

LUCKY ESCAPE FOR TWO PILOTS

Two British glider pilots bailed out this summer. Simon Redman was competing at Angers when in a mid-air collision with Otto Tönges of Germany, both pilots flying LS-3s, see p207. Anne Burns parachuted from her Nimbus 2 when in difficulties during a flight on August 10. The glider crashed in a field near Andover, Hampshire, and Anne broke her fall by landing in the branches of a tree.

INSTRUMENTS STOLEN

Eight Bantam radio sets were stolen from trailers at North Weald, home of the Essex GC, during the night of June 12. Every trailer door was damaged, as well as two canopies, and other items, such as a ground set, one portable oxygen equipment and two cameras, were also taken. If offered a range of Bantam radios, the Essex Club would be grateful if you would contact them.

GLIDING SITE SAVED

Doncaster and District GC retain their site after a long struggle. Following a public inquiry the Secretary of State refused Doncaster Metropolitan Borough Council's application to build on Doncaster Airport and to close flying and gliding from there, see club report, p231.

S&G PRICE INCREASE

After holding the price of S&G for two years, we regret it will be increased to 65p per copy from the February-March 1978 issue. The annual subscription, which includes postage, will be £4.90.

ROYAL AERO CLUB

We would like to remind you that a member of any BGA club is entitled to become an individual social member of the Royal Aero Club for an annual subscription of £10. There are at present 260 social members, who are able to enjoy all the facilities offered by the "Steering Wheel" at 47 Curzon Street, Mayfair, London, W.1. These include a very good bar and an excellent standard of catering in the restaurant plus a chance to get together with other aviation people. Ask the BGA office for an application form for membership.

OBITUARY

PROF. F. H. LUDLAM

Frank Ludlam, who died on June 3 aged 57, was, in the company of Richard Scorer, very much around in the gliding world in the early 1950s, studying the meteorology of airflow among hills, both at Camphill and on the Clwyd Range in North Wales; but he made his name in the meteorological world by the study of clouds, which had dominated his life from boyhood. Finding that no university offered a course on cloud study, he joined the Meteorological Office and in time achieved world fame in that field for his original methods of study: he would watch individual clouds continously and employ his own original unconventional methods in the investigation of their physics. In an experiment at Cranfield on seeding clouds with salt from a Hercules to produce rain, he had the co-operation of Imperial College Gliding Club's T-21 with a battery of recording instruments in the passenger seat: he described the experiment in *Gliding* (Autumn 1952, p122). Some years later took up a Professorship in the USA. He died of a progressive illness, but had been lucky to survive the last war, in which he had to make a parachute jump when the parachute opened in the cabin. He gathered it in his arms, climbed out and made a safe descent.

A. E. SLATER

LASHAM REGIONALS SPONSORED

The manufacturers of an Italian drink, Punte-Mes, sponsored the Lasham Regionals and competitors and crews soon got to know and like the drink. Our photograph shows the winners with "Miss Punte-Mes" – from left to right, Tony Watson, Ralph Jones, Richard Forrest, Normon Parry, Ray Foot and Roy Gaunt. See p220 for their position in the Regionals. Lashom used a new system of scoring this year. Because it was felt there is some indication that the present handicapping system becomes o little unjust when a glider with a very low handicap competes with those at the other end of the scale, they split entrants into two scoring and task Classes based on spon and handicap, running two concurrent competitions with 20 gliders in each. Group A was for handicaps of less than 101 with Group B for 102 and above, though pilots with Group A gliders were allowed to fly in the other Class, being scored at a handicap of 100. Roy Gaunt chose to fly in Group B and was handicapped at a minimum of 102. Gliders with a handicap of less than 82 were scored at the minimum handicap of 82.

GLIDING CERTIFICATES

DIAMOND GOAL

No.	Name	Club	1977
2/808	R. N. Hunt	Phoenix	31.5
2/809	C. Jaques	Phoenix	31.5
2/810	M. Wood	Phoenix	28.5
2/811	G. S. Forsyth	Phoenix	31.5
2/812	R. J. Thompson	Phoenix	28.5
2/813	Elizabeth Kiely	Phoenix	28.5
2/814	B. Elliott	Phoenix	28.5
2/815	R. Grundy	Bath & Wilts	15.4
2/816	G. D. Peddie	SGU	5.6
2/817	S. C. Dennis	Two Rivers	31.5
2/818	M. S. Parkes	Eagle	31.5
2/819	B. G. Hemstock	Two Rivers	28.5
2/820	T. J. Murphy	Buckminster	28.7.76
2/821	R. Ashurst	Thames Valley	28.5
2/822	R. Brown	Bannerdown	3.7
2/823	Alison Jordan	Imperial College	15.7
2/824	S. L. Kovac	Surrey & Hants	15.7
2/825	B. A. Bateson	Southdown	28.6
2/826	Pamela Roberts	Midland	15.7

DIAMOND HEIGHT

No.	Name	Club	1977
3/294	J. F. Mills	in San Fernando	8.4

GOLD BADGE

No.	Name	Club	1977
610	G. S. Forsyth	Phoenix	31.5
611	R. J. Thompson	Phoenix	28.5
612	Elizabeth Kiely	Phoenix	28.5
613	B. Elliot	Phoenix	28.5
614	G. D. Peddie	SGU	5.6
615	M. S. Parkes	Eagle	31.5
616	R. D. Jackson	Surrey & Hants	5.6
617	T. J. Murphy	Buckminster	22.7.76
618	R. Brown	Bannerdown	3.7
619	S. C. Kovac	Surrey & Hants	15.7

GOLD C HEIGHT

Name	Club	1977
M. Uphill	S Wales	1.5
R. D. Jackson	Surrey & Hants	5.6

GOLD C DISTANCE

Name	Club	1977
C. Jaques	Phoenix	31.5
M. Wood	Phoenix	28.5
G. S. Forsyth	Phoenix	31.5
R. J. Thompson	Phoenix	28.5
Elizabeth Kiely	Phoenix	28.5
B. Elliot	Phoenix	28.5
R. Grundy	Bath & Wilts	15.4
G. D. Peddie	SGU	5.6
S. C. Dennis	Two Rivers	31.5
M. S. Parkes	Eagle	31.5
J. S. Weston	Ulster	1.6
B. G. Hemstock	Two Rivers	28.5
T. J. Murphy	Buckminster	22.7.76
R. Ashurst	Thames Valley	28.5
R. Brown	Bannerdown	3.7
Alison Jordan	Imperial College	15.7
S. C. Kovac	Surrey & Hants	15.7
B. A. Bateson	Southdown	28.6

SILVER C

		Club	1977
4761	A. M. Smith	Coventry	14.5
4762	P. Storey	Lincolnshire	14.5
4763	Joan Fries	Lincolnshire	28.5
4764	W. Gibbons	Anglia	28.5
4765	P. L. Baker	Surrey & Hants	15.5
4766	J. R. T. Bailey	RAE	29.5
4767	P. J. Disdale	Lasham	28.5
4768	G. A. Schulz	Buckminster	28.5
4769	M. Saunders	Surrey & Hants	1.6
4770	C. R. Bagley	Cotswold	25.5
4771	A. J. Hardy	Surrey & Hants	28.5
4772	H. K. Simons	Surrey & Hants	28.5
4773	J. W. Le Cayte	Swindon	8.6
4774	M. K. Field	Chilterns	1.6
4775	A. P. Hatton	Yorkshire	9.6
4776	W. J. Browning	Southdown	29.5
4777	R. C MacLean	SGU	4.6
4778	T. N. Craigie	SGU	22.9.76
4779	D. J. Dimmer	Cotswold	8.6
4780	J. Cook	Coventry	4.6
4781	J. M. Westwood	Northumbria	8.6
4782	J. Elkins	Surrey & Hants	7.6
4783	D. Laraine	Dorset	8.6
4784	D. W. Seed	Blackpool	9.6
4785	J. P. Marriott	Phoenix	12.6
4786	R. Wardle	Phoenix	28.5
4787	Kay Killingray	Phoenix	11.6
4788	L. R. B. Greenhalsh	Herefordshire	22.6
4789	D. C. Walker	SGU	26.6
4790	E. R. Duffin	Airways	28.5
4791	T. T. Green	Oxford	3.7
4792	T. A. Lee	Wrekin	26.6
4793	B. C. Lee	Bath & Wilts	3.7
4794	N. W. Dempster	Bicester	3.7
4795	S. J. F. Cole	Surrey & Hants	28.5
4796	C. B. Hogarth	Devon & Somerset	29.6
4797	J. B. Illidge	Derby & Lancs	26.6
4798	Anne Jones	Bannerdown	2.7
4799	J. W. Mills	Swindon	3.7
4800	M. J. Spalding	Two Rivers	12.6
4801	M. S. Wells	Fenland	3.7
4802	B. J. Szulc	Polish AFA	2.7
4803	D. K. Toft	East Sussex	3.7
4804	B. Trow	Midland	3.7
4805	J. S. Percy	Shropshire	22.5
4806	K. Dudley	SGU	3.7
4807	K. Derby	Bannerdown	4.7
4808	P. F. Walsh	Norfolk	6.7
4809	M. Batkin	Midland	26.6
4810	J. R. Vowles	Kent	6.7
4811	W. F. Woodward	Norfolk	3.7
4812	K. A. McGregor	Doncaster	22.5
4813	S. F. Jennings	Woodspring	7.7
4814	P. J. S. Pearson	Two Rivers	10.7
4815	D. L. Woolf	Midland	16.7
4816	G. Higgins	Yorkshire	16.7
4817	D. J. Saker	Chilterns	3.7
4818	K. D. Barker	Bristol & Glos	3.7
4819	C. N. Burgess	London	21.7
4820	P. Spevac	Phoenix	24.6
4821	D. J. Shephard	SW District	4.7
4822	G. H. Nelson	Trent Valley	16.7
4823	T. M. Brown	Yorkshire	8.6
4824	F. G. Shipley	Buckminster	30.7
4825	R. P. S. Temple	Bicester	29.7
4826	E. S. Allsop	Midland	30.7
4827	Joy French	Bicester	29.7
4828	C. McQuigg	Fulmar	29.7
4829	R. A. Jones	Buckminster	30.7
4830	C. Rhodes	Coventry	30.7
4831	D. Masterson	Blackpool	2.8
4832	B. Purslow	Blackpool	3.8

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OVERSEAS NEWS

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GERMAN NATIONALS

Held at Paderborn from May 29 to June 12 this contest attracted 42 entries in the Standard Class, 20 in the Open and 18 in the 15m Class. François Henry and Jaques Rantet from France flew in the Open Class and Stanislav Wujczak of Poland flew for five days in the Standard Class.

Tasks flown were:

29.5 Open and 15m Class 376km △
Best Open: 99.52km/h; best 15m 91.81km/h
Standard: 306 △ best 83.59km/h
31.5 Open and 15m Class 505km △
Best Open 118.62km/h; best 15m 113.73km/h
Standard: 403km △ best 100.19km/h
1.6 Open: (2x376km △) (752km) best 117.68 km/h
15m and Standard: (2x315km △) (630km)
Best 15m 109.85km/h Std 102.57km/h
6.6 Open: 246km △ best 239.7km
15m and Standard: 205km △
Best one in each Class completed
8.6 15m Class 241km △ best 5= with 194.3km
11.6 Open: (2x260km △) (520km) best 89.81 km/h
15m: (2x220km △) (440km) best 85.07km/h
Standard: 376km △ best 76.03km/h
12.6 Open 333km △ best 308.3km
15m Class 315km △ best 227.9km
Standard: 230km △ best 56.31km/h

Airspace restrictions prevented the organisers setting a 1000km △ on June 1. On this day nine Open pilots averaged between 117.68 and 115.66km/h and another six between 109.67 and 101.80km/h. Slowest speed for the task was 94.49km/h! In the 15m Class the first ten averaged between 108.85 and 101.27 km/h. Two pilots landed out. In the Standard Class only Wujczak of Poland reached 102.57km/h but 23 averaged between 99.45 and 92.67km/h. All but six pilots completed the course. Total kms flown on this day alone was 53,500! Start-line crossings for the Open were made from 09.18.50 to 09.26.35; the Standard from 09.51.18 to 09.57.56 with one at 10.02.21 and the 15m Class were seen across between 10.07.58 and 10.12.30hrs. June 1, 1977, was a day which will no doubt find a place in the annals of German competition flying.

The 15m class made up of nine LS-3, five AS-20 and one each of Mininimbus, Mosquito, DG-200 and a PIK 20b flew two of the Open Class tasks and two of the Standard thus giving some comparison notes which will be closely scrutinised by those interested.

The German team for the World Championships, 1978 are: Erwin Müller, Klaus Ahrens, Helmut Reichmann and Hans Glöckl.

Final leading results: Open Class 1. Müller, ASW-17, 5803.753pts; 2. Rantet, France, Nimbus 2c, 5708.002pts; 3. Gantenbrink, Nimbus 2b, 5618.078pts. 15m Class 1. Ahrens, ASW-20, 5892.280pts; 2. Reichmann, LS-3, 5872.653pts; 3. Peter, LS-3, 5807.286pts. Standard Class 1. Glöckl, LS-1f, 4882.427pts; 2. Schreiber, Std Cirrus, 4877.341pts and 3. Gai, LS-1f, 4764.970pts.

RECORDS HOMOLOGATED

World single-seaters: Triangular distance, 1063.53km, H-W. Grosse, W. Germany (in Australia), ASW-17, 18.1.1977. 1000km triangle, 94.54km/h, H-W. Grosse, W. Germany (in Australia), 18.1.1977; 750km triangle, 134km/h, R. J. Rowe, Australia, Nimbus 2, 15.2.1977.

Motor gliders: World multi-seaters Height gain, 3428m, D. Mayer and F. Adler, W. Germany, K-16, 22.3.1977.

Subject to homologation: World single-seaters, Goal and return, 1616km, K. H. Striedieck, USA, ASW-17, 9.5.1977. Multi-seaters; Triangular distance, 618.5km, F. Piludu and C. Marchetti, Italy (in Finland), 21.6.1977. Single-seaters Women: Straight distance, 810km, Adela Dankowska, Poland, Jantar 1, 19.4.1977.

Multi-seaters Women: Goal and return. 578km, Adela Dankowska and E. Jagiello, Poland, Halny, 26.5.1977. **Motor Gliders,** World Single-seaters: Height gain, 6650m, H. Lehmann, W. Germany, RF-5b, 4.5.1977. Absolute height 8366m, H. Lehmann, W. Germany, RF-5b, 4.5.1977. 300km triangle, 84km/h, W. Collee, W. Germany, Nimbus 2m, 31.5.1977. Multi-seaters: Goal and return, 394km, G. Jacobs and W. Sandermann, SF-25e, 28.5.1977.

Previous **British National** Single-seaters: Height gain, 8870m, G. J. Rondel, Olympia 2b, 18.6.1960. Absolute height, 11500m, H. C. N. Goodhart, in USA, 1-23, 12.5.1955. **UK Local** Single-seaters: Height gain, 8870m, G. J. Rondel, Olympia 2b, 18.6.1960. Absolute height, G. J. Rondel, 9300m, Olympia 2b, 18.6.1960. (See p177 August issue).

CONTEST OF ALTERNATIVES

The 44 pilots in the Standard Class and nine in the Club Class spent most of their time on the ground during the Dutch Nationals held at Terlet from June 12-26.

The Club Class managed the minimum four days to make it a contest but the Standard Class with only three days was declared a no-contest.

On June 12 both Classes were set a 202.5km triangle which was completed by most competitors. Best speed in the Standard was 79.5km/h and 59.8km/h in the Club Class.

A task was attempted on June 13 but a no-contest resulted in both Classes.

June 21 saw a 202.5km for the Standard and 180km triangle for the Club Class. Best speeds were 61.4 and 42km/h respectively.

June 22. A 151km triangle for the Standard

had to be cancelled. The Club Class flew the standby task a 108km triangle which was completed by one pilot. The day was devalued to 757 max points.

June 23. A 285km quadrilateral for the Standard and 202.5km triangle for the Club Class. No-one completed best distances 219km for the Standard and 180km for the Club Class.

Despite this gloomy flying story an extensive alternative programme kept everyone in excellent spirits so that a holiday atmosphere prevailed throughout the non-flying days.

Final leading results: Standard Class 1. Teuling, Std Cirrus, 2887pts; 2. Paré, Std Cirrus, 2812pts; 3. Musters, LS-3, 2623pts. Club Class: 1. Kuypers, Club Libelle, 3230pts; 2. Huub Selen, K-6CR, 3118pts; 3. Schok, K-6E, 3094pts.

US 15m NATIONALS

Erica Scurr of *Soaring* sends an account of spectacular performances during the USA Fifteen-Metre Nationals at Hobbs, New Mexico, attributed to a heat wave over a large part of the United States in July combined with a prolonged drought over the Western plains. Starting on July 12, 64 pilots flew triangles varying from 173 miles on Day 1 to 352.24 miles (566km) on Day 7. Except for Herb Mozer (LS-3) who won on two consecutive days and reached 79mph (127km/h) on the second day, a different pilot won every day. But Karl Striedieck (ASW-17 with clipped wings), who won on the first day, kept in the lead throughout.

On July 17 all 64 pilots completed a 317 mile (510km) triangle and ten of them broke the existing US 500km record. Up till then there had only been 13 out-landings among 384 flights.

Other daily winners were "Woody" Woodward (ASW-20), Wally Scott (1-35A), Billy Hill (Zuni), A. J. Smith (Mosquito) and Dick Johnson (Pik 20D).

Leading results: Karl Striedeck 8533pts, Ben Greene (LS-3) 8220pts, Dick Johnson 8185pts and Wally Scott 8152pts. A. J. Smith was 11th with 7871pts.

AVIATION CONFERENCE

The 20th Israel annual conference on Aviation and Astronautics will be held in Israel on February 22-23, 1978. For further details contact the Secretary, M. Nimrod, c/o Department of Aeronautical Engineering Technion, Israel Institute of Technology, Haifa, Israel.

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DYNAMIC SOARING ACHIEVED

Ingo Renner, the current Standard Class World Champion, informs *Soaring* that he has achieved dynamic soaring by exploiting differing wind speeds above and below an inversion by means of a technique similar to that of an albatross when using the strong wind velocity gradient close above a sea surface.

Renner has made four such flights totalling over an hour, the longest being 40 minutes. The first was in an H-301 Libelle and the others were in a PIK-20 which he found more suitable. The minimum wind gradient required was a wind increase of 10m/sec (22mph) through each height increase of 100m, throughout a total height increase of at least 500ft (150m).

He has tried flight paths of zigzag, oval and figure-of-eight shapes, but without preference for any one; but what is important is to start with a dive, followed shortly by the start of a bank, then a pull-up into a climbing turn, in which he has subjected himself to 4*g*.

A problem is to find when a suitable inversion is present: sounding balloons are expensive.

GERMAN FEMININE RECORDS

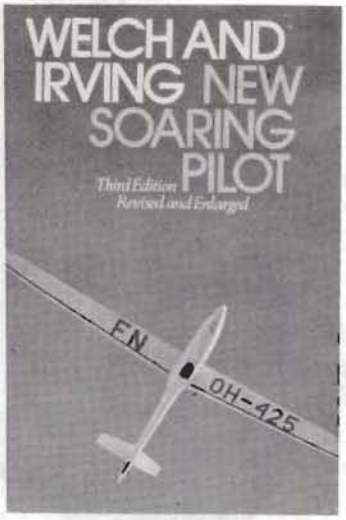
On May 28 Chrystal Schaumburg and Karin Haase, in an ASK-13, set up a 300km triangle record at 44·06km/h.

On the same day Hanna Reitsch set up a German feminine out-and-return record of 638·77km, exceeding by more than 100km her previous record of June 1970. Next day she attempted to beat the World record for this feat, held by Adela Dankowska of Poland, but failed by about 50km. *Luftsport.*

HOW PRIMARIES PERFORM

Many have wondered how Open Primary gliders, in which *ab-initios* used to be trained, compare with modern sailplanes, for which data are so often published. *Flieger Revue* gives a table of data for 40 representative designs up to the 1976 Jantar, and starting with the SG-38 Open Primary of 1938 for which the following data are given:–

Span 10.4m, aspect ratio 6.76, empty weight 110kg, Max flying weight 210kg, wing loading 12.2 kg/m², best gliding ratio 10 at 52km/h (32.2mph), Min sink 1.3m/sec at 48km/h (30mph), Min speed 40km/h (25mph), Max speed 115km/h. From these figures it can be calculated that the minimum loss of height needed to qualify for the A certificate is 128ft.



This is the third edition of this comprehensive manual by Ann and Lorne Welch and Frank Irving. It has been extensively revised and expanded to take account of recent developments in glider design, instrumentotion and flying techniques.

Reviewing the previous edition *Flight International* commented: 'Quite the best book available for any pilot who wishes to improve himself.'

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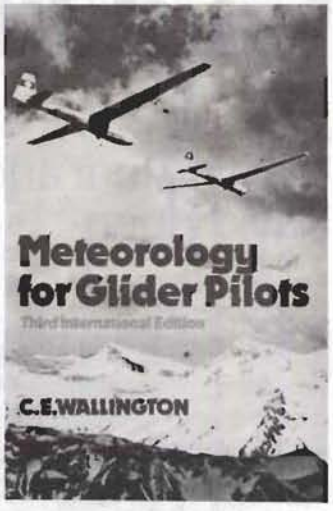

For this third edition C. E. Wallington has reshaped the book according to the way pilots have tended to use it and has revised it to include recent developments.

Reviewing the second edition, *Air Pictorial* commented: 'It has become the "standard work" on the subject.'

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BOOK REVIEWS

On Being A Bird by Philip Wills. Published by David & Charles. Available from the BGA at £4.99 including p&p.

Philip Wills' classic has been republished in a handsomly bound version. It is 24 years since the book was first launched and it reads just as freshly as it did then. Prince Philip says quite rightly in his Forward that "Doers are not always writers, but this book proves that the author controls his pen with the same flair and enthusiasm as he flew his beloved gliders."

It is appropriate that Philip Wills wrote this book shortly after becoming Britain's first World Champion and that the new edition has followed George Lee's success last year in becoming our second World Champion.

OBAB is a very nostalgic book to anyone who has been involved in gliding for the last 30 years and I am sure that in his heart Philip Wills regrets the days of the free ranging competition pilot are gone – although he has done his best in encouraging Competition Enterprise in the last few years.

This book is beaurifully written and is part text book, part autobiography and part "in memoriam" to his great frlend, Kit Nicholson.

I very much enjoyed OBAB again after 20 years and recommend it to all those who haven't yet read it – it will bring you down to earth in a curious way by encouraging you to go and search the skies.

B. H. Bryce-Smith.

Static Stability and Control of Sailplanes by Piero Morelli, OSTIV, 1976. Available from the OSTIV Secretariat, Van Halewijnplein 37, Voorburg, Netherlands, at $12.00.

This comprehensive monograph by Professor Morelli, Chairman of the OSTIV Sailplane Development Panel, is of such excellence that it deserves a wider circulation than it is likely to achieve in gliding circles. For although it is all concerned with incompressible aerodynamics and the illustrations and examples relate specifically to sailplanes, most of the material is more generally applicable: it would be a distinguished addition to the bookshelves of anyone concerned with the design of MPA's, sailplanes or light aeroplanes.

The first section, on Longitudinal Equilibrium, Static Stability and Control, follows a fairly well-trodden path but with an unusual degree of rigour and elegance in the analysis. Moreover, as befits an author with several successful sailplane designs to his credit, there are frequent treatments of some slightly unusual topics such as the elevator angle for landing. Surprisingly, there is no treatment of all-moving tails and although various British references are cited, there is no mention of the fundamental work of Gates and Lyon.

The second section, on Lateral and Directional Static Stability and Control, is unusual because it deals with a variety of topics normally regarded as special cases of dynamic situations. Stability derivatives are inevitably involved and the notation is American, often leading to unwieldly expressions. In fact, it goes further than the title suggests since the treatment of aileron effectiveness includes the transient motion and the effect of wing torsional deformation.

The diagrams are sometimes a little small and suffer from some hand-written symbols but they illustrate the text very adequately. The general quality of the production is good, as indeed it should be at about ten cents per page. There is a comprehensive list of symbols. The references mention most of the standard works including a useful list of relevant RAeS Data Sheets.

Altogether a fine piece of work by an author whose ability to combine theory and practice must be unique, and a credit to OSTIV.

F. G. IRVING

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FUEL CONSUMPTION OF TUG AIRCRAFT

Dear Editor,

Contribution by Chris Rollings on cost effective aerotowing is welcome and will, I hope, set people thinking about tug usage. I, also, have been conducting an investigation into tug operations and plan to offer S&G an article in the future. I feel, however, that one aspect of the Rollings analysis should not pass without some immediate comment: that concerns his figures for relative fuel consumption of different tug types.

Thus, I have done an analysis of fuel used in the climb based upon achievable climb rates for different tug types and glider combinations. This is summarised below, the glider on tow in this case being a K-13 of 1000lbs AUW.

Tug	*Fuel to 2000ft galls*	*Relative consumption*
Super Cub 180	.49	1.00
Super Cub 150	.54	1.09
Citabria 150	.56	1.13
Super Cub 135	.58	1.18
Pawnee 235	.61	1.24
Chipmunk 180	.64	1.29
Wilga	.65	1.32
Chipmunk 145	.69	1.40

This table shows my considerable disagreement with Chris Rollings' comparison of *eg* the Super Cub 150 and Chipmunk. The fundamental reason is that the Chipmunk has an operating weight some 450lbs more than that of the Super Cub; heaving up the extra weight means more work done in the climb, therefore a lower climb rate - and 28% more fuel used.

Further, I have done a careful analysis of fuel usage in the Super Cub 150 and claim with some confidence fuel consumption per tow as under:
2000ft tows, all types - average 0.84 gallons per tow.
1000ft tows, all types - average 0.61 gallons per tow.
(These figures include descent, taxy times and waiting on ground)

On this basis, Super Cub 150 tows to 2000ft average out at around £0.70 for fuel and Chipmunk 145 becomes £0.90. The difference is considerable in the context of the busy club.

Welwyn Garden City, Herts. TERRY McMULLIN

PLEASE LET VISITORS FLY

Dear Editor,

There seems to be a trend among gliding clubs popular with visiting pilots to abolish daily or weekly temporary memberships and to require them to become full members before flying solo on the club machines. This policy was adopted by the Midland GC some years ago and now we hear that the directors of the SGU have made a similar rule at Portmoak, a very popular site with visitors.

In the Midland GC case, and presumably that of the SGU too, the decision followed a higher-than-normal accident rate among visiting solo pilots. But a continuation of the trend seems certain gravely to limit what is one of the particular attractions of the British gliding movement - the ability to visit other clubs in distant parts of the country, receive a friendly welcome and in return for a modest temporary subscription (and, of course, reciprocity), together with normal flying fees, freely use their facilities.

In Ulster we have a particular interest in this situation continuing - the very limited gliding facilities available in Ireland, north or south, make it attractive to visit other clubs whenever business travel to Britain presents one with the opportunity. But, similarly, there is little opportunity to take advantage of a full flying membership of a distant club once it has been purchased - and it can make one short visit in the course of a year prohibitively expensive.

If the Portmoak report is true, can one ask the SGU directors to reconsider their decision, and similarly the Midland GC committee and that of any other club considering the introduction of the same policy? Could not the point be met by requiring visiting soloists to pay a temporary membership fee together with a deposit equal to the excess on the insurance policy for whatever aircraft they are to fly, the latter to be returned at the end of the visit if the pilot has inflicted no damage on the fleet?

In the particular case of Portmoak, which has long catered for a large volume of visitors, I venture to suggest that a full-membership rule will result in a dramatic reduction in the popularity of this site and, possibly, in the prosperity of the SGU too.

Belfast. BOB RODWELL

(It would be interesting to hear the opinions of the SGU directors on this topic and we hope they will reply to this letter in a future issue.-ED).

THE VORTEX INCIDENT AT LASHAM

Dear Editor,

I have just returned from holiday and re-read an item in the June issue (p 128) entitled "Vortex Creates Havoc at Lasham". This is not so, the K-13 which crashed caused havoc. The item further states, ". . . a K-13 on finals was 'hit' by the vortex of a Boeing 727". Again this is not so, the K-13 flew into the vortex of its own accord. The vortex was placed precisely for all to see.

Surely the remains of enough light aircraft are littering the world's airports as a testimonial to the dangers of a jet vortex? Surely an airfield like Lasham should halt all proceedings for at least ten to 15 minutes subsequent to a jet departure?

I occasionally have to fly motorised gliders to or from jet infested runways. I refuse to accept a start or landing within ten minutes of a normal jet, longer for a 747. My life is worth far more than ten minutes patience, that of my passenger infinitely more.

Cologne, W. Germany. JOHN PEACOCK

Derek Piggott, CFI of Lasham Gliding Society, replies.

There are various problems associated with large scale glider operations on an airfield with occasional traffic, not the least of which is how to keep the gliders from coming down when the soaring conditions deteriorate. A motor glider is better off since it can restart and stand off if necessary.

The accident at Lasham was the result of a number of factors - accidents seldom are simple. At present, the details are subject to investigation, etc and therefore I am not in a position to explain all the contributory causes.

The instructor was put in a difficult situation as he was already committed to turning in to land well up the airfield as he was short of height. As he flew down the airfield the airliner was sitting at the end of the runway, apparently waiting to back track and there was no reason to expect it to take-off. His only alternative was an unpremeditated field landing from only a few hundred feet.

In a world where gliders are often grounded for up to an hour for any powered aircraft movement, we are happy to have good co-operation at our airfield to keep delays to the minimum necessary for safety.

QUERIES ON PROF EPPLER'S ARTICLE

Dear Editor,

The article by Professor Eppler (S&G, June, p110) makes interesting reading and I know we would like more articles in this vein. However, this particular article poses more questions for me than it answers.

It states that the profile drag decreases with increasing Reynolds number. Is this correct? Certainly the profile drag coefficient will decrease but will the absolute value of profile drag decrease over the range of Reynolds number applicable to sailplanes?

A further confusion between coefficient and absolute value occurs later in the article in the discussion on parasitic drag (which is not defined). The assertion is correct that the coefficient of parasitic drag is greater for a glider of smaller wing area, but this is due to the reduction in wing area, not to an increase in parasitic drag. Thus it is not clear to me why the slow speed difference between Glider 2 and 3 is affected by parasitic drag. Certainly Glider 3, with a smaller wing area, will have a smaller wing pitching

moment and thus a smaller trim drag (presumably part of the parasitic drag), which is a possible benefit at both ends of the speed range.

In the same way that one can't calculate the advantage of the greater manoeuvrability of a smaller glider, one can't calculate the advantage of the greater Max glide angle of Glider 3 in crossing difficult areas of weather, although the advantage is indisputable and not lightly sacrificed.

The comparison between Gliders 2 and 3 should include a ballasted version of 3, which, having a smaller wing area, would require proportionally less ballast for the same high speed performance, or conversely, would have a better high speed performance with the same ballast.

While I would welcome correction, I am of the persuasion that 15m sailplane aspect ratios should remain in the region of 22, possibly increasing a little, only if the technology becomes available to make large weight reductions.

Bois d'Arcy, France. E. J. C. VANN

Comment on Mr. Vann's observations by Frank Irving.

In the original translation of Professor Eppler's article there was frequent confusion between drag coefficients and actual drags: evidently, some remains. However, it is fairly clear from the context and Fig 4 that he means that the profile drag coefficient will decrease with increasing Reynolds number.

The "parasitic drag" appears to be the contribution to the profile drag of all parts other than the wing, so its coefficient is inversely proportional to the wing area, other things being equal. The total profile drag coefficient of Glider 2 will therefore be less than that of Glider 3 and a lower profile drag coefficent tends to improve features of the performance such as Min sink and best glide angle. However Gliders 2a and 2b have higher span loadings than Glider 3 so, at a given speed, Glider 3 has the lowest induced drag. At low speeds - when induced drag is a large proportion of the total - Glider 3 has generally the best performance.

As Mr. Vann suggests, the comparison between the performance of the various gliders is somewhat restricted in scope because it is by no means clear what the optimum wing loading would be for each glider in each thermal. The reference cited below represents a rather more detailed investigation: it considers a large variety of 15m gliders in 15 combinations of thermal strength and radius. The optimum wing loading for each combination of glider and thermal is calculated (when it comes within reasonable limits) and the calculations are then extended to consider the overall "best" glider in representative thermals and the most likely optimum compromise for a wide range of thermal conditions, bearing in mind practicable structure weights. It turns out that, provided one always operates at the optimum wing loading, cross-country performance is surprisingly insensitive to aspect ratio: for operation in 6kt, 500ft-radius thermals an aspect ratio of 22 is about optimum but a good overall compromise seems to be nearer 18. However, the performance differences (in terms of average cross-country speed) are of the order of 1% over a range of aspect ratios between 16 and 25, always given the correct ballast. So, in selecting an aspect ratio, performance is not a very important consideration. A high aspect ratio will give a very manageable glider, but the structure will tend to be expensive because one needs a very low empty weight: a low aspect ratio gives an inherently heavier machine but the structure need not be so refined.

Reference: Irving, F.G. "Computer Analysis of the Performance of 15m Sailplanes". (Motorless Flight Research 1972, NASA CR-2315).

WE CAN DO IT

Dear Editor,

For years I have been reading comments in gliding magazines that "what we need is a good home-built glider design". (See S&G, August, "BGA Approved Design for Home-Built Gliders", p180.) Let's now change this to "what we are doing about it".

Over the last three years I have been engaged in building a flying machine (not going to tell you what it is as you may think I'm not a gliding enthusiast - and I am) and this has opened my mind to the fact that making aeroplanes is a very satisfying, productive and absorbing hobby. The enthusiasts during the 1930s had a wide range of designs to choose from and these gliders helped establish the movement as we know it. If you try and build a glider now there are very few designs you can obtain and they have one thing in common - they take a long time to build because they are trying to compete with professional glider performance.

Now all this is obvious and you have heard it all before, but a comment by Stan Hall in *"Soaring"* made me suspect that we could get the much needed design as follows. The key to the whole matter is *time* - better a glider that takes a year and gets finished, than one that should take five but never gets done.

Let's establish a design competition and hopefully a competitive class for a glider that can be made in say 500 hours (or 1000 hours?) Let's not start by saying that it must have a 30:1 glide angle but do the best we can within the time scale. The glider must first of all be makeable, one would be useless but 50 dotted round the world make a Class and ensure they have a resale value - this is important. So I will say it again, establish a construction time and be as clever as you can.

The Kremer prize has proved an incredible boost for man-powered flight and I would like to make a series of propositions.

1) A patron donates a prize for a world design competition.
2) The purpose to establish the best "stipulated construction time" glider.
3) The competition to be publicised outside the gliding movement, for instance there is vast talent in the modelling world. An appeal to the Society of Model Aeronautical Engineers and Academy of Model Aeronautics plus the wide range of modelling magazines would certainly produce a flood of designs.

Do I hear muttering? Let's try and answer a few of the immediate questions.

1) Why trouble? *Because it is needed, we need a modern Grunau to bridge the gap between Rogallo and Nimbus.*
2) It will not have any performance. *Not true, it may be possible to approach 25:1.*
3) It is no fun unless it can do a Diamond goal. *Are you sure? The first person to get Silver distance in a hang glider will get quite a thrill and anyhow perhaps it could get a Diamond!*
4) Only qualified designers can produce gliders. *To be truthful I feel this is rather insulting to the rest of the world. I am quite certain that not every clever person is a glider designer or pilot, although every glider designer or pilot is, I am sure, very clever!*
5) You can not make a glider quickly using spruce, ply and glue. *I will let you into a secret - foam flies.*
6) It will be difficult to test the designs to see how they fly. *Not so, a ¼ scale radio controlled version would tell a vast amount about performance and stability - I will admit, however, it would be difficult to assess control feel from the models.*
7) It is all dreams. *Perhaps, but let me tell you a story about a skilled aeromodeller who produced a Volkswagen powered single-seat aircraft very similar in style and construction to a modern aerobatic radio controlled model - foam wings and all. He got 180 mph cruise and sold thousands of sets of plans.*

So there it is, an idea for a design competition. Before you reach for your pens to crucify the whole scheme I will tell you that I know the edges need smoothing out. If you are reaching for your cheque book, you could be making a contribution to gliding as big as the dinghy class made to sailing; talking about boats I think I will break a bottle over this letter and call the competition the "Bill Bloggs Glider" - that is, of course, providing Bill is the patron.

Twickenham, London. MICHAEL BEACH

ARE THERMALS AQUALS?

Dear Editor,

O level physics teaches us that one molecular weight of gas occupies 22.4 litres of space at normal temperature and pressure. The molecular weight of oxygen and nitrogen are 32 and 28 respectively so that 22.4 litres of air will weigh about 29 grams. The molecular weight of water is 18 so that water is, at least in its vapour form, lighter than air so that moist air at the same temperature and pressure as dry air will be more buoyant. This explains why there are often cumulus clouds at the tops of thermals; the thermals are full of water.

An interesting illustration of this is that when jet aircraft are climbing away from take-off their wings are shrouded in condensation as they pass under cumulus cloud. I appreciate that as they pass through rising air the angle of attack rises and subsequently the pressure on the upper surface of the wing falls, but I don't think this is enough to account for it.

There are numerous glider pilots who fly military or commercial jets in their spare time so I would like to ask them for their observations of this phonomenon.

Marlow Common, Bucks BRENNIG JAMES

club news

The RAFGSA East Midlands Club fleet at Wittering – l to r, K-8, K-7, SF-26 and K-4.

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 Cambridge 47725, to arrive not later than October 12 and for the February-March 1978 issue to arrive not later than December 2.
August 20, 1977
GILLIAN BRYCE-SMITH

BLACKPOOL & FYLDE

Our east facing ridges have been useful on several days recently, enabling us to reach 7km from base. This makes a very impressive air experience flight, also lucrative for the club, and a valuable advanced training exercise.

On July 24, several pilots climbed into wave. The best flight was by Peter Philpot who reached 4800ft above the site and took the K-6 on a 90km tour to Lancaster and Settle without getting higher.

Ted Massey's Silver climb on August 6 was notable for persistence, on a day of modest thermals. Hill lift kept the Skylark airborne through wide blue patches, until three hours later he squeezed that last few hundred feet to reach 3600.

Visitors have commented on the bright colour schemes of our metal and wooden gliders. One of our two Fauvettes is a very visible yellow and black, and the SD-3 now has a flame fuselage and wing tips. We go for blocks of contrasting colours which show up against hazy horizons. The EoN Baby was airborne again in time to join the Vintage Club rally in Münster.

K.E.

BORDERS

Our second open day turned out to be a near disaster because of very poor weather and non-arrival of promised participants with aircraft. Those that did make it had some epic journeys and our particular thanks must go to Les Richardson and crew from Sunderland and John Towers from Redcar who performed at no cost to the club.

Our hangar has arrived, albeit in sections, and we hope that it will be erected before the autumn is here.

Paul Winkler went solo on his 16th birthday watched by his father and mother. Paul is trying to get some time in now to enable him to fly Dad's syndicate Oly 2. Andy Bardgett completed his Silver C with a flight to Haddington golf course landing on the practice tee. Since the Captain's cup was in progress a certain amount of excitement was caused!

The summer expedition to Portmoak did not give as good flying as expected due to a week of east winds but everyone achieved something to add to their experience.

Tom Paxton and Bill Ferguson have completed long overdue instructors' courses at Lasham and their particular expertise will be welcome.

G.B.

BRISTOL & GLOUCESTERSHIRE

In an effort to streamline the daily running of the club we have regretfully had to dispense with the services of Ray Jefferies, our manager for several years. Hopefully Ray will continue to visit us as an active member. To cover the gap left by Ray, Chalky White, our resident tug and glider repairer, will cover such things as general office work, bar ordering and launching equipment maintenance.

Soaring at Nympsfield has, like everywhere else, left a great deal to be desired with only the odd 300km triangle completed. Even our competitions suffered due to adverse weather and the less said the better about the task week.

We are planning another assault *en masse* to Shobdon during October. The fleet is back to full strength with three two-seaters and four solo machines on the go. Our Bocian looks like Chalky's tribute to Her Majesty, being resplendent in red, white and blue.

R.A.R.

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CAMBRIDGE UNIVERSITY

It has not been a great year and the longest flights so far have been by John Glossop, two 400kms. The longest uncompleted flights have been flown by Colin Dews – reaching persistently for his 500km Diamond distance. He claims not to need maps anymore!

There have been more solos than last year, a number of Bronze Cs and members have done well in a number of competitions.

Duxford is in the process of having a motorway gouged across the eastern end of the runway and power flying is on the increase – yet again.

S.N.L.

CORNISH

Over the years we have kept a fairly constant membership of around 120 and we have some of the keenest pilots in the country. We have been trying out our home-grown winch with great success – launches have been in excess of 1000ft. We are now constructing a self-laying cable winch.

In support of the "Sport for All" ideal we have a flying paraplegic who regularly goes up in a K-13 with CFI, John Turner.

Our former CFI, Dave Pentecost, has been made a life member in recognition of his services to the club.

G.G.D.

COTSWOLD

Larry Bleaken (Kestrel 19) flew a 500km triangle to give him Diamond distance and John Holland Snr achieved his Diamond goal with a 300km triangle.

Our open day is on August 27 when we hope to give air-experience flights non-stop and are also planning other attractions. This event is followed by our late summer task week.

P.G.

COVENTRY

The club task week was once again a grand success. The week's weather wasn't as good as last year but we managed seven task days and

lots of field landings without any broken gliders. The last Saturday resulted in a new club record of 170hrs flying in one day. Once again the task week organiser managed to win his Class (Club Bocian) and also scored the greatest number of points overall.

Lemmy Tanner has resigned as CFI as he is to start a new job in Scotland. We wish him well and welcome Ron Davidson as our new CFI.

C.T.

DEESIDE

Our task week in August was won by William Stephen (DG-100) as best pilot, and the club K-6E was best glider, flown by Alan Middleton and our new CFI, Terry Cawthorne. Three thermic days produced some 100km triangles. August also saw the first flight of an Aboyne based syndicate Sky, (led by Angus Paterson).

With the help of a Scottish Tourist Board 40% grant we are to base a second tug (Rallye Commodore 180) full-time at Aboyne so that we can offer summer courses in 1978 and a more reliable launching service to our wave hungry visitors in spring and autumn.

R.H.

DERBYSHIRE & LANCASHIRE

Despite the poor summer young and old have made much progress. At one end of the scale 18-year-old John Illidge has completed his Silver C with a distance flight in a syndicate Skylark 4. At the other end Geoff Prestwich, who has four grandchildren, has gone solo, converted to the K-8 and completed two Bronze C flights, all in under a year.

Alan Roberts has recently completed his Bronze C and converted to the club Oly 463, whilst congratulations to Alan Worral on going solo. Early in the season John Humpherson completed two 300km triangles from Shobdon and during a more recent visit there Jim Linchahaun (Oly 2B) and Bill Severn and Ken Richardson (K-6CR) did Silver distance flights.

Val Powell has just returned triumphant from an instructors' course, whilst Peter Blacklin (Std Libelle) came fifth in the Lasham Regionals' Group A. (See Regionals' Results, p220).

Our airfield, despite a great deal of work over the previous year, still gives the higher performance ships a rough time (including Dart undercarriages) and more drastic surgery is imminent. It is planned to completely re-work the whole site in three phases over the next two years. In the process it will almost certainly need restricted access to vehicles on the airfields and may well mean restrictions on flying during certain wind directions.

C.D.R.

DEVON & SOMERSET

After a disastrous Competition Enterprise (see p208) and an only slightly better task week, we have finally begun to get our share of good soaring weather. Half-hour Bronze legs abound, thanks to the K-8, and we have had some very successful course weeks.

Kevin Jenkins, who soloed on his 16th birthday in January, gained his Bronze C by climbing to Silver height in August, the day that Les Hill kept his B-4 up for five hours. Julian Peters has gone solo.

An expedition to Camphill by several members was very successful and another trip, this time to Scotland, is planned for next spring. At the moment we are inundated with holidaymakers, looking for something different than just laze on the beach. A club "duration" record was set up during August when our Secretary, Andrew Blackburn, drove the winch for six hours.

M.G.P.

DONCASTER & DISTRICT

Heroes of Jubilee year at Doncaster must be two members whose combined efforts have made one of the greatest ever contributions to gliding in Yorkshire. They are Joe Millward and Wendy Mills who were the spearheads in presenting our case at the recent public inquiry. They spent many late nights and good flying days collecting information necessary to state our case. Against what seemed to all of us as insurmountable odds, they fought the combined strength of the various departments of our local Metropolitan Authority.

In the report, the Secretary of State indicated that part of the airport could be used for recreation, open space and an hotel, but that gliding is of particular importance in this area and that the proposed residential and commercial developments were not shown to be needed or justified.

We would thank all who wrote in support of our fight and those who helped, particularly Bill Scull who gave evidence so well after a marathon drive from Lasham.

Soaring at Doncaster is in full swing, and, with the annual prizegivings looming, competition for the various trophies is hotting up. Eric Hamil holds the record for the longest flight in a club glider. John Bridgett, in his syndicate Pirat, flew to Dishforth for Silver distance, only to find that his barograph was still at Doncaster! Recent first solos include Martin Perry, Steve "Catweazle" Issatt, David Broadhead, Glyn Carter, John Carr and Steve Hinchcliffe.

P.Y.

DORSET

We have welcomed many visitors from overseas as well as UK pilots using the airfield for various tasks. There has been concern about the reduction of numbers reaching solo standard, so we are particularly pleased to congratulate Greg Harrington on going solo.

Early solo pilots have been frustrated by the two accidents to the Swallow. The instructors' course is now over and Messrs R. Little, D. Cracknell and R. Ough are grateful to Alan Palmer for providing them with their assistant instructor rating.

B. Mc.

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DUNKESWELL

Our thanks to our CFI, Dave Bindon, for his unremitting hard work during the past year, when he has almost completely rebuilt the T-53 and restored it to the club in time for the second course and some splendid soaring.

The courses have produced several first solos and Bronze legs. On the June course David Hoskins went solo and David Spedding gained his Bronze, while in July Bob Eames claimed his Bronze, Mike Palmer and Chris Mann went solo and Adrian Lloyd soloed and has his Bronze C.

For added safety to ourselves and all the other people who use Dunkeswell, the launch and cable retrieve crew now wear dayglow orange jackets - and very fetching they look, too!

A.C.P.

EAST SUSSEX

Earlier this season we had a visit from Southern Television, who spent a day on the field filming and conducting interviews. Details of broadcasting times are at present rather vague, but it seems that the material might make a 15 minute programme sometime - which could possibly be East Sussex's answer to "Airport 77".

Our new hangar is now complete and has proved to be an enormous asset as regards the time saved in rigging and de-rigging. One of its inaugural functions will be to accommodate a barbecue, arranged for September.

The soaring week in August was a huge success and weather conditions were pretty good most of the time. Kent GC lent us a tug for one of the days, which was much appreciated. Club achievements during the week included several first solo flights, a number of Bronze legs and one impressive cross-country trip.

D.E.C.

ESSEX & SUFFOLK

One brief period in August produced some excellent soaring conditions. Frank Bodian (K-6E) flew to Bassingbourn and thought he had all three legs of his Silver only to find the barograph was u/s. The next day he went to Bovingdon, to gain his Silver C in one flight.

Ian Hodge (Pirat) and Claire Harris (K-6CR) gained their duration on the same day and Pete Brown (K-6) did his five hours and followed up with a Silver distance flight. Tony Langford took his K-6CR to North Weald for Silver distance.

Lou Edmunds celebrated his 61st birthday by going solo and other first solos were by John Whiddett and Alan Dutt. Bronze legs have been flown by Neville Bleach, Alan Kitchen, Bob Mercier and Richard Harris.

During our summer flying week we had a visitor from Germany who went solo and two flights later achieved his Bronze hour. On one day we had a succession of lenticulars but in spite of several high tows no real contact was made. Then we had a prime sea breeze front which the whole fleet soared.

Elvin Hibbard, our CFI for the past five years, has handed over to Pete Wilby. Our thanks to Elvin for all his work and best wishes to Pete. John Wallis, who was our chief tug pilot, leaves

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us to go south and his successor is Bert Bearcroft. Many thanks, John.

We now have more members than ever before; a lot of the credit is due to Bob Bousefield who finds selling memberships easier than his usual line – dresses. We are looking forward to the arrival of a new K-13, the first new glider the club has owned.

C.C.S.

HIGHLAND

Saturday, June 18, became the last day of a gliding era when our former site, Milltown airfield, was irrevocably closed. Several of our members took the K-6CR over from Dallachy to join in the Fulmar Club's longest day celebrations there, and to experience for the last time the heady delights of landing on acres of relatively smooth turf and the more dubious joys of the autotow.

We have two new instructors, George Hobben and Jim Tait. We have welcomed several new members this summer, including Ray Harrison, an ex-instructor.

Our new hangar is near completion thanks to the untiring efforts of club members whose unusual attitudes at 30ft agl are proving such an attraction for the Sunday motorist.

At the time of writing, the Collier-Veitch-Tait Astir is creeping slowly northwards, and the syndicate hope to have it in the air before the end of the month. Meanwhile, in the mobile workshop newly acquired from Milltown, the Oly 2B is undergoing a re-furbishing.

We are, unfortunately, without a tug, as the Auster has been sold, and many potential soaring days are frustrated as we watch the sea breeze front galloping southwards or are winched into the down of a promising wave bar.

R.E.T.

KENT

More than 60 members attended the AGM on July 2 – probably the talk of spending last year's surplus of £7500 on new aircraft brought them along to voice their opinions. The main decision seems to be whether to add a high-performance single-seater to the fleet or replace the T-21s. There were also several changes on the Committee and Tim Gardener has taken over from Bruce Wickens as clubhouse manager.

The demand for places on our courses has been so high, possibly due to the improved launching and clubhouse facilities, that we have had to employ a third professional instructor.

It hasn't been an outstanding soaring season but there has been a fair amount of cross-country flying, particularly by the two-seaters. Congratulations to John Vowles on completing his Silver C.

C.B.

MIDLAND

Not summer weather to remember yet more cross-countries than ever have, in fact, been logged, but mostly short distances and with an abundance of out-landings. The better days tended to be mid-week and on August 10 a 300km was achieved.

Steve Allsop flew to Nympsfield for Silver distance and completed his duration with some local soaring when he got there. Mike Batkin and Dave Woolf used Long Marston for their Silver distances.

Wave has been scarce with 11200ft asl our best height in recent months. The Friday evening club flying sessions have again provided some useful training and Howard Boadley and Rob Cook have successfully completed instructors' courses.

W.J.T.

NEWCASTLE & TEESSIDE

At our AGM Colin Richardson retired after four years as Chairman and our thanks for his hard work. John Stout has taken his place and we wish him well in the future.

Norman Revells' course in June produced four new instructors: Derek Routh, Alan Jones, Dave Hodgson and Geoff Turner. Recent solos include John Dredge, Les Bailey, John McCullagh and Bill Irving.

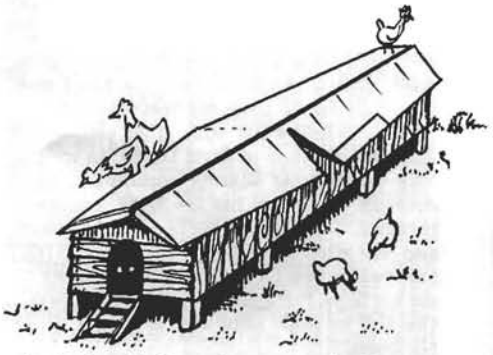
Our two marathon flying days were terminated prematurely by rain but this has not dampened our enthusiasm for similar events in the future.

G.M.T.

NORFOLK

So far flying from Tibenham has been like the weather, generally dull and uninteresting. More than 70 people were introduced to gliding during one day of the "Sport for All" promotion.

The IS-28 eventually arrived after various adventures – one time it was thought that the tailplane might have become a roof for a chicken-house *en-route*.



In the last S&G mention was made of a new K-8 (coo look, it's squared!), this should have been a K-18.

NORTHUMBRIA

Summer courses, fully booked from June to September, are again proving to be popular and we have accepted bookings for 1978. We have given air-experience flights to members of the public who have often joined us for a snack and drink in the clubhouse.

Our club Blanik is being repaired and we have to rely on our K-7 for routine dual flights. With the arrival of the IS-28B2 pilots are looking forward to cross-country training flights – that is when we have overcome the problem of getting a retrieve trailer.

Congratulations to Derek Younger on his flight to Kirkbride on the west coast for Silver distance. Our good wishes to John Westwood, now on an instructors' course, and congratulations to Andy Townsend for being in the top 20 in the Northern Regionals.

R.R.H.

OUSE

Congratulations to new solo pilots Geoff Dixon, Chris Wilson, Brian Fawcett, Paul Taylor and Alan Beir. Also to Muriel Carter on completing her Bronze C, Peter Hatfield on Silver distance and Roger Scriven on his Silver distance and height.

The flying week was fairly well attended and our thanks to Derek Moore and Mike Greaves for all their instructing during the week. The annual visit to Sutton Bank for the Northern Regionals was enjoyable.

The club is moving temporarily on September 30 to Church Fenton while the airfield is being sold, but we hope to be back on the site in the near future.

J.G.

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SCOTTISH GLIDING UNION

The main event recently was the Regionals held from July 2-10. Whereas the weather was stable and thermals not of the best, the contest was enjoyed by all. Of the four task days set, three were scoring, two being 1000 points and the other gave a best of 833. This year local boys made good (see Regionals' Results, p220).

Again tribute must be paid to Andrew Thorburn and his helpers for all their hard work.

R.H.

SOUTH WALES

We hosted a day of Competition Enterprise under poor conditions (see p 208). There have been several solos and Bronze and Silver C's during the improved soaring conditions of July and August. Chris, our keen young lady pilot, insists upon a special mention for going solo, deservedly for she keeps the fleet polished.

The club held a task week at the end of July under the direction of Earle Duffin. In spite of only intermittent soaring conditions, good distances were flown but few tasks completed. However, it was felt to have been a wild success and was won by Graham Holloway (SHK) followed by Eric Duffin (Skylark 2) beating all our hot ships. Perhaps Skylarks "Linga Longa". One day we hope to be able to hold a Welsh Nationals.

J.D.S.

STAFFORDSHIRE

Thermals were elusive in early summer although there were some soaring flights and Alan Cliffe made a quick trip to Camphill repaying the visit of one of their Std Libelles.

In moderate west wind conditions our ridge can sustain a glider flown acurately, and in stronger winds we sometimes find areas of lift covering a few square miles, exploration of which is often restricted by Manchester TMA and Amber 1. On one such day Frank Davies, newly converted to the Oly 419, was in the air for around 2½hrs, finally landing because of failing light.

B.J.M.

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STRATFORD-ON-AVON

We had disappointing weather for our two flying weeks but several members gained in hours and experience with the increased availability of club machines. Welcome to new members, particularly Paul Sainsbury, who is trying hard for his five hours. Our senior member, John Simonite. who flew solo at the age of 62 is now regularly flying the Skylark and Swallow. Who says gliding is a young person's sport! We seem to be attracting many overseas visitors, probably in the locality to look up Willie the Bard, and have been pleased to fly friends from Australia, USA, Canada and Holland this year.

Congratulations to John Blakemore and Nigel Sims who both completed their duration at Portmoak and since then Nigel has achieved Silver distance. Superb wave conditions were over the Stratford area on the evening of August 4 with lenticulars as far as the eye could see giving turbulent conditions at Long Marston. Wire launches failed to contact but thanks to a hastily summoned tug kindly loaned from Bickmarsh the K-6E was taken to 11400ft landing back to a deserted airfield with everyone convinced it had drifted to East Anglia.

H.G.W.

ULSTER

Hardened cynics' belief in Santa Claus was renewed a few weeks ago when the Sports Council for NI offered us half the price of a Grob Twin Astir and the materials required to build a trailer. Accordingly, an early production model has been ordered for delivery in December. Construction of a trailer will be based upon "Hillsborough Light Industries", otherwise Jeremy Bryson's extraordinary spacious garden shed from which a steady stream of trailers has emerged in recent years.

The Twin Astir will be the first club-owned glass glider in Ireland, north or south, and its arrival is to be preceded in September by the delivery of a PIK-20D to the Bryson/Sands' syndicate to replace the Kestrel 22.

The Sports Council's decision to grant-aid the Astir was ratified at the last meeting of the retiring council, which we marked by rigging our Capstan on the Parliament lawns at Stormont to provide a photographic backcloth – an exercise which resulted in considerable publicity for the club and a promise from Belfast's famous athlete, Mary Peters, to come along and try gliding, to add to her parachuting achievement and her clutch of Olympic golden gongs.

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Several members flew in the IGA's two separate National task weeks at the Dublin GC's new site near Naas in Co. Kildare. The first week was a ghastly storm-lashed wash-out but during the second week, in August, a useful number of tasks were flown. Several Ulster members "stamped the vintage" by converting on to the aged Kirby Kite 2 which a Dublin syndicate has restored after rescuing it from the rafters of the Irish Aviation Museum.

We are temporarily short of club single-seaters, the well-equipped Queen's University Skylark 3 having met a sudden end in a launching accident, fortunately without significant injury to the resilient pilot.

R.R.R.

WOODSPRING

Our congratulations to Barry Hogarth, Garry Humphreys and Stan Jennings on completing Silver C. Stan did a double as he brought back the inter-club pot from North Hill.

We recently had a mad weekend for the second year in succession – dawn to dusk flying on Saturday and Sunday with a barbecue evening on Saturday. Despite a thin turnout at dawn each day there were enough souls to ensure continuous flying between cable breaks which seemed rather numerous. Our thanks to the ladies who kept breakfasts and other snacks availible throughout the days on our bus.

We also set aside the following weekend for air experience flying after the success of last year's "Sport for All" weekend. Hopefully, it will also result in a few new members.

J.W.

YORKSHIRE

The grass has grown rapidly this year and a few pilots ground looped in the long grass before we were able to get it cut.

The Falke is back in action after its troubles. Earlier in the year it had a C of A and engine overhaul, followed by an accident on take-off (or lack of it) which kept it at Slingsby's quite a while for repair. Falke flyers are now madly catching up on their hours.

We have had a successful Northern Regionals again with only three days lost through bad weather and the top places going to club members. Competition at the top was fierce and

at the finish only 273 pts separated the first and sixth places. There were no disasters but various gliders sustained slight damage. Wheel up landings and two canopies broken by heads. (Loose straps and expensive headaches.) (See Regionals' Results, p220.)

A quick mention for our budding pundit, Steve Johnson, who came on a course earlier in the year, went solo after 20 launches and is now a regular solo pilot flying in the Blanik.

G.B.

Service News

ANGLIA (RAF Wattisham)

Our Astir CS has at last arrived and the trailer and instruments fit were soon completed by enthusiastic members. We are still waiting for the summer to start for 300 and 500km attempts but some members have completed 100km triangles on the few good days.

Wilf Gibbon recently completed his Silver C with a five hour flight to Duxford. We now have a few more instructors with Dave Bearcroft and Mick Taylor completing their instructors' course at Bicester. We also welcome two full Cats from Germany, "Porky" Woods and Tony North-Graves.

Our flying this year has been seriously affected by long grass and airfield construction equipment littered about the concrete areas. It was only after our K-8 crash that we also found our grass areas were contracted out and out of bounds to us. Fortunately the grass has now been cut but we have suffered a substantial loss in revenue and new members by being a non-flying club during the peak of the season.

We joined our friends at Whatfield during August for some soaring weeks and are most grateful to them. Also our thanks to Bert Bearcroft who managed to keep the tugs operating in the most trying circumstances.

A.R.T.

BANNERDOWN (RAFGSA)

Members lucky enough to be in the right place at the right time during this poor season have gained a rich crop of badges. There are three notable new pilots, John Trubridge, Joe Shearar (our first success with the Army!) and John Attaway – who is also an electronic genius. We now just push buttons to start our tractors and winches. John Attaway achieved two memorable Bronze legs, also Doug Coulson and Mick Alexander.

Anne Jones and Chris Bunn had interesting flights to complete their Silver C. There have also been a few 500km and 300km attempts. Bob Brown managed 300km and Terry Joint did 300km twice in three days and then a week later completed 500km in the syndicate owned Astir.

Since the airfield has now been harvested by local farmers we are back on short grass and happily using our winches. The Kestrel Club are again borrowing us for an *ab-initios* course, which is blessed with marvellous weather and in early September we are organising a task week/mini comp.

Saudi Arabia has called away two favourite members, Jock Wishart, our CFI, and Tim Jessop. Tony Clarke has taken over as our CFI.

J.J.H.

BICESTER (RAFGSA Centre)

Despite the weather we have had a fair crop of A and Bs to Silver legs – six Silver legs, ten Bronze legs and eight A and Bs. The most noteworthy A and B was Patrick Kearon (son of the infamous Air Commodore Paddy Kearon) who went solo the day after his 16th birthday, being delayed by the weather.

The contractors at long last started cutting the grass. The hazard of ground looping was over, but they left a series of small haystacks all over the airfield which countless members re-positioned.

We had a very successful barbecue on July 16 to say farewell to George Youngs, now being posted to RAF Lyneham, and Jamie Allen. Jamie is at the Officer Training Unit at RAF Henlow at the start of a career as an RAF pilot and we wish him every success. Jeremy Berringer has temporarily left the Centre for a six month spell in Cyprus.

C.M.T.

CHILTERNS (RAF Weston on the Green)

The fine weather produced a growth of grass which apparently took the grass cutters by surprise. The tangles at the launch end grew less with experience but the strain on the winch took its toll. It was a relief when the grass was cut and the overhaul winch arrived, though there were teething troubles before the performance of the new winch matched its smart appearance. Despite this Dave Saker completed two legs for his Silver C and Bob Spiller did his distance.

The longest day was highly successful with gliding from dawn and a barbecue and real ale until the following dawn. The Mark 1 Cadet failed to appear until a couple of weeks later but provided an excuse for a further celebration on leaving the workshop. The vintage gap was admirably filled by Chris Wills who ensured that nearly all members sampled the Kranich. A vintage weekend is planned for September 3-4.

Apart from visits from Farnborough and Odiham we have seen Frank and Linda Wilson after three years in Australia and the three members of the Saudi Arabian branch, Tony Blythe, John Nichol and Robbie House on leave over the period. Plans for the future include an expedition to Aboyne in late October.

K.F.

EAGLE

The BFG Competition held here in May was an outstanding success. Excellent weather gave nine contest days and the overall winners were Alan Somerville and John Mitchell who shared the Phoebus. Mal Parkes achieved his 300km during the competition, and Ian Benzie had a memorable flight, completing a task in the K-8, before he had done his 50kms. Prior to the competition, we had a mini expedition to Zell am See which, in spite of indifferent weather, resulted in some heights, and a Diamond distance for Howard Jarvis.

Since then, we have suffered the same weather here as in England, so our hours and kilometres are well down on last year. However, we have plenty of new recruits, some as a result of seeing the excellent gliding stand Martin Hardy and his team ran at the Queen's Silver Jubilee Review of the Army at Sennelager in July.

M.A.H.

EAST MIDLANDS (RAF Wittering)

Re-formed last December with a single K-4 we now also have a K-7, K-8 and SF-26, under the control of our CFI, Pete Bryan.

During April we achieved seven first solos, five of whom have now attained their Bronze C. Mary Charlotte-Green has completed her Silver C whilst another member did a Silver distance.

Our major problem is lack of instructors and

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our regulars are suffering quite a heavy workload. Unfortunately one of our most ardent instructors, Ray Brownrigg, is departing for sunnier climes. Our thanks and best wishes for his untiring efforts. On the credit side we hope that Mary C-G will be taking an instructors' course shortly to ease the situation.

H.W.D.

FOUR COUNTIES (RAF Syerston)

Congratulations to David Fearon and Louise Farmer on going solo, Louise on her 16th birthday. The Comps have done our pilots proud with the majority in respectable positions and we have George Lee (ASW-17), Andy Miller (Kestrel 19), Dave Cockburn (PIK 20) and Bob McLuckie (Std Cirrus) in Euroglide.

The Wrekin Club visited us during July when their airfield was closed and the weekend was successful with a number of pilots being checked out for aerotows.

The girls have done well with Maggie converting to the Skylark 3F and Sindy and Sue Norris progressing to the K-6E. Conversions to the Astir are also increasing and now include Steve Hymers, Nigel Parry and Tim Brailsford. Chris Curtiss made a superb climb to 11000ft in the Skylark for Gold height.

I.Mc.

FULMAR

We have moved to Kinloss and are settling down quite well with members working on the clubhouse. We have bought a K-6E from a member to join our fleet.

Congratulations to Chris McQuigg on successfully completing his instructors' course and Silver C. We welcome Dave Caunt from Syerston, who is going on an instructors' course next month. Unfortunately we have to say goodbye to Oscar Constable, a very hard working member, who is going to fly at Phoenix.

G.E.H.

HUMBER (RAF Lindholme)

We had to close down operations for three weekends owing to flying practice for the Queen's Review at RAF Finningley, which is just next door. Some of our members took up the hospitality offered to us by Four Counties at Syerston, and one of our young members, John Cooper, gained his first Bronze leg in their T-21. Our Blanik is back on line after yet another tailwheel repair.

Kathy Gildea completed her instructors' course at Bicester, and Chris Gildea claims he now knows how the other half live after having flown the ASW-17 recently!

K.M.G.

KESTREL (RAF Odiham)

June 25-26 was our "maximum effort" weekend and we were joined by the Portsmouth Naval Club with their gliders and tugs. We flew each other's gliders and in the evening there was a party and barbecue. Bob Bickers did an admirable job on the barbecue, and a good time was had by all.

At a farewell party on August 13 inscribed tankards were presented to three members going overseas - Don Webber, CFI, and Bob Bickers to Germany and Bob Brammah to Australia. Since becoming CFI three years ago Don has advocated maximum aircraft utilisation. The results are shown in the BGA annual statistics which credit us with the greatest total of cross-country kilometres of any Service club with the exception of Bicester, yet we are one of the smallest in membership.

Don's place as CFI is taken by Tim O'Donovan who came to us from the Fulmar Club. Bob Bickers and Bob Brammah are also both instructors, so something will have to be done to fill the gaps. Anyway, best wishes to them all in their future appointments.

Tim Pedley has notched his first Bronze leg and Neil Brown has completed his. Silver distance has been flown by Paul Mulhern, Taff Williams and Stu North, whilst Roy Dalling has taken the K-6E round the "milk run" for his Gold distance/Diamond goal.

Mike Pobjoy is running a two-week *ab-initio* course at Colerne for Sandhurst cadets by courtesy of Bannerdown Club.

P.W.A.

PHOENIX (RAF Brüggen)

Congratulations to Julie Oatridge, Vicki Fotheringham, Terry Mitchell, Roger Davies and Richard Oulds on going solo and Terry and Richard also managed Bronze legs, as did John Hughes. John Moffat obtained his Silver duration at Venlo, a local Dutch club, but the Venlo "under 25s" competition, in which our entry was Bob Farthing, was rained off.

Tim Oulds, Secretary, very experienced instructor, some time tug pilot and Geier private-owner, leaves us shortly to join the RAFGSA Centre staff at Bicester. His wealth of experience will be missed and we thank him for his valued service to the club. On his departure, we also lose two other club pilots, his sons Malcolm and Richard - best wishes to the Oulds family.

We anticipate replacing our ageing K-6CR with a GRP machine this autumn, followed hopefully by another glass aircraft at the end of the year in a fleet updating exercise.

Finally we welcome our new Chairman, Wg Cdr Durham - all we have to do now is convert him from Lightnings, Bloodhound Missiles and golf to gliding!

W.T.

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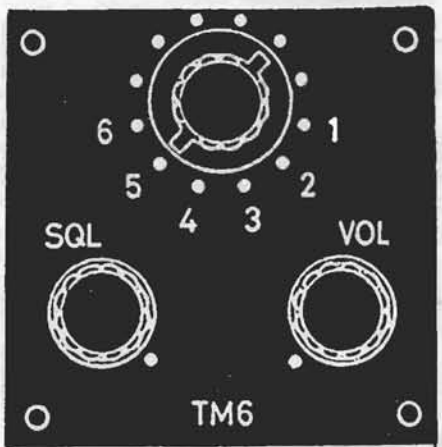

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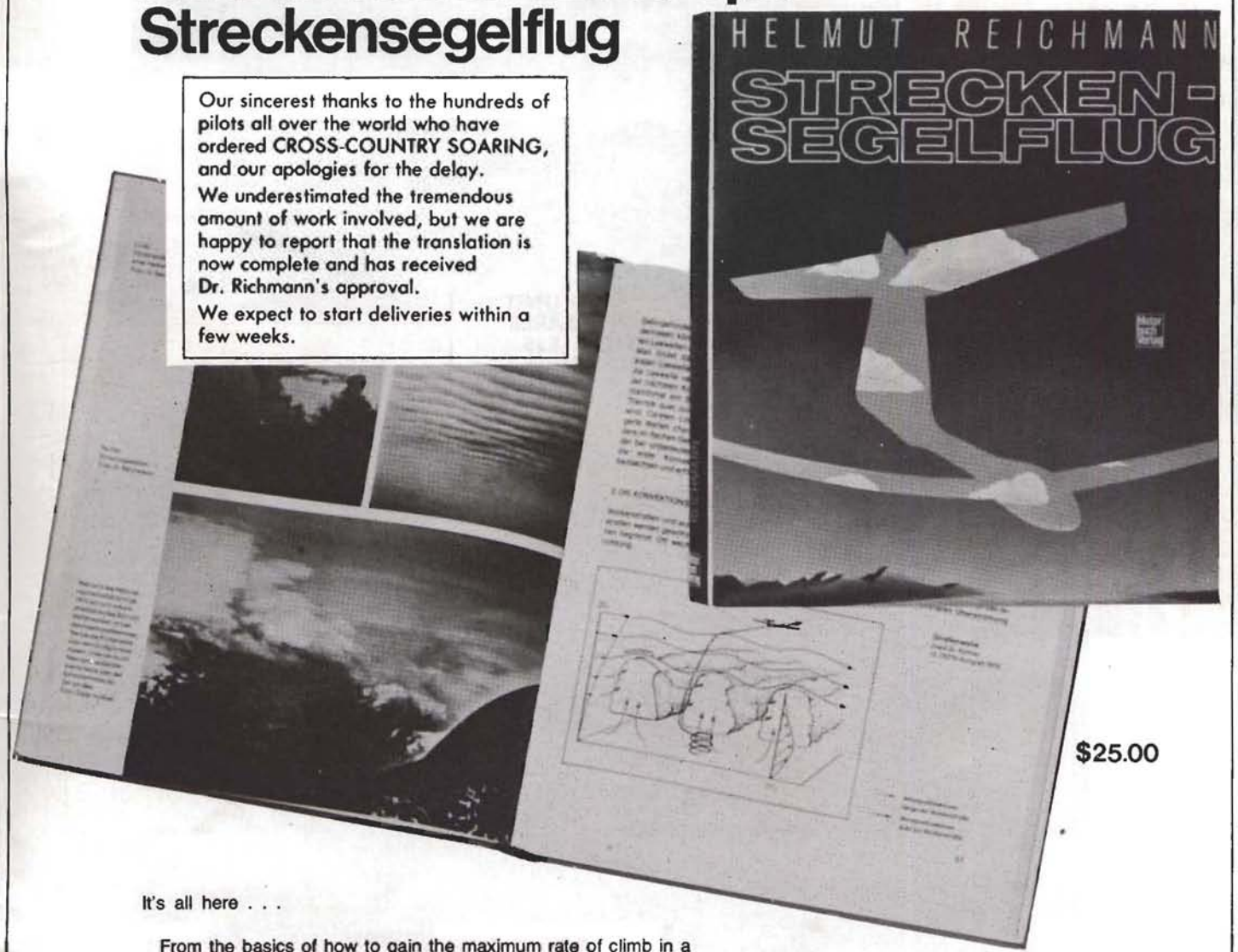

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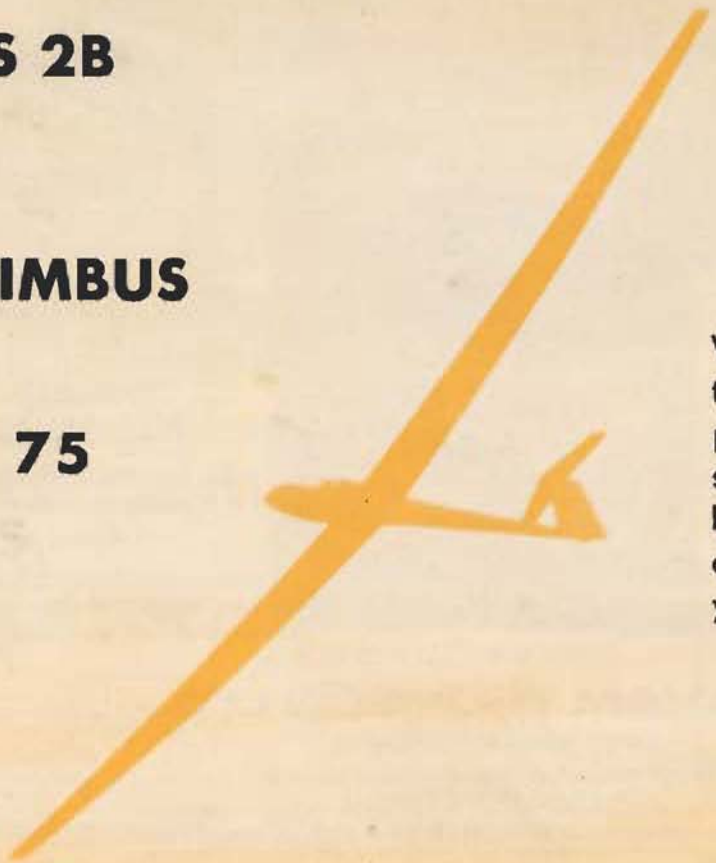

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