SAILPLANE & GLIDING

February — March 1977 50p

SAILPLANE & GLIDING

Magazine of the BRITISH GLIDING ASSOCIATION

Cover: Francis Russell photographed the Dunstable based Weihe, in which he has a share, from the cockpit of a Grunau Baby during a Vintage Club rally at Camp Hill. Dave Adams is flying the Weihe with one of Camp Hill's K-4's in the distance.

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THE BGA – *AND YOU*

ROGER Q. BARRETT (BGA Chairman)

Ask that elusive character, the typical glider pilot, what the BGA does for him and you are quite likely to be met by a look of bewilderment. In a way I suppose this reflects some credit on our national Association: at least it is not often cast in the role of an oppressive Big Brother!

The BGA has over the years had considerable powers delegated to it by the Government via the Civil Aviation Authority. But luckily throughout gliding's history those elected to run BGA affairs have included some remarkable characters – and they have all been active pilots. Thanks to Philip Wills and those who worked with and after him the BGA has succeeded in retaining the confidence of the powers-that-be (we are, for example; the largest non-Government agency in the world responsible for airworthiness). But the BGA has not fallen into the trap of itself over-regulating for fear of what the authorities might do unless every nut of a gliding problem was seen to be cracked with the BGA sledgehammer.

Bathroom mirror literature

So now as we approach the 1980s the BGA Executive Committee is very mindful of the philosophy and practices that have stood us in such good stead over nearly 50 years. We have tried to reflect these in all our Committee's Terms of Reference (recently revised to bring them up-to-date), and in some guidelines that all our Committee Chairmen are encouraged to stick over their bathroom mirrors.

POLICY GUIDELINES FOR BGA COMMITTEES

New restrictions affecting gliding proposed by third parties must always be rigorously examined and rejected unless they can objectively be shown to be necessary. Ideally they should also be moderate in scope, readily enforceable and easily understood. It is essential that exactly the same criteria are used by the BGA when considering the introduction of its own new regulations and procedures. *The overriding principle is that the amount of regulation should be the minimum required for safe and effective operations and the preservation of good relations with the CAA and the public.*

Proposals to introduce new, or change existing, regulations should take the following form:

(1) Description of the historical background leading up to the current proposal, supported so far as possible by statistical evidence and informed opinion showing there is a real need for action to be taken.

(2) A review of possible solutions and the financial implications of each where appropriate.

(3) Details of the preferred solution with evidence of its cost-effectiveness.

The BGA should only introduce new restrictions if they can be seen by member clubs and pilots to be manifestly desirable and sensible. The temptation to impose regulations solely for the sake of administrative efficiency should be resisted. The relative freedom that glider pilots currently enjoy is a heritage that must be jealously guarded.

Would that our National statute makers followed these same principles.

These are the Terms of Reference for the BGA Executive Committee which is ultimately responsible for everything done (and left undone) in the name of the BGA:

Subject to the Association's constitution the role of the Executive Committee (elected by member clubs) is:

- To determine policy and objectives for the Association.
- To set up an organisational structure, appoint officials and sub-committee/working party Chairmen to carry out agreed policies and to co-ordinate and supervise their work.
- To ensure that there is adequate communication between glider pilots and the BGA Executive members, officials and sub-committee members so that:
  (a) The demand by pilots and clubs for services from the BGA is known.
  (b) The Executive can monitor the degree to which this demand is satisfactorily met.
- To accept ultimate responsibility for the budgets of the Association and for any variance between budgets and actual profit/loss.
- To exercise sporting powers for gliding in the UK which are delegated by the FAI through the RAeC to the Association.
- To represent the interests of gliding clubs and their members at national level.

Members of the Executive Committee at present are: Roger Barrett (Chairman), Keith Mansell (Vice-Chairman), John Large (Treasurer), Lionel Alexander, John Brownlow, Joan Cloke, Frank Irving, Chris Nicholas, Ted Shephard, Ian Strachan, Paul Thompson, Tom Zealley.

Other BGA Committees and their Chairmen are: *Airspace,* John Ellis; *Development,* Joan Cloke; *Flying (Competitions & Badges),* Lemmy Tanner; *Instructors,* Don Spottiswood; *Magazine,* Anthony Edwards; *Radio,* John Williamson; *Safety Panel,* Arthur Doughty; *Technical,* Roy Tetlow. In addition the BGA *Delegate to the FAI (CIVV)* is Ian Strachan and the *Press and Public Relations Officer* is Dee Reeves.

Altogether there are about 70 people who are members of BGA Committees. They belong to clubs all over the country – though we would welcome more representation from clubs west of Bristol and Mynd and north of Coventry. There is therefore plenty of opportunity for individuals, as well as clubs, who are unhappy about any aspect of BGA policy or who want the BGA to help solve a problem, to talk to someone who can relay the message to the right quarter. Failing that, any Committee Chairman can be contacted via the BGA office.

We want as much feed-back as possible from pilots about action the BGA is taking – and in particular we are very anxious to get this *before* decisions are taken on controversial matters. In these cases in future BGA Committees will, whenever possible, publish "green papers" setting out their intentions before any final decisions have been ratified by the Executive. The green papers will be published in S&G or mailed to those likely to be most concerned (*eg* Nationals and Euroglide entrants have recently had an opportunity to comment on proposals for selecting the next British team); please take advantage of this system if you want your views to be taken into account.

Flight magazine recently said of us "The BGA is an admirable example to the rest of the sport-aviation world of how an airborne sport can safely discipline itself, master its own growth, and make tremendous technical developments". Anything we have achieved has been as a result of a helluva lot of hard work by a great number of people. So long as we do not lack volunteers in the years ahead the prospects for gliding remain good.

Lee Wave Phenomenon in the Pennine Range

A. T. KENWORTHY

This is a description of my flight at Sutton Bank on June 14, 1976, in a DG-100 when a height gain of 29500ft was made in wave lift up to 30450ft asl (see S & G, August 1976, p174). The account correlates the theoretically determined magnitude of wave lift, wavelength and other Met predictions for the day with those actually experienced. The theoretical predictions are based on Casswell's[1] method for the determination of conditions of atmospheric wave motion.

Historical background

During the past decade height gains of up to 20000ft in wave have become fairly commonplace. These flights have usually taken place over and downwind of hilly regions and wave lift has even been experienced 30 to 40 miles downwind of what has been assumed to be the propagating source. Height gains in the range 20000-30000ft have been recorded in the more mountainous regions, particularly in Scotland, but even the less imposing Pennines have produced wave lift up to 26000ft and on June 12, 1976, pilots from the Yorkshire GC, Sutton Bank, gained up to 23000ft in wave lift over the Pennines to the west of the site.

Theoretical predictions and observations by power and glider pilots reveal the existence of lee waves capable of lifting sailplanes to well over 30000 or even 40000ft. On many occasions I have observed lenticulars identifying upper wave systems at well over 30000ft in the lee of Pennine hills no higher than 2000ft asl.

Met conditions

Pressure remained high to the south of the UK. A weak south-east moving cold front, orientated roughly east to west crossed through Sutton Bank at approximately 09:00hr and lay Shannon-Aberporth-Mildenhall at 13:00hr (Fig 1). The resulting isobaric distribution gave conditions conducive to good wave propagation for the area to the east of the Pennines with winds fairly constant in direction from 280° true at ground level at Sutton Bank, elevation 950ft asl, to 270° true at 300mb. Wind increased with height from 25kt at ground level to 45kt at 300mb. The tephigram (Fig 2) revealed a marked inversion at 890mb and a temperature lapse rate, particularly between this level and the 700mb level, conducive to good wave lift, the air being stable over that range.

The information, which is reproduced by kind permission of the Met Office and RAF Leeming, was obtained after the flight and confirms the brief forecast obtained before the flight. The tephigram, for 12:00hr, is for Long Kesh and was considered to be most representative of the atmospheric conditions prevailing in the region of the climb, over the Pennines ten miles north of Skipton.

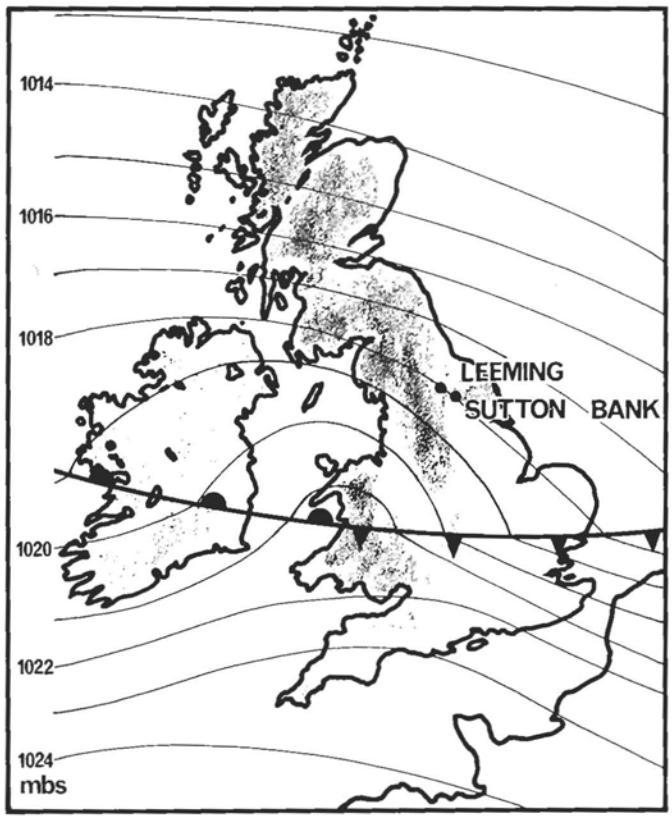

Fig 1. Surface chart June 14, 1976, at 13.00hr.

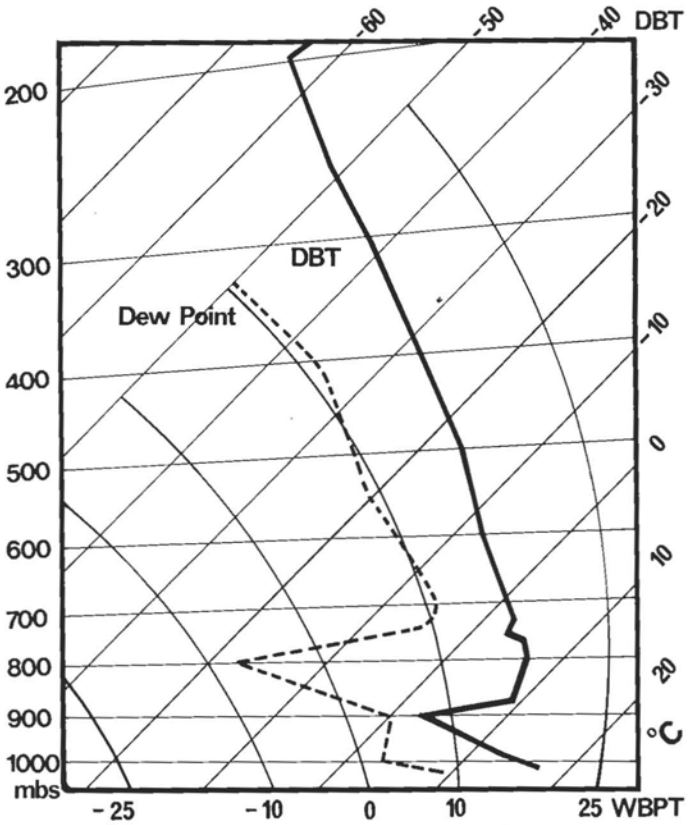

Fig 2. Tephigram, Long Kesh, June 14, 1976, at 12.00hr.

Weather conditions during the flight

The flight took 4hrs 40min from a winch launch at 10:45hr. At 08:00hr seven to eight oktas stratus, base 1500ft asl, prevailed as far as one could see but by 08:30hr a break in the stratus appeared to the west, roughly parallel to the Pennines and at right angles to the wind. This is indicative of wave action and is a common occurrence over the Vale of York in westerly winds. Six oktas stratocumulus, base 2000ft asl obtained at the time of launch and thermal activity was evident. Several 3kt* climbs were made in thermals and at 11:30hr wave was contacted at 2300ft asl. The tops of the stratocumulus were between 4500-5500ft asl, confirming the Leeming forecast. As is common with most wave climbs the transition from thermal to wave is not immediate, there being a period spent at the interface between the unstable layer and the more laminar layer above until the transition can be made.

An average of 4kt was sustained to 10000ft asl, three miles east of Northallerton (Fig 3). By 12:45hr less than one okta stratocumulus remained, the position of the upwind wave being marked by isolated and diminishing low-level cumulus lenticularis. A climb from 8500 to 11000ft asl was made between Dishforth and Ripon at an average climb rate of 6kt.

After a fruitless search for the secondary wave system west of Harrogate, during which time a descent to 6500ft asl was made, there followed a 3kt climb to 9500ft asl, a further descent to 7500ft asl and a rapid climb to 12500ft asl, during which 11kt was held for over a minute some eight miles north-west of Harrogate in the secondary wave in clear air. South of a line stretching east-west through Harrogate three oktas cumulus, tops 5000ft asl, prevailed throughout the flight with no evidence from the cloud pattern itself that wave was active. As far as could be seen to the north of this line the air was clear and devoid of any cloud at any level, with the exception of some thin patchy cirrostratus at an estimated height of 40000ft asl.

In the region of Great Whernside (2310ft asl) an ascent to 30450ft asl was made, the average rates of climb being 6-7kt to 19000, then 4kt to 24000, then 3kt to 27000ft asl. An average 1½kt to 29000, reducing to ½ to 1kt at over 30000ft asl brought an end to the climb after an ascent from 11000ft asl in about 65 minutes. There was no icing on the outside of the glider at any time but above 21000ft asl ice formed on the inside of the perspex canopy. The greenhouse effect maintained a very satisfactory level of personal comfort under the canopy and although the outside air temperature was -41°C at 300mb, I only had to roll down my sweater sleeves during the descent, which was made out of sun.

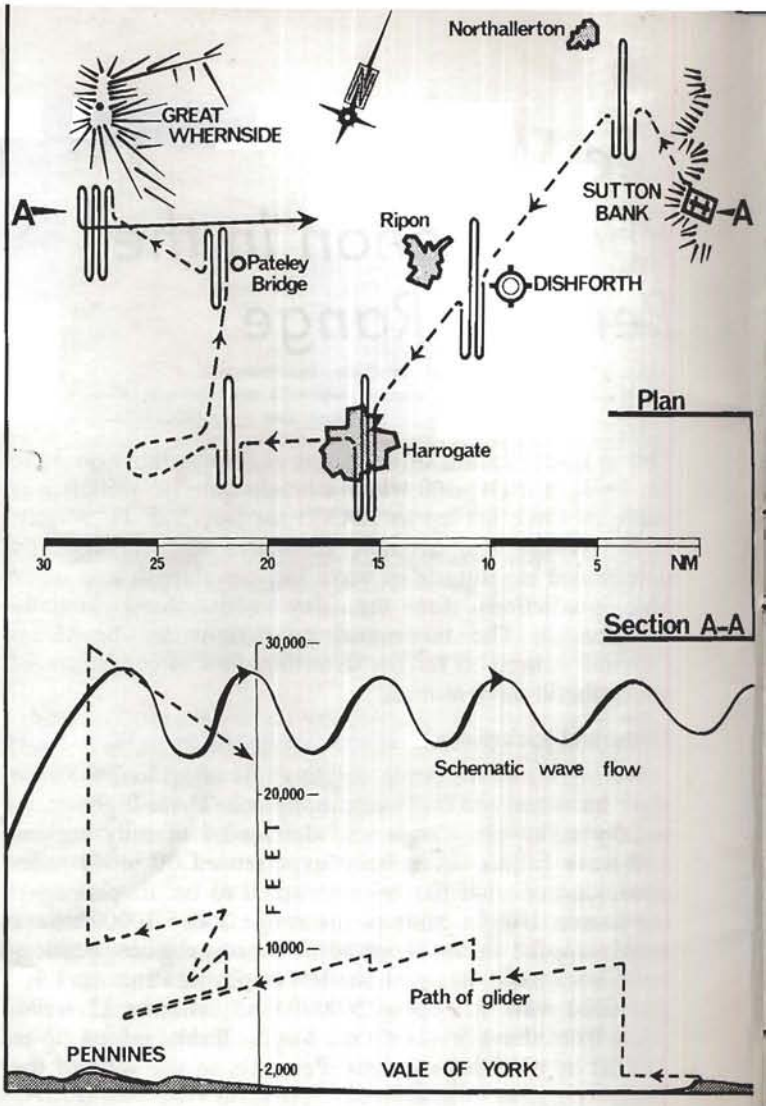

Fig 3. The broken line shows the route token by the glider.

Comparison between theoretical wave prediction and actual wave conditions

When lee wave conditions prevail a stable layer exists in the lower atmosphere with less stable air above. The atmosphere, therefore, can be represented by two layers, one between 1000mb and 700mb and the other between700mb and 300mb. To determine the maximum vertical velocity (Vmax) the free wind velocity at hill top height, approximating to the gradient velocity and expressed as U_{950}, needs to be known as it is proportional to the vertical velocity.

Using Casswell's method to determine atmospheric wave motion three values of wind and temperature are required and are shown asterisked below:

Pressure (mb)	Temperature (T°C)	Wind (U) in kt
1000	13.5*	280°/25
950	8.5	280°/25*
850	9.2	280°/25*
750	4.5	280°/35
700	3.5*	280°/35
500	-12.2	270°/45*
300	-41.0*	270°/45

**Rates of climb given in knots are those recorded by the glider variometer. Adding the rate of sink of the glider (1.2 to 1.5kt) to this figure gives the actual vertical velocity of the air.*

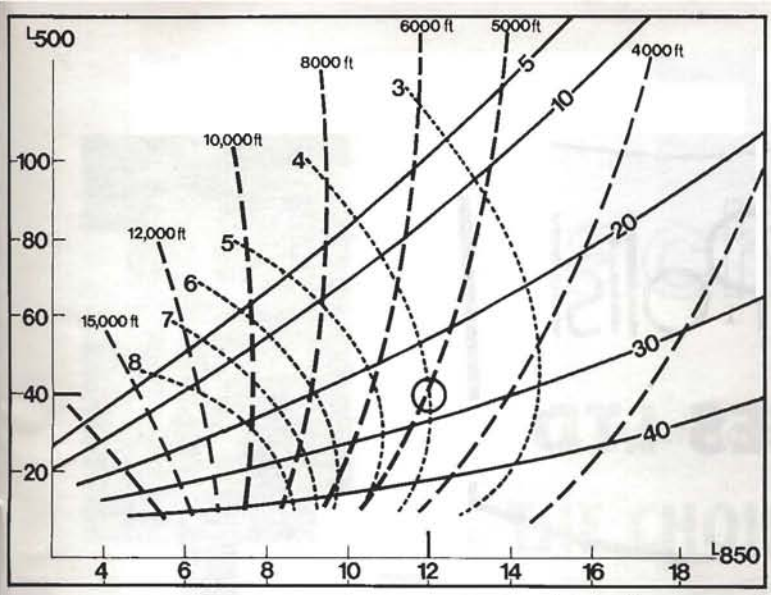

Fig 4. Graph (after Casswell) to determine wavelength -----, height of Vmax ---- and CI = hill factor ——

Although Casswell's method is a simplified method of wave prediction suitable for the lower levels of the atmosphere, its predictions compare not unfavourably with those experienced during the flight. Using the data above, L_{850} and L_{500} are obtained from Casswell's tables. These L values are proportional to the lapse rate of temperature and wind speed at the 850 and the 500mb levels respectively.

The temperature differences between T_{1000} and T_{700} of 10° and a U_{850} value of 25kts gives $L_{850} = 12.0$. The same process for T_{700} and T_{300} and a U_{500} gives $L_{500} = 41$. Transferring L_{850} and L_{500} values to Fig 4 gives the wavelength, height of Vmax and CI (a factor dependent on an assumed hill height of 1000ft in Casswell's paper). The average maximum vertical motion in ft/min (Vmax) is arrived at by multiplying CI by U_{950}.

Summarised, the Casswell method produces the following values:

T_{1000}-T_{700}	T_{700}-T_{300}	L_{850}	L_{500}	Wavelength	Alt of Vmax	Vmax (ft/min)
10°C	44.5°C	12	41	4.0nm	5000ft	650

Wavelength

The observed wavelength was 5nm (see Fig 3) and was reasonably constant at least over the 20 or so miles covered upwind by the flight. Considering the variety of wavelengths I have seen from the ground and the air on many different occasions, then the correlation between theoretical and the actual wavelength on this flight is reasonable.

Altitude of maximum velocity

According to Casswell the altitude of Vmax should occur at 5000ft asl and will apply in any area, being independent of hill height or profile. The maximum lift was over 11kt at about 8000ft asl in the secondary wave. I feel that this higher than predicted rate of vertical air motion is a function of the topography, the wave being in phase with the hills and valleys thus receiving a sympathetic boost. The average maximum vertical motion in ft/min is arrived at by multiplying CI by U_{950} to get 650ft/min or 6.5kt. This compares closely with what was experienced over much of the climb, *eg* average of 6.5kt from 11000-19000ft asl. These altitudes do not, however, correspond to the predicted altitudes at which the average Vmax was supposed to occur.

If the calculations predict an average maximum rate of climb less than that actually encountered then the value of CI should be adjusted accordingly. For example the predicted Vmax was 6.5kt when in fact the Vmax was nearer 12.5kt, comprising the recorded 11kt plus the sink rate of the glider. This total is still likely to be less than the true vertical velocity of the air as the glider variometer only registers up to about 11kt. The value of CI in this case then should be adjusted by a factor of at least 12.5/6.5 and provided CI is given the correct dimensions satisfactory results should obtain for this particular site.

It is interesting to note that the best lift occurred over hills on average 1.7 to 2.0 times the 1000ft hill height used when determining the CI factor in Casswell's paper. Casswell's Vmax is a function of the height of the hill and the horizontal windspeed at that height divided by a constant. As the wind at 2000ft was 25kt, the same as at 1000ft, the only variable is the height of the hill propagating the wave, thus a modifying factor of two would give a vertical velocity of 6.5kt x 2 = 13kt, which corresponds very closely to the observed maximum velocity.

Summary

The weather picture producing such good wave conditions was peculiar in one respect. This was the absence of any clouds to mark the wave pattern. I have made several climbs of over 17000ft in wave but on each occasion there were sufficient clouds to mark the areas of lift and establish some sort of pattern. Provided that air is moving across a range of hills and has a direction roughly perpendicular to that line of hills, that the air is stable in the middle layers and there is an increase in windspeed with height with little or no directional change, then waves will occur.[2] The absence of lenticular clouds or of cumulus clouds arranged across the wind serves only as a reminder that the moisture content and temperature of the air must not be overlooked. Visible evidence is obviously not a necessary condition for the existence of vertical atmospheric motion caused by orographic interference.

References:

(1) Casswell, S. A.: A Simplified Calculation of Maximum Vertical Velocities in Mountain Lee Waves, Met Magazine, London, March 1966, p68.

(2) Garrod, M. P.: A Glider Pilot's Guide to Wave Forecasting (Part 1, S & G, December 1973, p406; Part 2 S & G, February 1974, p28).

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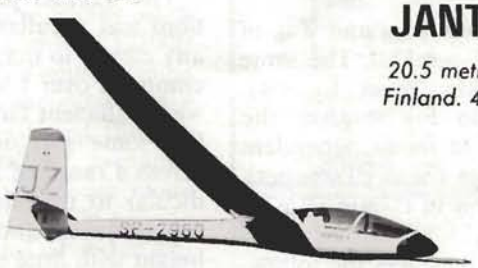

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coaching corner

BILL SCULL, Senior National Coach, discusses

THE CHOICE OF YOUR NEXT GLIDER

As each year goes by the number of pilots who buy their own glider is on the increase. Whether this is due to a reduction in the number of reasonable performance solo gliders in the majority of clubs or whether clubs have failed to improve their fleet of solo gliders because of the increase in private ownership is not certain, but the statistics bear out the first point.

In 1962 of 427 gliders on the register 131 were private – 30%: in 1975 the figures were 1088 and 708 respectively – 65% privately owned. On the basis of club membership in those years (5712 and 10646) and assuming four members/private glider, this means that in 1962 there were 17.5 members/club glider and in 1975, 20.5. The number of club solo gliders has only increased from 174 (1962) to 192, so that nearly all the growth in gliding is confined to the private-owner sector.

There are a number of factors of practical significance in this changing state of affairs:

(1) That pilots fly high-performance gliders with less and less experience as the private gliders are passed down.

(2) Because very few clubs provide high-performance gliders in their fleets, very many instructors lack experience of them (unless, of course, they are private owners – we don't have a statistic on that!).

(3) The step that a pilot takes from the best club glider to his first private machine may be a big one in terms of handling differences, approach angles and, perhaps, complexity of control.

These factors are closely related and their significance becomes apparent in a comparison of a pilot from days of yore, who progressed through several types of glider in the club fleet and a succession of private machines such as Olympia 2, Skylark, Dart and then, say Std Libelle, with his present-day counterpart who may progress to a Std Libelle having flown only two types of club glider. A sharp contrast. This then is where the limited experience starts to show. The consequences of buying a glider too advanced or too difficult for one's level of ability may be no more serious than a failure to become confident in flying it and using the performance to advantage. This becomes apparent when the pilot never or rarely goes cross-country (he may genuinely not want to but I suspect that this isn't often the case) or makes small cross-country flights – small triangles – which never take him out of gliding range of his base.

Quite often the consequences are more serious and if the accident is indirectly caused by poor advice regarding the selection or poor supervision of the type conversion, then the instructional system must answer for it.

First of all perhaps we can remove some of the mystique surrounding the GRP glider. A call from Ole Didriksen, the Danish National Coach, whilst writing this gave me some interesting information. Three Danish clubs now transfer their early solo pilots from ASK-13, Bergfalke 3 and Lehrmeister to Astirs after a few solo flights in the two-seater. Evidently the Astir has attributes which make such a step a small one. Could the same be said of other 15m GRP gliders? Possibly, but there would have to be so many other provisos that it is not generally to be advised.

A level of experience to handle most new types

Without going into a lot of detail (each case must be judged on its merits), one can say that there is a certain level of experience beyond which a pilot should be able to handle most new types competently. Typically:

(1) 60-75hr P1.
(2) 8-10 types.
(3) 4-5 different sites (preferably as P1).
(4) At least two years' gliding experience.

These figures are borne out by pilots coming to train as instructors who, if they fall below them on only one count, usually have difficulty in coping with a new type.

Any guide based on these figures is bound to have exceptions but a pilot falling short in more than one respect may well experience difficulty in converting to a new type, especially if there are significant differences between the type he is used to and the one about to be flown *eg*:

(1) The glider's handling characteristics – especially elevator feel.
(2) The airbrakes effectiveness.

And perhaps of less significance but not always so:

(3) Seating position.
(4) Differences in cockpit layout and control complexity.

If there are major differences on all four counts and the pilot also falls below the experience requirements on more than one count, then the type conversion will need very careful supervision. If this is to be achieved then the instructor's experience is critical. To supervise the conver-

sion adequately he must be sufficiently experienced on the types in question to brief the pilot to handle the differences. If problems are likely he should be able to advise the pilot on which type to buy so as to avoid them. In other words help the pilot choose a new glider with which he can come to grips after a relatively few flights, *and therefore fly it confidently.*

A pilot's confidence is not taken into account often enough in making an assessment of him and it may be lower than it should be for his nominal experience in hours and launches because of:

(1) A large number of launches to solo. This may be an indication of little natural aptitude but may also be due to poor instruction, a lack of continuity or the availability of an instructor authorised to send first solos.

(2) More dual flying than solo because the pilot has taken a long time to get clear of the check system.

The instructor is the person best able to weigh all the relevant factors and assist in the choice of type but, instructors beware. Don't give advice if you do not know the types in question, but take steps to broaden your experience so as to be better able to give the advice.

If below suggested experience levels, avoid too big a step

If the potential private owner is to make the right decision, he must find an instructor with the experience to advise. The only advice that I can give is that if you fall below the experience levels suggested then avoid taking too big a step; the bigger the step the more critical the conversion will be. However experienced you are a particular feature of a glider may catch you out, not necessarily during the first few flights but in later ones when you have started to relax a bit; an example will serve to illustrate the point.

I've only flown a PIK 20 three times – it's a very nice glider. Approach control is by means of flaps rather than airbrakes and they are operated by a crank which rotates through five turns from "lock to lock" as it were, that is from reflex setting to 90° down. In an intermediate position, perhaps 30° down in the early stage of an approach, so long as the crank handle is at the top of the circle, the sense of operation is consistent with the conventional airbrake; pull the handle back for more brake (flap) and move it forward for less. If, however, you have parked the lever at the bottom of the circle then the sense is reversed. The message is an obvious one; park it at the top until the rotational sense of operation is firmly engraved on your mind. A simple piece of advice you may say but it could be very important for a pilot new to the type. I found this out while experimenting with the flap during an approach and nearly getting caught by the wind gradient – enough said!

Syndicates will almost always comprise a range of pilot experience with the possibility, on occasion, of the least experienced members having to gain more experience before they are allowed to fly their own glider. Two possible shortcomings in pilot experience which may make it fraught for him to fly it (or the instructor under-confident to send him) are the linking factors of too much reliance on the noise level in the cockpit and insufficient monitoring of the airspeed. Further training to prepare the pilot for early conversion could include airspeed monitoring – have the pilot read the airspeed to you in critical phases of flight until you are convinced that he can pay enough attention to it, and to test his reliance on air noise, what about making him do a dual flight (obviously) wearing ear defenders?

In conclusion, I think it is sufficient to say that many pilots could make a better choice or cope with a less-than-ideal one given a little more help by instructors. Heightened awareness of the conversion problems is the need and to this end the BGA has run type conversion courses for instructors – there will be two this year. Incidentally there is a handout for this course which is a collection of S&G articles available from the BGA at 60p, mail order, or at 50p to personal callers.

Instructors - a Worm's Eye View

GEOFFREY HAWORTH

Your excellent magazine has never lacked advice to pupils from instructors so perhaps it is timely to put the boot on the other foot. Pupils are rarely left in doubt of their shortcomings both through the spoken (or, more probably, shouted) word during the flight and the written logbook comment afterwards, but post-flight comment on the quality of the instruction is much rarer. Instructors, though usually unpaid in our movement, enjoy enormous prestige and power, so what U/T pilot would dare breathe a word of criticism to his mentor, though he may venture a discreet opinion to a fellow pupil when safely out of earshot?

Nor is one entirely safe even when on the right side of the A and B certificate for the merest aerial indiscretion or even, one suspects, terrestrial, can put one back on checks or even worse. Whoever saw an instructor standing alone on the airfield without his retinue of admiring sycophants hanging on his every word? An appreciation of his power and influence with a suitable injection of a massive dose of humility would do much to humanise these demigods.

Perhaps one of riper years whose somewhat attenuated instructor contact enables him to write with some experience might venture a word or two of advice.

The nit-picking instructor

Dear instructor, please do not assume that your pupil is necessarily blind, deaf and a congenital idiot. He is probably holding down a responsible job (or he wouldn't be able to afford the sport) and is in full possession of his mental faculties in as much as can be said of anyone who takes up the sport. Certainly his eyes will be good enough to see the instrument panel and, though he will not say as much, he may be irritated to be informed that he is flying at the wrong speed when he has already noted the fact and is at that moment desperately trying to put the matter right. I am sure that we have all suffered the nit-picking instructor who will not give a pupil the chance to put anything right before pointing out his error. OK, in the interests of safety, but for heaven's sake play the advantage rule.

Even worse is the chap who assumes that the ability to fly is inherited and not learned and who, therefore, expects perfection from the word go. The task of satisfying this character would be rendered easier if his requirements were both consistent and coincident with the rest of his cohorts. Thus pupils must learn, not only the skills of flying, difficult enough in themselves heaven knows, but also the personal idiosyncracies of different instructors. It might be as well for a student pilot to note in some obscure part of his logbook, well removed from the possibility of instructor scrutiny, that this one likes plenty of speed on approach whilst that one does not, or that the hedge creeper landings upon which A insists with future field landings in mind will cause mild apoplexy to B.

The average pupil is a dedicated soul who gives up his weekends, his money and his family for a few blissful minutes in the air. He will have arrived at break of day to DI the winches, knot the cables, push start reluctant transport and perform the menial tasks around the site. All these he accepts as part of the business of learning and as a token of his rightful situation in the hierarchy as he hopes for better things to come. But, lowly as he is, he has some rights such as to be consulted about the flight, both in nature and duration.

He ought not to be consigned to the role of fare paying passenger by an instructor whose sole ambition is to satisfy his own soaring ambitions at someone else's expense. He has a right not to be sworn or blasphemed at when he makes some mistake – he is almost certainly aware of this and unlikely to improve under a barrage of ill-tempered invective. It is a pity that the image of the tyrannical instructor emerged at all because others feel that they must live up to the legend. Thus mild considerate men who love their wives, children and old mothers change to Genghis Khans as soon as they sit in the back seat. Oddly enough they revert to normality as soon as they step onto the field again which leads one to the conclusion that their airborne behaviour pattern derives from the fact that they are scared stiff during flight. That, at least, makes sense and one can sympathise with them, happy in the knowledge that these unapproachable supermen have fears just like ordinary mortals.

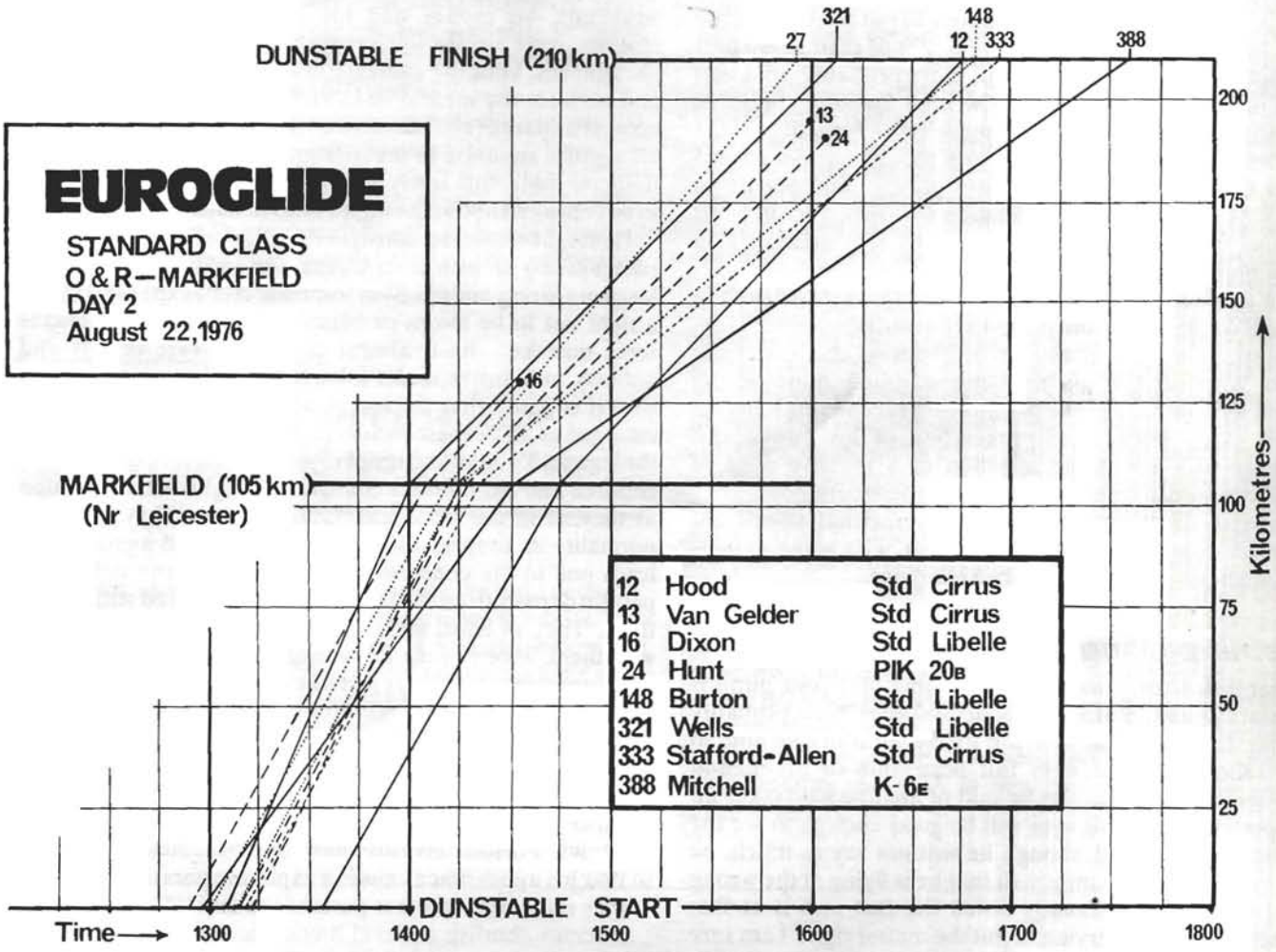
The wooden spoon ought to be reserved for the compulsive stick grabber with whom the hapless pupil merely flies by proxy. At best his instruction is valueless and at worst positively dangerous because the pupil never knows whether he is in control or not. Pilotless landings are not unknown. Fortunately this chap soon becomes well known so that his appearance causes a rapid evaporation of pupils as they slink away to other parts of the airfield.

It seems churlish to level any criticism at that splendid band who give so much of their time and on whom we depend for our enjoyment, and one must enter a disclaimer that the remarks refer to a minority. So they do but, at the same time, it is worth pointing out that it is in the nature of their calling that instructors are preoccupied with the shortcomings of their pupils rather than their own and that some critical self-analysis of teaching technique might not come amiss. Perhaps the application of a well known preflight mnemonic might be useful.

Check your pupil has normal eyesight and work on that assumption.
Blasphemy after the event is no substitute for clear direction before it.
Say as little as possible during flight.
Indicate precisely what you want your pupil to do.
Try to encourage: he is doing his best.
Control your natural instinct to grab the stick.
Bear in mind that he is paying and entitled to enjoy himself.

ANALYSIS: DAY 2 EUROGLIDE

MIKE BIRD focuses on the Standard Class task, a 210km out-and-return to Markfield on Sunday, August 22, and comes to some conclusions. The time-distance chart reproduced below shows the relative performances of some of the competitors.



Sunday, August 22, was a day of moderate to good thermals with a stiff 25kt south-easterly (130°) which was bound to make the homeward leg for either Class pretty demanding. For a quiet life, your reporter opted for the shorter task, which was completed by 18 out of 24 pilots in the Standard Class, while only seven out of 20 Open Class pilots came back from the Long Mynd. The forecast was pretty accurate, except that I don't remember any cloud apart from the odd wisp.

Ralph Dixon, No. 16, left the site first. "No longer trust the weather forecast (after the uncompleted task of the day before) and wish to ensure that the best part of the day is spent going into wind (*ie* on the second leg)". The parenthesis are mine: I should particularly like to thank Ralph Dixon for giving full details of his successes and failures. Too many pilots only gave me the data when they did well, which is much less helpful and rather misses the point of the exercise, though I thank them all the same, and confine my muttered curses to those who not only never provided any data for the inquisitive statistician, but never gave the organisers properly filled in flight reports, *ie* no details of turning point times etc. (In view of the fact that I usually belong to this last category, I'd better not gripe to much . . .)

Typical speeds over the first leg were 90km/h. If you subtract at least 30km/h tail component, that means about 60km/h or less in still air, which in turn translates into average rates of climb of about two knots, which I would say was realistic. The time-distance graph shows pretty well parallel lines for the first leg, *ie* the speeds are fairly uniform. (The exceptionally high speed claimed by Martyn Wells (321) on the first leg and his low speed down the second leg makes me believe the turning point time of 14:00 is an approximation.)

The best thermals of the day were at Leicester, about five

miles upwind of the turn, enabling those who had read up their tactics of racing to arrive at the turning point at about 5000ft asl ready for the high-speed dash into wind. A great crowd of little gliders was splashing around happily in abundant lift like so many fishes. I wonder how many realised how hard the next stage would become.

"Glide out from 5000ft until ground contacted at 14:30. Cirrus (569) left TP just before me and about 800ft lower: neither of us contacted any more lift before landing . . ." "Should have left later because conditions improved after first half hour. If I had allowed others to start first there might have been a few more thermals marked when they were needed!" (Ralph Dixon).

I agree about not being the first one to leave on a blue day, but that giant hole in the sky was still there more than 30 minutes later, because I dashed into it myself at 90kt and was only saved by four extra metres of glass-fibre.

The fastest five pilots of the day all crossed the startline between five and 13 minutes after the line opened, so an early start was no bad thing.

Unlike the first leg, the homeward, into wind leg, certainly separated the fast from the slow. The lines are by no means parallel, reflecting the fact that one weak thermal which drifts you back for miles can cost you half an hour. (It also makes a case for the new handicapping system with wind factors: Ian Murdoch's overall position in Euroglide improved from 16th to 3rd when the performance of his K-6E was taken into account.)

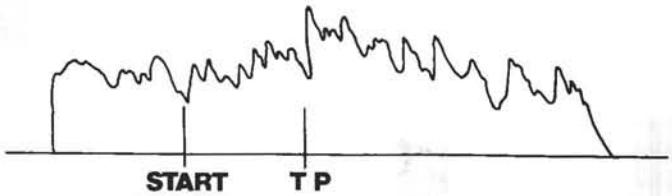
Speeds dropped drastically, not only because of the headwind but because of the steady lowering of the operating heightband throughout the struggle.

Some lessons learnt, apart from not being the first to go (advice we can't all follow!), are:

If on a given day, especially a blue one, the normal interval between thermals is five miles, then you want to think hard if you go ten or 15 miles without meeting any lift. The time has come to wind the MacCready ring back to some modest expected rate of climb – such as zero. This especially applies if you are downwind of a coast (I am sure the Wash was blighting the East Midlands, and that the super lift near the turning point may have been a convergence zone of some kind). In future I certainly shan't charge off at 90kt or more on the *windward* side of a zone of exceptional lift situated downwind of a coastal area. Gift horses of that kind should be looked in the mouth.

Note: The time-distance chart is the best way of showing who was where when. It is incomplete (a) to make a virtue of a necessity – because 24 lines would be unreadable and (b) because insufficient pilots gave a turning point time.

The steeper the slope, the faster the ground speed achieved, and conversely. Note how well Leigh Hood (12) did, starting last and arriving in the second gaggle to come sixth. However it *was* too late a start.



The barograph trace (Martyn Wells, 321) shows very clearly the surge of lift near the turning point and the steady lowering of the heightband during the second leg. Somehow he avoided getting disastrously low, however, and was not compelled to use many poor thermals. This earned seventh place.

The task was won by Ton de Bruine (DG-100) at 75km/h and he started at 13:07 and finished at 15:54.

DAY 3:

A DUST DEVIL

Mike Garrod took these photographs on the third day of Euroglide. The first is of a stubble field set alight near the airfield, giving a boost to starters. The large black dust devil in the second picture was spotted 20 minutes after the stubble fire.

HOW TO **ENJOY** COMPETITIONS

BILL MEYER

From time to time S&G publishes articles by pundits telling us how to *WIN* competitions; I thought it was time we had an article on an even more important aspect.

George Moffat has said, "Contests are great fun. Bigger ones are greater fun." From my small experience I agree entirely, but I am continually surprised at the number of quite competent pilots who say something like, "Oh, I don't think I would like to fly in competitions, I haven't the killer instinct."

Qualities for success so numerous

One suspects from this that the average club pilot has an image of the average competition pilot as being an intense type living in quite another dimension, absolutely unapproachable by humans – like a leader of the Mafia perhaps. I suspect that something like the opposite is in fact nearer to the truth; the qualities necessary for success in competition flying are so numerous, and their mixture so critical, that he may well be found to be more fully human than those of us who are not so gifted.

It is interesting that one gets much the same reaction from many dinghy sailors excusing themselves from the club handicap races. And yet I, who do not consider myself to possess any killer instinct worth mentioning, find both types of event very satisfying indeed. Not because of the pleasure of trampling on other competitors (although I am unashamedly pleased when I do well), but because of the opportunity to concentrate for an extended period on something I really enjoy doing, and of the opportunity to measure my own progress. On the assumption that the average club pilot reacts as he does due to a lack of understanding of the competition scene, I shall try to fill in some detail for the uninitiated.

Wooden bird is competitive

The first thing to understand is that a super glass ship is not necessary at all. The Nationals have a handicap class, all the Regionals are run to handicap, and a wooden bird flown with consistency is very competitive indeed.

The next thing is that there is a great camaraderie amongst those who attend competitions – pilots and crews. You will find them very friendly, and free with advice to a newcomer; and you can use all the advice you can get. You will find when you compare your cross-country speeds with those of the experienced competition pilot flying the same type of machine on the same day that there is much for the average club pilot to learn.

Another point, and this surprised me, is that once you are into the swing of things and know what you need for briefing, and when to take your photo of the task board, and when to go to the loo, and when to tow out to the grid, and what RTI means, etc, you find that it is all really a pleasant change from the regular club rat-race. After all, you have only one glider to look after, and you probably only do one flight per day, and all the launchpoint problems belong to the organisers – Heaven!

Of course, you have to be organised, with a suitable crew; glider, trailer, and car de-bugged; basic tools and spares; maps, calculator, etc, and the paperwork required for registration (C of A, insurance, radio licence, competition licence). But preparing lists of all the things you will need is a nice job for the winter months, and you don't have to be over organised; I flew the Dorset Club Skylark 4 in the Nationals Sports Class with sundry club members kindly making up the crew day by day like some music hall act. On the other hand all the Regionals will accept team entries, and Peter White shared the Skylark with me in the Westerns and Jeff Howlett the Highland Club K-6CR at Portmoak. A system with much to recommend it.

Destination unknown

Then there is the mystery motor tour aspect; each day your crew (and for that matter, you yourself) have no idea where you will end up. It will almost certainly be some out of the way place which you would not otherwise visit, and you will probably meet some nice farmer and his family as well. As a bonus you can often take in a stately home, stone circle, aircraft museum, or some such on the way back.

You will be agreeably surprised to find that quite a large proportion of the field is still (like you) hoping for that 300km or Diamond goal flight. There will be opportunities for your crew to fly too. On a good day you may well be home with lots of soaring left in the day; your crew can take a launch and enjoy some pleasant flying. At Portmoak we had several nice ridge/wave flights after tea, even on non-contest days.

So, if you are a local pundit, have that Silver badge, and occasionally stay up for 20 minutes when others fall down after five, and if you like a bit of concentrated flying – Have a Go!

But, be warned; to quote George Moffat again, "Doing well is still greater fun. One caution: it's easy to get hooked."

ON BECOMING A DOLPHIN

THE ARM-CHAIR PILOT

In 1957 I was crew in the Cambridge University Gliding Club's T-21 at the National Championships. As an enthusiastic new science graduate, I saw to it that my pilots would not lack for theoretical advice, and in one fit of pre-Championship calculation I worked out what proportion of the air would have to be occupied by thermals if a T-21 were to be able to fly cross-country without circling – to "dolphin fly" in modern parlance. I seem to remember that, on a reasonable assumption about thermal strength, the answer was "about 64%!"

Ten years later found me setting out in my Olympia 463 from Cambridge to fly round Husbands Bosworth and Dunstable; being casual about such things I had declared these turning points simply because I had flown in competitions at both of them, and I did not know how big the triangle was until I measured it that evening. It turned out to be the biggest triangle that had been flown from Cambridge at that time (221km) – which only goes to show how much was to change in the *next* ten years! From Bletchley onwards the sky was magnificent; no wind, no cloudstreets, just billowing bloated cumuli with curved black bases, scattered liberally across the sky. None seemed to be growing, and none dying; they were just floating there, waiting for me to use. From Bletchley, round Dunstable, and on to Cambridge, I did not circle once, darting from cloud to cloud and simply pulling up under each one, gaining enough height for the dash to the next. Eighty kilometres in a mere Olympia 463 under those conditions was most exhilarating; I returned from Dunstable at 88.6km/h, which (believe me, you glass-fibre men) is *very* nippy for a 463 in no wind.

Within the range of many modern gliders

Still owning the 463, I have not had much other opportunity for sharing in the art of dolphin flying, which is now within the range of many modern gliders in quite modest conditions. In consequence, I have not devoted much time to the underlying theory: I have always flown at the speed for minimum sink in lift which has not been strong enough to circle in, and have always supposed that if I have ever gained in the lift what I have lost in the sink (flying at the best-gliding-angle speed), I have been getting along as quickly as possible. Recent reflection, however, has persuaded me that neither of these propositions is true, as has probably been discovered empirically by the glass-fibre men.

Consider, first, the ordinary best-speed-to-fly theory on which the MacCready ring is based. Suppose the ring is set at a thermal strength of four knots. Everyone knows that in sink the best speed is indicated by the ring (although flying at it involves a process of converging approximations, assuming that the variometer arrangement is the traditional one indicating glider sink and not air sink), but it is also true that the best speed in straight flight in rising air is also indicated by the ring, so that not until four knots up is indicated should one be flying at the speed for minimum sink – for the standard theory works just as well in lift as in sink. Secondly, consider the point at which, following a climb in straight flight, one is about to leave the lift and glide to the next thermal. One can arrive at the same height in the next thermal faster than by flying at the best-gliding-angle speed by circling up and then flying at the best speed appropriate to the thermal strength experienced.

How fast should one be flying?

Thus neither of my practices is correct: the implication for dolphin progress is that one should fly faster than the speed for minimum sink when climbing, and faster than the speed for best glide when sinking, even taking into account the actual sink experienced. If one cannot maintain height, taking the lift and sink together, then it will be quicker to abandon dolphin flying and do some circling. But just how fast should one be flying?

Here the answer is given by a natural extension of the theory I advanced in the very first "Arm-Chair Pilot" article published in S&G, October 1964, p364. That theory has, to my sorrow, never found its way into the books, although at least one pilot has acknowledged in print that it helped him to win a competition. The essence of it is Rule Two:

> The best speed to fly between thermals is found from the standard theory, but the "average rate of climb" is to be replaced by the chosen "critical rate of climb". By the "critical rate of climb" is meant that rate of climb below which one chooses not to circle.

Suppose one chooses not to circle below four knots up: then set the MacCready ring accordingly, and, if the critical rate is well-chosen, one will still reach each thermal at an acceptable height, flying straight in lift up to four knots and circling in anything better. Suppose now that the lift is so strong that one finds that one can increase the critical rate of climb to six knots, and still not be in danger of falling out of the bottom. On doing this one may be lucky enough to find that the lift is so plentiful that one could increase the critical rate to eight knots with safety, even though eight knots is the maximum thermal strength being encountered. In this happy state one is dolphin-flying already, for if the thermal strength never exceeds the critical rate selected, one is never invited to circle by the theory!

The 1964 Arm-Chair Pilot therefore contained all the dolphin-theory needed, ten years ahead of schedule. Use Rule Two, pushing up the chosen critical rate as high as you dare consistent with not coming unstuck, and if

conditions are so strong that you can push it up to the maximum thermal strength, you never need circle: just keep flying according to the ring, in lift and sink alike. Indeed, you need not stop there: if you *still* have height in hand when arriving at thermals, set the critical rate even higher. The higher it goes, the faster you go, and the limit is set only by the need to stay airborne. It is obvious on this theory that one should only fly at minimum-sink in rising air (and at best-glide in sinking air) if the MacCready ring is set at zero: but then one should circle in *any* lift.

I have to confess that in my 463 the ring is nearly always set at zero, on the principle that to arrive is better than to travel hopefully (see "A stochastic cross-country, or *festina lente*", S&G, February 1963, p12), but I would be interested to hear from the glass-fibre men if they do in fact fly according to Rule Two without realising it.

That elusive 500km

HUMPHRY DIMOCK

In the Nationals of 1975 at Husbands Bosworth a 506km task was set on May 31, and an early start was made. As I passed over the boundary fence I reported by radio that the towrope had broken, and I had to land my Nimbus with a full load of water in a wheat field straight ahead. Two hours later at noon I was launched again but without waterballast, having been persuaded to "have a go". With a sinking heart I set off and found that the going was good, getting better, and I completed the circuit in six hours, beating the existing British record. So did most of the others. . . . Open and Standard Classes all completed the task. It was a fabulous day. Then came the disappointment – my second turning point photo was ⅛km out of the zone. My Diamond 500km was disqualified!

Ely Cathedral much photographed

In July and August last year I tried again many times. Three times I abandoned the task after photographing Ely Cathedral flying from Lee-on-Solent or Lasham. One typical attempt was an out-and-return from Lee-on-Solent to Cranwell College on Sunday, August 1. The start was wonderful, 10kt thermals to 6000ft and a 100kt inter-thermal speed. The happiness of a honeymoon (so long ago) could not be much greater! Gradually the clouds, which had been behaving as good clouds should, became less encouraging after passing Oxford. After Northampton a high level overcast began to appear and the journey became a struggle. However, as Cranwell College was not much farther I persisted and the last five miles took half-an-hour. Finally I landed at RAF Wittering where the Duty Officer was more than kind, making up for the disappointment.

Now for *the day,* Wednesday, August 8. My declaration was an out-and-return to Doncaster, 520km. My departure from Lasham was delayed by half-an-hour by the usual fumbles as I sat in my Nimbus. Finally at 11.00hrs I was airborne, cloudbase was only 2500 QFE and the thermals were not too good. I was down to 700ft at Reading, having flown too fast, and was about to dump my water when a good thermal was found.

From there to my turning point, the highest that I was able to get was 3000ft, and at Doncaster itself it was almost a repeat of the Sunday before at Cranwell. At Nottingham the clouds disappeared altogether and I radioed that I could do a final glide to Bicester with a quartering following wind. Just before Bicester a very weak thermal lifted me to 2400ft and I radioed that I could reach Chalgrove aerodrome for an aerotow home. Booker came on the air with "get to the ridge old boy and wait for a thermal to drift you to us and we'll give you a tow home".

"Come and fetch me"

At Benson, the last aerodrome *en route,* I called that I could make a field beyond Reading for a shorter retrieve, my height was then 1400ft, and I started my final glide. Somebody at Lasham came on the air and said "find a good field and I'll come and pull you out". I found a good field and said "come and fetch me". I was down to 700ft.

For a long time I was able to remain airborne within gliding range of my field while waiting for the aeroplane. Somebody at Lasham said "we have done some arithmetic for you, and if you can make five miles beyond Aldermaston" (the prohibited zone) "you will get your Diamond". I replied that I did not want to fly over Aldermaston at 500ft. . . . Finally at Reading a last evening thermal lifted me to 1200ft, and I cancelled the aeroplane and set off towards Lasham 16 miles away, cruising at 50kt and slowing down to 42kt when a little support came under my wings. I arrived at Lasham at 19.45hrs with 300ft to spare, having been airborne for 8¾hrs. What a wonderful glider the Nimbus is. I had flown 520km.

Back at Lasham a crowd of my friends had been listening to my radio and came to shake hands or kiss, according to their sex. The final joy came when my photos and the paperwork were accepted by BGA and Naomi wrote me a very nice letter saying that my Diamond was number 70.

Reprint from the *News of the World,* August 20, 1933:

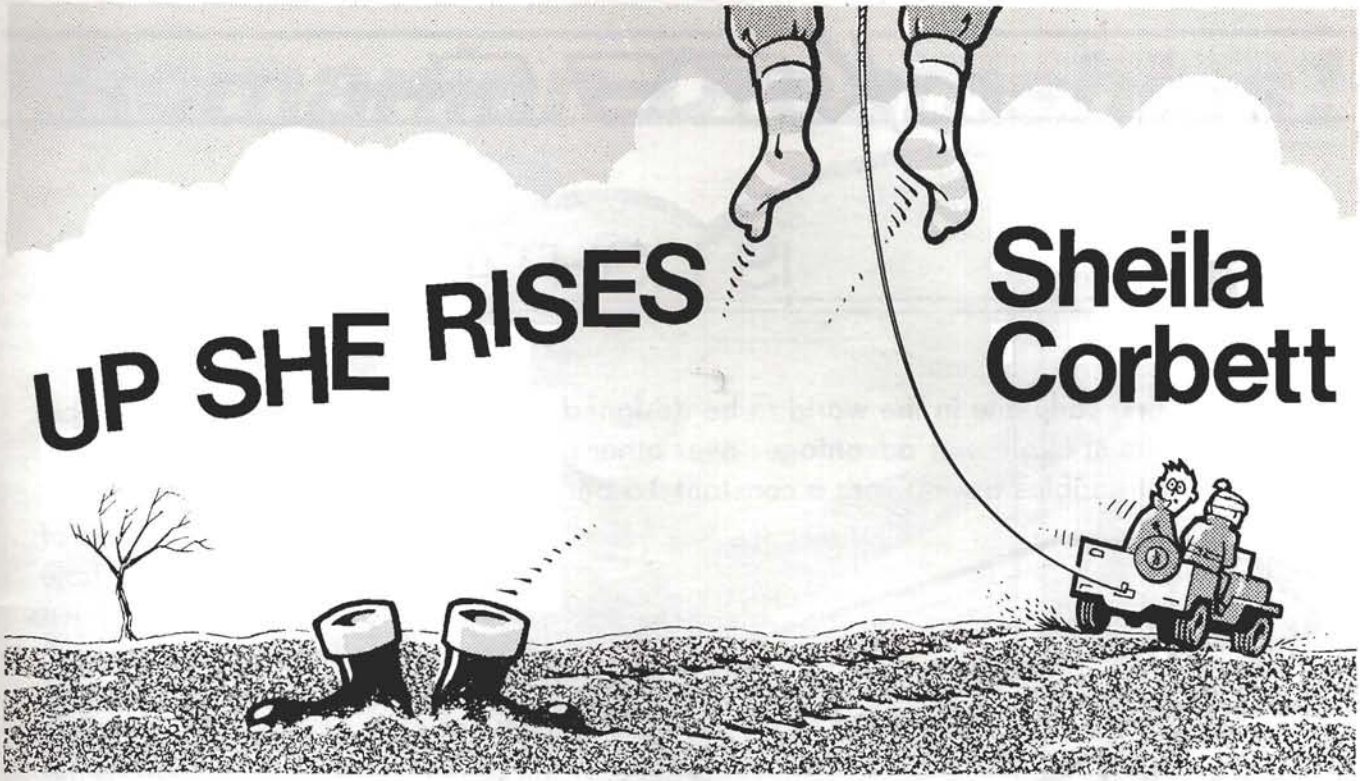
GLIDER'S LOFTY FLIGHT. New British altitude record set up.

Yesterday evening a new British gliding altitude record was established at the London Gliding Club ground, on Dunstable Downs, by Mr G. E. Collins. Using one of the club's "Professor" type of gliders, and carrying a sealed barograph, he attained a height of 1750ft. Mr Collins had previously gone up on a "Kestrel" machine and reached a height of 2450ft, but on that flight no barograph was carried.

C. E. HALL

UP SHE RISES

Sheila Corbett



I was acting as temporary unpaid barmaid when this group of military gentlemen came into the club and ordered pints all round and very quickly pints all round again and again and again. "What have you done to acquire such a thirst?" I asked. "We're the parascenders" they said. "Ooh, I'd love to try that" I said. "I'll swop you for a glider ride" said one—"Done" I said. So the bargain was sealed by me buying them another round, and I was told to come over early next Sunday.

FETCHING IN A BOILER SUIT

It was rather a miserable sort of day, and not many people had turned up, so it was my turn almost immediately. I was dressed most fetchingly in a boiler suit, thick soled boots and a skid lid—a strange contrast to the parachute which hung from my shoulders like a bridal train with two pageboys to hold up the end. One end of a thick silken rope was attached to the front of the harness, and the other to a Landrover about 100 yards ahead.

The launchmaster called "take up slack" and the rope tautened. "Stand up", and the page boys stood, holding the corners of the parachute wide so that the wind inflated it.

"Let go" called the launchmaster, and I took two little steps before being launched airborne in the most delightful way. I wriggled more comfortably into my seat, which the harness formed once I was off the ground, and sat back to enjoy the sensation of being wafted gently through the air at about 200ft above the ground. Almost imperceptibly the vehicle slowed down and I was lowered very gradually to the ground. The touch down was as gentle as a sunbeam—it left me on my feet and the parachute quietly subsided behind me.

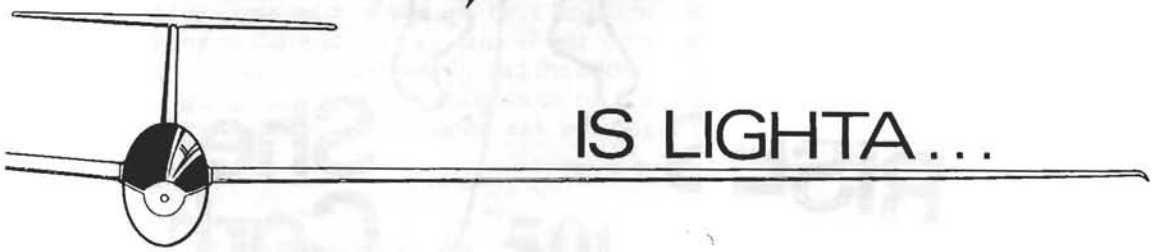
The second time they dropped me the last few feet and I rolled in more or less the approved manner, the third time I was dropped the last 50ft and it was still gentle and lovely. Then they changed the rope for a longer one and showed me how to release so that I could come down under my own steam. This time I went to at least 300ft. When the truck's brake lights came on, I signalled a wide V with my legs, the truck backed up a couple of yards to give enough slack so that I could release.

I looked up at the chute above me—a veritable "Joseph's Coat"—panels in every colour of the rainbow. Then I looked down and the ground was approaching, so I took up the landing position and touched and rolled as before—Ouch, I'd stuck my elbow out and this notched up my first and only bruise of the day. They let me have three more turns. I learnt to turn by pulling on a toggle—the parachute was amazingly manoeuvrable and responsive. The last time he told me to do three 90° turns in alternate directions which I found very difficult in the short time before the ground arrived.

The whole experience was a delight and I was most enthusiastic. "Is there a lower age limit for this sport?" I asked. "Well, one mother was criticised for letting her four year-old son do it" I was told.

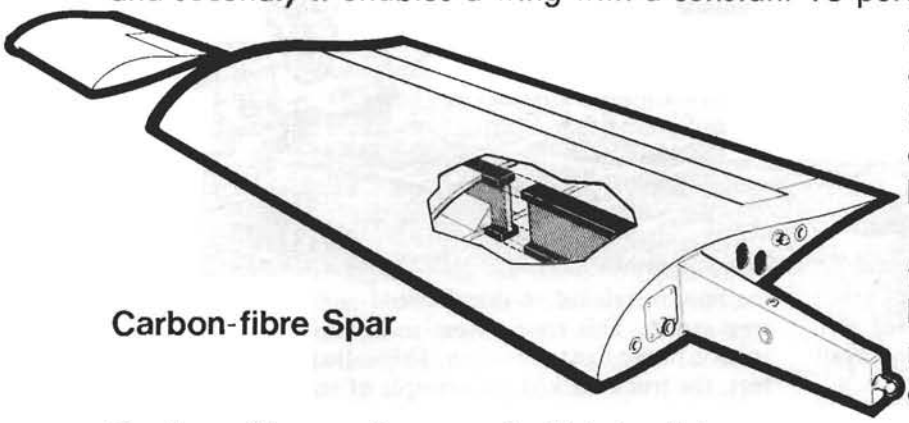
Kid's stuff this parascending! But do have a go if you are ever offered a chance. Not on a soaring day of course!

Vega



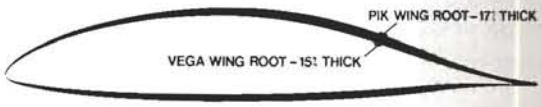
IS LIGHTA...

Vega is the first sailplane in the world to be designed from its concept with a carbon fibre spar: this results in two major advantages over other gliders in its class, first it is lighter and secondly it enables a wing with a constant 15 percentage thickness right through to the root to be used. The PIK20 is of course available with a carbon fibre spar as an option but because it was designed initially for glass it has to have a root end of the wing which is 17% thick. The advantage of a 15% thick wing becomes apparent at the high speed cruise end of the speed range giving **Vega** a performance advantage over others in its class.



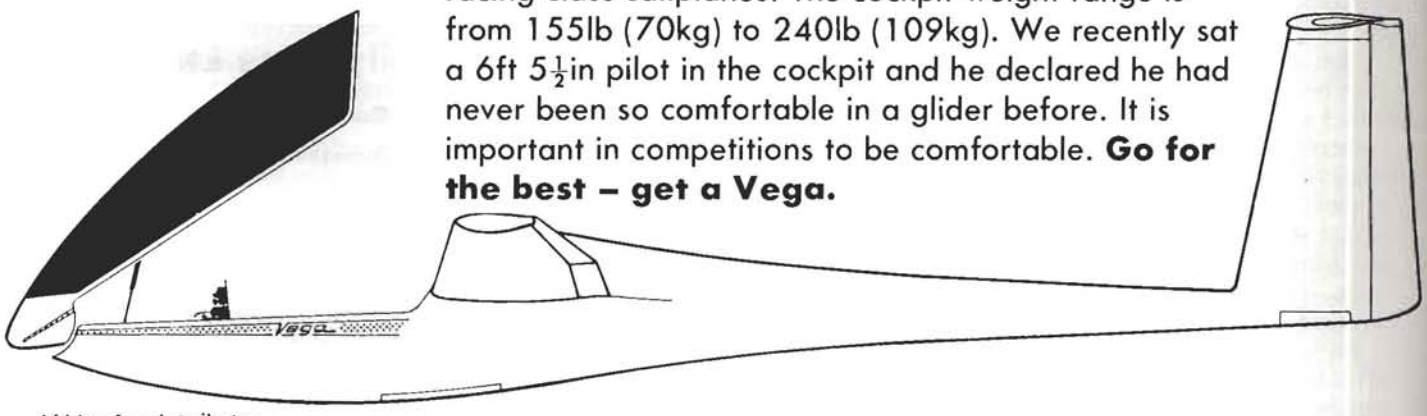
Carbon-fibre Spar

Carbon fibre – the use of which in gliders was pioneered by Slingsbys results in a lighta glida! "So what" you say, "when you are then going to load it up with water". The answer is that most competitions are not won on the good days, they are lost on the bad ones. Very rarely does a major competition not have days of weak lift and it is on these occasions that the **"lighta Vega"** will win out.



Plan ahead - buy a betta glida - buy a VEGA

Vega has the widest cockpit load range and ability to comfortably carry any size pilot of all 15 metre racing class sailplanes. The cockpit weight range is from 155lb (70kg) to 240lb (109kg). We recently sat a 6ft 5½in pilot in the cockpit and he declared he had never been so comfortable in a glider before. It is important in competitions to be comfortable. **Go for the best – get a Vega.**



Write for details to –

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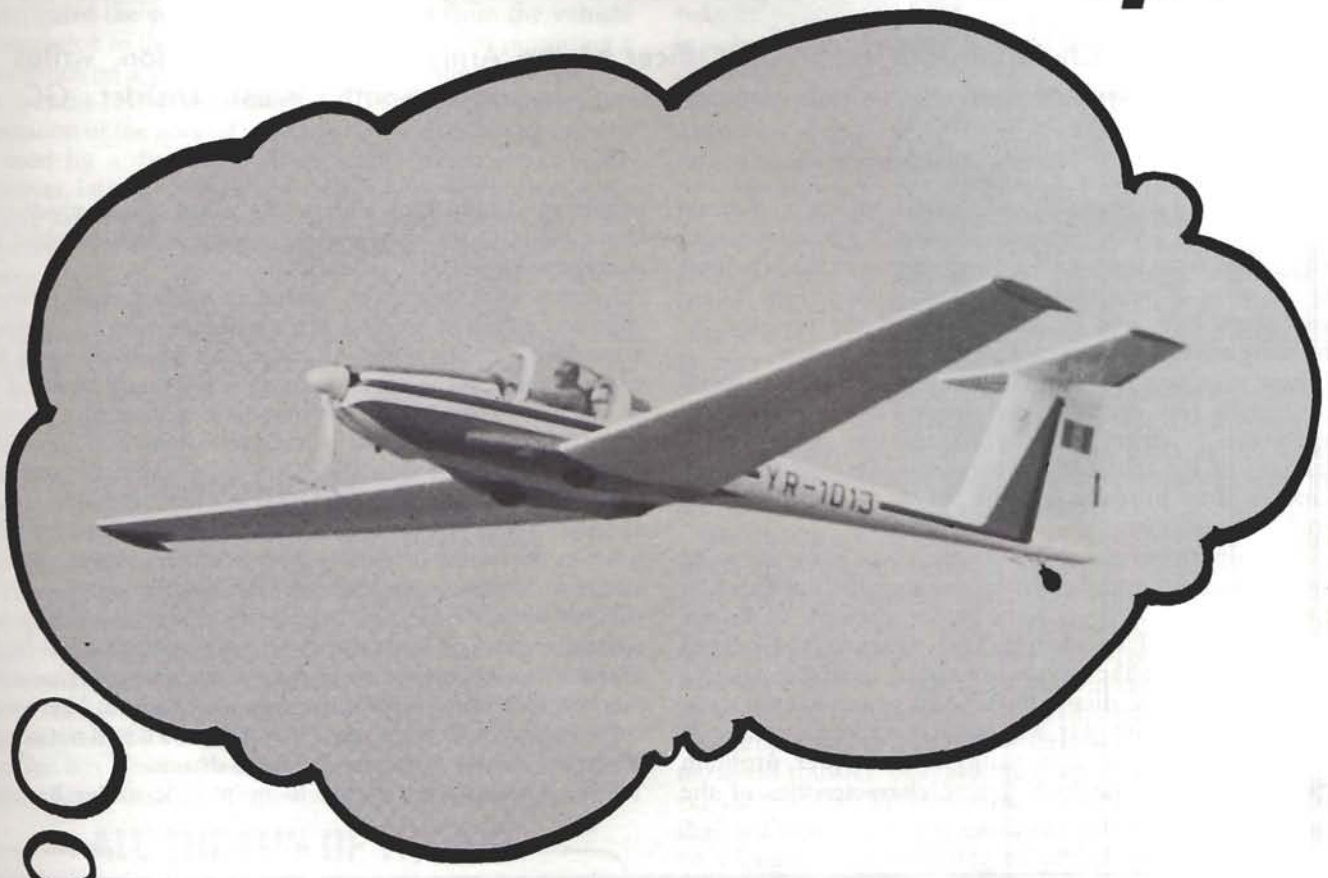

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A high speed diesel drive for the Tost winch

JOHN WELSH, Chairman and Technical Officer of the Army Gliding Association, writes about a conversion on a winch being used by the South West District GC.

I was interested to read Clifford Carter's article on a diesel engined towcar, S&G, February 1976, p27. The advantages to be gained from the use of a diesel engine in the UK from the cost point of view are known by all gliding clubs. These notes show how one club has tackled the problem of providing a diesel drive for a Tost two-drum winch.

Those who have flown in Germany will know how much many clubs rely on their two-drum Tost winches. The experience of Army Gliding Association members in Germany of the reliability of these winches and the good launches they produce led the AGA to purchase two winches less engines.

The main problem is that the winch was designed to be powered by a high speed petrol engine using a fluid fly wheel or torque converter drive. Some earlier attempts by British clubs to fit diesel engines to Tost winches had caused problems because the maximum speed available from a standard automatic diesel engine and gearbox unit, even with an overdrive top gear, was not high enough to give safe launches in slack wind conditions. A further problem reported was that the high torque characteristics of the engine in conjunction with a dry plate clutch produced shock loads to the winch drive system which resulted in damage to keyways.

I started with the aim of producing a diesel engine drive, including a fluid fly wheel and a step-up gearing, to produce a maximum cable speed of 55kts, the whole thing to be self-contained in the winch body so that it could be fitted to any chassis. After much searching and contact with manufacturers, I could not find a suitable engine and standard drive system, while quotations for a custom built step-up gearbox were in the order of £1000 to £1250. Further, it was doubtful if such a drive system could in fact be fitted into the space in the winch originally designed for a petrol engine. Certainly the space precluded the use of a belt drive.

I had looked into the possibility of incorporating an automatic gearbox with the system, though I did not have Clifford's good fortune in finding a matching engine and gearbox. However, my problem was one of speed. There was not room for the step-up gear I wanted and I could not adopt the expediency of fitting larger winch drums.

Since I wanted the winch to be mobile under its own

power on the airfield, the next stage was to see if I could use the engine of the prime mover to drive the winch. A specially built gearbox having been ruled out on the grounds of cost, I investigated the suitability of a belt drive from the vehicle transmission to the winch. The practical way of mounting a Tost winch on a vehicle chassis is to have the cables paying out over the rear of the vehicle. Unfortunately the direction of rotation of the normal vehicle prop shaft is wrong for it to be used for a direct belt drive to the winch input shaft. However, I did find that a new design of power transmission belting known as the Poly-V belt manufactured by TBA Industrial Products Limited, was capable of transmitting the power I needed, about 100 brake horse-power, without being too heavy or taking up too much space and avoiding the difficulties in a multiple V-belt drive of matching belt lengths. Such a belt drive system would, of course, enable me to adjust the gearing between engine and winch to the required ratio.

Trying to make use of standard units

The next step was to see what system could be used to change the direction of rotation of the drive from the vehicle engine to make it suitable as an input into the pulley driving the winch, making use if possible of standard units. Most Army vehicles have a transfer box which enable either the rear only or all four wheels of a vehicle to be engaged. The transfer box from a Bedford RL 4-tonner has this facility, but the input from the engine and the drive out to the front wheels comes from the front of the box and the drive to the rear wheels from the back. Further, on engaging four wheel drive the gear ratio from engine to both sets of wheels is reduced by half. However, at the front of the box an input in one direction of rotation resulted in an output in the other direction.

A combination of lateral thinking, head scratching and quantities of light ale showed that if the box were to be turned round an input from one end would result in counter rotating outputs from the other end. Further, by grinding off the teeth from one set of permanently meshing 2:1 gears it was possible to use the transfer box when reversed to provide either normal drive to vehicle rear wheels or a counter rotating drive from the other shaft at the same 1:1 engine ratio. Either of these could be selected using the existing gear selection mechanism in the box.

It seemed that a combination of the modified transfer box and the Poly-V belt drive might do the trick. There remained the mechanical business of fitting the parts of the jigsaw together and seeing if what should work on the drawing board did work in practice.

The chassis selected was from an AEC double decker bus which had a big engine with a fluid fly wheel and also an electrical gear selection system not requiring the use of a clutch or gear change pedal. The advantage was that by means of a second selector and a changeover switch, gear selection could be made from the winch cab when driving the winch. A duplicate throttle linkage was easily arranged. The prop shaft to the rear wheels was removed and the modified transfer box mounted immediately behind the vehicle gear box. From the transfer box one shortened prop shaft led to the back axle and a second to a pulley mounted on a length of line-shafting on self aligning bearings in a fabricated bearing housing. From here the Poly-V belt drove upwards to another pulley and bearing housing mounted in the winch chassis, belt adjustment being achieved by the use of standard line shafting take-up bearings.

Belt showing virtually no sign of wear

The link to the winch required only a straight prop shaft, though experience has shown it is desirable to fit a disc brake on to the shaft in order to stop the natural drag of the transmission in neutral when selecting the winch drum to be driven. The system has not been without its teething troubles, but these have been caused by quality of building rather than any inherent fault in the system itself. The modified transfer box and the Poly-V drive has worked perfectly and the belt is showing virtually no sign of wear after over 2000 launches.

One snag is that the long drive chain to the winch suffers from noticeable transmission losses and so it is necessary to have a high powered engine to start with. However, the economy of having only one engine and its accessories to maintain, or replace in due course, makes it worthwhile.

* * *

If anybody is interested in more details, I would be pleased to answer any questions. The winch is very smooth and easy to operate: a big improvement on the old Pfeifer winches which were used previously. My address is 6 Abbey Hill Close, Winchester.

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I LEARNT ABOUT GLIDING FROM THAT

DEAN CARSWELL continues his series

It was one of those short days in the depths of winter when the dark overhanging clouds give the feeling that it is never quite full daylight. It was however the first day for some time when gliding was possible, and despite the chill wind, the wetting rain showers and the exposure provided in the open T-31, everyone was keen to squeeze in as much flying as the day permitted. The squally showers became more frequent as the afternoon wore on and the temperature dropped, and I became more and more uncomfortable in the back seat of the T-31.

That dreaded cable break

After a prolonged halt awaiting passage of the latest shower I decided that the lowering clouds and gathering gloom made it wise to call it a day. The hangar was at the far corner of a very wet airfield and, in an effort to squeeze in another launch and save the drag back, it was an instant decision to fly in the T-31 to the part of the airfield nearest the hangar. The aircraft was quickly boarded and checks completed, only to have the cable break on giving the all out.

It took several minutes to repair the cable which sharpened the urge to get off and back to the hangar for something hot. By the time all was hooked up once again and ready to go, the next shower had just started, and the sky had darkened further. Larger drops of rain were splashing all around. We took-off and climbed away; as soon as the aircraft rotated into the full climb, I realised that what on the ground had appeared to be a rain shower was in reality the forewarning of a substantial sleet or snowstorm. The large blinding drops made the visibility very poor, and goggles became of no use at all. Struggling now to see out, I saw the aircraft was rapidly becoming covered with the sleet. I decided to release and complete the planned flight without any attempt at using the circuit for instructional purposes.

Penetration of an open primary

On releasing the cable at around 400ft, and despite the normal climbing speed of between 40 and 45kts, I was surprised how sluggish the aircraft felt as I turned crosswind to make a quick base leg before turning finals intowind again to land close to the hangar. It also appeared that, despite its nominal glide angle of 1:18 or so, the T-31 was displaying the sort of penetration one associated with an open primary or a hang glider. Concerned with the low speed handling, I made a mental note, brushing the snow from my face, to add an extra 5kts on final approach in order to make the point later for my almost forgotten pupil, if not for my wife and kids. I made a quick check of the low speed handling only to discover to my surprise and horror that the aircraft immediately stalled at 43kts (it had stalled at 27kts not more than an hour previously). I gave up all thought of flying in and, in the height available, increased speed as much as possible before rounding out for a very fast touchdown and crosswind landing on a now white-overall runway.

Trudging back through the slush, and on many later occasions, I have considered the lessons of that brief experience—in fact it lasted appreciably less than one minute from take-off to landing—a lot less than it takes to read these words. The press-on spirit had shown its ugly grin again. The anxiety to get back to the hangar, and the reluctance to change plans and have an unpleasant walk despite deteriorating conditions weighed against an objective reassessment of the wisdom of the flight.

Imagination and calculation

Despite a Met forecast which included sleet showers in its prognosis, I was surprised by the weather and left the possibility of sleet out of my calculations. I was taken aback by the effect of the quickly accreting sleet on the airframe, and completely surprised by its staggering effect on performance. If similar conditions had been experienced at a greater height, quite apart from problems of visibility, it leaves little to the imagination what the result of prolonged exposure would have been, particularly in an aircraft with a VNE of 70kts. While not in any way discouraged at winter flying (my logbook discloses a wave flight with 6kts up at dusk, only two weeks later), the associated bad weather is something I take much less lightly. I certainly learned about gliding from that!

ACCIDENT REVIEW

BILL SCULL, Senior National Coach, discusses ways of reducing the potential risk of

Spinning Accidents

The pattern of accidents in the stalling and spinning category appears to go in "waves" - 1976 was certainly a crest. It seems that the accidents themselves, together with the publicity given to them, heightens the awareness of everyone to the extent of almost eliminating such accidents after a bad year.

The cause of such accidents is obvious but the circumstances vary considerably. What should give everyone cause for concern is the means by which the potential risk can be reduced. The first requirement is the belief that it can never happen to you. The range of experience in last year's crop of accidents was from 14–748 hours (P1) and the age range from 19 to 61 years: the average age, however, was 42, and the average experience 221 hours. A more detailed breakdown gives figures which are very surprising: in the six months preceding the accidents, the hours varied from 17 to 67 and the average annual rate for the victims varied between 17 and 61 (an average of about 30 hours per year). These latter details are interesting: I would have expected a lower annual rate and certainly less flying in the last six months. Does this perhaps suggest that over confidence or complacency due to plenty (more than average) experience is a more significant factor than lack of practice.

Regrettably a more refined analysis is not possible. Was the difficulty of the task or the fact that the pilot was attempting it for the first time significant? Certainly it was in one or two cases but this does not confirm a pattern: so it is not possible to be specific, which one might have hoped for, in order to concentrate one's accident prevention efforts on a particular group of pilots.

Basic Training

The problems at this stage are considerable: the training two-seater may not spin readily and, furthermore, will stop spinning with less than a correct recovery drill. The consequence is that the student doesn't think the risks of spinning inadvertently are great and he may have a basic recovery drill which falls short of the standard one. The risks for such a pilot - the majority I believe - are considerable: when the glider does spin he doesn't believe it and for this machine his imperfect recovery drill may not work or results in a delayed recovery.

After Solo

The amount of spinning practice a pilot gets after solo may be very limited indeed: a few check flights perhaps but what about some solo spinning? This may, or may not, be undertaken. If it is then there appears to be a common denominator - the solo pilot rarely undertakes or completes the exercise for which he is briefed. "Take an aerotow" your instructor says "and carry out spins to the left and right each of two turns before initiating recovery". The solo pilot will rarely carry out the exercise as briefed and will almost certainly be unable to tell you how many turns or how much of a turn it took to complete the recovery. The implication is that he at least lacks confidence and, at worst, may be frightened which, coupled with evident disorientation, should give both him and you (the instructor) no cause for complacency. There are a couple of basic instructional points here:

(a) How often do you actually stop your students from stalling accidentally?

Might it not be better to let them do so.

(b) Ask all your students what is the full spin recovery drill and time how long it takes them to tell you; typically it will take ten seconds. Incidentally the *full* drill is full opposite rudder, pause (lack of the pause is not known to be critical for gliders), then with ailerons neutral ease the stick forward until the spinning stops, centralise the rudder and ease out of the dive. It is interesting to conjecture how much height would be lost on the basis of 100ft a second!

Prevention rather than cure

Many instructors will argue that more time should be spent in teaching recognition of the symptoms rather than the recovery drill itself. Undoubtedly, this is of some value but if the pilot is to be protected against the inadvertent spin (by implication he has not recognised any of the symptoms), then surely we must be equally concerned with his reaction when it does occur which makes the spinning practice essential.

An insurance policy

I'm inclined to regard any exercise in the emergency category as an insurance: the more premium you pay, the better the cover. After all, whoever bought a good life assurance scheme on the payment of one premium? Continued instalments are vital if protection is to be assured. Even if a pilot does take the precaution of spinning regularly, this still does not guarantee absolute protection.

Some delusions

What is likely to be the state of mind of a pilot after repeated and unsuccessful attempts to spin his new glider?

He or she will have the fairly firm conviction that "it can't happen to them" because they have been unable to make it spin. This may have been due to their lack of application to the task but might it not be the case that if they can't make it spin they will also be unable to make it recover? I've come across many pilots who say their glider won't spin or that they have never tried to make it spin.

The full recovery drill

Accepting that the majority of training gliders will recover from a spin with less than the full drill, the habit forming nature of such practice will reduce the likelihood of the pilot carrying out the full drill when it happens to be needed. There are certain other aspects regarding recovery from a spin which are significantly influenced by the proximity of the ground (which is usual in the inadvertent case). Proximity of the ground is likely to make the pilot conduct the recovery drill hastily. Here, there are two possibilities:

(1) That the pilot pulls out (or attempts to pull out) of the dive before the rudder has been centralised – the result being a spin in the opposite direction.
(2) That harsh or hasty recovery from the dive (even if the rudder is centralised) may result in a high speed stall.

Either may consume more height than you can really afford.

Continued protection

There seems to be only one way and that is regular practice – it costs money unless you can do it on soaring days. Only regular exposure to the sensations is going to guarantee (insofar as that is possible) that we will not be frightened if it does happen inadvertently and that below a height from which recovery is unlikely then you will not expose yourself to the risks by flying slowly.

Perhaps one of the most critical groups of pilots are the private owners – especially those who have laid up their gliders for the winter. With the coming of spring, out they come and perhaps because they have a few hundred hours in their log books they don't justify a check flight; or do they? Only if they undertake to thoroughly refresh themselves with their glider's low speed handling characteristics should they feel moderately confident during that "low scrape" on their first cross-country of the season.

If your club has many privately owned gliders do you have that "spring-madness" phase where it is all a bit hairy? If so, why not insist on check flights!

In which gliders are the risks greatest?

If you think that your glider is safer than the next man's, then the following list should go some way towards dispelling such thoughts. The list is not a comprehensive one – I haven't the time to do all the research.

Period 1965–1969

T-31	1	Weihe	1	K-6CR	2	Gull	1
Grunau	4	T-21	3	Oly 460	2	Oly 2B	1
Sky	1	K-7	1	Kranich	1	SF-26	1
Vasama	1	Blanik	1	SHK	1	Bocian	1
Skylark 2	4	Gull 4	1	Oly 419	1	Tutor	1
Jaskolka	1	Prefect	1	Skylark 3	1		
Dart	4	Swallow	1	K-6E	1		

Ten fatal – eight serious. As the total number of accidents in the survey was 42, then this suggests that the spinning accident was survivable. Whether this has changed will become apparent in the next review:

Period 1973–1974

K-7	1	Blanik	2	Skylark 2	2	Pirat	1
Swallow	1	Oly 460	2	Dart 17	2	BG-135	1
						K-13	1

For this period, there were five fatal and seven serious and only one minor injury.

The picture for 1976 (there were four accidents in 1974 and two in 1975) is again a black one. The types include: Bocian, two Oly 463s, K-8, IS-29, Vasama, Capstan, K-6CR, Blanik and Motor Spatz, and only one without serious or fatal consequences. If anyone says to me "my glider isn't one of those, so I'm all right" then I despair.

Verbatim reports taken from BGA accident forms

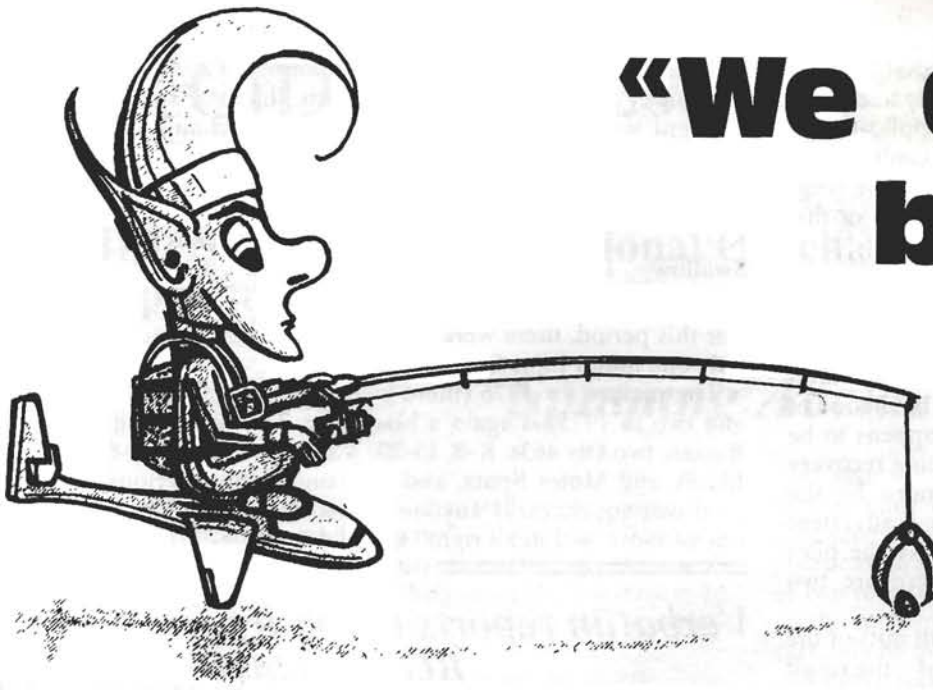
I don't think this article would be complete without some pilots' statements. The following are verbatim reports taken from the BGA accident forms:

(1) "After a normal aerotow, I flew straight for some time before executing two 360° turns. I then commenced my circuit at about 800ft agl. The glider stalled. I realise now that I panicked and pulled the stick hard back. The glider recovered and then stalled again and I once again pulled hard back on the stick. The glider then entered a steep dive and I do not remember anything else until it struck the ground".

(2) "Because I was not entirely happy about the display I had put on at . . . I decided to practice a similar sequence at my home airfield. I finished the sequence with a low fast run at the airfield going downwind. This started at 100kt. My speed had fallen off to about 60kt by the time I had come opposite the control tower and I did a gentle pull up and started a gentle turn to land into wind. My speed was 40kt at this time and my height I estimate to be around 100ft. However, I found I was losing height rapidly so I steepened the turn. I did not increase speed sufficiently and at this point all I can remember is what I felt to be a spin (from about 50ft). The glider hit the ground and I seemed to be hanging face downwards. I can remember crawling away from the wreckage but I do not recall undoing the straps . . ."

(3) "We reached the hill at about 1000ft and the student flew the aircraft along the hill gaining height. By the time we had reached between 1200 and 1500ft he had allowed the glider to drift too far over the hill and we were beginning to indicate sink. I said to him 'You won't find any lift here' at which point the port wing and nose dropped violently. I took control immediately to try and position the aircraft in front of the ridge but was unable to do so as we ran out of height rapidly and struck the top of the hill".

Anyone wanting further details of accidents to gliders should see the annual survey which was published in February 1976 entitled **Accidents to Gliders– 1975.** It is recommended reading for all pilots who are interested in having an accident-free season. Available from the BGA at 60p, p&p included in price.



"We don't want bottom of

RUTH TAIT of the Highland Club describes th slog before flying can start.

"You'll have to go", they said in January. "We want to put in more aerials. All over the airfield. Communications – you know", they added darkly, in case the Russian bear was listening.

"All right", we said. "Give us a little time to find another site".

"September" they said, and sent surveyors to plant little pegs at random, just the right size for ripping the bottoms out of gliders.

Site hunting was fun at first. What vistas of a better Aboyne, a superior Long Mynd, lay before us!

"That would be ideal: near enough the ridge, no sea breezes, easy access to the road . . ."

"What about this, then? We'd just need to clear the scrub, flatten that bank and move that wall, then we could make two runways. No more crosswind launches – imagine!

Landowners were enthusiastic – to begin with.

"Gliders! I've always been fascinated! Wouldn't mind taking it up myself!"

"Ooh! You are brave. I don't know how you could. Watching you gives me such a thrill".

But they had second thoughts:

"I wouldn't object, but I'm only the tenant; the landlord is not keen. He's one of these absentee English types – you understand".

"Excellent idea, but my tenant's not in favour. He's one of these reactionary Scottish farmers – so set in their traditional ways".

"I'll need to put it to the Council".

And they finally came up with several good reasons for not having gliders on their land:

"We are going to plant trees, build council houses, open a hotel, you would spoil the amenities, frighten the pheasants, upset the milk yield, disturb the privacy of our guests . . ."

"An airstrip is not consistent with our policy for this estate. This Land is zoned for development".

Not before time, we abandoned our dream of the perfect site and hunted in earnest for a place, anywhere, big enough and flat enough to accommodate a winch, 1100 yards of cable and two or three gliders.

"How about an old airfield? There's plenty of them around".

Indeed, the coastal plain bristles with them, the latest in the line of obsolete defences that have fronted the invaders from the North Sea ever since the first European adventurer pushed out westward to seek his fortune. We found an airfield at the mouth of the Spey, acres of crumbling concrete, poor grazing, whin bushes and farm rubbish, and started the all-too-familiar tortuous negotiations.

"Whilst we have no objection to your using the southern perimeter track of Dallachy airfield, with an adjacent strip of land, as a gliding site, we do not think that the tenant farmer . . ."

But we were ready for that:

"I went to see the farmer", the Treasurer reported some days later. "He's a nice old boy – he thinks it would be a great idea".

"Very well", said the landlord, "if the farmer is willing".

We crept down in twos and threes to look

So we came to an agreement with him over the lease, and with the farmer over the undersowing of the cereal crop, the moving of fences, the grazing of cattle, and the rent, and the Secretary produced a tame solicitor, who put it all in writing, and we crept down in twos and threes to look at the shattered concrete, the logs and boulders and old fence posts, the enormous whin bushes, the tinkers' encampment, the miles of sagging wire, and whispered:

"It's ours. Ours for three years, to prove ourselves".

"Oh, no it isn't", said our Chairman, who works in Local Government. "We have to get planning permission yet".

September came and went, and October and November. The aerials had fallen early victims to the economic crisis, so we still flew from our old site whilst the local authority planning committee met once a month to discuss trivia, but

t gliders at the our garden"

Ruth, the mother of four children from four to nine years-old, has, in her own words, "been gliding on and off for six years with big gaps for babies, moving sites, etc". Nevertheless she has a Bronze C and Silver height and duration. She shares an Oly 2B with her husband – "usually the half that needs washing or painting" – and in September will join an Astir CS syndicate. Asked what her gliding plans are for the future, Ruth admitted "I have very little confidence which explains why I have done so little. My very modest ambition is to prove my husband wrong when he says I will never make a soaring pilot. As he's never been wrong yet, it's quite a challenge!"

s the trauma of finding a new site and of the physical

never Dallachy, until just before Christmas, when they gave us their assent, and five years in which to succeed.

We spent the Christmas holiday moving fences.

"If a strainer post is to be four feet high above ground, how much of the post should there be below ground?"

"Too much . . ."

And clearing rubbish.

Would he accept free flying in return for help?

"There's a man over there clearing land to build a house. Do you think that if I offered him some free flying he might bring his digger over tomorrow to help shift this stuff?"

And the long, mild spring picking up stones – and stones – and stones – two million of them, we reckoned.

"I say, I picked up a stone and underneath it had eggs, little round, white eggs".

"Just as I suspected: they're breeding . . ."

We threw them into piles and laid them out in rows; we drove along with a tractor and bogey and flung them aboard, until our hands were calloused, our backs crooked and our knees permanently bent. People came in droves on fine Sundays to watch us and comment:

"What are those people doing out on the airfield?"

"I don't know. When we asked what they were digging, they said 'Potatoes . . .' "

We hacked out the whins with picks and piled them over the sordid detritus of the tinkers' camp, then we lit a bonfire that illuminated the sky for miles around.

"Not another NATO exercise!" groaned the local incomers, and filled the correspondence columns with their complaints.

In February, a letter came from the University Gliding Club: "We are planning our Easter expedition, April 10-17, and wonder if we might bring our Bocian to Dallachy this year, to gain some winch launching experience?"

"We would be delighted", the Secretary wrote back.

"You'll never make it", prophesied our well-wishers.

"We will", the CFI replied grimly, and he discouraged all flying.

On April 3 we picked up our last stone and found ourselves a farmer with a heavy roller he was prepared to lend in return for a few free flights.

On April 7 we ceremoniously planted our windsock.

The Day arrived, and with it the University Gliding Club and a major proportion of the inhabitants of Upper Dallachy, Nether Dallachy and Spey Bay. Eight miles away, on the old site, in our re-furbished Bocian, the Chairman and the Treasurer were eyeing the thermals, the approaching sea breeze front and each other.

"We've got to get away," muttered the Treasurer. "Think of the indignity of being towed across".

They scraped away from 800ft, crossed the Spey at 2000 and landed bumpily on the new strip.

"I think we'd better keep the K-6 in its box till we've done a bit more work with that heavy roller", the Chairman said, when he had re-settled his teeth.

We were in business.

We did not get our ideal site: no one is going to want Dallachy for the World Championships in 1978 or any other year, but we are training up a bunch of pundit scratchers for whom every landing is a field landing. Did not two of these very pundits win the Portmoak Regionals with the K-6CR in a week that was remarkable for its scratchiness?

We are one of the cheapest clubs in Britain; our membership is increasing, our pilots are becoming ambitious. Our landlord is impressed (he's never encountered the do-it-yourself enthusiasm of a gliding club before), the local authority approves (we do not ask for subsidies), and we provide vicarious thrills for the weekend motorists who park outside the fence to watch our antics. We are *an institution.*

This year? This year we shall have a hangar, and a tug, and some new instructors – and maybe the Post Office will have taken away that lone telegraph post on our eastern approach.

BGA & general news

ROYAL AERO CLUB'S 75th BIRTHDAY

A strong contingent of glider pilots celebrated George Lee's victory as World Open Class Champion at the Royal Aero Club's 75th anniversary reception on November 26 when the President, HRH The Prince of Wales, presented the annual medals and awards. It was held at the Royal Automobile Club.

George, who has the distinction of being the first RAF World Champion in any sport, received the 1976 World Gliding Championships FAI gilt plaque. George Burton was awarded the FAI bronze plaque for coming third in the Standard Class.

Prince Charles congratulated George Lee on his "enormous success in Finland" and the BGA on their "great team effort". While commenting that gliding was not a spectator sport and all eyes were on the Olympics during last summer, the Prince said he found it fascinating watching gliders overhead.

"My brother is now flying gliders in Scotland and becoming insufferable because he never stops reminding me I don't fly them," the Prince joked. He also congratulated Justin Wills on his "splendid effort" flying 713km across the Channel to the Luxembourg border on August 1.

The Prince of Wales said it was extraordinary to think it was 75 years since the Royal Aero Club came into existence and stressed his admiration for the early pioneers of aviation.

Philip Wills, Chairman of the Royal Aero Club, introduced Prince Charles and Ann Welch, Royal Aero Club FAI delegate, proposed the President's health.

The Prince also presented three other awards to glider pilots. Christopher Simpson was awarded the Royal Aero Club Silver medal for his achievements in all aspects of gliding. In a gliding career of more than 1000 hours, he has been distinguished as an instructor, holds a three-Diamond badge and has contributed greatly to the administration of the sport as Chairman of the BGA for four years.

Keith Mansell, BGA Vice-Chairman, received the FAI Paul Tissandier Diploma for an outstanding contribution to gliding at both club and national level in demonstrating practical, financial and organisational management.

The British Women Pilots' Association O. P. Jones Cup was presented to Miss Philippa Buckley for her outstanding services to gliding over 18 years with the Kent GC of which she was a founder member. She holds an instructor rating and has a Silver C.

The first of our two photographs of George Lee being honoured as World Champion. The Prince of Wales presents George with the FAI gilt plaque with Barry Rolfe, BGA General Secretary, looking on. *Photo: Alan Roberts*

INSTRUCTORS' TASK WEEK

The instructors' task week will be at Lasham this year. It is open to all instructors who wish to improve their own knowledge of cross-country flying and explore methods of teaching soaring and cross-country flying techniques. Talks will be given on most subjects allied to cross-country flying, *ie* task setting, speeds to fly, turning point selection and photography.

Flying will be in groups to keep pilots in the right experience band and, if possible, in the right brackets for glider performance, so don't be put off if you don't have your Silver. And even if you have your Gold there is still plenty to learn. Of course if you have three Diamonds and are currently in practice, then we also need help with flying some two-seaters – ever done a 300km in a Blanik? The other advantages of grouping will be for all pilots to fly the optimum task for the day and be helped by other pilots having the same sort of problems.

The majority of the flying will be in single-seaters but we hope to organise enough two-seaters flown by experienced competition pilots for everybody to have a chance of at least one dual cross-country. It's an experience not to be missed.

If you can make the dates and can obtain a glider for the week June 25–July 3, write to the BGA for an application form. The closing dates for entries is April 31. Only a limited number of gliders can be accepted so book early. The £5 fee is to cover the administration and organisation.

Brian Spreckley
National Coach

SPORTING CODE AMENDMENTS

All holders of the Sporting Code are asked to incorporate the following amendments to Section 3, Class D, Gliders:

Chapter 4.6, p13, after the table, add: "NOTE: Only one record may be certified for a speed flight over a triangular course or a controlled National performance over a straight course, the record or performance being certified for the multiple of 100km immediately less than the distance flown".

Chapter 3, Table A, p11, under the heading "Additional certificates and proofs for Motor Gliders". All Code Sportif references should be 9.2.

Chapter 8.7.1, after "prohibited" add "even if not used".

COMPETITION DIARY

Additional rated competitions are being organised as follows: Portmoak, July 2–10; Shobdon, August 6–14 and Yorkshire Gliding Club, August 6–14.

The next World Gliding Championships will be held in France, at Chateauroux airfield, from July 8–23, 1978.

RESTRICTED CLASS RULES

Any 15 metre glider which is fitted with flaps will not be eligible for the Restricted Class even if the flaps have been rendered inoperative.

L. Tanner
Chairman, Flying Committee

CONSPICUITY OF GLIDERS

In the August issue of S&G, p174, an article appeared giving ways and means of making your glider more conspicuous. Perhaps at that time you were far too busy enjoying the splendid summer flying to take full note of the contents. If so, now is the time to read it again. You will see that the BGA Executive Committee strongly recommended that "steps should be taken etc . . ." This was no idle recommendation.

There is no doubt that for many years pilots hill soaring have had frights due to late sightings of other gliders. It might be that collisions have been avoided (touch GRP) for two reasons:

(1) The sighting hasn't been that late because direction of possible conflict on a ridge is generally more predictable. This means that lookout is slightly emphasised in the more likely sectors.

(2) Closing speeds on ridges are relatively slow.

Of course, a hill concentrates gliders to a greater extent than does cross-country flying but now on good days in many parts of the country there can be a lot of gliders about. Many will be at or near cloudbase where visibility is restricted. Flight directions are much less predictable than on a ridge and airspeeds are about double.

Taking a comparative example of two gliders approaching head on during hill soaring and during cross-country flight with a first sighting distance of half a mile:

Ridge (40kt). Closing speed 80kt.
Time to collision = 22½ sec.

X-country (80kt). Closing speed 160kt.
Time to collision = 11¼ sec.

No allowance made for reaction time or inertia (read the Highway Code). The case is extreme I know, but nevertheless the figures are rather frightening. Whatever the figures, I know I get the odd surprise now and again – it upsets me.

Power/glider conflicts are much rarer, but, depending on the smelly beasts' airspeed, can be quite dramatic. As we all know the business of flying a modern Spam Can has little to do with stick and rudder. Safety depends on the pilot's ability to twiddle navigational aid knobs and to talk to "controllers" rather than look out. I would like to think that on those rare occasions when they do look out they have a better chance of seeing us.

It has been argued that glider profiles are so small that colour schemes can't possibly make much difference. Pilots who have flown on the Continent, where most gliders have such schemes, would, I think, disagree. There is a noticeable improvement. Regardless of that, *any* increase in the initial sighting distance must give more time to take avoiding action (if necessary) and therefore must add to everyone's peace of mind. This is what the article is all about. Read it and act now.

John Ellis
(Airspace Committee)

GETTING ADEQUATE INSURANCE COVER

In view of the recent High Court case when a gliding instructor was held responsible for negligence in an accident which caused the death of a pupil, clubs are reminded to ensure that their insurance cover adequately protects instructors and their club members from the consequence of similar accidents. Clubs are recommended to check with their own insurance brokers that they are properly insured.

In addition clubs are recommended to follow the practice followed by several clubs of taking out contingent liability insurance which will give the club, its members, agents and servants full cover against all legal liability arising by reason of a court of law holding that in any particular case a "blood chit" is ineffective. In addition it is believed that some clubs have obtained cover in the situation where, due to inadvertence, a "blood chit" has not been signed.

Barry Rolfe
BGA General Secretary

RAFGSA PRIZEGIVING AT CRANWELL

To celebrate the World Gliding Championship win by George Lee, this year's RAFGSA prizegiving was staged by the RAF at the RAF College, Cranwell and conjoined with the Inter-Services prizegiving. The prizes were presented by Philip Wills, President of the BGA, and amongst those present were members of the British Gliding Team for 1976 as well as many other prominent figures in the gliding world. Highlight of the evening was a presentation to George by Air Marshal R. D. Roe (Air Officer Commanding in Chief Training Command), of a painting of the ASW-17 glider, in which he won this year's World Championships.

NEW £1000 PRIZE COMPETITION

There is an additional Kremer competition for a prize of £1000 for the first person in the UK to make a duration flight of at least three minutes using man power alone. The regulations are based on the existing £50000 Kremer competition for a distance flight around a figure of eight course and the shorter distance course for prizes totalling £5000, as laid down by the Royal Aeronautical Society.

Further details are available from The Secretary, The Manpowered Aircraft Group, Royal Aeronautical Society, 4 Hamilton Place, London, W1V 0BQ.

After the air was blocked with a continuous monologue by a pilot helping another on a 50km, a reader was driven to complain in verse.

Angela's Antics

July 17, 1976

Angela flew one day in July
For five hours and fifty km she kept in the sky
The report of each movement we all heard that day
"Come over here Angela in this one we'll stay
Come under me Angela steepen your turn
That's not very good, did your cheeks start to burn?
Come under, come over we'll try this one now,"
For real gritty staying power your pal takes a bow.
I presume if was gliding you were doing that day,
And not your friend having his wicked way.
Angela, Angela have you na voice
Or did partners' actions give you no choice?
Angela, Angela this is no time to stap
Angela, Angela it's your turn on top.
He said, "If you hear me waggle your wings."
What more do you waggle when you do other things?
Angela, Angela one thirty point one
For cross-country flying isn't just done.
For doing a Tango you do need a pair
But gliding is done alone in the air.
Angela, Angela we don't wish to moan
But a Silver badge should be done on one's own.

PAM

GLIDING CERTIFICATES

DIAMOND GOAL

No.	Name	Club	1976
2/781	S. W. Frank	Devon & Somerset	22.7
2/782	Catharina Edwards	Cambridge Univ	18.8
2/783	P. R. Andrews	Two Rivers	15.8
2/784	P. M. Richer	London	5.9
2/785	P. F. Orchard	Midlands	17.7
2/786	S. E. Evans	Oxford	16.8
2/787	P. D. Bell	Thames Valley	5.9
2/788	P. C. Wilcockson	London	5.9
2/789	P. O'Donald	Cambridge Univ	15.8
2/790	Ann Woolf	Eagle	3.7
2/791	M. E. Purvis	Bicester	11.7
2/792	D. S. Tawson	Burton & Derby	5.9
2/793	I. S. Grant	Oxford	24.8
2/794	J. D. Spottiswood	Bicester	8.6
2/795	P. A. Bartle	Essex	15.8
2/796	F. Humblett	Coventry	17.7
2/797	J. R. Humpherson	Derby & Lancs	18.8

DIAMOND HEIGHT

No.	Name	Club	1976
3/284	J. M. M. Gentry	Imperial College	24.10

GOLD C COMPLETE

No.	Name	Club	1976
591	P. R. Andrews	Two Rivers	15.8
592	Pam Davis	Kestrel	8.10
593	P. F. Orchard	Midland	17.7
594	S. E. Evans	Oxford	16.8
595	P. C. Wilcockson	London	5.9
596	D. M. J. Wood	Thames Valley	24.10
597	P. A. Bartle	Essex	10.10
598	F. Humblett	Coventry	17.7

GOLD C HEIGHT

Name	Club	1976
A. D. G. Cumming	Cambridge Univ	24.7
Pam Newall	Bicester	8.10
Pam Davis	Kestrel	8.10
A. R. Smith	Essex	8.10
D. D. Mitchell	Cambridge Univ	17.8
D. M. J. Wood	Thames Valley	24.10
P. A. Bartle	Essex	10.10
A. Hegner	Thames Valley	8.11

GOLD C DISTANCE

Name	Club	1976
S. W. Frank	Devon & Somerset	22.7
Catharina Edwards	Cambridge Univ	18.8
P. R. Andrews	Two Rivers	15.8
P. M. Richer	London	5.9
P. F. Orchard	Midland	17.7
S. E. Evans	Oxford	16.8
P. D. Bell	Thames Valley	5.9
P. C. Wilcockson	London	5.9
Ann Woolf	Eagle	3.7
M. E. Purvis	Bicester	11.7
D. S. Towson	Burton & Derby	5.9
I. S. Grant	Oxford	24.8
J. D. Spottiswood	Bicester	8.6
P. A. Bartle	Essex	15.8
F. Humblett	Coventry	17.7
J. R. Humpherson	Derby & Lancs	18.8

SILVER C

No.	Name	Club	1976
4573	W. J. Armstrong	Bicester	27.6
4574	F. McCann	SGU	8.8
4575	E. M. Deeley	Scouts	10.8
4576	P. A. Goisford	Swindon	11.8
4577	M. Woerner	Swindon	15.8
4578	G. G. R. Cooper	Essex	15.8
4579	R. W. Partridge	Surrey & Hants	11.8
4580	P. Perry	Essex	18.8
4581	J. G. Mumford	Surrey & Hants	16.8
4582	G. Beniston	Four Counties	15.8
4583	L. Groves	Portsmouth	1.8
4584	J. A. Melville	Derby & Lancs	17.7
4585	I. Hewitt	Phoenix	7.8
4586	M. Ward	Lincolnshire	11.7
4587	R. T. Vinson	Midland	19.8
4588	J. D. Henry	Surrey & Hants	19.8
4589	M. Coffee	Stratford-on-Avon	15.8
4590	G. M. Eade	Surrey & Hants	16.8
4591	A. Kangurs	Coventry	19.8
4592	J. S. Nicol	Chilterns	18.8
4593	G. Sharpe	SW District	18.8
4594	Caroline Dorby	Bannerdown	19.8
4595	A. E. Keeling	Buckminster	22.8
4596	K. C. Buckett	Portsmouth	18.8
4597	J. V. Walford	Cotswold	21.8
4598	I. D. Bell	Southdown	15.8
4599	L. G. L. Jones	South Wales	17.8
4600	G. James	Norfolk	15.8
4601	D. C. Bower	Bristol & Glos	6.8
4602	M. D. Kochman	Surrey & Hants	6.8
4603	A. D. Smith	Avro	16.8
4604	Alison Jordan	Imperial College	17.8
4605	A. M. Botchelor	Wrekin	24.8
4606	R. M. Platt	Wrekin	24.8
4607	P. E. Gascoigne	Oxford	16.8
4608	D. Stevenson	Burton & Derby	22.8
4609	D. W. Barnes	Airways	25.8
4610	C. E. Morris	Culdrose	21.8
4611	W. R. Mills	Imperial College	15.8
4612	K. F. Moorhouse	Inkpen	12.8
4613	G. M. Ledingham	Thames Valley	15.8
4614	J. F. Beringer	Bicester	15.8
4615	J. A. Nisbet	London	22.7
4616	T. W. Beck	Southdown	28.7
4617	D. Hawkins	Coventry	11.8
4618	Mario Boyd	Surrey & Hants	18.8
4619	K. W. Robinson	Culdrose	28.8
4620	M. J. Seseman	Kent	28.8
4621	T. H. B. Bowles	Derby & Lancs	17.8
4622	F. A. Court	Lasham	15.8
4623	R. P. Hammond	Dorset	27.6
4624	A. Quilter	Thames Valley	25.8
4625	R. G. Rosser	South Wales	3.7
4626	A. Schubert	Cambridge Univ	21.7
4627	R. W. Prince	Burtan & Derby	13.8
4628	G. E. R. Funnell	Southdown	18.8
4629	I. D. Smith	Essex	21.7
4630	P. J. Viner	RAE	2.9
4631	J. B. Dobson	Eagle	14.8
4632	I. Ollernshaw	Avro	18.8
4633	Christine Walker	Imperial College	5.9
4634	H. J. Thomas	Two Rivers	22.8
4635	J. R. White	Surrey & Hants	5.9
4636	Angela Parrack	Airways	16.8
4637	M. Flanagan	Cranfield	31.7
4638	D. Asquith	Coventry	24.7
4639	R. A. Janes	Cranfield	25.8
4640	G. A. Mossie	Phoenix	15.8
4641	K. J. Roots	Wrekin	25.8
4642	J. A. Davies	Surrey & Hants	4.9
4643	P. D. Everett	Glamorgan	5.9
4644	J. P. Gorringe	Thames Valley	7.6
4645	R. J. Osborne	Surrey & Hants	17.8
4646	D. Parker	Dunkeswell	6.8
4647	D. G. Williams	Four Counties	5.9
4648	P. D. Gell	London	5.9
4649	R. G. A. Eckford	Burtan & Derby	5.9
4650	S. J. Drake	Cranfield	8.8
4651	Rosemary Braughton	Coventry	5.9
4652	M. G. Nixon	Essex	18.7
4653	I. R. Bumett	Heron	21.8
4654	W. S. Hill	Highland	6.9
4655	E. Brown	Swindon	11.9
4656	M. B. Uphill	Two Rivers	19.9
4657	K. R. Buckner	Bicester	10.8
4658	D. Campbell	Airways	11.7
4659	M. R. Grimwood	Cambridge Univ	5.9
4660	J. H. Cook	Hombledans	31.7
4661	V. J. Chambers	Surrey & Hants	10.8
4662	M. C. Maydan	Cotswold	5.9
4663	J. Cork	Essex & Suffolk	8.8
4664	R. Madelin	RAE	3.9
4665	P. A. Goulding	Chilterns	15.8
4666	T. Goge	Surrey & Hants	5.9
4667	L. S. Torkington	Burton & Derby	17.7
4668	P. C. Dennis	Inkpen	10.7
4669	A. S. Gardiner	Two Rivers	24.8
4670	D. Hodgson	Newcostle	3.9
4671	D. Platt	Bicester	7.6
4672	W. G. Cook	Inkpen	6.9
4673	Joncis Scarborough	Midland	25.8
4674	P. Greenway	Herefordshire	19.8
4675	G. B. Lescott	Aquila	15.8
4676	R. J. G. Edwards	Cranfield	16.10
4677	N. K. Boyle	Derby & Lancs	17.8
4678	M. A. Hinks	Midland	10.8
4679	J. Clarke	Deeside	6.10
4680	K. B. Slaon	Ulster	10.10
4681	N. F. James	Coventry	21.7
4682	Jacqueline Marriner	Bicester	11.7
4683	P. H. Wilkinson	Bannerdown	22.7
4684	S. C. Dennis	Two Rivers	1.11
4685	R. Dolling	Kestrel	17.7
4686	T. D. Jessop	Bonnerdown	5.9

OBITUARIES

W. REX HORSFIELD

A remarkable character whom many pre-war glider pilots will remember, Rex Horsfield was involved in the first British glider collision in August, 1938 at Sutton Bank, caused, as several subsequent ones have been, by two gliders approaching each other at different levels but meeting at the same level because the lower one was in a thermal. Horsfield, flying a Scud 2, rammed a Grunau Baby amidships. The Scud's nose was knocked off and, to avoid damaging his legs, he flew the Scud into a tree-top. The Grunau pilot was too dazed to remember how he got down or to prevent souvenir hunters from removing all evidence of how the Grunau held together.

Rex Horsfield was an engineer with an inventive genius which spilled over into all his activities. Lawrence Wright, who shared the ownership of the Scud, writes giving many examples, and describes how Rex joined the London Club on a weekday when only Tim Hervey was there, so he drove into Dunstable and hired two men to come out and help to get him launched by car bungey. He then filed the inside of the nose hook to get a higher launch and later, realising he could not soar it, bought the Scud. Finding himself apt to make cross-wind landings in this, he rebuilt the skid with a U-section and made it swivel to "accept the drift".

Since the war Rex Horsfield had lived in Bermuda but met old gliding friends on occasional visits to England.

E. COLSTON SHEPHERD

Colston Shepherd, who has died aged 84, gave splendid publicity to gliding in his capacity of Aeronautical Correspondent of *The Times* during the later 1930's when British gliding was going ahead at last. His Literary Degree at Oxford showed up in his style - thermals, for instance, were "aerial fountains". He got me the job of covering the first Internationals for *The Times* and thereafter persuaded his paper to take long reports of gliding events. In 1939 he left *The Times* to become editor of *The Aeroplane*, then moved to the BBC to control war propaganda for British Aviation; later he became Air Correspondent of the *Sunday Times* and the *New Scientist*. It was due to him that *The Times* became the first newspaper in the world to employ a Gliding Correspondent.

A. E. S.

ANNUAL STATISTICS – OCTOBER 1, 1975 to SEPTEMBER 30, 1976

GLIDING CLUB	AIRCRAFT				LAUNCHES	HOURS	CROSS-COUNTRY KMS	FLYING DAYS		COURSES		MEMBERSHIP		
	Club 2s	Club 1s	PO	Tugs				Total	Soaring	No.	Pupils	Male	Female	Non-Flying
ALBATROSS	2	2	0	0	1274	121	65	46	18	6	62	38	4	4
ANGUS	2	2	2	0	3679	412	0	97	32	0	0	95	5	6
AQUILA	2	1	5	1	2462	588	2704	98	33	0	0	32	4	10
*AVRO	2	2	0	0	4415	626	320	143	81	0	0	169	6	5
BATH & WILTSHIRE	2	3	13	1	4210	1779	22000	49	58	1	10	84	11	12
BLACKPOOL & FYLDE	3	2	8	0	3635	1220	0	92	62	0	0	146	4	0
BORDERS (Milfield)	2	2	6	0	2167	487	0	91	43	0	0	80	2	1
BRISTOL & GLOUCESTERSHIRE	3	4	29	3	6587	4456	48416	250	165	23	178	228	0	61
BUCKMINSTER	2	2	11	1	6436	1294	8600	195	53	0	0	79	6	10
BURTON & DERBY	2	0	10	1	4017	1295	0	0	0	2	20	65	5	10
CAIRNGORM	2	0	2	0	1878	354	0	142	99	27	133	18	2	5
CAMBRIDGE UNIVERSITY	2	5	23	2	8494	4520	56875	230	144	10	60	285	22	60
CORNISH	2	2	6	0	4807	643	300	206	74	18	135	78	7	37
COTSWOLD	4	2	11	0	7021	1954	12849	182	75	0	0	118	15	0
COVENTRY	6	0	35	3	6007	4094	42125	208	90	28	245	278	10	26
CRANFIELD	1	2	9	2	1572	781	7000	109	60	0	0	81	5	0
DEESIDE	3	2	4	2	2779	1850	390	186	57	5	10	90	16	0
DEFFORD (RSRE)	1	0	1	2	1555	195	0	49	26	0	0	24	3	0
DERBY & LANCASHIRE	5	3	23	0	8153	2495	18280	185	147	18	240	219	0	81
DEVON & SOMERSET	2	2	8	1	7538	2263	22728	181	123	7	57	167	12	33
DONCASTER	3	3	16	2	5317	1647	4900	183	84	0	0	166	0	32
DORSET	3	3	11	2	0	0	0	140	0	0	0	127	8	120
DUMFRIES	2	0	2	0	0	0	0	0	0	0	0	16	1	3
DUNKESWELL	2	0	6	0	4516	512	1610	138	67	10	80	43	14	13
EAST SUSSEX	1	2	2	0	3489	379	416	120	65	2	15	77	6	13
ENSTONE	2	0	7	1	4500	805	3000	114	60	0	0	50	5	0
ESSEX	3	2	20	1	7788	2143	n/a	153	n/a	10	60	209	0	n/a
ESSEX & SUFFOLK	2	1	8	2	2441	1251	10000	109	58	0	0	85	8	0
GLAMORGAN	1	0	0	0	Included in South Wales club return					0	0	7	0	0
GLASGOW & WEST OF SCOTLAND	1	1	0	0	Included in S.G.U. club return					0	0	58	3	0
HAMBLETONS	3	2	8	0	5857	2321	9474	174	94	6	72	125	10	0
HEREFORDSHIRE	3	1	14	2	6500	3978	16000	287	199	30	200	182	3	0
HIGHLAND	1	1	1	0	1921	242	85	77	19	0	0	21	4	0
IMPERIAL COLLEGE	0	3	3	0	670	810	11455	See Lasham		3	24	80	4	20
INKPEN	1	1	12	1	2704	1827	10225	210	110	10	33	79	3	1
ISLAY	1	1	0	0	222	29	0	19	4	0	0	13	1	0
KENT	4	2	10	1	9972	1326	1160	0	185	30	280*	104	2	45
KIRKNEWTON	1	0	0	0	112	35	0	21	12	0	0	13	0	2
LAKES	2	1	6	1	2582	647	200	131	53	8	64	63	8	5
LANARKSHIRE	2	0	1	0	Included in Universities of Glasgow & Strathclyde							27	3	0
LASHAM	6	0	72	5	32109	9306	123316	337	n/a	99	306	630	52	351
LINCOLNSHIRE	3	2	9	1	6864	1121	912	151	54	0	0	52	7	6
LONDON	4	6	52	5	13106	5879	n/a	300	250	32	202	337	21	50
MIDLAND	3	3	15	0	11884	2932	6400	238	144	25	476	179	18	45
NEWCASTLE & TEESSIDE	1	1	4	1	1697	451	580	125	92	4	0	42	1	10
NORFOLK	5	0	14	1	2598	1465	3450	195	87	7	40	115	7	14
NORTHUMBRIA	2	1	15	1	4215	866	2300	165	80	7	42	128	6	16
NORWICH SOARING	1	0	5	1	207	463	3310	187	163	0	0	13	0	0
*OUSE	2	2	9	1	4859	1117	5700	132	60	1	10	111	12	20
OXFORD	2	2	8	0	5266	1935	n/a	0	0	0	0	114	0	0
PETERBOROUGH & SPALDING	2	2	9	2	n/a	n/a	n/a	125	52	6	30	58	4	1
POLISH AFA	0	3	1	0	360	320	1650	See Lasham		0	0	22	0	18
RATTLESDEN	1	1	5	0	1145	133	0	47	17	0	0	33	3	0
ROYAL AIRCRAFT ESTABLISHMENT	2	2	0	0	3980	941	3428	127	52	0	0	78	9	10
SCOTTISH GLIDING UNION	5	6	30	2	14167	7418	0	286	239	22	237	303	0	0

ANNUAL STATISTICS – OCTOBER 1, 1975 to SEPTEMBER 30, 1976

GLIDING CLUB	AIRCRAFT				LAUNCHES	HOURS	CROSS-COUNTRY KMS	FLYING DAYS		COURSES		MEMBERSHIP		
	Club 2s	Club 1s	PO	Tugs				Total	Soaring	No.	Pupils	Male	Female	Non-Flying
SCOUT ASSOCIATION	2	0	1	0	1407	470	1000	183	86	12	60	30	4	0
SHROPSHIRE	0	0	8	1	300	430	4700	57	50	0	0	21	0	0
SOUTHDOWN	2	2	13	1	8070	1788	11534	176	79	0	0	155	14	38
SOUTH WALES	3	1	7	1	4000	2500	2000	0	0	2	12	101	5	17
SOUTH YORKS & NOTTS	2	0	4	0	3050	334	200	94	44	0	0	28	7	2
STAFFORDSHIRE	1	1	7	0	1568	227	140	83	32	1	12	56	7	2
STRATFORD ON AVON	3	2	10	2	5136	2126	4872	410	109	0	0	80	5	10
SURREY & HANTS	0	9	0	0	6366	3078	25611	See Losham		0	0	271	22	64
SWINDON	2	3	10	1	5141	1397	13207	185	121	0	0	90	7	3
TIGER CLUB SOARING	0	0	1	3	70	47	0	38	21	0	0	9	1	0
TRENT VALLEY	2	2	10	0	5590	1111	1640	95	44	0	0	77	9	5
ULSTER & SHORTS	2	2	4	1	1518	501	400	89	28	0	0	28	2	0
*UNIVERSITY OF BIRMINGHAM	1	3	3	1	749	314	700	60	25	0	0	50	5	0
UNIVERSITIES OF GLASGOW & STRATHCLYDE	2	0	0	0	1086	127	0	57	9	0	0	18	2	0
*UPWARD BOUND	2	0	2	0	1863	194	0	53	17	0	26	20	5	0
*VALE OF NEATH	1	1	2	0	977	121	0	0	0	0	0	36	4	4
WELLAND	2	0	2	0	1295	268	120	61	49	0	0	26	0	0
WEST WALES	3	0	1	0	1438	235	0	87	25	0	0	30	3	10
WOLDS	2	1	4	1	5720	1727	2000	150	58	0	0	84	7	10
WOODSPRING	2	1	4	0	5448	658	910	163	49	2	19	105	5	0
*WYCOMBE (Airways & Thames Valley)	5	9	28	5	9432	3930	0	325	150	30	200	350	28	0
YORKSHIRE	6	0	27	2	7725	1443	17500	0	0	22	222	220	5	16
CIVILIAN CLUB TOTALS:	172	130	729	72	327683	106752	548757	9396	4736	526	3872	8019	509	1337
ARMY GLIDING ASSOCIATION:														
KESTREL	2	7	1	0	5878	791	18671	94	50	0	0	45	5	42
SOUTH WEST DISTRICT	2	4	0	1	4972	1155	8400	120	n/a	3	30	69	6	0
ROYAL AIR FORCE GSA:														
ANGLIA	2	2	0	0	4990	1098	3453	118	86	0	0	76	3	0
BANNERDOWN	2	3	4	1	9104	1880	12241	159	70	0	0	54	10	30
BICESTER	4	16	0	1	18115	8022	53276	252	116	12	138	468	27	0
CHILTERNS	3	3	1	0	4238	895	10249	120	40	0	0	42	2	7
CLEVELANDS	2	5	8	3	6841	3717	15060	174	94	6	72	160	17	0
CRANWELL	2	3	4	0	4056	774	5970	82	65	0	0	70	4	4
FENLAND	2	3	1	0	6479	1193	4732	141	82	0	0	67	14	0
FOUR COUNTIES	2	4	4	0	8115	2170	16277	0	0	0	0	75	5	20
FULMAR	4	0	0	1	4254	721	820	68	36	0	0	0	0	0
*HUMBER	2	3	2	0	5878	868	4800	100	40	0	0	60	5	0
*MAWGAN VALE	2	1	3	0	2145	261	75	78	12	12	0	40	3	10
WREKIN	2	4	3	1	6938	1685	5350	192	n/a	0	0	80	0	0
ROYAL NAVAL GSA:														
CULDROSE	2	2	2	2	2295	403	521	40	28	1	12	21	2	0
HERON	2	5	1	3	2986	858	5893	78	28	1	14	80	8	0
PORTSMOUTH NAVAL	3	3	1	4	2885	878	1925	143	34	1	9	145	9	12
SERVICE CLUB TOTALS:	40	68	35	17	102169	26369	167713	1900	781	36	275	1552	120	125
CIVILIAN TOTALS (B/F):	172	130	729	72	327683	106752	548757	9396	4736	526	3872	8019	509	1337
GRAND TOTAL:	212	198	764	89	429852	133121	716470	11296	5517	562	4147	9563	629	1462

CLUBS MARKED * HAVE NOT SUPPLIED STATISTICS AND 1975 FIGURES HAVE BEEN USED

overseas news

Please send news and exchange copies of journals to the Overseas Editor: A. E. Slater, 7 Highworth Avenue, Cambridge, CB4 2BQ, England.

RHODESIAN GLIDING CHAMPIONSHIPS, October 1976

Rhodesian glider pilots aim much of their thinking and organising abilities towards the peak of the year – October, when one expects and gets hot, dry conditions and booming thermals.

This year, however, all the good weather apparently went to England and left us with the dregs. High winds, storm fronts, 8/8 clag and just the occasional good day. For the first time in many years no 500km task was set, although there were only two no-contest days out of 12.

The mixed bag of downs and ups gave very interesting flying instead of the monotony of 3–5kt thermals. The final day was a glorious romp with a fantastic downwind dash of approximately 100km and then a return into the teeth of it in lift which was off the clock. Retrieves were the order of the day and the farming community, renowned for their hospitality, rose to the occasion. When six gliders landed at one airstrip a party was laid on for the pilots.

As so often in the past, South African Tim Mouat-Biggs led the snarling pack but may well have been pipped this year had it not been for the bad luck of Ted Pearson who slightly bent his lovely Nimbus on the last day but one.

John Dickson won a richly deserved pilot's award for pushing his Blanik fast and far. Harvey Quail was the Met man.

Record making day came this year after the Comps when Paul Hodge (Std Cirrus) completed a 100km triangle at 143.25km/h to make a claim for the British record. It is currently held by Ted Pearson for a flight in his Nimbus 2 in Rhodesia on October 10, 1975, at a speed of 137.2km/h.

The results were as follows: Open Class, 1 Mouat-Biggs (SA) Nimbus 2; 2 Pearson (Brit) Nimbus 2; Standard Class, 1 Robertson (SA) Cirrus 75; 2 Hodge (Brit) Std Cirrus; Limited Class, 1 Quail, Dart 15, 2 Parkinson, K-6E.

MIKE McGEORGE

SOVIET NEWS

Lithuania, besides providing both men and women champions in the last Nationals, has led the way in Soviet glass-fibre design by setting up an institute to test this material. The result is the LAK 9 sailplane, one of which took part in the 1976 World Championships, but near the end was damaged by its pilot ground-looping it when landing in too small a field. (See S&G, October 1976, p220.)

For the first time in the 38th Soviet Nationals for men, all flew the Polish Kóbra 15 instead of solo-flown Blaniks. Starting on July 23, tasks were: 162km race; 146 and 155km triangles, 300km triangle (unfinished so converted to distance, won by Durnov of Latvia); 147km triangle; 306km triangle (completed by four, winner Vaslov in 3hrs 51½min); 402km triangle (only Rudenski finished, Sabretskis and Shloomba of Lithuania landed one field short). Leading final totals: Sabretskis (Lith) 6751pts, Kuznetsov (Moscow) 6575pts, Parkhomtsev (Central Russian Fed) 6525pts.

As the summer had not been first class for thermals, most pilots had little time to become familiar with the Kobra 15, which was very different from the Blanik.

The 38th Soviet Nationals for women were held at Vinitsa in the Ukraine, starting on July 21, with 13 competitors flying Blaniks solo. Tasks were triangles of 100, 118, 306 (11 finished), twice 100, 170 and twice 100km. Leading final scores: Ludmilla Kliuvieva (Moldavia) 6684pts, Tamara Zagainova (Central Russian Fed) 6521pts. The previous year's champion, Regina Garmutye (Lithuania) finished sixth.

Regional contests were also held: Central Russian Federation at Orel (27 pilots), Ukraine at Vinitsa (25), Lithuania (including a Polish team) and Kazakstan.

The Soviet Union has just received its thousandth glider from Czechoslovakia – a Blanik, allotted to a Kaunas club in Lithuania. – Condensed from translation by C. Wills from *Krilya Rodiny*

SA's REVOLUTIONARY GLIDER

Mike Garrod has recently returned from three weeks in Africa during which time he went to see the BJ-5 under construction in Johannesburg – a revolutionary glider designed by Pat Beatty and due to be test flown in February. (See S&G, June 1976, p115.)

Quoting from Mike's letter to S&G, he considers "the concept is very promising. Pat Beatty has a unique method of changing the top surface wing profile in flight – with the top surface lowered, he has an extremely high speed wing section (stalls at about 55kt, I think) but can change this section in about ten seconds to one similar to the Nimbus.

"In addition, it has extendable outboard sections (non profile change) from 15 to 19 metres (two metres each side). The pilot is located just behind the spar (feet underneath it) with a surprisingly short fuselage. It has a standard T-tail, retractable undercarriage and tail wheel. AUW is about 1100lbs".

Mike regrets that he didn't have a camera with him. The construction is metal/wood wings and glass-fibre/metal fuselage.

While in South Africa Mike met a group of London GC members and flew with Tim Mouat-Biggs for 12 minutes in the Janus. But he spent most of his visit in Rhodesia where he fitted in seven hours in a Blanik with John Dickson, including two short cross-countries, although the weather is past its best in November, and finished off with a flight in an ASW-15, doing two 100km triangles one after the other.

As to the Salisbury GC, he was generally quite impressed with their set-up.

"A lot of good glass-fibre ships, a pleasant club atmosphere and none of the encumbrances of extensive training (nearly all private ownership) to bog down the operation. One might almost say it was the ideal situation for the cross-country pilot (politics apart!)", he concludes.

WORLD DIAMOND BADGES

Statistics issued by the FAI show that certificates for complete Diamond badges issued were 244 up to January 1, 1975, and 1778 up to January 1, 1976. The 1976 figures for the first 12 countries (1975 in brackets) were: W Germany 427 (77), USA 334 (30), Poland 311 (25), France 223 (34), Austria 125 (13), Gt Britain 57 (15), Switzerland 45 (8), Australia 28 (16), Czechoslovakia 28 (1), New Zealand 22 (3), S Africa 21 (4), Canada 21 (1). – *Der Flieger*

AUSTRIAN HEIGHT RECORD

In a Foehn wave on October 12 at Zell am See Guido Achleitner, flying a Kestrel 17, reached an absolute altitude of 10730m (34336ft), an Austrian record previously held by Hans Hirsch with 9780m in 1962. Also on the same day Alf Schubert reached 10490m in a Nimbus 2 and Herwig Phillipp made a greater gain of height than either of the other two, 9780m.

Flugsportzeitung in the same issue reports as a world speed record for model gliders: 303.02km/h horizontally, by an Innsbruck "Working Group for Model Glider Development".

WAVE OVER BELGIUM

Young Baudouin Litt, who flies at Verviers in Belgium, had an ambition to obtain his Gold C gain of height in his native country. But cloud flying is forbidden over Belgium. However, one Saturday last October the wind blew at 50km/h at the surface and 75km/h at altitude. So he took-off, released at 750m, and climbed to 3900m. Two people in a two-seater and another in a single-seater tried to follow him but released too high to make a 3000m climb.

Baudouin's parents, André and Georgette Litt, are proud of him; they are the highest couple in France, André having exceeded 10000m and Georgette 8000m at Fayence the previous January. – Gilbro in *Aviasport*

DIRECTOR RESIGNS

Lloyd M. Licher has resigned as Executive Director of The Soaring Society of America. When he took office in 1957 the Society's membership was 1137, now it is 13412.

GLIDING CENTRE IN IRAN

A French glider pilot stationed in Teheran writes to *Aviasport* describing a gliding club on its military airfield, at 1200m (4000ft), possessing six Blaniks, two winches and some jeeps. Thermals in the spring go up to 4500m, sometimes 5000m (16400ft).

Neighbouring mountains rise to 400m and one, 15km away, to 5700m. Club members number 15, and have so far done some Silver C distance flights.

your letters

A PLEA FOR REGIONAL ACTIVITY

Dear Editor,

I have a lot of good ideas but mostly nobody listens, or pretends not to and then bags them for their own at a later date, sometimes years later. I well remember inventing at the age of nine or so many of the great technical breakthroughs of today. That said I hope that the following idea will not receive like treatment but be taken up smartly for the benefit of all.

While visiting the gliding scene in California and Nevada last summer I noted with appreciation the many symposia – talks and lectures to us – organised throughout the regions of the Soaring Society of America. I attended one in the Kensington district of San Francisco about gliding meteorology given by Doug Armstrong of the Reno weather station, so that I can vouch for quality.

Now we have Regionals as summer competitions, but so far as I know no other regional activity. This means that there is very little cross talk and exchange of information between clubs at a member-to-member level, if indeed higher. Members may spend a lifetime with one club and be little aware of the goings-on at others.

Due to the fact that the biggest unit – in material and human sense – is the average club, resources do not reach to national or international projects. I propose that regions are formed out of convenient groupings of clubs. Such groups would be able to finance top grade national and international speakers at sites properly equipped for such events – as most clubhouses are not, apart from being remote as a rule.

In the impossible days of the winter, enthusiasms could be kept alive by the resultant spreading of empirical and theoretical knowledge, inter-club visits arranged and many other as yet unthought of benefits engendered. Finance would come from underwriting clubs within regions and so should prove a light burden.

What is needed now, assuming that the idea appeals, is for a general meeting of club plenipotentiaries to settle the composition of regions for the purpose. Each region will need an organising committee composed of representatives of the composing clubs, though it would be in order for any club to delegate its rights to another if it was felt that by so making the committee smaller greater effectiveness would be achieved.

If this letter reaches the light of day in S&G it will be getting to the soaring season of 1977 but I hope attention will not be distracted by airy thoughts. If action is started, benefits will accrue next winter which, if it is anything like this one has been so far, will be welcome.

Market Drayton, Shropshire JOHN JEFFERSON

A COMPROMISE FOR LASHAM REGIONALS

Dear Editor,

I notice in your last issue that the Lasham Regionals are to be restricted to aircraft of better than K-6cr performance (see p271). Clearly the organisers have not really considered the implications of this restriction. There is a tendency amongst the top pilots to consider Regionals as practice competitions to get into trim for the Nationals and to tailor them to suit this aim.

Since they are the only way to gain a rating towards flying in a Nationals, a restriction of this kind makes it difficult for the average private owner or club pilot to test their skill against other pilots and to make the first step towards becoming a championship pilot.

While agreeing that the very big handicap allowances made for low performance machines may occasionally result in the hot ships being hopelessly outclassed by something like a K-13, this is not, I feel, a reason to change the whole system. After all if the handicapping is fair this should be possible. There will be many more occasions where the task is totally impossible for the lower performance machines and where no handicap allowance can offset the disadvantage of failing to reach the next thermal.

Flying a Pirat, of course I can see no reason at all to exclude Pirats or Oly 463 which in the hands of a competent up and coming pilot will easily out perform most of the Skylark 3s and 4s. I have suggested a compromise which has been agreed* for this year's Regionals at Lasham. Lower performance machines will be permitted to enter but the tasks will be set on the basis of a minimum performance index of 83. Scoring for lower performance machines will be as if they were all 83, *ie* K-6cr or equivalent.

There will always be the occasional day when the tasks set will be impossible for some of these gliders, but the pilots will happily accept this knowing that on other days they may lick the others in the very weak conditions.

Perhaps the restriction should be on the expensive very high performance machines rather than the older ones. This might encourage a few more pilots to try a competition instead of just flying locally.

Lasham Gliding Centre DEREK PIGGOTT

* *Subject to confirmation.*

THE LESSON FROM INKPEN

Dear Editor,

It would appear that the gliding movement could well learn a useful lesson in how not to get a gliding club off the ground from the experience of the Inkpen Club (see S&G, December 1976, p280).

The Inkpen Club was founded in October 1971 by seven civilian ex-members of the RAF Moonrakers Club who had nowhere to fly when their club was disbanded. At the preliminary meeting it was decided that the club would operate for one year using only a winch and at the end of this time the position would be assessed for viability. The main consideration at the time was whether the club would pay its way or not; in the event it did and also in that first year it produced no adverse reaction from local residents.

In the spring of 1973, before the club had acquired firm security to operate, aerotowing was introduced and the winch phased out. By the end of the year Inkpen was a seven-day-week, all-aerotow operation and the local antagonism grew in proportion to the launch rate. The culmination was a Public Inquiry and a disastrous decision for gliding in general and Inkpen in particular.

The lesson is clear for any club that does not have clearly defined planning permission to operate and wishes to aerotow. **Don't.** Play it cool, keep a "low profile" with a ground based launch system and get the legal side tied up first.

Wilmslow, Cheshire R. H. WRIGHT

DEMISE OF COARSE GLIDING

Dear Editor,

There are various factors which have led to the disappearance from British gliding fields of "fundits" or coarse pilots, the main one being the growth of the "exotica" pilot. This particular species is recognised by his habit of wearing flying overalls and sun glasses; the overalls are normally clean and bear remains of National Service insignia; the glasses are polished and sufficiently dark to prevent the wearer seeing where he is going. I personally am no more interested in this type of gliding than I am in any other "fringe" sport. I am unlikely to be able to afford either the time or money, working as I do for someone else.

Personally I think a disproportionate amount of space in S&G is given to these people, and I am sure my insurance premium is much higher than it should be, due to the high cost of repairing their machines. The image of the sport, particularly when one is trying to explain that it is not expensive, is tarnished when one reads that the RAFGSA cannot afford £15000 for its next glider.

Bill Scull's statement in the October issue of S&G, p228, that too many accidents are happening because pilots are "flying too low and slow" reiterates the coarse pilots maxim that there are only two injuries in gliding – bad backs and death. The coarse pilot is aware that the closer the ground the faster you fly. The recent spate of injuries shows that, unfortunately, the people involved must have been totally unaware of the cause and effect of the stall, let alone the spin. This can only be due to lack of experience with a substantially experienced pilot, and the question must be asked "why?" I would suggest it is simply lack of circuits flown in an open cockpit glider, or that we are teaching people to glide who should not be allowed near a glider.

I read with interest of the fight between the BGA and the Air Traffic Control authorities, but feel that a proportion of this effort should be spent developing the large number of RAF fields abandoned in the light of

recent defence cuts. Many of these fields have been lost completely and would be admirable sites well away from any further developments of control zones.

The coarse pilot is losing out also on the problem of cost – the "exotica" pilot can afford instant, easy aerotows, but if a 10th of the effort spent on the maintenance of powered aircraft was spent on the maintenance of a winch, gliding costs would be reduced by something like 75%. Unfortunately, we have run out of coarse winch drivers also; they were dirty and fairly rough but were frightened away by the "exotica" pilot.

The complete demise of the coarse pilot has happened because various pleas expressed in S&G over the last few years have gone unnoticed. Requests have been made for articles on winches, but I have only ever seen one; several letters expressed interest in plans for home construction, but where are they? If one applies for an inspectors' application this states that plans are available. However, when plans are requested the BGA states that they are not available – surely they must have had some at some time! Whatever happened to the Duster? If anyone had any greater success than myself would they please let me know as I have run out of my first 24 airmail letters.

Whilst realising that destructive criticism is no answer I would like to reverse the process of this demise. The first suggestion is the production of a club machine which would be within the reach of all clubs and a large number of syndicates. This is not idle speculation as manufacturing facilities are available and the basic design has been roughed out. The approximate price would be £4000, and all that is needed is a designer to attend to the finer points of calculation and stressing. This person would be in accord with the tone of this letter and would know what a K-8 looks like, and preferably would never have heard of a BG-135 or Sigma!

Worcester J. B. PAILING

POLITICS AND GLIDING CONTROVERSY

Dear Editor,

May I endorse 100% the comments made by Ian Robertson in the last issue, p274, concerning the exclusion of the Rhodesian team from the World Championships. Who persuaded the FAI to make this absurd decision? I sincerely hope that none of our gliding fraternity had a hand in it.

I'm not going to waste any space in these columns on politics, but for just one comment. George Lee should be thankful that the Irish weren't born black!

Wokingham, Berks M. P. GARROD

RACE AND NATIONALITY IRRELEVANT

Dear Editor,

It is indeed as Ian Robertson says a sad day when politics interferes with our, or for that matter any, sport.

However, he fails to see that it is against Rhodesian (and South African) interference in sport that other nations are making a stand. It is they that have enforced their grubby political ideals upon sport leaving other countries no other option but to break off sporting relations in protest. The Finnish organisers' decision to allow the South Africans to fly in defiance of their Government and the threat of forfeiting a large subsidy was brave, though misguided.

He asks if it was a true World Championship if even one small country was prevented from taking part. It would have been less of a World Championship if that country had been allowed to compete and its representatives had been chosen on skin pigmentation as well as soaring ability.

Sport, Mr Robertson should realise, is man in friendly competition against man; race and nationality are irrelevant to a true sportsman. He would do better trying to impress that upon his own politicians than criticising those of other countries.

Gainsborough, Lincs R. S. SHAW

BOOK REVIEW

PILOT'S NOTES REPRINTED

So far Air Data Publications have reprinted **Pilot's Notes** on 85 types or marks. They are priced at 78p. plus 12p p&p, from The Book Shelf, Back West Crescent, St Annes-on-Sea, Lancs, with a special discount for gliding clubs ordering more than 10. We have chosen the Chipmunk and Horsa notes to review.

Pilot's Notes for Chipmunk T10

These Pilot's Notes are, of course, currently in demand by those who purchased aircraft from the RAF. Altogether, there are almost 100 Civil registered Chipmunk's in the UK.

There is one vital amendment to be made before they are applied to Civil Chipmunk's. The *never exceed speed* for the *military* aircraft is 173kt. This is a death defying velocity, since aerobatics can be performed without exceeding 140kt. However, the plastic windscreen would not survive a bird-strike at 173kt, so the Civil version is restricted to 155kt. (This revision should be placarded in the cockpit.)

There is no reference whatever to weight and balance limitations, so these Pilot's Notes can in no way be a substitute for the legal Flight Manual Ref DH 2.2, issued to each Civil registered Chipmunk. (Chipmunks can easily be loaded beyond the aft CG, when fuel is low and the second pilot weight is greater than (say) 180lbs!

Horsa 1

There is not one Horsa left and it was contemplated building one for the current film about Arnhem but I believe they have settled for Radio controlled models! So this document is a piece of nostalgia and a collectors' item only.

However, the scene has not changed very much and the basic techniques of glider aerotowing were no doubt evolved in the UK and the USA at the time of the Hotspur, the Hengist and the Horsa.

Towing speeds of 150mph are to be envied, but soaring performance and penetration leave everything to be desired! Stall speed of 55mph were matched to a gliding speed of 75mph, both cases with flaps down at gross weight of 15500lbs. Arrester parachutes were optional equipment. The available tugs approved for the Horsa were the Whitley, Halifax, Albemarle, Wellington, Dakota, Lancaster and Stirling.

Best towing performance in either the high or low tow position is quoted as half tug wing span above or below the tug. Low tow position was preferred, and was essential when towing in cloud using Mk II tow cable angle indicator.

R. B. STRATTON

WHERE YOU FLY – A Directory of Club Sites

Compiled by RIKA HARWOOD

CIVILIAN GLIDING SITES IN THE UK

AIRWAYS Flying Club 51°37N 00°48W, 520asl Tel High Wycombe 29263
Wycombe Air Park, 3m SW High Wycombe, Gliding Section, Joint user. Power flying, PPO Tower 29261, 121.15MHz and 130.1MHz.
Remarks: Grass airfield 1 runway. Double circuits. Flying: Daily. Aerotow. Restaurant.

ALBATROSS 50°37½N 04°36W, 850asl
Davidstow airfield, 2nm ENE Camelford, Cornwall.
Remarks: Disused airfield with runways. Flying: Weekends, plus summer course weeks. Autotow only. No visitors by powered aircraft.

ANGUS 56°35N 2°37W, 160asl Tel Arbroath 4146
Condor airfield, 2m NW Arbroath.
Remarks: Airfield with runways. Flying: Weekends, Wednesday evenings. Winch. No power flying. No accommodation or meals.

AQUILA 52°02N 01°13W, 505asl Tel CFI, Fritwell 594
Hinton in the Hedges airfield, nr Brackley, Northants. Access by road ½m N Charlton village turn right into "No through Road" to airfield 1m. No access from Hinton in the Hedges village.
Remarks: Airfield with 3 useable runways surrounded by crops. Land runways only. Flying: Weekends, Public holidays. Aerotow and winch. Visitors by air call "Aquilo Base" 130.4MHz before joining circuit. Non-radio powered aircraft PPR CFI or (Secretary, Bicester 42691). No accommodation. Clubhouse/bar facilities available shortly.

AVRO 53°20N 02°09W, 300asl
Woodford airfield, 5m N Macclesfield, nr Stockport, Cheshire.
Remarks: Flying: Weekends, some evenings. Membership restricted to Hawker Siddeley personnel.

BATH & WILTS 51°19N 02°08W, 200asl
Keevil airfield, 4m SSE Melksham.
Remarks: Weekends only.

BIRMINGHAM UNIVERSITY 52°09N 00°08W, 145asl
Lang Morston airfield, 4m S Stratford on Avon.
Remarks: Membership restricted to Birmingham University. Club operates with Stratford on Avon club.

BLACKPOOL & FYLDE 53°53N 2°37W, 600asl Tel Chipping 267
Cook Hill Farm, Fiddlers Lane, Chipping, 7m NE of junction 32a M6/M55/A6, nr Preston, Lancs.
Remarks: Valley site. Flying: Weekends, some summer evenings. Slope soaring most wind directions. Grass strip 1000x200yds 130°/310° Flying: Weekends. Winch. No power flying allowed. Hangar, clubhouse and meals. No accommadation.

BORDERS 55°35N 02°05W, 150asl
Milfield airfield, nr Wooler, Northumberland.
Remarks: Weekends, some evenings.

BRISTOL & GLOS 51°43N 02°17W, 700asl Tel Uley 342 (045386)
Nympsfield, 3¼m SW Stroud.
Remarks: Grass strips NE SW on Cotswolds hill top. Flying: Daily. Aerotow and winch. Slope soaring W and NNW. Clubhouse, bar, canteen, bunkhouse. Visitors by road welcome but by air, strict PPR. No fuel available.

BUCKMINSTER 52°29N 00°42W, 480asl Tel Buckminster 385
Saltby airfield, 6m SW Grantham.
Remarks: Airfield with tarmac runways. Flying: Weekends, some evenings, weekdays in summer months. Aerotow and autotow.

BURTON & DERBY 52°53N 01°42W, 230asl
Church Broughton airfield, 5½m NNW Burton on Trent.
Remarks: Airfield with runways. Flying: weekends, some evenings.

CAIRNGORM 57°06N 03°54W, 850asl
Feshie airstrip, 5m S Aviemore, Blackmill Farm, Kincraig, Inverness-shire.
Remarks: Grass strip at foot of mountain. Flying: Weekends, daily April-October. Winch only. PPR powered aircraft. Slope soaring. No accommodation or meals.

CAMBRIDGE UNIVERSITY Tel Teversham 3344
1. Cambridge airport, 3m NE City Centre. 52°12N 00°11E, 50asl.
Remarks: Grass airfield 1 tarmac runway. Heavy powered traffic. Flying: Weekends September-March, daily April-August. Aerotow. No accommadation or meals.
2. Duxford airfield, 8m S Cambridge. 52°05N 00°09E, 124osl.
Remarks: Single tarmac runway with grass strips along each side. Very dangerous to land anywhere but on these grass strips, approx 100 yards wide (south side) 50 yards (north side). Flying: Weekends, weekdays during university term. Aerotow and winch. Occasional powered traffic. No accommodation or meals.

CORNISH 50°20N 05°10W, 320asl Tel Perranporth 2124
Trevellas airfield, ¾m SW Perranporth.
Remarks: Airfield with tarmac runways on cliff top. Runway use only, surrounded by fenced farmland. Flying: Daily in summer, weekends in winter. Autotow. Slope soaring W to NNW. PPR powered aircraft St Ives 5093. Visitors weekends only. No accommodation.

COTSWOLDS 51°42N 02°08W, 600asl Tel Frampton Mansell 473
Aston Down airfield, 5m SE Stroud.
Remarks: Airfield with runways. Flying: Weekends only. Subject to restrictions. Autotow.

COVENTRY 52°26N 01°02W, 505asl Tel Husbands Boswarth 429
Husbands Bosworth airfield, 20m E Coventry. E of A50 Northampton/Leicester, between HB and Welford (signposted Sibbertoft).
Remarks: Grass strip E-W. Flying: Daily, powered circuits to south, glider circuits to north of field. PPR powered aircraft (glider types only). Aerotow, occasional winch. Accommodation and meals usually available.

CRANFIELD INST OF TECH 52°04N 00°37W, 360asl Tel Bedford 51551
Cranfield airfield, 8m SW Bedford.
Remarks: Tarmac runways.

DEESIDE 57°04N 02°50W, 460asl Tel Dinnet 339
Aboyne airfield, 2m W Aboyne, 32m W Aberdeen.
Remarks: Flying: Daily. Aerotow. PPR powered aircroft.

DERBYSHIRE & LANCS 53°18N 01°43W, 1250asl Tel Club Tideswell 207
Camphill, 10m W Sheffield. Tel (Steward) Tideswell 270.
Remarks: Grass field on hill top. Flying: Weekends, Wednesday evenings. Functional weekends throughout year. Winch. Slope soaring W and S. Accommodation and restaurant.

DEVON & SOMERSET 50°51N 03°17W, 921asl Tel Braadhembury 386
North Hill airstrip, Broadhembury, 4m N Honiton, Devon.
Remarks: Grass field.

DONCASTER & DISTRICT 53°31N 01°05W, 27asl Tel Doncaster 56066
Doncaster airfield, 1½m S of town centre.
Remarks: Grass airfield. Flying: Weekends, Thursday afternoons; in summer by arrangement. Aerotow and winch. No accommodation or restaurant.

DORSET 50°51N 02°04W, 300asl Tel Blandford Forum 2028
Tarrant Rushton airfield, 3m ESE Blandford Forum.
Remarks: Airfield with 2 runways. Access by road at Flight Refuelling Ltd's main gate on Blondford-Witchampton "C" road, parallel and N of Blandford-Wimborne "B" road. Flying: Weekends, Wednesday afternoons, summer evenings. Aerotow and winch.

DUNKESWELL 50°52N 03°14W, 850asl Tel Luppitt 643
Dunkeswell airfield, 11m SW Taunton.
Remarks: Airfield with runways. Flying: Weekends, some mid-week. Aerotow. Slope soaring S SW and W. Clubhouse/bar, local farmhouse accommodation, or camping.

DUMFRIES & DISTRICT
Falgunzeon, Dalbeattie, Kircudbrightshire. Weekends only.

EAST SUSSEX 05°54N 00°07E, 100asl
Upper Broyle Farm, The Broyle, Ringmer nr Lewes, Sussex.
Remarks: Flying: Weekends, Public holidays. Winch. No visitors by powered aircraft.

ENSTONE EAGLES 51°56N 01°26W, 550asl
Enstone airfield, 10m SW Banbury. Road access from B4030 about 1m out Enstone to Bicester.
Remarks: Disused airfield. Runway use only. 08/26 good condition, beware fence on S side. 15/33 and 02/20 beware of fence at intersection 08/26 as

well as potholes. Flying: Weekends. Aerotaw and autotow. Refreshments on sale.

ESSEX & SUFFOLK 52°04N 00°58E, 230asl Tel Hadleigh 2479
Barrads Hall airstrip, 2m S RAF Wattisham, Whatfield, Hadleigh, Suffolk.
Remarks: Grass strip. Flying: Weekends, last two weeks July, first two weeks August. Aerotow only.

GLAMORGAN (Club operates with the South Wales Club)

GLASGOW & WEST OF SCOTLAND (Club operates with Scottish Gliding Union)

HAMBLETONS 54°08N 01°25W, 115asl Tel Boroughbridge 2147
RAF Dishforth airfield, 3m NW Boroughbridge.
Remarks: Airfield with runways. Flying: Weekends, some mid-week. RAFGSA aerotow and winch. Visitors by air PPR ATC RAF Leeming. Accommodation.

HEREFORDSHIRE 52°14N 02°54W 328asl Tel Kingsland 369
Shobdon airfield, 10m W of Leominster.
Remarks: Airfield with tarmac runway. Flying: Daily. Aerotow only. Caution parachuting and considerable powered traffic. Canteen.

HIGHLAND 57°39N 03°04W, 38asl Tel Elgin 2919
Dallachy disused airfield, farmland, 1m E Spey Bay an Moray coast.
Remarks: Club operates from narrow strip 06/24 at S end of airfield. Flying: Weekends only. Aerotow and winch. Wave soaring.

IMPERIAL COLLEGE (Club operates from Lasham)
Restricted membership.

INKPEN 51°13N 01°36W 330asl Enq. Linkenholt 228
At present Thruxton airfield, nr Andover, Hants.
Remarks: Due to close proximity Boscombe Down, as well as motor racing circuit at Thruxton, PPR for glider landings. PPR powered aircraft contact Western Air Training, Tel Weyhill 2352. Flying: Weekends only. Visitors please report Control Tower.

ISLAY 55°41N 06°15W 58asl
Part Ellen airfield, 5m NNW of Port Ellen, Isle of Islay, Argyll.
Remarks: Flying: Weekends only.

KENT 51°12N 00°51E, 625asl Tel Challock 307, 274
Squids Gate, Challock, 5m NNW Ashford.
Remarks: Grass field. Flying: Daily. Aerotow and winch. Accommodation and restourant.

KIRKNEWTON (Club operates with Scottish Gliding Union)

LAKES 54°08N 03°15W, 47asl Tel Barrow in Furness 41435 or 41458
Walney airfield, 2m NW Barrow in Furness.
Remarks: Airfield with 3 tarmac runways. Flying: Weekends, courses July-August. Aerotow and winch. Slope soaring SSW. Wave. Intermittent powered aircraft. PPR for visiting aircraft. Clubroom, bar, kitchen for self-catering, accommodation.

LANARKSHIRE
Couplaw Farm, 1¼m WNW Strathaven, Lanarks.
Remarks: Flying: Weekends only.

LASHAM GLIDING SOCIETY 51°11N 01°02W, 600asl Tel Herriard 270
Lasham airfield, 5m N Alton, Hants.
Remarks: Grass airfield with 3 tarmac runways. Runways used for glider launching. Flying: Daily. Aerotow and autotow. Accommodation and restaurant.

LINCOLNSHIRE 53°13N 00°18W, 40asl
Bardney airfield, Bardney, Lincs.
Remarks: Flying: Weekends, some evenings.

LONDON 51°52N 00°32W, 500asl Tel Dunstable 63419
Undulating grass field at foot of Dunstable Downs, 2m SW Dunstable.
Remarks: Flying: Daily. Aerotow and winch. Slope soaring W SW to NW. Accommodation and restaurant.

MIDLAND 52°31N 02°53W, 1500asl Tel Linley 206
Long Mynd, 4m SW Church Stretton.
Remarks: Heath-covered hill top. Flying: Daily in summer, weekends in winter. Occasionol aerotows, winch and bungey. Slape soaring SW W and E. Accommodation and restaurant.

NEWCASTLE & TEESSIDE 54°25N 01°12W, 1200asl Tel Wainstone 434
Carlton Moor, 10m S Middlesbrough.
Remarks: Moorland on hill top. Flying: Weekends, summer evenings. Aerotow and winch. Slope soaring NW and NE. PPR powered aircraft. No restaurant.

NORFOLK 52°27N 01°09E, 186asl Tel Tivetshall 207
Tibenham airfield, 1·5m SW Norwich.
Remarks: Airfield with runway. Flying: Weekends, Public holidays, Wednesdays and Thursdays. Aerotow only. PPR powered aircraft. Clubhouse/accommodation (sleep 12). Caravan park at farm.

NORTHUMBRIA 54°65N 01°57W, 800asl Tel Chopwell 286
Currock Hill, 8m WSW Newcastle upon Tyne. (Tel weekends, Wednesdays only).
Remarks: Grass strip E-W. Flying: Weekends, Wednesday afternoons. Aerotow and winch. PPR powered aircraft. Summer courses, camping, no meals.

NORWICH SOARING GROUP 52°44N 00°58E, 155asl
Swanton Morley airfield, 16m W of Norwich, East Dereham, Norfolk.
Remarks: No training given. Flying: Daily. Aerotaw.

OUSE 53°57N 01°11W, 65asl Tel Rufforth 320
Rufforth airfield, 4m W York.
Remarks: Ex-RAF airfield with runways. Flying: Weekends. Aerotow and winch (reverse pulley). No visitors by powered aircraft.

OXFORD (Club operates in conjunction with the Chilterns RAFGSA Club). Tel Middleton Stoney 265.

PETERBOROUGH & SPALDING 52°43N 00°09W, 10asl
Crowland airfield, nr Peterborough.
Remarks: Flying: Weekends, some evenings.

POLISH AIR FORCE ASS (Club operates from Lasham)

RAE FARNBOROUGH 51°17N 00°46W, 233asl Tel Aldershot 24461
Farnborough airfield, nr Aldershot, Hants.
Remarks: Airfield with tarmac runwoys. Flying: Weekends, summer evenings. Aerotow and autotow. Membership and entry to airfield restricted.

RATTLESDEN 52°10N 00°52E, 305asl
Rattlesden airfield, 5m NW of Wattishom.
Remarks: Concrete runway. Flying: Weekends and Public holidays. Powered aircraft PPR.

RSRE (DEFFORD AERO CLUB) 52°08N 02°02W, 132asl
Pershore airfield, RSRE Air Station, 5m ESE Worcester.
Remarks: Flying: Weekends only. Membership restricted to RSRE personnel. Visiting aircraft by prior arrangement anly.

SCOTTISH GLIDING UNION 56°12N 03°20W, 360asl Tel Scotlandwell 243
Portmoak airfield, 1m SE Loch Leven, Kinross-shire.
Remarks: Grass strips at foot of hill. Flying: Daily. Aerotow and winch. Slope soaring W NW and S. Wave site. Accommodation and restaurant.

SCOUT ASSOCIATION (Club operates from Lasham)
Restricted membership.

SHROPSHIRE 52°50N 02°46W, 275asl Tel Wem 32882
Sleap airfield, 8m N Shrewsbury.
Remarks: Airfield with runways. Landings an runways. PPO Control Tower 122.45MHz or 130.1MHz. Flying: Weekends, public holidays. No landings mid-week. Aerotow only. Restricted membership. Visiting gliders by prior arrangement. Wave soaring S to NW winds.

SOUTHDOWN 50°56N 00°28W, 110asl Tel Storrington 2137
Parham airfield, 1m Storrington, NNW Worthing, Pulborough, Sussex.
Remarks: Flat field 1m N of ridge. Trees on 3 sides. Flying: Weekends, Wednesdays. Aerotow and winch. Slope soaring NW through NE. PPR powered aircraft. Accommodation and restaurant.

SOUTH WALES 51°43N 02°51W Tel Raglan 536
Gwernesney, 3m NE Usk, Gwent. Access along minor road N of the B4235 Usk-Chepstow road.
Remarks: Flying: Weekends, wave flying weeks organised. Aerotow and Winch. Visitors by air contact CFI at site or Cardiff 842983.

SOUTH YORKSHIRE 53°06N 00°46W, 60asl
Winthorpe airfield, nr Newark, Notts.
Remarks: Flying: Weekends, some evenings.

STAFFORDSHIRE 53°08N 01°57W, 1400asl
Morridge, 3m NE Leek, Staffs.
Remarks: Heathland, no runways. Flying: Weekends only. Winch. Unsuitable powered aircraft.

STRATFORD ON AVON 52°09N 00°08W, 145asl
Long Marston airfield, 4m S Stratford.
Remarks: Airfield with tarmac runways. Flying: Weekends, most Wednesdays and Thursdays in summer. Aerotow and autotow. PPR powered aircraft.

SURREY & HANTS (Club operates from Lasham)

SWINDON 51°35N 01°45W, 350asl Tel Stratton St Margarets 2023
South Marston airfield, 3m NE Swindon.
Remarks: Airfield with runways. Flying: Weekends, Wednesdays. Aerotow and autotow.

THAMES VALLEY (Club operates from Wycombe Air Park)

TIGER CLUB SOARING GROUP 51°13N 00°08W, 227asl
Redhill airfield, 2m SE Reigate.
Remarks: Flying: Weekends. No training given. Membership restricted – shareholders only.

TRENT VALLEY 53°28N 00°34W, 203asl Tel Kirton in Lindsey 777
Kirton-Lindsey airfield, 16m N Lincoln.
Remarks: Airfield no runways. Flying: Weekends, Public holidays. Winch.

ULSTER 54°34N 05°42W, 18asl Tel Newtownards 813327
1. Newtownards airfield, 8m E of Belfast.
Remarks: Airfield with tarmac runways. Flying: Weekends, Public holidays. Aerotow only. Also frequent slope and wave expeditions in winds SW to due N to:
2. Magilligan Strand, 55°10N 06°53W. Aerotow, occasional autotow.
3. St Angelo, 54°23N 07°39W, 164asl.

UNIV OF GLASGOW & STRATHCLYDE 55°41N 04°06W
Couplaw Farm, 1½m WNW Strathaven, Lanarks.
Remarks: Grass field E-W. Flying: Weekends, some mid-week. Winch. No visitors by powered aircraft.

UPWARD BOUND TRUST 51°46N 00°57W, 289asl
Thame airfield, nr Haddenham, Bucks.
Remarks: Flying: Weekends, Membership restricted.

WELLAND
Marshalls Farm, Careby, Stamford, Lincs.
Remarks: Flying: Weekends, some evenings.

WEST WALES 51°45N 04°45W, 160asl Tel Haverfordwest 3665
Withybush airfield, 2m N Haverfordwest.
Remarks: Airfield with runways. Flying: Summer daily, winter weekends. Winch.

WOLDS 53°56N 00°48W, 87asl
Pocklington airfield, 10m E York on A1079.
Remarks: Flying: Weekends, some evenings.

WOODSPRING 51°20N 02°56W, 17asl
Weston Super Mare airfield, Somerset.
Remarks: Flying: Weekends.

YORKSHIRE 54°15N 01°13W, 920asl Tel Thirsk 237
Sutton Bank, 6m E Thirsk, Yorks.
Remarks: Grass field on top of hill. Flying: Daily. Aerotow and winch. Slope soaring S SW W and NW. Accommodation and meals.

SERVICE GLIDING SITES

ARMY GLIDING ASSOCIATION

KESTREL 51°14N 00°57W, 402asl Tel Odiham 2134
RAF Odiham airfield, 1m S Odiham, Hants.
Remarks: MOD active airfield with runways. Flying: Weekends, Public holidays. Winch. Intensive helicopter activity during the week and some weekends.

SOUTH-WEST DISTRICT 51°17N 01°46W, 575asl Tel Upavon 351
RAF Upavon airfield, 3m S Pewsey, Wilts.
Remarks: MOD inactive grass airfield (within D-126). Flying: Weekends, Public holidoys. Winch.

RAF GLIDING AND SOARING ASSOCIATION

ANGLIA 52°08N 00°57E, 284asl Tel Needham Mkt 720-630
RAF Wattisham airfield, 5m SW Stowmarket, Suffolk.
Remarks: MOD permanently active airfield with runways. Flying: Weekends, evenings, Public holidays. Winch. PPR civil aircraft.

BANNERDOWN 51°27N 02°18W, 595asl Tel Hawthorne 810283
RAF Colerne airfield, 3m NE Bath, Wilts.
Remarks: MOD inactive airfield with runwoys. Flying: Weekends, Public holidoys. Winch.

BICESTER CENTRE 51°55N 00°08W, 267osl Tel Bicester 43030
Bicester airfield, 1m N Bicester, Oxon.
Remarks: RAFGSA Centre. MOD inactive grass airfield. Flying: Daily. Aerotow and winch.

CHILTERNS 51°53N 01°13W, 300osl Tel Middleton Stoney 246
RAF Weston on the Green airfield, 8m N Oxford, Oxon.
Remarks: MOD parachute training, grass airfield. Flying: Weekends, Public holidays. Winch. Site also used by Oxford GC.

CLEVELANDS 54°08N 01°25W, 115asl Tel Boroughbridge 2147
RAF Dishforth airfield, 5m E Ripon, Yorks.
Remarks: MOD octive airfield with runways. Flying: Weekends, evenings, Public holidays. Aerotow and winch. Site also used by Hambletons GC.

CRANWELL 53°02N 00°29W, 200osl Tel Cranwell 201 ex M250
RAF Cranwell (North airfield), 4m NW Sleaford, Lincs.
Remarks: MOD inactive grass airfield within ATZ of Cranwell main airfield. Flying: Weekends, evening, Public halidays. Winch.

EAST MIDLANDS 52°37N 00°28W, 295asl Tel Stamford 450 1
RAF Wittering airfield, 3m S Stamford, Northants.
Remarks: MOD active airfield with runways. Flying: Weekends, evenings, Public holidays. Winch.

FENLAND 52°39N 00°33E, 76asl Tel Norboraugh 261 ex 7721
RAF Marham airfield, 7m SE King's Lynn, Norfolk.
Remarks: MOD active airfield with runways. Flying: Weekends, Public halidays. Winch.

FOUR COUNTIES 53°01N 00°55W, 224asl Tel East Stoke 467
RAF Syerston airfield, 3m SW Newark, Notts.
Remarks: MOD inactive airfield with runways. Air Training Carps Central Gliding School. Flying: Daily. Winch.

FULMAR 57°39N 03°34W, 25asl Tel Forres 2161
RAF Kinloss airfield, 2m NE Farres, Morays.
Remarks: MOD active airfield with runways. Flying: Weekends, Public holidays. Winch. This club is due to move to Kinloss early in 1977.

HUMBER 53°33N 00°58W, 19asl Tel Doncoster 840714 ex 52
RAF Lindholme airfield, 5m NE Doncaster, Yorks.
Remarks: MOD inactive airfield with runways within MATZ RAF Finningley. Flying: Weekends, Public holidays. Winch.

MAWGAN VALE 50°26N 05°00W, 392asl Tel Newquay 2201
RAF St Mawgan airfield, 3m NE Newquay, Cornwall.
Remarks: MOD permanently active airfield with runways. PPR all aircraft. Flying: Weekends, Public holidays. Winch.

WREKIN 52°38N 02°18W, 271asl Tel Albrighton 2393
RAF Cosford airfield, 5m W Wolverhampton, Staffs.
Remarks: MOD active airfield with runways. Flying: Weekends, evenings, Public holidays. Aerotow and winch.

RN GLIDING AND SOARING ASSOCIATION

CULDROSE 50°05N 05°15W, 268asl
Culdrose airfield, 1m out of Helston on A3083 to the Lizard.
Remarks: Active military oirfield. Flying: Weekends, Public holidays. Aerotow and autotow. Contact: CPO Williams, ATC RNAS Culdrose. Tel Helston 4121 ex 2415.

HERON 51°01N 02°38W, 75asl
Yeovilton airfield, 4m N Yeovil, Somerset.
Remarks: Active military airfield. Intense Jet and Hela traffic. Strict PPR at all times. Visitors weekends call 130.4MHz 20mins. Flying: Weekends, Public holidays. Aerotow and autotow. Contact: W. Gordon, Tel Cerne Abbas 298.

PORTSMOUTH NAVAL 50°49N 01°12W, 32asl
Lee on Solent airfield, 4m E Portsmouth on coost road Lee on Solent to Stubbington.
Remarks: Active military airfield. Flying: Weekends, Public holidays. Aerotow and winch. Contact: Lt S. Owens, RN, Tel Lee on Solent 550143 ex 426.

PPR = Prior Permission Required. All heights asl in feet.

Unless otherwise stated most clubs welcome visitors but it is advised to book accommodation in advance if you intend to stay overnight. Some clubs require insurance cover if you wish to fly their aircraft or use their site.

In general Service Clubs have restricted membership but civilians should apply to the club concerned if they wish to be considered to fly from a Service site.

This directory has been compiled from information sent by clubs, or from the BGA "Go Gliding" leaflet issued November 1976. (See also Annual Statistics for more details, p30.)

Thomas Edwards of the Cambridge University Club who went solo on his 16th birthday. Photo: Steven Longland.

Club News

Copy and photographs for the April-May issue should be sent to the Editor, S&G, 281 Queen Edith's Way, Cambridge CB1 4NH, tel Cambridge 47725, to arrive not later than February 16 and for the June-July issue to arrive not later than April 13.

December 8, 1976

GILLIAN BRYCE-SMITH

BLACKPOOL & FYLDE

The year's accounts show that we are solvent and well balanced while we steadily repay major loans. We have held subscriptions steady for two years, and more members have done more flying, so our major income is healthy. However our operating surplus is much reduced due to heavier bills and reduced income from several minor sources. We now operate five club and ten private gliders, with another 463 and Fauvette. We exchanged land with a neighbour, giving up our short runway 06/24 to widen the launch area on 13.

We welcome visiting gliders but suggest you warn us by ringing the CFI in the evenings at (070 48) 79507. We will curtail winter flying to give the land time to recover from the rain and will clear the land drains and install more if necessary. The gliders and equipment need overhaul and we are within sight of completing the initial clubhouse development.

On a day in mid October the south-west wind gave a shallow layer of convection between 2500ft and cloudbase at 3300, which tempted two pilots to leave home. Early in November a south-east wind gave hill soaring ten miles away, where a wave slot carried on for ten more miles. Three pilots reached Settle and returned, using heights up to 6000ft.

We are sad Derrick Sandford has resigned as CFI, but he is emigrating to Iran to overhaul airliners. He has led us for five vital years and we are grateful for his inspiration, example and hard work. His one regret is that he will be unable to accept an invitation to join the BGA Instructors' Panel.

Four months ago we waved farewell to Bob Pettifer, who was emigrating to Canada. A family bereavement caused him to withdraw at the last hour and we count ourselves fortunate that Bob has accepted the post of CFI. K.E.

BRISTOL & GLOUCESTERSHIRE

The Swallow, which viciously attacked a stone wall last summer, should be airborne again around Christmas, thanks to Ted Waterman and his helpers. Thanks to the tremendous efforts of our aircraft engineer, "Chalky" White, our tug situation has now improved after some serious engine problems with both the Super Cub and the Auster.

Our Usk weekend was a washout with no flying, still we are looking forward to our Christmas festivities at the club. R.A.R.

BUCKMINSTER

Our statistics show that an almost identical number of launches as last year produced a tremendous improvement in hours flown and cross-country distance covered. A sure indication of the development of experience and ability within the club.

Launching by petrol towcars is getting very expensive and we are to try out a diesel lorry tractor unit with a two speed back axle. Plans are now being made for our annual expedition to Portmoak in the New Year.

D.R.B.

COTSWOLD

A wonderful season has ended with hopes of an equally good one ahead. C's of A are under way with Tim MacFadyen fettling an Austrian SHK, determined to make a 750km attempt. Our beloved K-6E and one of the K-7s has departed and we await the new Astir for solo soaring alongside the resprayed Skylark 3F.

The growth of the club has brought a liability to VAT and next season's flying fees will have to reflect this and the grip of inflation. It looks as though there will be at least a 50% rise.

Winter lectures have once more been highlighted by Tom Bradbury's films and this time his account of the World Championships. Keith Aldridge again joined us at the annual ball to represent our near neighbours, Nympsfield. Congratulations to David Breeze and Roger Baguley on becoming full category instructors.

J.D.H.

CRANFIELD

We have had a particularly fine soaring season, flying three or four evenings each week during the summer as well as at weekends throughout the year. It has been one of the best on record for awards with approximately seven solos, six Bronze Cs, 11 Silver Cs, a Gold height and Diamond goal and distance.

Membership is at around 90 with a substantial number being students at the Institute of Technology, many with no previous flying experience. We have a Bocian, Pirat and K-6E and launching is by aerotow, although it is hoped to soon start autotowing on Sundays. Twelve members went on the club camp at Carlton Bank in September.

We welcome visitors and offer competitive daily membership rates. For further information, ring Rob Edwards at Bedford (0234) 75011, ex 315, during office hours.

R.E.

DERBYSHIRE & LANCASHIRE

Those welcome westerlies have returned bringing many good hill soaring weekends, but as yet only hopes of wave. We had a very successful bonfire party and firework display, followed by a supper-dance.

The Motor Falke is proving useful for *ab-initio* training as well as enabling Bronze and pre-Silver pilots to simulate field landings and venture on map reading expeditions under instruction. Congratulations to Val Hughes, Alan Pennington, Alan Roberts and Steve Woodhead on going solo.

Winter gives the opportunity to overhaul both winches and to press on with building a third. We shall also be busy opposing a proposal to lower the base of Amber I East which is

positioned over Camphill. If altered it would further cramp our altitude for safe soaring in primary waves and force more light aircraft too low through rugged terrain with high rates of sink and into our ATZ.

C.D.R.

DEVON & SOMERSET

We have been spending the winter taking part in a series of lectures arranged by our CFI and getting used to our K-8 – this replaces the Swallow and is part of the process of updating the club fleet.

There are hopes the coming soaring season will equal last year when there were many long cross-country flights, notably Steve Frank's Diamond goal and Dave Rielly's Gold distance.

There was a fruitful expedition to Dornoch, the far north of Scotland, with several wave climbs to 8000 and 10000ft. Preparations are now being made for the organisation of Competition Enterprise from June 11–19.

M.G.P.

ENSTONE

Our AGM in November brought many changes to our Committee, mainly due to resignations by members who felt that they had "done their bit" for the club and wanted more time to fly. Roger Bunker is the new Chairman with David Wilson as Secretary and Richard Forrest our Treasurer.

Our grateful thanks to Roger Bunker and his team who seem to have ironed out all the teething faults in our new reverse pulley system. We are now regularly getting launches of 2000ft and more. We have now obtained the entire control tower on Enstone airfield for club use and plans are afoot to knock down a wall or two and build a workshop.

M.W.

ESSEX

Our first summer course season ended in early September and its popularity was evidenced by the demand and the extent of bookings for this summer. Our thanks to Stan Harris, course instructor, who has returned to South Africa, and George Withrington who was also instructing. We had excellent thermals during the remainder of September with Peter Bartle completing a 300km triangle.

The weather deteriorated during the second week of our annual expedition to Aboyne in October but there were six flights of over 14000ft.

S.L.C.

KENT

Congratulations to Philippa Buckley on being awarded the O. P. Jones Cup (see p26). As well as being a founder member and an instructor for many years, she was our safety officer for a long time until she gave up flying about two seasons ago.

The cups were presented at our annual dinner in October and John Hoye did well to win four, including the League trophy. Ron Cousins won the cup for the best flight, Jo Janzo the instructors' cup and Mike Seisman the cup for the best Silver distance. Congratulations also to Tony Moulang for a 300km triangle and on completing a rating test recently.

The heavy rain this autumn has played havoc with our field and stopped operations on some days. The committee are having a careful look at our launching equipment. We hope to increase the Super Cub engine from 135 to 180hp, which should improve both its safety and reliability. The winches have also been giving trouble but, hopefully, Glen Richards will have rebuilt the two drum winch in time for next season.

C.B.

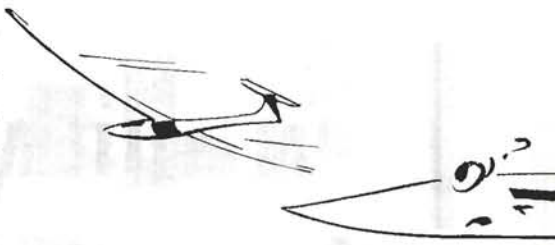
MIDLAND

There was a substantial increase in the launch total for 1976 but we suffered with a spate of winch trouble towards the end of the season. With new members flooding in this year causing a great demand on the two-seaters, the Committee has decided on a waiting list for membership in fairness to those training.

At the AGM, Graham Courtney and Don Brown retired from the Committee after valued service over several years. Chris Ellis and Vic Teague were elected in their place and Bob Scarborough becomes deputy CFI.

W.J.T.

NORFOLK



Ever optimistic, we are planning ahead with the intention of introducing a really high performance glider into the club fleet, plus a second tug to cope with the ever-increasing demand for experience flights.

C.E.H.

NORTHUMBRIA

Due to the non-arrival of the IS-28B2, we operated for most of 1976 with the Blanik as our only two-seater. In spite of this, we recorded two Silver Cs, six Bronze Cs, two Silver distances, one duration and a Gold and Diamond height, plus having an encouraging number of new solo pilots.

At our prizegiving a new trophy, a specially designed candlestick, was awarded to Andy Townsend for a memorable wave endurance flight.

With the IS-28B2, Blanik and K-7 as our training fleet, and the addition of three new instructors, we look forward to a successful year of advanced and initial training. The new fleet should also be an asset on our summer courses.

pik 20

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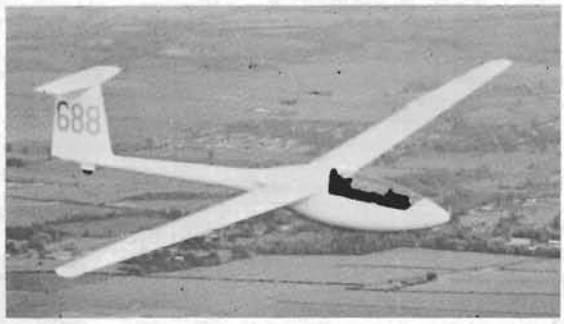

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Andy Townsend with the new trophy – useful for those given to burning the candle at both ends.

We also hope to see the second phase of our development programme well on the way in 1977 with the building of our new clubhouse.

R.R.H.

OXFORD

Members were told at the AGM that the Southern Sports' Council are almost certain to award the club a 50% grant towards the acquisition of an Astir CS. The remainder will be raised by a share scheme amongst members and from club funds. The Astir will head next season's fleet, together with the Skylark 4, K-8 and two K-13s.

Chairman, Dave Roberts, also noted that our pilots have been well placed in five competitions this year, and John Giddins took over from Joy Taylor, our Treasurer of many years' standing.

The launch point "caboose" was threatening to crumble under our feet so we have modified an ambulance for the purpose, which is proving very popular. Recent first solos include Joanna Shapland, Barry Pettit and Derek Manning.

P.H.

RATTLESDEN

The weather has not been too kind but, even so, Tony Emmerson, Bruce Harry, Colin Poole and Ron Sayer have gone solo.

The reverse pulley has been fitted but as we have not got over our "teething troubles" yet we are still using the winch.

Terry Brooker and Roger Davis are waiting to go on instructors' courses – hopefully early in the year. Our clubhouse is rapidly taking shape.

C.E.M.L.

SOUTHDOWN

Only one cross-country was logged during October but we have had a sudden upsurge of new solo pilots with six members achieving this status in quick succession.

Our annual farmers' party seems to get far larger each year, due mainly to our increased number of outlandings. The recent heavy rains have highlighted the undesirability of muddy, flooded car parks – so much work has been done to level the area and lay a proper surface.

B.A.B.

STAFFORDSHIRE

Our flying statistics for this year show that launches were down on last year's by over 8%, but the hours flown were up by 6%, a reflection on our glorious summer. We have also had the first four Silver legs to be flown from Morridge.

Evening lectures have begun again, thanks to the efforts of Peter Foster who has been organising speakers, films and slides. Bob Wilshaw is staging a buffet evening in January to help swell club funds.

F.B.

STRATFORD ON AVON

Membership is increasing steadily and looks very healthy with club statistics showing a record number of launches plus increasing cross-country mileage at last. Congratulations to Mary Neal on completing her Silver C after several years of courageous effort.

Our star pupil, Ian Murdoch, third in the Sport Class at Euroglide, achieved outstanding success in the K-6E, completing his Gold and Diamond goal and winning the first day of the Western Regionals. A valiant effort.

We have a social and dance in the New Year and our beer and skittle nights have been well attended. The new format "Marston Mutterings" has been accepted with enthusiasm and our thanks to Geoff Bateman, the Editor.

H.G.W.

VINTAGE

The superb summer weather gave many of the less experienced members the chance to get to know their vintage gliders better on cross-country flights.

Trophies were awarded at the annual dinner to the following: Mike Garnett for restoring the Scud 3; Martin Breen for the first 300km distance flight in a vintage glider (his Mü 13D); Ted Hull for his labours and cross-country flights in his Rhönbussard; Peter Banting for outstanding cross-countries in his Tutor; Angus and Valerie Munro for organising rallies (Angus also had some fine flights in his 1943 JS Weihe) and to the Husbands Bosworth T-21 pilots for so many remarkable flights including a 250km.

Mike Russell now has storage and restoration facilities at Duxford airfield for vintage gliders in his care.

Extracted from the Vintage Club newsletter

WOODSPRING

We reluctantly bade farewell to our CFI, Pete Griffiths, at the end of November and wish him every success in his new service career. He is succeeded by Pete Turner with John Ward as Chairman and Barry Hogarth as Airfield Treasurer.

Congratulations to Roy Gallop on his Silver duration on our ridge, just one month after his flight of 4hrs 43min.

This, our second year, has been one of all-round consolidation. We now have three club and four syndicate machines including our first "hot ship", a privately-owned Club Libelle. We have had good thermal activity, thus proving that a site by the sea is not necessarily all down in the circuit.

The club engineers, led by Clive Pepper, have begun work on a second winch. It is intended to be portable enough to tow out to a soaring site – if we can find one. Our two drum winch has given over 5000 launches in its first year and we now have no reservations about the reliability and economy of piano wire launching.

During "Sport for All Week", we gave 108 flights to visitors and gained several new members. We have now begun a winter programme of lectures and films.

J.W.

Service News

BANNERDOWN (RAFGSA)

Our T-21B, two Blaniks, K-8, K-18, Skylark 2B, Cirrus and IS-29D, as well as the use of autotow and winch facilities in 1976, helped us to again break previous records of launches, hours and kilometres flown; with the corresponding reward of many Bronze, Silver and Gold badges.

New solo pilots include Mick Alexander, Chris Bunn, Ian Hazel, Rose Joint and Mick Sweet. Mick Webb completed his Diamond goal in a speedy four hours, and Terry Joint came from nowhere in April to full Silver and assistant Cat by September. Tim Jessop completed his Silver C after just five months' gliding – not bad for a MAMS commando!

1977 gets off to a good start with a club expedition to Portmoak and we hope for a good soaring season as the club again utilises its new found mid-week flying freedom.

J.J.H.

CRANWELL (RAFGSA)

Our newly built K-4 recently took to the air and the B-4 has gone to Portmoak for the winter to make the best use of the aircraft and the Scottish hills.

October 16 was a most noteworthy day for the club. The demonstrator Astir CS arrived and the RAFGSA/BGA buffet supper was held in the evening. It was an excellent evening and many thanks to Bryan Harvey for his hard work.

E.G.N.

EAGLE (Detmold)

A very successful year was brought to a close at our AGM in November. Launches and cross-country kilometres were up on last year but although our hard core of regular members had increased, the Chairman, Bill Price, asked everyone to make an all-out effort to increase membership. Marion McCay was the star pilot of the year, winning the newly presented Ladies' trophy for the most solo flying by a lady member in a year, and also the trophy for the best flight – her Silver distance. The Dick

Hocking trophy went to Mark Jones for making the most progress. A successful party followed.

Congratulations to John Mitchell who was awarded the Pete Dawson Trophy at the RAFGGA AGM for the longest flight of the year by a member of the RAFGGA – his 500km into France.

M.A.H.

FENLAND (RAFGSA)

Our fleet has been updated with a new K-18 replacing the K-8. Pat Rowney takes over as CFI from Paddy Hogg who has been posted to the RAFGSA Centre at Bicester – thank you Paddy for all you have done.

Jim Pignot is back after his accident and we are looking forward to seeing him fly again. At the AGM in November trophies were awarded to Carol Whitworth, for the best distance, and to Steve Lomas, for the keenest member.

J.D.B.

FOUR COUNTIES (RAF Syerston)

The World Champs celebration dinner and the Inter-Service prizegiving was at RAF Cranwell on October 16 (see p27). The Hallowe'en party was most successful with Ted Parry making a chicken curry.

We have three new assistant category instructors, Elizabeth Miller, Albert Bourne and Gareth Cunningham, and welcome to the club John Adams, who recently went solo in the Blanik, and Andy Penswick from Wattisham.

With the Kestrel and Std Libelle being sold, we are looking forward to their replacement. The first of our all-metal trailers is nearly complete and will house our new K-18. The superb design was by Steve Hunt with help in the construction given by a number of members including Chy-Chinn, Trev Gorely, Trev Allsop and Hamish Brown.

By the time this goes to print we will be flying our "hot ship", a Sky 1, thanks to the efforts of John Winch and Albert Johnson, our CFI.

I.M.L.

FULMAR

In the year ending October 1976 we achieved 4300 launches and 700hrs with our winch and K-4, Blanik, K-8 and Pilatus. The RF-3 syndicate is still "phut-phutting" around the sky and Eric and Penny Smith have acquired a K-6E. Our canteen bus is in use, the inside having been immaculately converted by Harry Orme and the mechanics fettled by Tony Smith.

A recent expedition to Aboyne produced two good wave days with a Gold height to Graham Heady and a Silver height to John Harber.

There was also a wedding – Bob Lloyd and Barbara Bird were married in Aboyne.

The future looks brighter than it did a few months ago. The closure of Milltown has been delayed and we hope to stay there until mid-1977. Meanwhile we are negotiating to move the club to Kinloss

J.A.F.

HUMBER (RAF Lindholme)

My apologies to Kevin Barnes for forgetting to mention his Silver height and duration and also to Tom, his father, on his 220km cross-country.

Our thanks to Brian Lumby for his hard work on the MT side and to Mick Adam and other Scouters for helping him. Congratulations to Kevin Barry, Ian Middleton and Chris Tuke on going solo.

K.M.G.

PHOENIX (RAF Brüggen)

Our K-18 has proved very popular during its first season, particularly on the Vennebeck ridge. We are now looking forward to our next expedition in February to Issoire, France.

Among the many recent re-solos was the Station Commander of Brüggen, Group Capt J. R. Walker, who has again been let loose solo on his own airfield – he converted from Jaguars to the K-18.

Our new Aircraft Member is going on a panel-beating course prior to the arrival of our Blanik and major inspections of the K-7 and K-6CR are well in hand.

The club's grass conversion programme has led to a nomadic existence on the centre strip; the Dept of the Environment and Air Traffic have been co-operative in removing obstructions from the operating area.

The following trophies were presented at the AGM: CFI's trophy for the most meritorious flight of the year, Wally Lombard for his 200km mountainous out-and-return from Aosta via the Matterhorn and St Bernard's Pass; Tom Jones trophy for club support work, Dave Malkinson and the trophy for the most progress in the year, Roy Wardle. Bouquets went to Kay Killingrae (Field Treasurer), Ann North-Garves (statistics) and Angie Murray and Frankie Rae (both for catering) in recognition of their efforts.

We have said goodbye to our club magazine Editor, John Fowey, to our friendly policeman Bob "the Plod" and to "Spud" Murphy. "Spud" was instrumental in getting the new clubroom finished in time for the farewell parties. Ann and Tony North-Graves are also leaving us soon. Ann has kept the log sheets immaculately, done the club statistics and written the club news reports while Tony, as Engineering Member for two years, has kept the fleet flying and fitted in some instructing. Our thanks to them both.

M.T.

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