SAILPLANE AND GLIDING

June-July 1980 85p



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SAILPLANE & GLIDING

Magazine of the BRITISH GLIDING ASSOCIATION

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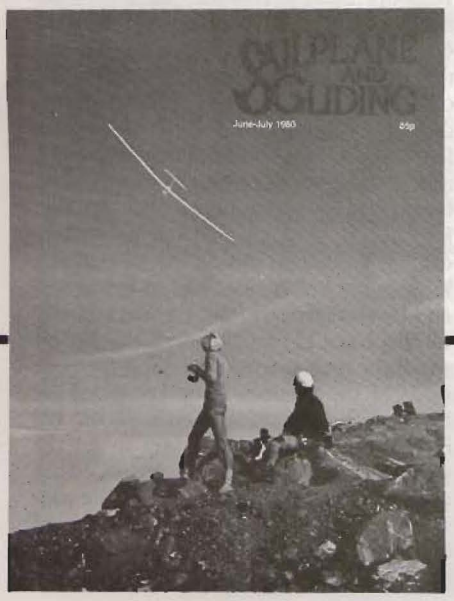
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Cover: Our spectacular picture was taken from Plateau Hut, 7000m asl on Mt. Cook, New Zealand, by Gavin Wills on Boxing Day, 1978, and is of Justin Wills flying the Hornet.



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Mt Cook.

HAVE YOU EVER BEEN EXPERIENCED?

JUSTIN WILLS, who is claiming the British National multi-seater height gain record after achieving 8003m in New Zealand this January, writes about another flight during the holiday.

I suppose every pilot remembers certain flights above all others and that these are often associated with the achievement of certain objectives. However my most memorable flights are those where I have experienced a sense of mystery. It is as if a spell has been cast, projecting me into a fourth dimension in which the nature of reality seems to change, and the scope of possibility suddenly widens; my mind feels released from its everyday confinement, and things that hitherto seemed important recede, to be replaced by a heightened perception of my immediate surroundings. After landing, I am left with the indefinable impression that I have peered through a chink in the curtain surrounding some inner central mystery, and have gained a degree of inexplicable understanding of its secret.

One such flight occurred on Christmas Eve, 1978, when I found myself soaring the summit ridge of Mt Cook, the highest mountain in New Zealand, watching the sun go down. I was flying the Hornet belonging to my cousin, Gavin, who lives at the foot of the mountain with his wife, daughter, glider and Super Cub. I had been aerotowed back from an aerial fishing expedition, and had released over the Ben Ohau Range, expecting to land back on Gavin's strip shortly thereafter. Instead I had found gentle ridge and thermal lift which led me up to the narrow Murchison valley in the lee of 10 000ft Mt Sefton. Here was a strange patch of broken lift quite close to the mountain side despite wisps of cloud above which were clearly blowing down the face, making it look as if I was trying to climb up a waterfall. Yet it worked, and I swept upwards into the sunshine, almost brushing this fringe of cloud as I passed it.

Once level with the summit I turned towards Mt Cook and immediately seemed to fly into fairyland. The glider was surrounded by myriads of glittering snow particles carried aloft from the windward peaks. Caught in the setting sun they sparkled with all the colours of the rainbow. This lasted perhaps 30 seconds, but I shall carry its memory to the grave. Thereafter I scaled the face of Cook itself, and watched the slopes below blushing at the advance of the lengthening shadows before succumbing to turn a luminous shade of pale lemon. Meanwhile I had climbed to 14 000ft and thus remained in the sun, feeling it was now shining exclusively for me. As its final segment began to set I dived, causing it to dip below the horizon. I watched for the green flash but it did not occur, so I pulled up into the light again until the glider stalled, and fell back towards the indigo valleys below.

Unexpected and the unique

Such an experience cannot be pre-planned nor repeated, since it relies for its effect on the elements of beauty, the unexpected and the unique. It could not have sustained any sense of *deja vu*, yet this is an account of how the above flight led to another of similar quality.

Twelve months later Gillian and I revisited New Zealand, complete with a Twin Astir and Holden estate car. This had become financially possible thanks to Brett Iggulden, who brought to the partnership not only his inexhaustible enthusiasm, his glamorous wife Pru and his incredibly exuberant small children, but also an endless supply of Australian vernacular which, though often unprintable, was always entirely apt and kept us entertained throughout our time together.

During the year I had written to Gavin that we should try a goal flight to Milford Sound. Gavin had expressed enthusiasm but Dick Georgeson had seemed doubtful as to the wisdom of such an attempt. Milford Sound is a narrow fiord on the south western coast of New Zealand's South Island. The main dividing range runs the length of the Island on its western, windward side, and it is this layout that produces the remarkable wave conditions. It also produces startling climatic variations, with the western coast receiving 250in of rain per year, whilst 20 miles to the east Mt Cook receives 150in, and a further 30 miles east the MacKenzie basin receives only 25in. From the glider pilot's point of view the west coast is not immediately appealing, since it is often under cloud whose base is generally low, thermals tend to be weak, and the ground is totally covered with dense rain forest. Furthermore the mountains do not lie exactly parallel with the coast, and south of Haast the narrow coastal plain disappears and the mountains fall straight into the sea. Here the rainfall is 300in.

The fiords that cut into these mountains are very inaccessible, but Milford Sound has a small flat area at the head of it which made it a favourite with sealers and whalers at the end of the nineteenth century. Eventually a mule track was cut through the forest and over the Mackinnon Pass, linking it with the rest of New Zealand. More recently a road has been built through the surrounding gorges, which, by means of a sizeable tunnel, reaches the Sound and has established Milford as a spectacular tourist resort. Along with these developments an airfield has been built, with its single runway sticking out into the fiord.

On January 10 Brett and I took-off at 16.00hrs from Makarora, some 75 miles north-east of Milford. By this time Gavin, who had started from Mt Cook in the Hornet, was already 20 miles south of us, and reporting good thermal conditions. I immediately suggested we try for Milford, but without much conviction nor any conception of what was to be involved. We released over the Wilkins River, and pressed on impatiently only to be caught out on the leeside of a kink in the valley, and had to spend half an hour laboriously "S" turning our way to the top. Thereafter with the aid of small cu and thermals coming up both sides of the ridges we soon reached the head of the valley, and crossed the col into the next, taking care not to get the wrong side of the main divide, from which there would be no return. We passed east of Mt Aspiring, which looked like a cathedral spire rising out of a mantle of snow, and followed the western



The summit ridge.

arm of the Matukituki River up to the Dart saddle, where we were so appalled by the country beyond that we retreated for more altitude before proceeding across the miles of jumbled ice and rock to the southern side of the Dart River. Here we found a magnificent ridge, rising to over 8000ft, whose crest consisted of smooth snowfields interspersed with individual buttresses of rock like enormous teeth and occasional pools of aquamarine coloured water in which substantial icebergs were floating. To cap it all we found 10kt lift which took us to 9200ft, the highest point of the flight.

We were now within 30 air miles of Milford and on the face of it should get there easily. However, the sight of Mt Tutoko rising up to 9000ft barring the way ahead emphasised that we would have to follow the labyrinthine valleys and gorges which carry the road. Thus we cautiously climbed back to 7500ft over the Humboldt range, noting that the lowered cloudbase above and the absence of cu ahead indicated we had reached the edge of the sea breeze. My only remaining concern was the unknown height of the saddle over the road tunnel, but I presumed this would not be a problem.

So in blissful ignorance we started the final glide at 18.15hrs, following the road into the first gorge. Immediately an ominous feeling of unseen menace settled upon us. Although the altimeter still read 6000ft the cliffs on both sides swept up by another couple of thousand. They seemed like huge giants, silently looking down on us, contemplating our fate, as we nervously flickered in and out of their shadows below. Suddenly we came round a corner and there was a great razorback ridge blocking the valley, rising practically up to our own height and swallowing the road into a tunnel at its foot. If there had been any downcurrent in the lee of it we would not have got across, but the air remained eerily still and we swept over with a 100ft to spare.

Towering blank rock wall

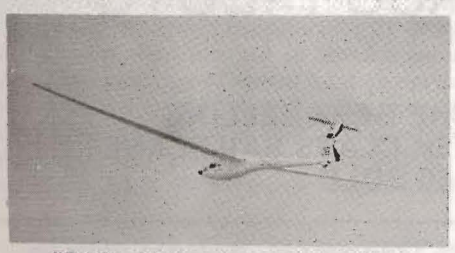
It was as if we had been tried, found wanting, and then granted mercy, yet still the feeling of unease continued. We sank steadily deeper into the next gorge until we reached a confluence of valleys. There I followed what I thought was the road leading off to the left, but a mile further on we were suddenly confronted with a blank rock wall towering 4000ft above us. Fortunately there was sufficient room to turn and we retraced our steps to the next valley which we tried, but with the same result. We seemed trapped, and Brett voiced the appalling thought that perhaps there was a second tunnel, adding his assessment that if so the manure was now well and truly in the rotating propeller blades. I was about to add my own Anglo Saxon agreement when I noticed a third valley with the road running along it. In the poor light I had mistakenly followed a dried up river bed and this discovery reduced us to laughter, such is the effect of the release of nervous tension. Another couple of miles and we turned the final corner into the sunshine and Milford itself.

The view was astonishing. Ahead ran the narrow fiord, deep blue and flecked with foam. On one side the cliffs rose vertically to relatively flat tops which were overhung by snowfields and glaciers issuing great streams of water which fell thousands of feet into the sea below; on the other side the mountains were more pointed, with Mitre Peak rising vertically out of the sea to nearly 6000ft, like a black arrowhead with a whitened tip. Best of all was the sight of the single runway, with the Hornet parked beside it, showing Gavin had made it too.

We spent a little time soaring the cliffs in the 25kt sea breeze. Thanks to the rainfall trees grew out of every crevice, even where the slope exceeded the vertical. Mysteriously the lift only worked to 3000ft, and above that the trees were still despite their wildly thrashing neighbours only a few hundred feet below. And the giants had one last mischievous trick to play on us: at 150ft on final approach we hit a single bump of such ferocity that my microphone, which weighs only a couple of ounces, produced a deep cut across my knuckles which then bled copiously all over the cockpit.

We clambered out sniffing the moist air off the sea, unable to express what we had seen and how we felt. The sense of unreality continued with the arrival of the few inhabitants, the first a bachelor who ran the tourist ferry, and the rest a succession of girls, each more beautiful than the last, up to the eldest who turned out to be their mother. We repaired to the hotel, and loosened our tongues with alcohol and food. As we finished a faint drone announced the arrival of our retrieve tugs, circling down from 10 000ft overhead. The wind had now dropped completely, and we towed home, leaving the giants lowering at us in the fading light. Their spell endures.

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THE SECOND ITFORD MEETING

A. E. Slater continues looking back 50 years to recall just what was happening in the gliding movement during the early stages.

At Whitsun 1930, after an interval of nearly eight years, the Itford-Firle ridge on the South Downs was again being soared over, and again the non-prevailing northerly wind was blowing up it. This time the BGA had invited Robert Kronfeld to come and demonstrate his Wien sailplane. He also taught some London GC members to soar in the club's Prüfling, and even the Dagling, and the late C. H. Latimer-Needham obtained the first British C certificate: he described the event in S&G for August, 1969. The *Daily Express* engaged another German pilot, Carli Magersuppe, to demonstrate in a Professor.

The following week-end, on June 14, Kronfeld flew from there about 50 miles along the South Downs to the foot of Bedhampton Hill near Portsmouth, whose gliding club had booked him for a demonstration. I had to miss these events through having returned from the Rossitten Gliding School with a swollen foot due to a moving bungey having scraped some skin off it and inserted a culture of bacteria.

London GC had now moved to Ivinghoe Beacon, an irregularly shaped hill SW of Dunstable Downs with its most useful slope facing SW. Here a pair of instructors were frantically training members in the hope that one of them would become the first *ab-initio* to get a British A certificate. But during every hop most of them spent their airborne few seconds frantically jerking the stick in all directions, each jerk being made to counteract the effect of the previous one.

Soon became to them a dirty word

At Rossitten we were urged to move the stick as little and as gently as possible, otherwise it produced lots of drag, spoiled the gliding angle and cut short the flight. The others at Ivinghoe noticed this, asked questions, so I had to mention Rossitten: the instructors didn't like it, and that place name soon became to them a dirty word.

But there was one nasty fault of the Zögling glider design: it was far more sensitive on the elevator than on the ailerons. But rather than commit the sacrilege of criticising the great Dr Lippisch's design by asking him to gear down the elevator, they would try and get round the difficulty by ordering the pupil to hold his elbow right forward so that his forearm lay at right angles to the direction of travel: he then operated the elevator control from his wrist, but the aileron control by moving the whole forearm parallel to its length. The result of this unnatural position was that your elbow soon drifted back unnoticed towards your body, so that whenever you took off left bank, for instance, the nose would come up, and taking off right bank would bang the nose on the ground if you were anywhere near it.

At this time there seemed to be an unreal belief that gliding solo in a Primary was a necessary preliminary to soaring. This was because it was introduced from Germany and, Sigfrid Neumann, now of the Cambridge University GC, says, it was a way of keeping air-minded youth fully occupied: they had first to build the glider, then pull on the bungey, then manhandle it back to the launching point so there were no idle hands. But I liked learning that way because it brought back the early days of aviation through which I had lived, when every would-be aviator had to teach himself.

First British-Trained *Ab-Initio*

The efforts of the London Club's instructors to train the first *ab-initios* to the stage of obtaining a British A certificate were rewarded on July 18, 1930, during a week's intensive training camp at Ivinghoe in a fierce wind which lifted the pilot, Graham Humby, well above the summit before he descended at a high rate through the gusts to a large field below. He later obtained the first British *ab-initio* B and C certificates, but was too versatile a character to carry through to the Silver C age: among his later activities was the forming of an aerial equivalent of a tramp steamer company: his planes roamed the world picking up cargoes at widely scattered airports of call.

This Ivinghoe camp attracted a public who wandered about singly or in small groups rather than concentrating in crowds as the flying activities were infrequent. These were the occasional silly questions. One man noticed the big gap between upper and lower wing surfaces, pointed to it and said: "I suppose these wings fill with air." Another put on a dour face and asked: "What if the pilot should lose control?" This was a relic from the early days of aviation, not then so far behind, when nearly everyone, including some pilots, imagined that once you "lose control" you can do nothing but sit tight and await events. But there was one dangerous fellow, a religious fanatic, who turned up more than once and insisted with some asperity that "The Lord did not intend man to fly," and gave the impression that he might break up a glider if he was not watched. His point of view may have been that aeroplanes are flown by their engines whereas gliders obviously were not. (An additional motive for putting a little engine in it?) But luckily his type never turned up again, either there or at any other gliding site. Note: Humby was the first British trained *ab-initio*. I was the first British *ab-initio* to obtain a gliding certificate: a subtle difference.

all pilots can read – but the BEST PILOTS read

Sailplane & Gliding

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SAILPLANE NEWS

RIKA HARWOOD

When glass-fibre made the headlines in the late sixties-early seventies the hitherto unheard of increase in performance quickly became a matter of course, and soon it became the dream of most pilots to fly or own a glass ship.

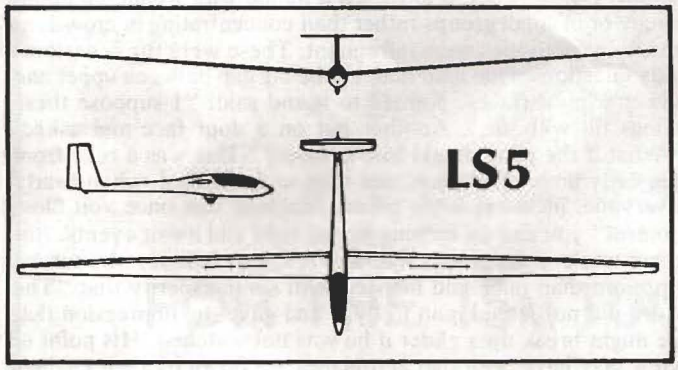
Now at the beginning of a new decade with carbon-fibres becoming a little cheaper, although less cost effective to work with, new horizons are opening up again and more performance will be available for those who can afford it.

Especially the Open Class, of old the Class for innovation and development, is to get a new look in the form of new thinner wing profiles with spans up to 24m and calculated glide angles well over 50:1. The late Fred Slingsby's adage "there is no substitute for span" becomes largely feasible for series production because of the new materials now available which can give good savings in weight, stiffness, and easier handling in the air as well as on the ground.

Apart from Schleicher's ASW-22 (S&G February, p26) Rolladen Schneider are joining the Open Class for the first time with the 22m LS-5. One expects also that Schempp-Hirth are working on their version of a super ship which would make this the third German firm to change the ageing look of the Open Class.

Also the 15m and Standard Class are having new designs from Schempp-Hirth and Rolladen Schneider.

LS-5



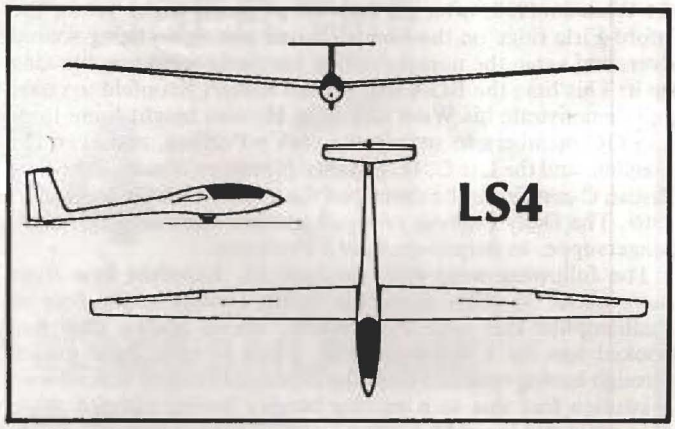
With the LS-5 the makers hope to achieve the same manoeuvrability as the LS3-17 which has found such an enthusiastic market among the 15/17m devotees; ground-handling likewise should be equal to any other LS machine despite the 22m wingspan.

Insect disturbance, which, as we all now know, plays havoc with polar curves, was a consideration when selecting the modified Wortmann section to provide the optimum performance characteristics desired for the LS-5.

The carbon-fibre wing will have four airbrakes to ensure that steep approaches can be made over obstacles for a safe landing. The inner wing flap can be deflected to 60° to control approach speeds.

Despite the large wingspan, Rolladen Schneider will use a modified GRP LS-3a fuselage. The modifications include a different undercarriage unit to take the higher take-off weight, while the tail end will be increased to match the span accordingly. This should help to keep costs down as there is no doubt that at present the carbon-fibre technology is still rather expensive, more so than the GRP technique.

LS-4



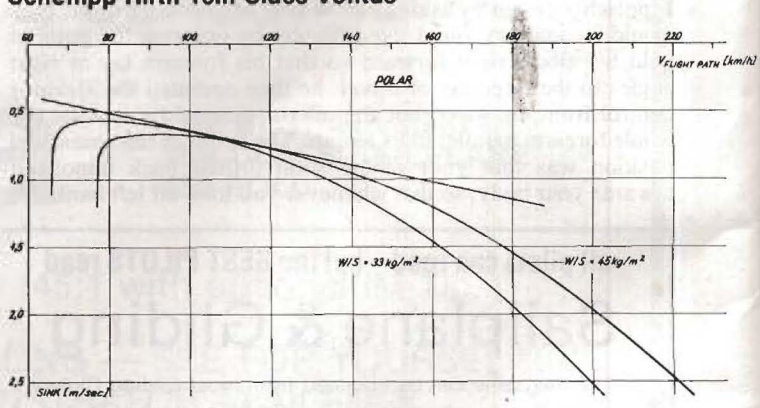
The Standard Class is still relatively the cheapest way to enter competitive flying, but owing to the rapid development of, and changeover to, the 15m Class it appears to have lost some of its impetus, or it is felt that it has reached its optimum development.

Rolladen Schneider, however, hope to prove that worthwhile development in this Class is still possible and remains an attractive proposition, and have now introduced the LS-4 which is undergoing its flight trials.

With the experience gained from the LS-3 and 3a in the 15m Class it was felt that a new design for the Standard Class was justified and right on time as the aim is to narrow the performance gap between the two Classes. A conservative estimate of 40:1 at 100km/h has been quoted.

The double trapeze wing planform has a relatively thin profile, with a thickness of 16 percent at the root and 13 percent at the tip. Like the LS-5, the LS-4 will also use the already highly developed and proven LS-3a fuselage with the necessary modifications.

Schempp-Hirth 15m Class Ventus



The Ventus (meaning "wind") should be well under way through its flight test programme. It could be classed as a second generation 15m Class design.

The makers claim that due to various special design features and utilisation of the latest aerodynamic research the Ventus promises to surpass, throughout the speed range, the performance of all other gliders in its Class.

New, thinner wing profiles have been developed for carbon-fibre of which the Ventus wing is constructed, and a triple trapeze, high aspect ratio planform has been chosen for optimal lift distribution.

For the first time the firm is offering a choice between two fuselages, the smaller one for pilots up to 5ft 9in in height.

Technical data

Schempp-Hirth Ventus			
Span (m)	15	Waterballast (kg)	150
Wing area (m²)	9.51	AUW (kg)	430
Aspect ratio	23.70	Min sink (m/sec)	0.57-0.66
Wing loading (kg/m²)	30-45	Max speed (km/h)	250
Empty weight (kg)	*(215) 220	Max L/D	43.5-44:1
Payload (kg)	*(115) 120	Stalling speed (km/h)	65-81
		*denotes smaller fuselage	

Janus C

One of the best high performance two-seaters in the form of the Janus B passed a milestone in February when the 100th Janus was delivered.

Now that carbon-fibre is more readily available a 20m four-piece carbon-fibre wing Janus C is being marketed. With the extra span as well as other improvements now possible, the performance is quoted at 43.5:1 at 110km/h.

Schleicher ASW-19 Club

With the addition of this version derived from the ASW-19B, Schleicher can now supply a glider in all Classes. It has enlarged airbrakes to give an increased rate of sink of about 25-30 percent at 85-90km/h.

Best L/D is quoted as 1:36, and should you want to revert back to the Standard Class a kit is available.

Moba 2c



This is the Moba 2C, a 15m glider designed and built by Gary Sunderland of Australia, which features a unique one-piece sliding nose cone, of which the acrylic canopy forms a part. The nose slides forward 20in for the pilot to get in and out and in an emergency there is a cable to open the canopy even more to somewhere past the instrument panel, at which point the nose cone comes off the slides and jams open.

There is also a side stick in place of a normal central control column. The Moba 2C is of a basic metal structure of aluminium covered with foam and glass-fibre.

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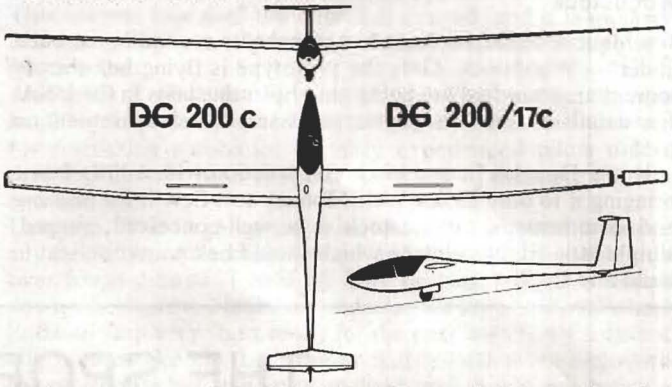
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DG-200/17C's maiden flight on April 16.

Glaser-Dirks DG-200 Series



Various variants of the DG-200 will be available shortly. The DG-200C 15m carbon-fibre wing has achieved a weight reduction of 26kg. This should improve its performance in weak conditions dramatically, the makers claim. Each wing, weighing only 50kg, should make rigging much easier as well.

Type certification for the DG-200/17C was obtained in January and production has started. According to the makers, it combines the ultimate in performance and the flexibility of changing from 15 to 17m wingspan as desired. In the 17m mode with wing loadings from 27kg/m² and an aspect ratio of 27, this version, it is claimed, will outclimb any other sailplane.

Both these carbon models are available at DM6.000 over normal price.

Technical data

Glaser-Dirks	DG-200c	DG-200/17c	
Span (m)	15	15	17
Wing area (m²)	10	10	10.57
Aspect ratio	22.5	22.5	27.34
Wing loading (kg/m²)	28-45	29-45	27.7-42.6
Empty weight (kg)	212	220	223
Waterballast (kg)	160	160	160
AUW (kg)	450	450	450
Min sink at 70km/h (m/sec)	0.57	0.57	0.51
Maximum speed (km/h)	270	270	270
Max L/D at 110km/h	42.5:1	42.5:1	45.5:1
Stalling speed (km/h)	58	59	57

Grob Flugzeugbau G-103

With various criticisms such as pilot discomfort, heavy aileron control, tiring groundhandling etc the Twin Astir left a lot to be desired for daily club use and training.

The firm took good note of this and decided to bring out a two-seater trainer overcoming all these problems.

The G-103, which had its maiden flight under the name of G-118 at the end of 1979, has a new fuselage with greatly improved cockpit lay-out, offering better seating comfort for the pilots. The enlarged canopy with the wings mounted lower on the fuselage provides better all round visibility while the large, repositioned fixed main wheel together with the saving in weight should make groundhandling a lot easier.

Performance wise it should equal the Twin Astir, but its better flying characteristics, lighter controls and lower stalling speed should provide a much better all round school and club trainer.

Technical data

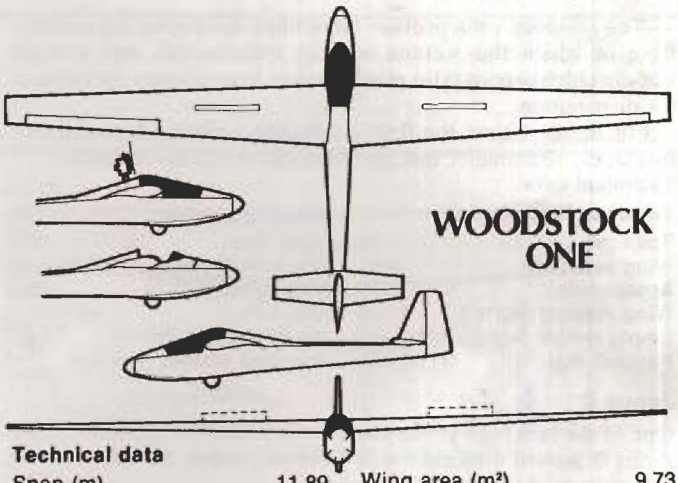
Grob Segelflugzeugbau G-103 (two-seater)

Span (m)	17.5	AUW (kg)	580
Wing area (m²)	17.8	Min sink at 80km/h (m/sec)	0.64
Aspect ratio	17.2	Max speed (km/h)	250
Empty weight (kg)	360	Max L/D at 105km/h	37:1
Payload (kg)	220	Stalling speed (km/h)	62

Woodstock

Jim Maupin of Duster fame has launched a second home-build glider — Woodstock. Only the prototype is flying but already more than a hundred are being built by enthusiasts in the USA. For details of where to get the plans see the advertisement on p155.

It is a Douglas fir and birch construction with a little fabric bringing it to only 235lb. Walt Mooney test flew it for *Soaring* and commented: "Woodstock is a well-conceived, rugged, simple little FUN sailplane which should be an utter delight to build and fly."



Technical data

Span (m)	11.89	Wing area (m²)	9.73
Aspect ratio	14.5	Wing loading (kg)	20.98
Empty weight (kg)	106.60	Max AUW (kg)	204.12

(Condensed from manufacturers' news and *Aerokurier* by R.H.)

THE SPORT VEGA



A. D. PIGGOTT

Congratulations are due to the Slingsby team for producing the latest club version of the Vega. At the time of writing the prototype has completed its factory flight tests and is at Cranfield for its final certification. Seldom have I flown such an excellent prototype. It looks smart, handles superbly and has all the qualities I would wish for in a machine for an early solo pilot.

You may well ask whether a high performance glass ship like Vega can be transformed into a simple, easy to fly trainer. Sport Vega is Slingsby's answer. It has nothing new for the beginner to master apart from a big jump in performance.

First impressions. Most modern machines look rather ungainly on the ground with their large mainwheel and undercarriage doors protruding below the perfectly formed fuselage. Sport Vega in contrast looks very slick with the neatly faired fixed wheel. Incidentally the increase in drag at low speeds is surprisingly small and has a minimal effect on the best gliding angle, confidently estimated by the designers as over 38:1. At high speeds, of course, the drag penalty is much more severe and the performance curve will obviously drop off much more quickly than the normal Vega. However I fancy that the K-8 pilots moving onto Sport Vega will not be too critical about this except on the very good days when they compete against the Team.

The wings are exceptionally smooth and well finished and you may be forgiven if you worry a little about the stall characteristics when you feel the very small radius of the leading edge, the result of using a thin aerofoil. In fact the Wortmann sections have an exceptionally docile stall and Sport Vega is certainly far more idiot proof than any K-13 or similar training aircraft.

Rigging and de-rigging. There are only two pins and one safety clip to hold the aircraft together, a main wing pin and one to secure the tailplane. As the aircraft is assembled, all the controls are automatically connected so that it is impossible to "forget" to couple up the elevator or an aileron.

The rigging is a joy because the exact position and alignment of all the fittings can be clearly seen. It is not a matter of trial and error or of struggling to force the wings home. Everything can be lined up visually and the Libelle/Kestrel type rigging lever just pulls the wings together ready for the insertion of the main pin. With one wing trestle this makes it a two person operation with very little effort required.

The tail plane drops into position and is held by a long pin entering from the leading edge. This is locked by a safety clip, the only really loseable item. Surely we can think of something better in this day and age? If not, I suppose we must all keep a few spares ready for the day it gets dropped or taken away in someone's pocket.

After assembly the equipment shelf is wriggled into place to cover the spar joint and control system. There is quite a large space below this shelf alongside the wheel well, in addition to the shelf, to take barographs, batteries, etc. The adjustable seat back and head rest drops into place to complete the rig and apart from the daily inspection it is ready for blast off.

The cockpit. Of all the designs using a forward tilting canopy, the Vega seems to have the most robust and practical solution. The canopy is unloaded by pushing down a flush lying button on top of the fuselage and a gas strut controls the movement so that it does not tend to snatch open or crash down on the pilot. The rudder pedals are adjustable and the movable seat back eliminates the need for cushions — the bane of every small glider pilot. My only real criticism is that the airbrake lever and trimmer are a little too close, which could make trimming awkward and applying full airbrake difficult for a pilot sitting well forward. If this proves correct the lever will be repositioned on the production machines.

The view ahead is rather better than on the standard Vega because of the reduced ground angle, the result of moving the wheel into the fuselage. The all round view is excellent and from my position I could easily look back to see the tailplane. At first sight, the canopy lock placed behind the head rest and out of sight seems awkward. However it does have a positive over centre lock and cannot be accidentally opened. With no fire hazard the need to open the canopy rapidly on the ground is very rare. (A herd of cows charging across your field is about the only reason.) The canopy jettison reminds one of a James Bond ejector seat and provides a very positive ejection of the canopy should the need ever occur.

I made five flights in the Sport Vega, one high aerotow and four car launches in rather wintry weather. I also made a flight in a normal Vega a few days before in order to make a fair comparison between the two. Apart from the greatly improved aileron control on take-off and landing, the two types are very similar. On take-off, the ailerons are markedly better and provide good control at very low speeds. This is mainly due to the reduction in ground incidence which brings the wingtips well below the critical angle where airflow separation occurs at low speeds. The large tailwheel prevents the tendency to weathercock badly in a crosswind, besides making groundhandling easier. Although the tow release hook is only just ahead of the wheel there seemed very little if any tendency to pitch up on either the aerotow or the car launches. Positioning and control on the tow was easy and I do not think there is any need to be apprehensive because there is no special aerotow hook in the nose.

Full Control throughout

The straight stall is extremely docile with a distinctive buffet followed by slight wallowing and a gradual nose drop. Full aileron and rudder control remains throughout and it is only when the nose is brought well above the horizon that an obvious nose drop occurs. (This at a cockpit load putting the C of G near the aft limit, the worst case.)

Flying it very slowly in very broken, turbulent lift I deliberately let it stall out, leaving it to unstall itself. There was little or no tendency to drop a wing at the stall even in gentle skidding turns, and it was only once with full rudder and the stick held right back that I managed to persuade it to autorotate for a turn or so. Quite definitely the Sport Vega is more docile than any intermediate performance machine in use today.

It is rather difficult to define the stalling speed but the ASI read around 37kt giving a normal circling speed of about 45kt, probably less in smoother conditions. At near maximum weight with Mike Wilson (220lb+) on board the stall was around 39kt. These speeds may seem a little high by old glider standards but they only really influence the minimum circling radius and amount of energy involved in a crash or landing on rough ground.

The rate of roll is good and the aileron loads very light. Like most modern sailplanes the rudder power is not sufficient to completely overcome the adverse yaw when using full aileron but this does not detract significantly from the excellent feel and harmony.

The elevator feels similar to the normal Vega, light but not twitchy. Unlocking the airbrakes or leaving them unlocked by mistake does not result in a full airbrake situation — so dangerous on a launch. The brakes just stay closed. A progressive pull is needed to about half way and then a more positive force is required to pull and hold full airbrake. The airbrakes are very powerful and limit the speed to about 100kt in a vertical dive. However, unlike all the previous designs of trailing edge airbrake including Vega they do not cause a rapid sink or stall out if they are closed during the hold off. I found that I could open and shut the airbrakes during the hold off at very low speeds. Closing the airbrake gives a slight ballooning effect just like normal airbrakes and just the effect I have been asking for as a safeguard for the less experienced pilot. I tried approaching at speeds from 60kt down to 45kt which, of course, was ridiculously slow for the 15kt wind at the time. Even at that speed deliberately mishandling the airbrakes caused no problems.

Sideslipping. The sideslipping is quite normal with just a mild tendency for the rudder to overbalance and lock over in a full sideslip, particularly if the rudder is applied rather violently. This seemed less with the airbrakes opened, and it is unlikely that most pilots would ever need a full sideslip with such powerful airbrakes.

Aerobatics. I tried a few loops and chandelles to exploit the nice handling. It picks up speed quickly and my initial feelings were for restricting aerobatics to fairly experienced pilots unless they had already been checked out in one of the more modern two-seaters.

Landings. The large sprung mainwheel should greatly reduce any risk of heavy landing damage and gives a comfortable ride over rough ground. I held off fully on each landing to touch down wheel and tail together, and used the very powerful wheel brake to stop very short ready for the next launch. Of course it will bounce like any tail dragger if it is landed tail high with excess speed, but it is easy to land and should not cause a beginner any difficulty provided that the airbrake is set to about halfway or more to prevent a very long float.

After landing I easily kept the wings level until the aircraft stopped. Mike Wilson flew in very calm conditions, and I deliberately started the tow by only opening partial throttle to get a very slow acceleration on the tug. He reported excellent aileron control and very good towing characteristics throughout the tow on which I varied the speed between 45kt and 80kt to explore the controllability more thoroughly.

Well, I expect you are saying, what's wrong with it then? Certainly not the initial price, which if you are quick enough to beat those who have seen the machine and ordered already, is £7,500.

There are several very minor criticisms which will be put right on the production line, and which I will not bother to mention here. This leaves two major criticisms or requirements still to be changed for the production aircraft.

A really good tail lifting handle is required. Maybe as a private owner you don't mind a removable tail wheel or dolly or lifting the tail bodily every time you need to turn the aircraft a few degrees. With a club machine a handle is essential even at the expense of some drag. If possible it should be removable for cross-country flying.

The only other unsatisfactory feature is the cockpit ventilation which does not prevent quite large areas misting up so that the view ahead is obscured. The trouble with misting is that you don't always realise that it is there and that you can't see ahead, particularly on a dull cloudy day near cloudbase or soaring the hill.

Apart from these two points, which I am sure Roy Sanders and his team will be able to provide for the production machines, Vega to my mind is the best thing for many years and it's British.

Technical data

Empty weight (prototype, with instruments) (kg)	238.14
Max AUW (kg)	353.81
Cockpit load (prototype) (kg)	73.48 to 115.67
VNE 135kt (airbrakes open or closed)	
Rough air 106kt; Aerotow 100kt; Wire 70kt	

Manufacturer's comment: Production aircraft will incorporate a tail lifting handle, the airbrake lever will be moved forward 3in, and the ventilation will be improved.

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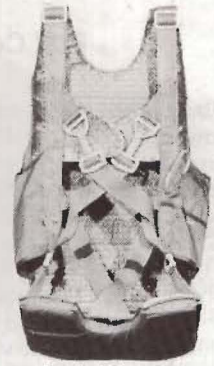
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FIELD LANDINGS

JOHN MORRIS

Much has been written about field selection and field landings in the past — yet there are still accidents with overshoots and undershoots and heavy landings.

I was fortunate enough in my professional capacity to have access to an article written by Captain Barry Schiff of Trans World Airlines which dealt specifically with problems caused by optical illusions, and after reading it for the third time it became painfully obvious that some of the information and suggestions were readily adaptable for the needs of glider pilots. After all, a visual approach is the same — be it in a Boeing 747 or a Blanik!

The basic theory of field selection will not alter. The four S's rule (**Size, Slope, Surface, Stock**) is as good now as it ever has been. **Size, Slope** and **Surface** are the important factors and using Captain Schiff's theories, I would like to look at these in turn.

Note that for the ease of explanation when discussing field size, I have used a runway as the datum — as this is more readily acceptable as a mental picture than a field. I have also assumed for the sloping field point that a 3° glide approach is the norm. This is not in fact so, but again it serves to illustrate the problem.

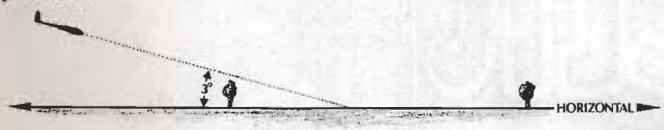


FIG 1

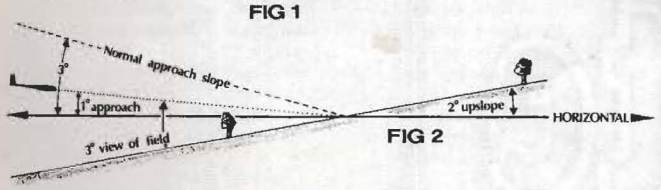
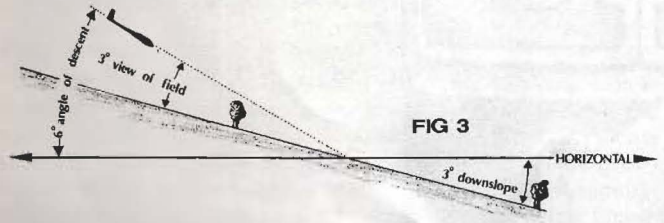


FIG 2



Sloping fields. Fig 1 shows a glider in a normal visual descent towards a level field. The pilot can maintain this "visual slot" quite accurately because he is used to practising approaches that "feel" comfortable. He approaches his aiming point so that his visual glideslope "seems" neither too flat nor too steep.

A visual illusion develops when approaching a field with a pronounced upslope (Fig 2). If a pilot establishes in his normal glide slot relative to the horizontal while approaching a field with (say) a 2° upslope, he would feel that he is descending too steeply. This is because he would be aware of descending at a (say) 5° angle with respect to his chosen field. As a result the pilot will automatically compensate by dropping down until the field "looks right" — in other words he settles into the normal glide slot with respect to his chosen field. This results in a dangerously low flat approach.

The downsloping field (Fig 3) leads to overshoots. The field shown in the diagram is over-emphasised with a 3° downslope but serves to illustrate the illusion associated with shallower slopes.

Surface. The terrain surrounding a field often may have a slope comparable to that of the field which makes it difficult to determine in advance whether the field is sloped, or level. The only clue available to the observant pilot is often the abnormal sink rate required to maintain what appears to be a normal visual slot.

Field dimensions (size). Field geometry can also be confusing. Without realising it a pilot usually assesses the landing area before him by comparing it with the area he is most accustomed to landing on.

Assume that a pilot is used to landing on a 6000 x 150ft runway (which has a length to width ratio of 40:1). From above and afar, a runway with the same proportions (10 000 x 250ft for instance) has an identical appearance. Because the runway is larger, the pilot is led to believe that he is closer and lower than he really is.

A more hazardous illusion occurs when approaching a shorter runway with those same familiar proportions (4800 x 120ft for example) — when established on finals the pilot thinks he is further from the runway and higher above the ground than he actually is.

Size and surface. Landing area geometry can also cause illusions. Whether he realises it or not, a pilot uses peripheral vision to help determine the proper height at which to flare for the landing. Hence a pilot conditioned to landing on narrow confined spaces (runways — mown strips etc) may have problems judging the correct flare height when landing in a wide open field.

This problem is aggravated in conditions of poor light and restricted vision — *ie* dusk, in rain or drizzle, landing into sun etc. Depth perception is of course even more difficult when there is a lack of contrast between the landing area and the surrounding area — *ie* snow covered ground, large sandy areas — (even landing on water!). All of these illusions are everyday facts — it is only with experience that they can be overcome.

Perhaps the most inherent problem with these illusions occur with a "straight in" approach, as concentration and vision are focused on the landing *point* not the *area* and it is only by observing the whole area around the landing field that a safe approach can be made. The answer is straightforward — current planning for a field landing is even more important than circuit planning at your home field. **Happy landings.**

This article is also published in the BGA publication, **Accidents to Gliders — 1980.**

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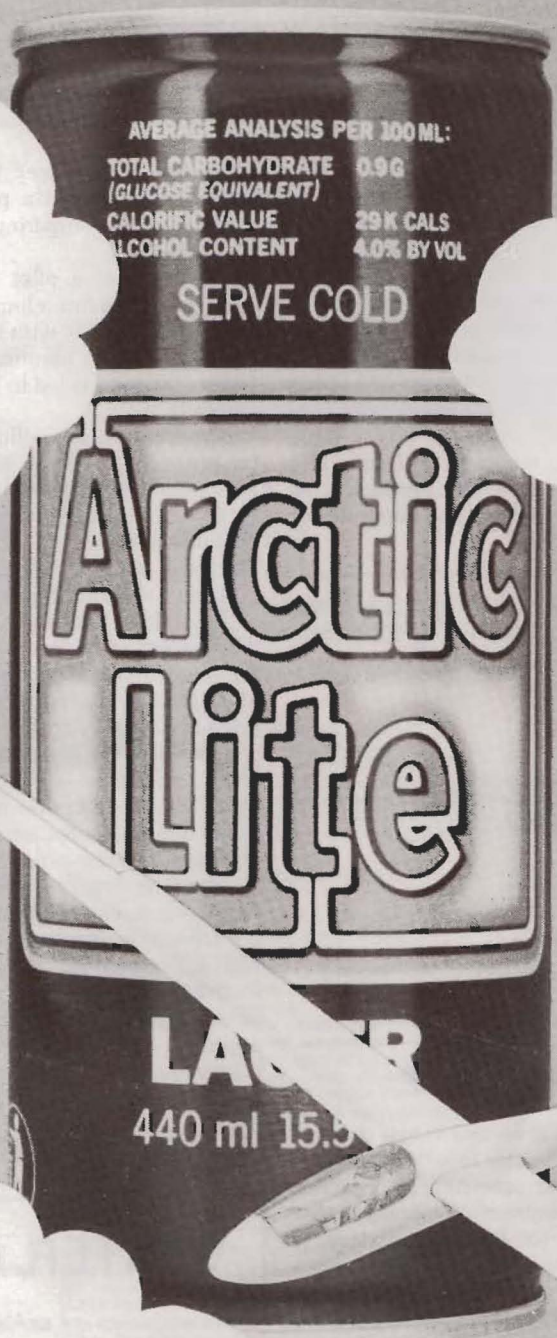
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In view of the grim accident rate for 1979, we make no apology for devoting two articles to the one subject

FIELD LANDING ACCIDENTS – AN ANALYSIS

By JOHN WILLIAMSON, National Coach

When I sat down to analyse and comment on the reported field landing accidents in 1979 — at 32 the highest annual total for a long, long time — I decided first to see whether the unhappy victims had obeyed the classic *dicta* for selection of their fields. Had they selected in the order **Size, Slope, Surface?** And, if not, in which areas had their choice or judgment failed them? Almost at once I had to add **"Other Causes"** to the list and I then found that the main causal factors were grouped thus:

Size — 4 accidents **Slope** — 2 accidents
Surface — 17 accidents **Others** — 9 accidents

The Accidents

Few accidents can be attributed to a single cause and it seemed worthwhile to discover, for example, whether the 17 culprit surfaces may perhaps have been more benign had the manner of the arrival been better arranged! I therefore examined each accident to find out if there were a sequence and at what stage the sequence started. I figured a successful field landing comprises eight distinct elements and set out to spot how far upstream the 1979 sequences started — as best I could from the often-brief description from the only witness, the pilot. The eight elements are listed below. By reanalysing each report I found that I could detect no less than 61 significant errors of judgment, failures of skill, or instances of poor observation. I list my findings alongside the appropriate element.

	Elements of a Successful Field Landing	*Pilots' Input*	*Where it went wrong in 1979*
1	**Early decision to land**	**Prudence**	**Late decision — 9**
2	**Field size adequate**	**Judgment**	**Field too small — 4**
3	**Good circuit**	**Judgment**	**Poor, or no circuit — 7**
4	**Normal approach**	**Judgment/Skill**	**Poor approach — 10**
5	**Tolerable slope**	**Observation**	**Bad slope — 2**
6	**Touch down correctly**	**Skill**	**Poor touch-down — 9**
7	**Controlled ground run**	**Skill**	**Uncontrolled ground run — 5**
8	**Suitable surface**	**Observation**	**Unsuitable surface — 15**

Let's now take a closer look at them.

Poor Surface (15)

As the element most frequently occurring this was considered first. No good doing a perfect circuit and immaculate approach onto a bed of rocks! First, all the reported accidents occurred between April and September, when crops are growing and arable surfaces change their appearance most rapidly. Unrecognised corn took its toll in seven cases, electric fences another three. Various lumps and bumps, ridges and furrows supplied the last five. There really is no substitute for a careful, considered look at your field, from not more than 800ft, and from three sides if possible. One great merit of the square circuit.

Ground Run (5)

All five were ground loops, two of which were caused by corn. The other three were self-induced in preference to striking the field boundary head on.

Touchdown (9)

Two more groundloops occurred at the instant of touchdown. Three others touched down in hedges in the upwind boundary of the chosen field whilst trying to stretch it into the next. Power wires spoilt one pilot's otherwise immaculate performance and a motor cyclist appearing from nowhere on a disused airfield caused another to divert his glider onto a heap of rubble.

Slope (2)

Oddly enough the element which makes one most nervous — the possibility of an adverse slope — figured only twice, but in each case it was the prime cause of the accident. One was an up-slope which induced an undershoot; the other a down slope which had the opposite effect.

Poor Approach (10)

One may perhaps be excused for not spotting some unsuitable surfaces but there is little excuse for not descending onto that surface elegantly! Of the ten, three may be excused on the grounds of inexperience. The rest were nearly all undershoot situations, often developing from desperately late decisions to land at all, or from a last second change of mind about the suitability of this or that field. The most vital lesson here is that several of the accidents would not have happened at all if the pilot had stayed with his (or her) earlier decision and made a better job of a slightly less favourable prospect.

Poor Circuits (7)

In every case a poorly planned circuit was the direct result of a late or changed decision. There was only one wheels-up landing (reported as an accident) and at least the pilot has joined a large and distinguished brotherhood which includes several World Champions!

Field Too Small (4)

A surprisingly small group and nothing to do with under-

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braked hot ships either. K-6, L-Spatz, Astir and ASW-19 were involved.

Late Choice (9)

Late choosers varied from very experienced pilots (3) who pressed on for too long; moderately experienced (2) who dithered; and very inexperienced (4) who couldn't decide where to land in the first place. One such was on a lead-follow exercise and couldn't make it to the field the lead instructor had chosen for him. The implication of that one must be very carefully considered by instructors embarking on such an exercise. Any pilot who gets into a This one? That one? situation is really asking for trouble. One suspects that many former spin-in accidents have their root cause in indecision at unforgiving heights. The 1979 crop possibly got off rather lightly!

The Pilots

All shapes and sizes are the pilots. Most at risk, if the 1979 breakdown is representative, are those with more than 200 total hours but less than 50 on type; who have been gliding for less than five years; aged between 30 and 40; and have done more than 12 field landings. There was one significant exception though. Six pilots crashed on their first or second field landings and three of them were still in their first year of solo gliding.

The Aircraft

It must be significant that only one of the 32 field accidents involved a modern flap/brake aircraft, and even that one didn't get to use its brakes. But for the advent of these new aircraft we would surely have been contemplating an even sorrier tale. That apart there is nothing significant about the aircraft which range from Nimbus 2 to L-Spatz.

The Future

What lessons can we learn? Chiefly that when we go to land in a strange field we *must* give ourselves adequate *time*. The decision to land must be made early enough for several feasible fields to be available; leisured enough that we don't forget vital actions; organised enough to permit both the distant view (to spot adverse slope) and a close-up (to spot and avoid surface nasties).

Next, in these days of super-fast progress there is no substitute for old fashioned training. None of the pilots who overshot reported any attempt to lose height by sideslipping. Whatever happened to the art? Training is rarely given and feedback from many pilots coming on instructors' courses indicates that the omission is often regretted. It is axiomatic that *any* technique should be used in an emergency to avoid an accident. It is illogical (to me) not to use a perfectly legitimate manoeuvre which will dissipate excess energy at one's disposal when it is most needed. But the method should not be used without adequate training and practise and its reintroduction into club advanced syllabi is recommended.

Finally, Bronze badge checks and Falke simulations are good and fine but the final element in a training programme should be a real field landing, solo. In my first season as Coach I have come across one very keen private owner of only 18 months' standing. He had got his Silver badge, collared his 300km triangle and done several good 200kms in respectable time. But he had not yet landed in a field! Fortunately he is intelligent and aware enough to admit and regret his own inexperience, and my reaction was to send him off on aerotow with instructions only to land out. He did, successfully! And I earned his undying gratitude!

Correction: There were two mistakes in paragrapn six of Bernard Fitchett's article in the April issue — "Vryburg Revisited", p58. "Alas" should have been "Also" and "Particularly" should have read as "Partially."



Helmut and Burghild Reichmann at the dinner.



Helmut with Roger Barrett, centre, and Bill Scull. Photos: Naomi Christy.

BGA WEEK-END — March 15-16

This year's BGA Week-end at the Rugby Post House, Crick, had an extra glitter — the Golden Jubilee was celebrated in great style. Even the weather co-operated. With a persistent low cloudbase there were no distractions.

The guest of honour suitably came from Germany, the home of gliding, and is one of the finest communicators of the sport. Helmut Reichmann, three times World Champion, the German Team Coach, author of the inspired **Cross-Country Soaring** and the only university lecturer on gliding, gave generously of his time.

At the main session after the AGM he spoke for more than two hours followed by an enthusiastic question and answer session. Helmut, who was introduced by George Lee, our own World Champion, gave the history and progress of the sport, touched on many aspects of gliding technique and had some predictions for the future.

A little later he was guest of honour at the dinner and replied on behalf of the guests. He was amusingly introduced by George Lee with a previous welcome from Roger Barrett, immediate past Chairman of the BGA, who proposed the toast to the guests.

Roger reminded us that March was the fitting time to be celebrating the Golden Jubilee for although the movement was launched with a meeting in the Comedy Restaurant in December 1929, its official inauguration wasn't until March 1930. He said that the clubs must always be of prime importance and the movement has consistently relied on people, with a distrust of unnecessary paperwork. The BGA was in the unique position of being allowed to issue its own C's of A, which, he added, made us the envy of the gliding world.

Doc Slater, who saw the beginning of the BGA, was one of the main guests and Roger persuaded him to play the Eine kleine Nacht Musik on his penny whistle. He deserved the long, standing ovation and despite his 85 years, he seemed in better form than ever.

Kitty Wills was another guest and Roger paid tribute to Philip's great leadership which was largely responsible for the BGA's relative freedom from bureaucracy, Ann Welch, Mrs Burghild Reichmann, the Chairman of the Royal Aero Club and Mrs Ian Scott-Hill and the Marketing Manager of Allied Breweries and Mrs Alan Smith were among the guests. Allied Breweries, manufacturers of Arctic Lite, are sponsoring British gliding and Mr and Mrs Smith were given an enthusiastic welcome which reflected the appreciation of the sponsorship.

Mr Scott-Hill congratulated the BGA on behalf of the Royal Aero Club and wished them well during the next 50 years.

Helmut presented the BGA diplomas, cups and trophies. The party continued until the early hours with a general forum on tug management, the Team Kitty 1980 Challenge and a discussion on club and site development on the Sunday morning before the buffet lunch.

The Week-end opened on Saturday morning with an interesting if gloomy talk on glider insurance by Mr B. G. Jervis, Lloyds Aviation Underwriter (see p120). This was followed by an accident analysis by Bill Scull, BGA Director of Operations, and John Williamson, National Coach. This encouraged much discussion.

At the AGM in the afternoon Roger Barrett retired after four years as Chairman to be replaced by Tom Zealley. Tom spoke of Roger's tremendous contribution to the BGA and proposed that he should be made a Vice-President, which was readily agreed.

Lionel Alexander, Vic Carr, Frank Irving and Ian Strachan were returned to the Executive Committee and joined by newcomers Bernard Barry and Ben Watson.

There were more than 200 staying at the hotel and the Week-end was regarded by everyone we spoke to as an enormous success with hours of stimulating and useful discussion on the many topics foremost in members' minds as we go into the second half of the century. Barry Rolfe, BGA Administrator, is to be congratulated on the smooth organisation which helped to make this a very special, golden occasion.

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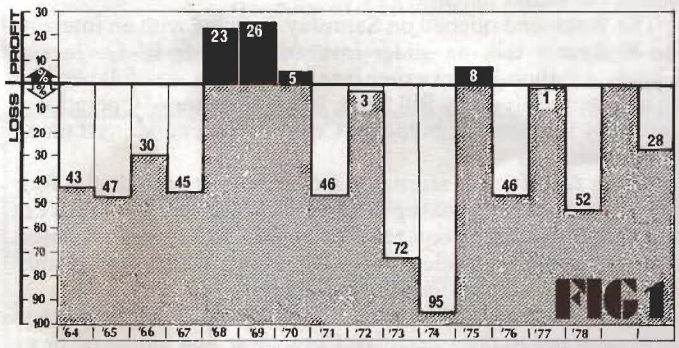
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GLIDER INSURANCE

This is part of the talk given by Mr B. G. Jervis, Lloyd's Aviation Underwriter, at the BGA Week-end.

My main reason for accepting this invitation was to dispel any rumours that may occur when you receive your renewal quotations this year. But before I horrify you let me put the aviation insurance business into perspective and in doing so, to put the part that you play within it into context.

The world's total aviation premium income is 500/600 million dollars, say £250 million, you pay approximately £350 000, a minute part of the total. Of this £250m the airlines and prime manufacturers pay the bulk. Last year we paid in total $577m for major total losses. That is the ones that made the headlines — DC 10s and a full passenger load do not come cheap. One loss which did not make the headlines was, as far as I am concerned, the loss which made a disastrous year into a horrendous one. It was a $70m satellite which RCA Global simply lost. The total claims then were in the order of $770m which includes all other minor claims, say £350m. This represents 140% of earned premiums as against a normal settlement ratio of between 80/90%. I suppose just to get all these figures into perspective I should tell you that the premiums paid to insure plate glass in America is far in excess of £500m. So the world's aviation premium income is less than the sum paid to insure glass in America.



When we look at Fig 1 we can see exactly what happened to the premiums that the glider fraternity paid to insurers between 1964-1978. I have heard it said by some uninformed people that because insurers are losing money on airline business they are extracting their pound of flesh from the flying enthusiast.

Only four profit years

I think you will see that Fig 1 effectively scotches that. You will note that in only four years 68, 69, 70, 75 did insurers actually make a profit on insuring gliders. In the 15 years displayed we made an average **LOSS** of 28%. When Fig 1 was produced I did not have sufficient details of 1979 to include that result in the chart. That was three months ago, now I am in a better position to estimate what the results for 1979 will be. At the moment 1979 is looking very similar to 1974. It will be a substantial loss. The BGA's latest report indicates that there were 160 accidents to gliders last year. Lloyd's Aviation Department were advised of 200 incidents last year of which 166 were on gliders only. Those 166 claims came to £414 000. This is in excess of the premium of £350 000.

But these are only hull claims and the premium includes a liability aspect also. If we make an allowance for the claims which were adjusted by surveyors other than Lloyd's, and also make an allowance for liability premium we come to these results: premiums £260 000 — claims about £475 000. For those who haven't got their pocket calculators it is 183% of the premiums. So to get things the right way round we subsidised you to the extent of over £200 000 last year. We are not a benevolent society and therefore you can expect to pay a substantial increase in your hull premiums, not only that but also a substantial increase in your policy excess and a restriction in the people who will be insured to fly your glider.

Using 1974 as a base, your premiums (that is expressed as premium paid per policy) have gone up by 215% — claims on the other hand have gone up by 250%. In fact the claims have gone up faster than the RP Index since 1974. Whilst we are comparing facts and figures let's compare glider insurance with

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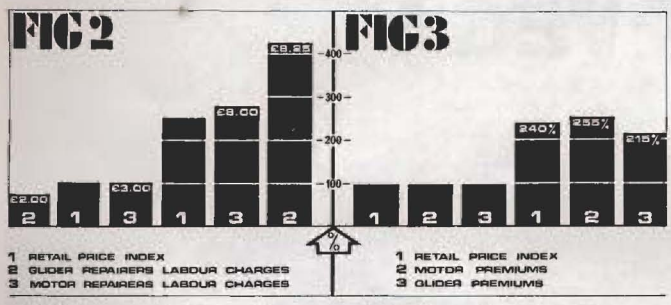
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motor insurance. In fact let's start with labour costs. In 1974 we were paying £2/hr and motorists £3/hr. In January this year we will be paying £8.25 and motorists £8.



The bars on Fig 2 are in proportion. If you think that increase is bad you should consider the cost of spares. In 1974 a new canopy would cost £100 installed on an aircraft. In 1979 the minimum cost was £700 and frequently cost over £1000. To shower more figures over you, in 1974 my average payment per claim was £800, in 1979 it was £2000, which was 20% below the £2500 average claim that Lloyd's Aviation Department handled. Whilst we are comparing glider with motor insurance let us see how the average glider policy has fared with the average motor policy. I don't know about you but when I get my motor renewal quote I think to myself "Thank goodness it has only gone up 15% etc on last year".

On Fig 3 we see that motor insurance has gone up faster than the cost of living. If glider insurance was a bargain in 1974 it is now an even better bargain as its cost has not kept pace with inflation. Just to depress you even more let me remove the last fallacy which cropped up a few months ago. Self-insurance is not the panacea that some people think it is. I was approached some time ago with 17 gliders, the owners of which were thinking of self-insuring the flight risks. Using some simple calculations and using some simple statistical analysis we arrive at the following:

17 AIRCRAFT LOWEST VALUE £2000 HIGHEST VALUE £10 000 TOTAL VALUE £90 000

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POTENTIAL LIABILITY £13 000 *ie* £765 PER MEMBER OR 14½% OF VALUES

So far I have only been talking about the hull side of the business, let us now examine the problems in liability insurance. The premiums in this part of the portfolio account for no more than £90 000 and this will rise to approximately £140 000 when the new liability limits come into universal usage. But what worries me is not the potential passenger claims because few of you take out limits anywhere near necessary to cover your potential liability. No, what concerns me is the third party aspect. We have in the insurance industry a magazine called the *Post Magazine*. In the Christmas issue it had an article by a barrister entitled "The Hyper-award Era". In that article the author discussed four awards, the lowest of which was £200 000. In most liability actions the plaintiff has the burden of proving negligence. This fact is frequently used by the defendant to reduce the ultimate settlement.

No need to prove negligence

This is not possible in a flying accident involving a third party because of Section 40 of the 1949 Civil Aviation Act. This states that the registered owner is responsible without proof of negligence for damage caused by his aircraft or by articles or persons falling therefrom whilst the said aircraft is in flight, landing or taking-off. Just imagine, you are coming in to land in a field and you encounter a down draught, bounce off the roof of a car, fracture the driver's skull and render him a paraplegic. His wife and family wouldn't even have to prove negligence, just to prove it was you. The quarter million you are now being requested to take out might just cover it, but probably not, because the four cases the barrister was discussing were all cases of this nature, paraplegia. Put that with the £475 000 hull claims and that really will make the current premium receipts of £350 000 look silly.

I am sorry to depress you but the facts are simple and incontrovertible. For years we have been using our profits from the airlines to subsidise movements such as yours. Now that these profits are no longer there we can no longer afford to have any part of the account losing money. It will come as a shock to you to see the rapid increase in your premiums but you have been getting the benefit of profits not generated by your movement. In future you can only look forward to stable insurance premiums if the underlying rating basis is correct. You can see from the diagrams given that there is no underlying viability in current methods we use to rate this class of business.



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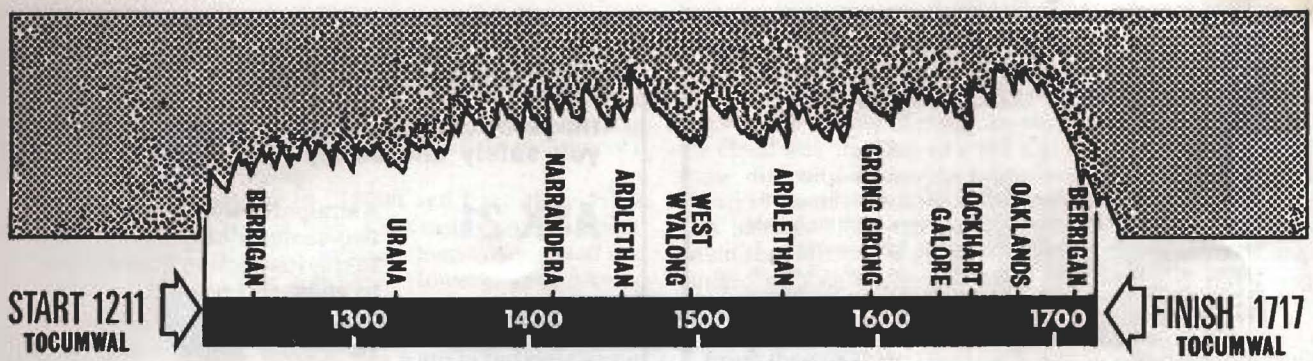
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BOB FRODSHAM

Determined to complete Gold C and achieve a Diamond distance, Bob Frodsham and his friend Simon Duxbury booked for three weeks over the Christmas period extending into the New Year at Sportavia, Tocumwal, Australia. The idea was to share a PIK 20, DG-200 or Kestrel 19, but they found the only glass-fibre glider left unbroken was the Kestrel 19, which they had to share with the other visitors. However, as the following account reveals, they justified the journey.

The CFI, Ingo Renner who was the World Standard Class Champion in 1976, didn't want to see our logbooks — just see if we could fly without breaking anything. So I was handed over to Bill Schoon, a Spitfire pilot about the time the club's huge World War II hangars were built to house Liberators. My check ride with Bill was in an IS-28B2 and turned out to be a 60km triangle to take in the two nearest towns of Berrigan and Finley, both to the north of the Murray river which passes through the town of Tocumwal. The terrain was completely flat divided into fields — sorry paddocks — by hedges running mainly NS, EW with (in the immediate area) a number of canals zig-zagging about, but with some long stretches.

The whole landscape was straw coloured except for the trees which were mostly confined to the river and a few creeks. So-called lakes on the map were just depressions in the ground, only their irregular outlines distinguishing them from the fields.

Must land close to homestead

The next day I had a flight in the Sperber, a 107km triangle, Saversnake and Green Swamp Road. It was a navigational exercise with field landing checks *en route*. The advice on field landings was much the same as it is in the UK, with the proviso that one must land close to a homestead or shrivel up and die trying to get to one. Standard survival kit comprised a litre of water just in case. The retrieve would almost certainly be by aerotow.

Bob, who is deputy CFI of the Derby & Lancs GC and been gliding for 24 years, is a lecturer at the University of Salford. He has a PPL, a total of about 1500 hours and more than 4000 launches. Bob also has a full instructor category for gliders and motor gliders.



Solo at Last! When I got back I was allowed to get my foot into an IS-29D and did an 87km out and return at 116km/h. So far I hadn't seen a parachute or radio. Since cloud flying is *verboten* in Australia and most gliders had little placards saying "aerobatics prohibited", there didn't seem to be much point in a parachute, especially since they don't work too well when


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soaked in perspiration, but a radio would have been a comfort.

Gold C Distance and Diamond Goal! The next day, December 30, I achieved the combination of a glider and a barograph, so declared a 300km out and return to The Rock, a little town to the north-east. The IS-29D didn't have a compass or speed to fly ring, but it was fairly new and I thought I had the measure of it from the previous day's flying.

The first thermal took me to 10 000ft and I set off on track towards Wangamong creek at 70kt. After nearly an hour conditions were deteriorating with complete cloud cover ahead and the whole area in front of me in shadow. However 15 to 20km to my right there were good clouds and sunshine, so down went the starboard wing and I shot off to find 6kt which improved to 8kt before tapering off at 11 000ft. We were in business again! By now I was getting 12 000ft and examining my finger nails to see if they were turning blue! Speeds were up to 80kt between thermals and I was soon over the turn point.

I was able to make straight for home and achieved 12 000ft four more times but was only circling under every third or fourth cloud. I crossed the airfield at 2000ft not wishing to exceed VNE and landed after five hours eight minutes.

Unusual, even for Australia

Weather deteriorating. Simon meanwhile had done his navigational flight and was too late to try for 300km. Next day he set off for The Rock but had to turn back before reaching the TP and landed out in the rain at Berrigan. We then realised that December 30 had been a little unusual, even for Australia. I was sorry that the regulations required me to do a 300km before attempting a 500km, as it had certainly been on.

(With the New Year came a cloudy sky and while Bob and Simon enjoyed local flying and sightseeing, plus some crewing for Ingo, the badge flights remained elusive until January 7, where Bob takes up the story again. Simon had ten days left but this was Bob's last chance and he was persuaded to try for the 500km.)

The Big One! I woke on January 7 to see a complete cloud cover — almost like wave but very close together. I got the Kestrel out with little hope of doing anything spectacular. By 10.30am the cloud was breaking up and I was launched at 11.55am. With some difficulty I scratched up to 3500ft and set off rather slowly. Needless to say conditions improved and by 14.00hrs I was halfway along the outward track to West Wyalong and could see Narrandera ahead. Cloudbase was now 7000ft and lift 3m/sec with an occasional burst of 4-5m/sec. I was flying at 80-90kt between thermals and stopping to circle at each third cloud with a height band of about 2000ft.

From then on it was hard work but with no danger of landing out. After Ardlethan cloudbase became 8000ft and speeds between thermals 100kt, slowing to 45kt and gaining 600-800ft under each cloud in straight flight. I was now becoming more confident, tightening up the last turn under cloud and picking up speed to 100kt while crossing under the cloud in lift and so entering the sink at the same speed, just like the experts!

I had to deviate to the east on the return track for the best lift, but arrived over the field at 1000ft and 100kt after five hours 27 minutes in the air, an average speed of 101.4km/h from leaving the airfield to the return.

The next morning I left for Melbourne to explore the city with friends, but was delighted to hear later that Simon and Martin Saunders, another Pommie, achieved 300km Gold and Diamond on that day. A most memorable holiday and one I shall never forget.

The cost. Costs are reasonable at $15/hr for the Kestrel, $12 for the Pilatus and IS-29D. Aerotows to 1500ft are $6, barograph hire $2 a day and accommodation in a twin-bedded room, en suite shower, toilet etc, fridge, tea and coffee making equipment, $7.50 each per day including breakfast.

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"Suppose a glider is going to fly from a given height through a downdraught of velocity u and width a, and then climb at a rate c in a thermal until it has regained its original height. Let v be the velocity of the aircraft, v' its ground speed [*ie* average speed] and s its rate of sink in still air at speed v. Then

Time taken to cross downdraught	$=a/v$
Height lost	$=a(u+s)/v$
Time taken to regain height	$=a(u+s)/cv$
Total time	$=a(c+u+s)/cv$
Average speed $=v'$	$=cv/(c+u+s)$ (equation 1)

For v' to be a maximum its derivative with respect to v must be zero.
Therefore

$$((c+u+s)c-cv\frac{ds}{dv})/(c+u+s)^2=0.$$

Therefore either $c=0$ or $c+u+s=\infty$ (which solutions do not concern us)

$$\text{or}\quad c+u+s=v\frac{ds}{dv},$$

$$\text{therefore}\quad c+u=v\frac{ds}{dv}-s.$$

The right-hand side of this equation is a function only of v, and for a given value of $(c+u)$ has a unique value of v in the range of v we are considering. This means that the speed at which to fly to attain the greatest ground speed is governed by your rate of climb in the thermal plus the rate of sink of the downdraught itself (not your rate of sink in the downdraught; this is greater by your sinking speed in still air)."

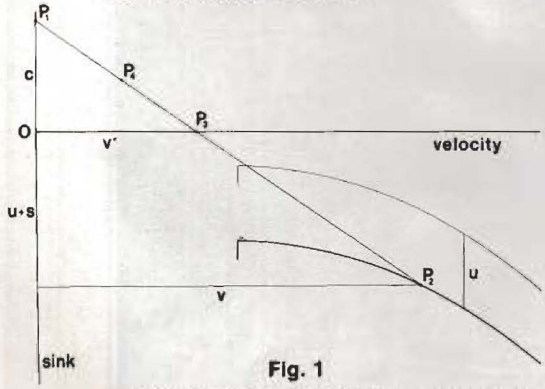


Fig. 1

The common geometrical interpretation is given in Fig 1, which shows the polar of the glider depressed by an amount u to reflect the true performance in the sinking air, so that at velocity v the sink is u+s (point P_2). If a point P_1 is marked on the vertical axis a distance c from the origin, to correspond to the rate of climb in the thermal, then an application of similar triangles shows that the distance v' in the Figure must be the same as the v' in the above theory, since from the Figure

$$v'/v=c/(c+u+s),$$

corresponding to equation (1). It is then obvious that to maximise the average speed v' we need to find the tangent from P_1 to the polar, and to fly between thermals at the speed given by the point of contact. That the geometrical construction reflects the mathematical situation no one need doubt, but shouldn't such a construction be obvious in itself? Shouldn't it be obvious that the solution involves adding the rate of climb c and sink u together?

Source forgotten

Before revealing the secret it may be of interest to recall who first published the solution anyway, since this appears to have been forgotten. The construction to find the speed for the best gliding angle in sinking air was known at least in England and Germany well before the 1939 war, whilst the solution for the best speed to fly as a function of thermal strength (with no assumption of sink between thermals) was current in Germany in 1938 and published in England in 1940 by Philip Wills. Helmut Reichmann has suggested that the full solution, incorporating sink between thermals, was published in Poland in 1938, but the periodical is not available in Great Britain, and the war certainly ensured that the post-war gliding world started off without the solution being generally known. Of course, the Wills account contains the full solution thinly disguised since experiencing sink between thermals is just like buying a worse glider, as is obvious with the advantage of hindsight.

The complete solution is now usually attributed to Karl Nickel and Paul MacCready who in 1949 published separate articles in *Aero Revue*, MacCready's publication being prompted by Nickel's (though his solution was obtained independently). But in fact the first published solutions were by a student and a former student of Cambridge University in the June 1947 *Sailplane and Glider*. In that number G. W. Pirie had an article and E. Dewing a letter (independently so far as I know) both pointing out that the solution is simply to add the rate of climb in the thermal to the sink between thermals and then to use the existing "best-gliding-angle-speed" theory. Pirie spared his readers most of the mathematics (though, having read engineering, this was presumably simply a kindness) and derived the solution by simple argument, but Dewing, a second-year undergraduate reading natural sciences, gave the solution I have quoted verbatim above. It cannot be bettered. So next time you see 1949 quoted as the dawn of civilisation, remember Pirie and Dewing in year -2.

The valuable contribution of MacCready was to fix a rotatable ring to a circular, linear-scale, variometer in order to effect the addition, but we should not forget that as early as 1938 J. S. Fox had invented one important element of this idea by calculating and fixing a speed scale beside his pellet-type variometer.

But to return to the geometrical representation: why does it work? Readers of my "Dynamic polars" in the February issue, p10, will remember that I answered the incidental question "If P_1 and P_2 are two points in a polar diagram, what is the resultant performance point if for part of the distance one flies at P_1 and for part at P_2?" To understand the present matter we need the answer to the related, but simpler, question "What is the resultant point if for part of the *time* one flies at P_1 and part at P_2?" It is easy to see that the resultant point is then on the straight line P_1P_2, and in fact divides it according to the division of the time (if one flies at 45kt for 10min and at 60kt for 5min the average speed is 50kt). Thus if P_1 and P_2 are two points in a polar diagram the pilot can achieve the performance of any point on the line P_1P_2 by distributing his time between P_1 and P_2 appropriately.

Now consider the cross-country situation. If there is a thermal around offering rate-of-climb c, to climb in it is to operate at the point P_1 in Fig 1, whilst if the sink between thermals is u, flying through it is to operate at some point, say P_2, on the glider's still-air polar

depressed by an amount u. By apportioning his time between climbing in the thermal and gliding through the sink the pilot can achieve any performance point on P_1P_2, his overall rate of ascent or descent and average speed being thus represented. But the usual model of a climb followed by a glide corresponds to no net ascent or descent and is therefore represented by P_3 in Fig 1, and the average speed by v'. It is now obvious, and in accordance with the usual argument, that to maximise v' we must draw the tangent from P_1 to the depressed polar. And that is why, best beloved, the construction works, without any algebra at all. Moreover we can immediately see, from the way P_3 divides P_1P_2, what is the proportion of climbing time to gliding time.

Chasing the needle

This is as far as the usual theoretical treatment goes, and for thirty years we have been chasing that variometer needle, trying to get it to point at the airspeed indicated on the MacCready ring. It has been assumed, perhaps too readily, that the theory applies even though the strength of the downdraught varies, but that this is so is obvious when we note that each bit of height lost in a downdraught of a particular strength will have to be regained in the next thermal, which we can therefore think of as being chopped up into as many bits as there are different downdraughts. The highest average speed will clearly be achieved if each of these units of glide and climb are accomplished as quickly as possible: thus we must set the rate of climb and follow the needle throughout the glides.

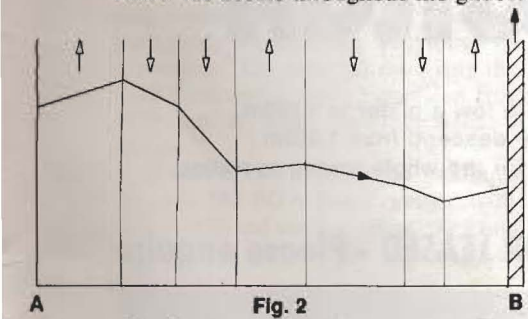


Fig. 2

So far so good, but our next problem is: What if there are bits of upcurrent on the way, but we choose not to circle in them? The above proof will not do because it relies on each glide being (notionally) followed by a thermal climb to recover the height lost. We have, in fact, come up against the general dolphin-flying problem, which may be expressed as follows: "Given a tract of air AB (Fig 2) with a known distribution of lift and sink, if we fly through it at the best-gliding-angle speed appropriate to each stretch (MacCready ring set at 0) we will arrive at B with a certain height loss (or gain), and any other speed-policy will make us arrive lower. Consider any one such arrival height: what speed-policy will get us to B at that height as quickly as possible?"

We all expect the answer to be that we must fly according to some fixed MacCready ring setting, chosen so that the arrival height is just right, but where is the proof? Mathematically expressed, this is a problem in the calculus of variations, in which the Arm-Chair Pilot has not yet flown solo; but Frank Irving has, and he proved the result in 1973. We, poor souls, need a non-mathematical proof, and here it is.

First we observe that our new explanation of the best-speed-to-fly construction works perfectly well if our objective is not merely to use the thermal to regain lost height (P_3 in Fig 1) but to make a net gain of height by (of course) staying relatively longer in the thermal. If we do this a point such as P_4 will result, and the resultant flight path (taking both glide and climb into account) will be inclined upwards precisely as $0P_4$. It follows that the best speed to fly through the sink is unchanged, which it must be because if we want to achieve a net gain of height there is no alternative but to carry on up the thermal.

Just keeps on working

Next, we see that the construction holds even if there is lift rather than sink outside the thermal. and even if it is so strong that the polar (with respect to the ground) now crosses the horizontal axis (Fig 3). If we fly at P_2, the point for the best gliding angle in the rising air, we will climb along $0P_2$ even without using the thermal, achieving a certain gain of height (per unit distance horizontally, of course), but we can achieve the same result faster by the appropriate mixture of P_4 (the "best-speed-to-fly" point on the polar) and P_1 (the thermal point), represented by P_3. Any steeper resultant path, such as $0P_5$, will similarly be traversed fastest by a mixed P_4/P_1 strategy. In other words, the best-speed-to-fly theory just keeps on working even in the lift. Readers of Helmut Reichmann's book (**Cross-Country Soaring**) will recognize Fig 3 from his

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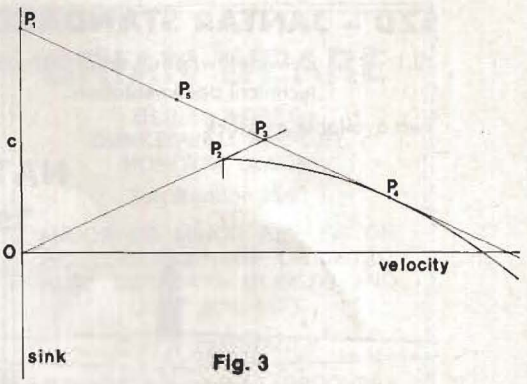


Fig. 3

p114; the only difference in our treatments is that by introducing the diagrammatic interpretation of the mixed strategy directly, I have avoided writing down any equations.

Now we are equipped to solve the general dolphin-flying problem. Return to Fig 2, and imagine there to be a thermal of a certain strength at B, reaching upwards indefinitely (what bliss!). With each stretch of rising or sinking air in AB we can now associate a chunk of this thermal of arbitrarily large height, and the optimum strategy overall will be compounded of the optimum strategy in each stretch of glide-and-circle, which, by the above arguments, is to fly according to the best-speed-to-fly theory with the MacCready ring set at the rate-of-climb in the imaginary thermal, whether we are in rising or sinking air. Application of this strategy will (returning all the bits of thermal to B) involve a certain height change in the glide from A to B. **But since this strategy minimises the total glide-and-circle time, it must minimise the glide time alone,** thus proving that to fly from A to B as fast as possible for the given height change we must fly to the MacCready ring, choosing the setting to achieve the height change desired (which, of course, can be no better than the height change corresponding to a zero ring setting, which gives the best gliding angles throughout).

Needless to say, the basic theory proved above has to be adapted to the actual circumstances in ways which are by now well-known, but there is something to be said for getting the foundations straight.

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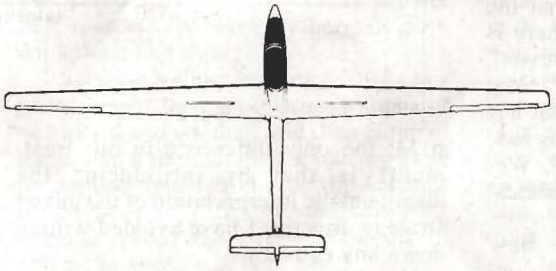
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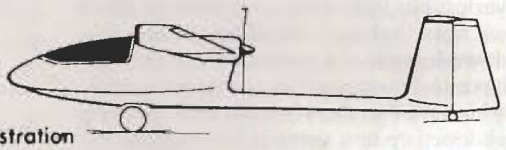
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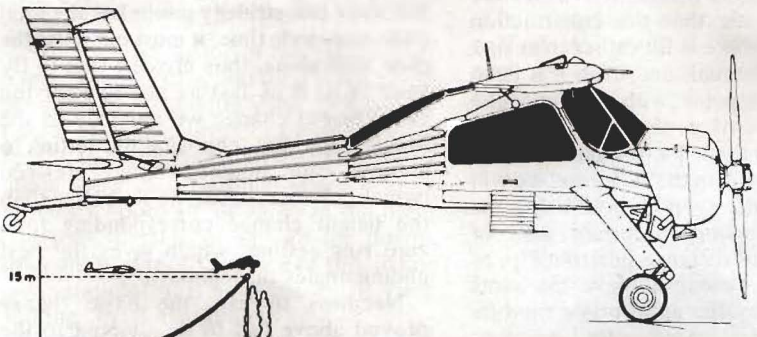
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THE UK GLIDER MARKET: 1975-80

ALAN YATES, Chairman of the BGA Technical Committee

In 1964 90% of the entrants in the Nationals (League One) flew gliders designed and built in England. Skylarks, Olympias 419 and 460 and Darts dominated. By 1979 the proportion had fallen to 6%: of the 34 entrants in the Open and 15 Metre Classes, two flew Vegas but 28 chose German designs.

This dominance of glider designs from Germany is comparable to motorcycle dominance by Japan. In each case British designs prevailed here until recently and warnings of changes were ignored. In 1958 I went with Wolf Hirth to see the first glass-fibre glider, Phoenix, under construction in Stuttgart. Back from Germany I went to see Fred Slingsby who was interested — but completely involved with wooden gliders and about to manufacture the metal HP-14.

For many years we ignored the opportunity to manufacture in GRP, even under licence. The appearance of the Vega will, at last, stake our claim to the GRP market.

In the August, 1975, issue of S&G, p158, J. L. Sellars reviewed the market in the period 1957-1975. He examined the 1300 BGA Registrations in this period and noted the progression from British wood to German wood/steel tube and German GRP. At the end of 1974 he noted that "German imports seem currently to be stagnating (high prices and long waiting lists?) and other countries, particularly Poland, are providing the expansion." On materials he wrote that "GRP enjoyed a rapid expansion from 1970 but is now showing signs of decline."

All that in 1975. I have now examined the next 580 BGA Registrations to the end of 1979 and analyse below the country of design and material used in recent years.

BGA Registrations 1975-79

Country of design	GRP	Metal/ wood	Total
Germany	206	172	378
Britain	27	28	55
Poland	18	22	40
Finland	35	—	35
Czechoslovakia	—	22	22
Romania	—	13	13
France	3	—	3
Miscellaneous	—	35	35
	288	292	580

Half the registrations in the last six years are GRP compared to one third in the previous six years. British designs continue to number only 10% of new registrations; Germany accounts for 65%. There is no evidence of Sellars' predictions of German imports stagnating or of a decline in the GRP share.

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Types Registered. Further details of the 580 registrations since 1975 follow.

BGA Registrations 1975-79

	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	2401 to 2500	2501 to 2600	Total	
Approx date	1975	1976	1977	1978	1978-9	1979		
GRP								
Britain								
Vega					10	12	22	
Other	3		1	1			5	
Germany								
Libelle	1	1	3	1	1	1	8	
Hornet		3					3	
Mosquito			3	6	8	5	22	35
Kestrel					2		2	
ASW-17	2			1		1	4	
ASW-19			1	3	5	4	13	39
ASW-20				4	8	10	22	
Cirrus	10	3			3	1	17	
Nimbus	1	4	6	4	6	8	29	48
Janus				1	1		2	
DG 100/200	1	5	2		4	1	13	
Astir	1	11	17	14	9	10	62	
LS		1	1	2	3	1	8	
Poland								
Jantar	7	7	2	1	1		18	
Finland								
PIK 20	5	10	8	3	4	5	35	
France								
JP-36					1	1	2	3
Silene						1	1	
							288	
Metal and Wood								
Britain	10	5	4	4	1	4	28	
Germany	18	32	32	36	29	25	172	
Poland	9	5	4	3		1	22	
Czechoslovakia	12	6	2	1	1		22	
Romania	10		2			1	13	
Others	4	4	7	11	3	6	35	
							292	

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GETTING TO KNOW THE BRITISH TEA

GRAY'S ANATOMY

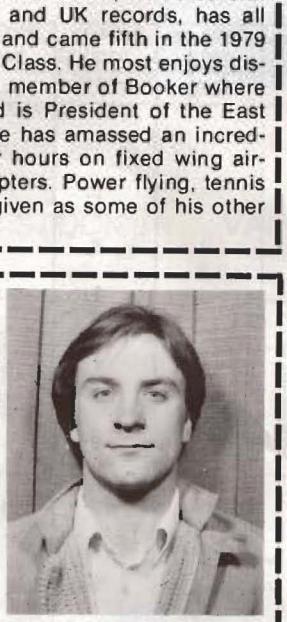


MIKE CARLTON, the British Team Manager, is a 36 year-old accountant who came to gliding six years ago and blames Bill Scull for introducing him to the sport. He has more than 1000 hours, holds several British National and UK records, has all three Diamonds and came fifth in the 1979 Nationals' Open Class. He most enjoys distance flying, is a member of Booker where he instructs and is President of the East Sussex GC. Mike has amassed an incredible 8000 power hours on fixed wing aircraft and helicopters. Power flying, tennis and skiing are given as some of his other interests.

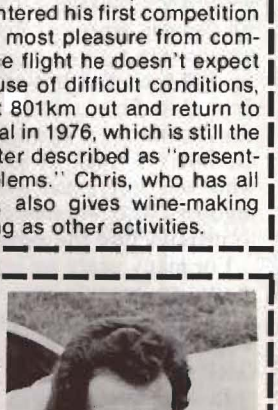


CHRIS GARTON, aged 35 years, was reading classics 15 years ago at University College, London, when introduced to gliding which changed his life. Instead of using his degree, he became an airline pilot. He flies at Lasham and entered his first competition in 1974. He gets most pleasure from completing a distance flight he doesn't expect to achieve because of difficult conditions, though his great 801km out and return to Durham Cathedral in 1976, which is still the UK record, he later described as "presenting no real problems." Chris, who has all three Diamonds, also gives wine-making and bird watching as other activities.

ANDREW DAVIS is the youngest squad member at 23 years. He is a trainee airline pilot, has been gliding eight years with 800 gliding hours and 115 power. He won the Nationals (15 Metre Class) and Euroglide (Standard Class) two years ago and was second in both Classes last year. His father, who has given every help and encouragement, was a founder member of the Bath & Wilts GC where Andrew also flies, having gone solo at 16 years. He has one Diamond and particularly enjoys cross-countries. Rugby and car maintenance are additional pastimes.



NICK HACKETT, an architect, is married with two children and has been gliding with the Coventry GC for five years. He has 600 hours, two Diamonds and gives curiosity as the reason for taking up gliding. Skiing is another enthusiasm.



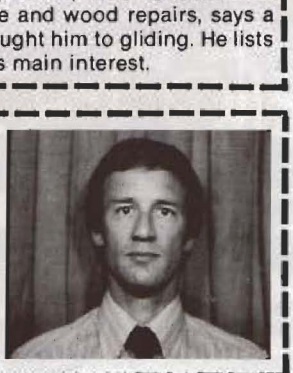


JOHN DELAFIELD, six times National Champion and three times a member of the British Team, is a 42 year-old Group Captain in the RAF. Married with two children, he has 2100 gliding hours with all three Diamonds, 3500 power hours, is a member of the BGA Executive and deputy Chairman of the RAFGSA. He enjoys success in contests and likes cross-countries and instructing. John, who is skilled in basic glass-fibre and wood repairs, says a desire to fly brought him to gliding. He lists his family as his main interest.



ALISTER KAY, a 26 year-old management consultant, has been gliding for nine years with a total of 1300 gliding hours and 250 power. He is Chairman and deputy CFI of Thames Valley GC, instructs regularly and has a preference for cross-country racing and wave flying. Alister gained all three Diamonds in wooden gliders and was introduced to the sport because his father persuaded him to go on an RAF cadet gliding course where he got his A and B certificate. He is also keen on skiing and photography.

BERNARD FITCHETT, aged 33 and currently a tug pilot at Booker, has represented us four times at World Championships and has 1600 gliding hours and 280 power hours. He has been gliding for 18 years and has all three Diamonds. A general interest in aviation brought him to gliding and competitions give him most pleasure. Bernard is a member of the BGA Competitions Committee.



GEORGE LEE, World Open Class Champion for the second time, is an RAF pilot. Aged 34 years, he has been gliding for 17 years with a total of 1400 hours and 2500 power hours. Married with two small children, George instructs regularly and this season is flying with the Scottish Gliding Union. He came to gliding to assist in his selection for pilot training and won his first Nationals in 1974, being highly placed ever since in British and International contests. George, who has all three Diamonds, enjoys all types of gliding. He is the RAFGSA personnel member, Chairman of the Team Training Committee and a member of the BGA Handicapping Committee. His other pursuits are music, fishing and bird watching.



Stop Press: Competition Kitty got off to a great start at the Kent GC on Sunday, April 27, (the Saturday being rained off) when Tony Moulang (ASW-15) beat the Squad with a 103km triangle.

Most of the Squad have been Nationals or Euroglide Champions too frequently to mention in the limited space.

MIKE CARLTON, *British Team Manager*

It is interesting to note that since the inception of International Gliding Championships Britain has been, despite her size and geographical location, amongst the leading countries in the table of results. Indeed, a review of all the International Championships since 1965 shows that Britain has always had a pilot in the Open or 15 Metre Class placed in the first seven, with the overall tally being two 1st, one 3rd, four 4th, one 5th, two 6th and three 7th. By directly comparing, on a purely points scored basis, the overall performance of British pilots in the years since 1965, Britain is running a close second to Germany in the Open Class and is lying seventh in the 15 Metre Class.

I am sure that the credit for this superb performance has always lain with the movement in engendering the type of enthusiasm which produces World Class pilots. Long may this outstanding performance continue.

It is somewhat early to comment on the strategy being adopted by the Team Squad in preparation for the 1981 World Championships at Paderborn/Haxterberg. Suffice it to say that Competition Kitty will this year provide a varied programme for all Team Squad members, whilst the six man team chosen to attend the German Championships in July/August this year will gain valuable international experience. Indeed, with the exception of George and Bernard, none has previously competed in an International Championship and one of the principal reasons for their selection is to broaden the pool of internationally experienced pilots from which final selection for the World Championships can be made.

Naturally, selection for 1981 will be largely influenced by performances at our own National Championships this year, and it is hoped that some clear pointers will emerge to assist with this task.

Whilst it is always difficult to predict how any national team will fare abroad, the British Team will be going to Paderborn with the psychological advantage of having in its midst a two time Open Class World Champion. Whilst the chance to be the first person ever to bring off the hat-trick will place an enormous pressure on George, I am sure that he is equal to it and that Paderborn/Haxterberg 1981 will provide us with a real opportunity to put the names of George Lee and this country in the gliding record books once and for all.

AM SQUAD

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ED LYSAKOWSKI, aged 42, a petroleum chnologist, is married with an 11 year-old ild. He has been gliding for 21 years, is instructor, deputy tugmaster at Lasham nce 1972 and Chairman of the BGA Cometitions Committee. Ted, who has 1920 liding hours and 940 power, says that ompetition flying is one of his greatest leasures and he enjoys long distance ross-countries and operating from nusual sites. His reason for gliding — intellectual and manipulative, 3D sailing, *amaraderie*", and he believes in striving in erms of personal achievement and in the quipment flown with the minimum of artiial restrictions. Ted has two Diamonds.



TIM MACFADYEN, a 28 year-old mechanial engineer, is a member of the Cotswold GC and has been gliding for 13 years. He has 1280 hours, is an instructor and his club's technical officer for the last four years. Tim, who has all three Diamonds, likes contests, cross-countries and instructing. His other hobby is stamp collecting.



GRAHAM SMITH, a manager aged 24 years, has been gliding for eight years with 320 hours and is an instructor at the London GC. His father and sister also glide. Graham won the Standard Class at Euroglide last year, has a Diamond goal and has been flying seriously for four years. He puts squash and music as his other hobbies.

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BRIAN SPRECKLEY, National Coach, is 31 years-old and has been gliding for 15 years. He has 3000 gliding hours and 2000 power hours, has all three Diamonds and flies with the Buckminster GC. Brian, who was first in the Euroglide 15 Metre Class last year, became interested in flying through the ATC. His ambition is to create a competition structure in the UK that allows more people to share his experiences. He is on the BGA Instructors Committee and is Vice-President of Notts University GC. His other sport is squash.

DAVE WATT, a 27 year-old airline pilot, has been gliding for six years and has 2000 gliding hours and 4000 power hours. He instructs at Booker, likes cross-countries and also enjoys music and gambling.





STEVE WHITE, a 36 year-old airline pilot, was in the last British Team. He has been gliding for 20 years, with 2000 hours and 6500 power hours. Chairman of the Airways GC, Steve instructs occasionally, has all three Diamonds and most enjoys competitive flying. Sailing, windsurfing and skiing are additional hobbies.

CHRIS ROLLINGS, aged 33 and CFI of Booker, started gliding 17 years ago. He has more than 3500 hours and 1500 power hours, instructs most days and has an impressive competition record. A member of the BGA Competitions Committee and an Instructors' Panel examiner, Chris has all three Diamonds and gets most satisfaction from long closed circuit task flying.



"ROCKY" STONE, a former airline captain and now flying Hawker Hunters, is a long experienced competition pilot who figures as far back as 1961 in the Nationals results list when placed seventh in League One.

JUSTIN WILLS, a merchant in his mid-thirties, has been gliding for 30 years, it being a main family interest. He flies at Booker, has 2000 gliding hours and 160 power. He has all three Diamonds, has competed at home and abroad with outstanding results and most enjoys distance and mountain flying. Justin gives his interests as music, literature, fishing, skiing, canoeing, shooting, all forms of aviation and travel.



BGA AND GENERAL NEWS

BGA'S NEW CHAIRMAN



Tom Zealley (left) with Roger Barrett, immediate past BGA Chairman. Photo: Alan Clark.

Tom Zealley, the new Chairman of the BGA, wants to see a steady growth in the gliding movement but especially in a way which will permit the younger generation to participate.

"There are risks of the youngsters being 'priced out'", he warned. "We will always be a somewhat 'odd-ball' minority but we should work for wider understanding and sympathy for our sport."

As Chairman of the BGA, he told us that he sees as a major task the fight to maintain our remaining airspace freedom in the face of continuing pressure to curtail it. The other major battle is at ground level — more club sites with land security.

Gliding is very much a family sport for Tom, a manager with ICI. He went to the London GC on a holiday course with his wife June in 1959 and they were both sent solo in Tutors on the same day three months later by John Jeffries. June still crews for Tom though hasn't done any gliding for about 16 years, but their son John has been solo for two years since his 16th birthday.

Tom, who has an ASW-20, still flies with the London GC, the home of the immediate past BGA Chairman, Roger Barrett, and has played a leading part in that club for many years. After a brief spell on the club's Flying Committee, he joined the General Committee in 1962 and served as Chairman from 1964 until 1977. He also acted as honorary manager for a year or so immediately prior to John Jeffries's appointment. He has also been an instructor since about 1962.

Competition flying has been a fascination to him since entering the Dunstable Regionals in 1963 in his K-6, the year when Bernard Fitchett was flying in partnership with his father. Tom qualified for the Nationals League 2 in 1964 and most years since then has been in the Nationals or Euroglide.

When he escapes work and gliding, Tom enjoys playing with the watermill once worked by his grandfather in Devonshire — his mother is still living there.

36 100ft BRITISH NATIONAL AND UK RECORDS

Friday, April 18, proved to be an outstanding wave day in Scotland with a number of Diamond and Gold C heights being claimed at Portmoak.

David Benton in a Nimbus 2, however, outflew everyone in the afternoon and reached an absolute height of 10 993m (36 100ft) with a gain of height of 10 231m (33 600ft) to claim (subject to homologation) the British National gain of height and the UK absolute and gain of height records.

The final part of the climb was made about 52 miles NW of Portmoak.

RECORDS HOMOLOGATED

The following records have been homologated.

British National, single-seaters (women), straight distance 949.7km. Triangular distance 814.01km. 300km triangle 125.87km/h. British National, single-seaters, straight distance 949.7km, triangular distance 814.01 km. These flights were all carried out in a LS-S by Karla Karel in Australia and also qualify as World Records.

British National, multi-seaters. Height gain 8386m, T. J. Wills and B. Iggulden, Twin Astir, (in New Zealand).

Karla Karel is also claiming the British National, single-seaters (women) 500km triangle at 120.69km/h, which she flew on February 20 in the LS-3 in Australia.

(Subject to homologation).

ANNUAL AWARDS

Wakefield trophy (longest flight originating in the UK): the **Volk** trophy (longest predeclared goal flight by pilot not holding Gold or Diamond legs on January 1, 1979) and the **Rex Pilcher** trophy (earliest predeclared 500km of the year by pilot completing this task for the first time): C. J. Curtis (Four Counties) for a 523km triangle on May 19.

California in England trophy (longest flight by a woman): Pam Davis (Lasham Gliding Society), 360km on July 5.

Seager cup (longest distance in a two-seater): B. Fitchett (Booker), 327km on May 9.

Frank Foster trophy (fastest declared 500km triangle): J. D. Cardiff (London), 514.02km at 80.92km/h on May 6.

De Havilland trophy (maximum gain of height): D. W. Lilburn (Yorkshire) for a gain of 29 000ft in wave in Yorkshire on September 16.

Douglas trophy (maximum cumulative distance by three pilots from the same club): Surrey & Hants for flights by G. Metcalfe, 513.7km on May 19, B. Docker, 485km on May 19, and R. Pentecost, 301km on September 7. Total 1299.7km.

Robert Perfect trophy (for the club with the most instructors per member): Cambridge University with seven full category instructors for a membership of 260 in year one and 236 in year two.

National Ladder trophies

L. du Garde Peach (winner in club aircraft): C. C. Rollings (Wycombe).

Enigma trophy (winner in private aircraft): D. W. Lilburn (Yorkshire).

TUG FLIGHT MANUALS

Towing weight revisions. The BGA have agreed with CAA the following revisions (list below), to increase the certificated (legal) glider towing weights. These become effective only when a Flight Manual Revision in respect of each registered tug, has been received from: CAA (Airworthiness Division), Flight Manuals Dept, Brabazon House, Cromwell Road, Redhill RH1 1SQ, to whom application should be made.

	lb		lb
Chipmunk — Gypsy Major	1700	Condor (0-200)	900
Chipmunk — Super-180hp	2200	PA18 — 150 Super Cub	1900
Tiger Moth	1000	PA18 — 90 Cub	700
Tiger Moth (1C engine)	1200	PA18 — 180 Citabria	2400
Auster 5B	1350	Cessna 172	1800
Auster 6A	1300	PA12 — Super Cruiser	1500
Auster Terrier	1050	PA25-235 Pawnee	1700
Condor (0-240 Engine)	1500	Rallye Commodore	2500
Condor (AE)	1800	Wilga	2200
		Robin DR.400	2500

(These figures have been agreed on the basis of a minimum rate-of-climb of 300ft/min in ISAS (15°C) ambient conditions.)

EARLY LADDER ENTRIES

Only two clubs, Herefordshire and Swindon, feature on the National Ladder, Herefordshire members taking the top places. R. Harlow heads the Open Ladder with P. King as the only Club Ladder entry, both with one flight.

The rules have been slightly revised with the maximum number of turning points reduced to three, all bonuses deleted and a limitation on late claims introduced.

COMPETITIONS

After three years' service, Gordon Camp is retiring as Chairman of the BGA Competitions and Badges Committee and the Executive Committee has appointed Ted Lysakowski as his successor. Ted is a well-known competition pilot, flies from Lasham and is a member of the current British Team Squad.

British Team for 1981. The four pilots to represent Britain in the 1981 World Championships will be chosen this September from the present 16-man Team Squad, plus the 1980 Nationals Champions if not already in the Squad. Selection will be by a three-stage voting procedure by the Squad members.

Competition Control Vehicle. Several contest directors have suggested that a vehicle or caravan should be fitted out with all the

special facilities needed to run a competition and be made available to organisers by the BGA. The vehicle could serve as contest control, forecaster's office and scorer's den, and would contain startline equipment and radio, film developing facilities, scoreboards etc. The idea is very attractive but naturally the main problem is finance. However, there would seem to be good advertising potential in such a mobile vehicle and anyone willing to sponsor the project is invited to contact the BGA.

AVIATION ART

The Guild of Aviation Artists' tenth annual exhibition will be at the Qantas Gallery, Piccadilly, from June 10 to July 4 when more than 60 top professional and amateur aviation artists will be represented.

FATAL ACCIDENT

On Thursday, April 3 the pilot of a Pilatus B4, Mr. H. C. Stark, was killed in unusual circumstances. The glider, which was being flown from Lasham, was observed carrying out a succession of loops which apparently continued until it struck the ground. The pilot however baled out at some stage; his body was found some 800yds from the wreckage of the glider. The parachute had not been operated but was later found to be in working order. Inspection of the glider did not give any indication of possible causes.

The accident is being investigated.

W. G. Scull, *BGA Director of Operations.*

OBITUARY

PROF GORDON MANLEY

It was by taking advantage of Gordon Manley's expert knowledge of the structure of the Helm Wind wave in the Northern Pennines that Noel McClean of Newcastle GC put up a British height record of 10 540ft gain and 11 100ft absolute in 1939. The Helm Wind is formed when a north-easterly wind gradually climbs from Newcastle to the top of the Pennine mountain chain, then plunges 2000ft down a SW facing escarpment to the plain below, where it forms one or more stationary rotors below mountain top level, each with a turbulent cloud in its top and a reversed SW wind on the ground below. Up above is the main lenticular cloud, called the Helm Bar.

McClean was launched by winch in a Grunau Baby to 600ft in the upgoing side of the first rotor, and after a rough time suddenly contacted smooth air in the main wave above and much of his climb was made at nearly 40ft/sec, except for something of a struggle between 9000 and 9500ft. To get down, he had to move upwind over the mountain ridge.

At the time of the flight Manley had camped out on the Cross Fell mountain range for 18 months with the help of a Leverhulme Grant from Durham University. He later moved south to Cambridge but kept in touch with gliding people for some years. He was a geographer with a special interest in the climatology of high ground, though oddly his academic life began with a degree in engineering at Manchester University.

His work, especially on the Helm Wind, brought him a great reputation in the meteorological world, and he served a spell as President of the Royal Meteorological Society. He spent the last 40 years of his life at Cambridge, where he died after a short illness early this year.

A. E. SLATER

BGA ACCIDENT SUMMARY — Compiled by ARTHUR DOUGHTY, Chairman of the BGA Safety Panel

	Glider Type	BGA No.	Damage	Date Time	Place	Pilot/Crew Age	Injury	P/Hrs.	SUMMARY
INC	Pirat	2042	N	12.01.80 ?	Parham	51	N	140	Pilot was in cockpit awaiting a winch launch when a bystander noticed the safety pin for the starboard wingtip securing pin was not in place. Pilot had safety pin in pocket and claimed he was distracted while rigging and carrying out daily inspection. Pin fitted and launch proceeded.
18	Pirat	2042	S	16.01.80 14.15	Chanctonbury Ring, Sussex 6 miles SE	51	N	145	While hill soaring about 170ft above hilltop pilot initiated a turn to left at end of beat and entered incipient spin to right. Recovered at height stated to be 10-15ft with no choice of landing other than straight ahead onto rising ground and groundlooped.
19	K-8	1561	M	06.01.80 11.30	Farnborough	31	N	1¼	Overcontrolled at roundout and ballooned into air. Opened airbrakes fully and landed in stalled condition from about 15ft.
20	T-21B	601	M	13.01.80 15.48	Challock P2	34 22	N N	168 2 P2	After stalling practice pupil was being talked round circuit but was slow to turn from downwind to base leg and got too far downwind. Instructor delayed taking over and failed to ensure spoilers were closed. Wingtip clipped tree on approach.
INC	Olympia 460	1283	M	21.01.80 ?	Parham	—	—	—	Glider derigged in trailer when a strong wind lifted cover from adjoining parked trailer and blew it into side of Olympia trailer. Damage included a 10 inch slit in upper wing surface of Olympia 460.
21	T-21B	1971	S	27.01.80 11.30	Davidstow A/F	—	—	—	After parking glider at launch point it was noted the wind had veered about 40° and had increased to about 20kt. Members were moving towards glider to re-park it and increase picketing weights, etc when a stronger gust lifted the glider and turned it over.
22	SF-25A Falke	G-BECF	M	20.01.80 14.15	Currick Hill	?	N	?	Pilot was apparently making a powered approach and touched down on rough ground in undershoot area. The motor glider bounced and one of the propeller blades broke as it touched the ground.
	SF-25A Falke	G-BECF	M ?	01.03.80 ?	Carlton Bank	?	N	?	Visiting motor glider. Prior to departure pilot was advised that runway selected was wet and soft but apparently pilot said he had walked over it and was satisfied. On attempting take-off flying speed was not achieved, the take-off was aborted when the motor glider overan on rough ground causing damage to undercarriage and rear fuselage.
23	Olympia 463	1342	M	17.12.79 ?	Bickmarsh	—	—	—	The glider was derigged in its trailer which was blown over in a severe gale.
24	Blanik	2106	N	09.03.80 14.42	Dishforth P2	25 ?	N N	300 ?	During flight the tailcone swung up and fouled the rudder and elevator, restricting the movement of both controls. Instructor landed safely and it was found the securing pin was in the tailcone with safety pin fastened but the pin was not engaged in the corresponding fuselage fitting.
25	Specht	2586	M	15.02.80 14.00	Ringmer	?	N	265	While doing pre-flight cockpit check pupil found elevator jammed with control column hard back and immovable. Examination revealed elevator cable was pinched between a fuselage bottom cross member and top of wheel housing which had been displaced by the wheel as a result of one of the axle lugs breaking. Landing immediately prior to discovery of damage was described by witnesses as normal.

GLIDING CERTIFICATES

DIAMOND DISTANCE

No.	Name	Club	1980
1/160	R. D. Frodsham	Derby & Lancs (in Australia)	7.1

DIAMOND GOAL

No.	Name	Club	1979
2/945	J. G. Harrison	Eagle	23.7
2/946	R. D. Frodsham	Derby & Lancs	30.12
2/947	S. Y. Duxbury	Derby & Lancs	8.1.80

GOLD C COMPLETE

No.	Name	Club	1979
743	J. G. Harrison	Eagle	23.7
744	R. D. Frodsham	Derby & Lancs	30.12
745	S. Y. Duxbury	Derby & Lancs	8.1.80
746	S. L. Hoy	Fenlands	18.7

GOLD C HEIGHT

Name	Club	1979
A. J. Unwin	Southdown	20.9
J. Wilson	USA	11.1.80
R. B. Christey	London	16.9
S. L. Hoy	Fenlands	18.7

GOLD C DISTANCE

Name	Club	1979
J. G. Harrison	Eagle	23.7
R. D. Frodsham	Derby & Lancs	30.12
S. Y. Duxbury	Derby & Lancs	8.1.80

SILVER C

No.	Name	Club	1980
5474	J. Dahlke	London	10.2
5475	P. W. Johnson	Sebring, USA	21.1

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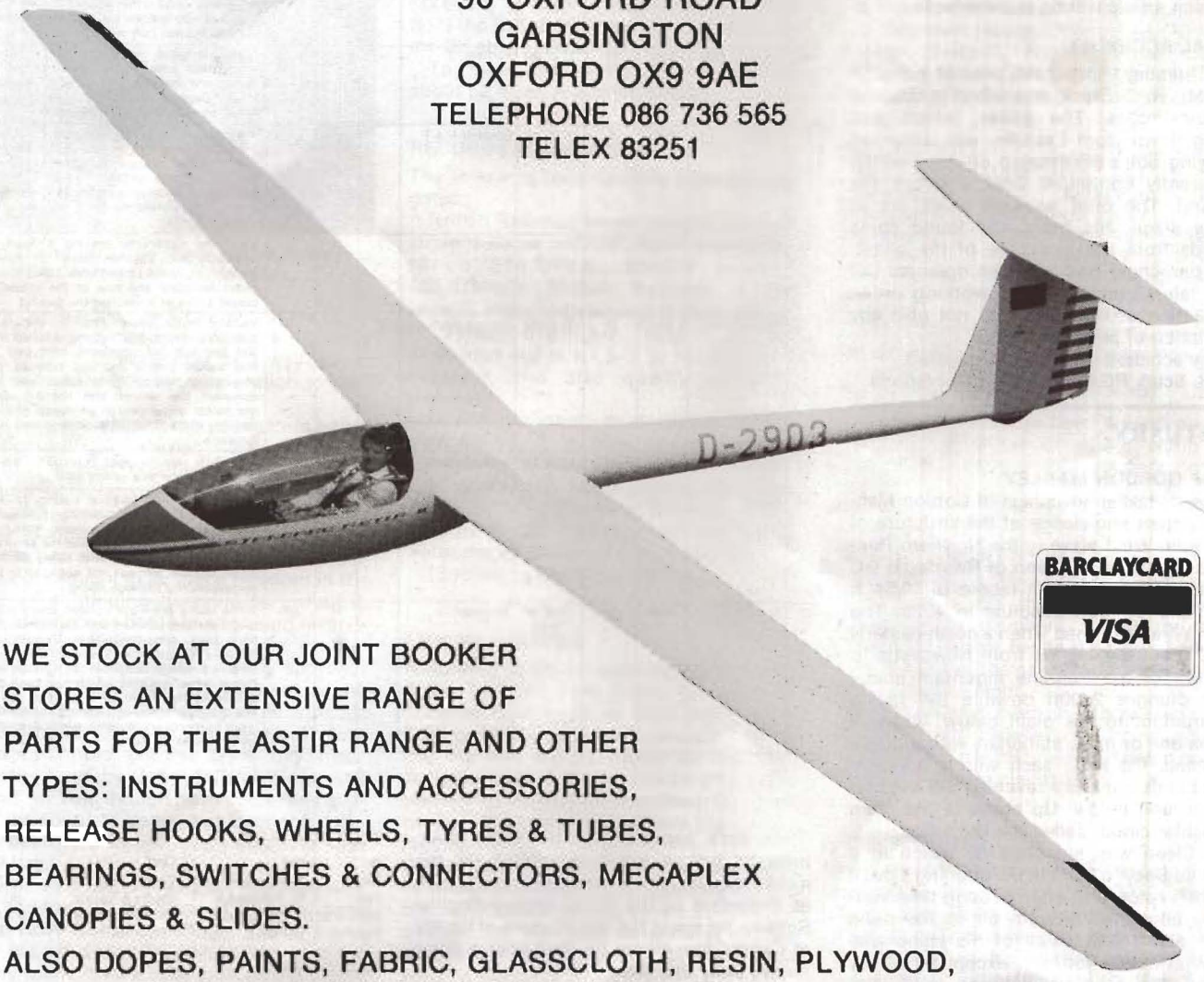
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Compiling the Nationals Qualifying Lists for 1981

GORDON CAMP, **Chairman, BGA Competitions Committee**

At the end of the 1980 competition season, the 1981 Nationals Qualifying Lists, to decide the order of eligibility if any of the 1981 National Championships events is oversubscribed, will be compiled and utilised according to the following general procedure. Except for the refinement at paragraph 3e below, the procedure is essentially the same as the original description of the present scheme in the August 1978 issue of S&G, p185.

1. General

a) At the conclusion of a year's competitions two lists are compiled: a Priority List comprising pilots from British National Championships, World Championships and certain foreign competitions, and a Regionals Promotion List.

b) If one of the following year's Nationals events admitting N British entries is oversubscribed, a fixed proportion of $N^2/180$ places (but not exceeding one third and not less than two) will be allocated to pilots from the published Promotion List, the remainder being allocated from the Priority List.

c) Pilots can legitimately appear on both lists, which incidentally helps to regulate the interchange between Nationals and Regionals at an even level. However, to give Regionals pilots a fair chance, pilots within the top 20 of the Priority List are effectively discounted for any pilots they beat in a Regionals (see paragraph 3b). Secondly, to avoid unnecessary duplication, pilots who are high enough on the Priority List to be **guaranteed** a place in any Nationals event are deleted from the Promotion List if they also appear on the latter (see paragraph 3e). Finally, when allocating Nationals entries, Priority List places are filled first and any pilots thereby accepted who also appear on the Promotion List are disregarded when allocating Promotion places.

2. Priority List

a) First of all, Nationals unhandicapped final scores are factored by the still-air speed index of the glider, to give a simplified measure of handicapping. For each Class, all pilots (including any foreign entrants) are then listed in descending order of their final "handicapped" position.

b) Next, for each pilot a performance index is calculated by dividing the number of competitors in the Class by the pilot's position in that Class.

c) Performance indices are similarly calculated for British pilots flying in foreign competitions approved as equivalent British Nationals status, and for British pilots flying in World Championships (if any that year). No additional handicapping is applied to these results.

d) A list is then compiled, commencing with the British Team pilots in order of their World Championships' performance index (if relevant), then all the other pilots are added in descending order of performance index from the various Nationals-status competitions. Any ties are resolved in the first instance by giving Nationals precedence over foreign competitions, remaining ties being resolved in favour of the Class with the greatest total of daily winner's points.

e) Foreign competitors are then deleted, plus all but the highest position of any pilots who appear more than once. Finally the previous year's Priority List is merged alternately from position 21 onwards. Again, where pilots appear twice, only their highest position is retained, The resulting list is the current Priority List.

3. Regionals Promotion List

a) From the final handicapped results of each Class of the year's Regionals, pilots are listed in descending order of their final positions. Any pilots who are in the top 20 of the Priority List compiled as above are annotated accordingly.

b) Each pilot is given a performance index as described at 2b above. However, whilst top 20 pilots are included in their own right other pilots' positions in the Class are improved by the number of top 20 pilots that beat them, and the Class size is simultaneously reduced by this number of top 20 pilots.

c) Pilots are listed in descending order of performance index. Those appearing more than once retain only their highest position.

d) The previous year's Regionals Promotion List is merged alternately from position 21 onwards, with duplicated names retaining only their highest position.

e) Finally, any pilots who are already in the top $N\text{-}N^2/180$ places of the Priority List (where N is appropriate to the smallest Nationals event) are deleted from the published Promotion List, but retain on file for dovetailing as at paragraph 3d in the following year. The resulting list is the current **Regionals Promotion List.**

BGA MAIL ORDER

I've heard a rumour going round that the BGA is only interested in selling goodies to glider pilots from our extensive salesroom stock. Well I'm here to tell you that it's not true . . . well, only partly . . . and they are very good value. I mean where else would you get a good quality T-shirt bearing the message GLIDER PILOTS DO IT QUIETLY for only **£2.70**? Or even a beany hat with an exclusive glider design on it for only **£1.40**? And have you seen the brand new metal car badges with the BGA motif in blue and white behind a perspex shielding for **£4.20**? Or have you read ONCE UPON A THERMAL, that humorous gliding classic by Richard Wolters, available in hardback for **£3.90**? And what about the new rear-window stickers proclaiming GLIDER PILOTS STAY UP LONGER for only **35p** each?

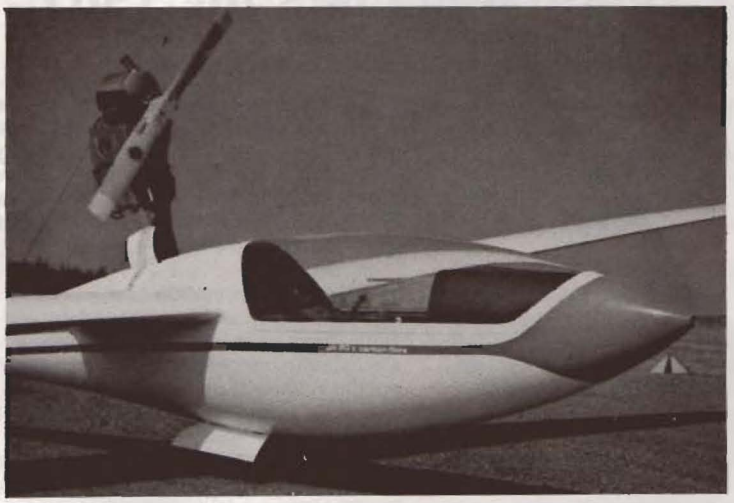
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INTERNATIONAL GLIDING COMMITTEE MEETING 1980

IAN STRACHAN, BGA Delegate to CIVV

Tom Zealley, BGA Chairman, joined me in representing the BGA at the March 1980 meeting of the Commission Internationale de Vol à Voile (CIVV), and this account is a shortened version of the full report submitted to the BGA Executive and Competitions Committees. Twenty-six nations were represented at the meeting, held at the Fédération Aéronautique Internationale headquarters in Paris.

World Championships, Paderborn, West Germany (FRG) 1981. The Director of the WGC will be Fred Weinholtz, the FRG delegate to CIVV, and the Federal President, Prof Dr Karl Carstens, will be the Patron. Standard Sporting Code Championship rules will apply, but there will be no cloud flying and no relights after out-landings. Up to 50 gliders will be accepted in a Class, but there will be an overall limit of 100 gliders. With three Classes, this raised the issue of what to do in the event of too many entrants, either overall or in one or more Classes. The CIVV President, Bill Ivans (USA), stated that each country had a right to one entry in each of the three Classes. Above that basic right, if more than one entry per Class is made and either the Class or overall members are over-subscribed, priorities will be in accordance with national placings in the last WGC at Chateauroux (UK should be OK in the Open Class!). A detailed paper on how the system will work was distributed and will be analysed by the Competitions Committee and the British Team Manager.

Feminine World Championships. The first Feminine World Gliding Championships will be hosted by France in July 1981, at an airfield near Paris.

1983 World Championships. Bids for this event were from the BGA (using Cranfield as a site), Australia and the Argentine. A comprehensive BGA proposal had been circulated in advance, and I made a verbal presentation usings maps and Vufoil, with a summing up from Tom Zealley. At the first vote, Australia was eliminated, and the choice went to the Argentine after the second vote. The last Argentine WGC was at Junin in 1963, and in 1983 the site will be La Cruz airfield, near Córdoba, some 850km NW of Buenos Aires, from January 9-30 including the practice period. Typical tasks were quoted as 500km with cloudbases of 2000m and thermals of 2-3m/sec. Accommodation and food will cost US$10 per person at a local vacation centre which consists of several hotels set in woodland by a lake. In comparison with the Cranfield bid it can be seen that the weather and cheap living expenses must have swayed many votes, because at the time of the meeting we could not offer a guarantee of financial sponsorship for Cranfield.

1985 World Championships. Italy and Australia declared their intention to bid. The BGA will have to decide whether it is worth while bidding again, having not succeeded with its Cranfield bids for 1981 and 1983. CIVV also will discuss the overall future WGC policy at their next meeting (March 1981), particularly on whether to run one Class at a time rather than all three Classes at once, which frequently makes organisation so formidable and large financial support almost essential.

General CIVV Rules for WGC. At present these appear at the end of the Sporting Code, but in future will be a separate document. A draft had been produced giving a choice of scoring systems, photographic evidence, rules etc. Although a fair time was spent discussing these three matters, no votes or decisions were taken and so a number of proven and also some experimental systems will be published in order to experiment at national level.

Next Sporting Code. The next edition of the Sporting Code will become operative on January 1, 1981. The majority of the draft was approved in 1979, and final tidying done at the 1980 meeting. It has long been the BGA view that there is a fundamental difference between a goal and a distant achievement, and while straight line distance (for 50, 300, 500 and 1000km badges) is allowed, the rules for achieving distance *via* turning points should be as flexible as possible, compatible with fairness. A BGA paper had therefore been circulated proposing that all goal flights where the pilot failed to reach the goal, which nevertheless exceeded the distance required, should be accepted for badge distance and it was also proposed to allow quadrilateral courses, and the two turning point zig-zags. This paper was opposed by the CIVV Bureau, which consists of the President, Vice-Presidents and Secretary, on the general grounds that it introduced more anomalies than it solved, and that glider performance had now increased so that "easier" rules for distance were not required. Although the Bureau has no executive power (except the individual national votes of its members who, except the President and Secretary, are all national delegates), it nevertheless wields strong influence. Tom and I spoke in favour of the BGA paper, but obviously not well enough because when it came to the vote we were defeated by 11 votes to eight, with some nations abstaining. For the next five years we retain the situation where, on a failed triangle, a landing 10.1km off the last leg does not count for a distance badge whereas 9.9km does. However, it must be said that at the 1979 meeting it was agreed to be able to start and finish a triangle from a point not at one of its corners, which is a major increase in versatility and will benefit clubs who suffer from awkwardly spaced airspace on their 300 and 500km routes.

Motor gliders. With the advent of the Motor PIK (now in full production) and the two-seater Motor Janus, there appears little difference in soaring performance when compared with conventional sailplanes — 1016km distance has been achieved and a 760km triangle by the Janus. Three new training motor gliders are being designed in West Germany, and the Chairman of the CIVV Motor Glider Committee emphasised the fact that the motor glider was the most fuel-economical way of guaranteeing getting into lift.

OSTIV. It was announced that OSTIV, the International Gliding Technical agency, would be arranging a celebration of 50 years of its existence, at the Wasserkuppe from September 4-6.

★ ★ ★

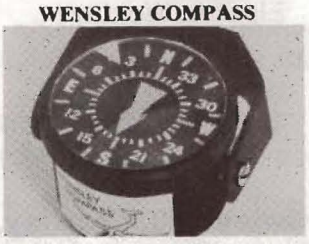
Conclusion. From a BGA point of view, it was disappointing not to be selected to run the 1983 WGC, and that our paper on distance badge flying was not accepted. But as a member of a democratic international committee we must take the rough with the smooth. I detect a trend for the larger, strong thermal countries to be less than sympathetic to the problems of operating in poorer weather and awkwardly shaped airspace. It is not a question of making things "easier", it is a question of making them possible, where in the past they were not. Maybe when they find their 1000km routes blocked by controlled airspace, they will change their tune. CIVV must soon take decisions on which of the proposed scoring systems, turning point rules and tasks are to be approved for future WGCs. It is quite right for experimental systems to be tried out, but if published by CIVV, the status of a rule or system should be clearly indicated so that systems not currently approved for WGC use are not given false standing.

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OVERSEAS NEWS

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

LADIES JOIN 1000km CLUB

Doris Grove, USA, lays claim to the first 1000km goal and return flight in an ASW-19.

The 9½hr flight was carried out on March 11 taking off from Karl Striedieck's private air strip Eagle field, Pennsylvania, which has seen the start of many epic world record breaking flights along the Alleghenies.

We hear that the above flight was superseded on April 5 when Cornelia Yoder, USA, flew a 1029.98km goal and return. Both flights have been submitted to FAI as feminine World Records for single-seaters.

FRED WEINHOLTZ RESIGNS

Owing to unsurmountable differences with the German Aero Club, Fred Weinholtz has found it necessary to resign as Chairman of the German Gliding Commission.

The breaking point came when the Aero Club rejected Weinholtz's request for more financial assistance and extra secretarial help in the gliding office on account of the forthcoming World Championships.

This refusal he felt was quite unreasonable considering that the gliding section provides at least 70% (over DM500 000) of the Aero Club's annual income.

Relations between the gliding section and the German Aero Club have been unsatisfactory for many years especially over how the active sport should be controlled and finances proportioned.

Fred Weinholtz hopes that his successor will have better luck and results as he will not have had the burden of many years of increasing frustration.

For the time being Fred will continue as CIVV Bureau member and has agreed to stay on as Director of the World Gliding Championships in 1981.

It seems sad that it is the gliding movement which will suffer most. He has given unstintingly of his time and efforts for over 12 years and it will be difficult to replace him.

NEW ZEALAND NATIONALS

For the first time a separate 15 Metre Performance Class was included this year; thus, with the Open, Standard and Club Classes, bringing their number to four. An additional interest was that the results of this meeting would largely determine who should represent New Zealand in next year's World Championships: in each Class, Open, Standard and 15 Metres, 60% of this year's scores would be added to 40% of last year's while the fourth pilot would be chosen on general merit.

Taking the first six finishers in each Class, the most numerous sailplane types were four Nimbus in the Open, three LS-3s in the 15 Metre, three Libelles in the Standard, and three K-6CRs in the Club Class (which included a Skylark 3F).

The contest was organised at Matemata by the Wellington Club, with Des Renner as Contest Director and Dave Prankerd as Organiser: it lasted from January 26 to February 8 with February 2 as a compulsory rest day.

For the first week short tasks were set in weak conditions with a sea breeze often getting in the way, and because of a wet spring the pastures were unusually green so that lack of contrast made it difficult to locate thermal sources. From January 27 to February 1 the Open Class tasks were: 181.3km quadrangle; 199.4km triangle; 278.9km triangle plus an out and return; 193km double out and return; 336.6km quadrangle when all landed out and a 243.3km triangle. Ivan Evans won four of these six in his Nimbus. At this halfway stage Evans led with 5247pts to Finlayson's 4977 in an ASW-17 and Yarrall's 4738 in a Nimbus.

The 15 Metre Class had tasks 20 to 30km shorter in the same period, ending with Ernst Peters, a third-time visitor from West Germany (Mini Nimbus) in the lead, followed by Lindsay Stephens and Doug Hazlett, each in an LS-3.

In the Standard Class, with 25 entries out of 55 in the whole contest, leading positions in this first period were close: Godfrey Larsen, Brian Fowler (both in Std Libelles) and Alan Cameron (ASW-19). In the Club Class Ari van Dyk attributed his leading position to the excellent handicap of his K-8 with that of a K-6CR.

After the rest day came a dud day and then, on February 5, the best day of the whole contest, though not until a cold front had passed over in the early afternoon, followed by strong convection and cumulus bases at 5000ft, with speeds up to 90km/h and only four outlandings.

On February 6 the Open and 15 Metre Classes had a 366km triangle and all but two got round with Finlayson making 89.7km/h. Next day it rained, then came the last day which would finally decide the International Team for next year.

In the Open Class Ivan Evans only had to finish to retain his lead: he did, although two others beat him on the day: Yarrall and Finlayson on a 207km out and return. On the same task in the 15 Metre Class Stephens won but missed gaining the overall lead by a few minutes. The Standard Class had a 164km triangle, and Alan Cameron was so keen to get into the International Team by winning it that he discarded a weak thermal but grounded before reaching the next one and had to watch Bruce Fowler, the eventual overall winner, pass over in it. In the Club Class van Dyk had only to avoid an outlanding to retain his overall lead, and did so.

Leading final results. Open Class: Ivan Evans (Nimbus) 9703; Ian Finlayson (ASW-17) 9380; Doug Yarrall (Nimbus) 8974. 15 Metre Class: Tony Timmermans (ASW-20) 9143; Lindsay Stephens (LS-3) 9141; Ernst Peter (Mini Nimbus) 8523. Standard Class: Bruce Fowler (Std Libelle) 9116; Godfrey Lassan (Std Libelle) 8809; Alan Cameron (ASW-19) 8187. Club Class: Ari van Dyk (K-8) 5997; Phil Southerden (Skylark 3F) 5821; Mike Millington (K-6CR) 4401.

National Team for the 1981 World Championships: Class winners, Ian Finlayson, Tony Timmermans, Bruce Fowler and the Selection Committee's choice, Alan Cameron, with Lindsay Stephens as standby pilot. *(Condensed by A. E. Slater from a report by ROSS MACINTYRE.)*

Humphry Dimock is entering the French Mountain Gliding Competitions at Vinon from July 20 to August 6 and would like someone fluent in French of either sex to join his crew. A driver who is a glider pilot would be ideal but not essential. His address is 26 Beechcroft Road, Gosport, Hants PO12 2ER, tel 07017 80043 (home) or 07017 83015 (business).

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CLUB NEWS

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

April 12, 1980 **GILLIAN BRYCE-SMITH**

AQUILA (Hinton-in-the Hedges)

At the AGM on February 22 the following were elected: Chairman, Ken Fowler; Secretary, Ron Sangster; Treasurer, Duncan McKay; Social Secretary, Shane Barnes and Equipment Manager, John Needle. We thank the retiring officers, Alan Rose, Nick Chapman, Ian Grimwade and Malcolm Lassan, for their contribution.

We have replaced the Swallow with a Blanik to join the overworked K-7. Congratulations to Tony Maycock and Graham Jarvis on going solo and to John Green for resoloing.

Ken Fowler and John Needle have joined the Astir syndicate and the T-21, formerly on loan to us, will be flown by a group of fresh air enthusiasts.

G.C.C.

AVRO (Woodford)

A clubhouse at last. After 27yrs we have a fully plumbed home of our own thanks to our Chairman, Charles Masefield, and the efforts of our Secretary, Jill, and her husband Rod Joyce. Charles formally opened the clubhouse at a social evening organised by Jill.

A very enjoyable entertainment was provided by Barry Gillman from Morridge with his synchronised tapes and slides. Barry's excellent presentation of clouds, gliding and aircraft with well chosen commentary is a must for all who have the opportunity to see it.

I.C.

BATH & WILTS (Keevil Airfield)

We have had a crisis which necessitated calling an EGM on March 22. We have heard that the MoD is considering the sale of Keevil Aerodrome. Several Committee members have been very active delving into the situation. However we are crossing our fingers and hoping this is only a rumour!

The soaring season has started well with several cross-countries, among them the first 300km of the year by Andrew Davis on Good Friday.

Dave Parker is the latest to qualify as an instructor having been on a course in March. Mark King.(son of our former tug pilot Brian) has become our youngest solo pilot at 16.

J.L.

BRISTOL & GLOUCESTERSHIRE (Nympsfield)

David Barker, Treasurer, reported a good year financially at our AGM. Although cash in hand is less than budgeted, we have improved the clubhouse facilities and bought a K-13 and Scout tug during the year. Our Chairman, Owen Harris, and Vice-Chairman, Dave Wales, were re-elected.

Our problems with hang gliders continued to give serious concern regarding safety but after a great deal of effort, notably by our Chairman and Bill Scull, BGA Director of Operations, a meeting of glider and hang glider pilots was held this month. Happily, an airspace agreement was reached and after a six-month trial period we will again meet to discuss the matter.

Our March/April wave didn't appear but we have had several superb ridge and thermal days and the cross-country season has started. Our Comps in June are almost fully booked and a club task week will be held at the end of May.

R.A.R.

Those Late Reports

This issue one fifth of all club news contributions were up to five days late. We have included them, but it has caused considerable production difficulties. The dates given are the very latest we can deal with the material and in future we will just have to reject any which don't arrive on time. We do regret this and wish we had more flexibility, but there is a tight schedule to get the magazine out on time. Also, a lot of the handwritten contributions still haven't the names in capital letters, so it has meant a good deal of guesswork, as well as looking through endless back numbers for clues, so our apologies for any strange variations on names.

CAMBRIDGE UNIVERSITY (Cambridge and Duxford)

Richard Walker has great plans for our first task week and interest has been high. It coincides with the Nationals at Dunstable so there could be a lot of gliders in the area that week.

At our annual dinner in Jesus College awards were presented to Bryce Bryce-Smith, Colin Dews, David Garnet, John Evans, Sigfrid Neumann and John Scott. Our Chairman, Andrew Hulme, had previously received the Robert Perfect trophy on our behalf at the BGA dinner for being the club with the most instructors per member.

The new two-drum diesel winch is going well at Duxford after some teething troubles and is giving very good value launches, particularly so since aerotow costs started escalating.

P.E.B.

CORNISH (Perranporth Airfield)

Spring has given us some good local soaring with a number of local triangles in club aircraft. On March 22 Carl Knight took his Cirrus to Davidstow to complete the Silver C he started in 1973. The same day Don Jones (Dart 17) completed his Silver with a height climb and later Peter Bore took the club Blanik to Silver height. On March 29 Ian Pilling (Skylark) completed his Silver C with five hours on the ridge.

Easter weekend saw two good days at Perranporth and two days' expedition to St Just airport at Land's End.

The Skylark syndicate have bought a PIK 20D and enjoyed some good soaring thanks to Bill Hosie and his Super Cub. Bill Lewis has also flown his Mini Nimbus.

Jock Wishart joins us this month as resident course instructor and his expertise is most welcome. On the debit side, membership is low but a drive is on to recruit new members.

P.T.B.

COVENTRY (Husbands Bosworth)

February produced a few good soaring days to sharpen our appetites and March 1 was quite remarkable, although the soaring period was too short for serious cross-country attempts.

We have been cheered by a jolly good Roman Orgy party, and the winners of the fancy dress competition were John Williams and Anne Frank. Our President, John Cadman, also brightened the clubhouse with his wonderful story of his wave flight in New Zealand at Christmas. He actually flew above the summit of Mt Cook, 3764m asl, and waved to a party of Japanese climbers about to reach the top the hard way. (See also p106).

B.R.

DERBY & LANCS (Camphill)

Many congratulations to Bob Frodsham, our first member to gain two Diamonds. He picked up distance and goal while on holiday in Australia, with his partner, Simon Duxbury, collecting Diamond goal and Gold distance. (See p123).

Congratulations also to John Shipley on Diamond height, Dave Martin, Silver height, and to Jamie Thomson on going solo.

We have fewer courses this year, so it is wise to book early.

S.G.

DEVON & SOMERSET (North Hill)

The last two months have produced some good days, with reported lift on several occasions reaching a steady 8kt or more. On Easter Saturday wave was contacted between 2500-3250ft above the site beyond the west ridge, but proved elusive once those on the ground realised what was happening. Use of radio could have helped, but the wave flyers did not have them.

Congratulations to Eric Alston, Chris Cooper, John Parker and Jeremy Wilkinson on going solo.

Of those who visited Portmoak before Eas-

ter, Tim Parsons (K-6E) and Tim Gardner (DG-100) managed climbs to 12 000ft, but high aerotows precluded the chance of height claims.

The Transatlantic expedition by Gerry Leat, Jo Acreman and Alan Holland resulted in some Florida flying, both gliding and power, and a Silver distance for Alan.

I.D.K.

DONCASTER (Doncaster Airfield)

This year we have had the best soaring for a long time. Jack Sharples, CFI, set an excellent example with a 170km which was at or below 2000ft. When scratching at an indicated 400ft, he had to contend with the airbrakes leaping fully open.

Congratulations to the new solo pilots, those with Bronze legs and especially Ken Chatburn on Silver distance. Russ Spencer went solo on his 16th birthday and appeared on the front page of the local paper.

The Std Libelle and club Oly 460 taken to a Nostell Priory open day attracted great interest and encouraged a number of the public to visit the airfield.

Hopefully a K-21 demonstrator will be with us soon and should convince non-believers that it would be a good addition to the fleet.

The Humber GC have invited us to their task weekend at the end of April and we hope to turn out in force.

E.T.R.

DUNKESWELL (Dunkeswell Airfield)

Our Christmas dinner-dance was a great success and we hope to make it an annual event. Weather conditions this winter have been fairly good, allowing us to fly most weekends. Soaring started in February.

Congratulations to Ray Griffiths and Val Carter on going solo, Dennis Gosling for his A and B certificate and Richard Harris on his second Bronze leg.

The club has bought its first single-seater, a SF-26, which had its first outing at Easter. Members were very enthusiastic about its performance, particularly Mark Spedding who gained a Bronze leg on his first flight in a single-seater.

Easter saw the first course of the year and brought with it four perfect days of soaring and wave. The rest of the season's courses are filling well.

Our clubhouse is now under full time management. We have cooked meals throughout the day and there have been dramatic improvements to the general facilities.

V.C.

EAST SUSSEX (Ringmer)

With regard to our re-presented planning application for aerotowing, members of the Lewes District Council Development Subcommittee agreed to visit our site to see and hear a demonstration of aerotowing for themselves. Environmental and Health Officers were present to take recordings on a noise meter from various locations of our Super Cub towing up gliders.

The Planning Committee were impressed by both the general operation of our club and the relative quietness of our tug, so much so, that one member was heard to remark during a particularly low fly-past that he wanted a further flight over the area as he had not heard the first one due to traffic noise! At the subsequent Committee meeting we were given permission in principle to aerotow, subject to arriving at some agreement with regard to flight paths and flying times. We must now await the next Meeting on April 16 to see whether our suggested compromise is acceptable.

Our AGM, chaired by our President, Mike Carlton, was its usual success.

The Easter weekend saw some good soaring and cross-country flights. Congratulations to Bob Dall, Tim Flude and Johnny Johnson on their Silver Cs, to Clive Van Den Berghe on his Bronze and to Sue Whibley and Andrew Nopper on going solo.

V.N.

ENSTONE EAGLES (Enstone Airfield)

These usually quiet months have proved rather successful for us. Bronze legs were gained by P. Bott, N. Pocock and P. Harman; G. Dixon and D. Loucks completed their Silver Cs with distance and duration legs in March and April and D. Potter and D. Eardley gained their five hours.

Thanks to publicity in the local press, we have several new members. We are now busy preparing for the Enstone Regionals from August 2-10.

S.M.G.

ESSEX (North Weald)

The season started well with at least three good soaring days before the end of March, including one in which John Ward (Oly 463) was the first to successfully attempt our set task for the year — Tony's triangle of 102km.

Our clubhouse has been extensively redecorated by Brian Murphy and helpers and one of our K-8s has been magnificently recovered by Mike Audritt.

We are unhappy to learn of the impending development of Stansted as London's third airport as this may seriously affect our already limited airspace freedom. We would therefore remind all pilots to strictly observe the local limitations.

Mike Audritt also organised our annual dinner-dance which was a great success as usual, trophies going to Eddie Lipski, Ken Durno, Roger Fry, Jean Norman and John "J.J." Bailey.

We have just finished our Easter competitions and although the weather could have been better, we had three contest days with the longest task at 173km. Guy Corbett (also the scorer) won overall but some outstanding flights were made by Mike Throssell, Mike Jeffereys and Alec Malyon. Our thanks to Tony Manwaring for his usual excellent organisation.

A DG-200 has joined the private fleet with a Silene expected soon.

S.I.D.

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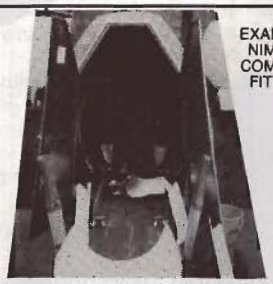
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ESSEX & SUFFOLK (Whatfield)

We are still waiting the outcome of the public inquiry but until we hear otherwise we will carry on as usual.

Our annual club "do" was held in the local village hall and proved to be very successful. Our thanks to Sylvia Wilby for her masterful organisation and to Tristram for his musical finale.

We have extended the club fleet with the addition of a B-4. At the AGM last month Bill Horne resigned as Secretary, his place taken by Alan Hill. We are indebted to Bill for all he has done.

We have had some good early soaring and our congratulations to Jeff Thurtle, Martin Field and Judith Searle who have gone solo.

R.R.H.

HEREFORDSHIRE (Shobdon Airfield)

Flying has been good and the clubhouse is improving with loos, showers, and a big re-organisation of the kitchen and restaurant.

On February 17 Wilf Carter, an early solo pilot, soared the Blanik for 40min when no-one else could stay up. On March 2 Philip King (Mini Nimbus) went to 7000ft in wave and spent 4½hrs wandering about Wales as far west as Lampeter. On March 3 the Dunstable mob arrived and Mike Garrod (Jantar) opened the thermal cross-country season with a 110km triangle. Mid-week was poor but there was wave to 11 000ft on the Friday evening.

March 8 was a splendid wave day with many gliders between 11 000 and 16 000ft. There was a Gold height for Tom Zeally (BGA Chairman) in his ASW-20. Philip King got his Diamond height, so both carbon Mini Nimbi have been to Diamond height shortly after their arrival in the UK.

March 9 had gliders in thermal from 9.30am. On March 24 Carbon Broomstick suffered internal injuries and extensive scrapes by an undercarriage collapse on a runway landing. Thanks to speedy repairs, she was flying ten days later.

It was a hot, dry Easter with a holiday atmosphere and a lot of visitors. There were two Bronze legs for Andy Williams (one of our youngest pilots) and one Bronze leg for Wilf Carter (one of our seniors).

R.P.

HIGHLAND (Dallachy)

The first spring thermals heralded the arrival of the Edinburgh University GC for their Easter visit. They brought with them a K-13, K-8 and a much appreciated instructor. With the Gordonstoun K-13 and our own Bocian already on site, there were times when the two-seaters outnumbered the instructors — we are very grateful to those who were able to help and who worked so hard.

We had a most successful week with many soaring flights, a 300km attempt, some 500km attempts, one or two Bronze C successes and some first solos.

Of our own members, Brian Anderson and Ken Nagle have gone solo and John Watson gained his second Bronze leg.

At our annual dinner-dance on March 28 the Club Ladder trophy was presented to George Hobben, the Altitude trophy to Jeff Howlett and the CFI's trophy for the best all-round club member to Ken Nagle. We elected two new Committee members at our AGM on March 15, Angela Veitch and Ruth Tait. Ruth takes over as Secretary from Jim Tait, our CFI, who did the job most conscientiously for eight years.

R.E.T.

LONDON (Dunstable)

Our Jubilee dinner was fully attended and a great success with John Sproule and former Chairman, Godfrey Lee, addressing a multitude of members and their guests. Trophy winners were David Richardson, Dilys Yates, Mark Germann, Alan Costick Chris Pullan, John Cardiff, John Jeffries and Michael Thick.

Cross-country flying has started well with Silver distances by Messrs Haas, Thick and Cornelius to HB, Geoff Moore to Lasham in



Doc Slater cutting the London GC's 50th anniversary cake, which was a clever reconstruction of the site by Jane Sharpe, on his left. Photo: Alan Clark.

the Mü-13 and Natalie Trench to Basingstoke. Andrew Humphries outdid them all by flying his Grunau Baby to Newmarket, which is how Silver Cs were always meant to be done.

The Lasham plate was "collected" on March 9 by David Starrer in his K6-CR; while pundits Cardiff and Hawes have already competed 300km triangles.

Our Easter "Comp" was well supported with John Cardiff finishing tasks in an ASW-20 and K-13, and Roger Barrett being the sole finisher of the 200km triangle on April 6.

We welcome Peter Tawse who is the resident flogger of tugs which now reside in the newly-opened hangar and office block. This has helped to make room for our new K-21 — the second on site.

F.K.R.

MARCHINGTON (Marchington)

A new name for the old Burton and Derby GC and a new site. The club has moved from its temporary home at Ashbourne to a disused army camp at Marchington near Uttoxeter. The entrance is ¾ mile along the first road on the right after the level crossing when travelling on the A515 from the A50 at Sudbury towards Lichfield. Access also available for gliders from the air.

The club moved last autumn and the winter has been spent carving a strip out of the scrub but the site is at least flat and well drained. Flying has now started with aerotow only and the talk has now turned from civil engineering matters to soaring, Visitors are welcome equipped with either gliders or JCBs, shovels, etc.

Congratulations to Alistair Fuller who went solo just two weeks after his 16th birthday, the first from the new site.

The new site is still not permanent but we have great hopes for the future.

S.D.B.

MIDLAND (Long Mynd)

The cross-country season has started early with our CFI, Bob Scarborough, heading off on March 9. There have been several creditable away flights since then, mostly in thermal conditions, but John Stuart flew in wave lift for an interesting out and return to Oswestry.

Congratulations to Baron Taylor and Frank

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Reeks on their solos and to those who achieved Bronze Cs and five hours during the early spring.

The 1979 trophies were presented at our annual dinner-dance in March. Don Brown achieved the greatest gain of height; Bob Scarborough claimed trophies for the longest flight landing away from the Mynd and the best out and return, plus winning the task week trophy; Ken Payne flew fastest around "Tim's Triangle"; Bob Nicholl's Silver distance went the furthest; John Stuart and David Bailey shared the longest two-seater flight; Andy Brierley took a club aircraft away the furthest and Sue Abbott was adjudged best *ab-initio*. We thanked Rosemary Bull with the Maxim trophy for her efforts during her six year period as Course Secretary.

We have been most fortunate at the Mynd to have had the benefit of Peter Salisbury's launching expertise for several years. Now we welcome Alastair Austin, who joins Peter to provide us with a most professional seven-day week winching operation. Under Peter's guidance, Alastair's launching skills already approach those of the master himself!

J.S.

NEWCASTLE & TEESSIDE (Carlton)

The mild weather gave us a fair amount of flying in March. Congratulations to Dave Crews and Brian Bayes for going solo and to Peter Irving on his Bronze C.

The Easter course got off to a good start with north and north-west winds ideal for hill soaring. Brian Richmond, Bill and Peter Irving have a Sie-3 which they bought in Germany. Its performance is similar to the K-6E. We are now eagerly awaiting John Stout's LS-3, also from Germany.

The Auster Aiglet engine is being rebuilt and the aircraft should soon be back.

W.R.I.

NORTHUMBRIA (Currock Hill)

Easter gave us the first real soaring of the year. We flew each day and on the Monday three pilots attempted Silver distance, George Edmonson flying the furthest and landing just short of 50km.

We are expecting the first glass ship on the site with Andy Townsend's ASW-20 coming soon. The tug, with newly painted wings, is back from its first C of A done on site.

Harry Mallender organised a very successful Curry Night, assisted by Jan Ivory and John Westwood. We had our first "break in" in the new clubhouse but fortunately with only minor damage and losses.

J.W.

NORTH WALES (Pen-y-parc)

Easter Bank Holiday came with a surprise heatwave and with four days of excellent, though not exactly great soaring, weather a lot of members managed to stay up just that little bit longer. This week-end also marked the end of our gliding for a six week lay-off while our farmer site-owner goes through his lambing period.

We also report the tragic death in a car accident of one of our most respected members, Mark Sessford, at the so young age of 25. It is a sad loss and he was a very promising pupil indeed. Our deepest sympathies go to his widow, Josie.

We will do the Cs of A during the lay-off and our Grunau will join the fleet for the first time at our May camp at Shobdon.

A.E.

PETERBOROUGH & SPALDING (Crowland Airfield)

Louis Bleriot's cousin, the Baroness de Herman, Countess de la Röere, was the guest of honour at our annual dinner-dance on February 22 and gave an eye-witness account of her cousin's historic cross-Channel flight. Madame Suzy, as she prefers to be called, is nearly 87 years old.

She also presented the Jack Wayman trophy for the best gain of height from the site to Gordon Reid, plus other awards, mainly comic, which were organised by Hayden Haresign and Ron Ward.

Eight Bronze C pupils are attending Wednesday evening lectures and flying has started again on Wednesday afternoon. Our thanks to Ron Ward and Derek Thorpe for their services and their Rallye tug.

A number of former members have dropped power flying and returned to us which means we have an increase in instructors and tug pilots.

R.W./A.E.G.

RATTLESDEN (Rattlesden Airfield)

Our new K-8 has arrived at last from Germany and been duly checked, test-flown and found to be superb, despite the peculiar name of "Pig in a Poke" given it by former owners (is there some vice we have yet to discover?).

Our re-vamped twin-drum winch was ready for the Easter flying week and the hangar is progressing well with the ground beams in position.

We have applied for permission to aerotow and run into the expected opposition from the natives, but by attending local meetings to discuss the matter properly, our Chairman and Secretary are beginning to overcome this.

Congratulations to Tony Poundsberry on going solo, Dave King for a Bronze leg, Pat Smith (Swallow) for Silver height and to Mick Moyes for Silver distance in the new K-8.

R.W.

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ROYAL AIRCRAFT ESTABLISHMENT (Farnborough)

With the soaring season now well under way, weekends are more lively again. We have, however, had a busy winter with Cs of A on five club gliders, including the respraying of two and the recovering and respraying of a third. Sincere thanks go to the team leaders and their helpers, and especially to John Knowles, our aircraft manager and inspector.

The club is 21yrs old this year and our celebration dinner-dance on March 23 was a huge success. We were honoured to have Bill Bedford as our guest speaker. Bill has, in the past, held several UK gliding records at Farnborough and has since carved himself a distinguished career as a test pilot with Hawker Siddeley (now British Aerospace).

The Chatfield cup went to Peter Harmer for his resounding success in the Inter-Services. The Best Instructors' trophy went to Aly Tanner; the fastest handicapped local triangle time to Peter Harmer and the best failed five hour attempt to Steve Fiddes.

Our Easter task week was blessed with fairly good weather and several members had their first experience of cross-country flying as P2 in our K13. Finally, congratulations to Alan Davies on becoming what must be one of the club's youngest ever solo pilots, going solo two days after his 16th birthday.

C.P.G.

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SCOTTISH GLIDING UNION (Portmoak)

By a happy coincidence the first main influx of visitors and some real weather arrived at the same time. Both thermal and wave arrived in abundance around Easter. Resulting achievements included two Gold and five Diamond heights and at least five 300kms, one of which was a straight line to Doncaster by Jim Luke.

We welcome Ross Jones, the full-time tug pilot for the summer. It's also good to see some new hot ships appearing. Vegas are no longer a rare sight and Tom Docherty now has his Nimbus 2c.

R.H.

SHALDBOURNE SOARING GROUP (near Hungerford)

Congratulations to L. Sharp, M. Sharp, S. Bond and B. Greenaway on going solo, B. Greenway getting his first half-hour on his third solo. Also to B. Pattison on passing his full Cat rating.

M. Stamp (Safety Officer) now has his Oly 2B on site. The hangar is being extended and our new winch will soon be in use.

Membership is increasing and Easter brought a nice clutch of promising ab-initios. We hope to hold an AGM in May which will be our first birthday.

J.D.

SOUTH WALES (Usk)

Our good friends the Cotswold GC again enabled us to continue flying through the winter by inviting us to use their airfield whilst our field was under water and the tug away for checks. Members have been trying the reverse pulley launching system at Aston Down with one fruitful result — Steve Reed (Skylark) completed his second Bronze leg. Our thanks to Cotswold for their hospitality.

We now look forward to the club task week organised by Earl Duffin.

P.A.C.

STAFFORDSHIRE (Morridge)

At our AGM our annual subscription was increased to £50 with a £10 joining fee for new members. The launch fee is now £1 plus 7p/min for club aircraft. Barry Rowding is now our Secretary with Tony Boyce as Vice-Chairman.

Pauline Gwinnett's buffet/disco was well attended and the food excellent. Albert Dukelow, John Hind and Stephen Bailey have soloed in the K-13.

We had superb weather at Easter and John Graham soared the club K-8 in wave for over an hour on the Monday. Our Whit course will be held from May 7-30.

The hangar floor has been covered with tarmac at a cost of £1150, thanks to the Sports Council grant of one third of the cost.

A Sub-committee chaired by Tony Boyce has prepared a comprehensive five year development plan for aircraft, site, ground equipment and membership.

P.F.

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SURREY & HANTS (Lasham Airfield)

It's been the best start to the season for many years with 3640 cross-country kilometres recorded in our cross-country book for March and 5700km flown in the first four days of April, including five 300km trips and a 410km by Alan Purnell. Easter really was excellent for encouragement if perhaps not in results. Our Compass room was filled to capacity each day over the holiday to hear the briefings by the cross-country experts.

The Compass room contains complete and detailed information for all types of cross-country flying and a large folder of turning points with map references and photographs. Rules and requirements for badge and record flights, airfield, airspace and field conditions, meteorological, barograph and weather forecasts and up-to-date maps are all available to assist flight planning.

Conditions in our area over Easter didn't quite live up to early promise but many pilots were seen digging mud out of their wheel boxes proving they had been encouraged to try and go somewhere! The 2500km in club gliders by Easter Sunday was particularly heartening as our policy is now to strongly emphasise cross-country flying including advanced courses to add to the enjoyment of soaring away from gaggles of 20 or more round the airfield. A Club Vega should be in the fleet soon helping the early pilots to get the slippery feel of performance flying.

C.L.

TRENT VALLEY (Kirton-Lindsey Airfield)

Members enjoyed the annual dinner-dance in February during which a special presentation was made to Vin Fillingham on his retirement after five years as CFI. He is now Chairman, relieving John Rice who has also given sterling service. John Swannack is now CFI, nam-

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ing Bob Baines as deputy, and has launched an energetic cross-country campaign for budding Silver C pilots.

The season has started well and in addition to pilots completing several tasks, four visiting pilots had landed at our field before the end of March. Three soaring weeks are planned this season so we are saving hard as most of the charges have recently risen by around 20% in line with inflation.

It's good to see Billy Hill flying the ex-club Blanik he bought and had repaired after its accident two years ago, while Mick Ward has opted for sole ownership of an Oly 2 instead of a Cirrus share.

J.R.S.

WELLAND SOARING GROUP (Careby)

The splendid Easter weather saw us back in business, albeit from a rather muddy airfield with restricted areas. The Bergfalke looked well in its new livery and the latest syndicate members with their Skylark 2 were tempted to air their machine with very satisfying results. Fettling is almost complete on the K-4, so both two-seaters will be in use.

E.C.

WOLDS (Pocklington)

1980 has got off to a very good start with several cross-countries before Easter, and the various "trophies" which pass between Doncaster, Lindholme, Kirton Lindsay and Pocklington have been on the move again. Chris Price flew to Doncaster for the rose bowl and passed the time waiting for it to arrive back from a trip out earlier in the day by doing his five hours, and Mike Phillips flew to Kirton for Silver distance. There have been quite a number of first solos and Bronze legs recently. Avelyn Bennett completed her second Bronze leg and Frances Sheard has gone solo, so the ladies are doing well at the moment.

We look forward to hosting Competition Kitty on June 7-8 and also to the northern league weekends. We now have 11 syndicate and three club aircraft at Pocklington, and a greater number of eager pilots, so hope to give a good account of ourselves.

We have an expedition to Portmoak during April, with eight gliders making the trip.

H.N.

WYCOMBE AIR PARK (Booker)

1980 is going well with the first 100km on March 3, 200km on March 14 and a 300km on March 22. Shep (Fred Sheppard) is claiming honours as first man home on all three and reports the best conditions he has seen in 20yrs gliding on the 300 day, including one straight glide of 150km! (335km at 94km/h.)

Our local secret rocket testing establishment was "invaded" by Superman the other day in his ASW-19 (Chris Reeves). The security police there are now confidently expecting a visit from Wonderwoman!

We have had the new shear-pin weak links (as reported in last S&G, p72) in operation for the last few weeks with no problems apart

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from a number of knots appearing in the rope.

Demonstration gliders seen at Booker lately include the Carmam 15-36, ASK-21 and Sport Vega. We are shortly replacing our Twin Astir with an ASK-21, which we hope will be more suitable for basic training.

E.W.

YORKSHIRE (Sutton Bank)

The season has started magnificently with thermal soaring at Easter and conditions during the preceding month being almost as good as at any time in 1979. It augers well for 1980 which is our 50th anniversary year.

Our annual dinner-dance in March, at which Joan Cloke, BGA Treasurer, was the main guest, was very well attended and much enjoyed. Our thanks to the organiser, Graham Evison, who stands down this month after three years' enthusiastic service. We are greatly indebted to him.

Congratulations to John Priestly and Geoff Wright on going solo and to Ian Stromberg on successfully completing his instructors' course.

Courses are already 90% booked and in response to demand we are extending the season into October.

E.S.

SERVICE NEWS

BANNERDOWN (RAFGSA)

1980 progresses well with Keith Woodcock, Andy Stenton and Ron Scott getting their A and B certificates and Liz Hardwick getting her A. Colin Masters and Jim Walsh have achieved their Bronze C; Chris Smith has successfully completed his five hours and Pete Woodman has now completed his Silver.

E.A.C.H

BICESTER (RAFGSA Centre)

We had a major staff change in March when our deputy CFI, Ron Newall, was posted and Paddy Hogg took over. Our sincere thanks to Ron for all his efforts over the last 4½yrs.

February and March weather allowed cross-countries and local soaring. Simon Charlett-Green and Angie Watt are among those gaining Bronze legs from winch launches. Easter gave us some good days when "Chips" Carpenter, John Edwards and Richard Lowell-Butt flew Silver distances.

We had a successful party on March 29, ably organised by Steve Smith and Debbie Bender. During Easter, there were three enjoyable and informative lectures by John Delafield and John Williamson, National Coach.

J.W.

FULMAR (Kinloss)

Our AGM in February revealed another successful year, although not with respect to soaring and badge flights. CFI, Bob Lloyd, received the Henry Dyce trophy for his wave climb to 12 000ft last year. Member of the year award went to Al Thomson for his efforts as aircraft member.

This year is already looking more promising. We have had wave flights of up to 8000ft off the winch and John Morrice achieved 50km to complete his Silver. Clive Jennings also flew his 50km after returning from Aboyne where he gained Gold height. It is the first time for over a year that Silver distance has been flown from Kinloss. Congratulations to both of them and also to the Station Commander, Gp Capt J. H. Harris, and Stu Johnson for going solo. Gp Capt Harris converted to the K-8 shortly afterwards along with Farida Shroff.

Most welcome new members are Ian Kilner and Steve Partridge (back again), as well as Dave Collins (complete with L-Spatz) and Bernie McDermott, both from Two Rivers.

Unfortunately Andy Bould has departed for Germany and John Garrett for Finningley. We wish them every success.

C.J.

HUMBER (RAF Lindholme)

On March 1 we brought our new winch on line which Pete Kemp had spent all winter designing and building practically single-handed, with a little help from his friends! Our grateful thanks to him. The following weekend we had a 5500ft cloudbase and David Windle gained his first Bronze leg and Silver height.

Continuing on from that Andrew Croson flew two Bronze legs, David Windle his second and David Wilson completed his Bronze and gained Silver height and distance. Bernard Shaw also got to Silver height, alas without a barograph, Dick Gibb collected two Bronze legs and "Mac" MacDonald went to Binbrook for his distance.

Andy Ratcliffe, our latest solo pilot, gained his first Bronze leg in the K-7 on Easter Monday, only a week after going solo, and two of our girl Venture Scouts soloed on Easter Monday evening.

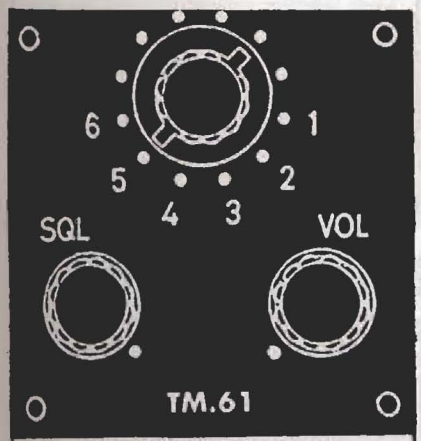
This must be the best Easter we have ever had, with numerous cross-country kilometres flown. We managed 436 launches over the holiday weekend and so far this year have notched up over 1000kms, well on our way to a record year. We even ran out of aeroplanes on three days with 11 gliders airborne. The hangar has never looked so bare.

We say goodbye to "Mac" MacDonald, our most able barman, who is posted to Germany *via* Odiham. Many thanks for the excellent job he has done under sometimes difficult circumstances.

K.M.G.

PEGASUS (RAF Gütersloh)

We have said goodbye to Phil Willsher, Pete Clarkson, John Jenkins, Bob Bickers, Bob



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Muteham and Bob Sheffield (former CFI) and welcome Rick and Norma Millington, Jed Edyoean and Dave Harding. We have lost four instructors with only one, Jed, posted in.

In the last year we achieved 3038 launches; 1805 cross-country kilometres; A and B certificates by A. Fowler, B. Parkhouse, C. Dobbs and G. Lloyd; Bronze legs by K. Eddie, G. Lloyd and B. Parkhouse and Silver legs by A. Evans, P. Clarkson, R. Cowling, B. Muteham and two legs to complete Silver C for B. Yeardley.

The expedition last autumn to Vennebeck gave wave up to 11 000ft. Peter Carr, Aircraft Member, has been working solidly with Barry Yeardley keeping things airborne. The Detmold Comps are around the corner and our hangar floor has been concreted.

B.P.

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PHOENIX (RAF Brüggen)

The Tost winch reappeared with two drums and a new cable. There is currently a club expedition to Sisteron in France. We congratulate Rick Paradie and Bob Greenwood on completing their assistant Cat courses.

The Connors and Andy Smith are returning to the UK and we welcome our new full Cat, Graham Heady.

G.A.B.

PORTSMOUTH NAVAL (Lee-on-Solent)

As well as our Easter course we are holding a task week as part of the training for the Inter-Services Regionals. As part of the build up to the soaring season, we also have a series of lectures before the Bronze C examination.

There were some minor changes at the AGM to our Committee. Bob Potgeiter is now Special Members' Representative and Ken Stephenson is Full Members' Representative. The trophies were presented to the following: the Goodhart trophy to Simon Owens; the Corner cup to Marc Morley; the Instructors' and Tug Pilots' trophy to Les Groves; the Whitbread trophy to "Bunny" Warren and the Heyford trophy to Brian Cornes for the most 100km out and returns. For the first time a life membership was presented. It was to John Limb, our Treasurer for 17yrs. Members also gave him a tankard in recognition of his outstanding contribution.

The RNGA PIK 20 has been allocated to us for March and April and is proving very popular. It will be flown in the Inter-Services by "Bunny" Hale who, with Ken Stephenson (Std Libelle) and Humphry Dimock (Mosquito), will represent us. Our Skylark 4 and Astir, if ready by then, will be flown by pilots from Culdrose GC.

We hope to complete the purchase of a club tug soon, there has been an addition to the Auster family and the winch has been given an extensive refit.

Finally congratulations to Chris Adams on his first Bronze leg and Dennis McAllum on going solo.

H.C.

PRESELI (RAF Brawdy)

The last two months have seen steady progress as the club settles down to regular operations. The launch rate has improved aided by the arrival of the K-7 which is proving very popular. We now expect a single-seater after the Inter-Services Regionals in May and intend to have Brian Baker's L-Spatz airborne by mid-April.

We haven't yet experienced any good soaring days though there has been lift on a number of days. Terry Parrot and Jose Manachan put some to good use in the K-7 to record our first two soaring flights, albeit a modest 12min.

Congratulations to Lew Tyler who made club history by becoming our first pupil pilot to be sent solo. This was particularly fitting as Lew is one of our hardest working members, maintaining our ground equipment.

J.K.S.

WREKIN (RAF Cosford)

We welcome back to Wrekin Dave Wood from his long holiday in Germany, and welcome also to Barry Elliot. We say goodbye to Les Cudugan and Rod Evans on posting.

The Easter weather was kind for our soaring week and contributed greatly to its success. On the achievement side congratulations to Mick Davies for the first hour of the year from a winch launch, to Mossie Williams on completing his Bronze C and to Rab Gillespie on going solo.

N.E.R.

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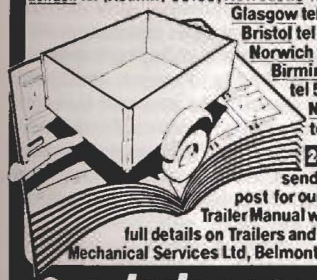
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YOUR LETTERS

WAVE SOARING DAYS

Dear Editor,

I hope to make a survey of meteorological conditions over the British Isles on really good wave soaring days. The survey will only use days when it was possible to achieve a gain of height of at least 3000m or carry out a cross-country flight of at least 300km mainly in wave.

Examination of descriptions of wave flights usually shows that the published Met data is inadequate to explain the detailed variations satisfactorily. This survey will only attempt to handle the simplest details, these are:

1	2	3	4	5
Date & approx time	Max height reached	Place of launch	Area of best climb	Cross-country route & distance

It would be worth going back as much as 25 years to get a really representative sample of good wave days. I would be glad to hear from anyone who can spare the time to look back through their log books and send the basic details to me at: 87 Point Royal, Bracknell, Berks.

A simple note such as:
1.24 Oct 69 (am) 2. 17 000ft 3. Portmoak, would be adequate.

TOM BRADBURY, **Bracknell.**

AN EARLIER DEVICE

Dear Editor,

Lawrence Robertson's letter in the last issue, p96, describing how "in the late 1940s" he mounted a pencil beside his Cosim variometer inscribed with the speeds for best-gliding-angle in various winds prompts me to mention that this device was in use in 1938: see "Variometer speed-calibration" by K. M. Chirgwin, *Sailplane & Glider,* Vol 9, No 10, p242. Chirgwin's letter extended the basic idea due to J. S. Fox (*Sailplane & Glider,* Vol 9, No 7, p167) who had dealt only with the no-wind case.

Interestingly enough in Poland in 1938 the same calculations had been done, but instead of the airspeeds being inscribed on a scale next to the variometer, the sinking speeds were inscribed on a scale next to the airspeed indicator! The pilot tried to make the indicated sink correspond to that pointed at by the ASI needle, a way of solving the problem which could not have led to a MacCready ring.

ANTHONY EDWARDS, **Cambridge.**

AVGAS-MOGAS CONTROVERSY — SOME FACTS

Dear Editor,

The De Havilland Aircraft Company in its pre-war unsophisticated wisdom recommended "good grade automobile fuel" and failed to make reference to lead contents, D.ENG. R.D. Specs, "Avgas" etc.

Rolls-Royce (Leavesden) in the official Manuals for the Gypsy Major 10 Series 1 and 2, recommend "minimum grade 80 octane. Max lead content 4.0m/l per Imperial Gallon". Once again, no reference to D.ENG. R.D. 2485 Specs, or even to the words "Aviation Gasoline". (It is a well-known fact that the De Havilland engine Company's Gypsy test-beds were run on "Pool" petrol!)

So at least, all Gypsy owners/operators have a clear mandate to follow the "approved" advice quoted herein, and the same guide-lines are probably applicable to other "geriatric" engines, of the same vintage.

The reference (in the House of Lords!) to some of the more technical aspects, (gum, sulphur, reid vapour pressure etc) are neither helpful, relevant, nor technically innovating, but of course do represent the official party line. The facts of life are that whereas 10011 to D.ENG. R.D. Spec 2485 (octane rating 100+), satisfactorily "powers" the Rolls-Royce "Griffons" in Her Majesty's "Shackletons", it is a technical "overkill" for engines developed for octane ratings between 80/87 or thereabouts. This is where some honest competent engineering re-appraisal is required. Provided the resources can be generated, the BGA Executive Committee have strongly endorsed my proposal that we should conduct trials of 4 Star Mogas, in a typical 8.5:1 compression ratio, unsupercharged, USA type engine, towing gliders.

R. B. STRATTON, **BGA Chief Technical Officer.**

FINAL COMMENT ON GLIDING FEARS

Dear Editor,

May I congratulate you on the authoritative article "Disorientation in Flight" in the February issue, p18. It was relevant to some recent letters that anxiety, along with alcohol, drugs, fatigue, even missed meals, was listed under factors making you unfit to fly. I have long suspected that glider pilots undertake long and exhausting flights without adequate food and drink. It would be useful to have views on this from some of the doctors who glide.

I am glad that some of your correspondents have been helped by Keith Nichols's articles (see April, 1979, p65 and October 1979, p219) but they have missed my point. It is good that people have been able to overcome the initial fears that all of us must suffer in varying degrees and gone on to savour all the joys of our sport. Every instructor, myself included, derives much satisfaction from helping people through such early difficulties. In fact I would say that the nurturing of confidence is the instructor's first and often most difficult task.

However, careful judgment is required to distinguish those who can win through in such a rewarding way from those whose fears are more deep-seated and extreme, who could therefore be in real danger. Having spent a long time trying to make such judgments correctly, I regret that Keith Nichols has to resort to personal slurs as a means of defending his views. Furthermore I did not suggest that people should retire from sight as he claims, but that they should take up a hobby which does not scare them stiff.

I don't climb mountains because that scares me stiff, but I don't feel defeated because of it. Gliding clubs are not therapy centres for people with compulsions to persist in doing what frightens them to death. To encourage them may seem like kindness but could turn out to be a thoroughly bad turn for them and their families.

MICHAEL RANDLE, **Oxford.**

PUBLICITY FOR GLIDING

Dear Editor,

As we have a double, and hopefully in the future a treble, World Champion in our sport would it not be a good idea to let more of the great British public know about it?

The last two "Sportsman of The Year" programmes put out by the BBC had studios full of representatives of just about every sport known to man, with the exception of gliding. The prowess of world champions in such scintillating pastimes as darts were made known to millions before the final choice was made.

It is true our particular sport is not suited to mass spectator appeal, but the kind of free publicity which could be obtained by participation in such programmes could do nothing but good. Who knows we might even get a few more people coming into gliding. So how about it Publicity Officer, a phone call to the BBC could be worthwhile.

H. WAINWRIGHT, **Brighton.**

Barry Rolfe, BGA Administrator, replies: George Lee has in fact made an appearance in one of the BBCs "Sportsman of the Year" programmes, as a current World Champion, and I would assure Mr Wainwright that the absence of any further national publicity is not due to a lack of phone calls and press releases from the BGA but sadly to a lack of response from the media. Hopefully with the aid of our new sponsors Arctic Lite we shall be able to redouble our efforts for recognition of British gliding achievements in future.

MANNERS IN THERMALS

Dear Editor,

A recent article "Airmanship in Thermals" by Bill Scull (October issue, p222) and subsequent correspondence (February issue, p48) has resurrected a subject I had

hoped we buried long ago *viz* the highly impractical regulations promulgated by the BGA following a collision during a Regionals in the mid-sixties. I find that I have a copy of the letter I wrote to the BGA Accident Panel at that time (1966) and the relevant passage reads:

"Assuming that we are mainly concerned with gliders thermalling together, I am sure that what we need is a simple rule which will drive home to all concerned that the onus of responsibility lies with the pilot who deliberately chooses to close with another. Therefore I maintain that the only rule we need covering this case is one which clearly lays down the 'thermal rights', thus: a pilot who deliberately closes with another glider(s) already circling in a thermal will:
(a) Assume that he has not been seen.
(b) Fly in such a manner that the pilot(s) already circling has no need to take avoiding action.
(c) Be held responsible for any collision that results.

"Some such rule is badly needed before next season's Comps and may go a long way towards discouraging gaggling."

Nothing has happened in the intervening years that might cause me to change these views, and seasoned competition pilots amongst your readers will recall the late John Furlong's edict when, as Chief Steward, he briefed them upon their conduct in the air before the first task. "Remember," he used to say, "that if you choose to go and join another glider that is already circling, you are using **his thermal** and it is only good manners to ensure that you do not get in his way."

If the BGA would deign to enshrine the above doctrine in their "Regulations" to replace the existing absurdity, it would assist them in assessing responsibility for a collision, since this would follow automatically from the sequence in which pilots joined a thermal. Furthermore, should they feel that this requires some modification to the "Rules of the Air", may I suggest that for this purpose circling gliders become "balloons" within the meaning of the law.
CHARLES ELLIS, **Ilford, Essex.**

Bill Scull, BGA Director of Operations, replies: Charles Ellis raises a number of valid points. (1) That measures taken to prevent a recurrence of a particular category of accident if hastily conceived may be less than satisfactory and even fail to achieve their objectives. (2) That the passing of a particular message from one generation of pilots to the next is difficult (or impossible!). (3) The risk of a collision in clear air appears to be relatively slight — how many have there been? — and would a rule or set of rules make much difference? (4) With regard to the actual rules suggested I suspect that in most circumstances it would be disputed who had closed with whom. In this event rules would not be of any help. If a lack of good manners means inadequate separation then in the final analysis it is down to instincts of self-preservation.

"HORSE CONCOURS"

Dear Editor,

I read Roy Woodhouse's letter "Fuel problem solved" in the December issue, p313, with both incredulity and amusement, and am really wondering if it had been destined for the April one!

However, if we are to believe it, then this method of launching will surely catch on if fuel becomes either too expensive or scarce. This could happen sooner than we think, and in this case the BGA should issue advice to prospective operators. As an armchair assessor, the following seem to be relevant:

1) The attachment point of the towing cable is of considerable importance. It must be somewhere between the end that bites and the end that kicks, as too much either way will result in either ineffective steering or poor traction. An accurate determination can only be made by weighing horse, horse person (complete with whip, hat and spurs) as per BGA Glider Maintenance Manual (R. C. Stafford Allen circa 1957, p24). How one achieves this is rather in doubt; supporting a horse in two slings from a beam could prove very difficult, whereas arranging four restive legs on four bathroom scales would be distinctly hazardous. Tying the horses legs together is not recommended, as it would almost certainly fall over!

2) Protection is essential for both horse and rider in the event of a cable being dropped overhead, or from a break. Some

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form of wire net howdah would solve the problem for the rider, while leather covers are required for the horse. Failure to provide such protection could result in a sudden acceleration which would do justice to Red Rum, and the demise of the horse person!

3) Finally, some mathematical theory to clarify some of the possible problems of horses launching gliders. The first, and most important point, is that the combined weight of the horse (W) and rider (w) must exceed 1000lb.

Now if T=cable tension
μ =coefficient of friction between horseshoe and runway/grass/or whatever!
α =angle subtended by cable
then the maximum force available (horizontally) for touring is

$$(W+w-T \sin\mu)$$

At some point in the launch this may fall below the output of the horse, in which case one would see a sort of quadruped ballerina on ice!

If, by chance or mismanagement, $W+w=T \sin\alpha$, you will have the unique situation of a glider launched horse!

Perhaps in the not so distant future, the dawn scene at a gliding site may be punctuated by remarks such as "Who's got the snaffles?", or "Lucinda, pinch some sugar lumps from the kitchen!", or perhaps the remark one usually associates with club vehicle radiators "Damn! It's sprung a leak!"

MICHAEL P. GARROD, **Wokingham, Berks.**

MORE ABOUT MISSING NUMBERS

Dear Editor,

In reply to the critics of my letter in the February issue ("Missing Numbers", p48) concerning the use of the altimeter during launch failure recoveries, I would like to clarify a misunderstanding.

In spite of thorough training it is possible that some pilots, who are for some reason panicked by an unexpected launch failure, may resort to judgment of height by altimeter rather than use their training. This led me to think that although it is essential that pilots are instructed in developing height judgment and told to use this skill at all costs during emergencies, it might be a good idea to clarify the altimeter dial at least to give the pilot a second string to an already sagging bow.

COLIN RONEY, **Gt Whelnetham, Suffolk.**

REVIEWS

Jane's World Sailplanes and Motor Gliders by Andrew Coates, 200 pages published by Jane's Publishing Company, London. New revised edition.

It is only two years since this book was first published. It was an immediate success (despite some errors which had crept in) and was quickly sold out. The new edition is now on sale, corrected, extensively revised and updated. There are a number of new photographs and 17 new types have been added.

If you were too late to get a copy of the first edition, now is your chance to order this book from the BGA at £9.50 including p&p.

RIKA HARWOOD

Accidents to Gliders 1979, published by the BGA, price £1.15 including p&p. All clubs should have a copy of the 1979 edition of **Accidents to Gliders** and make sure that all its members read it. Once again it really is an eye-opener to the silly and unnecessary things that even experienced pilots do to get them into trouble.

This year the analysis separates privately owned and club gliders, so CFIs can see where to concentrate their supervision of private owners. The main cause of accidents to private owners was in field selection and the analysis includes a very good reminder of what to look for (Size, Slope, Surface, Stock). There is also a chapter on Daily Inspections — or rather the lack of them for it is apparent from some of the accidents that an increasing number of pilots are taking-off without their controls connected properly.

B. H. BRYCE-SMITH

Tug Management Advisory Package, compiled by R. B. Stratton, published by the BGA and available from them at 90p including p&p.

Dick Stratton, BGA Chief Technical Officer, has compiled and contributed to in no small measure a very useful collection

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B. H. BRYCE-SMITH

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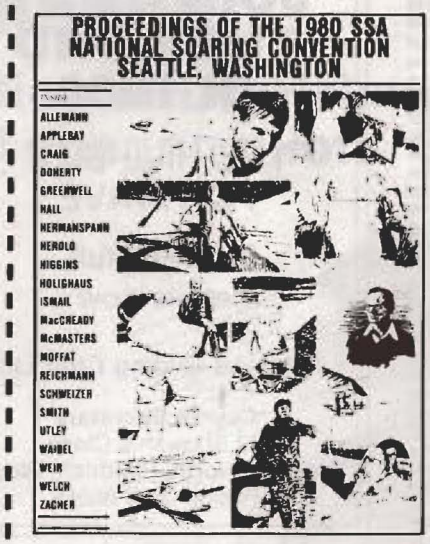
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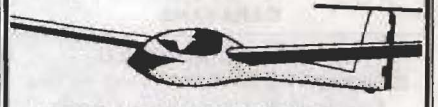
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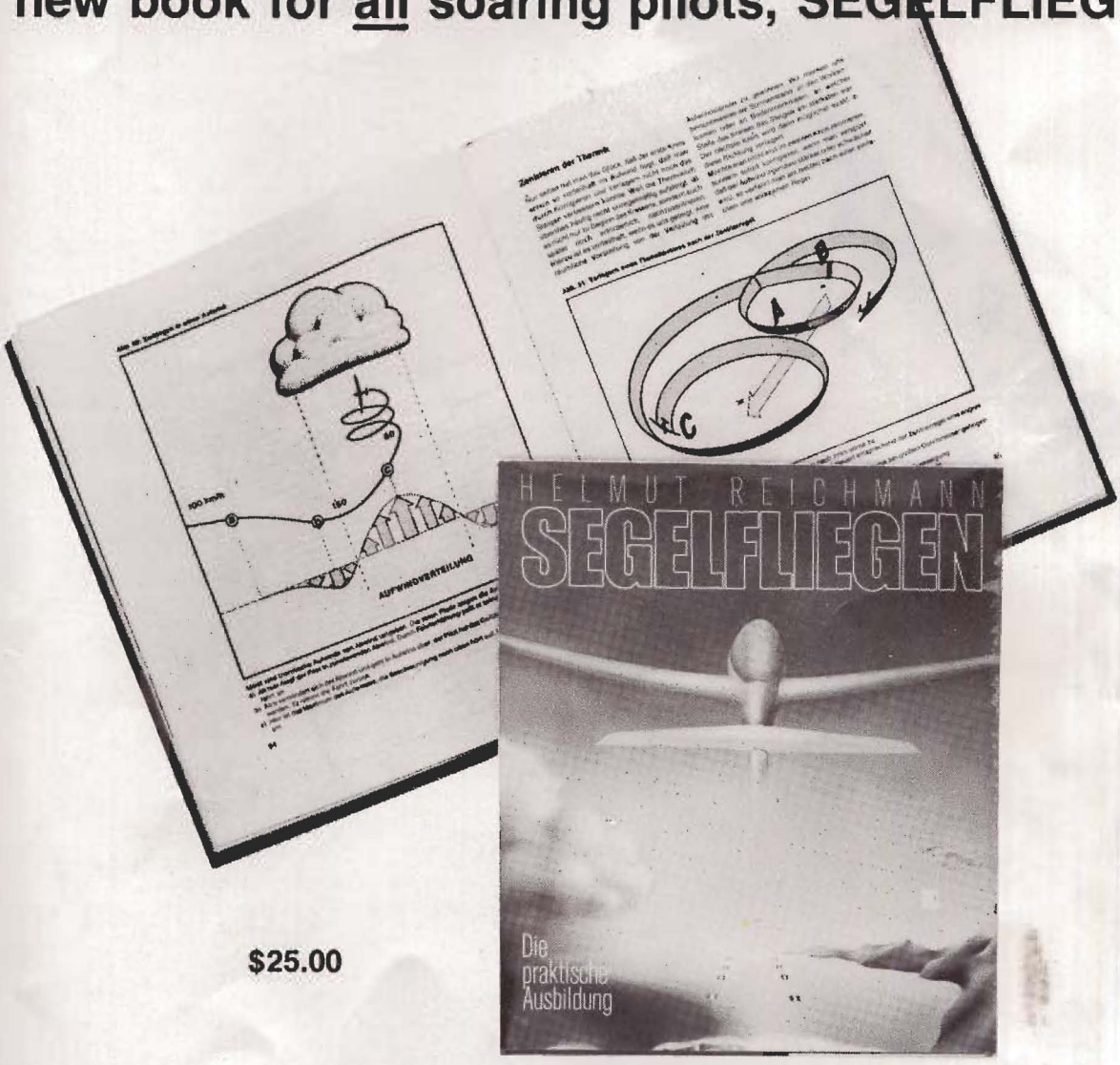
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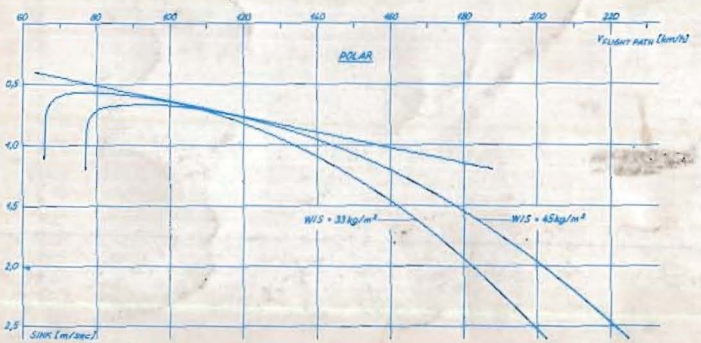
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TECHNICAL DATA:

WING:	SPAN	15,00 m		MAXIMUM AIR SPEED:		
	AREA	9,51 m²		AT ALL WEATHER CONDITIONS	250	km/h
	ASPECT RATIO	23,70		WING LOADING:	30-45	kg/m²
FUSELAGE:	LENGTH	6,35 m	(6,56 m)	MAX. WATER BALLAST:	150	kg
	WIDTH	0,54 m	(0,62 m)	PERFORMANCE: AT W/S	33/45	kg/m²
	HEIGHT	0,75 m	(0,83 m)	STALL SPEED	65/81	km/h
WEIGHTS:	EMPTY WEIGHT	215 kg	(220 kg)	MINIMUM SINK	0,57/0,66	m/s
	MAX. PAYLOAD	115 kg	(120 kg)	MAX. L/D	43,5/44	
	MAX. WEIGHT	430 kg				

* DIFFERENT TECHNICAL DATA FOR "Ventus b" IN ( )