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June — July 1970 5s




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## CONTENTS


| | |
|---|---|
| Peter Scott—An Appreciation | 179 |
| Our New Chairman | 179 |
| Hairy Aeroplanes—Fact or Fancy? | 183 |
| More About Thermals | 184 |
| Model Sea Breeze Fronts | 187 |
| A Welsh Obstacle Course | 190 |
| The Standard Class | 193 |
| Third London Airport | 195 |
| Camphill Airspace | 196 |
| Luton Zone | 197 |
| The Gipsy Flies | 197 |
| An Extraordinary Easter | 199 |
| World Championships—Entries | 202 |
| 1970 Symposium on Competitive Soaring | 204 |
| In the Absence of a Bungey | 205 |
| Kronfeld News | 207 |
| Aviation Art | 207 |
| Flying and Instructing | 208 |
| More Class War | 211 |
| BGA News | 215 |
| First Ab-Initio | 218 |
| International Records | 222 |
| British National and UK Records | 223 |
| Motor Gliding and the Future | 225 |
| Future Events | 227 |
| Mediator | 228 |
| Gliding Certificates | 231 |
| Correspondence | 231 |
| Club News | 238 |
| Service News | 249 |
| Overseas News | 252 |

| | |
|---|---|
| K. G. Wilkinson | 179 |
| P. A. Wills | 179 |
| K. Emslie | 183 |
| L. Hunter | 184 |
| J. E. Simpson | 187 |
| K. A. Harrison | 190 |
| Ann Welch | 193 |
| P. A. Wills | 195 |
| | 196 |
| | 197 |
| | 197 |
| R. Q. Barrett | 199 |
| | 202 |
| H. C. N. Goodhart | 204 |
| F. J. Sheppard | 205 |
| | 207 |
| | 207 |
| R. A. Neaves | 208 |
| M. Simons | 211 |
| | 215 |
| A. E. Slater | 218 |
| | 222 |
| | 223 |
| P. M. Warren | 225 |
| | 227 |
| H. C. N. Goodhart | 228 |
| | 231 |
| R. Harper, R. Jones, A. Deane-Drummond, C. Bolton, G. Burgess | 231 |
| | 238 |
| | 249 |
| | 252 |


*Cover Photograph*: The Scott family at play over Marfa: Wally Scott, flying an ASW-12, pulls up in front of his son who is flying an ASW-15. *Photo by courtesy of Sandor A. Aldott/all rights reserved.*


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# PETER SCOTT — An Appreciation

By KEN WILKINSON

IN this issue of SAILPLANE & GLIDING, the first to which I could contribute as Chairman of the BGA, I should like to say two things.

First, that I greatly appreciate the opportunity I have been given of carrying on the work of two very distinguished previous incumbents.

Secondly, on behalf of the Association, some words of appreciation for Peter Scott's work as Chairman.

We have been fortunate to catch him for two years and to have the benefits of his experience in running an association of kindred kind. The result has been a change in style, a greater economy of time and effort for everyone concerned, whilst continuing the administration of our affairs in a highly effective manner.

Peter, as many of you will know, is now taking a leading part in European Conservation Year and was unable to do this and continue as BGA Chairman. We in the BGA will wish him well in this important work and hope that useful results will be achieved. Certainly he is better placed than most, from his knowledge of wild life and skill as an advocate, to urge the matter on.

As the Minister of State said at the BGA Ball, Peter is remarkable for doing so many things and doing them all well. His appearance on the gliding scene has added two more achievements to his tally—those of top class soaring pilot and administrator. This habit of BGA Chairmen also being National Champions is an uncomfortable kind of precedent for people who come after, setting as it does a double standard of excellence.

It has been a pleasure and privilege, Peter, to have you in the thick of things in the gliding world and we hope to see you airborne in our midst once more after your present year of special effort elsewhere. It was a fitting tribute and a great pleasure to all of us to elect you a Vice-President of the Association in recognition of your contribution to gliding. For the present I propose to let the system for running the BGA that you did so much to create have time to prove itself. For the next year I think we should let it run along the lines laid down and get some experience of the new-style BGA. We must, of course, always be ready to adapt to changing circumstances and must be sensitive to the needs of the members—but that is a different question.

# OUR NEW CHAIRMAN

By PHILIP WILLS

I HAVE known Ken Wilkinson for over 30 years, since his Dagling days at Dunstable, where he was one of the early members of the Imperial College Gliding Club.

During the war, he was in the Aerodynamic Test Flight (Airborne Forces Research Unit) at RAE Farnborough, and very much involved in the development of troop-carrying gliders—on one occasion he had rapidly to de-involve himself and bale out of a Hotspur on a test flight.

Towards the end of the war he was concerned in the assignment given to a party, including Fred Slingsby and myself, to go round Germany and find out what gliding developments had taken place during the war. We had authority to label any gliders of interest we came across so that they could be transported to Farnborough for investigation and test.

We duly found and labelled all sorts of goodies, including the tail-less Horten IV, a Reiher and a number of Weihes.

After many vicissitudes they all arrived at Farnborough, except the Reiher, which had become the pet of a certain Fighter Squadron who hung on to it for so long that, by the time it fetched up in England, it was too rain-sodden to be

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*Peter Scott (left) and Ken Wilkinson at the BGA Ball.*

repairable. Ken saved the Horten by sending a Halifax to collect it, and I saved the Weihes (two and a half of them—the half consisting of a machine sawn up by me into bits small enough to go into my Anson) by various unofficial means.

From RAF's investigations and subsequent work by the BGA Technical Committee, of which Ken was Chairman from March 1946 to 1948, stemmed the stability and handling requirements for British gliders built into ARB Section E British Civil Aircraft Requirements whjch have proved a model for the post-war generation of gliders.

In 1945 I followed my ATA boss Gerald d'Erlanger into BEA, and we set out to build up BEA from scratch. Ken's was (I think) one of the 30,000 letters of application to join which we opened, and he came in on the Project Engineering side. A few years afterwards he transferred to the Planning side and established a section to plan routes and aircraft fleets. He transferred back to engineering in 1962 and in 1965 was appointed Chief Engineer, a tremendously responsible post involving very high technical qualifications allied to the ability to handle and lead a large number of men and—most difficult of all—their Unions. He succeeds in this by allying a quiet authority with an invincible integrity and good humour, and in 1969 he was appointed to the BEA Board.

For five years he was Chairman of the Silver Wings Gliding Club at Booker, and is at present on the Board of the Airways Aero Associations Ltd. and of operation Sigma.

He has been a member of a Skylark 4 syndicate which is just becoming an ASW-15 syndicate, and is flying in the Open Class Nationals at Doncaster this year. Ken has one weakness—he is the prototype Willing Horse. As a result, he must be one of the hardest-worked men in the country.

We must make sure we don't press him too hard. But his reputation and authority in the various Ministries will be of the greatest possible use to us. We are indeed fortunate to have him as our new Chairman.

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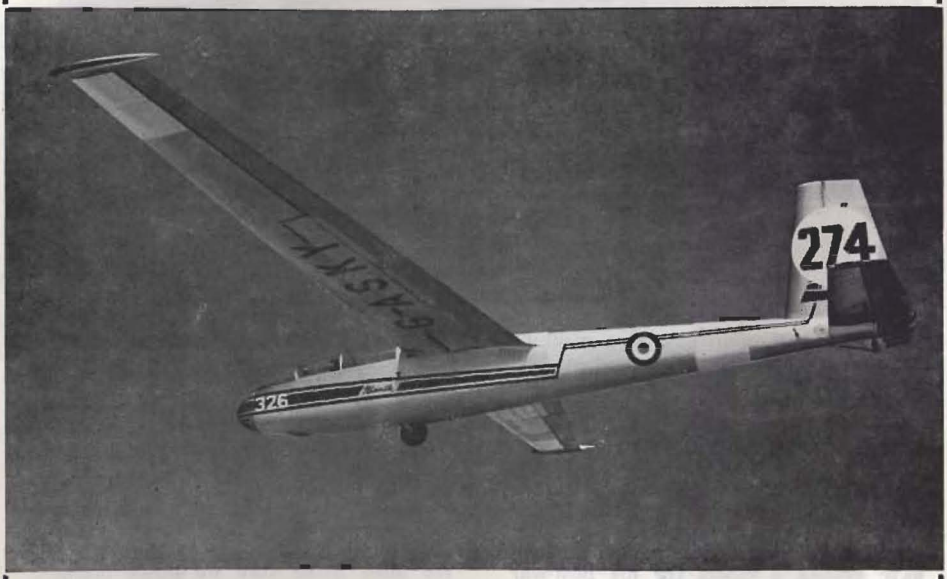
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# HAIRY AEROPLANES — Fact or Fancy?

By KEITH EMSLIE

THE conclusions reached by J. Reder in his "Fur & Feathers" article (1) are very different from my own reading of this subject. Perhaps I can dispel a few fallacies.

Additives in water can reduce the skin friction under a turbulent boundary layer, but do not delay the transition from laminar to turbulent flow (2). They work due to the elasticity of their long-chain molecules (i.e. they store energy). Some of the known additives also reduce the viscosity of the water, but even those that leave viscosity unchanged have been shown to reduce the skin friction. Incidentally, boiling water has a viscosity only one-sixth that of freezing water; that would set HMS Highburton steaming!

It is a far cry from elastic molecules in water to airflow over fur. Movement with the flow seems to be an essential feature, so there is little hope for the rooted fur. Also the fur hairs are huge, compared with water molecules, so even a moulting fur would be no use. And gas molecules are much further apart than the tightly-packed arrangements in a liquid, and they are in continual rapid movement amongst one another. In fact the similarities are just about non-existent.

The hoped-for action of re-laminarisation of the boundary layer after it has been made turbulent by gaps, steps, dead flies and raindrops would call for the application of a lot of power. You can suck away the layer completely (remember the Northrop and Handley Page experiments?), or you can blow compressed air along the surface, or accelerate the flow if it is in a pipe that you can contract strongly. But you are unlikely to be able to smooth out a turbulent layer by a simple skin treatment.

Dolphin skin was supposed to delay transition, and this was shown to be theoretically plausible (4), but with the practical snag that the skin needed to smooth one sort of disturbance would amplify another sort, while there are three sorts of turbulence normally encountered. Kramer made an artificial dolphin skin (3) and covered a body with it, measuring the tension in the towrope behind a motor boat. The tension was reduced, but was this due to delayed transition? It wasn't proved, and other people have failed to copy the experiment. More recently some direct skin friction measurements were made at Oklahoma University (5), with a piece of wind tunnel wall mounted on a drag balance. The wall was covered with a pvc sheet over soft foam, and this flabby skin reduced the drag to 68% of the solid wall figure. But the boundary layer was turbulent throughout and remained so. Could this have been the action that Kramer was getting? It is the most hopeful experiment that has so far been published.

The turbulent boundary layer has the very attractive property of sticking to the surface when a laminar layer would become separated, so the turbulent layer is desirable near the wing trailing edge where the stall is liable to first start (with the rather thick sections we prefer). Reducing the drag of the turbulent layer would seem to be more attractive than holding the layer wholly laminar. In particular this would put sailplanes in an even more fortunate position than ever, for they are the right size and fly at the right speed to hold as much laminar flow as is good for them while having gentle stalling characteristics at reasonably high lift coefficients.

Birds are much smaller and slower, so will have laminar flow all over, and Raspet showed this to be so by measuring the flight performance of buzzards (6). He followed them in a sailplane, of suitably poor performance. He suggested that the asymmetric porosity of their feathers was responsible; a quite different theory from Reder's downy feathers one. But why give feathers any credit at all? It is very easy to achieve laminar flow on smooth wind-tunnel models, and it should be quite easy to make a smooth bird shape with the same drag as the live sort, at the same Reynolds number.

In practice, wind-tunnel models are roughened to trip the boundary layer to turbulence, lest the laminar layer should stall early, and give a misleading representation of the full-size aircraft. So it seems much more likely that the seagull is cleverly using his winter overcoat to trip transition to avoid a laminar separation just when this was about to cause an ignominious stall.

Finally, I would suggest that 'silent' is the wrong word to describe the owl's flight. This is an absolute word, in this case implying zero drag, which is impossible. 'Quiet' would be acceptable, but then so is a sailplane. Is an owl quieter than a sailplane of the same size and weight? Probably not!

Can we now allow our boundary layers to grow turbulent gracefully, and concentrate on practical ways to reduce the turbulent skin friction?

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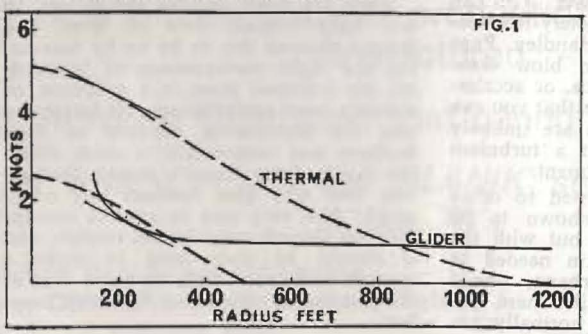

# MORE ABOUT THERMALS

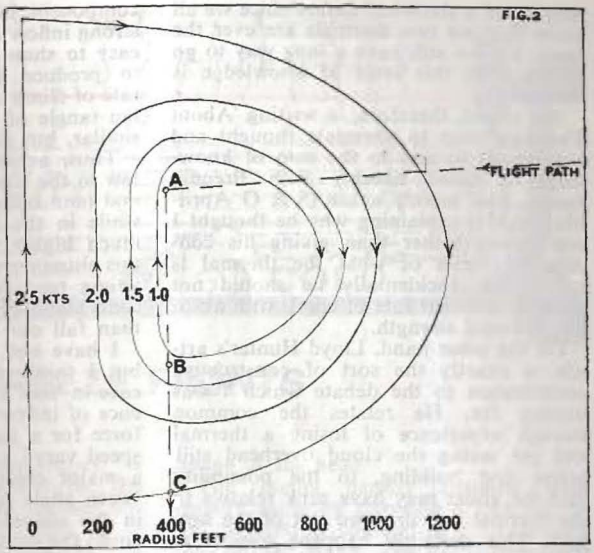
By LLOYD HUNTER

IN the Feb-March, 1970, SAILPLANE & GLIDING, Nicholas Goodhart discussed many aspects of the free-floating thermal. There is one important aspect which was not mentioned: what is the criterion for staying in the thermal once the glider is centred?

In Fig, 2 of Mr. Goodhart's article the sinking speed of the glider in turning flight is plotted on the same co-ordinate as the total lift distribution of a thermal in which it is assumed that the vertical floating velocity is just equal to the circulation velocity of the outer streamline of the vortex-ring flow.

In Fig. 1 below, this diagram is reproduced with the addition of a segment of a curve representing only the lift due to the circulation of the vortex-ring. It is clear that unless the sinking speed curve of the glider lies below the circulation lift curve of the thermal it will be impossible to achieve a stable orbit in the thermal. In the example shown, unless the circling radius is less than about 300 ft. and more than about 60 ft., the glider






will sink slowly through the thermal and the thermal will go on up without the glider.

Such an event is not an uncommon experience. How many times has one had the experience of finding a reasonable thermal on a day with cumulus and been frustrated by having the lift 'die' when one is still 1,000 ft. or more below the cloud base? The presence of the still vigorous looking cloud testifies to the fact that it is still being fed from below and yet it seems unreachable. This experience can be easily understood in terms of the vortex-ring model of a thermal.

Referring to Fig. 1 and assuming that the pilot chooses to circle in a turn with about a 400 ft. radius, it is clear that although he will be climbing relative to the ground at a rate of about 2 knots, he will be sinking relative to the thermal at a rate of about 0.5 knots. In this circumstance it is merely a matter of time until he will drop out of the bottom of the thermal and lose his lift.

To estimate the achieved climb while the pilot still has lift, we must refer to Fig. 2 which is an enlargement of the right-hand half of the circulation pattern of a vortex-ring plotted to the same scale as the equatorial lift distribution of Fig. 1. If we assume that the pilot enters the thermal at an altitude of 2,000 ft. above ground and, say, 200 ft. above the equatorial plane of the thermal, he will be circling at point A of Fig. 2. He will sink through the thermal at a rate of 0.5 knots until he reaches point B where the streamlines are more or less horizontal.

From this point on, he will sink through the thermal at his normal sink rate of 1.25 knots until he leaves the thermal at point C. The distance AB, being 500 ft., will require about 590 seconds, during which time he will rise 590 $\times 3.4 = 2{,}000$ ft. relative to the ground. In the remaining distances, BC, of about 380 ft., he is sinking at 1.25 knots, which requires 180 seconds. In this time he climbs another 380 ft. above ground. His total altitude gain is then 2,380 ft. before he loses the thermal. If cloud base is at about 5,000 ft. above ground, he finds that the lift weakens 1,000 ft. below base and finally 'dies' 620 ft. below base and he is left wondering what put the cloud up there.

* * *

NICHOLAS GOODHART WRITES: The biggest gap in soaring knowledge at present lies in a detailed understanding of the structure and nature of the thermal. At best, of course, such understanding can

only be of a statistical nature since we all know that no two thermals are ever the same, but we still have a long way to go before even this level of knowledge is reached.

My object, therefore, in writing 'About Thermals' was to stimulate thought and experiment to add to the sum of knowledge. I failed notably with Brennig James, who merely wrote (S & G April-May, p.151) explaining why he thought I was wrong rather than giving his constructive views of what the thermal is really like. Incidentally he should not confuse achieved rate of climb with absolute thermal strength.

On the other hand, Lloyd Hunter's article is exactly the sort of constructive contribution to the debate which I was hoping for. He relates the common enough experience of losing a thermal and yet seeing the cloud overhead still active and building, to the possibility that the glider may have sunk relative to the thermal and dropped out of the bottom. This certainly happens sometimes but I do not think the calculation can be made as simply as Lloyd Hunter suggests.

If you accept a vortex ring thermal then there is quite a strong radial outflow component in the upper half and quite strong inflow in the lower half. It is quite easy to show that the effect of inflow is to produce a positive contribution to rate-of-climb equal to (inflow velocity) × tan (angle of bank). Outflow produces a similar, but negative, contribution.

Thus, achieved rate of climb will be low in the top half of a vortex ring thermal (and optimum angle of bank lower), while in the lower half there will be a much higher achieved rate of climb. If this situation occurs in practice there is a strong tendency for a glider to rise to some stable position in the thermal rather than fall out of the bottom.

I have not done sufficient work on it but I think there is a significant difference in 'feel' between circling in the presence of inflow or outflow. Does the stick force for a particular angle of bank and speed vary? Or is it simply that there is a major change in the relationship between angle of bank and sink and hence in the attitude of the glider? In inflow could the nose actually be above the horizon if the component of rate of climb due to inflow was greater than the sink due to drag? Perhaps someone will do a paper on this aspect.


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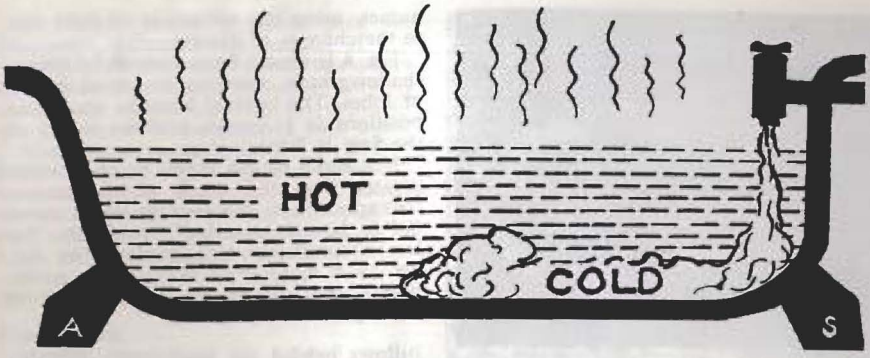
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# MODEL SEA BREEZE FRONTS

By JOHN SIMPSON

THE first version of the model is shown above. Unless it is stirred, the dense cold water will flow almost unmixed along the floor of the bath.

It is not easy to see and measure this flow and we had to abandon a somewhat kinky plan to paint the inside of our bathtub black and connect the cold tap to a milk tanker. However, part of a laboratory was set aside for some experiments on water flow in long perspex tanks.

Surges from a burst dam, or even the fronts of pancake mixture being poured into a frying pan are not suitable models for scaling up to atmospheric size. In these cases, it is merely the air that is being undercut by a fluid which has 800 times its density.

In the atmosphere, warm air may be undercut by air about 3°C colder; this is only just 1 per cent denser. The cold bath water, or better still, a salt solution in a perspex tank, can easily be made precisely one or two per cent denser than the fluid it is undercutting. These are about the proportions found at sea-breeze fronts or at some thunderstorm outflows.

Examples of such "density currents" are:— the inflow of salt water under the fresh water when a lock gate is opened; the flow of escaping methane in a mine tunnel; the flow of hot water over a power station cooling pond; and some avalanches of airborne dry snow.

**Shape of the head**

The model density currents were usually made by releasing a lock-full of salt solution at one end of a 6-foot long tank of tap water. The advancing front of the denser fluid soon forms a "head" which is higher than the following flow, and has a nose projecting a short distance above the ground. This can be seen clearly if the dense fluid is marked by a white pigment such as titanium oxide, or even milk. It then looks just like an advancing cloud bank, with the typical bulges and buttresses of cumulus clouds (see Fig. 2). If these bumps and bulges are smoothed out, it is found that the profile of the head is almost the same shape, whatever the overall size of the flow.

**Upcurrents at the front**

We measured lines of flow by "streak photography". Particles of aluminium powder in the water were brightly lit from above. As the front of salt solution approached, a time-exposure of about ½ second produced a series of curved streaks, giving the speed and direction at any point. Fig. 3 is derived from this kind of measurement, scaled up to atmospheric size. The figures agree with those measured near Lasham on 1st June 1966, and described in S & G, Feb.-Mar., 1967, p. 12.

**Lobes at the front**

Density currents advance unsteadily by projecting forward a series of buttresses

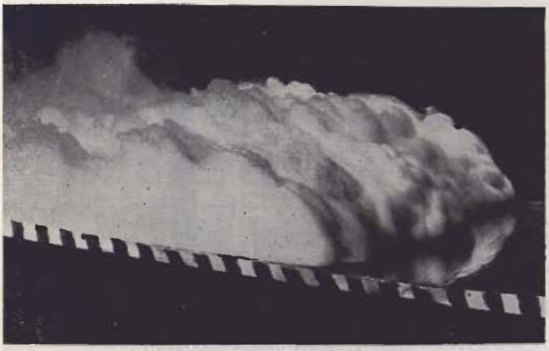


*Fig. 2. A density current in the transparent tank.*

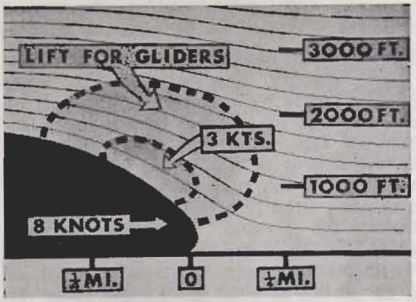



*Fig. 3. Area of lift at the front.*

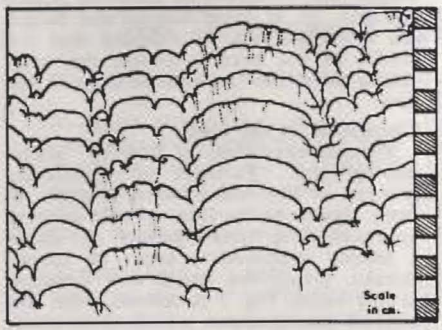



*Fig. 4. Successive plan positions of advancing front.*

or lobes. This process has been seen at real sea-breeze fronts by glider pilots who have described "tongues and bowls". The formation of such lobes in the model was studied by shadowgraph techniques, using the refraction of light due to the changes of density.

Fig. 4 is drawn from a series of movie shadowgraphs, showing the development of lobes. The interval between successive positions is ¼ second, and the depth of the flow is 5 cm.

Not many of the bulges reach a width greater than the depth of the undercutting current; the average width turns out to be just over half this depth. The few atmospheric measurements so far, e.g. in S & G, Feb.-Mar., 1969, p. 46, have given lobe-spacing about equal to the depth of the dense air.

**Billows behind the head**

It has long been argued whether these minor cold fronts overhang, and in some cases at least, a long overhanging nose has been shown to be temporary. The tank experiments suggest that such an overhang develops above the cleft between neighbouring lobes.

We arranged a projector lamp and cylindrical lenses to form a narrow flat beam of light at right angles to the front, which contained a fluorescent dye. This formed a glowing cross-section which was then photographed from the side. Movie sequences occasionally captured overhanging noses being swept away backwards and forming billows which rolled up (see Fig. 5) in which the time interval is one second. Anyone who has flown too far back in a sea-breeze front and suddenly found himself deposited on the ground may now find a convincing excuse in terms of the model, whose curling-up billows extend almost half-way down to the ground.

Radar echoes from sea-breeze fronts have detected large rolls of moisture parallel to the front, whose proportions seem to be about the same as these billows. The narrow radar beam corresponds to the narrow beam of "slit-lighting" needed to detect similar eddies in the tank.

**Scaling up the model**

Work with larger and larger tanks confirms the comparative unimportance of viscous or frictional forces. The significant relationship here is one between the variations in liquid pressure and the inertia of the liquid to be shifted (the so-called Froude number).

In simple terms, provided that the fractional difference in density of the two liquids is the same in the atmosphere as it is in the model, then the ratio of the square of the speed to the depth of the flow must be the same in both cases.

Measurements made on 54 sea-breeze fronts past Lasham give reasonable agreement, but the temperature differences are usually small and hard to measure accurately. Figures from workers in USA and in the Sudan on cold thunderstorm outflows with greater density differences give much clearer agreement.

**Future work**

Strictly speaking, the model only corresponds to sea-breeze fronts unaffected by convection and cloud formation. This may be realistic in the evening, but earlier in the day these fronts are often distorted by thermals forming in the air ahead. Another important effect is the concentration of thermals all along the line of the front; one well-known feature in such cases is the narrow line of lift, usually just in front of "curtain clouds".

It would greatly extend the value of the model if additional buoyant flows of this type could be introduced. Some technique in which gas bubbles are released at the front seems the most promising (something for the Long Winter Evenings!).

In the meantime I hope pilots will look out for lobes and possibly even for billows and see how far these features in the model are really paralleled in the atmosphere. Photographs and measurements are valuable—please send to me at Lasham. When you are actually soaring at a sea-breeze front you might contact me on radio. My call sign is Sierra Bravo.

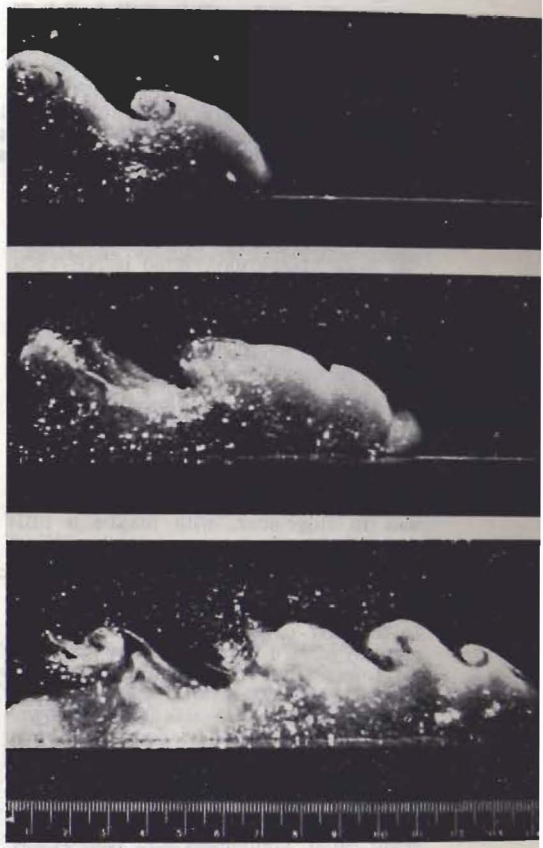


*Fig. 5. Billows made visible by slit lighting.*


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# A WELSH OBSTACLE COURSE

By JACK HARRISON

**There are regular complaints from readers who don't like "How I dunnit" articles. Well, I always enjoy reading other pilots' accounts of their flying, so at least some of you might enjoy reading about mine.**

THE scene is set in Shobdon, on a dull, cold March day. Wind is NE 15-20 knots. Cloud 8/8 strato-cu, base 2,500 ft., expected to rise and perhaps break later. In these wintry conditions, little did I realise what a spectacular flight lay ahead of me. A map of the area will enable you to follow "How I dunnit".

I had a sneaking suspicion that there might be wave to the SW of the Black Mountains despite met's forecast that the wind/temperature structure was quite unsuitable for waves. My ambitious plan was to ridge-soar, with maybe a little thermal thrown in, round to the SW of the Black Mountains. How the others at Shobdon laughed!

My first ridge was to be the one just to the NW of Madley airfield, near the river Wye. We entered a trace of cloud on tow at 2,500 ft. (all heights asl). I cast off some seven miles south of Shobdon. Not daring to risk getting downwind of my ridge, I headed SE to clear the cloud. My 'trace of cloud' seemed to extend for ever, but fortunately gave lift, so I held 2,500 ft. When I finally broke clear, I was, not to put too fine a point on it, completely and utterly lost. I dithered, flying first one heading, then another.

Eventually I spotted a minute ridge to the west of me. Landing was imminent. "What an anti-climax", I thought. I couldn't believe I would make it to that ridge, especially as some high ground had to be crossed first. But I did and, to my delight, I could hold 1,100 ft. I now knew where I was. Well to the NE of the River Wye, 4 miles upwind of where I should be. Don't bother looking for my hillock on the map. It only exists in the mind!

Soon a thermal came along. "A couple of S-turns and then I'll circle away". I S-turned too long, and the first circle was in 4 knots down. But my luck held, and minutes later I was circling again. This time I stayed in lift.

The Madley ridge worked well to 3,000 ft. The overcast was breaking now, and cloud lift took me to 4,000 ft. I stayed on the hill, and settled down to 3,000 ft. again. "Now for the dash to the main NE face of the Black Mountains—a mere 6 miles. There's bound to be a little thermal on the way to help".

Nothing but sink. I was over the delightfully named 'Golden Valley'. There was nothing Golden about it on this occasion, with its minute 45-degree sloping fields. Absolutely nowhere to land, and sinking fast. My pulse rate was interesting. I hardly need have worried. I threw myself at the mountain wall, halfway up. The vario hit the stops—up. I now worried for the safety of my newly installed £25 instrument in case the needle developed a permanent set!

I was breathing again. I tried to convince myself that with no significant hills upwind to produce killing wave sink, the mountain simply had to work. I had taken no more chance than, say, take-off in a single-engine aircraft. If the engine fails immediately after take-off, I force-land. If the mountain lift failed, I would force-land. An engine failure is more likely.

The difficulty now was to keep clear of cloud—8/8 at 3,200 ft. I had a look at the NW end of the mountain ridge before turning south again. At cloud base, I quickly made my way south to Abergavenny. The lift was certain and powerful. My nerves had completely recovered now; I could relax. I crossed the Usk valley, and sat on the Blorenge, the hill just to the SW of Abergavenny. It was still 8/8 where I was, but to the west, high up the valley I could see sunshine. 'A wave gap?' The wave had to wait. I couldn't resist continuing south along the hill to Pontypool. I hoped for

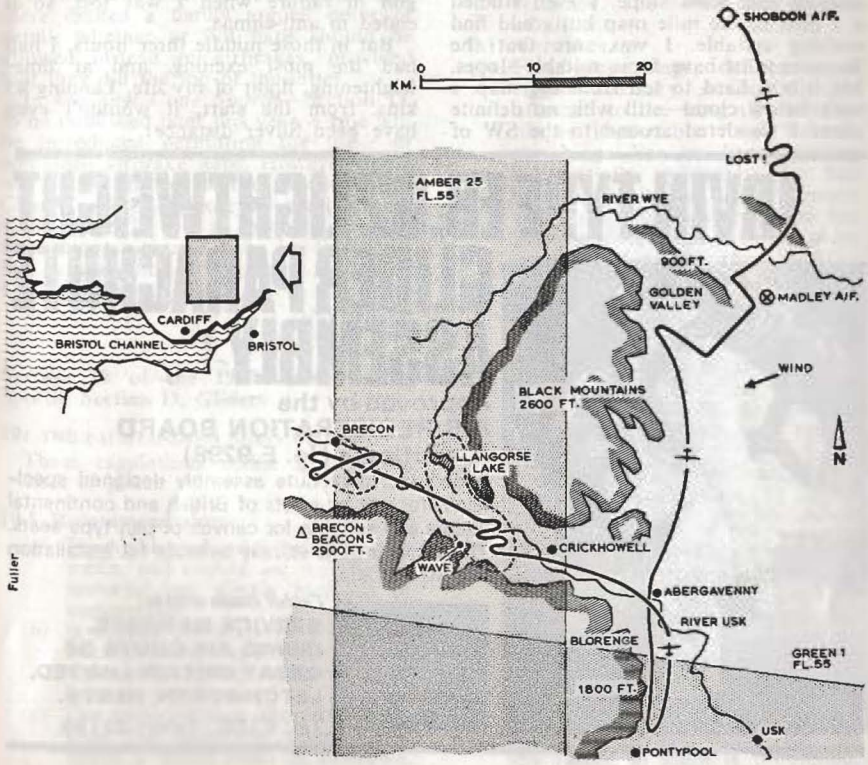
a glimpse of the South Wales Club's new site near Usk town, but I wasn't certain where to look. 'How lucky they are to have these conditions on their doorstep' I thought.

I turned north. It took rather longer getting back to Abergavenny with the headwind component. Again I sat on the Blorenge, this time for lunch. Rather inaccurate flying took me into the valley over the town itself. Concentrating more on lunch than the vario. I suddenly noticed that I was still climbing. Wave. But not to be used here, with 8/8 cover.

Lunch over, and west along to Usk. I had expected the wind to be blowing along the valley, with only a few protruding spurs producing lift. But I found that I could cruise at cloud base in zero sink—presumably wave in the lee of the Black Mountains. I could still see my brighter patch of sky ahead. Round a corner, past a patch of cloud—and there was the glorious sight I had waited for. A gigantic clearance in the cloud. A beautiful wave gap.

The lift wasn't easy at first, but soon I was climbing out of the gloom of the Welsh valleys into the brilliant sunshine above—3 to 5 knots. A truly exhilarating experience. The wave gap extended for many miles to the west and south-west of the Black Mountains, with Llangorse lake clearly visible. Accurate pinpointing put me a few miles west of Crickhowell. So to the next problem. I was climbing into the Airway, base Flight Level 55. I was VMC, so a crossing would be quite legal. I couldn't safely cross though until I had more height. I continued the climb to FL 80 before breaking off to clear the airway to the west.

My pre-flight planning had only gone as far as getting into wave in the lee of




Fuller

the Black Mountains. That had seemed sufficiently ambitious. So what to do next? How I wished I had 131.2 Mhz. London Airways would have been so overwhelmed by a request from a glider to cruise north along Amber 25 at FL 80 that they simply would not have refused. Yet with the wave lying where it did, a level cruise was quite feasible. I toyed with the idea of trying to fly north along the second wave, to the west of the airway, but conditions didn't look too good in that direction. 'If only I can get to the lee of the Brecon Beacons, there's bound to be good lift' but I could see no wave gap in that direction. I dare not risk to fly over complete cloud cover, so I went due west, and was soon at another big gap, just to the west of Brecon town. Despite an extensive search I could not find any lift.

I frantically searched my maps for a suitable into-wind slope. I even studied a 1 inch to the mile map but could find nothing suitable. I was sure that the Beacons must have some suitable slopes, but it was hard to tell from the map. I sank below cloud—still with no definite plans I wandered around to the SW of Brecon. At 2,500 ft. it was time to get into a good area for landing. I flew towards the town. At last a hill appeared. 'Is it into wind?' With two playing fields, then a military airstrip selected for landing, I dropped onto the ridge. It faced north, and gave little better than reduced sink. By now I had a plan. The Brecon Beacons were clear of cloud. They were exciting and inviting, and had several into-wind slopes. A thermal from the ridge would drift me towards the Beacons. To the lee of the mountains, now clearly visible, was the wave gap I had anticipated.

Two knots, I cautiously circled. Four turns later I was back at 1,500 ft. Suddenly four knots down. 'Can I reach the mountain?' My courage failed me, although undoubtedly I could have made it. Seconds later, the M-100 was in sheep pasture. Just as the flight had begun in failure when I was lost, so it ended in anti-climax.

But in those middle three hours, I had had the most exciting, and at times frightening, flight of my life. Landing 45 kms. from the start, it wouldn't even have been Silver distance!


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# THE STANDARD CLASS

THE sharp rise in the price of gliders in recent years has led to extensive controversey over the future of the Standard Class. It was argued that since Standard Class gliders were no longer cheap, there was no reason to continue with the restrictions which were intended to keep the costs down. Why not have 15 metres as the only limitation, and let designers do whatever else they want? The counter argument was that the existing Standard Class rules did, in fact, keep the price of the glider at a considerably lower level than for Open Class gliders and that light, relatively simple gliders were what a lot of people wanted. The steady, even increasing, interest in the Standard Class confirms this.

Throughout this broad controversy there existed a fiercly argued point of detail; whether or not flaps should be allowed instead of airbrakes, provided that they did the job of the latter.

In the new *Code Sportif*—Section D, to be published later this year, a rule will be introduced permitting the use of combined airbrake flaps. However, these will not be allowed before 1974 in World Championships. It is even possible that if no aircraft are in production with satisfactory airbrake flaps by this time, this date will not be confirmed for World Championships.

ANN WELCH

* * *

**Section 10 of the 1970 revised Code Sportif, Section D, Gliders**

**10:** THE FAI STANDARD CLASS GLIDER

These regulations define a restricted class of glider.

**10.1 Recommendations**

(a) The glider should be cheap to make. and should use inexpensive material and simple methods of construction.

(b) It should be inexpensive to operate, be easily repairable, easy to rig and de-rig and simple to transport on a trailer.

(c) The undercarriage should be suitable for operation from rough fields; a wheel brake is advisable.

**10.2 Obligatory Requirements**

10.2.1. SPAN—The span must not exceed 15,000 mm.

10.2.2. WINGS—Any method of changing the wing profile and/or wing area other than by normal use of ailerons is prohibited. Flaps with fixed hinges (10.2.3.b.) will be permitted, but not until 1974.

10.2.3 AIRBRAKES—The glider must be fitted with a drag-increasing device capable of restricting the speed in a steady vertical dive to a value not more than the maximum permitted by the certificate of airworthiness with the device retracted. The device may consist of either:—

(a) Airbrakes, *or*

(b) Fixed-hinge flaps, defined as a rigged auxiliary surface directly attached to the wing structure by hinges immovably fixed thereto, the hinge line or lines running substantially spanwise. The flap shall comprise a single element only in any chordwise section but may be divided into two or more elements along the span (10.4).

It shall be possible to open the device at any speed up to the maximum permissible with the device retracted, and to retract the device at a speed of at least 75% of this value. In either case the operation must be capable of being effected in not more than 5 seconds.

The device must be operated by a single cockpit control.

Drag parachutes are prohibited.

10.2.4. UNDERCARRIAGE—The undercarriage may be fixed or retractable. The main landing wheel shall be at least 300 mm. in diameter and 100 mm. in width. This requirement does not apply to individual gliders built and flown before January 1, 1970.

10.2.5. BALLAST—Ballast which can be discharged in flight is prohibited.

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**10.3 Certification**

10.3.1. CERTIFICATE OF AIRWORTHINESS—The aircraft must have a current C of A which permits cloud flying when carrying a pilot and parachute together weighing at least 99 Kgs. A C of A which is recognized by the country entering the glider will be accepted.

10.3.2. DOCUMENTATION—The following certification shall be submitted to the organizers for each glider entered in the World Championships not later than 48 hours before the start of the championships:—

This is to certify that glider type ..... number ..... flown by pilot ..... at an AUW of ..... Kgs carried out the following tests at ..... (place) on ..... (date).

TEST 1. With the drag-increasing device open in a vertical dive through 1,000 metres the maximum speed attained was ..... km/h. indicated airspeed. ..... km/h. equivalent airspeed.

TEST 2. When dived at the maximum permissible speed with the drag-increasing device retracted (..... km/h. IAS=..... km/h. EAS) the device was opened fully in not more than 5 seconds and functioned satisfactorily.

TEST 3. When dived with the device open at 75% of the speed given in Test 2 the device was retracted satisfactorily in not more than 5 seconds.

The glider tested differs in no significant respect from the glider entered in the championships.

Signed ..... (Airworthiness Authority/Manufacturer). Date .....

**10.4 World Gliding Championships**

Gliders with fixed-hinge flaps will not be accepted in World Gliding Championships before 1974.

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# THIRD LONDON AIRPORT

The Air Space Committee of the British Gliding Association is using every ploy to persuade the Roskill Commission that the only sensible place for Third London Airport is Foulness. One of these is the circular printed below which is being sent to most of the interested parties known to the BGA and who are located in the SE of England.

All members can help by giving even wider circulation to this note, by reminding local councils, badgering MPs or even including the information in their after dinner speeches! Do please help to spread the message. If one of the inland sites is chosen it will be a black day indeed for most of the clubs in the SE of England.

TONY DEANE-DRUMMOND

*Chairman, BGA Air Space Committee*

THE British Gliding Association is the central body charged with looking after the interests of all gliding clubs in the UK. In the SE alone there are some twenty-one gliding clubs, the total membership of whom is increasing at a rate of 7—8% annually. These clubs provide a recreational need and a healthy, invigorating and challenging sport for all ages and walks of life living in the London conurbation or in other parts of the SE.

The particular problem concerning the gliding clubs is one of air space. Any of the inland sites for the Third London Airport will expand the needs of controlled air space to a point when gliding clubs may cease to exist in the SE of England. On the other hand, the controlled air space connected with Foulness is largely out to sea and has only small effects on our interests.

There are many other objections to the inland sites. We wish, however, to point out two major and fundamental issues which have much wider implications than those concerned solely with gliding.

The comparisons of costs which have been made (1) show that the estimates for the four possible sites are largely

similar and well within a normal margin of error associated with such very long term projections of costs. Totals are all within 5% of each other. The costs attributed to gliding alone (2), within the figures quoted, might vary by plus or minus 30%. We see no reason to believe that the other costs are likely to be much more accurate.

A more important consideration is the effect that by far the largest airport in the world with its four widely separated runways might have on those who now live in the SE of England. The truly enormous investment involved and hence the need to operate to capacity throughout the twenty-four hours; the pollution of the area in its widest sense and including that of the very large amount of land involved with all that this implies; the noise and nearly continuous flying by large jet transports, mean that many thousands, even millions of people will have their way of life disastrously and permanently changed for the worse. We cannot believe that these fundamental disadvantages make any of the inland sites acceptable to any responsible and far sighted person with the best interests of all of us who live here in mind.

The British Gliding Association does not have the financial resources, nor may its opposition to the inland sites count for very much in quantitative terms, but there are important principles at stake and it is very ready to use its influence (and its voice if necessary) to support any case for Foulness as a future site for the Third London Airport.

P. A. WILLS, *President—British Gliding Association*

**References**

(1) The Roskill Commission on the Third London Airport (Vol. VII)
(2) Vol VII, Chapter 17.

## CAMPHILL AIRSPACE

AIRWAY Amber 1 from London to Manchester is being widened and from May 28th will just include Camphill by 1¼ miles. After considerable negotiation the base of most of the airway including that at Caphill will be at FL 65.

This airway has been found to be necessary because of gross overloading of ATC staff, and the resultant possible

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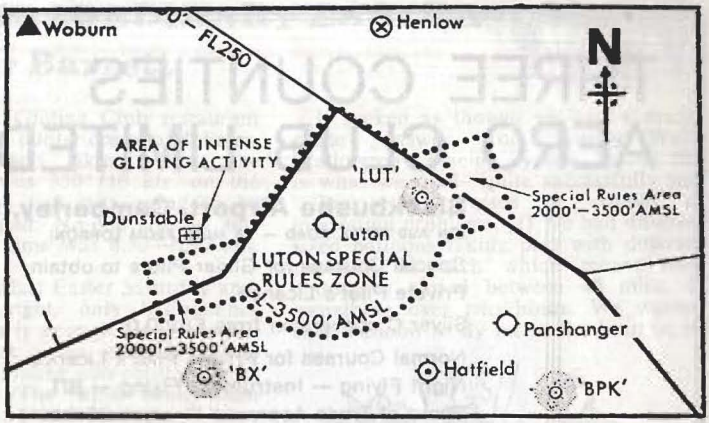
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hazard developing to passenger aircraft. The National Air Traffic Control Services have agreed that this airway will be on a trial basis only and it will be reviewed in the autumn of this year, when alternative sites for VOR and NDB beacons will be considered. This may allow Camphill to be once again in the clear. The results of summer operations will also then be available for information.

Charts relevant to this increase in controlled air space are shown on NOTAM 273/1970.

## LUTON ZONE

NOTAM No 114/1970, dated March 3, announces the introduction of the Luton special rules zone and special rules area on April 2. On the same date changes in the minimum-noise routeings, as defined in Notam No 115/1970, becomes effective. The shapes of the zone and area are shown in the map, but the use of parts of the zone and area by gliders and tug aircraft from Dunstable will be allowed depending on the runway in use at Luton and subject to specified weather minima.

## THE GIPSY FLIES

ON 7th and 8th April the prototype Gipsy 12/15, described in S & G for August, 1969 and illustrated below, was flown for the first time. The pilot, Derek Piggott, CFI at Lasham, will be carrying out its flight testing programme, and we hope to include a report on this in our August issue. The designers are considering calling it the BG-100.



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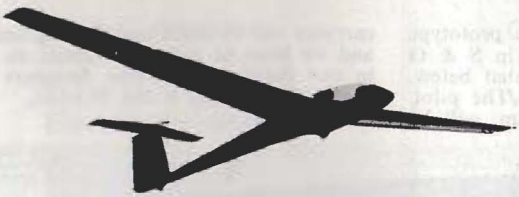
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# AN EXTRAORDINARY EASTER



## By Roger Barrett

THE London Gliding Club restaurant was full of pilots, crews and Pressmen. Briefing was taking place: the forecast wind was 330°/10 kts. on the surface and the task was going to be pilot-declared goal. No-one seemed surprised that the time was 6.30—6.30 am. that is.

The date was last Easter Saturday and, yes, you are right, only balloonatics would get up early enough for the *results* of the day's task to be available before the time most gliding competitions start their briefing. (The wind being calm around dawn is a theory balloonists have, rather like glider pilots' conviction that the best part of the year for soaring is the first week in June; it ain't necessarily so.)

The whole thing started in quite a small way. Ten pilots at Dunstable bought themselves a hot-air balloon in 1968, called themselves the London Balloon club, and by the winter were looking around for something to do more



challenging than hopping over the Bedfordshire bits of the National Grid. "Let's invite some other balloons to Dunstable for Easter" someone said. We ended up by having the first ever hot-air balloon competition in Britain with entries from France, Ireland, and Sweden as well as the UK contingent. *The Observer* offered to give a trophy to the winner.

So . . . we had to dream up some tasks and a scoring system to suit. I suppose it was rather like those gliding comps. in the 1930s; we reckoned no-one was going to take the thing too seriously and there was general agreement that we must at all costs keep it simple.

It looked as though we had a ready-made answer for scoring—Wally Wallington's Placing System. Indeed this is what we used—quite successfully too.

Task-setting raised a couple of interesting problems. (1) We had different sized balloons taking part with different payloads in each which meant their endurance varied between 45 mins. to something over two hours. We wanted each balloon to fly on to the limit of its



gas supply so more people would get more fun and we didn't want to get involved in handicapping. (2) We did not want tasks that encouraged balloonists to land close together—all on one unsuspecting farmer's prize winter-wheat.

By Easter, and three diagram-filled tablecloths at the LGC favourite Indian Restaurant later, we had come up with a short list of five tasks that seemed to meet our conditions.

Came Good Friday, and the March lion was still flexing its muscles; 15 knots on the surface is an almighty gale for hot-air balloons. The task for the day was cancelled but a brave (or foolish) Englishman domiciled in Sweden, by the name of Patrick Furlong, managed to inflate his balloon and was soon to be seen over the A5 overtaking lorries. His flight and subsequent demolition of a hedge on landing was filmed by the BBC from a helicopter and appeared on TV News later that evening. The only other damage was a burnt Furlong bottom, caused by a fitting breaking off a gas cylinder during the landing and a blast of ice-cold propane being squirted in an unfortunate direction. Luckily it did not catch fire.

So to Saturday when we had that

crack of dawn briefing. Success at last! All the balloons got away from the launching field near Silverstone and, embarrassingly enough, the organizers' "London Pride" balloon won the day with a landing just ¼ mile from Gwen Bellew's declared goal. She shed an *Observer* photographer on landing (the wind had got up by then) but he went on snapping away as the balloon leapt off the ground again. Mr. Furlong (things seem to happen to that guy) got caught in a dreaded thermal—he claimed 10 ft/sec., very nasty!—and was whisked up to 2,000 ft. He overflew his goal by 30 km. and on landing near Watford was greeted (in his own words) by a 'real rustic'—who later turned out to be Lord Arran!

On Sunday we took advantage of the upstickability of balloons and changed our launchpoint to Woburn Park (by kind permission of the Duke) to get the best shelter we could find from the forecast due-westerly breeze. The task was to maintain minimum angular deviation from a set line, but the lowering cloudbase (around 1,000 ft) and poor visibility did not give much scope for experimenting with wind shear at high altitudes. The aforesaid Mr Furlong's contributions to this day's memorable moments were first to take-off and climb so that all we could see was an apparently unsupported basket speeding along just below cloud; at this stage his Swedish passenger forsook his navigating duties and coaxed splendid Wagnerian tones out of a brass horn! Patrick then flew on . . . and on . . . and on. Back at Dunstable Tim Newport Peace was coping with telephone calls from balloonists and their retrieve crews; he couldn't understand a relay of calls he was getting from villages to the north-east of Woburn, all reporting the current position of our friend Furlong. These eventually ended at Huntingdon and were explained later by Patrick; every time he came within earshot of a friendly



native he would blow his horn to attract attention and ask the astonished bystander to phone through a position report. Who needs radio in a balloon?

With thoughts of getting the Dunstable organisation really tuned up for this year's Sport Class we decided to try another task later that same day, I had to admit it was blowing a bit but after a spot of nailbiting decided that the task was on; this time maximum angular deviation from a line. I wanted to give everyone as much encouragement as possible to fly away from the Sundon balloon-trap (known to Dunstable balloonists as the Clapham Junction of the National Grid) so set the line close to it.

Time was getting on and as six o'clock approached no-one seemed at all keen to go—and I didn't really blame them. Then Mike Alexander, an Air Lingus pilot and senior pilot of the Dublin Balloon club, said he would have a go. He got the balloon inflated and in next to no time was airborne and coping with violent curlover; but he survived all

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this, pressed on and was soon lost to sight.

The rest reflected but made no move to follow. It needed at least one more balloon to fly for the task to count so fellow London Club member Tim Godfrey persuaded the task-setter to climb aboard "London Pride" and follow the Irish. There didn't seem to be any rule to stop us but it was like needing one more glider to pass Y in a Nationals and seeing Ann Welch step into her own machine to clinch a contest day. Suffice to say that half-an-hour later we arrived, by complete coincidence, in the softest ploughed field in the whole of Bedfordshire; Twenty minutes later two glider pilots from Nympsfield, Giles Bulmer and Terry Adams, followed us in their balloon "Jester" and, incredibly, landed in exactly the same field—though they managed to find a six-foot deep ditch and completely disappeared from view at the end of their landing run. Honours were even as the scorers could not separate the angle of all three balloons that had taken off.

And that was that because the next day, Easter Monday, you may recall it was blowing so hard that even glider



Fuller

pilots noticed. The Irish won the event and *The Observer* Trophy. The London Balloon Club came second and the Hot-Air Group third.

Amazingly people said they might come back and do it all again sometime.

* * *

**Postscript:** I cannot seriously believe that anyone reading this will want to follow up an interest in ballooning. However, if you do, please write to the British Balloon and Airship Club, Artillery Mansions, 75 Victoria Street, S.W.1. Membership is £2 per year and you will get a Newsletter plus meetings and film-shows on lighter-than-air topics for your sub.


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## 43 Entries Open Class (as at 17.4.70)

| Comp. No. | Pilot | Country | Sailplane | Previous Placings 1968 | 1965 | 1963 | 1960 | 1958 | 1956 | 1954 |
|---|---|---|---|---|---|---|---|---|---|---|
| AR | R. Rizzi | Argentina | Cirrus | | | | | | | |
| AH | R. Hossinger | ,, | Cirrus | 6-O | 12-O | 5-O | 1-O | 33-O | | |
| AJ | M. Jinks | Australia | Diam. 18 | 32-O | 29-S | | | | | |
| AE | J. Rowe | ,, | Kestrel | 29-O | | | | | | |
| A | H. Wödl | Austria | FK-3 | 1-O | 12-S | 5-S | | | | |
| AL | A. Schubert | ,, | FK-3 | 4-O | | | | | | |
| 5R | G. DeFosse | Belgium | Lib. 301 | 35-S | | | | | | |
| BD | L. deDorlodot | | ASW-12 | | | | | | | |
| 44 | G. Münch | Brazil | HP-13M | 31-S | — | 13-S | 2-S | — | Ss-16 | Ss-39 |
| CW | D. Webb | Canada | Kestrel | 13-O | 28-O | 9-O | | | | |
| CF | J. Firth | ,, | HP-11A | | | | | | | |
| CP | C. Boisset | Chile | Cirrus | | | | | | | |
| BJ | C. Perez | ,, | Cirrus | 42-S | | | | | | |
| 31 | L. Corydon | Denmark | Phoeb. 17 | | | | | | | |
| HU | C. Thomasen | ,, | Lib. 301 | 36-O | | | | | | |
| FW | M. Wiitanen | Finland | Phoeb. 17 | 24-S | 13-S | 14-S | | | | |
| FH | J. Horma | ,, | Phoeb. 17 | 12-O | 24-S | | | | | |
| FL | C. Labar | France | ASW-12 | — | — | 17-S | — | 9-S | | |
| FM | M. Mercier | ,, | ASW-12 | 35-O | | | | | | |
| GB | G. Burton | Gt. Britain | Kestrel 19 | 7-O | 5-S | | | | | |
| GD | J. Delafield | ,, | ASW-12 | | | | | | | |
| NV | J. v.Steinfoorn | Holland | Diam. 18 | | | | | | | |
| 1H | V. Gupta | India | HP-11 | 39-S | | | | | | |
| DR | M. Bar | Israel | Sisu 1A | — | — | 18-O | 12-O | — | Ss-13 | Ss-12 |
| LV | W. Vergani | Italy | Kestrel | 23-O | 16-O | 24-S | | | | |
| LT | A. Zoli | ,, | Kestrel | | | | | | | |
| SR | S. Fujikura | Japan | Diam. 16.5 | 53-S | | | | | | |
| NT | S. Georgeson | N. Zealand | Cirrus | — | 26-O | — | — | — | Ss-34 | |
| PV | I. Evans | ,, | Cirrus | | | | | | | |
| PM | E. Makula | Poland | Kobra 17 | 8-S | 4-O | 1-O | 2-O | 5-O | | |
| ?? | J. Waplinger | Peru | Skylark 4 | | | | | | | |
| 60 | R. Moore | Rhodesia | 0-3 | | | | | | | |
| RV | J. Colban | ,, | 2-32 | | | | | | | |
| 4B | P. Beatty | S. Africa | BJ-4 | — | — | — | — | — | — | Ss-28 |
| 4A | M. Jackson | ,, | BJ-4A | — | 24-O | | | | | |
| TA | G. Ax | Sweden | Phoeb. 17 | 2-O | | | | | | |
| RP | A. Petterson | ,, | Diam. 18 | | | | | | | |
| LE | E. Ehrat | Switzerland | AN-66 | 20-O | | | | | | |
| XX | G. Moffat | USA | Nimbus | 4-S | | | | | | |
| WA | W. Scott | ,, | ASW-12 | — | 6-S | | | | | |
| DN | W. Neubert | W. Germany | Kestrel | | | | | | | |
| DH | H. W. Grosse | ,, | ASW-12 | 10-S | | | | | | |
| TX | ? | Yugoslavia | Diam. 17.2 | | | | | | | |

O=Open Class; S=Standard Class; Ss=Single-seater; T=Two-seater. According to the rules changes in glider or pilot will be permitted up to 1200 hrs. local time on 20 June, 1970.

*Previous placings compiled by Rika Harwood*

# MARFA, TEXAS 21st June — 4th July

## 45 Entries Standard Class (as at 17.4.70)

| Comp. No. | Pilot | Country | Sailplane | 1968 | 1965 | Previous Placings 1963 | 1960 | 1958 | 1956 | 1954 |
|---|---|---|---|---|---|---|---|---|---|---|
| HE | L. Urbancic | Argentina | Std. Libelle | 26-S | | | | | | |
| LW | A. Araoz | ,, | Phoebus 15 | | | | | | | |
| 14 | M. Howland | Australia | Std. Libelle | | | | | | | |
| SX | R. Martin | ,, | Phoebus 15R | | | | | | | |
| 10 | E. Schraffl | Austria | LS-1 | | | | | | | |
| 11 | O. Fahrafellner | ,, | LS-1 | | | | | | | |
| 20 | H. Stouffs | Belgium | LS-1G | 5-S | 11-O | 27-S | | | | |
| 21 | B. Zegels | ,, | Std. Libelle | 10-O | | | | | | |
| 55 | C. Junquira | Brazil | Urupema | 44-O | | | | | | |
| | E. Schubert | ,, | *(Provisional)* | 46-S | | | | | | |
| TR | C. Yeates | Canada | Std. Libelle | 9-O | 9-O | 9-S | — | 12-O | | |
| 24 | W. Mix | ,, | Std. Cirrus | — | — | 21-S | | | | |
| | J. Lyon | Chile | *(Provisional)* | | | | | | | |
| WR | N. Seistrup | Denmark | LS-1 | — | — | 10-S | 4-S | 17-S | | |
| MB | H. Lindhart | ,, | Std. Libelle | | | | | | | |
| | S. Hamalainen | Finland | *(Provisional)* | 39-O | 41-O | | | | | |
| 34 | J. Mattern | France | LS-1c | | | | | | | |
| 35 | J. C. Gombert | ,, | WA-26 | 19-S | | | | | | |
| 71 | C. Greaves | Gt. Britain | Std. Libelle | | | | | | | |
| 72 | A. Gough | ,, | Std. Cirrus | | | | | | | |
| KG | D. Innes | Guernsey | Std. Libelle | 30-S | | | | | | |
| 46 | E. v. Bree | Holland | ASW-15 | 29-S | 10-S | 31-S | 20-S | | | |
| AW | E. Reparon | ,, | ASW-15 | 14-S | 21-S | | | | | |
| 6X | G. Petroczy | Hungary | Austria SH-1 | 17-S | 17-O | | | | | |
| VO | K. Tury | ,, | 0-2 | | 13-O | | | | | |
| CV | L. Magnusson | Iceland | 1-34 | — | 43-S | | | | | |
| 9R | I. Loughran | India | Ka-6CR | 44-S | | | | | | |
| 40 | G. Perotti | Italy | Std. Libelle | | | | | | | |
| 41 | F. Piludu | ,, | Std. Libelle | | | | | | | |
| 50 | A. Cameron | N. Zealand | Std. Libelle | 11-O | 41-S | | | | | |
| 51 | R. Reid | ,, | ASW-15 | 18-S | | | | | | |
| 30 | T. Johannessen | Norway | Std. Cirrus | 21-S | 28-S | 23-S | 18-S | | | |
| 37 | J. Wroblewski | Poland | Kobra 15 | 14-O | 1-O | | | | | |
| 38 | F. Kepka | ,, | Kobra 15 | — | 3-S | | | | | |
| 74 | E. Mouat-Biggs | S. Africa | Std. Cirrus | | | | | | | |
| 75 | R. Clifford | ,, | ASW-15 | — | 26-S | | | | | |
| 77 | S. Rodling | Sweden | Std. Libelle | 13-S | 20-S | | | | | |
| 78 | W. Hasson | ,, | Std. Libelle | | | | | | | |
| 80 | U. Bloch | Switzerland | ASW-15 | 6-S | 19-S | | | | | |
| 81 | H. Nietlispach | ,, | Std. Libelle | 9-S | 20-O | 19-O | — | — | Ss-4 | T-4 |
| 1 | A. Smith | USA | LS-1c | 1-S | 19-O | | | | | |
| TP | R. Allemann | ,, | Std. Libelle | | | | | | | |
| 84 | H. Reichmann | W. Germany | LS-1 | | | | | | | |
| BT | G. Waibel | ,, | ASW-15 | | | | | | | |
| *Hors Concours* | | | | | | | | | | |
| 73 | R. Schreder | USA | HP-15 (flaps) | 21-O | 15-S | 3-O | 16-O | | | |

# 1970 SYMPOSIUM ON COMPETITIVE SOARING

By NICK GOODHART

FOLLOWING on their successful 1969 Symposium held at Manns Choice, Pennsylvania, Soaring Symposia organised their 1970 version at Pittsburgh, Pennsylvania, on 21-22 February. Like its predecessor this, too, was a great success with some 80 or so people signing up for the weekend of lectures, panel discussions, and informal question and answer sessions.

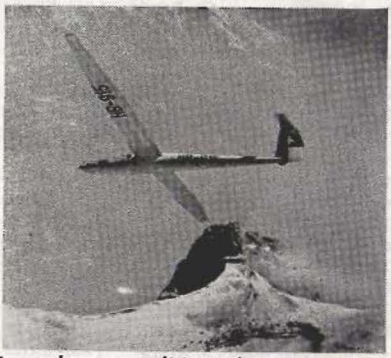
The participants came from all over the Eastern United States and enjoyed a thoroughly well organised symposium. Ed Byars ran the whole thing with military precision and it was a real joy to know that each session would start dead on time and finish similarly. Between 9 o'clock on Saturday morning and noon on Sunday 11½ hours were spent in the conference room and at meal times the various adjacent restaurants had many tables where the conversation was entirely gliding.

The panel of experts assembled to give the talks and answer the questions on competitive soaring consisted of A. J. Smith, reigning World Standard Class Champion, Dick Schreder, master glider designer and builder (11 designed and built with his own hands in 10 years), George Moffat, reigning US Champion, and myself from UK to talk about Sigma. In addition Gene Moore was there to follow up his previous year's lecture on total energy variometers with more real information on how to make a total energy system that actually works.

In the USA where the individual cells of gliding knowledge and expertise are so widely spread out, there is a particular need for opportunities for gliding people to foregather and exchange ideas. This is the vacuum that Soaring Symposia is trying to fill and the symposium did so very successfully. The many pilots who came were able not only to hear the top experts on competitive soaring doing their best to explain why they were the top experts, but also to hear the questions of other pilots and to get an understanding of the problems bothering other people. At $25 per head they got a bargain.

As might be expected, the high cost of high performance gliders, even Standard Class, was a big point of discussion; pilots clearly felt that to do justice to themselves they had to have a glider belonging to the glass-fibre Wortmann/Eppler aerofoil era but they could not possibly afford it unless it was to remain a viable top competition machine for many years. Despite the good intentions of the Standard Class this had not happened and now the news that flaps were to be allowed in 1974 pushed the possibility of stability still further into the future. This rapid change not only meant that pilots had to change gliders too frequently but also that manufacturers could not expect a decent production run to enable them to lower costs.

During the discussions noticeable differences between European and American philosophy became apparent. On the one hand USA still conducted

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their National Championship in the Open Class whereas in Europe the Standard Class was increasingly being accepted as the premier class; on the other hand Europe was rapidly eliminating distance tasks while the USA still considered they were an essential part of a National Championship. (The first Std. Class Nationals will be held at El Mirage, USA from 21-31 July.—ED.)

On variometers it was apparent that very few pilots had ever had really satisfactory total energy. The reason for this was all too clear when Gene Moore showed a successful system he had developed and also showed how easy it was to unbalance it and that in any case it could only be balanced for one altitude.

Ed Byars and Bill Holbrook, the organizers of the symposium, plan to publish the proceedings as soon as they have had time to transcribe and edit the tape recordings. This will be a valuable addition to any soaring library and the next best thing to atttending the actual symposium.

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# IN THE ABSENCE OF A BUNGEY

By F. J. SHEPPARD

INSPIRED by Anthony Edwards' accounts of flying at an altitude of 10 ft. above the heather, and feeling a little aggrieved one mid-November Sunday morning on account of the 'no flying' decision which had been made at the airfield, John and I decided that we, too, should have a go at this do-it-yourself sort of gliding. Chinnor ridge, 300-400 ft. above the Oxford plain and barely seven miles from our doorstep, appeared to us to have been insufficiently exploited and was the obvious place to make a start.

The wind was fresh and from the SW. "No good," they said, "It only works in a north-westerly." Unconvinced, John and I set off to explore. We reckoned on finding bowls and spurs which would work providing we could find a suitable site from which to launch. Arriving at the ridge we found the first bowl immediately to the south of Beacon Hill (Post Office Tower) with the wind already demonstrating its capabilities by supporting three radio-controlled model gliders above the SW slope! This was obviously it; quickly obtaining permission to operate a fourth glider (omitting to mention the somewhat larger wing span), it was just a matter of a mad rush back to Booker, hitch on the trailer, grab an aero-tow rope from the hangar, and by 1500 hours we were back at the ridge together with sundry club members who came along for the laughs, but quickly got on with the rigging whilst the launch procedure was sorted out.

The SW facing slope looked steep enough to support 15 metres, whilst on the other side of the bowl the ground sloped sufficiently gently for launch pur-

# A Bonus Offer in Honour of the World Champs

To celebrate our first World Championships and to introduce more foreign readers to *Soaring* Magazine, the Soaring Society of America is making a special offer: If you subscribe to *Soaring* for one year beginning with the July 1970 issue, we will send you the preceeding four issues absolutely free as a "World Championships bonus gift". These four bonus issues include three very special publications that you will want to keep and refer to often: The March and April issues (each 48 pages) contain Part I and Part II of the 1970 U.S. Sailplane Directory (performances, specifications, descriptive comments, and photos of all the 170 different sailplane models active in the U.S. — which includes most of the significant gliders flying throughout the world).

The May issue is a typical example of *Soaring's* usual monthly reading fare; it features an article on airfoils by Dr. Wortmann, a round-up of the latest developments in the field of auxiliary-powered sailplanes, a provocative proposal for a challenging new contest task, and an exciting account of a sailplane pilot whose sport glider wound up in an eyeball-to-eyeball confrontation with an RAF fighter over the Suez Canal at the height of the African campaign in World War II.

The June issue is another special one which will serve as a "programme" for the World Championships at Marfa this summer. It will have photos and biographies of the contestants plus a great deal of background material concerning the contest itself; and, as an added attraction, it will feature the fascinating results of a painstaking and comprehensive flight-testing programme by Paul Bikle which measured the performance of five of the latest fibreglass ships that will be competing at Marfa. And, of course, *Soaring* will be devoting a complete future issue (plus additional follow-up articles later on) to reporting in depth the contest results and happenings that will take place in the booming skies over Marfa.

*Soaring* is a large and handsome magazine with 8½ x 11 inch pages that ideally display the dazzling pictorial work of Alex Aldott and other outstanding soaring photographers and artists. To be one of the more than 13,000 gliding enthusiasts who enjoy *Soaring* every month, the subscription price for 12 issues (plus the four bonus issues) is $8.00 (apply to your post office for an International Money Order and write SSA that the money is coming). If you would rather have the four bonus issues only, the price is a mere $2.50.

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Los Angeles, California 90066, U.S.A.

poses. Ideally, we would have used a bungey, but in the absence of one we reckoned a 150 ft. of rope behind a car would do the trick—it did, too. With John in his Cortina and myself in the K-6E it was just like a normal auto-tow launch, except that it only lasted a few seconds and release height was about 50 ft. up. It was enough though, and a quick dash through some sink brought me to the slope, somewhat below launch height, but with enough in hand to land at the bottom should things fail to work.

But work they did. Averaging a knot-and-a-half up, on a beat some 200 yds. long, soon found me at 600 ft. above the launch. A few exploratory forays along the ridge proper, towards Watlington, convinced me that our first choice of slope was the best bet. Returning to the original beat, and by now getting the hang of this novel (to me at least) type of soaring, I reached a maximum height of 1,100 ft. above the ridge and watched the model gliders still soaring way below. I was amazed how far out from the ridge one could fly and still be in lift.

Later, whilst making a few passes over the launch point, I returned the friendly waves of those on the ground. In fact they were more than friendly waves; they were trying to keep warm and were indicating their desire to go home. It was time to land anyway, as dusk was fast approaching and I wanted to land back on the top near the trailer. I anticipated this being a bit tricky, and it was; the least said about it the better. The approach was very hairy as I had under-estimated the severity of the curl-over but, fortunately, the touch-down itself was adequate, though more by luck than good judgment. I learned a lot on that flight and I had certainly never experienced a more enjoyable one.

The following Sunday brought a repeat in the weather but with a stronger wind. Following the same procedure, again with John in his Cortina, another short auto-tow was made but in far more turbulent conditions. After another most enjoyable but very rough ride I played it safe and landed at the bottom, again with that sense of satisfaction and well-being which one feels having achieved something. That feeling stemmed, I think, not merely from the few hours' flying logged whilst others were grounded, but from the sense of freedom gained in the DIY atmosphere away from the organisation of the club—come to think of it, there were no launch fees to pay either.

John and I had thought we were breaking new ground with this exploit at Beacon Hill and it was only some weeks later, whilst reading a copy of SAILPLANE & GLIDER, dated August, 1939, that we realised we were no less than thirty years out. Members of the old Oxford Gliding Club used to try for their C's in Prüflings, on the same slopes, having been launched from their field, next to the Lambert Arms, some 400 ft. below.

Thanks for the help, John, your turn next time.

EDITORIAL NOTE:— RAFGSA members from Bicester also have used this ridge for 5-hour duration flights.

---

## KRONFELD NEWS

DESPITE the lack of news in the last issue, the Club is still very much in being. Members will have received the summer programme and the posters for the clubs will be distributed soon. A date to note now is 29th July when the British Team will be telling of their experiences at Marfa.

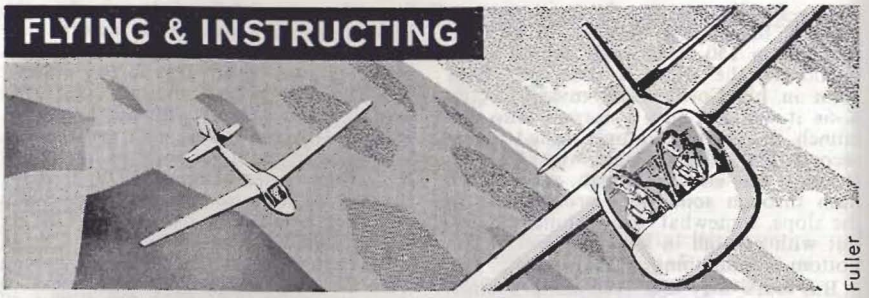
The Club has reverted to summer opening, that is Tuesday and Wednesday evenings only.

## AVIATION ART SOCIETY

FROM the 18-21 June we shall have a full scale exhibition of members' work at The Biggin Hill International Air Fair and again from the 11-26 July we shall be exhibiting at the World Aerobatic Championships at RAF Hullavington. If you are visiting either of these events do call in and see us. For those wishing to enter handing in days are 11th June and 6th July.

We always try to have a small exhibition of pictures on view at the Kronfeld club; any enquiries regarding these, Exhibitions or membership of the Society should be addressed to the Hon. Secretary, Mrs. Bonham, 11 Great Spilmans, London S.E.22. Tel. 01-693 3033.

# FLYING & INSTRUCTING




ON visits to clubs and meeting instructors I am always asked questions on the same subjects. It would appear to be worth while discussing some of them and I would stress that the following are my own ideas and, like any personal opinions, arguable.

Nevertheless, argument, discussion and practical experience have led me to these views. Reasoned argument has always helped me to improve my knowledge, and it is my belief that none of us, from the T-31 and winch strugglers to the sophisticated motor glider and aerotow operators, can afford to put our heads in the sand and be blind and deaf to other people's experience.

This month, then, the first of the discussion topics:

**The use of the Altimeter**

This instrument has been a continual source of argument, some reasoned, much emotional. Opinions vary from—'Throw it away altogether', to 'At 100 ft. pull back on the stick'.

Why do we have an altimeter in the first place? We use it for:—

1. Confirming judgment of height at the top of wire launches.
2. Confirming height judgment in the approach pattern.
3. Determining when to release on aerotow.
4. Determining when we are getting near to base of controlled airspace during cross-country flights, and also in conjunction with final glide computers, MacCready rings, etc.
5. Again on cross-countries to help us make decisions about landing.

There are no doubt many other occasions for its use, but these are the ones that spring most readily to mind.

What are the limitations of the altimeter? There are three main ones affecting the glider pilot:—

(a) Because of the pleasing lack of vibration in the glider, it will stick and therefore overread on the descent and underread on the climb.

(b) Because it is a pressure instrument it must be set to a datum pressure. (By means of that little knob at the bottom of the face.) The common ones are:—

(i) QNH—i.e. altimeter will read height above sea level.

(ii) QFE—i.e. altimeter will read zero when on the ground at take-off point.

(iii) 1013 mb. (29.92 in. Mercury)—to obtain a height reading in flight levels in controlled airspace.

It follows from this that if either ground pressure (QFE) or sea level pressure (QNH) changes the altimeter will no longer be using correct datum and will be meaningless.

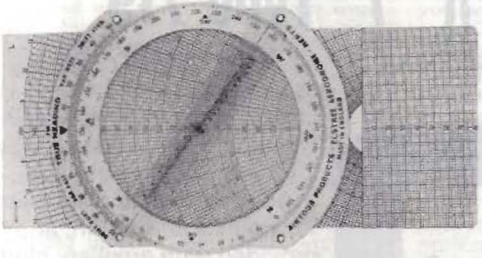
(c) In-flight accelerations will affect the pressure round the static source and *g* will affect the needle causing fairly significant errors.

We can now examine the disadvantages shown above in the light of glider operations:—

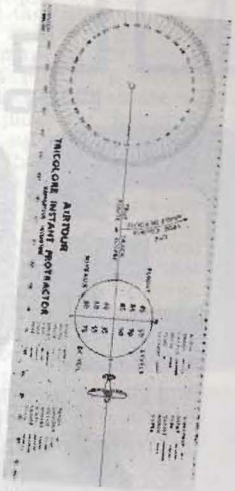
(a) Sticking: This is not too important on the climb as the glider will be higher than indicated. The worst problem could be the possible subsequent argument with the tug pilot, who will be using a well vibrated instrument, about the height of release. On the glide, the overreading

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**Airtour PP-4 Protractor**
The Tricolore Instant Protractor is designed for quick reference to glider heading and plotting on topographical charts, embodies nautical and kilometer scales and quadrantal rule. This Protractor is widely used and is especially suitable for glider pilots. **10s.**




**KB-3 Glider Knee Board**
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is very significant for the glider will be lower than indicated. This error can be as much as 300 ft. on a tatty altimeter and becomes "interesting" on the approach.

(b) Changing datum pressure: This only really matters on a cross-country flight. Now a pressure decrease of one millibar will make the altimeter overread by 30 ft. The converse is true for a pressure increase. Unless one is flying into a howling depression the errors due to pressure changes are unlikely to be significant. More important is the fact that the terrain height will change and this is where accurate navigation and height judgment are necessary.

(c) Acceleration effects: These are noticed most in the initial part of a wire launch. It is *vital* that the transition from the gentle to steep climb is performed with reference to ground objects (trees, buildings etc.) and not to the altimeter.

Having said all this, we can now formulate some simple hints which will help inexperienced pilots to avoid being caught out.

First, in the approach pattern judge height by reference to the ground, supplemented by the altimeter while judgment is being gained, remembering however the fact that it will most likely be overreading. A correct reading may be obtained by a judicious bonk on the panel (not the instrument, please!). This, of course, doesn't mean making like a woodpecker with your finger.

Secondly, on cross-countries be aware of the effects of pressure changes. Always know your position within reasonable limits, so that if you get low you will know the height of the ground (spot heights, contours, airfield heights etc. on your map) before you become startled by its proximity. When flying over high ground, abandon the altimeter early and use judgment. Remember that the method of subtracting ground height from altimeter height will only work if the altimeter is set to QNH.

Thirdly, when flying below controlled airspace, which may give you a climb problem in IMC, set the altimeter to 1013 mb. unless controlled airspace base is given in height above sea level. Don't forget to write down the sub-scale setting before changing, so that once the controlled airspace has been negotiated QNH may be reset.

Fourthly, on wire launches start the climb purely on height judgment and ignore the altimeter when dealing with launch failures.

Finally, don't, after all this, sit in the wreckage saying, 'well the altimeter read a thousand feet, then all of a sudden I noticed . . . '.

ROGER A. NEAVES

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# MORE CLASS WAR

By MARTIN SIMONS

IT IS encouraging to see that my plea for classes has brought forth some positive response. Thanks, both to Simon Redman and Ann Welch, for their support of the main idea. Support and criticism has come from other areas too, and I think it is true to say there is a widespread agreement that more classes would be a good idea.

It does, unfortunately, seem to be wrong for Ann to say "It is not expected that anyone would build gliders specially for the new class". One of the main ideas of establishing a class system is precisely that designers and manufacturers would then be encouraged to turn their attention to producing better gliders of moderate size and cost. This being the case, it does not make sense to talk of frequent rule changes in the interests of flexibility. I know of three 'old' Standard Class projects in Australia alone, which have been thrown into chaos by the actual and threatened changes in the Class rules. At present, any pilot who does not fly in Standard Class Contests is driven



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to the vastly complex monsters if he wants to have the best chance of winning, and if the Standard Class rules themselves are subject to change, designers will be effectively discouraged from attempting any further improvements in that area. The right sort of flexibility is surely the kind proposed before. We can have as many new classes as we like; paper is cheap. It matters not at all if some class does not prove popular and remains forever vacant. Contest organisers would need only to announce that their meeting would be open to class x, or to classes x and y, for the administrative problem to be solved. This could be done immediately—no 'official' CIVV announcement is necessary; a club could advertise such a contest tomorrow for next week if they wished, and they could devise their own class formula too.

In Germany already something like this has happened, the criterion of the class being apparently one of cost in DM. Unfortunately, as was realised long ago, when the Standard Class rules were debated, cost comparisons are hard to establish across international frontiers when labour charges differ, etc., so we are driven to some sort of objective geometric formula which will certainly not directly reduce costs, but which might tend to keep costs under control, in the long run.

The details of the formulae laid down are relatively unimportant providing we recognise that we are talking about several classes, not one new class which will chop and change from time to time. The idea of limiting aspect ratios has merit, but in my preliminary thinking around the main idea it did not seem the best approach. This is simply because it drives the designer to employ other, more expensive and complex, methods of producing the best sailplane in a class. For example, Ann's 'Aspect Ratio 20 Class', in the terms she expressed it, would admit the BJ-3 now. If this class were set up and contest held over a period of years, it would almost certainly mean that the BJ-3 type of sailplane would be further developed, and eventually anyone hoping to win this class would have to to have such an aircraft.

I do not find this alarming, but I suspect Ann does. Such big and heavy variable geometry could be excluded from the 'aspect ratio 20 class' quite easily by insisting on fixed area wings—but why should such exclusion be attempted? And why should we not encourage the development of 18 m. variable geometry sailplanes by setting up a class for them —leaving the 'flaps in' aspect ratio to the designer, and limiting only the span? This was one of my proposals, and, incidentally, I would admit also the variable *span* sailplane, which might in the end prove possible and, aerodynamically, more efficient. Simultaneously there should be a class for the fixed area 18 m. machines—Skylarks could compete here, and designers might produce improved machines in this class too, with higher aspect ratios. Ann would *exclude* Skylarks from the '20 class' while admitting the BJ-3. I'm sure she didn't intend that.

Of course, if the 'class' formula was to be changed every five years, the development of new designs envisaged would not take place, because it would not be worth anyone's while to set about it. The new class would not be a class at all, but would simply be a device for allowing elderly gliders to have some competitions. Very well, I have already suggested there could be a veteran and vintage class for gliders designed prior to 1950. A meeting run on these lines could be great fun, and would possibly show us we are not such clever pilots as we think we are. Why not run a 'dated' class contest for machines of the Skylark, K-6 era too? This is the sort of flexibility we want.

* * *

ANN WELCH WRITES: Of course I agree with Martin's idea of lots of classes. I put forward the aspect ratio proposal simply in order to start the ball rolling—ideas have to be turned into nuts and bolts before they can be effective. My purpose in writing down some rules was in the hope that others would do likewise with their good ideas.

The Americans have an ingenious way of using veteran gliders in competitions. The pundits run some weekend contest to help new cross-country pilots, and are allowed to compete on condition they forgo their Cirri, and fly veteran or elementary gliders.

# AT THE BALL

*George Burton making the final bid of £70 for comp. no. 7.*





*Andy Gough in his element as auctioneer.*

Photos by PETER WARREN



*Patricia Watson (left) receiving the California in England Trophy from Miss Ann Roberts.*

# BGA NEWS

## Annual Awards 1969

The British Gliding Association has pleasure in announcing the following awards for 1969:

CALIFORNIA IN ENGLAND TROPHY to a woman pilot for the longest flight: to Mrs. Patricia Watson (Surrey & Hants Club) for a 322-km. triangle; Cheltenham Racecourse, Pittsford Reservoir, Lasham on 30th July. Skylark 4.

DOUGLAS TROPHY to the Club putting forward three flights by three different club members in club aircraft, aggregating the largest cross-country mileage: to the Surrey & Hants Club for the following flights:—

Chris Lovell—331 km. triangle on 17th April. Gerry Paddick—318 km. triangle on 22nd May. Peter Horne—316 km. triangle on 30th July. Total distance—965 km. All in Dart 17R.

FRANK FOSTER TROPHY for the fastest speed round a 100-km. triangle: to George Burton (Imperial College Club) for a 100.8-km. triangle at 95.4 km/h.; Jolly Farmer, Newbury Racecourse, Lasham on 14th June. SHK.

DE HAVILAND CUP for the greatest gain in height: *Not Claimed.*

MANIO CUP for the fastest speed round a pre-determined 300-km. triangle: to Nicholas Goodhart (Army Club) for a 318-km. triangle at 71.9 km/h.; Bath Racecourse, Stratford Theatre, Lasham on 22nd May. SHK.

ROBERT PERFECT TROPHY to the Club with the highest ratio of new full instructor ratings to Club flying members in a two-year period: *Not claimed.*

SEAGER CUP for the best closed circuit performance in a two-seater: to B. J. Willson and Harry Daniels (Swindon Club) for a 200-km. triangle at 64.43 km/h. Blanik.

VOLK CUP for the longest pre-declared goal-and-return flight: to Alan Purnell (Surrey & Hants Club) for a 350-km. goal-and-return on 19th April. Cirrus.

WAKEFIELD TROPHY for the longest flight: to John Cardiff (London Club) for a 537-km. cat's cradle flight on 20th May. ASW-12.

## National Ladder Trophies 1969

ENIGMA TROPHY to the pilot flying a privately-owned glider who has scored the most points in the National Ladder Competition: to Alan Purnell (Surrey & Hants Club) 5,185 points in four flights.

L. DU GARDE PEACH TROPHY to the pilot, all of whose flights were made in a club-owned glider, who has scored the most points in the National Ladder Competition: to Chris Lovell (Surrey & Hants Club) 5,039 points in four flights.

## Claims for Annual Awards 1970

Simple claim cards are available from clubs so that pilots can claim best performances for Cups and Trophies more easily.

In an effort to award the Trophies to the most worthy performances of the year it has been decided to accept claims not only from the pilots themselves, but also from club officials, observers, etc., on behalf of the pilots.

Claim cards have been sent to all Clubs and should be completed and returned to the BGA as soon as possible after the date of the flight. The documentation appertaining to the flight claimed should be kept by the persons concerned until called for by the Flying Committee.

## Lilienthal Medal for 1969

The FAI has announced that the Lilienthal Medal for 1969 has been awarded to Eric Nessler of France.

## Executive Committee of Management

Following the AGM and the April Executive Committee meeting the undermentioned now comprise the Executive Committee of Management:

K. G. Wilkinson, Chairman.
C. R. Simpson, Vice-Chairman.
J. C. Large, Hon. Treasurer.
Inge Deen, General Secretary.
Joan Cloke.
A. W. F. Edwards.
A. W. Gough.
D. H. G. Ince.
R. A. Neaves.
J. C. Riddell.
Ann Welch.
D. C. Westerside.
T. S. Zealley.
CO-OPTED: J. E. G. Harwood, F. G. Irving.

## World Championships Appeal

Donations from the following are gratefully acknowledged. (Period 18th February to 17th April.)

Anonymous (five individuals)
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Avro Gliding Club
Baker, E. N.
Barrows, J. R.
Barton, K.
Bath & Wilts Gliding Club
Benoist, J. D.
Bennion, C. G.
Bentalls of Kingston
Bicester Rotary Club
Bromwell, D. G.
Brickwoods, Ltd.
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Cloke, Joan
Cole, R. T.
Conway, M.
Corkell, I.
Craven, J. L.
Croshaw, Wg. Cdr. J. G.
Crusaders Gliding Club
Danwell, J. G. B.
Davies, P.
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Dorset Gliding Club
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Eldridge, A.
Durno, K. J.
Elsden, C. and Partners
Evans, Maj. J. A.
Farley, Dr. F. J. M.
Fielden, J. S.
Fitchett, F. L.
Foster, E.
Foster, Mrs. Pat
Frodsham, R. D.
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Kelly, B. T.
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Lane, Air Cmdr. D. W.
Latimer, B. H.
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Letts, A. T.
Lewi, A. R
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Oxford Gliding Club
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Partridge, P. J.
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Pratelli, P. J.
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Provins, J. P.
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| Competition No. 7 | 280 | 10s | 5d |
| Raffle and other Ball proceeds | 78 | 6s | 6d |
| Total so far received | £4,919 | 13s | 4d |

## Loan of Equipment

The British Team also gratefully acknowledges the loan of the following equipment:—

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Irving Air Chutes of GB Ltd.—Parachutes
Kodak Ltd.—Cameras
Morlands of Glastonbury—Sheepskin cockpit linings
Radio Communications Ltd.—Radio transceivers, Magnetic base aerials and pennant bases

**Competition No. 7**

The auction of this number which was held after the BGA Dinner was a great success. After Andy Gough had explained that bidders would have to pay for the highest bid they made he acted as auctioneer making a splendid job of it. Amongst the bidders were: H. Dimock, D. Ince and A. Deane-Drummond, J. Hempseed (SGU), P. Horne, K. Wilkinson, P. Scott, R. Barrett, T. Zealley. The final battle was between Ralph Jones and George Burton the latter's highest bid being £70. The total of £280 raised has been added to the World Champs Appeal.

**The Churchill Gliding Award for 1969**

The Award, which will be of the order of £50, will be given to assist some project organised and carried out by an individual glider pilot.

Eligible projects, which should always include flying, would include meteorological research and explorations by glider of sea breeze fronts or mountain waves, invention or development of glider instruments including flight testing. research and development of improved training or soaring techniques, or exploration of or investigation into some quite new aspect associated with gliding. Application would have to be from British subjects, resident in Britain, but the project work would not be confined to this country.

Application forms obtainable from the BGA office should be returned not later than the 30th June, 1970.

**Whitbread Bursary Awards for 1970**

It has been agreed that an Award of £10 will be made to young glider pilots who gain their Bronze C before their 19th birthday.

This Award will not be made automatically and it is the responsibility of the pilot to claim the Award at the same time as applying for the Bronze C endorsement. The actual money will be sent to the Club Treasurer to be set against future flying fees.

In the event of a large number of applications being received during 1970, the first twenty only will receive the Award.

This scheme will operate until further notice.


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# FIRST AB-INITIO

By A. E. SLATER

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

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

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

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

Of course, the dunes made a wonderful soaring ridge, and sure enough in 1922 there came along an East Prussian schoolmaster called Ferdinand Schulz—a remarkable character who knocked together a crude glider out of odds and ends (they called it *Fliegende Besenstock* —"flying broomstick"). It had no rudder or fin—the birds could do without, and so could he. In the machine Schulz set up a world's duration record of 8 hrs. 42 mins. in 1924 (imagine all the turns he had to make without a rudder!); later, in a conventional Westpreussen sailplane, he made a world's distance record of 37.4 miles from Rossitten to Memel in 1925, and another duration record of 14 hrs. 7 mins. in 1927.

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

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

On 13th May, on my 19th launch, I had a first try for the A Certificate, making 28.2 seconds. You had to fly a Zögling pretty carefully to keep airborne for 30 seconds during a descent from

under 200 feet, and I had seven more attempts on the 15th, making 25.2, 24.0, 23.2, 29.8, 29.6, 24.0, and finally 31.6 seconds. The trouble was that, from much reading of the aviation news, I was only too well aware that most flying accidents at that period were due to stalling (including two airliners); so, with this background information in mind, it needed a lot of will-power to pull right back to speed-for-minimum-sink.

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

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

However, on one unstable day when it really was turbulent, a rather clueless member of our group was suddenly tipped over by a gust from the right, and reacted by pulling the stick hard back and over to the left. The result was a vertical bank, followed a few seconds later by the pilot staggering away from the wreckage with one portion of a broken tibia sticking out into the open air. Out came the red cross box and I had to get to work, while others offered portions of the broken glider for use as splints. There was an excited shout from the other end of the patient where somebody had noticed a trickle of blood from his nose, and thought it ought to be given priority over the broken leg. The instructor was saying "Der Mister ist Arzt" to a young lady who had come to watch us and partaken of our hot-pot, and was now apologising for bringing us bad luck. He got worked up at seeing me take a photo of the scene, but someone said: "Der Mister will surely promise not to publish it." So you will not be shown it here.

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

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

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



*Lt. Dinort tests his brainchild.*

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

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

Another local character was Lieut. Dinort, who had beaten Schulz's record with 14 hrs. 48 mins. in 1929, in a primary type machine which he chose to fly through the night, guided by hurricane lamps which kept blowing out and had to be re-lit by shivering helpers. He was not on the school staff but was busy in the workshop building a curious machine with a vertical panel at each wingtip. One of the workshop staff explained that this was to prevent skidding outwards on the turns when slope-soaring. (At this period almost every prominent glider pilot, except Schulz, was obsessed with the "cosine law" and afraid to bank on the turns for fear of losing excessive height.) Dinort was too dedicated to remember mealtimes, and it was regular routine for Der Rittmeister, ten minutes after lunch began, to go outside and shout "Deeee-noort!".

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

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

## INTERNATIONAL GLIDING RECORDS (Correct as at 13.5.70)

### Single-Seaters

| | | |
|---|---|---|
| Distance | A. H. Parker (USA), 31.7.64, Sisu-1A | 1,041.52 km. |
| Height Gain | P. F. Bikle (USA), 25.2.61, SCS-123E | 12,894 m. |
| Absolute Altitude | P. F. Bikle (USA), 25.2.61, SCS-123E | 14,102 m. |
| Goal Flight | W. A. Scott (USA), 8.8.69, ASW-12 | 974.04 km. |
| Goal & Return | R. R. Clifford (S. Africa), 1.1.69, Libelle 15R | 785.8 km. |
| 100-km. Triangle | H. M. Linke (Germ.) (in USA), 30.7.67, Libelle | 135.66 km/h. |
| 300-km. Triangle | A. Roehm (Germ.), 4.6.67, BS-1 | 138.30 km/h. |
| 500-km. Triangle | M. Jackson (S. Africa), 28.12.67, BJ-3 | 135.52 km/h. |

### Multi-Seaters

| | | |
|---|---|---|
| Distance | J. Kouznetsov and J. Barkhamov (USSR), 3.6.67, Blanik | 921.95 km. |
| Height Gain | S. Josefczak and J. Tarcon (Poland), 5.11.66, Bocian | 11,680 m. |
| Absolute Altitude | L. Edgar and H. Klieforth (USA), 19.3.52, PR-G | 13,489 m. |
| Goal Flight | P. Antonov and A. Oplatchko (USSR), 24.4.64, Blanik | 702.74 km. |
| Goal & Return | K. Keim and Bachmann (Germ.), 28.1.67, Kranich 3 | 620.66 km. |
| 100-km. Triangle | W. R. Briegleb and K. Briegleb (USA), 31.7.69, 2-32 | 111.30 km/h. |
| 300-km. Triangle | B. Stevens and H. Keartland (SA), 10.1.70, 2-32 | 104.47 km/h. |
| 500-km. Triangle | Helmut and Heinz Sorg (Germ.) (in SA), 7.1.64, K-7 | 83.74 km/h. |

### Single-Seaters (Women)

| | | |
|---|---|---|
| Distance | Olga Klepikova (USSR), 6.7.39, Rot Front 7 | 749.20 km. |
| Height Gain | Anne Burns (GB) (in SA), 13.1.61, Skylark 3B | 9,119 m. |
| Absolute Altitude | Betsy Woodward (USA), 14.4.55, PR-195 | 12,190.2 m. |
| Goal Flight | Tamara Zaignova (USSR), 29.7.66, A.15 | 731.60 km. |
| Goal & Return | Yvonne Leeman (SA), 28.12.67, Phoebus | 620.66 km. |
| 100-km. Triangle | Yvonne Leeman (SA), 4.1.66, BJ-2 | 110.19 km/h. |
| 300-km. Triangle | Yvonne Leeman (SA), 14.1.66, BJ-2 | 106.18 km/h. |
| 500-km. Triangle | Anne Burns (GB) (in SA), 25.12.63, Std. Austria | 103.33 km/h. |

### Multi-Seaters (Women)

| | | |
|---|---|---|
| Distance | T. Pavlova and L. Filomechkina (USSR), 3.6.67, Blanik | 864.86 km. |
| Height Gain | A. Dankowska and M. Matelska (Poland), 17.10.67, Bocian | 8,430 m. |
| Absolute Altitude | A. Burns (GB) and J. Oesch (in USA), 5.1.67, 2-32 | 9,519 m. |
| Goal Flight | I. Gorokhova and Z. Koslova (USSR), 3.6.67, Blanik | 864.86 km. |
| Goal & Return | P. Majewska and R. Sokolowska (Poland), 14.7.68, Bocian | 467.2 km. |
| 100-km. Triangle | Y. Leeman and M. Human (SA), 27.12.67, Kranich 3 | 90.95 km/h. |
| 300-km. Triangle | O. Manafova and V. Lomova (USSR), 12.6.64, KAI-19 | 74.31 km/h. |
| 500-km. Triangle | T. Zaiganova and Lobanova (USSR), 29.5.68, Blanik | 69.5 km/h |

## SUBJECT TO HOMOLOGATION

### BRITISH NATIONAL

#### Single-Seaters

| | | |
|---|---|---|
| 300-km. Triangle | J. Delafield (in SA), 22.12.69, Phoebus 17 | approx. 111.6 km/h. |

#### Multi-Seaters

| | | |
|---|---|---|
| Height Gain | L. Hood and M. Slater (in France), 4.2.70, K-7 | approx. 6.900 m. |

### UNITED KINGDOM

#### Single-Seaters (Women)

| | | |
|---|---|---|
| 100-km. Triangle | Anne Burns, 14.6.69, Cirrus | approx. 80.4 km/h. |

---

*New records have to exceed the old ones by:*

| | |
|---|---|
| Distance | 10 km. |
| Heights | 3% |
| Triangles | 2 km/h. |
| Straight Goals | 5 km/h. |

*Conversion factors:*

Multiply km. by 0.621 to get statute miles
Multiply km. by 0.54 to get nautical miles
Multiply km/h. by 0.539 to get knots
Multiply km/h. by 0.621 to get mph
Multiply metres by 3.28 to get feet

The Flying Committee has decided that All British National and United Kingdom records will be officially recorded in metric units so as to fall in line with the FAI.

## BRITISH NATIONAL RECORDS (Correct as at 13.5.70)

### Single-Seaters

| | | | |
|---|---|---|---|
| Distance | P. D. Lane (in Germ.), 1.6.62, Skylark 3F | 741 | km. |
| Height Gain | G. J. Rondel, 18.6.60, Olympia 2B | 8,870 | m. |
| Absolute Altitude | H. C. N. Goodhart (in USA)), 12.5.55, 1-23 | 11,500 | m. |
| Goal Flight | H. C. N. Goodhart, 10.5.59, Skylark 3 | 579 | km. |
| Goal & Return | A. H. Warminger (in SA), 13.1.66, Std. Austria | 602 | km. |
| 100-km. Triangle | E. Pearson (in Rhodesia), 10.10.69, Cirrus | 119.2 | km/h. |
| 300-km. Triangle | E. Pearson (in SA), 3.1.69, Cirrus .. (see opposite page) | 104 | km/h. |
| 500-km. Triangle | Anne Burns (in SA), 25.12.63, Std. Austria | 103.3 | km/h. |

### Multi-Seaters

| | | | |
|---|---|---|---|
| Distance | L. Welch and F. G. Irving, 14.5.55, Eagle | 524 | km. |
| Height Gain | R. P. Saundby and B. Roberts, 7.6.64, Blanik ..(see opposite page) | 5,410 | m. |
| Absolute Altitude | Anne Burns and Janie Oesch (in USA), 5.1.67, 2-32 | 9,519 | m. |
| Goal Flight | W. A. H. Kahn and J. S. Williamson, 12.4.58, Eagle | 528 | km. |
| Goal & Return | A. H. Warminger and R. Tucker (in SA), 4.1.69, 2-32 | 545 | km. |
| 100-km. Triangle | E. Pearson and A. Martin (in SA), 7.1.68, Kranich 3 | 83.52 | km/h. |
| 300-km. Triangle | A. H. Warminger and R. Tucker (in SA), 29.12.68, 2-32 | 93.6 | km/h. |

### Single-Seaters (Women)

| | | | |
|---|---|---|---|
| Distance | Anne Burns (in SA), 31.1.61, Skylark 3B | 524 | km. |
| Height Gain | Anne Burns (in SA), 13.1.61, Skylark 3B | 9,120 | m. |
| Absolute Altitude | Anne Burns (in SA), 13.1.61, Skylark 3B | 10,550 | m. |
| Goal Flight | Ann Welch (in Poland), 20.6.61, Jaskolka | 528 | km. |
| Goal & Return | Anne Burns (in SA), 6.1.66, Std. Austria | 545 | km. |
| 100-km. Triangle | Anne Burns (in SA), 12.1.63, Skylark 3B | 84.0 | km/h. |
| 300-km. Triangle | Anne Burns (in SA),31.12.65, Std. Austria | 93.6 | km/h. |
| 500-km. Triangle | Anne Burns (in SA), 25.12.63, Std. Austria | 103.3 | km/h. |

### Multi-Seaters (Women

| | | | |
|---|---|---|---|
| Absolute Altitude | Anne Burns and Janie Oesch (in USA), 5.1.67, 2-32 | 9,519 | m. |

## UNITED KINGDOM RECORDS (Correct as at 13.5.70)

### Single-Seaters

| | | | |
|---|---|---|---|
| Distance | H. C. N. Goodhart, 10.5.59, Skylark 3 | 579 | km. |
| Height Gain | G. J. Rondel, 18.6.60, Olympia 2B | 8,870 | m. |
| Absolute Altitude | G. J. Rondel, 18.6.60, Olympia 2B | 9,300 | m. |
| Goal Flight | H. C. N. Goodhart, 10.5.59, Skylark 3 | 579 | km. |
| Goal & Return | J. S. Williamson, 30.8.64, Olympia 419 | 441 | km. |
| 100-km. Triangle | G. E. Burton, 14.6.69, SHK | 95.4 | km/h. |
| 200-km. Triangle | J. S. Williamson, 7.6.69, Dart 17R | 74.7 | km/h. |
| 300-km. Triangle | H. C. N. Goodhart, 22.5.69, SHK | 71.9 | km/h. |
| 400-km. Triangle | A. D. Purnell, 19.4.69, Cirrus | 66.36 | km/h. |
| 500-km. Triangle | D. B. James, 9.6.68, Diamant 18 | 53.8 | km/h. |
| 100-km. Gl. Speed | K. A. Harrison, 13.4.69, SHK | 128.4 | km/h. |
| 200-km. Gl. Speed | I. W. Strachan, 2.6.63, Skylark 4 | 114.3 | km/h. |
| 300-km. Gl. Speed | E. A. Moore, 27.5.57, Skylark 2 | 92.1 | km/h. |
| 500-km. Gl. Speed | H. C. N. Goodhart, 10.5.59, Skylark 3 | 90.7 | km/h. |

### Multi-Seaters

| | | | |
|---|---|---|---|
| Distance | L. Welch and F. G. Irving, 14.5.55, Eagle | 408 | km. |
| Height Gain | R. P. Saundby and B. Roberts, 7.6.64, Blanik | 5,410 | m. |
| Absolute Altitude | R. P. Saundby and B. Roberts, 7.7.64, Blanik | 5,800 | m. |
| Goal Flight | W. A. H. Kahn and J. S. Williamson, 12.4.58, Eagle | 312 | km. |
| Goal & Return | B. J. Willson and H. Daniels, 27.7.69, Blanik | 324 | km. |
| 100-km. Triangle | B. J. Willson and H. Daniels, 19.4.69, Blanik | 77.57 | km/h. |
| 200-km. Triangle | B. J. Willson and H. Daniels, 20.4.69, Blanik | 64.63 | km/h. |
| 300-km. Triangle | B. J. Willson and H. Daniels, 15.5.66, Blanik | 55.8 | km/h. |
| 100-km. Gl. Speed | D. B. James and K. O'Riley, 27.5.57, Gull 2 | 96.5 | km/h. |
| 200-km. Gl. Speed | J. S. Williamson and D. Kerridge, 9.4.55, Eagle | 56.2 | km/h. |
| 300-km. Gl. Speed | W. A. H. Kahn and J. S. Williamson, 12.4.58, Eagle | 69.2 | km/h. |

### Single-Seaters (Women)

| | | | |
|---|---|---|---|
| Distance | Anne Burns, 10.5.59, Skylark 3B | 454 | km. |
| Height Gain | Anne Burns, 10.5.59, Skylark 3B | 5,100 | m. |
| Absolute Altitude | Anne Burns, 10.5.59, Skylark 3B | 5,600 | m. |
| Goal Flight | Anne Burns, 12.4.58, Skylark 3B | 309 | km. |
| Goal & Return | Anne Burns, 26.5.63, Olympia 419 | 215 | km. |
| 100-km. Triangle | Anne Burns, 25.7.59, Skylark 3B (see opposite page) | 60.0 | km/h. |
| 200-km. Triangle | Anne Burns, 22.8.64, Std. Austria | 69.3 | km/h. |
| 300-km. Triangle | Anne Burns, 28.6.66, SHK | 60.2 | km/h. |
| 400-km. Triangle | Anne Burns, 5.8.67, SHK | 60.6 | km/h. |
| 100-km. Gl. Speed | Rika Harwood, 27.5.57, Olympia 2B | 83.0 | km/h. |
| 200-km. Gl. Speed | Anne Burns, 2.6.63, Olympia 419 | 85.5 | km/h. |
| 300-1km. Gl. Speed | Anne Burns, 12.4.58, Skylark 3B | 63.9 | km/h. |

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# MOTOR GLIDING AND THE FUTURE

By PETER WARREN

MY previous considered, but inexperienced, comments on the motor glider have brought down the wrath of some purists upon my head and I have been accused of wanting "power flying on the cheap".

It was with some gratification therefore that I read the two articles on motor gliding in the April-May edition of SAILPLANE & GLIDING, written by acknowledged experts in the pure-gliding field, and confirming every aspect of motor gliding for which I have argued in previous letters to the Editor.

The article by Derek Piggott on powered training (see S & G April-May, p. 121) is a complete vindication of the motor glider for all levels of instruction, and its author has long foreseen the advantages which he now clearly illustrates.

"There is no aspect of gliding training except the actual launch which cannot be done quicker and better in a motor glider."

"At Lasham . . . glider training has virtually ceased . . . "

These quotes from so eminent a glider type as Derek Piggott cannot fail to convince everyone of the direction in which the whole gliding training scheme should now be steered. For training the motor glider is *in*. But already I have heard the cry, "What shall we do with all the newly trained pilots being churned out by the motor glider?" The answer is the single-seater medium and high performance motor gliders and the proof of this is in Ian Strachan's article "The Proof of the Pudding". (See S & G April-May, p.129.) Flying a K-14 motor glider on 'Airways patrol' during the Nationals at Lasham last year he made a fascinating 5½ hour flight for less than 25 minutes of engine-on time in a machine with a K-6CR performance. During this flight he did "speed flying, ridge soaring, scratching, field selection and two final glides, all on a day when most other gliders were forced down". Don't let any pundit call that "power flying on the cheap"! Ian Strachan's admission of the joy and success of his motor gliding must confirm him as the first of the new converted.

Without doubt we now have in sight a new concept of gliding in this country and throughout the world. Eventually the winch and tow car can be scrapped except on ridge sites. The aerotow will remain for those who have the time and money for pure gliding, which will always remain the ultimate in skill and pleasure. And the vast majority of people who fly for fun and enjoyment and want minimum expenditure of both time and money will fly powered gliders.

Motor gliders will clear the biggest bottle-neck in gliding—the launch and ground handling—and will enable machines to spend more time in the air and less on the ground. Its self-launching capability will also solve another problem which will otherwise limit the expansion of gliding, that of sites.

Because it does not need 1,000 yards or more to be launched the motor glider can operate from hitherto impossible sites. Using a trailer as a hangar a syndicate could fly from any suitable field given the owner's permission. Almost any airfield could be used, especially with simple radio facilities, with the actual gliding taking place well away from the powered aircraft traffic pattern. Inaccessible ridges can be reached, sea-breeze fronts explored, there is no limit to the possibilities. Groups or clubs from the smallest to the largest can operate in areas free from the plague of restricted air space which means more clubs can spring up to really cope with the demand for gliding and give value for money.

My own flying club operating four Austers manages to fly about 1,800 hours per year, flying mainly at weekends. With motor gliders I see no reason why it should not be possible for a gliding club to approach these sort of figures with the consequent enormous boost to gliding which would give a new image to the movement as a whole.

The man-in-the-street has always wanted to emulate the birds. Here is our chance to show him how at a price he can afford, and who knows, I may even be able myself to switch-off, sit back, and soar.

# **Your future:** No fixed plans yet?

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## FUTURE EVENTS

**May 30-June 7.** Standard Sport Class Nationals at Dunstable.
**June 13-21.** Western Regionals at Nympsfield.
**June 14-21.** Scottish Regionals at Portmoak **(revised date).**
**June 15-July 4.** World Championships at Marfa, Texas.
**June 27.** Open Day at Ouse Gliding Club.
**July 4th.** Air Display at Wycombe Air Park.
**July 11-12.** Air League Rally at Sywell.
**July 11-19.** Dorset Regionals at Compton Abbas.
**July 13-25.** Coupe d'Europe de Vol a Voile at Angers, France.
**July 25-August 2.** Lasham Regionals at Lasham **(revised date).**
**July 25-August 2.** Northern Regionals at Sutton Bank.
**August 8-16.** Wycombe Regionals at Booker.
**August 22-28.** Inter-Club Soaring Meet at Lasham.
**August 22-31.** Open Class Nationals at Doncaster.

# MEDIATOR

By H. C. N. GOODHART

FOR some years now, there have been occasional references in the Press to an Air Traffic Control System called Mediator. Recently, at the request of the BGA, National Air Traffic Control Services (NATCS) gave a presentation to members of the Civil Aircraft Control Advisory Committee (CACAC) to explain what the system consisted of. This did not fully answer the question of what the policy would be in the future for the introduction and use of this system, but it is possible to see the way things are going and, bearing in mind that the final fully-integrated system is costing of the order of £100m, the system obviously imposes constraints on future policy.

**The Background to Mediator**

As long ago as 1960, it was decided at Cabinet level to integrate the defence and ATC requirements. This system was given the code name Linesman/Mediator —the name Mediator referring to the air traffic control element.

The system, which has proved to be a complex technical development, is still not in operation. It will be introduced into service in a series of steps starting in mid-1971 and going on through until 1976.

**The Principle of Mediator**

The plan is based on a small number of carefully sited large radars which, together, provide coverage of the whole UK from 8,000 ft. upwards; lower altitudes are, of course, covered nearer each radar: Radar cover is deemed to exist when a blip appears nine out of ten times that the radar illuminates a ten square metre target, e.g. Canberra. ICAO has accepted this for ATC radars.

The strength of a radar return will depend on:—

(a) Effective echoing area of the target.
(b) Range.
(c) Height.

For gliders, the effective echoing area at the frequency concerned is of the order of one square metre. It varies with the construction of the glider, as well as with the aspect presented towards the radar. Thus, depending on range, height, aspect, etc., a glider may be seen, but certainly not over the whole official coverage of the radar sets.

Unfortunately, the radar sets also use a technique called MTI, which is designed to eliminate echoes from slow-moving and stationary targets. This system is normally used over a large part of the coverage of the radars and will substantially reduce, if not eliminate, glider returns.

**The Introduction of Mediator**

The existing ATC system for controlled airspace is based on a procedural system backed up by radar. In the first stage of Mediator these roles will be reversed. In addition, a middle airspace—off airways —service will be provided over the southern part of the UK. This will be progressively extended northwards, and the present Upper Airspace—above FL 250— service will be centralised at West Drayton.

**What this Means from the Gliding Point of View**

Basically, NATCS has gone for a system with which there seems no prospect for gliders to integrate. The effectiveness of the system will depend largely on the carriage of SSR, a piece of equipment probably more expensive than the glider, and the primary radars are unlikely to have a sufficient probability of seeing gliders at all times. Legislation will be proposed for the mandatory carriage of SSR transponders by aircraft operating in Upper Airspace and controlled airspace. One thing that is clear, therefore, is that gliding will have to be extremely alert over the next few years, to ensure that a *modus operandi* is established which will enable the sport to remain viable.

However, there is a brighter side to the coin. The effect of going to full radar control is to reduce the planned minimum separation between aircraft under control from the 50 miles or more, often required by the procedural separation rules, to the five miles required for radar control. Consequently, under radar control the capacity of any piece of controlled airspace is enormously higher than it would be under procedural control. For instance,

two aircraft passing each other at the same height in a ten-mile-wide airway should be practicable and normal, thus allowing climbing or descending aircraft to go through flight levels already occupied by other aircraft. At worst, this must reduce the pressure for more controlled airspace; at best, it could even mean the elimination of some existing controlled airspace.

Depending on how gliding approaches the problem, it might be possible to co-operate to some degree with Mediator by means of a single glider frequency. For, while the radars will not see the gliders at all times, there will be times when they are visible and it may be a help to a controller to identify an echo. Such a system might, for example, allow airways crossing in IMC.

### The Long Term Future

Looking some time into the future, my guess is that NATCS visualise a progressive lowering of the base of upper airspace, i.e. the level above which there is area control as opposed to airways. This gets progressively more difficult as one gets down into middle airspace, and the progressive lowering seems likely to come to rest before it gets much below FL 200.

Thus, the airspace in which most gliding is done looks like continuing as a controlled airspace/FIR system with increasing provision of radar advisory service in the FIR. If traffic in the FIR ever gets to levels at which, even with an advisory service, there is too high a collision risk, there will obviously be a demand for increasing co-operation with the radar collision-avoidance system. This could reach the point where all aircraft are required to be in touch with the radar controllers.

Fitting gliders into such a system would be difficult. Problems would be:—

(a) Low echoing area.
(b) Difficult identification problem.
(c) Continuously varying height.
(d) Need for multi-channel radio.

A really cheap transponder would solve a, b and c. A solution to d is already approaching, as radios become both reliable and relatively cheaper.

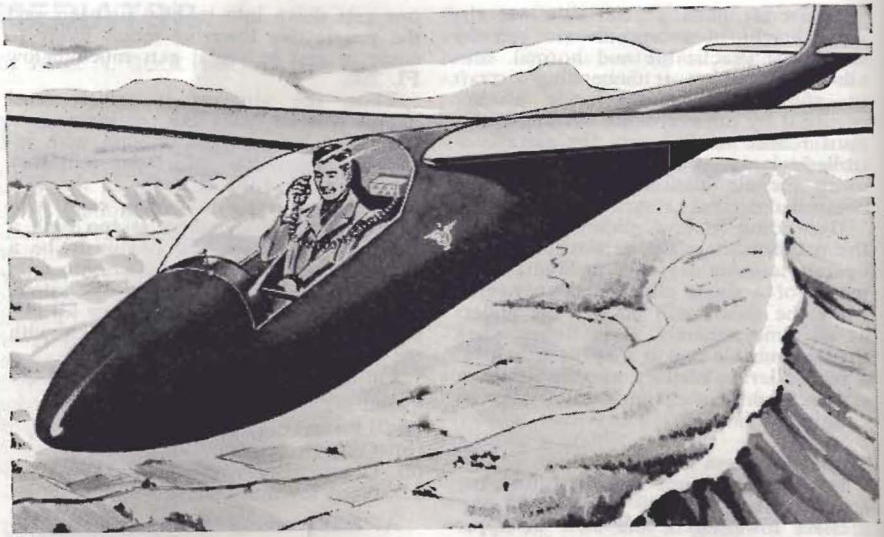

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# GLIDING CERTIFICATES

## DIAMOND HEIGHT

| No. | Name | Club | |
|---|---|---|---|
| 3/98 | J. Rae | SGU | 26.10.69 |
| 3/99 | J. G. Smith | SGU | 1. 3.70 |
| 3/100 | A. R. Milne | SGU | 1. 3.70 |

## GOLD C COMPLETE

| No. | Name | Club | 1969 |
|---|---|---|---|
| 247 | S. G. Davies | Airways | 27.7 |
| 248 | M. Bird | London | 26.5 |
| 249 | R. Bradley | S. Command | 29.12 |
| 250 | P. Pozerskis | Lonon | 19.3.70 |

## GOLD C HEIGHT

| Name | Club | 1969 |
|---|---|---|
| G. H. Crashaw | Yorkshire | 4.7 |
| G. C. Collins | Coventry | 24.10 |
| M. Bird | London | 26.5 |
| R. Bradley | S. Command | 29.12 |
| | | 1970 |
| A. D. Duke | Bristol | 20.2 |
| B. Ward | in France | 24.1 |
| A. M. Bishop | Two Rivers | 3.2 |
| J. A. Stenton | Airways | 1.3 |
| K. McK. Jamieson | SGU | 1.3 |
| J. Henry | SGU | 1.3 |
| G. H. Upson | Bristol | 1.3 |
| S. W. G. Shard | Bicester | 1.3 |
| R. C. M. Collison | Bicester | 6.3 |
| P. Pozerskis | London | 19.3 |

## GOLD C DISTANCE

| Name | Club | 1969 |
|---|---|---|
| S. G. Davies | Airways | 25.7 |
| S. J. Easton | No. 1 GI.C. | 7.6 |

## SILVER C

| No. | Name | Club | |
|---|---|---|---|
| 2568 | R. C. Bull | Lakes | 29.11.69 |
| 2569 | P. J. Harding | Bristol | 29.2.70 |
| 2570 | W. K. Cramer | Kent | 25.3 |
| 2571 | J. R. Boyes | Cotswold | 5.4 |
| 2572 | P. C. Davies | Portsmouth Naval | 27.3 |
| 2573 | N. Wilkins | Heron | 4.4 |
| 2574 | I. W. Pritchard | Four Counties | 5.4 |
| 2575 | J. H. Hunt | Wrekin | 3.4 |
| 2576 | A. K. Bull | Midland | 4.4 |
| 2577 | B. Logan | Humber | 4.4 |
| 2578 | J. D. Walker | Four Counties | 2.4 |
| 2579 | A. R. Levi | Staffordshire | 5.4 |
| 2580 | J. M. Brown | 642 G. S. | 1.3 |
| 2581 | F. W. Sage | Essex | 5.4 |
| 2582 | C. A. Rooke | Fenland | 5.4 |
| 2583 | M. Edwards | East Midland | 17.4 |
| 2584 | P. L. Hatton | Four Counties | 2.4 |
| 2585 | K. V. Payne | Midland | 18.4 |

# CORRESPONDENCE

## SCORING

Dear Sir,

As a non-flying type whose only live contact with gliding is one crowded week of glorious scoring life at the Nationals each year, may I take up the sword for the points system, in view of the latest advocacy of a placing system by Philip Wills and Jack Harrison?

Regarding the amount of computation associated with the score sheet for one day's task, the use of a desk calculator makes the job rapid and accurate (thank you, Broughtons of Bristol for your Busicom). A computer would be better still on these two counts, of course, but speed is not a vital factor: about 75% of the scorer's time is spent marshalling details of landing places, turning point verification, starting and finishing times, etc., and dealing with pilots' queries and complaints. Calculations towards many scores can proceed while late arrivals are awaited, and often the last few can be told their scores as they report in. With a strict deadline for feeding data to a remote computor, a number of items would have to be provisional, and if any were incorrect, the scores of those competitors, and possibly also some or many of the rest, would have to be re-computed.

A scorer operating a placing system would have an invidious job when dealing with say, an uncompleted race with perhaps 20 landings within so many kilometres. The subjective decision as to who had tied with whom would be stoutly challenged by the 'unlucky' ones, since the loss of one place could easily affect the final result.

The application of handicaps to the placing system means that a fair amount of computation would have to be done anyway, and the resulting shuffling of places would largely destroy the possibility of checking the results by direct comparison with actual performance in the task, just as it does in the present points system.

How many other countries have introduced or even tried a placing system—even in a land where Wally walks tall? Maybe we should not be afraid to take a lead, but wouldn't it be good to discuss the principle with CIVV too? And if anyone is willing to run an unofficial placing system scoresheet at Dunstable, I would be

willing to supply him with all necessary data as the Busicom flashes it out.
*Harlech, Merioneth.* ROBIN HARPER

JACK HARRISON WRITES:— I feel that Robin has missed the point. We're not claiming that a Placing System is going to make the scorer's task easier. All we are saying is that pilots, and the public, can understand the concept behind a Placing System, whereas they are baffled by the present points system. If a Placing System happens to make the scorer's life easier—and despite Robin's remarks, I believe it does—then so much the better.

## NATIONALS AT DONCASTER

Dear Sir,

When I heard the venue and date chosen by the BGA for the 1970 Open Class Nationals, I felt so strongly about it that I decided to seek the opinions of all the 160 pilots on the current rating list in the form of a circular. Pilots were asked to state whether or not they considered Doncaster to be a suitable site and whether or not the date was too late in the year. I am sure the pilots who replied and S & G readers will be interested to know the findings of this circular and I give below an analysis of the replies:—

Replies were received from 68 pilots of which 21 were for Doncaster as a Nationals site and 46 against (1 'don't know'). 22 pilots were satisfied with the time of year but 41 pilots were opposed to it (5 'don't knows').

As you will see, a large majority share my views, and although the Executive Council have stood by their original decision, at least a protest has been registered and the pilots themselves have had a chance to put their own views forward. To quote one comment "I think that the choice of National site and time should be dictated only by the consideration of maximising the chance of having a good competition. Other considerations (like supporting an up-and-coming club) are irrelevant".

I personally am going to fly at Doncaster, if I don't get lynched first, and I sin-

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cerely hope that despite all the odds against it, we shall have a successful week's gliding, and let's hope that next year the Nationals site is chosen for flying and not political reasons.

*Thruxton, Hants.* R. JONES

P.S. Apologies to those pilots who did not receive the circular (160 were posted) but some addresses we had were rather sketchy.

## CHAMPIONSHIPS STRUCTURE

*Open letter to Tom Zealley on his article, S & G April-May, p.117.*

Dear Tom,

The article on a future British Nationals Championships Structure by you is full of interest. I am sure you will agree that any such restructuring is bound to be a compromise. The advantages of what is being proposed must outweigh the obvious cracks in the edifice. I, for one, am not entirely sure that they do.

It was a great step forward when the BGA realised that an 80 glider Nationals was no longer practical in the UK. This led the way to the present Sport and Open Classes at separate sites and of equal status. As someone who has competed in the last two Sport Class Championships I am sure all those who took part would agree that both were really very great successes. On both occasions we were lucky with the weather.This produced plenty of challenging tasks and therefore fair competition.

But much more important was that everybody enjoyed themselves. This was because all of us were flying gliders within reach of each other from a performance point of view after handicapping and the average rating of the pilots was at least as good as the Open Class, if not better. This produced a mental and personal satisfaction which contributed greatly to the enjoyment. Although I did not compete in the last two Opens, the same sort of atmosphere was noticeable by its absence when I visited Lasham—and this was no fault of the organisers or the site.

It will be a very great shame if the lessons of one cannot be applied to the other, or alternatively, to leave well alone for a few more years.

May I point out some of the obvious snags?

It is suggested that the top dozen or so pilots should compete against each other so that British Team selection is made more easy. In that case I can see no reason for making both Championships of "equal standing". Clearly the Sport Class would be in the second league. This would inevitably take away some of its enjoyment and would force the best pilots to "go to glass"—if they could afford it. I do not believe this to be in the wider interests of the BGA.

I cannot see the argument against applying handicaps in the proposed Open. However clever the handicappers are, there is bound to be advantage in flying the best—particularly if separated by more than about 5—8% from its nearest rival. The new breed of Open Class gliders is in a race apart from the Standard Class and this includes the latest glass-fibre ships. The only thing that is relevant is that both lots of pilots would fly on the same day. Anybody who thinks that a pilot of a Standard Class glider can be compared with a pilot of an ASW-12 or Sigma, even though they do the same tasks, must be missing something in his logic.

One of the unstated aims of the suggested new structure may be to give a fillip to the new Open Class gliders. It could be argued that handicapping may remove some of the advantages to be gained by buying the latest and best—even though this may be by a factor of two or three in financial terms over the best of the Standard Class. In fact, inclusion of handicapping does give the pilot of a mere Kestrel (or something equally exotic) some chance against Sigmas and the like.

I, for one, will be most sorry to see the Open Class degenerate in the same way as has happened on the Continent. There, genuine Open Class gliders of the new school have become one-off, manufacturers' prestige specials and treated as such. The real fight for places happens in the Standard Class.

I am all for better (fairer?) selection of our team—and writing as a former member perhaps I can speak with some authority. But surely if change is required then one answer should be to put all the "possibles" in Standard Class gliders (all the

latest types have practically identical performances) and let them fight it out. Which of the two competitions the Standard Class should be included in, I do not think matters greatly. It will be much more dependent on the likely numbers of gliders available. But let nobody think that the "other" league is equal. It never can be.

If these proposed changes are made I believe much of the enjoyment and satisfaction of the present Sport Class will also go. We will be left with a two-league competition which three years ago was found wanting. Is not this proposal yet another way of making a change for change's sake?

*Chobham, Surrey.* TONY DEANE-DRUMMOND

TOM ZEALLEY (Chairman, Flying Committee) writes:—I don't want any change for change's sake, but the present structure is being criticised and Tony does so himself. Handicapping could well be applied to the Open and Standard Classes of the Flying Committee's scheme, but then, to avoid too wide a spread of glider performance it would be necessary to specify handicap limits to ensure, more or less, that only the latest "glass" ships were able to enter these two Classes.

We must offer an arena for the display of the latest Open Class exotics. Because they will be few, their class can be flown simultaneously with another class and we propose this should be the latest Standard Class ("glass") ships. As long as the glider performance levels are fixed judiciously, prices being what they are, there will continue to be strong support for the Sport Class. I therefore do not share Tony's fears that the Sport Class will degenerate into a "League 2". British Team selection could well be considered separately.

## THROW OUT THAT CUSHION

Dear Sir,

I read with interest the article "Throw out that Cushion" by C. G. Deland in your Oct.-Nov. 1969 issue, p.417. For some time at the Royal Aircraft Establishment, Farnborough, we have been experimenting with ventile, incompressible cushions which might with advantage be used in gliders.

Briefly, we were looking for a suitable comfort pad for ejection seats which would not increase the likelihood of spinal injury on ejection. Water-filled cushions are an obvious possibility, but these were rejected for several reasons.

It occurred to us that a woven cloth bag of spheroidal particles would act as a high hysteresis or "thick" fluid with the advantage that the cushion would be ventile and permit some escape of perspiration through the interstices of the particles. Also, without compression the "beads" could flow to take up the posterior topography of the user and so avoid areas of very high pressure.

Because of their cheapness and ready availability, various natural seeds were used to explore the effect of particle size and shape. Those used included white millet, peas, tic beans and sunflower seeds. Limited numbers of volunteers, including some wheel-chair users, tried "bead" cushions for three months and a majority (eleven out of sixteen) preferred a "bead" cushion to their normal cushion—the latter usually being foam-filled.

Work on expanded plastics spheroids for lighter weight fillers has led us to propose their development and use in comfort pads in helicopters where large vertical velocities are common in crash landings, the idea being that a thick pad of medium density spheroids of, say, expanded polystyrene would be incompressible under normal sitting loads but could be designed to commence compression at some chosen figure—say 10 *g*—and could have an energy-absorbing stroke of about 80% of cushion thickness before the transmitted *g* rose to an injurious level. This type of rigid foam does not give the—in this case injurious—rebound of normal cushioning foams. A bonus of this type of filler is that the cushion will float indefinitely.

Work continues to try to define the best geometry and construction of such cushions and, should your postbag indicate sufficient interest, I could write further on those aspects which seem most applicable to gliders.

*Human Engineering Division, RAE Farnborough.* C. B. BOLTON

## SOME PUDDING

Dear Sir,

Was there any significance in the fact that Ian Strachan's interesting article (on how to get round a difficult triangle by starting up an engine) was accompanied by a half-page advertisement on the Thomas Organ—"As easy as ABC thanks to colour-Glo: COLOR-GLO THE SYSTEM WHERE THE KEYS LIGHT UP TO SHOW YOU HOW TO PLAY?

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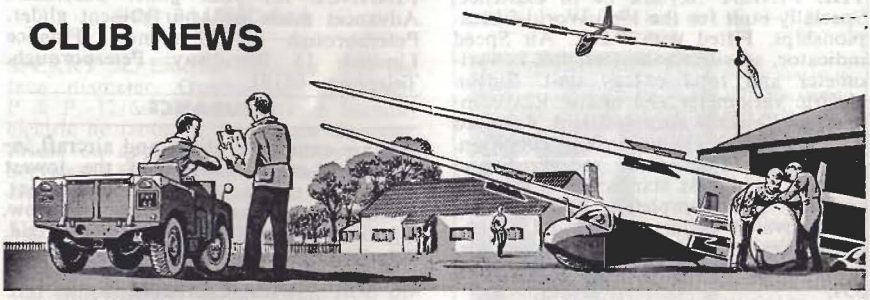
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# CLUB NEWS



SOARING has not really got under way yet with the very late cold spring, although Good Friday seems to have been a fairly good day over most of hte country. Clubs in Yorkshire have been busy, all four report in this issue: the Yorkshire club at Sutton Bank; Ouse at Rufforth and the newly formed clubs Leeds operating from Pocklington, East Yorkshire and the Hambletons from Dishforth.

Copy for the August-September issue, typed double-spaced on foolscap, please, should reach me not later than 10th June, and that for the October-November issue by 12th August. Please send news to me at 11 Great Spilmans, Dulwich, London, SE 22. Tel. 01-693 3033.

*21st April*

YVONNE BONHAM (MRS.)
*Club News Editor.*

## AQUILA

THE settling down period at Enstone is now almost over and we are very happy that we have achieved such friendly and co-operative relations with the Enstone Eagles whose facilities we share. Even the unfriendly weather has now relented and we have been able to experience some of the promised lift—and accompanying sink.

Congratulations are due to Richard Goddon who is the first of the Eagles to obtain his A and B with Aquila; Elizabeth Clarke, who obtained her C and is now convinced that it is more difficult to descend from cloud than to reach it; and Malcolm Lassan who, in an attempt to achieve a Silver distance, managed a flight of 15 miles and a very good gain in height which, we hope, is the first leg of his Silver.

Commiserations to our CFI who underestimated wind and rate of climb (sink?) and, as a result, had to land at Kidlington, thus providing an example of how the most experienced of pilots can get caught out, and allowing us poor members the chance of a supercilious smile or two.

The new canteen/control trailer now being built by the Eagles is almost ready for duty and we look forward to teas and hot snacks at the launch point, also to a comfortable seat and enclosure for the duty pilot.

In general March has been an interesting month, flight times of every combination between 10 minutes of aero-tow to 50 minutes from a winch launch, and good aircraft utilisation promises better flying to come. A.E.C.

## BATH AND WILTS

WE'VE been robbed! While the paint on our new clubhouse was still barely dry some anti-social intruder smashed his way in, kicked a hole in the CFI's office door, and got away with a parachute, a barograph and a large piece of blue carpet of which we had hardly had time to become proud.

The carpet is probably down in the blighter's lounge by now. But may we ask all S & G readers to look out for the other two items. The parachute is a grey Irvin EB62, number A152272. The barograph is a Winter, number 49513. If a furtive chap offers you a bargain in the bar please check the number before you buy.

Our annual dinner at Cheyney Court was a great success with guest of honour Dennis Corrick, Chairman of the Bristol club, presenting our Ladder Trophy to CFI Ron Lynch.

March brought some excellent soaring and a few cloud climbs of the kind that make Silver pilots think Gold height is just possible after all.

The clubhouse has been opened and warmed, enthusiastically if not formally, with an extremely good party.

At present another orgy is under way —the C of A bit. The Skylark 3F and T-21c are done; the Swallow and Bocian follow soon. And one or two syndicate machines are shining and flying again.

R.J.C.

## COTSWOLD

AFTER a long and dreary winter with not much flying, things are at last looking up in the Cotswolds. (Mostly ground-bound members, enviously, at thermalling gliders!)

Soaring has started in earnest, and a second K-7 recently acquired, will improve ab-initio facilities, cross-country flying training and the launch rate.

Congratulations to John Boyes for opening the season with his Silver distance flight, let's hope it is the first of many Silver's, Gold's and—dare we hope —Diamonds!

April has been Club 'Safety Month', with flying, ground and written tests to find the most safety conscious pilot. With the strong winds of the past few weekends, the timing could not have been better! Visits to places of interest and lectures have stimulated everyone's interest and awareness.

With three club two-seaters and two single-seaters we should be able to have 'something for everyone' so come and see us.

G.H.

## COVENTRY

WE have held a second successful exhibition, this time at the Birmingham Bingley Hall, trying to persuade the public to take up gliding.

Our course instructor, Bill May has gained TV fame at last, following a recent visit by the ATV Film crew; he appeared in a short film about the joys and frustrations of gliding, in glorious technicolour for those who can afford it.

Our new CFI, Vic Carr, is advocating a good deal more cross-country flying and has checked out a batch of keen pilots to savour the trials and tribulations of navigation and bumpy fields. With the season starting, everyone is bringing their acquisitions out of hibernation.

We are currently negotiating arrangements with the Midland Aircraft Preservation Society to make their base at Husbands Bosworth. They have quite a collection of historical gliders, so visitors please do not think that it is our new Club fleet!



*Part of the exhibition at Birmingham.*

With safety in mind, it is hoped that we shall be running Parachuting courses for glider pilots in the near future, as this proved to be of great interest and amusement to our members last year.

V.M.

## CUMBERNAULD

THE main feature of interest in the past few weeks has been the progress of our proposed new site at Drymen by Loch Lomond. The last two weekends have been spent by CFI John Henry, in getting our more experienced solo pilots familiarised with the site. What a difference to Cumbernauld! Peter Scott would be in his element as there is an abundance of wild life around Drymen. Also we have marvellous views of Loch Lomond, The Campsie Fells and the Clyde Estuary.

A large hut has been purchased from the GPO at Ayr which is to be erected at Drymen. Great fun was had by all in dismantling it prior to removal to the new site.

While the T-21 is in dock for its C of A, flying is carried out on the Eagle but so far we have had little luck with the weather at weekends.

E.N.D.

## DERBY & LANCS

RECENT weekends have been very changeable; some have been washed out; some snowed out and some clouded out, whilst others have been very good. We have had quite a lot of wave flying; one Saturday found gliders soaring at 3,000 ft. with monotonous regularity, and recently I counted eleven gliders above 2,000 ft. and several Silver heights could be claimed.

Wave and ridge soaring enabled all the members of our first Scouts course this year, which started over Easter, to have more than an hour-and-a-half flying time.

Eric Boyle, our CFI, has now completed 1,000 hours gliding, he also drives a tug and we make the short trek to Doncaster to try our hands at aerotowing. This has become an annual event and later this year we will act as hosts to Doncaster who will invade our ridges.

At our annual Dinner-Dance held some time ago, Roger Neaves, Chairman of the BGA Instructors' Committee and a BEA Vanguard pilot was our Guest speaker. It is encouraging to know that not all airline pilots are against us these days, and we take comfort in the fact that some at least wish us to share the joys of the air. The following day our guest visited us on the field and borrowed the K-13 for a quick circuit.

Some weeks ago about 16 members went over to Manchester to listen to a lecture in 'Gliding—The Years of Progress' by Ann Welch. Her talk was most interesting and we particularly enjoyed her colour slides; some of World Championships and others on National Championships held at Camphill.

P.H.

## DEVON AND SOMERSET

SINCE the last notes there have been fairly heated discussions on the economic policies involved in running gliding clubs in general and this one in particular. Apart from decisions on whether or not to purchase additional club aircraft, it apparently requires the wisdom of Solomon, if the policy is to buy, to decide on the type.

Careful examination of membership statistics is needed in order to assess the probable demand for types under discussion and vociferous minorities must not be allowed unduly to influence final decisions. There is, of course, the overruling question of finance and most clubs seem to be equally divided in policy between the American idea of 'exploiting creditworthiness to the limit' or of consolidation before further commitment. The only certainty is that whatever decision is reached it will not meet with unanimous approval.

We have had some excellent soaring days this year and these have been fully utilised by both club and syndicate aircraft. To the latter fleet of three K-6E's, one Dart 15, one Skylark, one Olympia 2B, one Olympia 463 and an Eagle, has been added a superb specimen of a K-6CR, the instrumentation and cockpit layout of which is guaranteed to make any pilot break the tenth commandment. A cordial invitation is extended to visitors to try our ridge and thermal facilities or just to pass a pleasant hour in our new clubhouse situated in one of Devon's beauty spots.

A.E.R.H.

## ESSEX AND SUFFOLK

DESPITE the non-arrival of spring at the time of writing, the mixture of bright periods and snow showers that we are receiving locally from the North Sea are producing some good thermals. We are not the only ones to enjoy them as shown by the many seagulls circling at a great height.

Our K-7 has now returned from Cambridge complete with new fabric on the fuselage and once again resplendent in white. With a greater number of members now qualified to do cross-countries in the K-6 we are looking forward to a season successful in this respect as it has been somewhat neglected in past years.

Starting on 27th July we shall be flying for three weeks from Ipswich. Any private owners and visitors will be welcome to join in this, which is for us a new venture, as well as at our normal weekend-only flying activities at Whatfield. During this time the club Tiger Moth will be standing by to provide aerotows.

The annual dinner was much enjoyed by those who attended—the venue was much more congenial this year.

M.L.

## HAMBLETONS

OUR first full year produced 4,800 launches which is most encouraging.

After a few relights the club finally got off the ground with a modest fleet of a T-31, T-21 and Olympia 2B. We fly from (and usually back to) Dishforth airfield in the Vale of York.

We have many people to thank for this launch rate but two must be singled out. One is Gerry Kemp who not only flogs us around the airfield from 6.30 am to 10.00 pm on occasions, but spends nearly all his spare time in the workshop doing C's of A and maintenance.

The other is Les Glendenning who seems to live in the hangar—working on the ground equipment when he is not motoring around the country collecting spare parts.

We are greatly indebted to them all, from the instructors borrowed from other clubs, to the wives and girlfriends who make the tea and the members who scrub the hangar floor on the rare occasion when it is not flyable.

Alan Swales is to be congratulated on being the first member to qualify as an instructor since the club was formed. He is also our landing-out specialist.

In 1970 our numbers have been increased by a block membership of 50 Leeds University Students, so we are having to consider increasing our fleet. In the prevailing westerly wind we are nicely situated in the lee of the Pennines. Wave soaring is therefore a favourite pastime of those brave enough to have an aerotow through the rotor. In fact, one or two Gold heights were obtained from here last year, but so far our own members have only managed the Silver.

In the summer a small party took the Olympia to the Mynd to find out what a bungy launch was like. At least one of them found it an exciting experience, and they all enjoyed the ridge soaring. We have also had a few visits from other clubs. Notably a group from Dunstable who were so intoxicated by their wave flights that they accepted a challenge from our bottle walking champion. I believe the 'losers' round' cost them more than their aerotows, so perhaps they will have spent the winter months practising.

D.E.B.

## IMPERIAL COLLEGE

OUR 40th anniversary was heralded by a congratulatory telegram from Australia—not from the Queen, but Paul Minton, our Vice-President. Our celebrations, combined with the BGA were greatly enjoyed, and considerable amusement was caused when the Club Horseshoe (for the biggest bog of the year) was presented along with the other trophies. An educational attraction during the evening was a reaction testing machine supplied by the British School of Motoring. At least one of our members *knows* that alcohol has a disastrous effect on his reaction time!

After much hard work the C of A on our Skylark 4 has been completed in time for Easter, and has already earned one Silver C distance.

Our training is progressing well, with what seems like more new solo pilots than we can count. We were very pleased when Dave Chatterton and John Noble went solo, as both had come to

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PETER JEFFERS BERT PAGE PETER ROSS

us in October as ab-initios. Such rapid training amply demonstrates the effect of combining the motor-glider with conventional training, but also increases the pressure on our single-seaters. The time between Christmas and Easter has been exceptionally frustrating for our early solo pilots since they have not been able to get near a single-seater as the Skylark was at Dunstable and Portmoak before its C of A. This situation was only slightly alleviated when our K-8 arrived because, naturally, all the experienced pilots wanted to try it out.

We have discovered that the easiest way to organise an expedition is to borrow a car and trailer (from two different people) and go. This is approximately how it seemed that our Captain and Equipment Officer found themselves at Poppenhausen to collect our K-8, although a fortnight's activity, collecting all the paperwork had preceded their departure. They arrived back at Lasham five days later, full of tales and starving. A fortnight later it was deemed fit to fly, and Frank Irving had the maiden flight—a small reward for all his work on it.

Although Easter did not produce the best weather for our course, we are still hoping for better luck with the other two, and look forward to a good soaring season with all three of our aircraft in the sky.

C. E. H.

## LEEDS

THE Club was formed about a year ago and after several false starts hope they have at last settled at Pocklington airfield, East Yorkshire. Flying first started at Tholthorpe, near Easingwold but the club had to move owing to the runways being broken up. The next home was Melbourne Airfield but after getting settled in, lines from a new power station being built nearby caused the move to Pocklington, which is situated 12 miles from York on the Hull road. We find this an ideal site. With a fleet of two T-31's, Skylark 2, Tutor and an Eon Baby (the latter on loan), it is hoped to clock up plenty of flying hours this summer, particularly if the auto-tow can be got working. At present winching is from a one-ton truck and an ex-Leeds Transport bus. The Wolds are only about three miles away and should provide some interesting soaring. Under CFI Irving Payne the Club have about 50 members, most of them 'dedicated' who come all weathers. On the few days of no-flying members have been painting the hangar, the old gymnasium, and building the bar which is now open.

J. D.

## LEICESTERSHIRE

IT is some time since a news item was included from the Leicestershire Club, but during our absence we have not been dormant by any means.

We had a very successful summer last year, which produced some very notable achievements, including a joint attempt at a 500 km. flight from Swanton Morley to Perranporth, by our Chairman Frank Crisp, and our CFI Ivan Vesty, unfortunately the task had to be abandoned after 7 hours flying at Taunton due to the deterioration of weather conditions.

Also later on in the year, we invaded Sutton Bank for two weeks, this was a great success and once again proved to be very profitable for those who were able to take advantage of the trip. Several 5 hour flights were achieved, and there was also the added advantage of being able to do some ridge soaring, a facility not available to us at Rearsby.

Of late there have been a few worried looking faces here owing to the uncertainty of the Beagle Works (from whose airfield we fly), but we are hoping that everything will turn out right in the end.

Although the weatherman has not been too kind to us lately we are looking forward to another good soaring season, and also hope that we shall have the pleasure of entertaining any visitors who care to drop in on us.

K. T. R. T.

## LONDON

ONE would expect to be able to report that the soaring season was back in earnest, but up to mid-April nobody had travelled more than 100 km. Stockham collected the Plate from Lasham on Good Friday, an unusually late "first", though we were expecting the Lashamites to turn up the previous

weekend when soaring was quite good with winds from the southwest. Frank Pozerskis has started the season well with a Gold height climb to 15,000 ft. at Portmoak, and has since done two week-end tasks in his Cirrus.

Excessive wet weather has resulted in very muddy ground on the airfield, though the new road and tarmac in the vicinity of the Club buildings has saved us from wallowing in mud indoors—for the first time in the Club's history! Fortunately the ground does dry out rapidly, once we get a spring anticyclone.

The Luton Special Rules Zone and Special Rules Area were effective from April 2nd, and so far this has not proved to be inconvenient. A flashing light on the Clubhouse, operated by Luton ATC, indicates when aircraft are using runway 080 into Luton, at which time we cannot use the area to the south and southeast of the Club. Visiting aircraft should note that these arrangements with Luton only apply to Dunstable based gliders and tugs, and an approach to the Club from the southwest must be made over or to the west of Ivinghoe Beacon to avoid the western end of the Special Rules Area. Flights from Dunstable to the northeast or east must now be carried out via Henlow.

We are currently assessing two tug aircraft, an Aiglet and a Terrier, with a view to hiring them during the summer months. These belong to Paul White, who is available most of the time to do tugging. If we reach a satisfactory agreement we may well reduce our fleet of Tiger Moths to two. Paul was rather fortunate recently when he had a total engine failure at 500 feet with a K-13 on the back, and was able to make it back to the airfield safely.

The opposite sex has struck a severe blow to the Club by carrying off John Argent, who got married in February. We don't begrudge him however, as he has done a great deal for the Club over the years and deserves a change. The three winches he built have been the mainstay of Club launching equipment, and will probably remain so for a long time. Another victim is George Locke, who virtually disappeared for several months, but the lure of a newly acquired syndicate SHK must surely get him back again this summer. M. P. G.

## MIDLAND

WITH westerly winds blowing during most of February flying hours have increased over those done during the previous two months, and most club members have had some good flying. Also several Bronze C legs have been gained on the hill at Cosford, and Gordon Herringshaw went solo.

Lowering cloudbase claimed one victim who had been soaring for 30 min. at hill top height when he finally was forced to land in the bottom field—the first this season. Our Olympia 463 spent one weekend in March at the Wrekin club at Cosford as conditions at the Mynd were not suitable for flying.

During the Easter weekend we clocked up 150 hours, of which 84 hours were done on Easter Sunday by ten gliders. Our bungey has already done 300 launches this year and will soon need to be renewed. One Wrekin club member was aerotowed over from Cosford and deposited on the hill for his five hours and on Monday three more of their members and one of ours completed their Silver duration.

We were pleased to have Frank Irving visit us with his Dart showing some of us how flying should be done on the Mynd. Another new arrival is the Foka which won the World Champs. in 1963.

Two of our Olympia 463s have already gone cross-country. Ken Payne landing 38 miles south of the Mynd, just missing his Silver distance and Keith Bull declared and arrived at Nympsfield on a day which was not particularly good. We hope to do many more cross-country flights in club gliders this year.

P. M. S.

## OUSE

I AM writing these notes on the sun-soaked island of Anguilla, in the blue Caribbean. Plenty of thermals, and sweet breezes! But I wouldn't like to land our Skylark here. The only useful patch of ground free from rocks is the airstrip's runway. And half of this is just a dusty track. To see an RAF Hercules come in and disappear in a cloud of dust is an impressive sight!

But back at Rufforth, before I left for the West Indies via Newfoundland and

Bermuda, the Club was getting into its 1970 soaring season. Cyril Hockley started the ball rolling on the 7th March with a flight of 1 hour 15 min., and a climb to 4,700 ft., in the club Skylark. Gordon Magson, on the same day, flew just over an hour and climbed to 5,000 ft., also in the Skylark.

Although I am loving the sunshine, the tropical fruits, and silvery-sand beaches, fringed with palm trees—and the deep blue sea as warm as milk!—I am aching to get back to Rufforth, to reach *my* 5,000. Since leaving England my best has been seven hours, climbing to 24,000 ft. But that was in an RAF Hercules!

A. H. S.

## OXFORD

OUR nineteenth AGM was held in April for the first time. The operational year will in future terminate in September to ease our Treasurer's burden and give time for the new Committee to regularise new functions before the start of the soaring season.

Members were told that Laurie Wingfield had retired earlier in the year as Secretary and Director of the Oxford Gliding Company Ltd. He joined the Board of Directors in 1939 and was deeply involved with Professor H. H. Price, Ray Stafford Allen and Mrs. Kronfeld in the reformation of the club after the war. Club flying commenced at Kidlington in 1951 with an Eon Primary, Cadet and Olympia and has gained momentum ever since. Members unanimously voted to continue the happy associations with Mr. Wingfield and elected him as Vice-President.

For the first time in its history, the club has voted for a small Executive Committee; seven instead of eleven. Power is given to call certain members in an advisory capacity. It will be interesting to see whether meetings will still take five hours!

Dave Roberts, our CFI, was pleased to present the Simpson Cup to Malcolm Roberts for his momentous struggle round a 200 km. triangle in his K6E, never exceeding 2,000 ft. This is the second time he has won this trophy—where is the spirit of competition, chaps?

C. J. T. J. H.

## SCOTTISH GLIDING UNION

CONSIDERABLE interest is being shown in our Regional Competition in June and we guarantee our Scottish hospitality will make you feel welcome. To enable us to complete the necessary arrangements, we would be grateful if the contest forms could be returned as soon as possible.

We are sorry to lose Roger Constable and Alasdair Milne to Lasham and Booker respectively. Both were presented with "containers" one for holding beer and one for books, as expressions of their friends' esteem. The position of CFI has been filled by Ian Dandie, and Robin Shaw is the new Safety Officer.

The spring wave season started mid-February and continued throughout March and many height claims were submitted. The launches and hours achieved during this period were: Launches by club gliders 1,147 with 552 hours. Launches by club private gliders 175 with 215 hours. Launches by visiting gliders 408 with 775 hours. Arthur Doughty (Thames Valley) flew 36 hours in one week and Chris Wills (Surrey & Hants) 41 hours in ten days. The best waves occurred on Feb. 20th and March 1st, 2nd, 19th and 20th (see Gliding Certificates for these dates, p. 231). During this period we were also visited by five members from the Twentsche Zweefvlieg Club in Holland, one of whom gained one of the four five-hour durations claimed. The complete score so far comprises 4 Diamond heights, 15 Gold heights, 1 Silver height and 4 Silver durations.

P. P.

## SOUTHDOWN

OUR AGM on March 7th was held this year in Selmeston Village Hall as we found the Clubroom rather small last year. The meeting was preceded by a substantial tea provided by Joyce Head and helpers and ended with a raffle in aid of Club funds. Awards presented this year were as follows:—

Distance in club aircraft: Jim Green, Firle to Tangmere, Olympia 460, 37 miles. Height in club aircraft: John Lovell, 4,900 ft. at Firle. Most meritorious Flight: Gordon Newberry for a flight at Sutton Bank.

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After so many non-flying weekends, interspersed by a few mediocre north-westerlies, Good Friday was a cracking day with good northerly winds. Jim Green completed his Silver C with a gain of height of 3,800 ft. Alan Curry attained his Silver height in the syndicate Pirat. The syndicate 460 soared above 5,000 ft., the club K-13 to 4,500 ft., and even the club T-21 reached 4,100 ft.—a truly splendid day.

The Easter members' course had two good and two mediocre days. Chris Hughes returned to us from Bristol and ran the course with Alan Curry. Dorothy Watson went solo, as did Jim Lister, and Don Knight re-soloed and converted to the Swallow in the course of the week. To end the course, our deputy CFI followed Alan Curry's example of Good Friday by landing the T-21 with a pupil at the bottom of the hill, giving course members useful practice in de-rigging and rigging the T-21—even the best of us can be caught out! K. M.

## SOUTH WALES

THE winter has seen the exodus of the club to our new site two miles NE of Usk on part of Lord Raglan's estate. We have already carried out some flying thanks to the Swindon club providing aerotow facilities. Regrettably there was no wave. They form over the site on most days with a westerly component in the wind—up to 25,000 ft. the met. people tell us.

The site has a 950 yards strip running E to W and is suitable for aerotows; it has a stream running alongside which joins the river Usk. The Ross motorway runs past the site so it should be easy to find. Champagne awaits the first visitor to glide in.

By the time this is in print a party will have gone to Shobdon and Portmoak, let's hope the weather will be exciting for them. In the meantime Danny Roberts, our new CFI, will have his hands full handling visiting tug aircraft—we hope! I. H. S.

## STAFFORDSHIRE

MANY readers will have read in the National Press of the mid-air collision between the club's Tiger Moth and a privately owned Olympia 463 in which Ken Sherriff, who was flying the tug, was killed.

Ken joined our club in 1967. He was already a PPL holder and soon began aerotowing. He later took on the job of tug secretary and dealt with the considerable paper work as well as flying duties with the quiet efficiency that was his way.

Ken wasted no time in adapting his ability as a power pilot to the techniques of soaring, starting to instruct in 1968 and gaining his Silver C last year. His enthusiasm for life, for flying, and the good sense and understanding he displayed in the air, also became apparent at committee meetings which he attended in his capacity of Vice-Chairman of the club. Ken's death will leave gaps in club life which will be very hard to fill; but for the privilege of having known him we must be grateful.

To his wife and family we extend our sincerest sympathies.

Our CFI, "Doc" Bradwell, was more fortunate as he baled out, though he cut his arm so seriously that he had to hold the pressure point to stem the bleeding as he parachuted down. We are glad to know that he is now out of hospital and on the road to full recovery. A. J. D.

## SURREY AND HANTS

LASHAM is running a series of week-end competitions this year and the first day was Sunday, 5th April. A 100-km triangle, Stockbridge, Hungerford, Lasham was set and the weather lasted until mid-afternoon so most of the eleven contenders completed the course. Anne Burns won in her Cirrus at 60 km/h. with Wally Kahn second at 58 km/h.

The 19th April saw a similar sort of triangle; this time 119 km. Ramsbury, Middle Wallop, Lasham. Of the ten pilots taking part only three completed with Wally Kahn in first place with a handsome margin, followed by Ben Watson and Paul Thompson. The rest either abandoned the task or landed out.

More changes have occurred in our fleet. We have sold Skylark 3 No. 160; Skylark 4 No. 103 and Dart 17R No. 329. A new Phoebus 17 No. 266 has just joined the fleet.

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Our cross-country season has started rather tentatively with some out-and-returns of about 250 km. in the first few days of April, but the spring north-westerlies have produced more snow than thermals so far. At present, mid-April, there is only just a hint of plant life or any of the usual spring artistry in our bit of the countryside.

Surrey & Hants has done well in the annual pot collecting and five of the seven BGA Cups and Trophies awarded this year were won by Surrey Club pilots.

Three members took a Skylark 4 to Portmoak for a week in March. A Gold height and one field landing occurred during the 47 hrs. 52 mins. that it flew from 27 launches—we will hit a bad week one year! C. L.

## WORCESTERSHIRE

ALTHOUGH regular readers of S & G have not heard from us for some time we have by no means been standing still. The Club has been quietly consolidating with an increase of members and gliders. To cope with these increases we have enlarged our operating areas at both ends of the runway and with our self-made road for the tractor now well established, we have continued flying throughout the winter, thus proving that the time and money spent on the road was a good invesment last year; this year's improvement being the laying of a Tarmac floor in the hangar.

1968-69 was a comparable year with the previous year, hours flown being up by 150. There was one day when thermals must have even been rising from our icecream parlour, because no less than five lads did their 5 hour legs over our site. It was a sight for 'soar' eyes. As the season wore on, many Silver and Bronze C's were completed.

We recently had a film evening—the star attraction being a gliding film made on the site with CFI Bob Baker in the lead part. Cameraman Harry Griffiths is to be congratulated on a fine production.

The annual dinner was again a great success, our guest of honour being Lt. Col. Naomi Christy. During the evening the club awards were made to Jim Tyler for the best gain of height (6,000 ft.); CFI Bob Baker and his wife Olga for their cross-country flight to Bath in the Blanik. While Andy Coffee won the award for the best all rounder. Our new club magazine "Cloud base" appears to have been given an enthusiastic reception by the members and we look forward to the next issue.

Bickmarsh appears to be a hive of activity with preparations well advanced for the task week in June against the Cotswold Club, and we will be striving for a win this year. We have replaced our old Auster with another Auster and a Terrier which should help aero-towing throughout the season.

We are to take delivery of a K-8 in June which no doubt will increase our soaring hours further.

R. B. & J. M.

## YORKSHIRE

PAST visitors to Sutton Bank, on re-visiting us this coming summer, may wonder if they've arrived at the same place.

We are in the process of being re-juvenated. The old blister hangar has

gone. The caravans have been moved to a different part of the site, which is soon to be surrounded by a screen of trees, and a new glider rigging area and glider park are now under construction. We will soon also have a new car park and all this should be completed by July.

Parts of the long runway have been ploughed up and re-seeded and, in addition we now have water mains and electricity, a big improvement on the 'old days'.

It has been said that when the trenches were being dug for the electricity, the ancient relics found were part of an early Roman Gliding Club, but no official confirmation of this has been forthcoming.

The winter has almost passed, but certainly not unnoticed. Even at Easter, we had snow on the ground each morning for two weeks, and on Easter Tuesday, the Club was actually completely snowed up for a day.

But flying has still gone on and to the Club fleet has now been added a K-7, to replace our faithful old Eagle, and we plan to replace the T-21 with another K-7, later in the year. We also hope to acquire a Scheibe Falke soon.

For the coming season we have the services of John Allerton as assistant CFI. He has a Gold C, Full Rating and PPL, so will be a great support to Henry Doktor, in the coming months.

The Annual Dinner Dance, at the Merchant Taylors Hall in York was even more of a success than usual.

Fred Knipe's 15,900 ft. won him the Cup for best gain of height, Lewis Ash gained the distance award, and the Novices award was taken by Laurence Walker, who only started gliding in March 1969 and who has already gained one leg of his Silver C.

These awards were presented by the Guest of Honour, National Champion, George Burton, who is also the Managing Director of Slingsby Sailplanes.

P. M.


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# SERVICE NEWS

## BICESTER

A SIGN that conditions are improving is that the number of hours flown in March (455) was almost twice the number as that for February, while days flown in each month were the same.

Certificates obtained during these months included 5 Bronze legs, 1 Silver distance and 3 Gold heights. The first Silver of the season went to Norman Crow for a cross-country flight to Lasham. A wave expedition to Portmoak produced 3 Gold heights in the syndicate Dart. However, it was not necessary to go all the way to Scotland merely to fly in wave. Weak wave conditions prevailed at Bicester on several days and helped at least one pilot to a Bronze leg.

The BGA annual Dinner-Dance was attended by a dozen or so centre members. Everyone had a good time, especially Andy, who was a great success as auctioneer. Although the object of the auction was to raise more money for

Marfa, he admitted that his enthusiasm was mainly due to a secret ambition to try his hand at "calling the bids".

Official photographs of our World Championships Team and aircraft were taken at Bicester in March, to appear later in a well known colour supplement. Con Greaves has since made a liaison visit to Texas to make arrangements for the Team for the competition itself.

Centre courses continue with good support, the most successful being the recent Instructors Course completed by fourteen pilots. J. H. G.

## EAST MIDLANDS

THE first big event this year was our expedition to the Welsh hills near Shobdon. We took three gliders for two weeks and succeeded in both flying well over 100 hours and in gaining a couple of Gold C heights. The cross-country mileage flown was also quite impressive.

Back at Swinderby operations continue as usual except that we now have an Auster for aerotowing. This has made a significant improvement to our soaring and is probably the most important development the club has yet seen. However we still offer both winch and auto-launching for those who feel inclined.

For the information of visiting and passing gliders we now have a base radio on 129.9 MHz and 130.4 MHz. Radio or no radio, visitors are always welcome.

J. D.

## FOUR COUNTIES

GOOD Friday heralded the start of our first task/training week this year, everybody being aroused by an unusually wide awake CFI at around 7.15 am. The first launch was made at 8.20 which set the seal for the rest of the week.

Rather predictably bad weather harried us the whole time but only gave us one completely unflyable day. Jerry Walker and Ian Pritchard both completed their Silver C's with distance flights.

Statistics, excluding conversions, for the week were as follows:—

Hours flown: 118.58. Total Launches: 585. Cross-Country Miles: 272. First solos: 4.

Congratulations also to Trev Gorely who took the K-6CR to Sutton Bank and gained his 5 hour duration which completed his Silver C. Meanwhile back on the site Rick Mallory, from the States, has just soloed to bring our total first solos this year to 9. D. F. B.

## CRUSADERS

### Dhekelia, Cyprus

OUR AGM was held recently in a mood of great optimism. CFI George Ross, and Air Engineer Chris Waller sounded notes of caution and hard work to lead to a high utilization of our equipment through skill and efficiency. Treasurer Gordon Camp thoroughly explained the accounts and then put the case of generally increased costs and the recent heavy overhaul expenditure for an increase of £2 to the annual subscription. Chairman Ivor Orrey announced that the next AGM would be 9 months hence, in November 1970, immediately at the end of the RAF financial and the BGA flying years.

After the chat we saw the CFE film "Spinning Modern Aircraft" which was mentioned in S & G last year. George Ross followed this with a talk on spinning gliders—then members enjoyed a social gathering.

The exigencies of the Service caused Easter to be a frustrating dead loss to us: the local sport parachuting club wishing to drop all over us—they are strangely reluctant to keep out of the way: and our timber still hasn't arrived from the UK . . . M. I. O.

## PHOENIX

### (RAF Brüggen Germany)

A MORE appropriate heading would be Phoenix Gliding Club, of no fixed address. To say that we have been operating (and will continue to do so) under great difficulties is something of an understatement. The biggest problem is accommodation, in fact for the months of June, July, and August we shall be flying on a temporary basis from RAF Wildenrath as Brüggen will not be available to us for that period. However, gliding wouldn't be quite the same if it was all too easy, so we won't grumble too much.

The club's survival during the past few




months has been due, to a large extent, to the efforts of Jim Pignot, who is on a very welcome detachment from Fenlands. If club members were transferred between clubs in the same way as soccer stars, then Jim would command a very high price indeed. He has put a splendid canopy on our "barge", and has been busy on all our other aircraft to see that we have a first class fleet for the coming season. It must be stressed that he will not be here to benefit from his work in the soaring season as he returns home in May. Phoenix owes a debt of gratitude to Jim for all his work on behalf of the club.

Soaring got under way at the tail end of February, and Roger Hodgson ran an ab-initio course in March, at Geilenkirchen, by kind permission of the German civil gliding club there, and of the Ministry of Defence, Bonn. The course was highly successful, the results: 7 students, 7 A and B certificates, and most important, swinging Anglo-German relations.

We are still trying to forget Easter, which probably affected most clubs in the same way. Snow every day, and winds of 30 kts. or more!

Our new Tost winch, after one or two teething troubles, is now functioning very smoothly and will show its worth as the year goes on. For this magnificent machine we owe thanks to Jimmy Bawden, who has worked extremely hard behind the scenes putting the ground equipment in order. We are pleased to report that Jimmy has been processed through the mill at Bicester and is now one of the instructional staff.

The Tost winch is a fully automatic model, so to match it we felt the need for an automatic tow-car. The club has therefore taken delivery of a Daimler 3.8 automatic for retrieve purposes, and now boasts the cushiest limousine in the gliding world, walnut facia, leather upholstery, the lot! The bodywork externally is admittedly a bit tatty, but the interior is magnificent. R. M. W.

## TWO RIVERS
## (RAF Laarbruch)

ALTHOUGH our launch rate through the winter months was not as good as we would have liked, things are now starting to improve. The first new solo pilots of the year are Larry Ketelhut and Al Monk, and our first C was gained by Gerry Hassett who managed to stay airborne for seventeen minutes.

The expedition to Issoire turned out to be a success in all ways. Leigh Hood and Mick Slater managed to take the K7 up to 27,600 ft. on one of the better wave days of which there were at least seven out of the sixteen days of the expedition) and are in the process of claiming the British National two-seater Gain of Height Record. Alan Bishop climbed to 17,700 ft. and claimed a Gold height, Mick Slater to 12.000 ft. and a 4.000 foot aerotow to claim his Silver height.

During the Easter holiday we had a small club meet, with pilots joining from the local German and Dutch clubs, and following this an ab-initio/soaring fortnight at Wesel airfield in Germany.

At present we have a T-21, two Swallows, a K-13 and K-6CR plus our three privately owned aircraft a Libelle, Fauvel. and a Delphin. The K-7 has just finished being resprayed and the oxygen equipment removed and should be flying again soon. Last but not least we have our Skylark 2 in the workshops on its major.

During the season we plan to operate three cables and the Auster for aerotowing. Already we have managed 134 launches in one day using this system. The first launch being at ten o'clock and the last at seven o'clock, and using the Auster for two and a half hours.

We welcome Dennis Wales back as our bar and social member.

ANON.

# OVERSEAS NEWS




We should be pleased to receive news for this section from every country in the world where soaring is done.—A. E. SLATER, *Overseas News Editor.*

## ARGENTINA

CHAMPIONS.—A list of national Champions for the past 15 years, 1955-69, shows that Rolf Hossinger has held the position 5 times (starting 1959, the year before he became World Champion), Alberto Araoz, Rainer Bocksch and Rogello Berretta twice each, and Schwartz, Penna, Urbancic and Picchio once each. Roberto Rizzi won the 1970 contest (as reported in the last issue).

*Aviacion*

## AUSTRALIA

LONG Tow.—A tow of 1,622 n.m. (1,865 statute miles or 3,006 km.) was made from Colac in Victoria (SW of Melbourne) to Pearce airfield at Perth on the west coast of Australia, to deliver a Blanik at the latter place in time for a week-end display and an instruction course. Bill Riley flew the "Lake" tug, with a range of something over 200 miles, and Val Carson took turns with Bob Rowe, whom they picked up at Waikerie, at flying the Blanik, except occasionally when they flew it two-up. They made 10 stops for refuelling on the way, including two overnight stops, and reached their destination at 3.08 pm on the third day.

They reached Cedune, on the coast in the middle of the Australian Bight, nearly half-way, with five minutes of twilight to spare. But they only made 467 miles on the second day, having to wait for a thundery front to move away north-east. Petrol was commercially available at every stop but one, where they had to get some from the store of the Flying Doctor service at Cook on the transcontinental railway.

They took emergency rations, 4 gallon jars of water, a VHF emergency beacon, and a first-aid kit. As an extra precaution against forced landings far from civilisation, they were particularly careful not to overstrain the tow-rope, for fear of weakening it. As Val Carson wrote:—

"The rope would not fail unless wrenched through poor station-keeping. There is a certain amount of skill and co-operation between tug-pilot and glider pilot needed to ensure this does not happen. For my part this means constant concentration and anticipation at the expense of admiring the countryside, map-reading or any other diversion, for more than a second or two."

The towing technique was to climb slowly at 70 knots in the low-tow position to above the inversion, then to fly at 85-95 knots IAS till 20 miles short of the destination, then descend at 200 feet a minute at the same speed unless it was turbulent, when they would slow down to 80 knots.

Total flying time (except when circuiting) was 21 hrs. 23 mins., average ground speed 76 knots, and fuel used, 210 gallons. *Australian Gliding*

## AUSTRIA

DECENTRALIZED CONTEST 1969.—Points are stated to be given for the three best flights of the year, but the list shows only 1 or 2 flights as having

been evaluated. In a list of 127 competitors, Leopold Leitner is the winner with 795 points and two flights totalling 638 km. In a Junior Class of 24, Franz Achatz of Grimming wins with 758 points and two flights totalling 599 km.

HANS WOLF, who has led the Austrian international team four times, including 1954 at Camphill, is 60 years old, having been born in London on 20th March, 1910. He is now honorary president of the Salzburg section of the Austrian Aero Club. *Austroflug*

## DENMARK

GESTEN is a new gliding centre established in conjunction with Kolding Flying Club, situated 15 km. south of Vandel and 25 km. from Kolding, at 55° 33′ N., 09° 11′ E. The runway, 280°/100°, is 100 m. wide with a length given as 700 m. in the text but 1,100 m. on the map. The fleet consists of a K-7 and two K-8, with a private K-6 and Mucha Standard. The Cadillac winch has a 340-hp. motor with automatic gear.

DANISH NATIONALS.—The Open Class Championships are from 30th May to 7th June and the Club Class from 11th to 17th July, both at Arnborg.

*Flyv*

## EAST GERMANY

IN LILIENTHAL'S MEMORY.—The inhabitants of Stölln, in the Rathenow district, stimulated by people from the local flying field and helped by two artists, have put up a sort of combined restaurant, bar and museum, dedicated to "the first flyer, Otto Lilienthal". A wind band performed at the opening and the hunting fraternity collected a wild pig for the kitchen department. Photocopies and models illustrating Lilienthal's pioneer activities hang round the walls.

DECENTRALIZED CONTEST 1970.—Points will be awarded for the three best flights, done on different days, during the period 15th March to 31st August, in each of two classes in both an Individual and a Team contest (three pilots from the same district make a Team). The two classes are: (1) unrestricted by aircraft performance; and (2) aircraft with a gliding angle of 1 in 32 or worse. Flights can be Triangle, Goal-and-Return, or Goal Flight, all of at least 100 km., or Free Distance of at least 200 km.

Open Contests are being held at Taucha in May and at Klix from 24th May to 6th June.

*Flieger Revue* (formerly *Aerosport*)

## FINLAND

NORDIC RALLY.—This event, with entries from North European countries, will be held this year at Nummala, near Helsingfors, Finland, from 20th to 28th June, together with the Finnish national rally, which will be handicapped on the BGA system.

*Flyv*

## FRANCE

COMING EVENTS.—The 5th International Mountain Soaring Championship is at Vinon from 30th June to 11th July. For the first time there will be two Classes: Open and Standard. If sufficient two-seaters turn up, there will be a Class for them too. The maximum number of competitors is 40. Latest date for entry is 1st June; entry fee 250 F. Apply to Association Aéronautique Verdon-Alpilles, 19 Route Nationale de St-Antoine—13—Marseille (15e).

Huit Jours d'Angers is from 13th to 25th July.

STATISTICS FOR 1969.—Exclusive of the National Centres and Military gliding sections, there were 149,824 flying hours (22% above the previous year) from 283,363 tows and 3,212 winch launches.

Apart from the National Centres, there were 949 gliders. The proportion of "recent" types has risen to 67% from 41% in 1966.

## ITALY

AN invitation to a British pilot to take part in the Italian National Gliding Championships, to be held at Rieti from 2nd to 12th August has been received from the Italian Aero Club. The pilot should have at least a Silver C and 300 hours' flying. Applications for entry should be received by 20th July and should be made through the BGA, who will give further particulars.

## RHODESIA

THE Rhodesian Department of Civil Aviation advises that holders of Silver C or higher gliding qualifications will be required to meet the following requirements for the grant of a private pilot's licence.

They must pass the private pilot medical examination, pass the private pilot aviation law and navigation and meteorology examinations, and produce satisfactory evidence of not less than 20 hours' flying experience as the pilot of a powered aircraft, subject to the same conditions as power-only candidates.

They must also pass a general flight test with a departmental examiner "in the course of which the applicant will be required to demonstrate his competency to carry out normal and emergency manoeuvres on the aeroplane to which the application relates".

*Wings over Africa*

## SWEDEN

STATISTICS have now been compiled for Swedish gliding during 1969. Total gliding time for all clubs was 29,900 hours and the number of flights 63,300. There were 621 C certificates completed, 43 Silver C's and 16 Gold C's. In addition there were 3 Diamond C's. 240 gliders are on the register. Of these 121 are two-seaters (119 of which are Bergfalkes, the standard type used for training).

**National Championships**

These were held at Oerebro in June and were favoured with quite good weather. Winner was Göran Andersson (Phoebus) with Göran Ax (also Phoebus) as runner-up and Sture Rodling in 3rd place (Std. Libelle). The sixth competition day offered some very good weather. The task was free distance over two dog-legs through a turning-point. Considering the fact that the pilots had cross or head wind for the whole flight, the result was very good indeed. No less than 19 pilots exceeded 500 km. The winner (Silesmo) flew 645 km.

An outstanding altitude flight was made on 23rd August by Bert Persson of the Arboga Gliding Club. Using a Mucha Standard, he reached a maximum height in a cumulonimbus of approx. 32,000 ft. (9,660 metres) with a gain of app. 9,200 metres. This beats the record of Per-Axel Person from 1947 (gain 8,070 m.) which was for many years also a World Record. Bert Persson emigrated to Australia later in 1969 and, shortly after arrival, promptly set up a new Australian record with a climb in a cunimb to 34,000 ft. in a Blanik. This is approximately 10,500 metres and comfortably beats the previous record of approx. 7,000 metres. Bert thinks he will lose a little of the height recorded as the needle went over the edge of the barograph paper. He is already holder of 6 Australian records, among which are a two-seater Goal Flight (450 km.) and a two-seater Out-and-Return (510 km.). It should be noted that, during the above-mentioned altitude flight, Bert started his climb from as low as 200 metres, so the gain should be quite impressive.

B. MICRANDER

## SWITZERLAND

WAVE WEEKEND.—During an exceptional development of Föhn waves over the weekend 10th-11th January, five Height Diamonds and one Gold C Height were achieved by members of the Arosa and Lägern Clubs; and Fritz Blatter (Arosa), who already had his Height Diamond, climbed to 10,200 metres a.s.l. (33,464 ft.) in a Diamant, achieving a climb rate of 43 km/h. (23.2 knots) between 4,000 and 8,000 m. Pilots released at 800-1,000 metres a.s.l.

Launches were from Bad Ragaz, and Height gains for badges were 3,800, 5,540 and again 5,540 m. by Lägern pilots in a Ka-6, and three other Arosa pilots climbed 5,685 m. (Mucha), 7,745 m. (Diamant) and 8,470 m. (27,780 ft., in a Ka-6). One pilot, in a single flight, qualified for Silver C Distance as well as Gold and Diamond Heights.

SILVER, GOLD & DIAMOND.—During 1969, 8 Height Diamonds and 27 for Goal Flights were earned in Switzerland, but no Distance Diamonds, so the total number of Three-Diamond pilots remains stationary at 14. New Gold C badges were 14, and Silver C 59, bringing the Swiss totals to 178 and 1,186 respectively.

*Aero Revue*

## WEST GERMANY

MOTOR GLIDER RALLY.—For the first time this event will be officially recognized as a Competition. It will be held from 6th to 14th June at Burg Feuerstein.

There will be two classes: (1) single-seaters, and two-seaters flown solo; (2) two-seaters flown two-up. Tasks will be: Goal Flights, Triangles and Goal-and-Returns. *Aerokurier*


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## INDEX TO ADVERTISERS


| | |
|---|---|
| Air Touring Shops Ltd. | 209 |
| Ball Engineering Company | 194 |
| Beaumont Aviation Literature | 181 |
| BOAC | Inside Front Cover |
| Bristol Gliding Club | 256 |
| British Gliding Association | 217 |
| Burghley Finance Co. Ltd. | 205 |
| Cambridge Sailplanes | 198 |
| Classifieds | 235-237 |
| Peter Clifford Aviation Ltd. | 182 |
| Cobb-Slater Instrument Co. Ltd. | 196 |
| Conder Group Services Ltd. | 212 |
| Cornish Gliding Club | 255 |
| Crossfell Variometers | 200 |
| Crystal Engineering Ltd. | 242 |
| Derbyshire & Lancashire Gliding Club | 255 |
| Doncaster Sailplane Services | 186 |
| Dorset Gliding Club | 180 |
| Gliderwork | 251 |
| J. Hulme | 205 |
| Irving Air Chute of Great Britain Ltd. | 192 |
| Kaye & Ward | 204 |
| Kent Gliding Club | 256 |
| Kodak Ltd. | 178 |
| Lasham Gliding Society | 255 |
| Victor Laurence (Merchants) Ltd. | 236 |
| London Gliding Club | 255 |
| London Sailplanes Ltd. | 249 |
| Midland Gliding Club | 236 |
| Norco Aviation Ltd. | 246 |
| Oliver & Boyd Ltd. | 232 |
| Pye Telecommunications Ltd. | 230 |
| RAF Recruiting | 226 |
| RFD—GQ Ltd. | 210 |
| Sailplane & Engineering Services | 227 |
| Alexander Schleicher Segelflugzeugbau | 201 |
| Scottish Gliding Union | Inside Back Cover |
| Slingsby Sailplanes Ltd. | 224, 229 |
| Soaring Society of America | 206, 227 |
| Soaring Symposia | 217, 237 |
| Southdown Aero Services Ltd. | 180 |
| Southern Sailplanes | 246 |
| Speedwell Sailplanes | 242 |
| Stockton Partners | 194 |
| G. E. Storey & Co. | 236 |
| Tarpaulin & Tent Mfg. Ltd. | 236 |
| Thames Valley Gliding Club | 256 |
| Thorpe Aviation Ltd. | 220 |
| Three Counties Aero Club Ltd. | 198 |
| Torva Ltd. | Back Cover |
| Waikerie Gliding Club Inc. | 189 |
| West Wales Gliding Association | Inside Back Cover |
| Worcester Gliding Club | Inside Back Cover |
| Wycombe Gliding Club | Inside Back Cover |
| Yorkshire Gliding Club | Inside Back Cover |



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Aimed at Bronze C pilots and better to provide an organised week of cross country flying at Britains most fabulous hill site.

**30th AUG. — 5th SEPT.**

*FURTHER DETAILS*

THE SECRETARY, YORKSHIRE GLIDING CLUB, SUTTON BANK, THIRSK, YORKS.

# TORVA "Clubman" Multi Purpose Trailer

for your

Powered Sailplane

One-Seat Sailplane  Two-Seat Sailplane




DUST AND HEAT SHIELD

LOW LOADING HEIGHT

INDEPENDENT RUBBER SUSPENSION

CORNER LASHING POINT

JOCKEY WHEEL

STEEL LIGHTWEIGHT 'SEE THRU' FRAME

DRIP DRY FLOOR

DETACHABLE TAILBOARD

Photo shows one supplied to British Gliding Association

**TORVA Ltd., Pavilion Square, Scarborough**