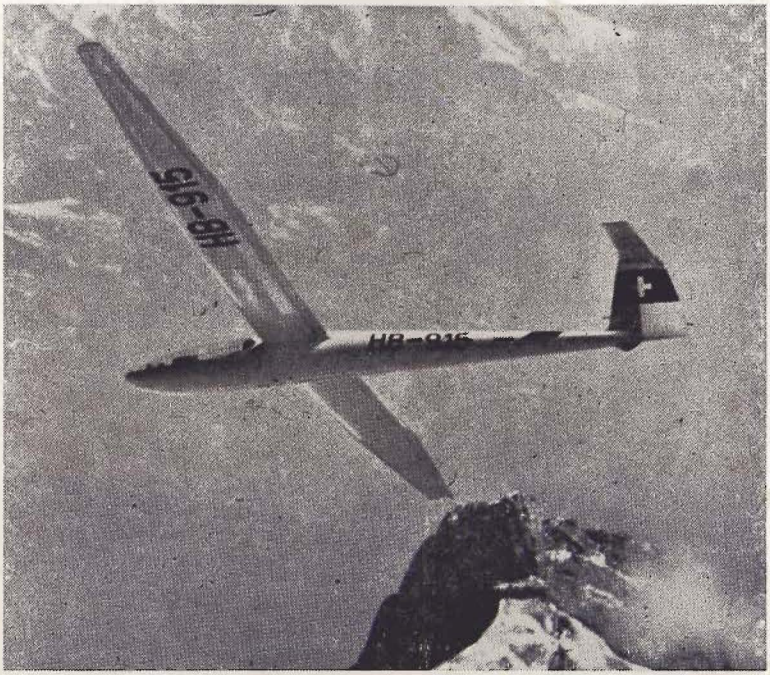
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Cover Photograph: After 15 years of continuous towing from the Salisbury Club, Rhodesia, this Tiger Moth, flown here by John Colban, was sold to South Africa some time ago.

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CHAIRMAN'S REPORT ON 1969

SOMETIMES a Chairman is the sort of chap who runs the show, dashing about and doing everything, full of energy and dynamism.

Sometimes a Chairman just takes the Chair (which enables him to talk more than anyone else on subjects he probably understands less than anyone else) and hopes that everyone thinks he is, behind the scenes, the first kind of Chairman. I am the second kind of Chairman. The only difference in my case is that I readily concede to the Vice-Chairman and the Treasurer and the Committee Chairmen and Members and the Secretariat, and in particular our wonderful General Secretary, Inge Deen, that it is they who do all the work and who keep the Association going.

During the last year, I am glad to report, they have been doing this very well and efficiently, and the result has been a very successful year for the Association, as you will see from the details which follow under the separate headings.

1969 has been the year in which the structure of the Association was reorganised so as to cope with the very considerable expansion in the sport during the last five years. An Executive Committee was elected so as to deal with the day-to-day business more expeditiously, and the Terms of Reference of some of the committees were revised.

Air Space remains one of the most important of the Association's concerns, for it is continually under threat of being whittled away. During the year the BGA and the London Gliding Club have been fighting to preserve our rights to fly at Dunstable in face of heavy pressure from Luton Airport and its Special Rules Zone.

From the gliding point of view, London Airport 3 must be at Foulness (though it is a poor lookout for the Brent Geese), and the Association has said so.

After seven years as Chairman of the Airspace Committee, Nick Goodhart has handed over to Tony Deane-Drummond. Our interests will still therefore be represented with force and distinction. Our thanks are due to Nick for the battles he has so successfully fought on our behalf, and we wish good luck to Tony.

A word about our Technical Committee : its preoccupation is with high standards —standards of design and maintenance, standards of safety, standards of perfection. Maintaining such standards is not always popular, but under the ever watchful eye of its Chairman, Frank Irving, the Technical Committee of the BGA has set standards of excellence which are the envy of the gliding world, and has thereby rendered a great service to gliding all over the world.

There is good news on the motor glider front. Largely due to a combination of determination and diplomacy on the part of Ann Welch—the Chairman of our Motor Glider Committee—the Board of Trade has agreed that motor gliders will be classed as aeroplanes (self-launching Motor Gliders), thereby reducing a vast amount of potential red tape. The Association's Capstan trainer is being replaced by a SF-25B Falke motor glider, which will be in the hands of the new National Coach, Bill Scull.

The Development Committee, under the indefatigable Chairmanship of Joan Cloke, and with the help of our newly-appointed Development Officer, Naomi Christy, has drafted a Five-Year Plan for British gliding which will be put before the Annual General Meeting on 21st March 1970 and this, we believe, will enable Her Majesty's Government to give a good deal more support to gliding than has been forthcoming in the past. Looking ahead is a useful exercise in any field of human endeavour, and in a sport like ours, which calls for so much individual

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initiative and independence in the air, it is perhaps an essential discipline to plan our organisation and development on the ground well into the future.

In that connection I am happy to report a wonderfully generous gesture by our President, Philip Wills, who offered a donation of £3,260 as the basis of a fund to enable clubs to acquire sites or buildings, or for short-term financial assistance in exceptional circumstances. His gift was on condition that the Association would set aside an equivalent amount for the same purpose. Your Executive Committee, believing that a fund for this purpose is vital to the continued future for British gliding, accepted the offer and its condition with alacrity. The present amount of the fund is shown on the accompanying balance sheet.* You will see that it takes the form of a special reserve fund, which is in itself a part of the Association's general funds. The reasons for constituting the fund in such a way are twofold. First, gliding, like other sports, cannot be the object of a charitable trust, and since your Association does not have power to transfer funds to a non-charitable trust, a special trust fund could not be established. Second, the administration of the fund can be rather more flexibly handled by allowing it to form part of the Association's general funds, rather than through an entirely separate trust. Our President has accepted the situation and is content to rely on the good faith of the Association that the fund will not be used (except in the case of some entirely unexpected situation) for any purpose other than those for which he intended his original gift.

The fund has currently been invested and will begin to be available for use from 1st September 1970. Detailed rules for the management of the reserve fund are being drawn up and a specific sub-committee for its administration is being established. Any clubs interested in availing themselves of the services of the fund should meanwhile contact the Association's Treasurer.

Finally, I should mention that the fund is by no means closed and additions to it will be accepted from anyone who wishes to provide money for the same general objects.

The detailed activities of the various committees follow,* bearing out, in my submission, my earlier statement that 1969 has been a successful year for the British Gliding Association.

It is with great regret that I find myself unable to be a candidate for re-election to the Chairmanship; largely because of European Conservation Year, my heavy commitments on problems of natural environment, pollution and the conservation of wildlife.

I have greatly enjoyed my two-year stint as your Chairman and wish all success to my successor and all prosperity to the Association in the future. **P. M. Scott**

* Included in Annual Reports circulated at the Annual General Meeting.

MODERN AIRFOIL SECTIONS AND FLYING TECHNIQUES

By JOHN GIBSON

THIS article is the result of a question from a reader about the characteristics of modern airfoil sections, how flying techniques are affected, and in particular why the centre of gravity should have assumed such critical importance on the Libelle.

I have no access to information which is normally known only to the manufacturers to allow direct answers. However, it is possible to draw some general conclusions from published data and from normal design considerations. A wing section affects the behaviour of a glider through its drag, lift and stalling characteristics. The difference between the older sections and the new ones can be assessed in terms of these three.

Drag

All wing sections have some laminar flow boundary layer over them at glider sizes and speeds. This is the thin layer of air between the "stationary" wing surface and the freely flowing airstream which causes skin friction drag. A smooth laminar boundary layer has far less drag than a rough and disorderly turbulent one. The distinguishing feature of a so-called laminar flow section is that it has been especially designed to extend the amount of laminar flow over it as far as possible.

The NACA laminar flow sections were developed for military aircraft during the war, but do not appear to have been used on gliders until the 1950s. They achieved low drag over a wide range of lift coefficients with the characteristic "drag bucket" shape of lift/drag coefficient plot as seen in Fig. 1.

Dr. Eppler and Dr. Wortmann, using new calculation methods, started to develop sections with better drag figures in the 1960s, and their sections are now almost invariably used. Because these have higher maximum lift coefficients and lower drag at high lift coefficients than the NACA series, a higher wing loading can be used to improve high speed performance without incurring a penalty at thermalling speeds, and higher L/D ratios are achieved. A typical drag polar is shown in Fig. 1 (actually Wortmann type, as I have no recent data on Eppler sections). Better surface finish and more attention to fuselage drag have also contributed as much to improved performance, of course.

The drag of a laminar section usually increases markedly at the ends of the bucket, so that, particularly at the low speed end, care is needed not to fly too slowly. Even one or two knots too slow can result in a considerable increase in sink, although still some way off the stall. However, there is not in general much difference between new sections and the NACA ones as far as flying technique is concerned.

The bucket is usually wide enough to ensure that the high speed drag increase occurs at speeds seldom justified by thermal strengths in this country (South Africa and Texas are a different story!). Development has been mainly at the high lift coefficient end, and the ultimate development is in the use of flaps to change the section shape by increasing the camber at high lift coefficients and decreasing the camber at low lift coefficients. By this means the section drag has been decreased by some 25% and laminar flow achieved at higher lift, although the high speed end still occurs at the same lift coefficient. Fig. 1 shows the drag polar for a recent Wortmann

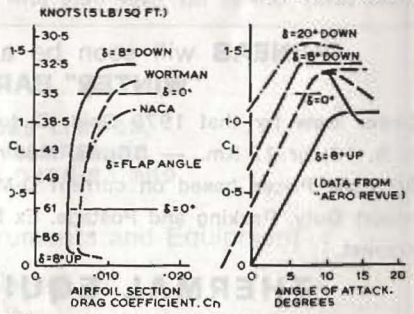


Figure 1.

flapped section assuming optimum flap settings. It also shows the need to use the flap fully, because the drag penalty of using the wrong setting is greater than that of using an unflapped section.

Lift

The lifting behaviour of a section is mainly defined by its lift slope, i.e. the change in lift coefficient as the angle of attack changes. There is little difference in lift slope between sections of all types and ages, regardless of variations in thickness ratio or distribution, or in camber shape. There is also little difference in the behaviour of the centre of pressure, which is dependent on the amount of the maximum section camber. This has always been much the same within certain limits, so that the age or performance of a section has little effect on basic longitudinal stability.

It is only the flapped sections which have significant effects on the piloting technique. As in the case of drag, use of the correct flap angles is important because the wrong selection can have a large effect on lift. Fig. 1 shows typical lift characteristics of glider sections, with the effects of flaps also indicated.

It can be seen that considerable changes result from different flap settings in the attitude of the fuselage. Quite apart from the lower wing drag when using the correct setting, lower fuselage drag is achieved by better alignment with the airflow, so that flaps are doubly beneficial. The change in fuselage attitude is probably the cause of the strong subjective impression of great performance potential remarked on by pilots using flaps for the first time. After all, one could easily believe the flaps were providing thrust if the effect of raising the flaps at high speed is to raise the nose from 5° below the horizon to the horizontal!

Stalling

The lift behaviour of an airfoil section at the stall varies widely between a sharp loss of lift and a constant lift with increasing angle of attack. Sections of all types and ages possess stalls of either type and no generalisation can be made about the type to be expected from a particular group. However, I have seen the flat-top type more often with Wortmann sections than with any other group.

With a flat-top stall, wing and nose drop are unlikely, and the stall may be mainly indicated by a high sink rate in a nose-high attitude. I would expect a fairly marked buffet, because the flat-top is the result of increasing lift on the front part of the section with increasing flow separation from the trailing edge.

With a sharp stall, nose drop and probably wing drop are likely. This has the advantage of a better stall definition, so long as it is not overdone. Such a section is probably more dependent on being employed with the right wing planform to avoid handling problems. For example, a high taper from root to tip has the effect of making the outer part of the wing work at higher lift coefficient than the root part, so that at the stall one wing drops first because of turbulence, yaw, etc. As the wing drops it increases its angle of attack, reducing its lift still further while the other wing retains higher lift at a lower angle of attack, which can lead to uncontrollable wing drop. A flat-topped stalling section would not pro-

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duce significant rolling moments of the sort.

I know of four gliders with uncontrollable wing drops (two were prototypes which had the problem cured in production with tip washout). Three used NACA sections and one used a pre-war section, and all had marked taper. Every description of the flight behaviour of the latest high-performance gliders, on the other hand, refers to good, sometimes exceptional, low-speed and stall behaviour.

Centre of Gravity range

As none of the above suggests a reason for a restricted range of CG positions, some other explanation is needed. Fig. 2 shows the relationship between tailplane lift coefficient and wing lift coefficient for a typical glider with a fashionably small tailplane, for a number of CG positions from 10% to 45% of the average wing chord. The most rearward CG possible is 48%, which is the neutral static stability point, i.e. a single tail angle will trim all lift coefficients or speeds. Even a thin tail section can be expected to reach 0.5 lift coefficient, so a forward CG limit

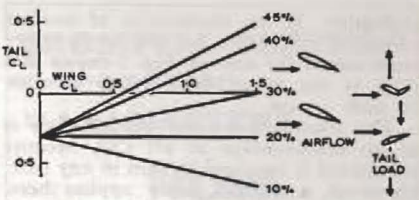


Figure 2.

of 15% would not be impossible, giving a total range of 30% allowing a minimum of 3% stability at aft CG. This is about 9 inches for a typical size wing, which is a large enough range to cover any variety of pilot without ballast. Obviously some other factors have to be considered.

The sketches on Fig. 2 indicate one such factor. At high angles of attack, an all-moving tailplane can be rotated to whatever angle is required to the airflow to produce the necessary tail lift coefficient, whereas a fixed tail with elevator is forced to produce an upload regardless of the requirement. A download can be achieved, but only by subtracting a larger force from the fixed upload by a large elevator

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deflection. If the elevator is of narrow chord it will barely be able to do more than cancel the upload. Fig. 2 shows that 30% is the most forward CG possible in such a case.

The fixed-tail/elevator combination is at no disadvantage at aft CG, because an upload is required to trim in any case. However, a second factor applies here. The static stability with stick free is less than that with stick fixed in the case of a plain elevator, or in other words the aft CG limit for zero change in stick force to trim all lift coefficients or speeds is forward of the limit for zero change of tail angle. For an all-moving tail the two limits are the same usually.

A third factor is the stressing requirements which call for the strength to withstand large control angles applied suddenly at high speeds. This may result in a design limitation on forward CG limits in order to reduce these angles.

The Libelle probably suffers from all three factors. It has a small fixed tail and narrow chord elevator, which was originally designed as a trimming tail (i.e. the whole tail could be rotated for trim purposes, with control by the elevator). Such a configuration can trim CGs as far forward as an all-moving tail can, and requires only relatively small elevator angles for control. For some reason the trimming tail was abandoned in production, leaving the elevator unable to provide much trimming. I would guess that strength limitations would prevent larger elevator angles from being used even if they were aerodynamically effective and not too "draggy". I do not actually know what its allowable CG range is, but such factors could reduce the range to 10% or less, i.e. under 3 inches. M. Favarger, in the *Aero Revue* of January 1970, points out that whereas a light pilot can circle the Libelle at 38 knots, a 200-lb. pilot cannot circle below 50 knots, which suggests a very limited CG range indeed. (Note that considerably more control angle is needed to trim a lift coefficient in circling flight than in straight flight.)

Conclusions

Examination of the characteristics of modern low-drag airfoil sections has not revealed any feature causing significant changes in basic flying techniques, except for the added mental activity required to maintain optimum settings of "performance flaps".

Limitations in CG range are not caused by the use of modern sections but by the use of small tailplanes and especially small elevators.

DEAD TROUBLE ON THE AUTOBAHN

By RHODA PARTRIDGE

(Tony Maitland told me this story and I liked it, so I asked if I could write it up for S & G and he said I could, so here it is).

SO there he was on the autobahn, carefully strapped into his 1960 Jaguar XK 15 OS and driving at 20 mph. Unusual, but there was this cross-wind, and he didn't like it because he'd got the brand new love of his life running along behind.

The story started with Tony (middle twenties) and Siegfrid Neumann (prime of life) covering pages of foolscap with sums and running lascivious minds over available hot ships and finally writing off and ordering a Diamant, and now Siegfrid was at home in Cambridge biting his nails and Tony was trailing her back across Germany on the Saturday before Easter.

The cross-wind was bad enough, but the turbulence when lorries went by was downright hairy, and here was this huge one, and a glance in the mirror and not white trailer but black underside of trailer, and whip across the road and up the bank and poised to roll down, and his German only consisting of "Please" and "Thank you" and "I love you". Then

his luck started to work again. The people in the car following him were German speaking Americans, and they stopped a German AA-type man, and Tony took a shuddering look in the trailer and there she was in a shattered heap. The AA-type man phoned the nearest gliding club and the police turned up. They stopped cars and collected a team, and Tony crept into the trailer to try and hold her together, and the police and their team righted the trailer.

Now that Tony's luck had started to work again, it did him proud. Mr. Pabst arrived from the Illertissen Gliding Club with two Diamonds, a large Mercedes and good English. The police wouldn't allow the crashed trailer on the autobahn, so Mr. Pabst led the way down lanes and farm tracks, and the German speaking Americans followed behind. They arrived at the gliding site, where flying was in progress, and the members left everything they were doing, cleared the workshop and got the crashed trailer in. The Americans now reckoned that Tony was all right, so they wished him good luck and went on their way.

Mr. Pabst took Tony to his home in the village, where Mrs. Pabst and the two young sons welcomed him as a guest, fed him royally and settled him comfortably into their lovely modern house. Poor Tony then phoned poor Siegfrid and told him he could stop biting his nails because the worst had now happened. After supper Tony and Mr. Pabst visited the village carpenter and collected timber to repair the trailer.

The following morning they were at the club by nine, and so were twelve members who descended on the trailer, ripped it apart, and by midday had it beautifully repaired and ready for the road. However, there was still a fierce cross-wind, and they didn't reckon it was safe for Tony to go, so he stayed another night with the Pabst family, and that evening he was taken out "on the town".

Monday morning the wind had dropped and Tony set off back to the factory, heart warmed and astonished by the treatment he had received. A bit embarrassed, too, because he had failed to persuade anyone to accept a single penny. Not even for the wood. Not even for the phone call to Siegfrid. He really had tried, but the only payment he had been allowed to make was to take the two Pabst boys for a burn up in his 1960 Jaguar XK 15 0S, which they very much admired.

Here is the sequel. In June, Tony and Siegfrid set off for Zell-am-See with two cars and a hired Dart 15 (in case the Diamant wasn't ready). It was ready and they had a glorious time, taking the gliders in strict daily rotation. Came the beautiful wave day, and it was Tony's turn for the Dart, and he got 20,700 feet and his Diamond, and poor Siegfrid in the Diamant ran out of oxygen.

On the way back to England, Siegfrid trailed the Diamant to avoid having to bite his nails, and Tony trailed the noble Dart. At two in the morning Tony pulled off the autobahn for petrol. He walked round the trailer to check it, and one side had gone. (Where, oh, where had it gone?) And there was the noble Dart, naked to the night air. And there we shall leave him, gazing at the naked Dart and giggling hysterically. After all, by now he knows the ropes. And this, I think, is about where we came in.

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THE GEC COURIER AND STOREY TR 6701—S

Product Review — By R. BRETT-KNOWLES, BGA Radio Co-ordinator

"Hushed be all things; (no noise here)" — HERRICH

THESE two sets are at the extremes of the range offered to the glider pilot. The Courier is very small, 7.9×3.2×18.2 cm. and weighs only 0.68 kg. (1 lb. 8 ozs.) including batteries; whereas the TR 6701-S is rather larger and contains no batteries. Its great merit is toughness and low cost, so there is no point in comparing the sets against each other, and they will be discussed separately.

GEC Courier

This set is designed as a personal radio for either pocket or sling operation by operators of airlines, police or similar organisations. Where space and weight are at a premium it could be used in a glider, with the advantage of personal operation after landing. Three close spaced channels are available (± 250 Kc/s of mean carrier frequency), with either 25 or 50 Kc/s channel spacing. The transmitter output is a maximum of 400 mW, modulated 90% by a dynamic microphone of 75 ohms impedance, which also serves as a loudspeaker. Any of the headsets recently reviewed could be used, as long as 75 ohm was specified for both microphone and telephone. Muting on/off and volume control are provided. Tests showed that the low power is only a disadvantage when in competition with more powerful transmissions (it is only 4 db down on the accepted 1 Watt). Muting is either on or off, there is no adjustment on the outside, and there is no loss of signal due to muting, since it unmutes to a signal too weak to be completely intelligible.

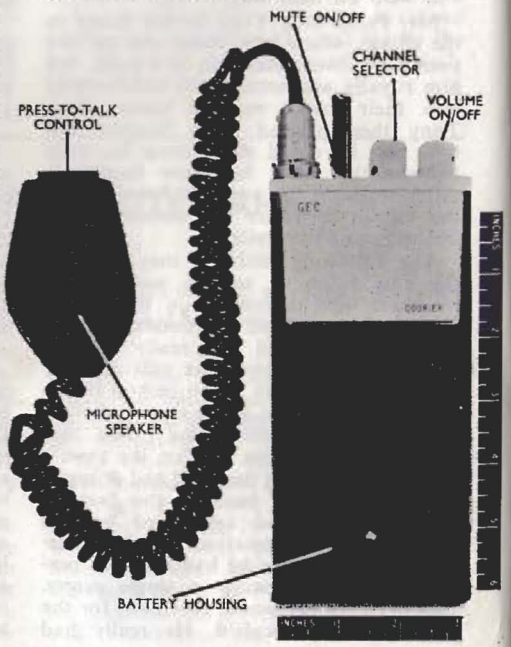
One unattractive feature was apparent in the vicinity of Malvern, a continuous background of broadcast entertainment which was loud enough to unmute the set, but disappeared when a strong signal was received. Where else this effect will be noticed I am not prepared to say, but in a Piper Cub the set was almost unworkable from engine produced interference, whereas the TR 6701-S tested at the same time was unaffected.

A charger is provided to charge the 13.4 Vd.c Nickel cadmium battery which gives 5 hours with a duty radio TX/RX of 1:9. A larger battery of 15 hours duration can be supplied, either dry or rechargeable. An internally stowed whip aerial, shoulder strap aerial or external co-axial feed can be accommodated, the whip switching itself on when extended.

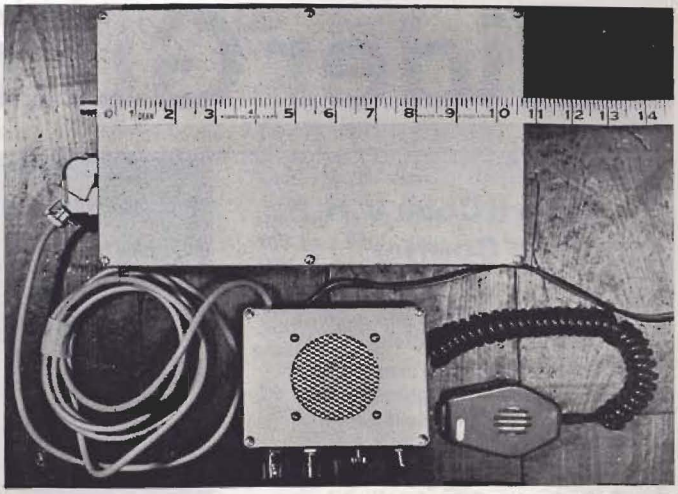
The Storey TR 6701-S

This is a two channel set designed for a purpose: to provide the minimum requirement specially for the glider pilot and so reduce the cost.

What has been sacrificed? Firstly, any frills. The set is built into a die-cast zinc base alloy box of considerable strength, which can be stowed out of the cockpit, for it requires no access whatsoever. No battery is included, the control unit must be connected with correct polarity, to a



The Storey set and, opposite, the GEC Courier.



12-volt supply; there is no protection from damage by wrong connection.

The receiver has only one I.F., nominally 1.6 MHz, and production models are stated to have at least 15 db rejection of the image (3.2 MHz away from the wanted channel). The prototype tested fell just short of this figure. The signal-to-noise ratio of the receiver is very good (hence my quote from Herrich!) and production sets achieve 10 db Signal + Noise to Noise for 0.8 uV or less input, at which level the prototype had unmuted.

The transmitter has no speech processing, which could have added say 6 db more effective power, but has an RF output of 1.8 Watts which is adequate for all practical purposes. A band loss filter with 0.5 db in band loss and 25 db out of band attenuation is available if required to stop harmonic radiation and reduce spurious reception.

A somewhat squeaky loudspeaker is provided, and a lightweight headset can be operated if required. The prototype had a disconcerting tendency to provide a musical background when airborne at Lasham, but this was cured by replacement of a component, and is not expected to occur in production sets; certainly the one production model I tested later showed no trouble in this respect.

There is no noise limit in the receiver, but this set did not suffer from reduction in intelligibility due to ignition noise as previously stated.

All in all, a set to be recommended, where cost is of major importance.

INVITATION TO IRELAND

The Irish Gliding Association extends an invitation to you to join with the Irish clubs in a fortnight of flying and fun at the Kerry County Airport, Farranfore, commencing May 16th. *For full details write:*

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RHODESIAN NATIONALS

By TED PEARSON

VIC Brierley took his trailer with the Austria SH slowly south across the Zambezi river bridge as the sun was setting. He had already covered 300 miles from the Zambian Copperbelt and still had 250 to go before reaching Salisbury.

At Durban on the South African coast, I had taken my Cirrus out of mothballs and was coming 1,200 miles in the opposite direction.

Tim Biggs, last year's South African National Champion, and Heini Heiriss, the Open Champion, were following close behind. Tim had his Libelle 301B and was flying regularly on tasks in Johannesburg at the top of his form. Heini debated whether to bring his ASW-12 or ASW-15 and finally plumped for the former.

Peter Eich and John Magner took time off from the frantic pace of their work on the BJ-4 project in Johannesburg. Peter had borrowed an SH-1 and John would fly his Vasama in what was his first competition.

Jimmy Harrold had foresaken his tobacco seedlings to go to the coast to collect his new Libelle 301B—the fulfilment of years of dreaming; a fit and proper ship for his undoubted ability as a competition pilot.

Tim Biggs, on a practice task, showed that unfamiliarity with the 100 km. triangle was no serious problem. The day was running 4 to 5 metre thermals up to 13,000 ft. (8,000 ft. above ground) which was fair, but not good, for Salisbury. We went round twice and on both circuits he made exactly the same speed, 125 km/h. This became the new SA National Record, simultaneously taking away my SA Open Record. However, I was somewhat consoled when I realised that my speed of just under 120 km/h. for the trip had beaten the British National Record held by Alf Warminger.

Other pilots were not so fortunate. Peter Eich in the SH-1 couldn't make it back to base and began his approach to a reasonable looking pasture. He was still flying when his wing hit the side of the deep contour ditch that had looked like a track. The wings were, incredibly, undamaged. The fuselage shattered into four main pieces and countless small ones.

Later that night Peter, with rows of stitches across his face, a broken nose and two black eyes that reached his chin, started a mammoth repair job. Peter had the SH-1 flying for the first competition task, five days later, and right to the end was a serious contender for first place.

A 300 km. triangle was set on the last practice day, Sunday, October 12th. It was a hot, brooding day of early storms and over-convection. Pilots diverted around storm cells and on the second leg everyone had to land out.

It was on this task that John "Kiwi" Cooper was tragically killed when his Swallow crashed.

In this sad way the practice week ended, and on the following Tuesday pilots gathered in a very subdued atmosphere for the start of the champs.

* * *

Day 1 — 14th Oct.

Alf Thompson's new Diamant was unfortunately still aboard a freighter off the Mozambique coast. This, however, left Alf free to be a fine organiser and task setter. His morning trunk call to Harvey Quail, our own met. genius, told of cloud base 6 or 7,000 ft. above ground with 3/4 metre thermals. Alf set a goal and return—Lions Den 235 km. Storms were isolated and not a serious problem. Tim Biggs whistled there and back in two minutes over two hours at 115 km/h., second, Brierley, 96 km/h. and third, Pearson, 86 km/h.

Day 2 — 15th Oct.

On top of an uncertain looking tubular structure over the clubhouse roof was a platform housing our three wise monkeys with their starting gate, stop watches and microphone. Basil Wordsworth, Colin Loades and Alf Thompson gave up three week's precious leave to be burned by the sun, cursed by the pilots, rained on, hailed on, struck by lightning and almost



This SH-1 was flying again within five days!

decapitated by finishing aircraft.

Today he stepped up the task to a 312.5 km. triangle—Warren, Gadzema, Umvukwes. Weather was promised to be as good as yesterday. It wasn't! The lift died early and most people struggled to get home. Five didn't. The finish line was a hectic series of will he—won't he? final glides. Doug Elliot aboard Standard Austria 41 gave the crowd the biggest spectacle. Figuring that he couldn't clear the telephone wires at the end of the runway he went underneath, before six feet of port wingtip broke off, it bent the steel telephone pole! The broken piece fell in front of Trevor Torgius' car as he turned into the airstrip road. Doug finished well up the runway anyway, for an officially completed task, but his Austria was now unserviceable until the end of the Championships.

Tim was first again with 105 km/h., followed by Heiriss and Pearson, both at 95.5 km/h.

Day 3 — 16th Oct.

"Goal and return to Gatooma 235 km." said Alf—"There will probably be early storms". The blue patches in the sky filled in quickly as competitors streaked off along the outward leg in turbulent, untidy air. Ahead was an enormous layer of clag creeping over the Gatooma Rail Station, and as they reached the gloomy edge each pilot took his maximum height like a diver's last breath before plunging down. Instamatics set on "dim" to the turn.

Tim went round Gatooma early enough to fly straight out and scrape home first at 82 km/h. Vic Brierly went over to the left and diverted north for 70 kms. before landing back a long time afterwards at 59.5 km/h. The crews went out for everyone else.

Day 4 — 17th Oct.

The "curse of the black pudding" was aboard. It was borrowed from the Goons by John Colban who wished it upon his rivals in last year's Nationals. This time it appeared in the form of a genuine, ready to eat, black pudding from the local butcher's shop, and was secreted in the unfortunate victim's cockpit only to be revealed to him by radio when it was too late to get rid of its end influence.

Today it was on Tim. A joyous cackle came over the base radio at Warren from me as I looked down on the Libelle. It was a tiny speck right down near the ground at Jumbo Mine, the second turnpoint of today's 100 km. triangle. The pudding was in Tim's map pocket and I figured it was working fine—I saw Tim streak off towards the Iron Mask range and what seemed a certain landing. But Tim struggled up again and came back with a crippling time of 100 mins.—while Heini Heiriss had 61 mins., a speed of 118 km/h. Quickly Tim ditched the awful pudding and took off for another start into the over-convecting sky and came back in 68 mins. Meanwhile Heini, who thought Tim might make a really fast run this time, had gone for another circuit but fell down and broke his undercarriage. At that, Heini decided to call it a day and headed back for his beloved Orange Free State. The fields there are as big as airports and are kind to big, hot ships like the ASW-12. First, Heiriss, 118 km/h., followed by Eich, 116 km/h. and Pearson 110 km/h.

Saturday brought rain, low cloud, no contest and a big party.

Day 5 — 19th Oct.

"Let's try the 100 km. triangle" said an optimistic Alf as he looked up at the little dark grey traces of half-hearted cumulus struggling to form under eight octas of alto-stratus "guti". Some crawled round, others couldn't. Among those who fell down was Jimmy Harrold in his new Libelle. He picked a big,

smooth, empty pasture and, until he was right on top of it, never saw the only other object in the entire field—half a tractor tyre filled with grain as cattle fodder. His fuselage thumped down over it and broke in half—five feet from the tail. Jimmy was out of the competition after waiting so long for his dream-ship.

Ken Taylor was getting low as he took the K-6E round the second turn and set off on the last leg with only 700 ft. When he scraped between the trees to a landing at Mt. Hampden airfield only 8 km. from home his opinion of the glide angle of the K-6E had gone up considerably. (After all—20 kms. from 700 ft.!) It went down again next morning when the photographs showed his second turn to be Nyabira, 15 km. nearer home than the correct turn-point at Inkomo. Biggs won in 1 hr. 19 mins. with Pearson second in 1 hr. 23 mins.

Day 6 — 20th Oct.

"That dam-wall has done it again" I groaned, pushing my Cirrus towards the only weak-looking cumulus in sight—right in the centre of Lake McIlwaine. It was a desperate gamble because I was low, last year it had cost me the competitions when I landed near the wall on the return leg of the same task as today —190 km. Goal and return to Hartley.

It had been a good day until now and I had been lured into this final glide with not quite enough height to get past this hoodoo spot for the 20 km. left to reach Warren. The mid-lake cloud gave just enough lift to avert a wet landing but while I fretted in the climb Tim Biggs steamed overhead then, surprisingly, John Colban in the K-6. Tim was putting away his second cold beer when I landed. John Colban beat the Cirrus by four seconds.

Day 7 — 21st Oct.

"What's that" asked the young lady visitor as she looked apprehensively up at the clubhouse ceiling following a terrific bang on the roof.

Some of the equipment on the platform had fallen off as Basil and Colin ducked to avoid the finishers from the 300 km. triangle. John Magner's smile was as wide as the runway when he put down the Vasama to finish ahead of the whole field. The smile faded shortly afterwards



The Observers' platform.

as he brought out his map to review the flight and realised that he had intercepted the railway and photographed a siding at a right angle bend far from the correct one at Gadzema. Again it was Tim Biggs who won the day, followed by Pearson and Eich with times between 3hr. 08 mins. and 3 hr. 30 mins.

Day 8 — 22nd Oct.

"Enough of these fiddling little tasks," said Alf—"400 km. Out-and-return to Chatsworth Rail Station. Track is due south and anybody who goes east of track into the Airway will be spotted by Salisbury Radar and disqualified by me".

Wonderful to start with—nice regular cumulus and then immediately you came to the badlands near Enkeldoorn it shut off, as usual, near the ground. Naturally, there was good lift plainly visible a few hundred yards across the east side of the main road marking the edge of the forbidden zone. Resisting the temptation (only because you guessed that somewhere high above, your nearest rival had his camera finger itching to take your picture when you were over the road) you sweated it out until the lift switched on again after 50 kms. Now it was 4 metres to 14,000 ft. asl. Round the turn —back through the badlands and 30 kms. away you saw the solid black wall of the wide storm astride your track. It was moving away, and leaving a big, grey



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overcast above stone-dead rainwashed air.

Cautiously I approached the clag. Climbing to get maximum height before venturing under it and trimming the Cirrus back for maximum glide into the 60 kms. of dead air. Then at 800 ft. the variometer eased up to zero sink and then to a half-metre gentle lift still rising softly in the sunlight at the front of the overcast. On reaching 3,000 ft. I set off home and called to check who was back. Nobody was! Peter Eich, close behind heard the transmission, promptly broke off his own slow climb and put the SH-1 nose down for home. He scraped over the fence to beat my time by 56 seconds and win the day. Peter's time was 4 hr. 31 mins.; only the two K-6s. flown exceptionally well by Ken Taylor, 6 hr. 04 mins., and John Colban, 5 hr. 34 mins., eventually came home to roost at Warren Hills with the Cirrus and SH-1.

Day 9 — 23rd Oct.

It was the 300 km. triangle again and big clouds were cooking. Doug's transmission had told me he had picked up twenty minutes on Tim already. It wasn't enough, though. Tim rounded the final turn-point at Umvukwes and switched on his best glide angle to reach home before the sky fell apart.

Six pilots landed back—Biggs, Pearson, Eich, Colban, Taylor and Magner.

Day 10 — 24th Oct.

"Maybe we should advance the take-off from 1130 to 1100" said Alf as he glanced through the window at the end of his briefing for a new 100 km. triangle.

He turned round and realised he was talking to himself. The pilots had also seen the lowering, black clouds and at 1030 were racing for their aircraft.

Cloud base was down to 3,000 ft. with showers forming in every direction. At 3,000 ft. in Rhodesia you were normally looking for a landing area.

Getting starting height was a major problem—finally we went off well below 3,000 ft. Conserving my height edging from each vaguely marked lift area to the next and, after banking delicately for the turn pictures at Inkomo, I was able to fly almost without circling to the second turn-point at Lydiate Siding.

There, where the sky opened up a little, I flew past Ken Taylor, busy taking another picture. Ken had been making good time and was highly delighted when his first picture included his rival, John Colban, low in the other K-6. Then Ken realised that under John was an airfield but there wasn't an airfield at Lydiate! Ken scrambled off to Lydiate and John got away to beat him. Meanwhile, I was taking a few extra feet to see me past the treacherous dam-wall at Lake McIlwaine—enough to push me into second place behind Peter Eich. Tim had struggled and had a slow flight, but was too far ahead in the competition for it to matter. First, Peter Eich, second, Ted Pearson and third, Vic Brierley.

After that the rains came down in earnest and left Saturday free for the end of Championships party. The weather had provided good competition but had been a long way short of the 5 metre thermals and 15,000 ft. base we'd have normally expected.

Thank you Salisbury for another competition in your own unique style.

Leading Final Results

T. Biggs	Libelle 301B	9,158
E. Pearson	Cirrus	8,452
P. Eich	Austria SH-1	8,110



Tim Biggs (Photos: J. McGeorge).

MANUEL'S LATEST SAILPLANE

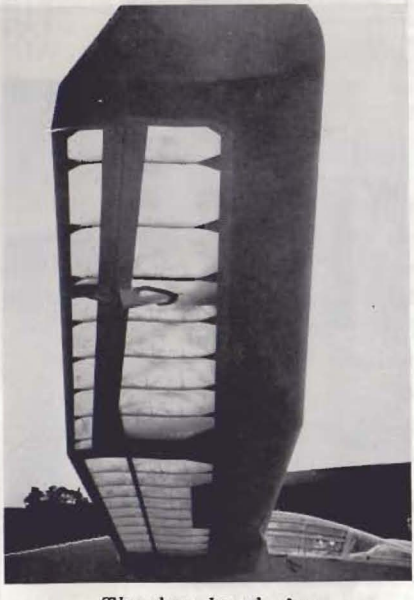
By A. E. Slater

A familiar sight during the 1930s at British gliding clubs and meetings was that of one or more Wrens—a pretty picture, as each was painted a different colour, except for the fabric on the wings which was clear-doped so that the light shone through. Three were constructed by the designer, W. L. Manuel, and another three were home-built—one in Australia.

Now, after a gap of 35 years since finishing his last Wren (the Blue Wren, sold to the Editor in 1934), Manuel has produced another sailplane, the Hawk—a name last used for a British glider by Percy Pilcher over 60 years ago. Unknown to most gliding people, Manuel has been working on his Hawk for three years—18 months designing it in his spare time, and then, after retiring from his job, following this by 18 months full-time work building it single-handed in a shed at Fairoaks airfield. Starting each day at 7.30 a.m., which meant—his wife says—getting up at 5.30 at his home in Walton-on-Thames, altogether he put in 2,600 hours work on the machine. On hearing of this prodigious feat, we had, of course, to go over and see the result.



Mr. Manuel beside his canopy.



The clear-doped wing.

Corporal Manuel of the RAF, as he then was, found himself in 1927 sharing the same hut in Helwan with Charles Sims, the renowned aerial photographer. Two years later, he built his first glider, a biplane, which had its initial test flights tethered to the tail of a stationary fighter while the engine was revved up; however, on his first solo launch, it shot up and stalled because the centre of gravity was 9 inches too far back.

The beginning of organised gliding found Manuel at Hawkinge, where he built the Crested Wren, painted red. Then he came to Dunstable and took up residence in an old pantechnicon in a field adjoining the London Gliding Club. Here he produced two modified Wrens, calling the type Willow Wren; the first was yellow then green; the blue was made at Reading. Until now there had been no blueprints, but F. M. Hamilton of the London Gliding Club produced a set so that the design could be sold for home-building; the result was the Golden Wren in Derbyshire and the White Wren at Harpenden, while Hamilton departed for Australia and built one there. For a



The Hawk ready for tials.

(Photos: A. E. Slaber)

short time afterwards Manuel joined up with C. H. Latimer-Needham, who designed a rather similar type called the Kestrel.

During the long gap between sailplane building, a few years ago Manuel added a pair of wings to a bicycle (see S & G August 1962), and made quite a profit from hiring it out to promoters of outdoor shows, and from demonstrating it on television; it was *not* intended to compete for the Kremer prize for man-powered flight.

The new Hawk is most beautifully finished, with a high polish on the natural wood, and clear dope on the fabric so that the light shines through the wings when seen from below. But there is nothing olde-worlde about the design, for Manuel is a regular reader of S & G and keeps up-to-date with the latest ideas in sailplane design. The 42-ft. span wing (12.8 metres) has a Wortmann FX163 section from the root to the beginning of the taper, with a chord of 4 ft. (1.22 m.); each tapered panel is 9 ft. 7 in. long (2.92 m.), and along it the section changes from 163 to 185 at a point 1 ft. short of the tip; thus the wing is quite thick close to the tip with the object of delaying the tip stall. There is a fixed wheel, and a T-type tail with slight sweepback of the fin and rudder.

The design has been stressed and William Manuel will apply for a C of A as soon as he finds a purchaser.

WHEN THE BGA TOOK TO THE AIR

By THURSTAN JAMES

In our December 1969 issue Thurstan James, founder of THE SAILPLANE & GLIDER, described how the BGA was formed at a "Gliding Lunch" 40 years before. Here he tells how the first of the BGA clubs, the London Gliding Club, started flying in early 1930.

NOT long after the Gliding Lunch there arrived at the offices of *The Aeroplane* a complete set of blueprints (and blueprints they were) for constructing a primary trainer. This design was clearly an improvement on the German Zögling since, in an effort to cut down rigging time and to make a more rigid structure, the tail unit was mounted on a triangulated tubular structure. With the Editor C. G. Grey's approval I gave these drawings to the BGA with the intention that they should be available free of cost to any gliding club. They were passed on to Dagnall and, not unnaturally, when built, the machine got named Dagling. I wonder whether anybody now remembers when this name was first used?

I remember well the day the Dagling first appeared. It was March 16th, 1930. The place, Stoke Park Farm. Today it is that green open space south of the by-pass as one begins to skirt Guildford. The idea was to test the Dagnall-built primary trainer against the German Zögling which the BGA, put in funds

by a generous gift of £1,000 from Lord Wakefield, had purchased in Germany. Both were duly rigged and a number of flights were made. Though the last intention of the organisers was to attract the public or Fleet Street, a story was put about that a well-known aeronautical character was to make some thrilling flights. Not surprisingly, the Press soon got tired of watching even the most eminent personages tobogganing across the smooth green grass, and went home.

What happened after that was not reported in *The Aeroplane* because I suppressed it, and perhaps *Flight* was just not told. But in a moment of high drama Dagnall broke his own glider, and this is how it came about.

Dagnall was most anxious to fly his own machine, and club members (or were they BGA supporters — most likely both!) were equally anxious that their benefactor should have a fine flight. Not that there was any chance over that flat surface of getting very far. Dagnall was duly strapped to the strut behind his seat and fourteen of the beefiest chaps on the field were detailed to the bungy. My recollection has always been that there were fourteen on each side, but perhaps someone will tell me the rubber rope was not long enough to take that number. Anyway, the rope was stretched and stretched again. At last the order was given to release the glider. Under the shock of launching, Dagnall pulled the stick back instead of using it to keep the nose down. The brand-new glider soared into the air, higher than it had been the whole afternoon; it hung, lost speed, dropped the starboard wing and fell back to the ground.

It was our first demonstration of the shock-absorbing properties built into a primary glider. The lowered wing dug into the soft turf and, with pinging, twanging, tearing noises, crumpled up, quite slowly it seemed then. The nose-skid of the glider remained intact since the shock was taken on the wing, but Dagnall slumped forward against his belt in a somewhat alarming manner. He was in good health but many years older than most of us. He soon got over the shock. The wreckage was carted off and I remember having a cosy tea with him in a tea-room which remains in my memory as conveniently close. Our talk was all about plans for more Daglings. What would British gliding have done without this produce of Dagnall's generosity?

Editorial Note

A few details can be added. As Dagnall was about to be launched, I was standing beside him and heard him say: "I suppose I wait till it begins to move and then pull the stick back?" Nobody answered, and he evidently took it that silence means consent, for he did just



This Dagling belonged to the Newcastle Club in 1937.
(Courtesy: Royal Aeronautical Society)

that, though there must have been the additional factor referred to above, namely that a strong bungy launch gives more acceleration to the body than to the hand holding the stick—unless the pilot is warned not to let it. Dagnall fell into alluvial mud on the banks of the River Wey and was almost covered with it when he was extricated.

The reason for wanting to keep the public away was that, three weeks earlier, when the first glider flights since the formation of the BGA were made by the Kent Club at Detling, a vast crowd, brought by previous publicity in Maidstone, was so disappointed at seeing only short hops that "a riot nearly developed" (see SAILPLANE & GLIDER Jan/Feb 1940: "Ten Years Ago").

The Newcastle Club made its first flights at Cramlington on the same day as the London Club at Guildford; and Miss Connie Leathart became, as far as is known, the first British woman to fly a glider—unless someone can produce evidence to the contrary.

A. E. S.

AVIATION ART SOCIETY

PAINTINGS by members of the Society are currently on view at the Shuttleworth Trust at Old Warden and in the aeronautical section of the Science Museum.

As the only authority on aviation art, the Society is often consulted by museums, firms and individuals wanting pictures, and our members are executing an increasing number of private commissions on all aviation subjects.

Full scale exhibitions are planned at the Biggin Hill Air Fair in June and the World Aerobatic Championships at Hullavington in July.

On Wednesday, 8th April, at 8.00 p.m. several artists will be at the Kronfeld Club to talk about their work and show slides. This will be a general interest evening and is not specifically for artists.

All enquiries regarding the Society or paintings should be addressed to the Secretary, Mrs. Yvonne Bonham, at 11 Great Spilmans, Dulwich, London S.E.22. Tel. 01-693 3033.

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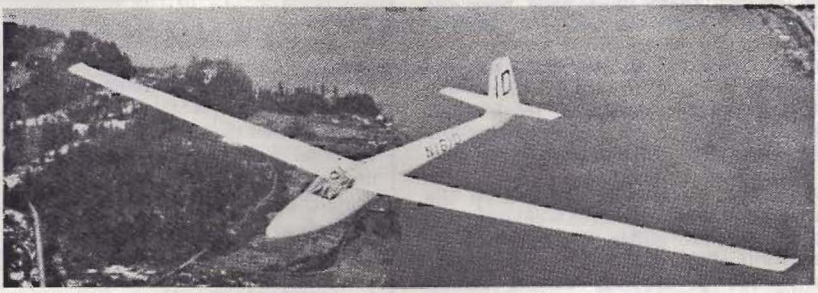
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ON BEING AN URUBU : Gliding in Brazil

By FRANK IRVING

THE official invitation to spend a few months at the Centro Tecnico de Aeronautica (CTA) in Brazil said that my time would be divided between lecturing on aircraft stability and assisting in the wind-tunnel tests of the Bandeirante, a small twin turbo-prop transport. It went on to say that the wind-tunnel had a few little problems which would doubtless be resolved by the time I arrived. Private letters had indicated that CTA was a hot-bed of Brazilian gliding, and I had an introduction to Professor Vandaele of the Instituto Tecnico de Aeronautica (ITA, the academic part of CTA), President of the Federacão Brasiliera de Vôo a Vela (FBVV). It should be apparent that Brazilian organisations rejoice in a multiplicity of initials: in practice, those which are even faintly pronounceable (like CNAE, the space research organisation) are treated as acronyms, much to the confusion of the newcomer when asked about BAC and BUA.

So, in early August last year a sweaty Irving found himself saddled with half-a-dozen students, two vast offices, and the bigger of the only two significant wind-tunnels in Brazil; this one was quite big by any standards. To say that it had "a few little problems" turned out to be one of those bits of wishful thinking which I was later to recognise as typically South American; the tunnel was 20 years old and had never been more than faintly serviceable.

Far from helping with tunnel tests on the Bandeirante, I found myself trying to unscramble a remarkable collection of aerodynamic ineptitudes executed in very hard concrete. Ultimately, a fair amount of success was achieved but it is not for me to say whether this was due to aerodynamic skill, sheer good luck, the power of the prayers offered by the Air Force Chaplain, or the undoubted fact that whatever one did could hardly make it worse.

However entertaining that tale may be —and some of it was very quaint indeed —this is really concerned with Brazilian gliding. CTA turned out to be the home of the Urupema, first seen in public at the 1968 World Champs. at Leszno. Superficially, it looks like an even sleeker Foka, but the whole device is very different in design. It has a Wortmann wing, as opposed to the Foka's NACA sections and has a wooden structure partly consisting of a plywood/paper honeycomb/ply sandwich. The gliding club at CTA was distinctly less exotic than the Urupema and was operating under rather difficult circumstances, usually from a little strip at the bottom of the Paraíba valley, about 4 km. away, only accessible by driving through the local railway station and a blanket factory.

Although the places mentioned in this article are spread over a fair area by UK standards, they are all concentrated





The Urupema coming in to land.

in a relatively tiny corner of Brazil. It is, however, the most prosperous and important corner and contains a very high proportion of the gliding talent. CTA is located at São José dos Campos (pop. 120,000) about 80 km. from São Paulo city (pop. about 6m.), on the main Rio-São Paulo highway. São José occupies a minor bluff overlooking the Paraíba valley, the bottom of which is landable-on if you don't mind ravaging the crops of the local Japanese farmers. Pastures are impossible, being littered with termite mounds several feet high, neatly spaced at something under one wingspan. The hilly regions look awful from the air, mostly covered with forest. No doubt this is tamer than the real jungle of Amazonas, but it looks pretty forbidding to the European eye. Not until one gets north of Campinas does the country open out into a reasonably level pastoral landscape.

This description is, of course, all very local. Further inland (e.g. near Brazilia) it looks impossible; down south, near Pôrto Alegre, it seems very reasonable.

CROSS-CROUNTRY PROBLEMS

Cross-country flying clearly requires considerable care, planning and local knowledge and even then is likely to be complicated by poor roads and a totally disastrous telephone system: even between São José and São Paulo, it was usually quicker to go in person by bus rather than telephone. By our standards, the amount of cross-country flying seems small and retrieves tend to be wearisome.

Ordinary club equipment, as at CTA, consists of Neiva two-seaters (a Brazilian design), Brazilian-built Olympias and Grunaus and a single-seater called the BN-1, also of Brazilian design. There are also various one-offs of varying degrees of eccentricity. The FBVV seems well aware that all this equipment is roughly 20 years out-of-date but the clubs would find great difficulty in raising funds to replace it, particularly since the Government has reduced its financial support.

No club-type gliders are being built in Brazil and the cost of importing a K-8 from Germany would make it a very expensive machine. There was vague talk of building more Neivas, but I sincerely hope that the design is extensively modified before this happens. Such is the detail design that, in comparison, the T-31 is a veritable riot of modern technology.

CHECK FLIGHT

Prudently, CTA subjected me to a check flight in a Neiva, and it is only fair to say that it performs and handles a good deal better than its appearance would suggest. After I performed some gentle stalls and assorted manoeuvres, the very young instructor in the back seat, meaning to be complimentary in a foreign language, said "I see from your experiences that you are an old pilot!"

The Grunaus and Olympias bore a considerable resemblance to their European prototypes except for a couple of local mods, distinctly for the worse: there seems to be a passion for microscopic landing wheels which, as one would expect, survive rather poorly; also, the universal trimmer consists of a tab pulled one way by a single wire and the other way by a rather feeble jangly spring attached to the elevator. Surprisingly, flutter does not seem to occur, but the tabs just don't work. The old English pilot was duly launched in an Olympia and, apart from finding the stick a long way forward on tow, con-

cluded that it was much the same as other examples of the breed.

The BN-1, which I did not fly, looks vaguely like a rather bulky cross between an Olympia and an M-100, but with spoilers instead of airbrakes. After a nasty accident at Pôrto Alegre, only two were left, with a somewhat uncertain future.

The machines at CTA were in reasonable condition—as they certainly should have been with the airworthiness authority lurking on the same site. Elsewhere, one got the impression that airworthiness was largely a matter of individual conscience since "Homologacão" was very long on paper-work and distinctly short on actual inspection. Cockpit placarding was either exceedingly vague or non-existent, as a logical by-product of negligible flight testing and a total lack of weight and CG data.

FLYING THE URUPEMA

After Professor Vandaele had pursued numerous permissions and approvals, I eventually flew the Urupema. It is about as hot as they come, since the target empty weight of 200 kg. had been exceeded by a handsome 54 kg., of which some 40 kg. consists of filler on the wings to rectify various errors in the original jigs. Not only does all this weight cause it to proceed rather rapidly but, being mostly in the wing, produces enormous amounts of inertia in yaw and roll. The tow-hook is just ahead of the wheel, so the tow-rope pull has negligible stabilising effect on take-off. Also, the rudder is not very effective at low speeds. So, cross-wind landings (as Claudio Junqueira demonstrated) and cross-wind take-offs (as I discovered) can be distinctly tricky. Finally, it has a local design of tow-hook which renders release quite impossible with even a modest pull on the tow-rope. I nearly uprooted the instrument panel when trying to abort the first take-off.

I eventually got airborne, in rather less alarming cross-wind conditions, on a superb soaring day. Due to the low ground incidence, the take-off speed is about 90 km/h. The sensation is impressive as you lie flat on your back in the middle of a cloud of red dust, galloping down a rough unsurfaced runway. Once airborne, no problem.

It also circles at a vast speed, feeling rather unhappy at anything below 85 km/h. 90-95 seemed about optimum, and it obviously needs pretty big thermals. Under the right conditions, which apparently are not all that frequent around São José, its performance seems impressive. Considered separately, the elevator was very light but by no means twitchy and the ailerons and rudder were rather nondescript. But the whole was better than the parts: it felt remarkably pleasant when circling and, in straight flight, felt structurally stiff and devoid of unwonted perturbations even in quite rough air. Also, despite the ultimate in supine seating positions, but with adjustable pedals, headrest and thigh supports, the view was quite acceptable, largely due to a very good canopy with no obstructing framework.

Probably the most remarkable feature was the ventilation system: air is admitted via an adjustable NACA intake under the nose into a plenum chamber in the nose cone itself, whence suitable outlets conduct cool breezes along the sides of the cockpit and under the canopy. In the Brazilian climate and with no clear-vision panels, all this is very necessary and it works superbly. There is, I fear, a snag: it makes a shocking noise and, unlike most modern gliders, 120 km/h. sounds as if the afterburner has been switched on. Some of this may be due to the very thin ply of the plenum chamber, a feature to be modified on later examples. The airbrakes were nicely effective but a nearly-two-point landing in zero wind consumed a lot of terrain.

UNCERTAIN FUTURE

The future of this design seemed rather vague, and the advent of retracting wheels in the Standard Class means that it needs extensive re-design of control runs, etc., to bring it really up-to-date. There was talk of building 50 of them at some undefined date in the future, but Brazilian gliding certainly couldn't absorb more than a few since it clearly isn't a club aircraft. The cost, so far, is said to be of Sigma proportions.

My normal weekend haunt became Jundiaí (pronounced Jun-dee-ay-ee) and not CTA. Jundiaí is about 50 km. NNW of São Paulo, and the single-strip airfield is the home of the Club Politecnico de Planadores (CPP) and a flying club. The gliding club is presided over by Dejan Golik (Brazilian team manager in Poland) and is the home of George Münch, veteran of many a world champs. I had the great good fortune to be "adopted" by Rick and Gail Muller who, with unfailing generosity, provided hospitality on numerous weekends at São Paulo, together with various entertainments—usually incited by Dejan. The Mullers, together with Jim and Polly Perry, own a Blanik, one of three in Brazil.

Not only did the hospitality cover the usual human comforts—a great relief after the rigours of CTA—but even extended to the Blanik, thus displaying an astounding trust and charity.

Similarly, the K-6CR syndicate seemed entirely happy to bestow their pride and joy on the visiting gringo who, hitherto, had simply been a name on a book-cover. So I had the great good fortune to fly the three best gliders in the country—Urupema, Blanik and K-6—all soon to be outclassed by the arrival of a private Libelle.

Much of CPP's training was done on a Specht, also, I think, privately owned; the club Neivas were rightly regarded with some suspicion. Indeed, my last afternoon in São Paulo was spent in an obscure corner of what appeared to be the city engineer's department where, rather oddly, one of the Neivas was being overhauled.

THE SP-19

Another notable private machine at Jundiaí was Dejan's SP-19. Two were built with a span of 18 m., in which form it would have been roughly the equivalent of a Skylark 4 and, apart from the kinky rudder, rather similar in appearance. Unfortunately, the first one achieved aileron flutter and killed the designer, whereupon the other was trimmed down to 15 m. in the interests of increased stiffness: this is Dejan's.

It's performance is roughly what you would expect and the handling unexceptionable, but with lingering traces of the flutter problem even at speeds as low as 100 km/h. In turbulence, the stick tries to vibrate laterally from time to time: clamping it firmly within the hand has little effect, as indicated by the clatter from the centre-section control connections.

Anxious to become an even older pilot, I was rather wary of exceeding 100 km/h but Dejan has survived higher speeds. On one spectacular day, Dejan's hospitality and enthusiasm combined to launch me on to the edge of an approaching minor cold front. The lift was indeed rather splendid, but the front rapidly bore down on the airfield and started emitting hailstones and electricity. Getting back to Jundiaí under the edge of the front was pretty exciting and the accelerometer showed readings of $+4$ and $-2g$; not to be taken too literally, but very rough indeed. The subsequent landing, in a strong wind straight across the runway, was safe rather than elegant.

THE LOCAL WEATHER

Soaring-wise, the weather was not particularly good, rather like a warm version of a poor English summer. Inevitably, the locals said that it was an exceptionally poor spring and it would doubtless get better in January and February. Even so, it seems that conditions near São José are rarely particularly strong and cloud base is often around 4,000 ft. above the ground, itself 2,000 ft. asl. Further inland, it gets better. There were certainly some spectacular-looking days but, even then, the thermals were vaguely unsatisfactory: not particularly strong, ephemeral and rather difficult to centre in. Obviously, there was good lift in the big clouds, given enough courage and electrical bonding. I lacked both.

One of the high spots of the whole trip was the visit to Pirassununga, about 190 km. NNW of São Paulo, the site of the 1970 Nationals. The object was to inspect the site and to indulge in a public relations exercise with the Blanik. Due to the rather complicated tug situation at Jundiaí, an Air Force Paulistina was borrowed from CTA, complete with one Lt. Col. Cid as pilot. The Paulistina is a

local copy of the Piper Cub and, apart from the absence of flaps, appears to be identical with the original. With a 150 hp. motor, it makes an excellent tug.

There was much discussion as to who should fly in which aircraft, the number of permutations being limited by the presence of a vast spare battery for Pirassununga on the front seat of the Paulistina. Finally, the Blanik had Rick Muller in the front seat on the way out and Jim Perry on the way back, with myself in the back both ways, on the theory that I would be able to supply useful guidance on field landings if the rope broke. Fortunately, it didn't, so the owners were spared a spate of fallacious advice on dealing with Brazilian claptraps.

Pirassununga turned out to be a jet-training base, complete with Cessna T-37s, a concrete runway for their benefit and a parallel grass strip for less exotic traffic, such as us. The Air Force was duly joy-ridden and a certain amount of soaring was done before it was all stopped by the regular 4 pm. phenomenon whereby the Cu suddenly explode into Cu-Nims of extreme fierceness. After a soothing night in the Air Force's "fazenda", the country house of an extensive estate used for VIPs, such as us, aviation was resumed on the Sunday morning with more joy-riding.

The Air Force showed its appreciation by producing a couple of T-6s (Harvards in the RAF—remember?) in order to joy-ride us. Each flight involved a formation beat-up of such lowth that it was just as well the pilots had remembered to raise the gear (i.e. retract the undercarriage) and one began to see the point of the slightly-cropped propellers. Thereafter, the superbly-executed aerobatics seemed quite innocuous to our adrenalin-soaked senses.

The tug situation at Jundiaí was, as implied above, rather confused. There was a genuine Cub with its 108 hp somewhat enervated by age and heat. This did most of the towing, but clearly couldn't cope with the Blanik, two-up. At the other extreme was a vast and hairy Stearman biplane, with no less than 450 hp. at the front: a formidable tug indeed. Unfortunately, it had very temperamental wheel-brakes and was somewhat prone



The Stearman tug.

The SP-19.
(Photos: Frank Irving)



to unexpected swerves and ground-loops. As I first arrived, one of these had damaged an aileron and bent its massive undercarriage, so a very sweaty day was spent in the hangar helping to take it to bits. As I emerged from inside the fuselage, shirtless, sticky and petrolstained, the Mullers' small daughter, with the devastating candour of the very young, looked me straight in the eye and said "Gee! You don't smell so good". Meanwhile, a 150 hp. motor was on order from the USA, to be screwed into another Cub/Paulistina and, if they ever extract it from the clutches of the Brazilian

Customs, most of their troubles should be over.

Shortly after arrival, I started the process of getting a gliding licence. It would be tiresome to relate the whole saga: let it suffice to say that I gave up after six weeks when a splendid form arrived wanting to know the colour of my beard, moustache and eyebrows (separately) and would I please go to Rio to take an examination in Portuguese on the "regulamentos". In practice the absence of a licence made not the slightest difference to my flying but, for the sake of all concerned, it would be as well to give the impression that my hosts assumed that the matter was in hand.

It is easy, and somewhat unkind, to imply that Brazilian gliding is simply quaint. It operates under difficult circumstances several thousand miles away from the main centres of the sport. Much of the equipment is sadly outdated and devices which we regard as commonplace, such as electric variometers, are nowhere to be seen. Cross-country flying is often very difficult and communications are poor. Despite these severe disadvantages, it is gently expanding and, at its best, is pretty competent. The atmosphere is not unlike that of British gliding 20 years ago: above all, it is great fun. In one respect—hospitality—FBVV members are superb, and I am greatly indebted to all those mentioned above and many more besides; it is going to be difficult to reciprocate adequately when return visits occur. It was, all told, a splendid confirmation of the international *esprit* of gliding: go anywhere in the world wearing a gliding badge, and an instant welcome is yours.

What about Urubus? The Urubu is a nasty-looking, vulture-type, high-lift-co-efficient, soaring bird. Practically every thermal in Brazil has several, even on the outskirts of São Paulo city. They are idle animals. So long as they are soaring well enough, they don't bother to find the best part of thermals and they seem to circle in a sort of vague stupor. Dejan has numerous apocryhal stories about them, such as seeing them perched asleep on the struts of a soaring Neiva. Certainly, they indulge in remarkable avoidances when they finally realize that ramming is imminent. Urubus and Brazilian soaring are inseparable.

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BRITISH NATIONAL CHAMPIONSHIPS STRUCTURE

By TOM ZEALLEY (Chairman, BGA Flying Committee)

IN the last issue of SAILPLANE & GLIDING David Ince proposed an ingenious method for establishing precisely what the majority of British glider pilots considered to be the most important objectives of Nationals: "Until we know what we're trying to achieve, how can we decide what to do?" This reasonable approach falls down because in such a many-faceted matter many people are not clear in their minds exactly what they *do* want until presented with some practical alternatives. In the case of Nationals the number of alternative arrangements which most pilots would consider to be practical is strictly limited.

In the same issue Ann Welch put forward a practical proposition for Class Competitions outside World Championships. No doubt her article will set people thinking on new lines, but aspect ratio is a much cruder yardstick for classifying gliders than the current British handicapping system (in which a number of other countries have shown interest), which is based on theoretical cross-country speed which is essentially a simple and absolute concept.

The BGA Flying Committee has been actively considering revisions to our National Championships structure and the scheme described below is the result of these deliberations. The BGA Executive Committee has taken no decisions on the 1971 Nationals structure, but may be expected to do so shortly.

The principal criticisms of the present structure are, first, that the spread of glider performance in each National Class has become wider than desirable. Secondly, there is no longer a single occasion on which the top dozen or so British pilots can pit their skills against each other to assist British Team selection. Thirdly, the combination of International Standard Class with the British Sport Class is an unhappy amalgamation of differing objectives.

In practice the number of alternatives seriously open to us is limited and in an attempt to focus on this the following revised structure is put forward:

Nationals would continue to be split into two championships of equal standing, each with 40 contestants and held on separate occasions and/or on separate sites. However, the basic split would be into a handicapped and unhandicapped Nationals.

The handicapped Nationals—basically a "Sport" Class—would be aimed at the best of the older design of glider. Entry would be controlled by handicap percentage—both as to the top *and* the bottom—so as to avoid an excessive spread of performance and exclude the latest "hot ships". This Championship would largely contain K-6's and Dart 17's but with various others of the older designs as well.

The unhandicapped Nationals is intended for the latest "hot ships". This would be divided internally into Open and Standard Class according to the types of gliders selected by the 40 entrants. The two Classes would be scored separately but could fly the same tasks (thereby allowing direct comparison). The absence of handicapping in this National would discourage entry of older low-performance gliders, although the rules would not positively exclude them. The Open Class would largely comprise Cirrus, Diamant, ASW-12, etc.; and the Standard Class would comprise ASW-15, Libelle, LS-1, etc.

In brief, these proposals amount to three Classes—Open, Standard and Sport, with the first two combined into one competition.

All aspiring pilots in the year of selection for World Championships should be encouraged and enabled to fly in the unhandicapped Nationals. If both Classes fly the same tasks in this Championship, then direct comparison between all top pilots will be possible. Furthermore, in this National the glider types will be closest to the types likely to be flown in World Championships.

If you have any views on British National Championships structure, please let me know, care of the BGA.

BGA NEWS

Dunstable-Luton Airspace

At the time of going to press, discussions on proposals for air traffic control around Luton have reached an advanced stage. It is probable that a NOTAM will be issued covering this, and bringing in new regulations which will be operative from early April 1970. In addition to the NOTAM it is likely that special arrangements will be agreed between the Luton Airport Authority and the London Gliding Club for the mutual use of the airspace between Luton and Dunstable Downs; these arrangements will be linked to wind direction.

Luton commercial air traffic is increasing very rapidly, and it is important that anyone contemplating flying in the vicinity of Luton and Dunstable should study the new regulations before doing so.

At the present time it looks hopeful that the restrictions on gliders will cause only slight inconvenience.

World Championships

Gliders chosen for Marfa (June 21st-July 5th) are as follows:

Open Class:
George Burton: Kestrel 19m.
John Delafield: ASW-12.

Standard Class:
Con Greaves: Std. Libelle.
Andy Gough: Std. Cirrus.

It is hoped (see page 149) that the pilots will leave London on 29th May for two weeks' practice at Odessa before going on to Marfa for the official practice week.

American crewmen assisting the team and providing cars include Einar Enevoldson, who flew in the 1969 American Nationals at Marfa, and Bill Engelke, who crewed at Marfa in 1969.

Appeal Fund

Donations from the following are gratefully acknowledged. (Period 20th December, 1969, to 17th February, 1970.)

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Instructors' Courses

The following nine-day Instructors' Courses will be organised by the National Coach, Bill Scull.

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Apr. 18-26	Coventry
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June 20-28	Yorkshire
July 4-12	West Wales
July 18-26	Essex
Aug. 8-16	Lasham
Aug. 22-30	Wycombe A.P.
Sept. 5-13	Doncaster
Sept. 19-27	Lasham
Oct. 3-11	Worcester
Oct. 24- 1 Nov.	SGU

The Course fee is £15 per person, and course members are directly responsible to the host club for payment in respect of accommodation, food and temporary membership and also for time on any club aircraft.

In addition, flying time on the Motor Falke will be charged at the rate of 2s. per minute engine-on.

Applications, which must be approved and countersigned by the Club CFI, should be made as soon as possible and be accompanied by the basic fee of £15.

British National Records

The following wording was published in the August-September, 1966, issue:—

"British National records may be set up in any country by any British citizen entitled to hold a British passport, except that British citizens holding dual nationality shall not be eligible to hold British National records for flights that started in the country of their second nationality."

At their meeting on 11th February, 1970, the BGA Executive Committee ruled that this should be interpreted to mean that the applicant must be a British subject: Citizen of the UK and Colonies.

New Records Claimed

Leigh Hood and Mick Slater are claiming the British National two-seater gain of height record with a flight carried out at Issoire, France, on 2nd February, 1970, in a K-7. Gain approximately 22,500 ft.

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.

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POWERED TRAINING

By DEREK PIGGOTT

IT is now more than six months and 500 flying hours since the Falke arrived at Lasham and we are, therefore, in a position to assess this machine, and to make suggestions for future motor gliders intended for dual instruction.

As I predicted some years ago, there is no aspect of glider training except the actual launch which cannot be done quicker and better in a motor glider.

A very small minority of instructors and pilots converting onto the Falke have taken time to adapt themselves to the idea of treating the aircraft as a glider when the engine is left idling. At first these pilots are tempted to use the engine to extend their circuit or to stand off at times when the approaches and landing areas are rather congested. This can cause confusion, as on occasions when the motor glider has the propeller stopped it must have the same rights of way as the gliders and it is not easy to see whether the propeller is still turning.

This problem does not arise with students under training if the instructor keeps to the rule of never using the power to help out. The criticism of this form of training, that it would lead to pilots relying on the security of an engine, has been completely refuted. Furthermore, because a tendency to overshoot does not result in a long push back, students are not reluctant to turn in early when running short of height.

The Falke has a remarkably good all-round performance. The average rate of climb at 45 knots is just under 4 knots (400 ft./min.) and has proved adequate for safety. The glide of about 20:1 at 42 knots gives a climbing performance in thermals which is very close to the Capstan and other two-seater gliders. Serviceability has been very good.

Looking to the future, a further increase in the rate of climb would be welcome. The rudder/aileron co-ordination is affected by the slipstream during the climb (making the rudder rather heavy and sensitive) and therefore the time spent climbing is not so valuable as time spent in the glide. Also a small amount of rudder deflection is required for the climb. This could be reduced or eliminated by a small amount of engine offset and this would save some nagging.

Normal glider type air brakes, rather than spoilers, do seem essential to provide glider characteristics. Although the spoilers provide a reasonably steep approach, the float is rather excessive and the difference proves an embarrassment to pilots making revision flights or cable break practices who are not very familiar with the Falke.

The Falke wheel is bigger than in most gliders, but a sprung undercarriage or an even larger size wheel is really necessary for training flights. After 30-40 beginners' landings in a day, most instructors would welcome a softer ride over rough ground. However, the single main wheel undercarriage is quite acceptable, and damage to the outrigger wheels is very rare.

In assessing the future of two-seater motor gliders, there are a number of imponderables. The private owner would welcome a much higher gliding performance but this may involve considerable extra expense. Feathering propellers, retractable undercarriage and tuck-away engines all cost money, and at £4,000 or so, plus insurance and other overheads of up to £1,000 per year, the market is somewhat limited.

For training two-seaters, better gliding performances, although welcome, play no essential part in the training role, and every complication is likely to add to the expense and servicing problems.

In fact, the majority of our instructional flying seems to be best done with the engine idling, so that any small extra amount of power required to improve the glides goes unnoticed by the student.

When two-seaters with much higher performance are used, the glide will suffer severely when the propeller is unfeathered or the engine is not retracted. This may mean that for training purposes, quite a large power setting will be needed to maintain a normal glide.

Obviously there will be high performance self-launching two-seater gliders in the future, but it does seem that they will not be the ideal trainers. For intensive training, it seems likely that a very simple rugged machine will be essential to keep maintenance costs down.

FALKE STATISTICS—Period 147 days (22nd June to 16th November, 1969)

Breakdown of Flying:

28	days	0-2 hours total flying
52	„	2-4 „ „ „
40	„	4-6 „ „ „
6	„	6-8 „ „ „
1	„	8 hrs. 18 mins. „
127	„	Total flown
2	„	Unserviceable
8	„	Unserviceable for inspections and minor snags

	hrs.	*mins.*
Total flying hours ...	429	30
Total engine hours ...	260	—
Average hours flown per flying day	3	20
Average length of sortie per pupil		18

Number of landings 1,553
Percentage engine/total 64%
Average fuel consumption 2.01 galls. per engine hour.

INSPECTIONS

Check: 25 hour — oil changes, checking engine and accessories for signs of wear, etc. Average time taken — 2 man hours.

Check: 50 hour — oil changes, cleaning oil filter, check of plugs, points, and valve clearances, general check and tighten up. Rectification of all snags, airframe inspection, tyre pressure check, wheel bearing and structure check, general lubrication of all controls. Average time taken — 4 man hours.

NOTE.—Because of the heavy utilisation at Lasham, we are carrying out a thorough check at 50 hours. This reduces the amount of work on the annual inspection and undoubtedly has helped to eliminate minor unserviceability.

Modifications:—A number of minor modifications were made to improve the Falke as a training machine—

1. OUTRIGGER WHEELS — These were shortened by approximately 5 inches and modified to allow very quick change in event of damage. Shortening the wheels reduces the risk of touching down on a wheel during instructional landings and enables the student to see when the aircraft is one wing down on take-off and landing.
2. RUDDER PEDALS — It was found possible for small feet to slip under the pedals. Hardboard floor boards were fitted and the rudder pedals were blocked in to prevent this happening. The rudder pedal foot retaining hoops were also removed, as it was found that it was difficult for the instructor to take over the rudder control quickly and surely.
3. CANOPY STAY — This was modified to hold the canopy securely in the open position. The canopy catch was modified to enable it to be opened from outside.
4. THROTTLE SPRING — The throttle spring proved too powerful and tended to open the throttle during ground running. The lever was redrilled to reduce the spring's leverage.
5. TAIL WHEEL — Most student pilots found the rudder rather stiff to operate and the tail wheel steering rather sensitive during take-off and landing. The tail wheel steering arms were lengthened and this helps considerably although it has the inconvenience of reducing the turning radius for taxying. The tail wheel pivot shaft became bent with operating on rough ground and has been renewed with tougher material.

Trimming:—A fixed elevator tab has been added to bring the trimming range down to cover gliding at normal speeds.

Major Snags (necessitating immediate servicing):—

Main wheel bearings working loose in housing and wheel assembly. Bolts failing—3 incidents but spare main wheel fitted. U/S 1-3 hours.

Broken propeller due to the pilot letting the stick jump out of his hand on landing. Spare propeller fitted after checking crankshaft. (New propeller costs over £90). U/S 3 hours.

Ignition problem—An intermittent short circuit inside the magneto cover was finally located after 6 hours searching. U/S 1 day.

Suspected ignition fault, finally diagnosed as faulty choke. U/S 2 hours.

Outrigger Tube broken—A fabric

patch and small wood repair was carried out. The outriggers were replaced with shortened spares. U/S 1 day.

Outrigger Tube broken on heavy landing, replaced with spare. U/S 2 hours.

Other Snags (rectified between flights or on non-flying days):—

Starter U/S (5 instances of various trouble, mainly caused by engine kicking back when impulse magneto sticks).

Tail wheel—tyre worn out—spare fitted, tail wheel pivot shaft bent (5 instances).

Costs:—The overall fuel consumption per engine hour has worked out at 2.01 gallons. (Five star car fuel at 6s. 8d. per gallon.)

The oil consumption is nil but the oil is changed every 25 hours (we hope to raise this to 50 hours) and the sump holds about 4 pints. (Oil at 16s. per gallon.)

Spares:—The following were bought:
1 main wheel complete.
1 tail wheel complete with fork.
2 tail wheel tyres and tubes.
2 outriggers with wheels complete.
2 propellers.
2 starter units complete.
1 set of points.
2 sets of plugs.
2 sets of gaskets.

The following spares have been used, broken or worn out:—
1 set of plugs.
1 set of gaskets.
1 propeller.
1 tail wheel tyre and tube.

In addition, we have been very fortunate to have the help of Roy Cross, who has undertaken a considerable amount of modification and repair involving metalwork and manufacturing facilities without charge. This has enabled us to reach the present stage of high serviceability.

When possible, Staff Instructors have assisted in 50 hour inspections, etc., to minimise the overall servicing costs.

The estimated operating costs excluding instructor's salary, including depreciation, insurance, interest on capital and engine overhaul, appears to be about £3 10s. per engine hour.

GENERAL ASSESSMENT

We are well pleased with our machine and do not foresee any real serviceability problems.

STOP PRESS.—Slingsby Sailplanes Ltd. are to make the Schelbe Falke SF-25B under licence. Delivery time for new orders nine months. Ring Slingsby's for further details.

The engine shows no sign of wear after 300 hours and we confidently expect a life between overhauls of well over 600 hours as it is, in effect, derated by the large propeller so that it runs at only 2,600 r.p.m. and develops about 30-35 h.p. (instead of the 45 h.p. at 3,200 r.p.m.).

As a training machine for glider pilots, it is years ahead of anything else in production. At Lasham, for example, glider training has virtually ceased apart from conversion flights to familiarise pupils with launching techniques.

GLIDING CERTIFICATES

DIAMOND HEIGHT

No.	*Name*	*Club*	*1969*
3/94	T. A. M. Bradbury	Bristol	24.10
3/95	J. B. Brenner	Midland	29.10
3/96	A. A. A. Maitland	Cambridge	23.6
3/97	J. E. New	Surrey & Hants	24.10

DIAMOND GOAL

No.	*Name*	*Club*	*1969*
2/310	J. G. Wild	Bicester	18.4
2/311	A. E. Stenhouse	Airways	25.7

GOLD C COMPLETE

No.	*Name*	*Club*	*1969*
243	G. W. G. Camp	Crusaders	15.10
244	P. Young	Clevelands	28.9
245	J. E. S. Temple	Surrey & Hants	3.10
246	A. E. Stenhouse	Airways	25.7

GOLD C HEIGHT

Name	*Club*	*1969*
G. W. G. Camp	Crusaders	15.10
I. T. Barr	SGU	6.12
S. M. Green	E. Midlands	27.10
J. D. Benoist	Bicester	30.5
R. T. Dixon	Four Counties	1.11
A. Harris	Zell am Zee	9.11
M. C. Costin	Coventry	25.10
D. R. Carson	Midland	14.10
P. Young	Clevelands	28.9
Vera Wates	Airways	26.10
J. E. S. Temple	Surrey & Hants	3.10
W. G. Scull	BGA	30.10
R. D. Parker	Clevelands	23.9

GOLD C DISTANCE

Name	*Club*	*1969*
C. J. Marsh	Airways	25.7
A. E. Stenhouse	Airways	25.7

SILVER C

No.	*Name*	*Club*	*1969*
2565	D. Brown	Midland	25.9
2566	P. L. Talbot	Cambridge	27.9
2567	P. W. Lever	SGU	3.1.70

NEW CODE SPORTIF

THE FAI *Code*, Class D, provides for "international control of records, achievement badges, and world championships for sporting gliders". The existing little pink book which is dug out each contest season has, over the years, become increasingly outdated and it will be replaced during this year.

The revision, which is extensive, has resulted from two years' work and consultation between countries by correspondence and at CIVV meetings: it was finalised in Paris on February 7th. It is now going to Press and the changes will come into force either two months after publication or on January 1st, 1971, whichever is the earlier.

The new *Code* will contain 11 sections: 1-5 deal with definitions and requirements for glider flights generally; 6, records; 7, badges; 8, world championships, and 9, marking of championship flights (this will not be included until after Marfa). Section 10 deals with Standard Class and 11 with Motor Gliders.

Here are a few of the main points:—

Sections 1-5: General flight requirements

In recent years it has become increasingly practicable to soar to a distant point to commence, say, a record attempt, or to fly home again before landing. So the principle is accepted that it is of no concern what a glider does before crossing the Start Line, or whether or not it continues to soar after crossing the Finish Line. A Performance is that, and only that, which occurred between the crossing of the Start and Finish Lines. Once a Finish Line is crossed, no distance prior to its crossing will count towards any subsequent performance. In other words, you can't do a record 100 km. triangle, and then set off for a 500 km. Diamond, and add the distances together.

To facilitate soaring either back home after crossing the Finish Line, or starting on a second attempt at a record, the Start and Finish Lines will be identical in shape and size. They are both gateways, no more than 1 km. wide × 1,000 metres high, and indicated on the ground. If one line is used for both Start and Finish it must be approximately at right angles to the bisector of the first and last legs, but if it is more convenient or safer to use separate lines, the centres of the two lines must not be more than 2 km. apart. The distance which is measured is, of course, that between the Start Line, via the turning points, to the Finish Line.

Evidence of crossing the Start and Finish Lines may be obtained only from Observers on the ground at these points. The principle behind this rule is that it is not admissible for the pilot to gain a record entirely on photographic evidence. Another human being must be involved in the control of the flight to ensure that the flight was made as claimed.

Turning point evidence may be either by ground observers or by photography. If the latter, the pilot has to take a picture of the turning point while flying beyond it along the course line just flown, provided that the angular deviation horizontally from the extended course line does not exceed 45°.

The number of turning points permitted in a flight will remain at one for a zig-zag (old broken line, which does not translate well) and an out-and-return, and two for a triangle. As previously, all turning

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points will have to be declared, as also does the departure point.

The rules for photographic evidence have been spelled out. They start with the following principles:—

Photographic evidence is acceptable provided that all the photographs concerning a flight are on a single uncut length of film, and there is proof that they were taken (a) by the pilot of the glider or his passenger on the flight in question; (b) of the declared turning points from the right place (defined) and in the correct sequence, and (c) between the time of the last crossing of the Start Line and the crossing of the Finish Line. The *Code* contains two methods by which evidence may be obtained which can be briefly stated as "camera sealed but hand-held" and "camera fixed but sealing not necessary". The former is more practicable for club work, and the second has advantages for competitions.

Section 6: Records, and Section 7: Badges

There is not really any fundamental reason why the requirements for a record and those for a badge should be the same. For a record you need to be able to precisely measure a particular flight, whereas a badge is for a level of personal achievement. The requirements for a record triangle are now, and will continue to be, that no leg of the triangle shall have a length of less than 28% of the total distance of the course, and that the triangle shall start and finish at one corner (only 2 turning points). However, for badges the 28% rule will be abolished. It will be possible to do Gold or Diamond distance either straight, or via one turning point (zig-zag, completed or uncompleted out-and-return), or with a triangle of any shape.* If the glider fails to complete the triangle but has flown the required distance (300 or 500 km.) it will count provided that it is landed no farther than 10 km. from the line of the last leg. This modification should be of considerable help to geographically small countries and those with airspace restrictions, without reducing the value of the achievement.

For some time it has been felt that the Diamond goal does not really prove very much, since most pilots combine it with their 300-km. Gold distance. In future, the landing will have to be made back at the point of departure. In other words, the flight must be a completed out-and-return, or triangle of any shape.

Two other modifications to the badge requirements will be:—

The straight flight requirements for the Silver 50-km. distance will be waived when the flight also achieves a higher qualification (e.g. Gold), and any flight will be able to count for any badge or Diamond for which it fulfils the requirements—if a pilot is able to complete his Silver badge in a single flight, good luck to him.

Section 10: Standard Class

As in the existing *Code*, the specification for the Standard Class glider will be given. From 1970, as is known, the only change is that retractable undercarriages will be permitted.

The definition of a flap-brake is now agreed, but this will not be permitted before 1974. This is because little experience, as well as some doubt, still exists about this type of flap. There is no glider so equipped in production; further, there is some concern that the probable performance improvement with the flap would devalue the large number of Standard Class gliders already in use.

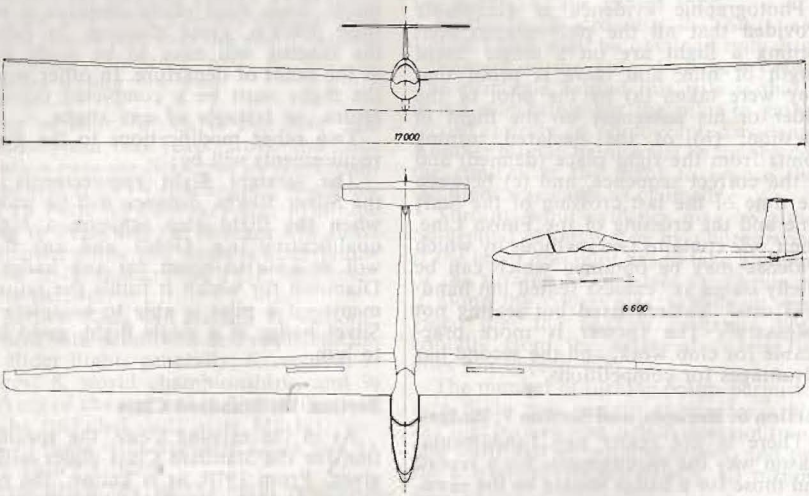
Section 11: Motor Gliders

This is an entirely new section. It accepts the principle that if a motor glider is used to attempt a *gliding* record or a badge qualification, it may do so only as a glider; it must *not* be possible to restart the engine in the air on that flight. The engine may be used for launching, but the motor glider must then cross a Start Line on all record or badge attempts with the engine stopped. Section 11 defines the motor glider. Later it will include regulations for FAI records, international badges, and world championships for motor gliders.

ANN WELCH

*Pilots may like to note that failed triangles have been acceptable since 1st January, 1966. However, until the *Code* comes into force the 28% rule should be complied with.—ED.

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AUSTRALIAN NATIONALS: Dec. 27 — Jan. 9

By MARTIN SIMONS

IMAGINE, if you can, that the tenth Australian National Gliding Championships were held this year at Husbands Bosworth (England) instead of Narromine in New South Wales. Take the English landscape, evacuate all but two per cent of its population, desiccate everything in a near tropical sun and erode a few gullies with semi-tropical downpours and you have set the scene. Assemble the competitors. Some came from nearby Sydney—about as far off as Amsterdam, with the North Sea replaced by a broad and high range of forested mountains. A strong contingent arrived from Kingaroy in Queensland (The Orkneys); one team travelled from Mount Isa (Iceland); five aircraft moved from Waikerie (150 miles west of Tralee, Ireland); three from Adelaide (250 miles west of Tralee); others from Melbourne (Nantes, France), and one from Port Augusta (Mid Atlantic). John Buchanan even came from Pearce in West Australia (equivalent to the Grand Banks of Newfoundland).

Although 45 sailplanes competed in Open, Sport and Two-seater Classes, all the glass machines were lumped somewhat arbitrarily into the Open Class. There were seven Libelles, two of them the flapless variety, and the relatively old Diamant 16.5. Vying with these were two brand new Kestrels and a Phoebus 17. These had arrived in Australia only a few days before the contest. Also present, but tragically grounded by red tape, was the gleaming FK-3, imported by John Rowe, champion of two years' standing. John was without a sailplane for the first three days, but his father, Bob, generously stood down to allow John to fly in one of the Kestrels.

In the Sport Class the hitherto dominant Schneider Boomerangs found themselves opposed by two Fokas, the Austria SH-1, a BG-12, a Pirat, and a solitary Dart 15, as well as the usual licence-built K-6s, a Mucha and a couple of "fly for fun" Olympias and solo K-7s. The Two-seater Class was not well supported, and this is likely to be the last time this Class is admitted at the Nationals.

The first task, on Saturday, December 27th, was Narromine to Forbes and return —264 km. The winner, Ingo Renner in the Phoebus, averaged 59 m.p.h., but the gilt was taken off his gingerbread by Malcolm Jinks flying for fun. Malcolm clipped twelve minutes off the Phoebus's time and regretted that he had opted for a rest day.

The next day's task was an out-and-return to Grenfell—374 km. David Peitsch, not so long ago a resident instructor at Sutton Bank, flashed round the course at 73 m.p.h. on the Waikerie Club's Libelle. Rumour has it that the Waikerie Libelle was equipped with a secret weapon in the shape of large rubber bags containing emergency reserves of drinking water in the wings. A couple of days later the Kestrels, too, began to go faster, loaded up to their maximum permitted wing loading of more than 7 lbs. per sq. ft.

By the third day the task distance was up to 402 km., twice round a 201 km. triangle, but the second and fifth leg was flown across almost featureless "park-like" landscape and accuracy with compass courses was essential. Bob Martin came in ten minutes ahead of everyone else in the Waikerie Libelle at 62 m.p.h.

The weather now began to deteriorate, so the fourth day's task was a mere 171 km. Malcolm came in at only 41 m.p.h., evidently a difficult day. The tricky conditions continued and the fifth day was a 202 km. triangle, but John Blackwell managed 55 m.p.h. to win, with Jinks only 48 seconds slower and third man, Peter Hanneman, getting into his stride with the Kestrel, only 30 seconds behind the Diamant.

New Year's Day was a blow-out in every sense—an intense Low moved in from the north and Narromine was beset by winds of gale-force and blowing dust. The next day, too, was lost, and on 3rd January the task was only a 140 km. out-and-return. The day was marred by a dispute—the pilot clocking the best time was observed to turn about 600 yards short of the markers. He, and another pilot in the Sport Class, were disqualified.

The day accordingly went again to David Peitsch, who averaged 59 m.p.h.

The dispute about the turning point continued throughout the meeting and was finally resolved, after wearisome debate, by remitting the total disqualification of this day to a fine of 10% on time. This will almost certainly be the last time the Australian Championships will use turning point ciphers roughly laid out behind buildings and wheat silos visible from several miles away !

Weather now improved, and John Rowe, after an inauspicious start on his first day in the unfamiliar Kestrel, came back into form and won the seventh day, a 313 km. triangle, at 61 m.p.h.

The eighth contest day saw an even larger task. A square course of 390 km. was laid out for the Open Class, while the Sport Class, for the first time, was given a lesser distance, repeating the previous day's 313 km. triangle. On all these tasks outlandings were very few. The winner of the Sports Class was Vic Kasak in the BG-12 at 56 m.p.h.; all the Open Class did better speeds than this over the larger course.

The ninth day dawned to complaints that the tasks were too short. What the pilots really wanted was a chance at the 500 km., and accordingly the task setters arranged a vast triangle. The total distance was 535 km., and Ingo Renner in the Phoebus came in at 69 m.p.h., followed by Malcolm Jinks, less than ten minutes slower, with John Rowe just under two minutes behind him. However, the Sport Class had found the task a long, hard struggle as the thermals faded towards the late afternoon, and the tenth day was reduced to more normal proportions. The Sport Class had a 326 km. triangle, while the Open Class was given a complicated reflex quadrilateral of 413 km. The day was won by me (at last!) with 64 m.p.h., hotly pursued by David Peitsch who was five minutes slower, with Malcolm Jinks 36 seconds behind in third place.

The eleventh day turned out to be difficult—only four of the Open Class completed the set 386 km. triangle. Nevertheless, John Blackwell averaged 66 m.p.h., having raced along in strong lift under clouds, while others, including David Peitsch, had struggled along for hours to land only five miles short of the finish line. If David had just got home on this day he would have won the championships—his failure, after a long hard scratch within sight of the airfield but out of reach, placed him third overall.

Malcolm Jinks now moved into first place, but Ingo Renner was only two points behind him on average, and one more day's flying was to come.

It must have been a relief to the Diamant team and to the Waikerie Club when the final day's task for the Open Class was abandoned before anyone had taken off. Narromine was subject to some very odd wind and weather on this final morning, the Sport Class after numerous re-lights did finally get off for a short run up the road and most of them did get back, but the delay in getting the glass machines away left the contest too much to chance factors and, probably rightly, the Open machines were never launched. John Buchanan won the Sport Class race, but David Jones in the Austria had built up a secure position in the overall lead.

The closing ceremony was held in the marquee, where the trophies were presented by Sir Donald Anderson, Director General of the Department of Civil Aviation. An old Waikerie boy himself, he commented that he was once again giving most of the prizes to young men whose fathers he had known well. Of the four main prizes, the Waikerie Club took home three: the Championship of both the Open and Sport Classes, and the Open Class Team prize. The Sport Class Team prize was captured by Tony Tabart of Kurweeton and Ken Redford of Colac with the Foka 5.

Final Leading Results

OPEN CLASS		*Avge.*
Jinks	Diamant 16.5	937
Renner	Phoebus 17	935
Pietsch	Libelle 301B	924.5
Martin	,,	914
Howland	,,	913
Wrenford	,,	908
Hanneman	Kestrel	897.5
Simons	,,	857
SPORTS CLASS		*Avge.*
Jones	Austria SH	974
Tabart	Foka 5	949
Simpson	Super Arrow	910

THE PROOF OF THE PUDDING

By IAN STRACHAN

A pleasant day's soaring described by Ian, who contrasts it with flights made by other pilots on the same day under the same conditions.

IT was Whit weekend 1969, the last day of the Open Class Nationals at Lasham. All but two competitors landed out in very soggy fields, yet I was able to complete the task despite flying a machine of only moderate performance. But I have to admit using about 1 gallon of fuel for my 5¼-hour flight. The picture now becomes clear, for of course my mount was a K-14 motor glider, and my reason for flying it was to act as an "airways patrol" for the organisers.

K-6 aerodynamics, a feathering prop, and retractable undercarriage all combine to give this useful little machine a soaring performance (prop feathered) not far short of a K-6CR or a Skylark 3. On the BGA handicap list I would put the K-14 at 104%. This implies viable cross-country capability, and points the way to really high performance single-seater motor gliders.

Engine-on rate of climb after take-off was 5 knots, but I soon found a patch of what to a glider would be zero sink and was corkscrewing upwards at 8 knots. At 2,000 ft. the engine was stopped and the prop feathered, in time to join Don Snodgrass in his Dart for thermal snifting. It wasn't very soarable at this time, and would not have supported 40 other gliders in safety, so Don and I struggled to stay airborne until the thermal strength built up. Eventually it did and the competitors were launched, so after a good proportion had crossed the start line I followed.

We were going north towards the first turning point at Didcot, with a strengthening southwesterly wind that was going to make the second leg to Pewsey jolly difficult. Added to this was the probability of overdevelopment and showers, the fields below being already very wet from previous rain. Soon most of us were in trouble. Just north of Basingstoke there was an overdeveloped patch of cloud, and we were scraping. I saw a K-6E land but was not able to pay much attention because I was desperately trying to extract a rate of climb out of a miserable drifting thermal at about 500 ft. above the woods near Aldermaston.

Despite having the "final option" of starting the motor, my sensations and mental processes were identical to those I would have had in a normal glider. Landing fields and circuit patterns were constantly selected, then discarded and re-selected as we drifted. The altimeter was constantly tapped to see if we were really climbing, prayers or threats were uttered at each surge of lift or sink. Eventually the deity of motor gliders came to my aid in the shape of a steady rate of climb of 1 knot. Then the sun came out, 4 knots appeared out of nowhere, and we were in business again.

Soon I was carrying out my airways patrol job near the turning point at Didcot. The actual point of turn was just then covered by a rainstorm, so a lot of glider pilots were "holding off" in my area until the storm cleared. This was going away according to expectations, but a series of other rainstorms appeared in the distance, all tracking straight down the second leg from Pewsey. The best tactical decision seemed to be to turn Didcot and hope. Several of us did this, but had no more lift, and I found myself on the downwind leg to a field in company with a Diamant 18. He had to land, but for me the motor was restarted without trouble. As I climbed away I noticed pools of water in the field below and did not envy the Diamant pilot his lot.

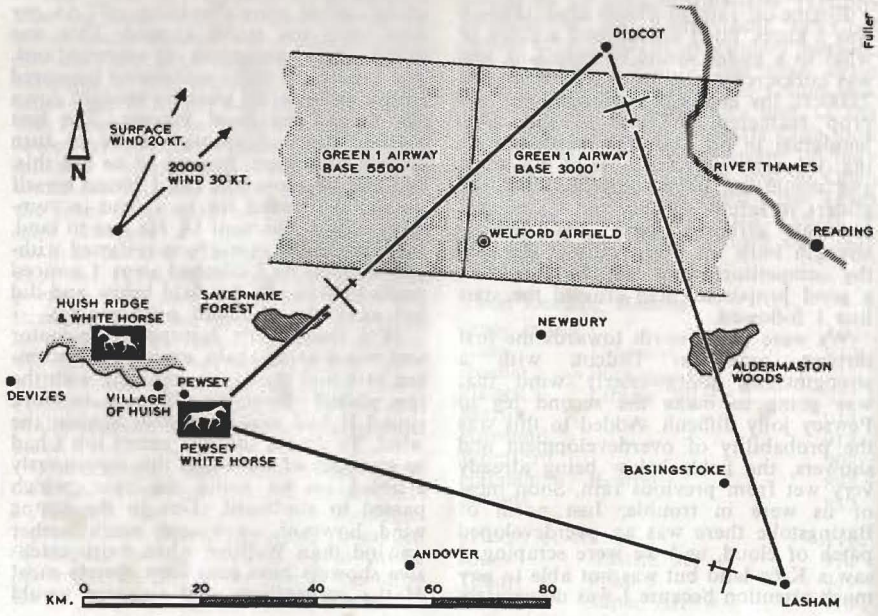
In a short while I stopped the motor and was soaring again, eyeing the oncoming rain and trying, in company with the few gliders remaining airborne, to work round it and make progress against the wind. To do my airways patrol job I had to go south of track and this fortuitously enabled me to avoid the rain, which passed to starboard. Due to the strong wind, however, we weren't much farther upwind than Welford when more extensive showers hove into view. Surely most of the competitors still airborne would

have to land, so my airways patrol duty was over. I decided to use the motor to run for the nearest southwesterly facing ridge and investigate the possibilities of a motor glider in slope soaring.

Huish is a Wiltshire chalk escarpment running from Devizes to the edge of Savernake Forest. A local farmer, Neil Swanton, not only owns the best bit of the ridge and a good bottom landing field, but is a BGA Instructor and syndicate owner to boot! The ridge even has its very own White Horse cut in the chalk and some prehistoric earthworks. So, out came the glide calculator, on came the motor, and we climbed clear of the airway to a height that would allow a "final glide" to the ridge. This involved flying round sundry rainstorms, but Huish was reached with 500 ft. to spare. To my great delight the whole seven-mile length of the ridge was working, a beat longer than that of the Mynd and far more interesting with the little bowls and the odd Iron Age fort to look down on.

After an hour or so I was enjoying myself so much, and had completely forgotten about the motor, that I failed to notice that the rain clouds had gone away —until a thermal caused me first to S-turn and then to circle upwards. I realised that a soaring return to Lasham was distinctly possible. About then I caught sight of a lone SHK turning at Pewsey. This was either Nick Goodhart or Con Greaves, the only two competitors to avoid landing out that day.

The weather had changed, the atmosphere stabilising slightly, so that now the convection was usable instead of being distinctly wet. Thermal soaring round the White Horse at Pewsey and the return to Lasham were conventional, and the thermal strength good enough to practise speed-flying techniques. With the engine on board I had nothing to lose by pushing my luck a bit, and probably had a stronger set of thermals for my trouble. One up to the motor glider! The final glide into Lasham became interesting in the last 5 miles because the wind had backed a bit and was more adverse than I had allowed for. We finally sailed over the line at 50 ft., thereafter restarting the engine to indulge in a spot of local soaring, thus rounding off one of



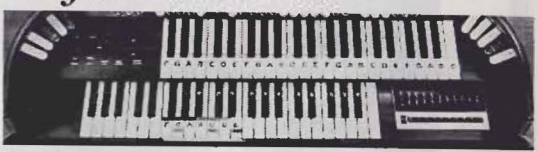
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the most interesting and enjoyable glider flights that I have had.

Contrariwise, most competitors on their return had stories of wheel-bays full of mud and flints, of getting soaked, and of Herculean labours in extracting gliders from their fields. This was the day when Peter Scott landed in the field in which George Burton had just de-rigged, and gallantly aided him in getting his trailer out. Later they both had re-lights, George flying superbly in the better conditions of the late afternoon to complete the course and win the Championship; Peter, however, being launched too late to get round, but achieving a remarkable flight to the second TP.

My achievement was not of the same heroic order, yet I had a 5½-hour flight at minimal expense, had no inconveniences, and used the motor for less than 25 minutes. I had practised most of the skills of the soaring pilot—speed flying, ridge soaring, scratching, field selection, and two final glides, all on a day when most gliders were forced down. If this is what a motor glider means, then let us have many more of them!

One final point occurs to me about the soaring utilisation of motor gliders. In countries with uneven or marginal thermal conditions, compounded perhaps by road conditions and Air Traffic restrictions, pilots tend to be reluctant to attempt the more ambitious tasks. One daring soul in 1969 declared a 500-km. out-and-return with the turning point in a Remote Part Of Wales. Unfortunately he landed—sure enough, you've guessed it—in the RPOW. Hearing about this sort of thing tends to stifle initiative, but, as competitions prove, pilots can do wondrous things when they really try. If one were flying a motor glider of really high performance (say, a Motor Cirrus), then one could attempt these ambitious tasks with impunity each weekend—and eventually succeed—meanwhile packing much more soaring experience and critical decision-making into a much shorter time than it would take to amass such knowledge in normal gliders. In fact it would be really challenging soaring without quite so many tears! You can count me in as a founder member of the first high-performance motor glider syndicate.

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ANNUAL STATISTICS. 1st OCTOBER, 1968 — 30th SEPTEMBER, 1969.

Gliding Club	Aircraft 2S	Sec	HP	PO	TUG	Launches On Club Site	Launches Club Gliders	Hours Total	Hours Club Gliders	Flying Days Total	Flying Days Soaring	Cross-Country Total Miles	Cross-Country By Club Gliders	Courses No.	Courses Pupils	First Solos	Certificates S C	Certificates S I	Certificates G C	Certificates G I	Membership Male	Membership Fem	Membership Non-Flying
ALBATROSS	1	2	-	2	-	1,059	974	81	81	43	6					4				1	21	3	19
AVRO	2	3	-	1		2,930	2,900	303	300	120	30	120	120			9	1	2			119	6	14
BATH & WILTSHIRE	2	2		6	1	3,906	3,007	967	481	93	49	1,625	75			11	5	14			75	10	3
BLACKPOOL & FYLDE	1	3				2,173	2,173	296	296	84	56					3		1			82	3	80
BRISTOL & GLOUCESTERSHIRE	2	4	1	15	3	7,009	5,929	1,888	988	200	114	3,073	240	23	184	15	8	15	1	2	176	5	51
BURTON & DERBYSHIRE	2			4		2,809	2,479	479	300	81	32	283	63			6	2	7			57	4	5
CAMBRIDGE	2	3	1	8	1	3,199	2,965	1,507	970	169	110	4,115	932	9	54	11	7	14		1	164	13	17
COLLEGE OF AERONAUTICS	2	1	1	2	1	1,923	1,834	487	445	146	57	420	220			13	1	3			70	3	
CORNISH	2	2	1	2	4	5,474	5,440	975	956	196	61	760	720	22	185	13	1	6			66	9	18
COTSWOLD	2	1	1	5		4,026	3,136	510	398	87	48	1,300	960			16	7	14			80	10	5
COVENTRY	2	2	1	8	4	3,819	3,103	1,645	1,097	144	67	3,750		12	72	4	2	10	2	2	170	10	38
CUMBERNAULD	2	2				1,417	1,417	121	121	48	10					4		4			70		
DERBYSHIRE & LANCASHIRE	4	3	1	14		6,724	5,678	1,620	930					29	291	11	8	16		1	194	6	115
DEVON & SOMERSET	1	2		7	1	6,124	4,932	1,010	543			NR	NR	6	52	17		1		1	122	12	42
DONCASTER & DISTRICT	2	2	1	7	1	5,811	5,310	992	532	191	90	2,003	905	19	170	18	3	10			134	10	40
DORSET F.C. & AVIATION C.	2		3	7	4	5,031	2,961	943	243	231		9,400	900		8	12	11	37	2	6	45	3	
DORSET	3	3		9	1	4,380	3,894	935	591	113	45	1,140	55			14	5	7		1	105	12	41
DUMFRIES & DISTRICT	2			2		777	683	89	74	28	4					1					22	2	12
ESSEX	3	1		9		6,069	4,098	1,389	434	121	32	2,104				35	15	34		1	186	18	242
ESSEX & SUFFOLK	1		1		1	600	590	240	240	60	38	1,500									23	2	
HAMBLETONS (ex-Leeds City)	2	2				5,290	4,861	374	374	140	105					16	1	3			62	5	
HANDLEY PAGE	1	2	1			1,651	1,605	312	312	58	26	380	380			4		4			32	1	
KENT	3	1	1	11		10,273	9,781	1,575	1,157	244	87	1,896	127	28	330	35	7	14		1	157	19	62
LAKES	2	2		4	1	2,453	2,383	384	324	96	25	450	200	5	38	7		1		2	48	4	17
LASHAM GLIDING SOCIETY	5			62		26,872	14,988	4,664	2,237	315	120	*22,598		71	318	NR					232	16	117
IMPERIAL COLLEGE	1		1	1			1,140	440	320	100	45	300	300	2	12		1	5			52	5	4
POLISH AIR FORCE ASSOC.	1		3	1			380	270	250	110	35	2,930	2,750	1	6	8	1	2			30		10
SURREY & HAMPSHIRE				12			3,000		2,300	300	120		13,700			NA					230	10	

LEICESTERSHIRE	2		1	8	2	1,972	1,431	989	559	106	53		130			8	2	10			73	1	6
LINCOLNSHIRE	3	1		4		2,700	2,000	225	200			200				10		7			54	6	10
LONDON	5	5		44	4	15,681	13,424	4,059	2,541	297	201	NR	NR	18	76	25	NR	NR	NR	NR	477	29	73
MIDLAND	2	2	2	9		8,576	7,359	2,781	1,806	179	95			2	12	19	2	29	1	3	149	17	61
NEWCASTLE & TEESSIDE	2	2		4		2,200	1,953	401	310	93	61	170		4	36	5		3			64	1	8
NORFOLK	2	4	1			3,662	3,537	480	439	130	49	127	127			17		4			84	9	11
NORTHUMBRIA	1	2		5		2,022	1,830	232	181	73	31	100	40	2	22	6	2	2		3	80	8	10
OUSE	2	2		2		4,480	4,163	482	418	115	20	481	117			6	1	6		1	109	8	3
OXFORD	2	3		4		2,899	2,721	786	590	81	37	720	235			4	1	3			63	4	4
PERKINS SPORTS ASSOC.	1	3	1	2	1	863	442	287	80	87	38	65	65			3	2	1			45	5	5
PORTHCAWL	1	3				310	289	26	24	12	6					3					15		
RAE FARNBOROUGH (CISAVIA)	2	2	1	1		3,202	3,091	677	584	94	37	737	497			6	2	6			80	5	5
RPE WESTCOTT (CISAVIA)	1	1				1,824	1,814	150	150	75	10					6		3			23	4	3
SCOTTISH GLIDING UNION	4	3	1	7	2	7,172	6,219	4,008	2,345	243	177			18	171	43	1	27	1	14	226	21	52
SCOUT ASSOCIATION	1				1	271	271	49	49	33	NR							5			NA	NA	NA
SOUTHDOWN	2	2	1	3		4,685	4,388	825	656	106	60	200	200			11		8			118	18	48
SOUTH WALES	2	1		4		1,724	1,565	251	153	64	48			1	15	3	3	4			57	3	12
STAFFORDSHIRE	2	2		4	1	4,122	3,253	731	475	113	41	650	175	2	30	9	4	12			93	8	
SWINDON	1	2	1	5	2	3,716	3,370	640	340	106	40	3,020	370			12	4	12		1	62	4	
TRENT VALLEY	2	3				4,562	4,493	347	347	90	30			1	20	23	18				53	4	4
ULSTER & SHORTS	2	2	1	1		3,600	3,600	469	469	84	32	90	90			10	2	7			55	5	
UNIVERSITIES OF GLASGOW	1	2				837	837	50	50	32	7					1	1				30	11	
UPWARD BOUND	3	1				2,483	2,452	184	184	60	20	28	28		49	29		1			NA	NA	NA
WEST WALES	2		2		1	3,233	3,233	363	363	148	52	210	210	16		8		3			49	2	
WORCESTER	4	1		11	2	6,648	6,065	1,079	775	211	77	1,430	450	20	160	32	6	25			190	15	45
WYCOMBE AIR PARK	3			11	1	3,990	3,954	580	562								**15						
AIRWAYS		1	2		1	660	410	636	320	226	147	NR	NR					6	1	5	215	35	50
POST OFFICE (CISAVIA)		2				327	327	153	153												20		
THAMES VALLEY		2				1,137	817	743	202			2,500	2,000								150	10	
YORKSHIRE	2	1	1	15	1	7,000	4,940	4,000	1,600	300	220	4,500	900	12	120	20	6	34	2	5	194	12	50
CIVILIAN TOTAL	112	98	33	343	42	228,357	195,889	51,179	34,919	6,676	3,001	75,375	29,781	323	2,431	606	158	442	10	51	5,652	446	1,412

Key: 2S = two-seater, Sec = secondary, HP = high-performance, PO = privately owned, S = Silver Cs, G = Gold Cs, c = complete, l = legs, Fem = female, NR = no record, NA = not applicable, *includes Surrey & Hampshire, **Total Silver Cs complete by all clubs at Wycombe Air Park.

ANNUAL STATISTICS. 1st OCTOBER, 1968 — 30th SEPTEMBER, 1969.

Gliding Club	Aircraft					Launches		Hours		Flying Days		Cross-Country		Courses		First Solos	Certificates				Membership		
	2S	Sec	HP	PO	TUG	On Club Site	By Club Gliders	Total	Club Gliders	Total	Soaring	Total Miles	By Club Gliders	No.	Pupils		S c	S I	G c	G I	Male	Fem	Non-Flying
AGA																							
ALDERSHOT & DISTRICT	1		2			1,612	1,612	300	300	68	38	580	580			5		3			63	4	10
SOUTHERN COMMAND	4	2	2	2	1	4,199	4,199	797	797	123	41	4,000	4,000	6	40	16	2	10			56	4	90
RAFGSA																							
ANGLIA	2	1	1	1	1	3,933	3,911	672	634	119	75	114	114			8	1	6		1	88	6	
BANNERDOWN	2	3	2			3,594	3,474	679	598	97		1,018	483			3	3	14			55	10	
BICESTER	6	2	7		2	18,534	18,534	6,160	6,160	209		18,354	18,354	8	100	40	20	50	4	9	365	6	
CHILTERNS	2	2	1	1		3,564	3,528	894	841	120	60	920	920			8	2	7			68	6	
CLEVELANDS	2	4	2			12,192	8,149	987	987	243	105	994	994			19	2	7		4	106	3	
EAST MIDLANDS	2	2	2	1	1	4,372	4,240	888	812	135	74	3,472	2,272	2	12	16	4	11		3	60	4	
FENLAND	2	2	1			4,466	4,466	551	551							14	9		1	1	77		
FOUR COUNTIES	2	2	2	2		5,321	5,321	1,190	1,190	140	50	1,713	1,713			17		7			64	10	
HUMBER				3		3,870	3,870	398	398	100	15	60	60			17	1	3		1	46	7	
MENDIPS	2	2	2			4,311	4,311	671	671	157	21	1,308	1,308			10	1	7			50		
MOONRAKERS	2	1	2	5	1	2,510	2,000	1,253	1,000	100		9,320	6,000			7	4	13	2	2	60	3	
WREKIN	2	5	1			6,802	6,476	883	819	200	47	1,984	1,984	1	12	22	5	13	1	1	126	1	
RNGSA																							
CONDOR	2	1				1,788	1,788	167	167	59	11					4		1			38	4	
CULDROSE	1	2	1	1	1	2,220	2,170	378	323	87	30	135	73	1	16	6		3			44	9	
FULMAR	2	2			1	3,888	3,888	545	545	108	34	855	855	2	10	24				1	47	7	
HERON	1	2	1		1	2,360	2,135	395	395	94	35	1,226	1,226			8	1	5		1	48	2	
PORTSMOUTH	2	2		1	2	2,664	2,646	381	361	100	14	45	45			3	1	2			81	7	4
SERVICE TOTAL	39	37	29	17	11	92,200	86,717	18,189	17,549	2,259	650	46,098	40,981	20	190	247	56	162	8	24	1,542	93	104
SERVICE & CIVILIAN TOTAL	151	135	62	360	53	320,557	282,606	69,368	52,468	8,935	3,651	121,473	70,762	343	2,621	853	214	604	18	75	7,194	539	1,516
OVERSEAS																							
EAGLE (ARMY, GERMANY)	2	2	1		1	3,285	3,285	561	561	86	37	5,313	5,313			10	4	11		2	53	5	
PHOENIX (RAF, GERMANY)	2	3	2			4,870	4,850	669	644	82	45	227	227			20	1	11			60	10	
TWO RIVERS (RAF, GERMANY)	2	3	1	1	1	6,967	6,967	977	977	117	35	662	662			43	3	19			50	6	
CRUSADERS (RAF, CYPRUS)	2	1	1			5,815	5,815	870	870	162	101	510	510	1	8	25	5	12			87	12	
OVERSEAS TOTAL	8	9	5	1	2	20,937	20,917	3,077	3,052	447	218	6,703	6,703	1	8	98	13	53		2	250	33	
AIR TRAINING CORPS (2 Centres and 28 Schools)	150	15				179,566	179,566									2,239							

POMMIE'S PROGRESS

By FRANK JACQUES

THE weather at the Australian Gliding Championships was rather disappointing this year! Two whole days out of fourteen were unflyable and the competition ended with a storm. Also, conditions were such that only *one* 535 km. triangle was set.

As a visiting pilot from England (Lasham), I found the weather conditions for flying almost unbelievable. Day after day of hot sunshine with cloud base up to 10,000 ft. and never less than 5,000, usually 7 or 8,000 ft.

The glider I was flying was a Standard Class Boomerang which belonged to the Waikerie Gliding Club. I was offered a place because the pilot from Waikerie, Billy Mudge, who was going to fly it, had to stand down at the last moment. It is usual to have two pilots flying one glider on alternate days and my co-pilot was Chas. Suter, who migrated to Australia from England about 18 years ago.

This wonderful lift, alternating with fierce sink, tends to upset glide calculations.

Another surprising fact was the length of the tasks that were set. I personally found it rather daunting to be given a 300 km. plus task and to be expected to get back. On the six days that I flew, the distances were 364, 402, 217, 321 and 264 kms. All these were either triangles or out-and-returns and it says much for the conditions that I completed most of them.

Navigation was sometimes a problem as many of the tasks were across country with no distinguishing features for many miles. The sun goes round to the North and the magnetic variation is 10°E. instead of 8°W. Also, after both Chas. and I had trouble with navigation, we swung the compass and found it was 15° out.

Australian pilots going to the World Championships will have had plenty of practice in conditions similar to Marfa.

Where did I come in the competitions? We won't go into that but it wasn't last (or next to last)!

Diamonds at Waikerie

Where else in the world could you arrive at a gliding club with a Silver C and one Diamond and leave a month

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HOLLAND :	J. Th van Eck, Jacob van Wassenaerstraat 17, Best (N.B.), Postrekening 3230, Abonnementsprijs Fl. 14.50.
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later with Gold C and three Diamonds?

Waikerie Gliding Club is located in South Australia, 120 miles NE of Adelaide on the banks of the river Murray, and in the centre of the citrus fruit country. It is the only club in Australia which operates full-time and runs courses all through the year. These cost $80 (£27 10s. 0d.) and include all aerotows, flying and accommodation, but not meals.

The club is very cross-country minded and if Bob Rowe, the CFI, feels that you are a competent pilot, you will be sent off cross-country for any certificates that you need. Landing out conditions are mixed. Generally the paddocks (fields) are huge and the cultivated ones show up clearly. There are also patches of dense scrub or mulga, which it is best to fly over with plenty of height. Also, it is advisable to land near a road or homestead or you may have to walk a long, long way to find a telephone!

On 17th December I flew a declared 312 km. Out-and-return and gained my Diamond Goal. For my 500 km. distance I attempted the milk run to Euston and return on 15th January. I flew the Standard Libelle—a beautiful aircraft which really slips along.

The first two-thirds of the outward flight were easy, I just followed the river and road eastwards and was never below 6,000 ft. The clouds were streeting and the Libelle moved along in fine style. Then I set a compass course instead of following the river round and ran into trouble. The wind had turned north without my realising it and I met very strong sink over some ghastly country. In fact, after an hour of this I was down to 4,000 ft. so gave up and flew north, intending to land near civilisation. However, I found a really good thermal at 3,000 ft., and 15 knots up soon took me to cloud base, now nearly 10,000 ft. I found out where I was and flew right into the wind to Euston where I took one photograph from the south and then the camera jammed. I forced the wind-on lever and took one more photograph. The return back was easy. I left Euston at 4.00 p.m. and with the wind behind me and 10,000 ft. I reached Waikerie at 6.18 p.m., only 2 hrs. 18 mins. to get back, out of a total time of 7¾ hrs. I spent the next 24 hours worrying about the photographs, but although the frames overlapped, they were easily recognisable.

How to get there? Only 27 hours from Heathrow and, if you go on a charter flight, £350 return.

* * *

Frank got his Diamond for height at Portmoak in 1968. With the completion of his goal and distance Diamonds (subject to confirmation) he will be the 12th pilot holding three Diamonds on the British Register—Ed.

VISIT TO SOUTH AFRICA

By JOHN DELAFIELD

BLOEMFONTEIN was fabulous. The South Africans certainly have the best gliding weather I've ever seen, and in Tempe airfield they have an excellent site only a few miles outside the town.

This year their idea was to simulate as nearly as possible the environment likely to be encountered at Marfa, not only to enable their own team to have realistic practice but also similarly to help the visiting international pilots.

There were just under 40 gliders entered for the contest, and these included contingents from Belgium, France, Germany and the UK, to name but a few. Three of us, Con Greaves, Andy Gough and myself, were there as members of the British Team for Marfa (in order to widen our gliding horizons and orientate our thoughts towards the likely Texan conditions), and Alf Warminger and Paul Thompson were there as individual entrants.

To go through each day in detail would occupy a book, so instead I will recount just some of our impressions.

First, I must go on record as saying that the South African hospitality was

quite out of this world. The generosity we found was almost unbelievable and I could not possibly list all those who deserve thanks; the list would be never-ending. Suffice to say that their hospitality was not an attempt to "nobble" us, but merely a genuine expression of South African generosity; I only hope that we find an opportunity to act as hosts in this country at some future date. But then, why should a South African leave his 10 knot thermals for our little English ones? (4.6 knots, is it not, Nick?)

Yes, indeed, the thermals out there really are 10 knots. Not always, though; there are times when they are down to 6-8, and in fact on one occasion Con had to resort to one of 2 knots. But then he was very, very low over nasty inhospitable country.

The country—there are a few fields, especially around Bloemfontein itself, but generally they are scarce by UK standards. In certain parts of the task area there are positively no landing grounds. Perhaps I should say that you could probably find a spot on which to put the machine down, but this would be of little benefit if the nearest farmhouse was 10 miles away. However, it is not really as alarming as it sounds, since the operating altitudes are so much higher than we are used to.

With thermals as they were, cruising speeds were up around the 80-100 knot mark. I had the new Phoebus 17 with me and carried 200 lbs. of water ballast; I wish I could have got 400 lbs. on board! Certainly a machine with a low wing loading was at a disadvantage, for not only were the resultant cruising speeds too low, but also the gust response was violent enough to induce an undue measure of fatigue. For example, the Austria 15m versions (SH-1 and such) performed better in strong weather than the lower wing loading and larger SHK version which we had out there with us. As for the best machines, the ASW-12 seemed to be outstanding, with the BS-1 a close second (a BS-1 won the championship). The BJ-4 did not seem to be particularly good but, on the other hand, the developed version promises to be very much better; it should have been flying in the championship, but last-minute snags precluded this. At the other end of the scale, the new generation of Standard Class aircraft seem to do very well, and both the Standard Cirrus and ASW-15 were represented.

I have mentioned the strong thermals, but what about the weather?

It was hot: 90-95°F shade temperatures at midday were normal. Instamatics melted if left exposed to the sun—they say. The humidity, on the other hand, was low, with the result that the heat did



BJ-4 flaps fully extended.

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Wolfgang Gross (Germany), the overall winner.

not feel oppressive, but it was very dusty. Tempe is at 5,000 ft. asl and this, coupled with the sun being almost directly overhead at midday, made it essential to be extra careful to avoid sunburn. None of us had any real trouble with this, although Alf turned into a nice shade of lobster for a few days.

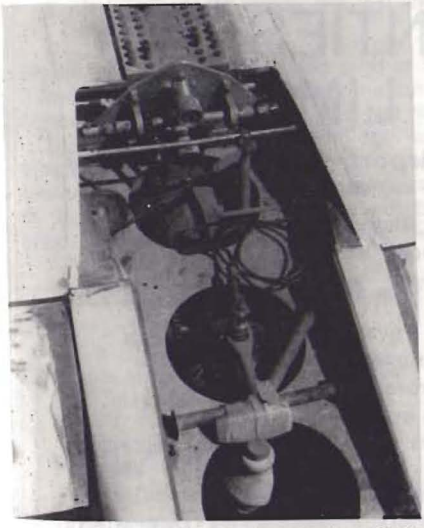
Because of the low humidities, the thermals tended to be blue. However, the depth of convection was seldom less than 5,000 ft., and quite frequently it was over 10,000 ft.; this largely compensated for the inherent difficulty in locating the lift. If cumulus clouds did form, they generally tended to grow into cu-nims by mid-afternoon, and hence inhibit flying. Several tasks were upset by this.

As for our own flying, we had some exhilarating and, from the Team's point of view, excellent practice for Marfa. Con Greaves and I both got our 500 km. Diamonds and I broke the British 300 km. triangle record (subject to homologation).

For all of us it was indeed a fabulous visit. The only really unfortunate fact was that we three team pilots had to miss the last two days' championship flying in order to catch our aircraft back to the UK. For a number of reasons its scheduled departure could not be changed.

South Africa is indeed a glider pilot's paradise; the flying is outstanding, the hospitality out of this world, and the weather a most welcome break from the English winter. I only hope we will be able to return one day.

Thank you, South Africa!





The BJ-4 centre fittings and the long cockpit.
(Photos: Paul Tompson)

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SAFETY PANEL REPORT

Panel Members: J. J. Ellis (Chairman), Naomi Christy, E. J. Meddings, R. A. Neaves, W. G. Scull, R. C. Stafford Allen, T. G. Turner.

IN retrospect, last year's statistics were presented in a rather overcomplicated way, and therefore only four diagrams have been used in this report. (See Addendum to 1968 Report, S. & G., April 1969, p. 124.)

The following criteria were used in their production:

1. Accident Reports received have been re-arranged in their correct years—resulting in some changes to previously published figures. Since all Accident Reports for 1969 have not yet been received, last year's figures are only provisional.
2. Substantial and Minor accidents have been separated.
3. Incidents have been excluded. (This is purely for statistical reasons. It is essential that relevant incidents are still reported. They will continue to be published and discussed in **Instructor**.)
4. Only reports concerning BGA gliders, as well as those operated by Army and Navy Clubs in the UK, have been included. (However, the Panel is interested in reports on all accidents as these provide useful data.) RAFGSA figures have been excluded; though launch figures are available, their accident reporting system is not, as yet, fully compatible. The ATC have been excluded (as always), since no accident information is provided.
5. Hours have been ignored except as in Figure 3. It is thought that Club launch figures are more likely to be accurate and it is unlikely that there would be more than one accident per launch!
6. Only accidents within the last five years are considered relevant to current operations.

Figure 1. Shows numbers and total of Substantial and Minor accidents.
Substantial: Remarkably little variation in the last five years.
Minor: Large variations over the last five years and a big increase in 1969.

The impression is given that the large rise is due, not to an increase in the Minor accident rate, but to much more conscientious reporting. It is difficult to believe, for example, that there were really only 27 Minor accidents as opposed to 44 Substantial in 1966. (It may not be possible to obtain a true picture of the Minor accident situation for several years.)

GLIDER FINANCE

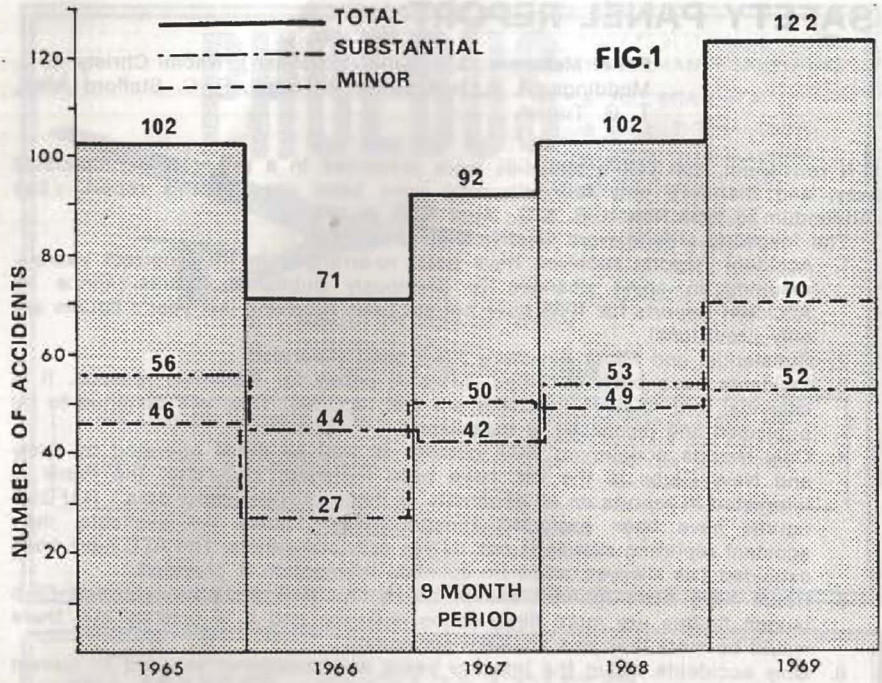
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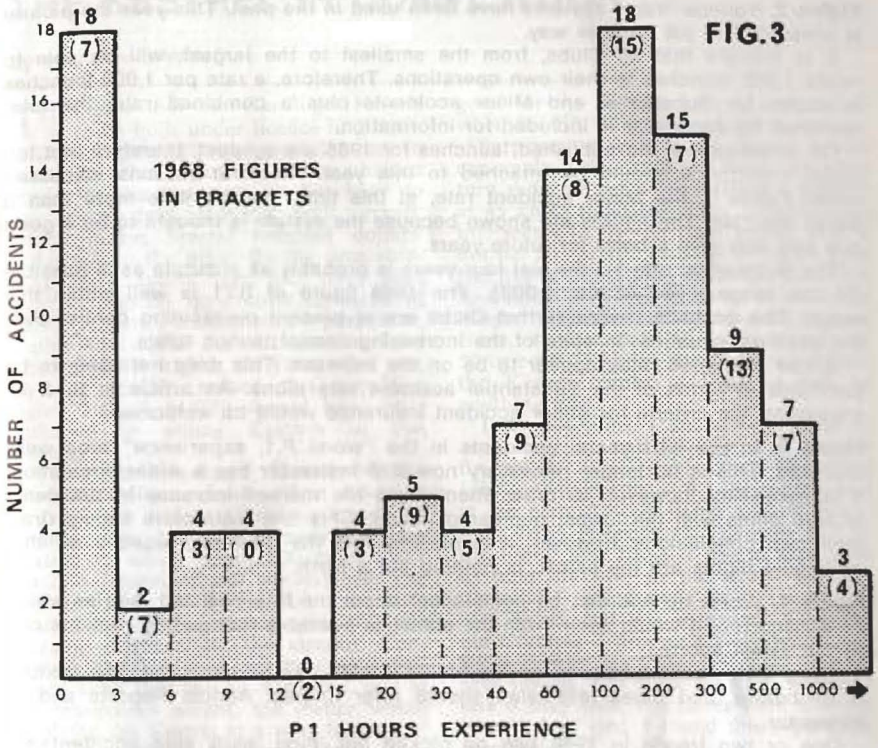
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ACCIDENTS PER 1000 LAUNCHES					FIG.2
	1965	1966	1967	1968	1969
TOTAL	0·53	0·32	0·44	0·45	0·49
SUBSTANTIAL	0·29	0·20	0·20	0·23	0·21
MINOR	0·24	0·12	0·24	0·22	0·28
TOTAL LAUNCHES	190696	223550	209659	226644	247088



The above figures do not include ground accidents, e.g., blow-overs, etc.

FIG.4

FATALITIES AND INJURIES					
	1965	1966	1967	1968	1969
FATAL	3	1	5	5	2
SERIOUS	5	9	7	6	3
MINOR	12	5	1	1	4

Figure 2. Various "rate" systems have been used in the past. This year the picture is presented in yet another way.

It is thought that all Clubs, from the smallest to the largest, will be able to relate 1,000 launches to their own operations. Therefore, a rate per 1,000 launches is shown for Substantial and Minor accidents plus a combined rate; the total launches for each year is included for information.

On investigation, the published launches for 1965 are suspect; therefore, not too much importance should be attached to this year. Also, for reasons discussed under Figure 1, the Minor accident rate, at this time, can be little more than a paper exercise. The figures are shown because the system is thought to be a good one and may give a basis for future years.

The Substantial rate for the last four years is probably as accurate as is possible (in the range 0.20-0.23 per 1,000). The 1969 figure of 0.21 is well within this range. This probably indicates that Clubs are at present maintaining control over the accident situation, in spite of the increasing annual launch totals.

Glider insurance rates appear to be on the increase. This does not seem to be justifiable in terms of the Substantial accident rate alone. An article in S. & G. explaining the criteria for glider accident insurance would be welcome.

Figure 3. In previous years, accidents in the "worst P.1. experience" area were analysed. This is no longer necessary now that **Instructor** has a wider circulation. It is necessary, however, to draw attention to the marked increase in accidents to solo pilots with the lowest number of hours. CFIs and instructors should draw their own conclusions; however, it is obvious that the often-expressed view, that early solo flights are the safest, is nothing but a myth.

Figure 4. Whilst no one can be complacent about the fatalities and injuries which have occurred, it would seem from the statistics available that gliding remains one of the safest sports.

There is no new cause to which accidents in 1969 can be attributed. The mixture is as before, and those interested should refer to past Annual Reports and to **Instructor.**

One or two trends in 1969 can be picked out. First, early solo accidents as mentioned under Figure 3. These surely cannot be called "pilot error" accidents—those concerned are hardly "pilots" even though they have soloed. Since we do not classify student pilots in the gliding movement, it is difficult to arrive at a point in terms of hours when a student pilot can be considered a "pilot". Certainly good supervision and instruction are required right into the cross-country stage.

There has been a recurrence of the "Swallow" type accident; caused by misuse of elevators and airbrakes on landing, combined usually with too fast approach speeds. This indicates that instructors should look into their circuit and approach planning instruction, both dual and when converting to solo. Several accidents have resulted from picking up dropped wings during the take-off run. This simple-sounding procedure is dangerous and should be discouraged. An unsuccessful attempt can develop into an uncontrollable situation very rapidly. A strong recommendation should be made that pilots release immediately if a wing touches the ground during the take-off run.

During 1969 the Safety Panel has continued its representation on the BGA Executive Committee and Instructors' Committee, as well as the General Aviation Safety Committee. It has liaised with other Committees and with the BoT.

Special projects have included the new accident reporting form, "spin" and "airbrake" accident surveys for the Instructors' Committee, and revision of BGA Medical Standards. **J. J. Ellis,** Chairman.

THE KESTREL IN COMPETITION

By MARTIN SIMONS

THE news that the Glasflügel Kestrel is to be built under licence in Britain has been greeted with great interest in Australia. For, apart from the obvious merits of the type, we do not have to pay import duty on British-built aircraft, which makes several hundred dollars' difference to the price. By the time shipping, duty, agents' fees, etc., have been paid, a Kestrel here costs upwards of $8,700; with instruments, parachute, trailer and radio the bill runs at least another $500 higher. Anyone who can, by any means, reduce this appalling figure (call it £4,400) should have little difficulty in selling Kestrels in this country.

The 18th Glasflügel Kestrel off the production line arrived at Port Adelaide a few days before Christmas, and the frantic rush to get it ready for the Nationals, which began 600 miles away on 27th December, can be imagined. The author, who, with his tolerant bank manager, owns this machine, felt only one nagging doubt about the aircraft. Contrary to the tales they tell, there are sometimes weak thermals in Australia, and at his (excessive) weight, the owner would be flying the Kestrel at a wing loading of 6.4 lbs./sq.ft., *without* ballast. With ballast the figure would escalate to 7.2 lb.s/sq.ft. If this had not, by itself, given food for thought, George Moffat's comment in a recent S & G, that the Kestrel did not climb well, would have raised the spectre of a machine that was only good for the legendary days, and useless when the lift falls below 1,000 ft./min.

Surprises were in store. Better brains can apply a slide rule and work out what turn radii we get when circling a Kestrel at 45 knots indicated. This, in smoothish lift, seems to be the right speed, with a normal 30° or 40° bank. It certainly does not pay to fly slower, although there are no control problems down to 40 knots. In rough, rumbustious thermals with narrow cores, it often pays to circle steeply at 50 or even 55 knots. But in all conditions the Kestrel climbs at least as well as anything else.

I do not think I am a very good or accurate pilot, but the Kestrel is easy to fly, much more stable than the little Libelle (which I fly at 6.3 lbs./sq.ft.), and in the competitions, flying against everything from Phoebus 17, Diamant 16.5 to the brand new FK-3, I was at least able to hold my own in the climb. On one occasion I pulled away from a low spot at 1,200 ft. and was surprised to see the old Olympia 2 dropping away below me. Since it was his thermal I had used to save myself, and since the Oly, whatever else it may lack, has never been thought of as a lead sled, I found this experience comforting.

It was even more comforting, on reflection, when I remembered that at the time the Kestrel was fully ballasted. In this loaded state there is a perceptible reduction in rate of roll, as the manufacturer's handbook says, but, as Ed Byars has



The Kestrel seen from behind.



Side view with flaps down.

(Photos: M. Simons)

already written, it really is hard to tell any difference in the rate of climb. I suppose on a really scratchy day the water would have to go—it takes less than two minutes to run out—but I doubt if the Kestrel would come down if anything else could go up.

In the glide there is no doubt at all that the Kestrel has a clear margin, especially when ballasted. The Phoebus simply drops away and at the same time falls behind. Only a ballasted Libelle flown by a daring man seems able to approach the same speed, at some real cost in climbing performance. In the Kestrel one can raise the flaps and cruise along at 110 knots with security and confidence, the springing is superb and gives a smooth ride. In strong sink when the MacCready ring runs out of space, the permitted rough air maximum of 135 knots allows the Kestrel to show clean heels to everything else.

The ingenious parallel linkage of the control column prevents the pilot's nervous twitch from setting up oscillations—this can easily happen with the Libelle which has a very sensitive elevator—and the combination of 40° landing flap, air brakes and tail parachute allow the Kestrel to be landed almost anywhere. With flaps down at 60 knots the angle of approach is steep, it becomes steeper with airbrake out, and no-one yet has been game to try the tail chute as well. So far the chute has only been used to abbreviate the landing run and to cut down the ground effect of the flaps below 10 ft. It is, even without the tail parachute, possible to land the Kestrel at 30 knots and below—the ASI begins to oscillate from zero to about 25 if the aircraft is held in the landing attitude with flaps down and brakes in, so the actual speed at touch-down is unknown.

It will doubtless be tempting for the backroom boys in Yorkshire to try to improve the Kestrel. Let them be content with it as it is; no alterations are necessary. If someone must fiddle, there are only a few tiny details that could safely be changed. The front tailplane pin needs a more positive locking device—at present an innocent child could undo it without knowing what he had done. The battery box could be designed to take one of the more common 12 volt accumulators instead of the manufacturer's own, expensive 6 volt pack. A few more slots in the flap "quadrant" would allow fussy pilots to hold intermediate positions, the wheel brake knob could be a little easier to get at. The tail wheel, as supplied, cannot be inflated without drilling a hole in the fibre-glass fairing. A few pockets for maps and sandwiches could be added to the cockpit walls—there is plenty of width for them. The little green trim button on the stick could be more positively attached—it unscrewed in the pilot's feverish grip one day, and fell under the seat. But for the rest—leave well alone, don't touch, you'll spoil it!

OBITUARY

H. MARSHALL CLAYBOURN

IT is with regret that we report the death of Marshall Claybourn, who was to have been Contest Director in the forthcoming World Championships at Marfa.

He was United States Team Manager in Poland, 1968, and Contest Director for the 80-glider US Nationals last year, which were used as an international rehearsal. In both these jobs his common sense, drive and quick and remarkably funny wit made him outstanding.

He was a Director of the SSA and up to his death was test-flying executive aircraft.

Our sympathy goes to his wife Bettye, and family. His son Hank is, at 14, already a pilot in his own right.

ANN WELCH

FRITZ STAMER

ONE of the outstanding figures among the creators of the German gliding movement in the 1920s, Fritz Stamer, died last December at the age of 72. The method of training pupils by solo flights in open primary gliders, later to be copied all over the world, was developed by him at the gliding school on the Wasserkuppe from 1923 to '33. He described his training methods to the Royal Aeronautical Society in 1930, just after the BGA was formed.

In the First World War Stamer was wounded in the infantry, then joined the Air Force and was shot down over France. Freed in 1920, he resumed his former architectural studies until, in 1921, a friend enticed him to the Wasserkuppe. Thereupon he gave up architecture and devoted the rest of his life mainly to gliding but partly to other youth movements. In 1933, disliking the Nazi attitude to youth activities, he and Professor Georgii—another non-conformer—moved to the German Research Institute for Soaring Flight (DFS) at Darmstadt.

Stamer was among the small group who, in 1950 at Gersfeld at the foot of the Wasserkuppe, re-started the German Aero Club in anticipation of the lifting of the Allies' ban on German gliding the following year; Wolf Hirth became president and Stamer vice-president. When I last met him in 1951, he and his wife were running the Aero Club from a single room in an obscure street in Frankfurt-am-Main. Later he followed Hirth as its honorary president.

Stamer's book "Zwölf Yahre Wasserkuppe" is a valuable history of the most exciting and fruitful period of his life.

A. E. SLATER.

CORRESPONDENCE

WORLD CHAMPIONSHIPS IN TEXAS

Dear Sir,

By the time the next edition of SAILPLANE & GLIDING is published, the four British Team pilots will, I hope, be on their way to Texas for a two weeks' pre-Marfa practice period at Odessa. I say "hope" because this practice and acclimatisation period is very dependent upon our raising sufficient money to cover the expenses of the four pilots.

As a result of the generous assistance from the RAF Sports Board, The Society of British Aerospace Companies and Slingsby Sailplanes, together with a very generous response from supporters of the gliding movement generally, our representation at the World Championships is now assured. However, it remains to find the extra amount required to cover the practice and acclimatisation period at Odessa (which is on the northern boundaries of the championship area).

The gliders are due to be shipped about now, just when the thermals are beginning to pop here, so this has meant that the pilots have had little or no opportunity to get used to their newly acquired hot fibre-glass ships. This extra practice period

will, therefore, be an essential forerunner to a British success at Marfa.

The cost of one aerotow in Texas is about £2; one day's food and motel about £6.

Donations of either of these amounts (or multiples thereof!) will be gratefully acknowledged in SAILPLANE & GLIDING. Another form is enclosed with this edition of the magazine.

I should like to take this opportunity on behalf of the Team (who are themselves contributing over £1,000 towards their expenses) of thanking all those who have already (or will as a result of this appeal) put their bank balances in jeopardy on our behalf.

GERRY BURGESS, *Team Manager*

Marlow, Bucks.

SCORING

Jack Harrison recently circulated a paper on scoring systems to various selected pilots to obtain their views on this subject. Here, Philip Wills gives his views in an open letter to Jack, followed by Jack's reply to Philip.

Dear Jack,

Thank you for a copy of your January paper putting forward certain proposals for yet another alteration to the scoring system for Races and Distance tasks. I should like to answer you in SAILPLANE & GLIDING.

In the Chair at Council Meetings month after month and year after year, I listened to heated arguments over the iniquities of the scoring system of the time. Every now and then it got altered, and the new changes substituted a new "unfairness" for the old one.

Our scoring system, like our tax system, has become virtually unintelligible to the ordinary man in the pursuit of the frightful word "fair". Our present one is so complicated that it is now usually worked out by a computer! At least this has the advantage that only the experts (like you) can now spot its nonsense.

If our Ship of State ever finally sinks, the last cry emanating from the saloons with its final bubbles will be, in a whining tone of voice: "It isn't fair!"

The Universe isn't "fair". The air is not constructed to be "fair". Let us accept that, whatever the system, there is a slice of luck in competition flying—it doesn't seem to change the name of the winner.

To Hell with all marking systems, say I, let's have a placing system which everyone (including the Press and public) can at least understand.

PHILIP A. WILLS

Henley-on-Thames, Oxon.

Dear Philip,

And so say we all! The replies to my letter have had two things in common. Firstly, everyone has his own pet theory as to how we should score. Secondly, they nearly all say that the real answer is a modified Placing System, but of course most pilots don't like it. (Incidentally, the Flying Committee also favour a Placing System). So the ludicrous situation arises that, although we have a system which would satisfy most pilots, we are frightened to use it because we believe nobody likes it!

Of course, the big objection to placing systems is the unsatisfactory way in which similar performances are scored. For example, if a large number of pilots land together at, say, a sea breeze, then the points value per kilometre is excessive, perhaps encouraging stretching the glide. The 2-1-0 system I proposed a year ago (SAILPLANE & GLIDING, February-March, 1969) goes a long way towards overcoming the problem of similar performances. You will no doubt remember the system. You score 2 points for everyone you beat, and 1 point for everyone you tie with. (The tie criterion is declared at briefing, e.g. 2 kms.). A simple additional rule to the basic 2-1-0 system enables the bunching problem at a clamp to be minimised. This rule may be stated as follows:—

If one-third or more of the competitors land within a certain closeness of each other (ten times the basic tie criterion), then for the purposes of scoring the tie criterion is doubled.

If two-third or more, etc. . . . , the tie criterion is trebled.

The effect of this rule is to reduce the points value per kilometre within the bunch. An example makes this clear. Basic tie criterion = 2 kms.

Pilot	Distance	Basic 2-1-0	New 2-1-0
A	100	4	3
B	96	2	2
C	92	0	1

Notice how on the basic system, 8 kms. is represented by 4 points, but with the new rule applied (tie = 6 kms.), this 8 kms. is now represented by only 2 points.

If there is a danger of a clamp forcing pilots to land in a bunch, then a shrewd task setter will in any case declare a larger than normal basic tie criterion.

I suggest that you read again my article on 2-1-0. I believe that this system is the simple answer to our problem.

K. A. HARRISON

Alford, Lincs.

PS. Perhaps we can learn from the Yugoslavs. I notice that in their Nationals (reported in last SAILPLANE & GLIDING), speeds are given in km/h. to 3 decimal places. This corresponds to an accuracy in timing of better than 0.05 seconds. If we could achieve this degree of accuracy in our competitions, then we could refine our scoring system and mark out of a million instead of a mere one thousand!

Dear Jack,

Hurray! What a splendid reply. Within my limited intelligence, your 2-1-0 system seemed the best of all, i.e. a placing system with the bugs out of it.

PHILIP A. WILLS

GLIDER INSURANCE

Dear Sir,

It is quite clear that the cost of insuring a glider has risen sharply in recent years, and we have almost reached the stage where comprehensive insurance is a doubtful proposition.

The reason for this increase can be blamed on a number of reasons, in particular the cost of glider repairs. This has been made worse by SET. Gone are the days when a broken Tutor fuselage could be repaired for £50! These days a broken fuselage, even the most straightforward fracture, is going to run to £200 or more.

Accidents from all categories of pilots in respect of cost are much the same so, if necessary any cure must be equally shared. May I tentatively suggest the following, if only to stir and provoke.

a) All Clubs should demand a higher standard at solo stage.
b) CFIs should keep a sharper lookout for anyone developing "flashy" flying habits, or any trait which would suggest an above normal accident risk, and take severe remedial action.
c) A complete ban on all contest flying when the availability of safe landing fields is at a minimum (July 15th to August 15th, for example).
d) Abandon the principle where a task is considered successful when only a percentage of contest pilots finish the course. Any task should be set well within the limits of the day to keep outlandings to a minimum.

This may seem to ask a great deal, but I venture to suggest, if the current trend continues, comprehensive insurance costs will become totally unacceptable to all but a very few.

Hillingdon, Middlesex. M. P. GARROD

ABOUT THERMALS

Dear Sir,

I am sorry to see someone of Nick Goodhart's eminence putting the clock back so enthusiastically as he does in his article in the February issue of SAILPLANE & GLIDING. The vortex theory was started almost literally by the atom bomb, and no one will deny that a sphere of incandescent gas about a mile wide will produce a

nice big vortex cloud. Computer calculations confirmed these findings with a lot of mathematical support; however, the rate of ascent of the hot gas is so high that the influence of wind and wind shear could be neglected.

When the calculations are repeated, making allowance for wind, there is no positive evidence for the formation or existence of a vortex bubble when the wind is stronger than the thermal rate of climb. (See W. S. Hall, Q.J.Met.S., p. 394 of 1963.)

When you realise that thermals rise usually much slower than the wind blows (i.e., a 4-knot thermal is strong, but a 5-knot wind is weak), it follows that a "vortex bubble thermal" must be a very rare bird (or rare avis). That is the position as far as theory is concerned.

Smoke vortices of quite large size can be easily made; the Italians made cannons to shoot vast smoke rings at clouds during the last century in the hope that this would prevent hailstones ruining the vine harvest; perhaps we should get hold of one and let Nick try and circle in it.

I am sure that if vortex bubbles were not rarities we should have plenty of photographs of them by now, just as we have numerous shots of mushroom clouds coming from you know what. I have been asking Nick's question to myself for many years as I flitted gaily from thermal to thermal and the answer, I am afraid, is an unequivocal No!

BRENNIG JAMES

Marlow, Bucks

GLOOMY PROSPECTS

Dear Sir,

In spite of the February SAILPLANE & GLIDING being one of the best for a long time the look into the future filled me with gloom. A. E. Slater's article, funny though it was, had an unpleasant moral; Brennig James' bland remark that the cost of instrumentation may well exceed the cost of the aircraft is horrifying; and an advertisement tells us that the only British built glider will cost £3,350. By the time she is flying and on the road there will be precious little change out of £4,000.

The point of course is cost. The first three paragraphs of Ann Welch's article were great, but her solution to the problem is not. Superficially the idea of aspect ratio is attractive, but if it results in my Skylark 3 being expected to fly scratch with a Diamant 18 my budding thoughts of entering competitions will not only be nipped but incinerated.

Not everybody wants to go in for comps., but I believe more people would if they had a chance of winning without being wealthy. Retracting undercarriages, flaps and water ballast are no doubt excellent things but they cost a lot of money that most people haven't got. The Club class, referred to in the Notes from West Germany, limited by price, seems a much better answer, though details (for instance to bring prices up to date allowing for inflation) would take a bit of working out.

The Open Class must always be there to keep pushing the frontiers back for those who can afford it. More ordinary mortals, of whom there are quite a lot, must set their sights lower. History shows that even with an exotic the chance of 500 km. is slim indeed. I suggest that a reasonable aiming point is a performance that makes a Gold distance a practical possibility—the Skylark and K-6 level. I believe that a class effectively so limited, either by the present handicap figures, by L/D ratios at prescribed speeds, or by price, would turn out to be popular and might well bring a lot more people into competitive flying.

Ann Welch refers to a "dinghy" class and I would like to support her argument here. You don't have to sail an International 14 or a Flying Dutchman to enjoy yourself, and for one person who sails that type of boat there are literally hundreds who have a great deal of fun in Enterprises, Fireflies, and Heaven knows how many classes. The analogy will not bear pressing too far but it is worth thinking about.

Oxford. JOHN TRENCHARD

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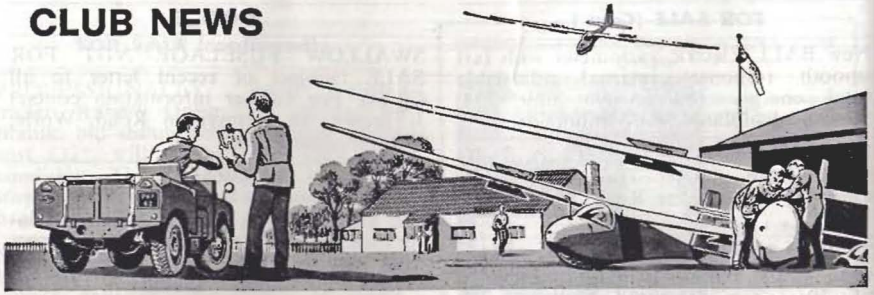
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CLUB NEWS



SNOW lies thickly as I write this, but nevertheless several clubs have in this issue reported good soaring in January and February.

We welcome for the first time the newly-formed Aquila Gliding Club that has been born out of the old RPE club at Westcott. They will operate from Enstone, near Chipping Norton. After a long absence, we also have news of the Straits Club in Singapore .

Copy for the June/July issue, typed double-spaced on foolscap, please, should reach me not later than April 15th, and that for the August/September issue by June 10th. Please send news to me at 11 Great Spilmans, Dulwich, London, S.E.22. Tel. 01-693 3033.

YVONNE BONHAM (MRS.),
Club News Editor

16th February, 1970

AQUILA

WE are pleased to announce the birth of Aquila. Following the closure of RPE Gliding Club, Westcott, a brand new club, run through the Civil Service Sports and Social Club, Bicester, and flying from Enstone airfield, near Chipping Norton, has been formed.

Many of the former RPE members are now enthusiastic members of Aquila, and the RPE Swallow has settled in nicely as one of the Aquila fleet. The club also owns a T-21B for ab-initio training and a K-7 for more advanced work.

We are happy to say that our instructors from RPE have agreed to give us their services, and we are now able to offer almost unrestricted membership.

Bad weather and a few teething troubles have prevented us from doing any really worthwhile flying so far this winter. However, we are confident that the country around our site will provide thermals galore when conditions improve. We have also been promised wave with a west wind, and recently experienced launches of 2,500 ft. off the reverse tow pulley and a Ford F100 truck.

E.A.C.

BATH AND WILTS

AT last we have a roof over our heads at Keevil—thanks to the dedicated work of volunteers, none more dedicated than Gordon Mealing, the new club house is almost completed. There is a kitchen and a large club room which we hope to open officially, if not formally, very soon. There is also an office for the CFI, with a notice on the door, "Never trouble trouble till trouble troubles you". Electricity comes from the Graves Portable Powerhouse—a generator run by a twin-cylinder diesel engine, the whole overhauled, installed and ceremonially switched on by John Graves.

Flying is beginning to be an important club activity again after some of the most persistently non-flying weather for years. There was some hill-soaring on Roundway, with some quite adventurous out-landings, one day in February.

One of the two F100s has gone sick with diseased gearbox seals. A transplant is planned, but donors are hard to find, so if anyone, anywhere, has a set of transmission seals that we could borrow . . .

R.J.C.

CAIRNGORM

THE gales which swept Scotland on 16th January destroyed the partially completed new hangar and the two gliders in it.

The photograph shows the debris members found on arriving for their weekend flying.

After all the hard work this small club has put in to get their club going, this is indeed hard luck and will put them back for some time to come.

CUMBERNAULD

THE weather has been most disappointing over the past few weeks, with little or no flying. However, now that the days are lengthening we hope to get a better picture for the next report.

Our main thoughts recently have been the position of our site. At present we are using Cumbernauld airfield, which has proved an excellent training site but, with more people going solo and pilots looking for better things, we have been investigating a site at Drymen, near Loch Lomond. This should prove a first-class soaring site, with wave conditions often fairly low. Our CFI, John Henry, has tested the site twice and, although the weather was pretty poor, he estimates that it has great potential.

After many months we now have our Eagle flying. It was towed back from Portmoak by Charlie Ross, with John Henry piloting the Eagle. The space in the back seat was raffled and won by David Watson. From reports received, the half-hour aerotow was quite an experience.

E.N.D.

COTSWOLD

LITTLE mounds of snow, from which emerge muffled thumps, grunts and smells of dope, are signs that we are busily getting our aircraft into tip-top condition for the coming season. Our K-7 will be resplendent in new fabric, and a smart red and white colour scheme—we are really working hard on the under surfaces, as we reckon that's all you will be seeing! We hope to have a second K-7 soon.

Plans for the Inter-Club Task Week with Worcester are forging ahead, and we hope to participate in some of the Lasham weekend competitions as well. Syndicate plans include visits to Compton Abbas and at least one of the Regionals, so the club will have vested interests all over the country.

We intend to have a record flying year —weather permitting (and we've been in touch with the angels)—Thursday evening flying, a visit by the BGA Falke and hiring of club aircraft to members for week-day operation should help to achieve this.

The club is situated in a delightful part of the Cotswolds, near Cirencester, so if you are passing through the area—whether by land or air—drop in and see us. We welcome visitors.

G.H.



(Photo: W. Patterson)

COVENTRY

DURING the first week of February the club held an outstandingly successful exhibition at the Bull Ring Centre in Birmingham, the theme being "Gliding 70". The show pieces were our Skylark 4 and K-13, backed up by a superbly high quality pictorial display kindly loaned by the Yorkshire Club.

Eighty thousand people saw the display, and the man behind all the hard work and originality, Sid Gilmore, is rumoured to have been offered a top Advertising Agency job! We even held a committee meeting one evening in the Penthouse Boardroom Suite at the top of the Bull Ring Centre, by kind courtesy of our Secretary, Adam Hepburn. If one tenth of the people who expressed interest come along to Husbands Bosworth, we shall need to double our fleet!

The next big event on the calendar is the Traction Engine Rally at Whitsun, which promises to become an annual spring event. In the meantime, Messrs. Grose and Costin have been seen trundling across Europe with a trailer to fetch their new Cirrus in time to get some practice in for the season ahead.

Vic Carr has kindly taken over as CFI on a temporary basis and deputy Claude Woodhouse has actually found time to take-off, putting the new club house together, and to obtain his category.

F.W.F.

DEVON AND SOMERSET

1970 has not started particularly auspiciously by way of weather, but the almost continuous rain has not daunted the stalwarts who always seem to turn up to rig the two-seater and Swallow, drive the winch and retrieve vehicle, not to mention site chores and work on the club house. Talking of the club house, I'll wager no other club has the oriental atmosphere of seeing all the footwear deposited in the porch in order to keep the newly sealed floor in its state of gleaming beauty!

Despite the weather, quite long spells of soaring on both the south and west ridges have been logged in January and February. The committee is busy with a number of problems connected with the supply of electricity and water to the site and the provision of adequate club flying facilities, particularly for the increased number of summer courses. After many years of hard work as Course Secretary, Mrs. Joy Hancock has handed over to Miss A. M. Patterson, "Lallang", 3 Long Copp, Budleigh Salterton, Devon. Finally, whilst looking through the notes submitted in the last issue of SAILPLANE & GLIDING, it did strike the writer that our problems were dwarfed by those of the unfortunates who suffer evictions and restrictions in more populated areas, and that for this we should be truly grateful.

A.E.R.H.

DONCASTER AND DISTRICT

ONCE again the time has come to fit floats on to the club fleet as the winter proceeds and the airfield gets steadily wetter. However, we are managing to keep operating with an enthusiastic nucleus of addicts who appear unaffected by floods, gales, snow and other weather atrocities, and keep the K-13 and Swallow busy doing circuits. The cry of "Wave" also attracts some of our more exotic aircraft out of hibernation on occasions, but of late this has been conspicuous by its absence.

The last cross-country of the season was made on December 7th by the K-13 with Ron Wood and Jack Heppenstall, the latter on only his second launch in the glider. On a day of poor visibility it suddenly closed in on them and they couldn't see the airfield, so Woody selected the wettest swamp he could find and landed there. Subsequently about a dozen stalwart members carried the machine for two miles through swamps and over railway lines to the nearest road. Needless to say, it was drinks on Ron that night in the bar.

On 15th November a Photograph Party was held in the club house, when members were invited to submit their slides in a competition. A very high standard ensued, showing that members do consider things other than gliding. The winner was Norman Fisher with a magnificent slide of a seagull soaring.

The big news for 1970 is that we are holding the Open Class Nationals at Doncaster. Already Chairman Don Westerside is organising left, right and centre and has had promises of co-opera-

tion from many areas, not least from other gliding clubs in the area, and also from the South Yorkshire Flying Club, with whom we share our airfield.

The much debated increase in flying fees has now been applied; whilst no one likes paying more, we can at least console ourselves that we still have cheaper flying than members at many other clubs.

M.S.N.

ESSEX

AFTER an almost perfect summer, we've had to suffer one of the most unflyable winters on record. Since mid-October we've been plagued with the dreaded "North Weald Clag", high winds and heavy rain.

Nevertheless, 1969 proved to be a record year for the club. Our total number of launches increased by 37% to 6,089; hours flown went up 62% to 1,396 and cross-country distances exceeded 3,300 km. Most of the kilometres were knocked up by Mike Audritt on his weekly Gold distance attempts!

We lost the valuable services of our Secretary, Brian Collings, at the end of December. Brian, together with our Treasurer, Graham Martin, put a great deal of time and effort into restructuring the club's finances, which should now show a genuine profit to be used for expansion. Brian has recently moved to Coventry and we wish him every success in his new job.

Our AGM in December produced, as expected, lengthy debates over our newly adopted flying fees. The management committee remains as before with the exception of Brian Collings and our Safety Officer, Ron Wilson. In their places we welcome Bill Medcalf and Alan Vincent. Also welcome at the meeting was Naomi Christy from the BGA.

Our "Hippie" party was a great success, as was the Kent Club's New Year "Do". A sizeable contingent from the EGC invaded the hallowed walls of the Challock club house and had a really swinging evening. Our thanks to the Kent crowd for their hospitality, albeit at five bob a head!

Private ownership at North Weald continues to increase—the Skylark 2 syndicate have now acquired an ex-Lasham Skylark 3F complete with ailerons on its ailerons (something to do with servo tabs, they say). The club fleet should, we hope, be restored to four aircraft with the delivery of a new K-13 in May.

G.F.M.

IMPERIAL COLLEGE

ONCE again, we have had several minor disasters, but they never seem to disrupt the club for long! Paul Minton has gone to Perth, Australia, for a year, taking his wife and family with him. Frank Irving returned from Brazil just before Christmas looking very bronzed, and was slapped into hospital two days later with jaundice! He is now back amongst us, at least in spirit, making a gradual recovery.

Last term was very successful with lots of keen members all fighting to fly—it looks as if we shall have a glut of solo pilots next year. Things got off to a good start when students found themselves with an unaccustomed midweek holiday in November, due to the Queen's visit to open our new College block. Four of our members used some initiative to gain some more instruction, and we were very pleased when three of them were rewarded with first solos in the Eagle.

Our more advanced pilots have been enjoying themselves hill soaring at Dunstable in our Skylark 4 over some eight weeks, and this has produced several Bronze C legs.

New Year saw us north of the Border at Portmoak with both "96" and "296". We startled the locals by rigging before breakfast (rigging Eagles on an empty stomach is no joke), but we gave that up when we discovered that things didn't start happening until 10 o'clock. Whilst we were able to fly every day, wave only materialised on our last day, giving us perhaps a Silver C height. Portmoak also gave us our first cross-country of 1970, when on January 2nd, the Eagle found itself unceremoniously dumped in a field —6 km. from home! The hapless pilot was very popular in the bar that evening!

We are very pleased to have Bernie Davey as our new Master Instructor, even if flu has made him postpone his first meeting!

By the time this is published we shall

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have celebrated our 40th anniversary in style, along with the BGA Dinner and Dance. Gliding has changed a lot over the last 40 years, but we hope to prove that our club can still produce something different—our target being the British Paper Dart Championship.

C.H.

KENT

JUST like everyone else we've had one of those winters we don't talk about —flying wise. Socially, however, it's been a quite different story.

Autumn saw our Annual Dinner and Dance with John Furlong, our President, and his wife Frances, as honoured guests and Ron Cousins staggering home with an armful of cups for his wife to clean. The Kent Gliding Club Cupid struck again with the wedding in November of two of our members, Denise Jones and Mike Honey.

Our New Year Party was its usual success and we were particularly pleased to welcome so many members from the Essex Club.

Amidst all this gaiety we've also been treated to a number of very instructive talks on subjects ranging from airships, by one of our members, Harry Edmonds, whose career brought him into close contact with airships during the height of their fame, to gliding in the ATC by Alex Watson.

Work on our new winch has been progressing throughout the winter, and this we hope will be of great use during our now extended course season which starts in March with an Instructors' course.

Within the last few weeks our luck (translated "weather") has changed and we really feel that a splendid soaring season has just started.

L.J.M.

LAKES

AFTER what seemed to be centuries of almost unrelieved gloomy Sundays, and faced with another day of rapid, circumscribed circuits, on Sunday, 8th February, we tore our aircraft apart, threw them into trailers, and headed north. Fifteen miles later (only four miles further north!) we swiftly threw our aircraft together again on a disused airfield at Haverigg, on the Cumberland coast.

Launched by courtesy of I. Ronald, Fly-a-car Co. to a majestic 800 ft., our T-53 winged smartly to a hillock called "Lowscales" (580 ft.) and from thence, after grabbing a bit more and in a tail-up 70 knot dash over the lovely Whicham Valley, on to the majestic west face of Black-Combe—just a few feet short of the mountain. A few thousand feet later, joined by our Skylark, at least three people were enjoying life. This formula, amended only by Pye—"Come in Tin-Can, your time is up, 70 knots and full brake, please", was enjoyed by our party until dusk. After a period of uncooperative weather, a sparkling day like this tends to revive enthusiasm.

R.R.H.

LONDON

PERSISTENT winds between east and south, accompanied by low cloud, did not make for a good start to 1970. Circuit flying and aerotowing added up to very little during January, though a sudden burst of westerlies early in February provided a welcome relief.

1969 was a lean year for club aircraft, but we begin this year with four K-8s and three K-13s which should make members a lot happier. One of the T-21s has been acquired by a syndicate on site, while the second one is being retained for passenger flying.

Our manager, John Jeffries, was temporarily absent through illness in January but is now back in harness. Geoff Naylor and Mike Till remain as our two resident staff instructors, while Don Gerard soldiers on as club winch driver.

The annual dinner at the Sugar Loaf was fully subscribed, the main guest being Tony Deane-Drummond. Other guests included the deputy manager of Luton Airport, and two local farmers and their wives.

Annual awards this year went to Angela Smith and David Bowden (Foster Boomerang), Tony Pozerskis as best ab-initio, Lynn Brown for the furthest flight in a club aircraft, and Mike Garrod for the best flight of the year. The Club Chairman was given the award for outstanding work for the Club, while the award for the best constructional work went to the Kestrel two-seater syndicate.

A special presentation was made to John Hands in view of his impending departure further south, necessitating his

leaving the club. John has been a very active member since before 1950 and has always been working in the background on various committees, particularly on the flying side. His wisdom and example will be missed very much.

The first major battle on the Luton Special Rules Zone has been fought and decided, and we feel that any ground lost has been small. See page 118 for the latest news.

M.P.G.

MIDLAND

THE weather during the last four months has been a mixture of bright, crisp, frosty days and dull, muggy, misty days, the latter being more prevalent. During the last weekend of October the westerlies blew and we launched the whole of the club fleet plus most of the private owners. Wave was in evidence for the next three weeks and our bungee was working overtime. Climbs of over 10,000 ft. were recorded by "home" as well as "away" owners and we were particularly pleased to see Siegfrid Neumann, Tony Maitland and Colin Dews with their Diamant having a go at our wave. Unfortunately their trailer refused to stay in an upright position during one gust and so their stay was lengthened by a few weeks while repairs were effected. Luckily the Diamant was out of the trailer at the time. (On page 96 Rhoda Partridge describes another of their trailer episodes.)

The last weekend in November, and those of December, proved good for first solos. Dr. John Hodgson, John Crebbin and Ken Routledge all attained their A, B, and C certificates, and Janet Walford completed her Bronze C.

At our Dinner-Dance in March the annual awards were presented, and these went to the following. The Bira Trophy to B. J. Kerr of Lossiemouth; The Sheffield Trophy to M. Horan; The Hardwick Trophy to J. Brenner, together with the Ladder Trophy; and the Maxim Cup to Mrs. Hardwick, the wife of the founder of the Midland Club.

Socially the club has had a quiet time since the annual Trog party in November. Ron Rutherford was married in November and we would like to wish him and his wife all good wishes for the future.

The Midland Gliding Club is holding an Open Week for all private owners during Whitsun week from 25th to 30th May. It is purely for those who would like to come and fly at our site, which is probably the most attractive in the country, and we still bungee, weather permitting. Those who are interested are asked to get in touch with Miss Marjorie Hobby, 256 Crowmere Road, Belvadere Paddock, Shrewsbury, giving the number of people that will be coming.

P.M.S.

NORTHUMBRIA

THE most important development in the past two months is that the tug syndicate has acquired an Auster. A suitable aircraft having been found, there was only the usual problem of raising more money! At a meeting of the syndi-



The Midland Swallow and bungee crew.

cate called to discuss the financing of the project over £400 was collected. This overwhelming support ensured that Auster G-AIBZ (Buzz to friends) found a home in our hangar.

Groups of members are putting their heads together and all talk is of syndicate gliders. If all the conclaves bear fruit we will quickly have a hangarage problem. We haven't yet had the whole Hedley fleet rigged under the one roof.

J.R.G.

OUSE

WE had a shocking winter in Yorkshire. I have never known so much mist and raw dampness in December and January. There were few days on which we could fly, and even then it was hardly worth towing the gliders out of the hangar. Not until February 8th, when there were clear skies, crispness, and a welcome dryness underfoot, did we have a decent day's flying. And how our pilots revelled in it!

Still, it was an ill wind that blew no good, and our enthusiastic, dedicated "hard core" did wonderful work in the hangar and club house, and to our impressive array of vehicles and equipment.

As the weather improved, so did our launch rate. Now that spring is here, and the glorious days of April and May just ahead, we are catching up in no uncertain way. Our new pulley launch is doing a superb job; our experts have worked out a very fine drill for this type of launching, with high-powered, petrol-driven cars. (But, to be financially viable, the pulley system must be "fed" with plenty of gliders. With fewer than three gliders it is more economical to use our diesel-driven winches).

Our club magazine, "In the Wind", is now being printed by Bob Mersey, of Hull, one of our newer members. And a fine job he is making of it.

On the social side we had a magnificent supper-dance at Linton, near Wetherby, and plans are well ahead for our big Open day on June 27th.

A.H.S.

PERKINS

VARIOUS two-seater sailplanes were evaluated by our club instructors in the autumn so that a replacement could be found for our late-lamented T-21B "Daisy May" which bit the dust, and a lot of earth, in July. The final decision was between the Bocian and the Bergfalke 3 (and we would like to record our appreciation to Mr. Fox for bringing along the latter type from Doncaster). Eventually, we chose the Bocian and placed an order in early February (6 weeks delivery), as we already had an "E Type" on site, together with an excellent fitted trailer the syndicate had made for it. One valuable lesson to be learnt by others from our protracted deliberations is: If you find you have to re-equip, don't let the grass grow in the hangar! (i) Make up your minds on the type quickly, (ii) negotiate the monetary amount fast, and (iii) place the order smartish ... in the 6 months that elapsed from taking delivery of the syndicate Bocian to the time of the second purchase enquiry, the price had increased practically £300!

After being club CFI since its inauguration some 14 years ago, John Hulme asked to be relieved of this post in order that he could devote time to serious solo and competition flying, and we have reluctantly had to accept his request. As a small token of our appreciation of his services to the club we presented him with a silver tankard, suitably inscribed, at the annual dinner. His position has been filled by the Deputy CFI, Roy Taylor, who took over the duties with effect from 1st January.

The winter flying rota is proceeding apace and, needless to say, we took full advantage of the bright "spring-like" weather experienced in early January to operate all five available aircraft.

In an effort to promote and encourage more cross-country flying we are having two "Cross-Country Challenge Plates" made ready for the soaring season. Situated just 2 miles north of Crowland, Lincolnshire, we are just over Silver C distance from both Bardney in the north and Cambridge in the south. We have issued a friendly challenge to both these clubs to fly to Postland airfield to stake a temporary claim on a Plate before we reclaim it ... or something of more value!

J.V.L.

RAE FARNBOROUGH

LAST year proved to be the best in the somewhat brief history of the club. More flying hours (well over 100 more) were flown from rather fewer launches—more aircraft in use, and a useful tally of cross-country kilometres recorded. Among these was Harry Shaw's 350 km. marathon from Sutton Bank, the longest ever from this starting point. Harry rounded off the year by winning the B Category of the London-to-Sydney Air Race. Rumour has it that he and his partner *had* to win the race . . . before the next instalment on the aircraft was due!

"And gliders shall give way to ... balloons!" One of those bits of Air Law that can't-happen-to-me?—but it did happen to RAE instructor, Denys Paddison. Cruising peacefully along the downwind leg of a training circuit he and his pupil suddenly spotted the big red bag-of-hot-air at about 150 ft. above the launch point. A hastily re-planned circuit took the two-seater safely clear of the gently drifting balloon, the two crews exchanging waves as they passed. A gentlemanly bunch, the balloonists bellowed an apology between blasts from their over-sized blowlamp to the group of watchers at the launch point.

We also delivered one Father Christmas to a children's party during the festive season, and thereby hangs a tale. The volunteer Santa had no desire to try powerless flight, so a substitute did the flying, wearing the full regalia of the occasion. He landed and then, momentarily out of sight of the assembled kids, did a quick switch with his non-flying counterpart, who then proceeded to distribute the presents with the nonchalant air of one who *always* arrived in a K-13.

D.F.E.

SOUTHDOWN

LOW cloud and rain, occasionally varied by gale force winds, have been the order of the day for the past few months, the hill on a great number of weekends being invisible from the club house. However, we have had a few good ridge-soaring days with northerly winds.

Our newly acquired T-21 arrived on October 26th, aerotowed from Lasham by our CFI, George Constable, and its yellow fuselage and flame wings have brightened the scene on a few recent dismal days. She seems a worthy successor to our old T-21. Having now fully converted to first solos in the T-21 our Tutor is for sale.

A successful wine and cheese party was held on 3rd January, beautifully organised by Joyce Head, who has recently joined the club house committee. Cold Sundays on the bleak hilltop have become much more bearable thanks to Joyce and her large billycan of hot soup, and her home-baking on Sunday evenings after flying finishes is looked forward to by all, especially our starving bachelors.

Our CFI has organised several film shows and lectures, with repeat performances of the films on wet Sunday mornings.

K.M.

STAFFORDSHIRE

THE second Sunday in February saw all the syndicate aircraft brought out of hibernation and given an airing—one having an hour in thermals. The same day we also saw the Dart 15 which had just been collected from Tenby by its new owners. Another new syndicate has acquired a Skylark 4, so 1970 looks like being a year of fierce competition between the private owners who will again be striving, no holds barred, to prove the supremacy of their respective machines —even if most of it is done in the "local"!

It is hoped to encourage more cross-country flying by members this year and to further this the flying committee has decided to allow the Capstan to be used for dual cross-country flights. This, it is hoped, will reduce to some extent the apprehension about a first outlanding which is, without doubt, one of the main factors in deterring would-be cross-country fliers from taking the plunge for the first time.

A wave exploration trip to Sleap Airfield in Shropshire is planned for the near future. As soon as the weather man gives the word the club Tiger Moth, Swallow and gaggle of privately owned machines will set off in search of Gold C height legs.

A.J.D.

SURREY AND HANTS

CONGRATULATIONS go to Frank Jacques for completion of his second and third Diamond. He went on a visit to Australia "to have a look round" (see page 137)—it's all right for some!

Some of us have flown the unflapped Std. Libelle to investigate its suitability as a club glider. We were generally impressed both with the handling and performance and the price. A K-6E is coming soon to augment the middle of the fleet and we are considering changes to glass-fibre at the top, but despite the money now being conducted round the sky we can still do 5 hours for much less than £5, probably the cheapest soaring in Britain for the fleet available!

Already this year we have had some flights of well over an hour and it's only mid-February at the time of writing. Such are the stayupabilities of a K-8.

C.L.

WYCOMBE AIR PARK

AFTER a great deal of re-organisation, the Airways Aero Association, who operate Wycombe Air Park, will take over the running of the training school. But both Airways Flying Club and Thames Valley Gliding Club will continue to run their own solo flying.

Jack Atkinson (ex-Lasham) will be in charge of the training centre. He will be supported by Norman Smith (also ex-Lasham), who has been appointed CFI of the centre, and Vera Wates, who remains as staff instructor.

Gliding at WAP takes place quite happily alongside power flying activities, and few problems of control arise—launching all being done by aerotow.

Some 400 members glide at WAP, which makes it one of the most active gliding sites in the country. The intention is steady expansion with members of BOAC and BEA and certain other Government and commercial concerns qualifying for the Airways Flying club membership and everyone else to join the Thames Valley gliding club.

YORKSHIRE

WITH the exception of about four or five weekends since the end of October last year, we have been bedevilled by that bane of all flying folk—fog! The week's weather could be fine, clear and even sunny but, as soon as Saturday dawned, down it came—visibility nil and tempers at boiling point.

Our CFI, Henry Doktor, as always, turned adversity into opportunity. Several of the club aircraft have been given their C of A and the flying types were cajoled, threatened or otherwise implored into getting busy with buckets of hot water and washing off the grime from our fleet in readiness for the coming season.

We eagerly await the arrival of the Scheibe Falke due to be delivered early in the year. The club is to be allowed full use of it for training purposes and, together with our Super Cub and the winch, our launch rate for the coming year should exceed all previous records.

Vacancies for courses are filling rapidly, and anyone contemplating a week or two at Sutton Bank would be well advised to book as soon as possible. Two full weeks' courses were booked for 1970 before 1969 was out! We are hoping to have a Novice Rally from 30th August to 5th September. This is exclusively for pilots *not* holding their Silver C and will provide ample opportunity to gain this coveted award. Talk nicely to your CFI about bringing your own or your club's aircraft. Full details can be obtained from the Yorkshire Gliding Club Secretary.

T.H.R.

SERVICE NEWS

ALDERSHOT DISTRICT

THE year ended with a note of tragedy —our beloved Grunau 2B spun in with Bill Taylor on board, who fortunately emerged unharmed from the pile of scrapwood which he had reduced the aircraft to. We were all very unhappy to see the end of this delightful little glider, but a replacement in the form of a Skylark 2 (ex Surrey and Hants) has been obtained, which fits in well to our training programme.

Our fleet now consists of a K-6E—Oly. 463—K-13 and Skylark 2, and we

are operating (believe it or not) from a tent! All aircraft are rigged and derigged daily since hangarage problems caused our eviction from more fitting accommodation at RAF Odiham.

Great efforts by our Secretary (W/Cdr. Bill Barnard, RAF (Retd.)) have borne fruit, and we should shortly have a hangar of our own which will be erected by a section of the Royal Engineers.

During the winter months a double-pulley reverse tow mechanism has been built, but as yet not tested, although great hopes are held for its performance during the coming season, and we hope to exceed our normal launch height of 1,200-1,400 ft., once we iron the snags out.

1970 opened with a surprise, Cpl. John Young achieved his C Certificate with a 16 minute flight on a freezing overcast day in January when even the birds were walking.

E.A.N.

BICESTER

THE dark days of December and January produced only 17 flyable days, so the return of Andy Gough and Con Greaves with news of South Africa helped to keep our spirits up until the soaring season. Their accounts of 500 km. and 300 km. flights, 2,000 ft./min. thermals and 18,000 ft. cloud base days, certainly brightened the winter. Their experience of having to fly at VNE to escape the vicious sink between thermals, and similar techniques required in such strong conditions, will be invaluable to them in Texas next June. One of the machines for Marfa, a brand new Std. Libelle, has arrived at the centre and everyone eagerly awaits its first outing.

Bill Andrew left the centre staff in February for an accompanied tour in the Falkland Islands, and was given a farewell in traditional manner in the club bar. He has spent "several" years engaged on the unenviable task of keeping the tug fleet serviceable and has still found time for a great deal of tugging and instructing. Thank you, Bill, for all your efforts and we wish you and Doris all the very best of luck for the future.

Congratulations to Ian Davidson on being nominated the club's Outstanding Novice Pilot of 1969 and good wishes to him on his departure for a tour in Germany with the Army.

Centre Courses this year include 10 ab-initio and 4 Instructors courses, 11 Soaring weeks, 3 Task weeks, the Junior Inter-Services Comps., and practice weeks for both Nationals. Copies of the programme together with details of vacancies can be obtained from the centre.

J.H.G.

FOUR COUNTIES

SINCE we have lost our friend "Arge the Orrible" to a rocky mountain hideout on Stornoway, it has fallen upon my shoulders to point out a slight error in the last issue. The total of hours flown by Four Counties and East Midlands at Sutton Bank was indeed 200 but our share amounted to 165 not 65 as we stated.

Trev Gorely managed our first soaring flight this year with 43 minutes in the K-8 and we wish ourselves many more of the same, "and so say all of us".

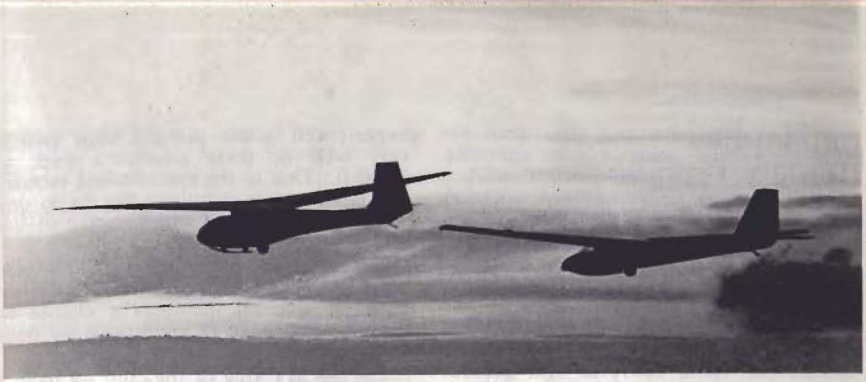
The club continues on its merry way, merry being the operative word as we seem to have had more than our fair share of parties just lately, which in its own way is just compensation for the frustrations of the winter weather. Once again I should like to offer an open invitation to any clubs who wish to come along and imbibe with us on a Friday or Saturday night, we can promise you good company, booze and a trip to a very fine chinky nosh in Grantham. If any of you would like to come, bring your Schooner team—you will need it.

D.F.B.

FULMAR

THE last quarter of '69 produced more than its usual quota of non-flying days but wave appeared mid-afternoon early in October and the club fleet quickly disappeared down the coast along a 20 mile long cloud, the best height being a golden 15,000 ft. by John Kinch in the Bocian.

Bob Lloyd managed to contact some shifty wave on 1st February and went to 7,000 ft. for a Silver gain, again in the Bocian which has proved most popular both as a solo and dual machine.



Fulmar's Capstan and Swallow wave-flying.

The annual dinner was also the occasion for saying goodbye to Tony Wray who has done a splendid job as treasurer for the past year. He leaves us in a very satisfactory financial state and his enthusiasm on the flying field will be missed. Club trophies were presented as follows:— Best altitude—John Kinch; Best Cross-country—Bob Kerr; Most meritorious Flight—John McKenna.

H.D.

HUMBER

IN October-November 1969 we held our last AGM and Christmas Party in the old clubroom at RAF Lindholme, near Doncaster. At the latter function—which really set the pace for all the ensuing parties—our lady members provided a feast (of food) and decorated the clubroom so subtly with drapes and soft lighting, that visitors were asking if we were members of the Clubmans Club!

By mid-December we had moved up to the larger, ex-Varsity, crewroom, in No. 1 Hangar, with the feeling that we were starting a new lease of life ... "Yorky" was back as well! After a year's unaccompanied tour in the Persian Gulf Yorky Kitchener was welcomed back with open arms to take up the job of CFI again.

Previous plans for expansion had to be held in abeyance when, last spring, Sid Fields our "stop gap" CFI—was promoted and posted. The club only survived the summer by the hard work of Trevor Taylor (acting CFI) aided by fellow instructors Gordon Jones, Paul Fynes and Chris Anderson. This was the second time that Gordon has shown his devotion to the club in the absence of a CFI—we had similar problems after Austin Billington left the RAF in 1968.

"Yorky" returned to find that the club's fight for survival had strengthened the "hard core", and provoked an enthusiasm that had resulted in 3,870 launches and nearly 400 hours flying in 1969—an increase of over 3% on the launch figure for 1968!

In 1970 we look forward to even more enjoyment in both flying time and launches, as we now have five gliders on inventory—a T-21B, K-7, Grunau 2 and 3, and our latest acquisition, an Oly 2B. The Jim Smith syndicate. In the near future we will welcome new members from the Navigation Training Schools, Gaydon and Stradishall, and also any Air Electronic friends from Topcliffe, when they reposition at Finningley.

P.B.

WREKIN

THE most exciting recent event at Wrekin was the acquisition of an Auster which is to provide us with regular aerotows.

The winter series of fortnightly lectures are progressing well, and those held so far have been interesting and informative.

An ab-initio course is to be held this month (February) so we are hoping for at least one week of good weather. Parties held in the last two months included the Club's fourth birthday party, Mark Boyle's leaving party and a rave-up after the solemnity of the AGM.

The soaring season has started already! Mick Orr did half an hour from a winch launch on 7th February, and 6 Bronze legs were flown the next day at the Long Mynd.

C.B.B.

CRUSADERS
(Dhekelia, Cyprus)

AFTER many hours of hard work on all our equipment we recommenced flying at the end of January. The further we delved into the aircraft the more we found needed attention after their very busy summer.

To cut running costs now that we cannot buy duty-free petrol we have a diesel tractor for cable retrieves and general airfield work. This should also prolong the life and creditable appearance of our refurbished petrol-engined Landrover, which we hope will be used for retrieves most weekends.

It was not worth fitting a diesel engine to the Landrover instead of acquiring the tractor because the diesel road tax here is four times that for petrol-engined vehicles.

Plans are well under way for a new clubhouse next to the hangar at Kingsfield. After our steady progress over the last 3 years from three aircraft and no hangar to four aircraft plus a K-13 on order and a hangar, the next great need is for suitable and respectable club accommodation at Kingsfield and RAF Akrotiri.

CFI George Ross plans a two-week club members' course in early March, followed by an ab-initio new member course. Soaring weeks will then be held through April.

Brigadier R. C. Windsor Clive, Commander Eastern SBA, has kindly undertaken the Club Presidency and Flight Lieutenant M. I. Orrey is now Club Chairman.

M.I.O.

STRAITS
(Sembawang, Singapore)

IT is some considerable time since we have contributed to the pages of S & G. However, it is hoped to rectify this during the forthcoming issues.

Our aircraft fleet at present stands at a total of four: T-31, Tutor, T-21 and Swallow. Whilst this is not a large or high performance fleet, it does cater amply for the conditions under which we operate.

We aviate reasonably well despite a height restriction of 1,500 ft., although it appears that either some of the more experienced pilots cannot judge height very well or their altimeters stick at 1,500 ft.! Due to the surrounding terrain, out landings are definitely not on so one must always remain within range of the airfield.

It was decided recently to introduce a time limit of 1 hr. solo and 30 mins. dual, to give all members a chance to sample local soaring conditions on days when thermals are active.

On the MT side of the club we have a diesel tractor and Landrover, petrol Landrover and our faithful twin-drum winch which has given good service during 1969; having performed 4,200 launches.

We also have two single-drum winches, one ready for use and another which is being rebuilt some 18 months after being mysteriously blown to pieces. This work is being undertaken by some of the members led by Bill Dore who is our MT member.

Thanks must go to Alan Robertson for his superb and devoted work as secretary during the past 12 months. Alan, due to increasing professional commitments, has had to stand down, and our new secretary is John Gradley. Dave Dawson is our aircraft technical member, doing a grand job by maintaining our aeroplanes. Mick Lincoln, our deputy CFI, returned to the UK at the beginning of the year and the vacancy will be filled by either Alan Cummings or Ian Wheeler.

By the time this article goes to print our barman of recent months, John Geary, will have returned to the UK having worked very hard for the club, both behind the bar and on the airfield.

Congratulations to Dennis Neville who left us with a Bronze C for a two-week holiday at Waikerie and, having only done 25 launches, collected 31 hours in the Blanik, K-6CR and Boomerang.

For the benefit of personnel visiting Singapore in future months, our club is situated approximately 10 miles north of the city at the Royal Naval Air Station, Sembawang.

We normally partake in our flying activities at weekends and Wednesday afternoons. Anyone with or without previous experience will be welcome.

J.C.L.

TWO RIVERS
(RAF Laarbruch)

FLYING wise, since our last notes the weather has been against us quite a lot which has enabled us to start on our winter servicing programme for aircraft and ground equipment. The K-7 is being majored and fitted with oxygen for its trip to Issoire airfield in France. Going along with it will be Leigh Hood, Mick Slater and Alan Bishop. (See record claim, P. 119).

The T-21 has now become a GT version with its canopy, which will be a welcome addition in the next two or three months. The two Swallows and the K-6 will still be flying through the rest of the winter, and the Skylark is the next one for a major.

A new addition to our ground equipment which is looked after so admirably by Harry Palmer and his merry crew, is the new twin Tost winch, which to date we have only had two chances to use, although we have many willing drivers.

After much talking and writing of letters the Auster belonging to Laarbruch Power Club has at last been fitted with a tow hook and we are in the process of clearing as many of our solo pilots as possible. The Power Club is also taking the opportunity of clearing as many pilots for the tug.

On January 4th Barry Nowell the Club CFI, Mick Slater and Harry Palmer set off for the Schleicher Factory at Poppenhausen to collect the new K-13. Perhaps someone should have told the navigator (Harry) that there were two places by the name of Poppenhausen within 100 km. of each other! After that little distraction the trio arrived at the factory and collected the new glider and had a rather uneventful trip back to Laarbruch. The K-13 is already getting a lot of time in, with pilots all eager to get new types in their log books.

A.M.B.

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

NATIONAL CHAMPIONSHIPS. — This event, the 19th of its kind, was held at Pehuajo airfield, 380 km. from Buenos Aires, from 11th to 22nd January; 46 pilots took part, including two *hors concours* entries, J. Lyon from Chile in a Libelle 301B and R. Fresslar from USA in a Skylark 3. The contest was scored on a handicap basis, ranging from 1.00 for the Ka-6CR to 0.78 for the Cirrus. Tasks flown were:

11TH JANUARY.—194 km. distance along a line. Of the 46 pilots flying, 29 completed the task, which was won by M. Andrada (Pirat) at 80.74 km/h.

14TH JANUARY. — 314.5 km. triangle. completed by 39 pilots. A. Araoz (Foka) won at 80.24 km/h.

15TH JANUARY. — 231 km. out-and-return; 24 out of 47 pilots completed. Araoz won with 70.35 km/h.

16TH JANUARY.—118 km. triangle. All

but one of the 45 taking part completed. Rizzi (Std. Austria) won at 97.31 km/h. and took the overall lead.

17TH JANUARY.—214.3 km. triangle. This time 37 out of 45 completed and again Rizzi was fastest with 92.33 km/h.

19TH JANUARY.—334 km. triangle completed by 13, with Rizzi the winner once more with 73.84 km/h.

22ND JANUARY.—148 km. triangle. All but four went round, with Araoz winning at 81.75 km./h.

Final Leading Results

Pilot	*H'cap %*	*Sailplane*	*Pts.*
Rizzi	90	St. Austria	6428
Mattano	83	Lib. 301B	6086
Urbancic	78	Cirrus	5702
Araoz	97	Foka	5688

After the Contest, the team for Marfa was selected as follows: Roberto Rizzi, Rolf Hossinger (each flying a Cirrus in the Open Class), Luis Urbancic (Libelle) and Alberto Araoz (Phoebus 15) both in Standard Class. Aimar Mattano, after being selected, gave up his place to Hossinger as a sporting gesture.

An Air Force pilot suffered the first fatality ever to happen in an Argentine contest when he collided with another Air Force machine.

AUSTRALIA

LOST IN THE MULGA.—Bob Ritchie took off on Sunday, 5th January, at 3.30 p.m. in a Blanik from the airstrip at Alice Springs Gliding Club, 17 miles north of the town, to try for Silver C height. He was due back at 5 p.m., but by 6.30 he had still not returned. Six or seven light aeroplanes searched next day but failed to find him.

Meanwhile, Ritchie, while climbing to nearly 6,000 ft., had lost sight of the airstrip and could see nothing but thick "mulga" scrub, rough and rock-strewn, all round. He had no maps, so made for a line of hills similar to those near the airstrip, but they were not the same. Late in the afternoon he saw a cattle station homestead with water tanks, but, a newspaper says, "he had too much height to land". Eventually he landed at 7.40 p.m. close to a little-used track, damaging a wing on tree stumps. So he set up a barrier across the track with markers pointing to the sailplane.

He had no food or water, and two sorties next day, early and late, failed to reveal any. There was a hill which might give a better view, but he was afraid of losing too much moisture in going to it; yet, unknown to him then, there was a water tank on the other side.

Early on the third day he dug for water in a creek a mile away, again without success, then returned by 10 a.m. to discover that two men in a truck had seen the markers, found the glider, and were looking for him. They took him to their cattle station and used the "flying doctor" radio service to tell the Directorate of Civil Aviation that the pilot was found. He had landed 60 miles east of Alice Springs.

The sender of the Press cuttings wrote on the one for 7th January: "Alice Springs forecast for to-day, 'about 110°'!"

Two-Seater Record

Bert Persson and Alec Christie, of Alice Springs GC, broke the Australian two-seater goal-flight record on 28th December by flying 275 miles to Tennant Creek GC. No really good lift appeared until around Wauchope. There were then large stretches of no-sink through which Capt. Persson flew at 60 knots without losing height, and in stronger lift he would reduce to 40 knots and climb 500 or 1,000 feet, still flying almost straight. Their final glide was from 10,000 ft., arriving at 5,000.

Next day they intended to try for the world's two-seater goal-flight record by flying 475 miles to De Rose Hill Station in South Australia, but a strong wind prevented them and caused them to take 8 hours in flying back to Alice Springs, equalling the previous day's distance, there being no other way to get back.

Press Cutting

Year Book

The Australian Gliding Year Book for 1969 has 64 pages of the same size as *Australian Gliding* and contains 21 chapters. Apart from the usual statistical and semi-statistical information, it includes useful advice on most aspects of gliding activity, such as maps, radio, trailers, the Law, etc. "Sliderule", in an article on "The Future", writes mainly of sailplane de-

signs—their increasing span, aspect ratio, sophistication and expense. He notes that "many manufacturers have been in the habit of selling their product before it has been proven. This has enabled countries like Australia, the USA and others to fly the latest designs and enables manufacturers to make a profit in the interim. It also means that normal, possibly unsuspecting pilots are effectively taking part in the test flying programme and there have been many problems, a few bad frights and possibly one fatal accident as a result . . . We can have no alternative but to go along with this situation or risk dropping even further behind in terms of gliding standards."

AUSTRIA

JET LAUNCHER FOR SAILPLANES. — For three years Georg Platzer, aged 32, of Going at the foot of the Wilder Kaiser in Tirol, has been working on a reaction-propulsion unit of low weight and high efficiency for sailplanes. A prototype, already tested in his workshop, is 1.5 m. long (4 ft. 11 in.) and weighs 3.5 kg. (7.7 lb.). Without the fuel tank but with firing mechanism and heat dispenser, the whole aggregate, ready for use, weighs 8 kg. (17.6 lb.). Lengthy trials have shown the best mixture to be 25% diesel oil and 75% petrol. The thrust is 15.5 kp.; the burning rate 28 litres (6.16 gallons) per hour. Platzer "hopes" to make the first flight tests "in the foreseeable future".

Man-Powered Aircraft

Josef Malliga, aged 29, an Air Force instructor, decided in 1966 to have a try for the Kremer Prize. He had flown 760 metres in 1965, and has since designed a new super-light monoplane of aluminium tube, foam and plywood. The wing, with an aluminium-tube spar, is covered with Japanese silk. The pilot's seat and head protector are enclosed. The propeller, of aluminium and plastic, weighs 2.2 kg. and is behind the wing between two booms which form the fuselage and weigh 51 kg. (112 lb.). A bicycle wheel is turned by pedals with a 1:15 reduction gear. Wing span is 19.5 m. (62 ft. 4 in.).

In July, 1967, Flying Instructor Brandt flew 150 m. on it at the first attempt. Then fellow-officer Puch, who weighed only 57 kg. (9 stone), left the ground at 30 km/h. (19 mph.) and flew 400 m. (a quarter mile) at 10 m. height (33 ft.) and with 33 km/h. flying speed, before he became short of breath and had to land. Autotows have been satisfactory, and after intensive bicycle training it is hoped to achieve the "dream mile" for the Kremer Prize.

Austroflug.

BELGIUM

PILOTS FOR MARFA.—Belgium's team for the World Championships will be:—

Henry Stouffs	Std.	LS-1
Bert Zegels	Std.	Std. Libelle
Georges Defosse	Open	Cirrus
Louis de Dorlodot	Open	ASW-12

BRAZIL

NATIONAL CHAMPIONSHIPS. — These were held at Pirassununga, Sao Paulo, from 3rd to 17th January. Twelve pilots took part and flew a total of 8,969 km. in 8 tasks. Handicapping was applied.

Winner of the Championships was Ekkehard Schubert, flying an Olympia.

Leading Final Results:

1.	E. Schubert	Olympia	6474
2.	C. Junqueira	Urupema	5990
3.	I. Gomes	Olympia	5153
4.	F. Galvao	BN-1	4514
5.	W. Briest	Ka-6	4452

CLAUDIO DI LASCIO, M.D.

Federacao Brasileira de Vôo a Vela.

IRELAND (Dublin)

INVITATION TO SAFARI.—Members of this Club flew recently to Kerry's new County Airport at Farranfore and admired this 3,600 × 75 feet of tarmac in some of Ireland's loveliest scenery. County Manager, Austin Stack, and his fellow directors extended an invitation to us to come gliding there, and frankly it all looked so good that we persuaded him to allow the other Irish Clubs along as well. The matter was placed before the Irish Gliding Association and they

are arranging a Safari there for a fortnight commencing 16th May.

The local tourist organisation IVERNIA rowed in and will co-operate in hotel bookings, and suitable discounts can be arranged for participants, their families and friends. On a recent visit to Lasham to collect a syndicated K-14, some of our members found a keen desire to glide in Ireland, and so the IGA have broadened the original scope of the Safari to include You and your sailplane.

If you are interested, please turn up the Irish Gliding Association's advertisement in this issue and write us without delay. (See p. 99).

J. P. H.

NEW ZEALAND

NATIONAL CHAMPIONSHIPS.—Thirty-five gliders were entered in the 7th NZ Nationals held at Matamata from 5th to 17th January, 1970, ranging from a trusty old Skylark 2 to the latest glass-fibre sailplanes — two ASW-12s, two Cirrus', two Diamant 16.5, two Libelles (1 Standard) and two Phoebus 17s. Four separate competitions were run concurrently—Open, Standard, a Sporting Class and a sponsored Inter-Club Contest. The Sporting Class was limited to sailplanes with gliding angles below 1:34 and was handicapped, the K-6E at 95% being the highest-performance machine allowed, and the K-6CR, Skylark 4 and Dart 15 at 100%.

DAY 1.—138-km. Out-and-return. This was a difficult day with weak, scratchy lift, and only one pilot completed the task—Ivan Evans (SHK) with 33.02 mph.

DAY 2.—127-km. Triangle. The day began with an overcast sky which cleared by 3 p.m. Twenty of the field completed the task, most pilots finding the first leg difficult. Fastest time was 42.7 mph. by Tony Fowke (ASW-15).

The next day was declared a No Contest due to a very poor forecast.

DAY 3.—200-km. Triangle. Strong conditions were forecast with some over-development, and 25 out of 34 pilots returned home. Ross Reid (Phoebus 17) was the fastest, breaking his own local New Zealand speed record by nearly 5 mph. with 45.74 mph. Tony Fowke (ASW-15) was second in the Open and first in the Standard Class at 44.67 and Ian Pryde (Libelle 301) third at 44.61 mph., both breaking the New Zealand record. Mrs. Anne Johnson, although the slowest finisher, set up a New Zealand women's record for speed over a 200-km. triangle with 27.11 mph. Among the finishers was Trevor Mollard in the Skylark 2 giving an excellent performance in an aircraft not noted for penetration or speed!

DAY 4.—300-km. Triangle. This was only the second time this task has been set in New Zealand Championships. (On the first occasion in 1967 the local record of 31 mph. was set up by Tony Fowke, the only finisher.) Strong conditions, high cloud base and a useful sea-breeze front on the second leg, combined with the talents of the pilots, brought 17 of the 34 starters home (6 of them qualified for Gold C distance and Diamond goal). Ian Pryde broke the National record with 51.4 mph., and 16 out of the 17 finishers broke the local speed record. Fowke was second with 50.9 mph. but his photographs were not acceptable and he lost many points.

DAY 5.—300-km. Triangle. The forecast was similar to the day before but with a lower inversion. The sea breeze did not come inland so far, and this enabled some of the slower machines to complete the course. Twenty-five finished and included 4 more Gold C distances and Diamond goals. Ian Pryde proved that the previous day was no fluke by winning again. The weather conditions of this and the previous day were the best ever seen in New Zealand competitions.

DAY 6.—200-km. Triangle. The task-setters complained that the pilots were beating them, and promised to try harder. Strong conditions, but with more wind than previously, caused them to set the same course as Day 3. The majority of pilots found it a hard trip—large blue patches and broken thermals — but 21 gliders crossed the finish line, the winner being Ross Reid at 38.37 mph.

DAY 7.—148-km. Out-and-return. W. to S.W. winds of 15-20 knots were forecast and the task's turn-point was Meremere Power Station which burns coal from a nearby open-cast mine. Several pilots found that the burning efficiency

could have been better and some returned home with sooty patches from a low climb away! It was not an easy day with strong cross-winds and fairly strong but broken thermals — 18 finished, the day being won by Tony Fowke at 39.19 mph.

DAY 8.—170-km. Triangle. The forecast was 15-18 knot NW winds with moderate thermal strengths. Twenty completed the course, which was considered extremely good in the conditions prevailing. Ross Reid did the fastest time of 40.11 mph. with Tony Fowke close behind at 40.03 mph.

DAY 9.—114-km. Triangle. The weather man, Garth England, predicted that an approaching cold front would cross the area during the evening. In fact, it arrived at exactly 5.13 p.m.! The majority of pilots completed the task, several of them twice, with best times around the 1½-hour mark; Ross Reid won the day with 47.61 mph.

DAY 10. — 154-km. Out-and-return. Westerly winds 20-knots with strong thermals were forecast, and 22 returned home. Ian Pryde finished at 44.19 mph. and Alan Cameron, in the Standard Libelle which he claims is noticeably poorer than the flapped version at high speed, was second with 42.37 mph.

DAY 11.—187-km. Triangle. The Met. man forecast an anticyclone approaching from the west, 12-15 knot winds and thermal strengths of 3-6 knots. Only 14 pilots completed the task with Peter Heginbotham back on form nearly half-an-hour ahead of the rest.

DAY 12.—126-km. Triangle. Even the "hot ships" had difficulty in staying up in the small, weak thermals under the 3,000-ft. inversion, and 8 pilots only crossed the finish line. Times were slow. Ian Pryde being fastest with 2 hrs. 13.5 mins. Alan Cameron, already a winner in the Standard Class, and trying to better his second place in the Open, arrived home in 2 hrs. 19 mins. This made him the New Zealand National Open and Standard Class Champion. The Sporting Class Champion was John Upton.

MARFA: Pilots selected are A. Cameron, R. Reid, S. H. Georgeson and I. Evans. However, it is not yet known if sufficient funds will be available to send a team or even part of a team.

Final Leading Results

Open Class		*Points*
Cameron	Std. Lib.	10,233
Reid	Phoebus 17	10,131
Georgeson	Cirrus	9,838
Pryde	Libelle 301	9,808
Gatland	Cirrus	9,493
Evans	SHK	9,187
Standard Class		
Cameron	Std. Lib.	10,724
Kosoof	ASW-15	8,886
Fowke	ASW-15	8,734
Sport Class		
Upton	K-6E	10,181
Martin	K-6CR	9,662
Sheppard	K-6E	9,491

ROSS MACINTYRE

RUMANIA

NATIONAL CHAMPIONSHIPS.—Visiting pilots came to this event from East Germany (2), Hungary (2) and the Soviet Union; 11 competitors took part and flew 7 tasks, of which 5 were on consecutive days.

Thermals in the region of the contest were late starting—between 11 a.m. and noon, according to an East German writer, and gave out between 3 and 4 p.m., so the longest distance achieved was only 208-km. (129 miles). Mean rate of climb was 2 m/sec. and best thermal strengths 4-5 m/sec. The country was hilly, rising to 400-500 m. (1,300-2,000 ft.). Cloud base was about 2,000 m. (6,560 ft.).

Winner of the contest was Finescu of Rumania with 5122 points (he came 27th in the Standard Class at the 1968 World Championships at Leszno); second, Csepan of Hungary, 5114 pts. (30th in Open Class at Leszno); third, König of East Germany, 4904 pts. No other final figures are given except that Voss of East Germany finished 8th. All pilots flew the Foka 4 or 5 types.

Tasks and their winners were:—

AUG. 5TH.—104-km. Goal; Finescu (Rum.) 102.9 km/h.

AUG. 6TH. — 140-km. Goal-and-return. A front clamped down on the turning-point, and only Mihaita (Rum.) completed the course.

AUG. 7TH.—205-km. Triangle; weather deteriorated and only Bindea (Rum.) and

Csepan (Hung.) completed the course.

AUG. 8TH. — 120-km. Goal-and-return; Voss (E. Ger.), 59.0 km/h.

AUG. 9TH. — 140-km. Goal-and-return; Nagy (Rum.), 63.1 km/h.

AUG. 12TH.—205-km. Triangle; Nagy (Rum.) 53.996 km/h. Finescu (Rum.) took the overall lead from Csepan (Hung.), who had held it for the past three contest days.

AUG. 13TH.—208-km. Goal-and-return; all completed the course, Csepan at 71.5 km/h.

Aerosport.

SOUTH AFRICA

PAT Beatty is finishing his BJ-4 Mk. 2 which, together with the first BJ-4, will be sent to the Internationals at Marfa. Compared with the Mk. 1, it has a thicker wing and the aspect ratio is increased from 22 to 23. At last year's Nationals at Marfa, the Mk. 1 was at a disadvantage in weak thermal weather, but the Mk. 2 wing section has been modified to allow it to climb at a lower airspeed. At Marfa Pat Beatty will fly one of the machines and "Bomber" Jackson the other. (Photos on p. 139).

Goldfields Gliding Club

This club, based at Odendaalsrus, has taken delivery of an ASW-15 and an ASK-13 two-seater, bringing the number of club-owned sailplanes to five. The club started 11 years ago with a Grunau Baby and a battered old towing car. Today the club has, in addition to the above two, an ASW-12, Ka-6, Ka-8 and a Rhönlerche two-seater trainer, a home-built clubhouse, a swimming bath, and a membership of 28, including six Gold C pilots—two with 2 Diamonds and one with 3 Diamonds.

At the age of 68 Leeds Harrison, who only started gliding three years ago, has achieved his Silver C. He flew a 100-km. triangle for his distance leg, and has also done a 60-km. out-and-return.

Kurt Linke is the instructor.

Wings

WEST GERMANY

NEW CLUB SAILPLANE.—Another German Standard Class/Club glider, the Sie 3, will be available from April of this year.

The prototype Sie 3, with 45 hrs. flying time, including a 360-km. distance and two 150-km. traingles, has gone into series production with Paul Siebert Sportflugzeugbau in Münster-Sankt Mauritz-Marienburg.

The price of DM 12,000 ex works plus 4% extra tax for this machine should be of great interest, especially to clubs.

The designer, Peter Kürben, of Dortmund, is currently developing a two-seater version—the Sie 5.

Data

Span	15m
Wing section	Wortmann
Wing area, m^2	11.56
Wing loading, kg/m^2	29.4
Aspect ratio	19.7
Empty weight, kg	200
AUW, kg	340
Gliding angle at 84 km/h.	1:35
Min. Sink m/s. at 62 km/h.	0.56

Aerokurier.



SIE-3.

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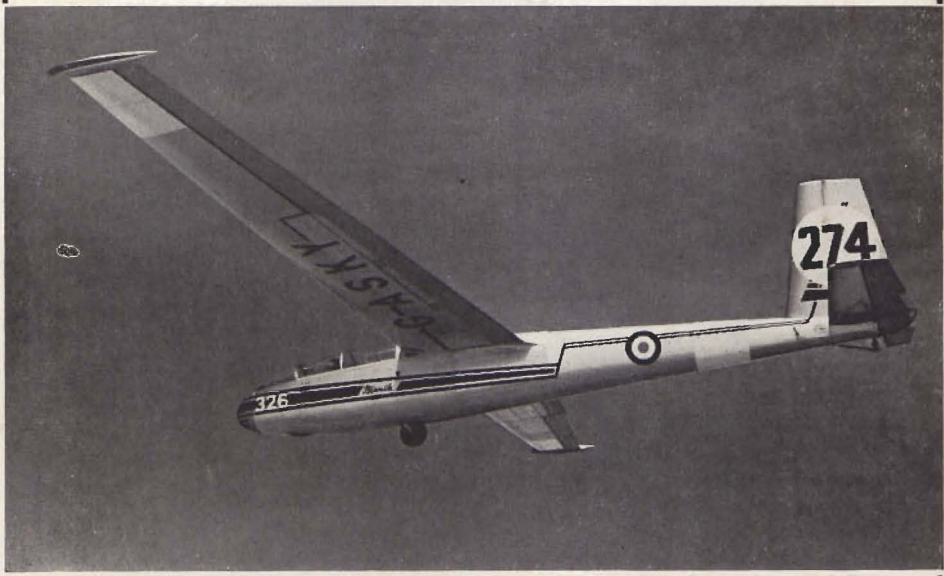
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