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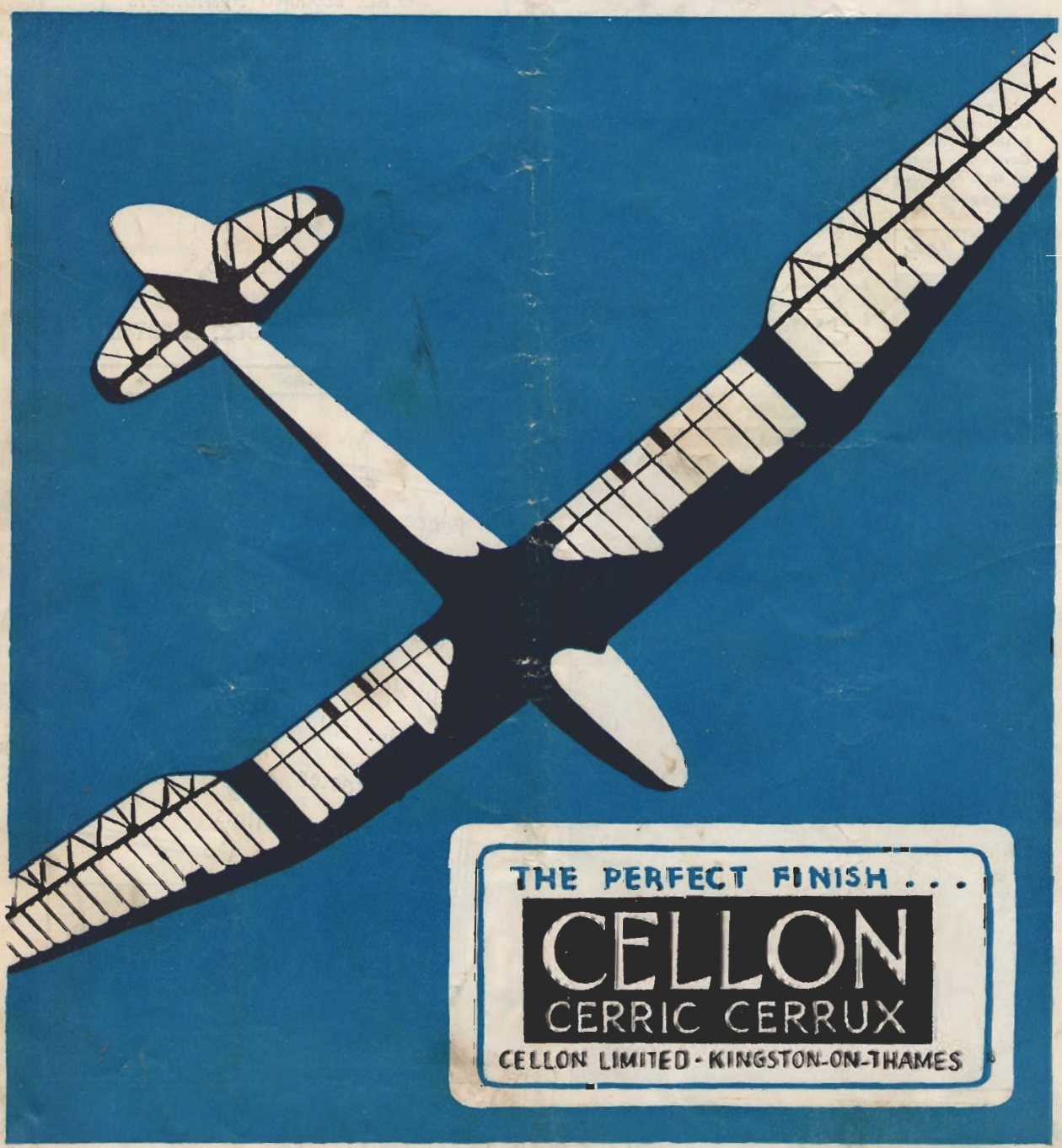
SAILPLANE AND GLIDER

NOVEMBER 1945
Vol. XIII. No. 10.

PRICE - - - 1/-
Editorial Offices: 139, Strand, W.C.2.

The First Journal devoted to Soaring and Gliding



Sailplane and Glider

THE FIRST JOURNAL DEVOTED TO SOARING AND GLIDING

NOVEMBER 1945 ★ Vol XIII No 10

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The *Sailplane and Glider* is published on the fifth day of every month. Price One Shilling per copy; 13/- per year posted. Advertising Rates on application.

Published for the proprietors, Glider Press Ltd., by the Rolls House Publishing Co., Ltd., Breams Buildings, Fetter Lane, E.C.4, and Printed by the Mendip Press Ltd., London and Bath.

LISTENERS to the B.B.C. 8 a.m. news one day recently were surprised, and no doubt pleased, to hear an announcement by the Air Ministry that an order had been given for 200 two-seater gliders for the A.T.C. The impression was given that from now on A.T.C. boys were all to be taught to glide. Nothing was said about soaring or the finer points of the sport or science. As if it had been announced that all boys in the A.T.C. were to be taught to land an aeroplane but not to fly it. The timing of the announcement was of course a recruiting stunt for the A.T.C., whose numbers have fallen off appreciably since V-day. It was also a recruiting and morale building fillip for the A.T.C. Gliding Instructors, a sorely tried body of hardworking and unselfish men.

Of course we all know that if any ordinary and otherwise safe and sane man gets " the bug " there is an end to the ordinary ways of life for him and his wife and family. This accounts for the way that so many Civilian Gliding Instructors in the A.T.C., without the glamour of uniform or of even being allowed to use the Officers' Mess unless they had previously held commissions in the R.A.F., have continued to neglect their homes and families and businesses, all for the pleasure of a few curcuits wedged in between the days' instruction of Cadets, long days which in summer have begun at 9 a.m. and gone on whilst light lasted to 11 p.m. or thereabouts.

It is true that if it had not been for the A.T.C. the instructors would not have got any gliding at all, and as far as the fraternity are concerned, there is little doubt that a good many recruits will be forthcoming from A.T.C. Instructors, civilian and commissioned, to say nothing of the hundreds of Cadets who may join it. There are about 2,000 more "A" Certificate holders to-day than there were in 1939 in Great Britain, enough, if all joined, for about thirty clubs.

All sports, even cricket and golf, have their risks. Men have been killed at both, even whilst harmlessly watching. Gliding, part of whose thrill is the overcoming of natural dangers by skill and science, is more dangerous than most other sports. But a whole season's gliding before the war probably brought only a small portion of the number of legs and arms in plaster than one could see in a morning at St. Moritz in the Winter Sporting Season.

Nevertheless accidents do occur sometimes, due perhaps equally to lack of skill as mechanical and structural failures. Even the best have been killed in accidents and the British Gliding Movement was infinitely the poorer for the deaths of Eric Collins, its brightest star at that time, and others such as Charles, who were killed in what appeared to be pure accidents.

It is when accidents occur that people begin to count the cost. There may be perhaps months of lying in hospital and slow recovery, bringing with it a dislocation of family life and perhaps financial loss of a nature which cannot be hidden. In this connection A.T.C. Instructors have a real grouse. If they are so unfortunate as to be injured in the course of their duties they are classed as members of the Home Guard for compensation. They receive a maximum of under £4 a week for 26 weeks, and after that the maximum falls to 7s. a day. This is not much for a man with a family to live on, and may bring real hardship to his wife and children. But in the next bed may be a non-flying member of the R.A.F. who had broken his ankle at a Mess Party, or falling off his bicycle at cricket, football or hockey, who would be receiving his pay and allowances for a period of one year, amounting in the case of a F./Lt. to about £50 per month. True, both receive the same excellent treatment in a Service Hospital, but this is the least the A.T.C. could do for their instructors. Nevertheless, the discrepancy is too great to be just.

It may be that it is the realisation of the poor compensation which is making many men think twice about going on with their self-imposed duties now that the war is over.

(*Continued on page* 21)

PIONEERS OF BRITISH GLIDING: No 15. WILLY WATT

ONE day in 1935 a F./Lt. P. M. Watt joined the Yorkshire Gliding Club. He went for a ride with Stedman in his two-seater sailplane. The next day, August 5th, he took his " A " and " B " in the morning on the " Hols I," and his " C " in the evening, when the wind conveniently freshened : no trouble at all. His next soaring flight was on April 22nd the following year (1936), in a "G.B.II." He ridge soared for a couple of hours around 400 feet, climbed to 5,000 feet (over Silver " C " height) in a thermal, and set off to the S.E. He landed at Brough Aerodrome at 6.40 p.m., a distance of 42 miles (over Silver " C " distance). The following day he did his five hours' duration flight, and so completed the conditions for his Silver " C " international soaring certificate on his fourth soaring flight ! Willy Watt was one of those people who could not help being a first-rate sailplane pilot. He was just born that way.

Two months later Willy Watt was chosen as one of the representative British pilots for the forthcoming International Competitions at the Wasserkuppe, and made some of the first flights on the " King Kite," which had been designed and built in a great hurry especially for the occasion. Therush with which the designers and builders had been forced to work, in addition to the subsequent lack of time for full testing and flight practice, may perhaps have been partly the reason for the spectacular start made by the British team. The first flight, which was made by the subject of this article, and which was also his first bunjy launch, ended with a resounding crash, following a spin off the launch, right in front of the assembled multitude. Willy, however, " landed on his toes," announced that he " felt a little stiff," and after a re-shuffle of pilots and machines was flying again the following day. He went on to gain the highest number of points awarded to any member of the British team.

Willy Watt's speciality was blind

The late Willy Watt.

flying, and by example and the written word he did a great deal towards bringing this essential adjunct to high-performance soaring into general use, and his articles in "The Sailplane" under the pseudonym Gamefeather were most valuable. He was able to put this experience to good account in the International Competitions when he flew blind for one and a-half hours and attained the greatest height of the day, as well as travelling 128 miles.

Willy was a man of charm, humour, and a great heart, and was always the first to tell stories against himself, one of these; which also has a bearing of his enthusiasm for instrument flying, is perhaps best told in his own words.

" . . . After casting off at 3,000 feet I settled down in the cockpit to get on with the business of soaring. I noticed a smell of manure and remembered that people had circled in whiffs from hay fields, etc., so proceeded to circle immediately without referring to the variometer. After several circles I looked at the instrument and discovered we were in a down-draught.

" The mystery was solved soon after landing, for Major Shaw occasionally grazes sheep at Welburn, and I must have been a little careless before entering the cockpit.

" This all goes to prove that flying by instruments is the only reliable method, because the senses give such a poor indication of what the machine is doing."

In 1938 Slingsby entered a " King Kite " for the National Contests, held at Dunstable, with Willy Watt as pilot : he finished in second place with only 5¼ points less than P. A. Wills. One flight, in which he flew from Dunstable to Cranbrook in Kent, going all the way round the west of London in order to make the very most of existing conditions, was most characteristic of his individuality and patience.

In the 1939 contests Willy Watt flew one of Slingby's new "Petrels," and came fourth in final placing. On one flight he flew 86 miles, and although he did not get back to the competition site until 5 a.m. the following day, he at once declared Sutton Bank as his goal, and only missed it by 13 miles, after covering 57 miles in weak and deteriorating conditions.

Shortly afterwards he was launched into the peculiarly difficult conditions that occur when industrial murk, mountains, and thunderstorms get mixed up together. The turbulence was so violent that he flew part of the time with the cockpit cover unlatched for ease of rapid exit. Lesser men did not even attempt to fly, but he managed to take the " Petrel " 25 miles.

Willy Watt (then Squadron-Leader) was killed shortly after war was declared while doing blind flying development work, due to an error which was not his. The necessity for proper blind flying instruments and adequate training in their use is now recognised as essential if soaring performances are to be increased, and this is largely due to his efforts.

SOUTH AFRICAN GLIDING ASSOCIATION

NEWS from South Africa is contained in two cylostyled typed news bulletins (which appear to be a feature of Gliding Movements the world over) lately received at SAILPLANE Office. These bulletins, dated March and July respectively, contain much interesting news of the struggle to get going again in the Union. In addition to the same fight as in Great Britain to get permission to fly again, there has been what apparently seemed to be a successful struggle to get the Club's requisitioned machines and material released to the Clubs from whom they were taken at the outbreak of war. At one time there was a real fear that the machines and material would be sold by the Disposals and Salvage Board to the highest bidders, whether they were interested in Gliding or not.

The July issue contains the following :—

EDITORIAL.

I must apologize for the late appearance of the SAGA Newssheet, which is entirely due to the recent development and those now shaping.

It is regrettable that there are certain individuals on the Rand who, by virtue of their money bags, are trying to obtain our Gliding Equipment. The profit motive is only too obvious, and I urge in earnest that everything should be done to prevent this. It will be a disastrous blow to the individual clubs and the sport in general if the old existing clubs cannot regain their equipment. It would also be a severe handicap and will greatly hamper our efforts if this equipment is not given back to us or offered very cheaply.

I sincerely hope that the Disposal Board will not start a competition for the purchase of the equipment. May it be said here that the Valuation Board did not call for tenders when the equipment had to be handed over.

I should like to see a firm refusal by the Disposal Board to part with equipment to speculators regardless of offers. The Association or the Clubs are morally the heirs of this equipment.

ACTION.

I am publishing hereunder a report from the Act. Hon. Chairman of the Association, Major R. C. Rainey, giving the position to date.

Every member is required to act immediately—it is not too premature —it is getting late.

RECENT DEVELOPMENTS

1. *A meeting of the South African Gliding Association held in Johannesburg on June 14th last, attended by members of the Bloemfontein, Border, Cape, Durban and Rand Gliding Clubs, unanimously adopted a resolution requesting the Aero Club of South Africa to make representations to the appropiate authorities for permission for the resumption of gliding and for the return of the machines and equipment requisitioned from the gliding clubs by the Department of Defence.*

2. *The Acting Chairman and the Hon. Secretary of the Gliding Association attended an Executive Committee meeting of the Aero Club on June 26th for the purpose of forwarding this resolution. The Chairman and Committee of the Aero Club promised their fullest support for the Association in this matter, and the Chairman further undertook to watch the interests of the Gliding Clubs in his capacity as a member of the War Stores Disposal Board Advisory Committee.*

3. *On June 30th the Aero Club submitted a request to the Minister of Transport for his assistance in expediting the resumption of Gliding Activities in the Union, suggesting that all Gliding equipment might now be released to the War Stores Disposal Board for disposal to clubs, in the same way that a number of the aircraft formerly owned by the flying clubs are now being returned to the latter.*

4. *The Association has further been advised by the Defence Gliding Club (which has also associated itself with the resolution referred to above) that assurances have been received from the Director of Air Equipment :—*

1. *That Gliding Clubs desiring to re-establish themselves will be given every opportunity of—*
   - a. *Repurchasing equipment surrendered to the Department of Defence, in the first instance ; and*
   - b. *Purchasing such other equipment as other clubs had surrendered and did not wish to reacquire.*

2. *That no disposal of gliding equipment will be permitted pending publication of the Government's Policy in this respect.*

5. *In order to enable the Association to make the strongest possible representation to the appropriate authorities, both for the resumption of gliding in the Union, and for the most favourable terms for the return to the clubs of the requisitioned equipment, it is essential :—*
   - i. *That the Association be reconstituted on a fully representative basis as soon as possible ; and*
   - ii. *That the Association be as fully informed as possible of the pre-war activities and present position of each constituent club.*

6 *Under 5 (i), every club which has not already done so is urged to complete the necessary formalities for its own reconstitution, and to appoint representatives to serve on the committee of the Association, or to confirm the appointment of the following temporary representatives, nominated at the meeting of June 14th :—*

Bloemfontein, H. Reibstein— Proxy.
Border, H. A. Alperstien.
Cape, Major L. Kraft.
Durban, Sergt. A. Southam.
Port Elizabeth, Lt. D. Spindler.
Rand, T. A. Heistra.

It is desirable that each club repretative should be able to attend meetings in the Pretoria/Reef area, or should nominate a proxy for this purpose.

7. *Under 5 (ii) the Association desires the following information in respect of all clubs wishing to be considered in any distribution of Gliding Equipment :—*
   - i. *Paid-up membership at outbreak of war ;*
   - ii. *Total number of Aero Club Gliding Certificates secured of each grade (A B C Silver C) ;*
   - iii. *Club distance, altitude and duration records, where available, with date, pilot and machine ;*
   - iv. *All available details of machines and equipment requisitioned by the Defence Department, with condition (serviceable or unserviceable) and prices received ;*

v. Notes on any outstanding War Service (Decorations, etc.) by club members;

vi. Any other information concerning the club which might usefully be submitted in support of representations for the resumption of gliding.

All available information on these various points should be submitted to the Association without delay.

8. The need for action on paragraphs 6 and 7 is a pressing one—the disposal of aeroplanes has already begun—and clubs are therefore urged in their own interests to act as suggested. In particular it will be readily understood that the authorities concerned are only likely to consider representations for favoured treatment in the disposal of gliding equipment from fully-accredited representatives of the pre-war gliding clubs.

R. C. RAINEY,
Acting Chairman.

[One wonders whether some such action by the B.G.A. might not have some effect on the authorities in this country.—ED. SAILPLANE.]

Apparently there are enthusiastic Clubs in embryo at Bloemfontein, Durban, Port Elizabeth, the Rand, East London and Border, Cape and Peninsular. We hope to give more news at a later date.

The Defence Club, apparently the club of the Union Defence Forces, situated near Johannesburg (? Quaggaport) use a "Grunau IX" for instruction, in which Sergt. Brett reported a "trifling incident" of a soaring flight of 1 hour 58 minutes 30 secs.

MY FLIGHT IN THE "FALCON III" (TWO-SEATER)

By CAPTAIN J. G. DAVIDSON.

ON the 23rd August, 1943, at about 2.15 p.m., I took off with a pupil in the "Falcon III" (Cape Club) from Quaggapoort, intending to make a circuit only, but during the launch came across a fair thermal, and as I was a bit fed up doing circuit after circuit with pupils, showing them the effects of controls, I decided to release my cable and do some thermal soaring.

On a previous occasion I had taken up the "Falcon III" with Sergt. Brett to 3,000 feet, but not very successfully, as this type of aircraft takes a bit of handling in a bumpy thermal. She is too big and not easily manoeuverable. However, I was more used to her now, and although I was only 800 feet up, I decided to take a chance, as I was interested in finding out what her performance was really like.

FLYING BY "FEEL"

By the time I had contacted the thermal properly I was down to 400 feet doing fairly steep turns. I did not seem to have the confidence in me my pupil had, especially as the ridge came dangerously close every now and then, and I was ready to give up. But the luck, which always seems to travel with sailplane pilots, let on just then and I felt the old bus rising. The variometer was still showing "sinking," but knowing that the variometer was a bit sluggish and therefore unreliable, I decided to disregard it altogether and fly by feel only.

The variometer was all wrong and my feel was all right, and I was glad that I made that decision. Further, I noticed a bubbling noise seem to come from the wings when we struck a thermal.

After a few more circles the landing field gradually began to get smaller, as I gained altitude, drifting towards Lyttleton.

The conditions were varied and at times I had all my work cut out holding the two-seater in the thermal, which was beginning to get bumpy.

BUMPY

At 2,400 feet I was thrown right out of the thermal almost on to my back. Had I been flying a smaller and more controllable craft I would have experienced no difficulties at all in circling right up to the cloud base of this particular thermal, but the "Falcon III" is no craft for bumpy thermal conditions.

It is sluggish and the ailerons act too slowly, consequently it is rather scaring to be thrown on one's back, and then having to sit with the stick right over and plenty of rudder for what seems ages, before the aircraft rights itself.

When we had settled down to an even keel, once more, I was looking at the pupil, who seemed to love every minute of it, and although he was shivering from intense cold, he was one big beam of smiles. I did not feel so good myself. When I asked him whether we should go on and higher, he was all for it, so I turned towards the landing field to look for another thermal.

SOARING PARTY

A "Grunau Baby" was circling approximately 400 yards from me so I made straight for it, hoping to catch the same thermal. But before getting there, and I was a little lower than the "Grunau," I struck a strong thermal, rising very fast. The "Grunau Baby" in full sight was now rising so fast that I thought the "Falcon" was losing height, but the altimeter proved that all was well and I continued circling.

After a while I managed to get to the core of the thermal, doing fairly tight turns. I judged my rate of climb to be approximately 10 feet per second on the steady movement of the altimeter needle.

Both my pupil and I were in shirt sleeves and shorts, because it was a very hot day on the launching site and nothing warmer was required to make circuits with pupils. Having no wind-screen we were both shivering. We were now 5,600 feet up and my pupil's lips cracked from the cold and started bleeding. I asked him if he wanted to go higher but he pointed downwards, saying that he was too cold to carry on. 10,500 feet above sea level, 5,600 feet above ground level, dressed almost in birthday suits, was really more than we bargained for.

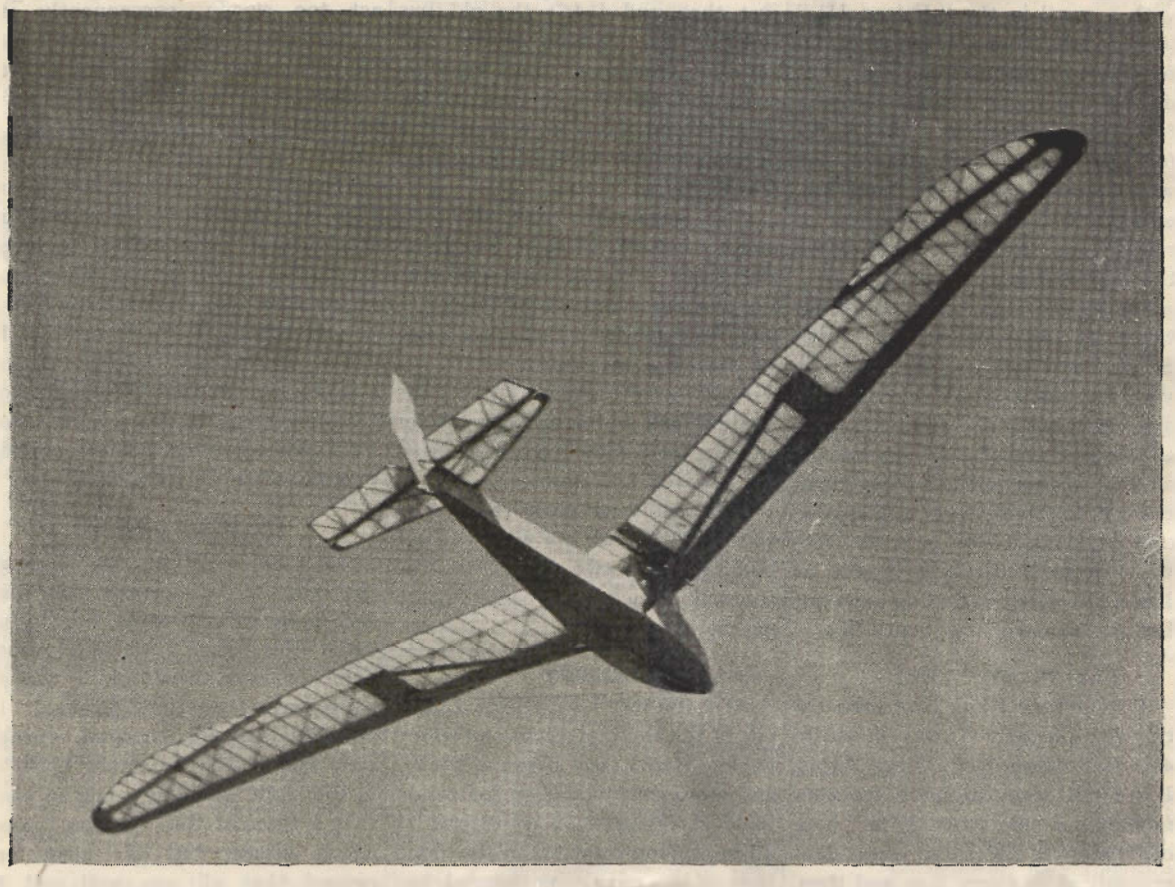
Looking up, I could see the cloudbase another 2,500 feet up. The "Grunau Baby", with Jack Pullen piloting it, reached 8,100 feet, and I was able to check up on these figures.

I reluctantly returned to base, having in mind that other pupils were awaiting their turn. We were between Lyttleton and Waterkloof when we turned home and struck the landing ground at 2,000 feet above ground level, went into a few circuits and landed the large bird.

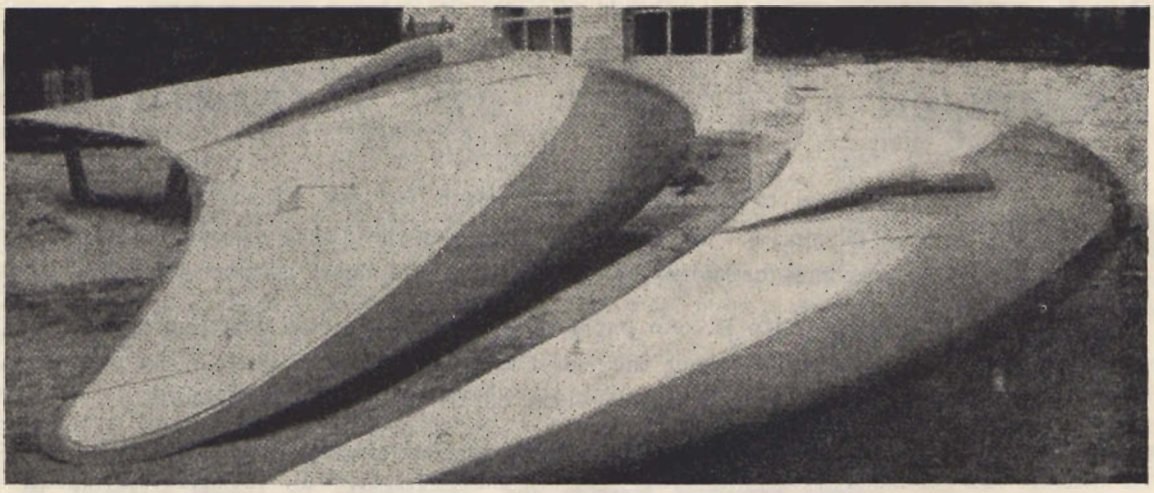
———

["The Falcon III," formerly belonging to the Cape Peninsular Gliding Club, has been sold to the Belgian Government.—Ed.)

Lt. Stanley Gray, S.A.A.F., one of the Foundation Members of the **BORDER GLIDING CLUB,** has been posted missing; we still have hopes for his safety. Those who remember him as Club Captain and Instructor will never forget how careful a flyer he was, and the knowledge he imparted to some of us greenhorns will always be remembered. Although not a very ardent glider pilot, as a power pilot he was one of the best.



The famous "Falcon III," as used in South Africa.



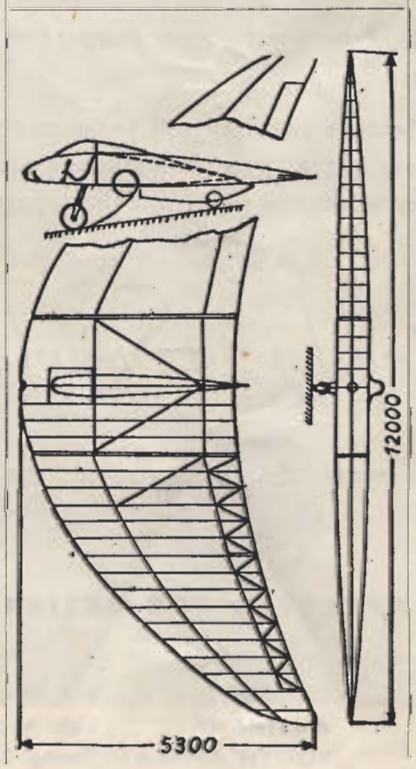
ALL WING HORTEN PARABOLA SAILPLANE

(With acknowledgments to R.T.P.—3 M.A.P.)

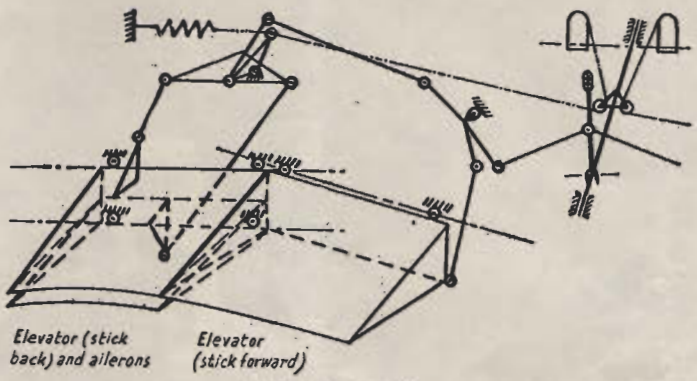
THE development and progress in sailplane performance was chiefly achieved by increasing the maximum L/D ratio and also increasing the speed at which this could be obtained. This was gained by increasing the span, the Aspect ratio and the wing loading. This main line of development is very suitable for the high performance sailplanes intended for distance and goal flights. For goal flights against the wind the highest L/D ratio at the highest possible speed are of primary importance.

We see another possible line in sailplane development in a special sailplane exclusively designed for obtaining high altitudes, in which the best L/D ratio and maximum speed range for long distance flights are NOT of primary importance. The present rules for the Rhön competitions allow such a line of development as points are allocated for altitude flights. Thus such a sailplane has good prospects in the competitions as in suitable weather conditions it might succeed in making more than one high ascent in a day.

This sailplane is required to be able to circle right in the core of a thermal and thus to make use of them at the beginning of the daily thermal activity. In mountainous country, especially at the start of thermal activity, the up-currents are usually narrow and patchy. Apart from the actual manoeuvreability and sensitivity of controls, one must try to obtain the smallest possible radius of turn. This is not possible with the high spans of conventional high performance sailplanes, as the decrease in speed of the inner wing causes a local increase in the angle of attack. The critical angle of attack of the outer wing is thus reached too soon, whereby the lateral stability is affected. This dropping of the wing can also be caused when a unilateral decrease in speed causes the Reynolds law of scale effect to be upset.



These faults can be avoided by decreasing the span. On the other hand the wing loading is increased by this measure, whereby the radius of turn will rise in proportion, when the same angle of bank and the same angle of bank and the same up-current are postulated. Between these two extremes there is one optimum span which allows



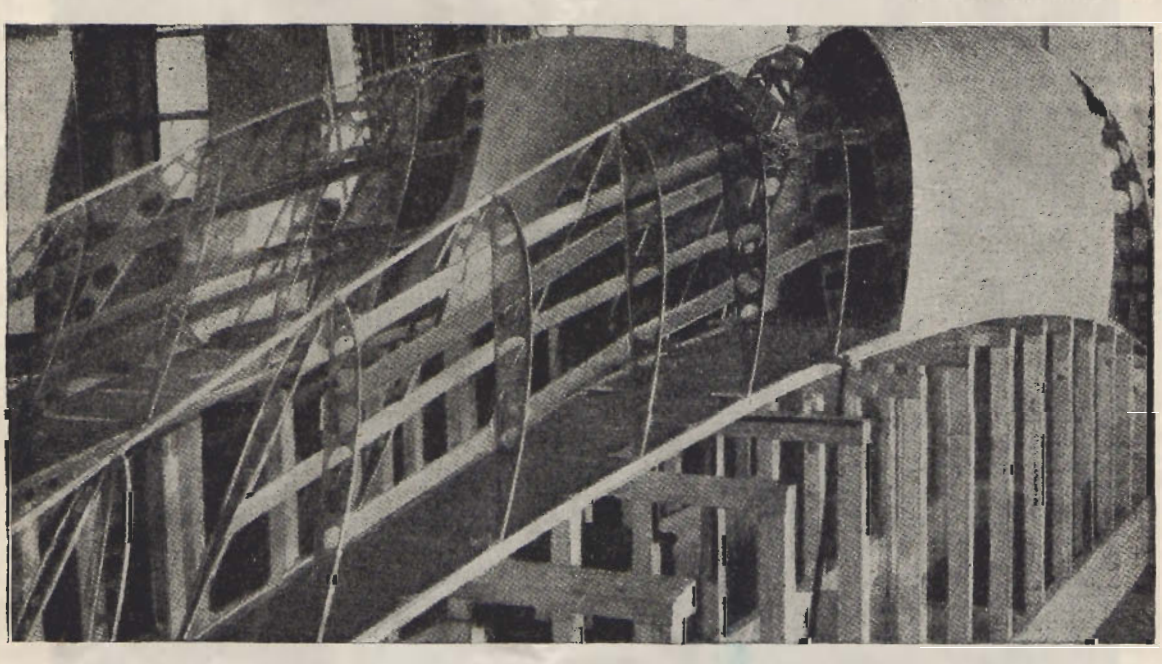
Sketch of controls.

flying in the smallest circles. Considering the structure weights in view of the static requirements we calculate this optimum span to be 12 metres.

The next step in the calculation of the ideal dimensions is to decide on the aspect ratio. This affects the problem in the following way (as mentioned before) that with wings of a high aspect ratio and of course, small wing area, the wing loading will increase and also, at the same time, so will the radius of turn increase. The realisation of tight circling in the smallest area of up-current requires a very low aspect ratio (?). Further examination of the effects of this measure on performance, show that the rate of sink is little affected. This is because the ratio between rate of sink and wing loading remains nearly constant. Thus in spite of the resultant small span the fundamental requirements of a low rate of sink are not compromised.

The conditions for long distance flight fare badly. The gliding angle is directly dependent on the aspect ratio, also the speed at which the best L/D ratio is obtained. But the specification definitely does not require cross-country long distance flights and the penetration of large areas of down-current at high speed. The decrease in the speed range caused by the lighter wing loading is thus bearable.

(*Continued next month*)



Construction of the leading edge and main spar on a curved jig.

Aerial view of Slingsby's sailplane factory at Kirbymoorside, York.

HOME AGAIN!

NOT being one of the happy band of Little Boy Blues, the last time that I flew any aircraft was during that wonderful week in August 1939, during which I put in about 15 hours and substantially passed the 100-hour mark. In the late universal inconvenience, apart from a few thousand miles as a passenger in a " Ju 52/3 " or a " Dakota," my feet remained firmly embedded in mud, or shuffling through desert sands.

The pleasure of my return home was only marred by the reports I had from all and sundry of the present parlous condition of the gliding movement, which seemed to be sinking its differences rapidly, and retiring underground. However, it appeared that there was a vague chance of doing something, so I had a look at " Mercyboco " in her trailer. She certainly looked all right—fabric a bit yellow, and the paint on her flanks scratched after her last strenuous season, but no trace, thank God, of either mice, penicillin or rust.

ONE FINE DAY

So one fine day in the silly season of 1940 something or other, I visited the Longridge Dunsurrey Edge site, and found there a rare old party of friends such as I had not seen for many years. The wind, unfortunately, was N.S.W. with a touch of E. in it, but there was a possibility that it might back sufficiently to be soarable. The hangar was a vast improvement on the desolation of the last time that I saw it, with two machines rigged in it ; but only one, a " Luftfart " ship, was serviceable, and a " Kirby Krow " was recovering from an attack by the sheep and the goats, and still looked slightly naked. I had a good look at her and decided that " Mercyboco's " general condition was far better—and the " Krow " had been in continual use. So as somebody had a towing car we went off at once to collect her from the safe retreat, where for the last six years she had successfully hidden from marauding agents of H.M. Government, apparently not content with impressing my body, but intent on my chattels as well.

CHRYSALIS

A cheer was raised as we breasted the final slope into the ground, and in two minutes we had whipped her out of the trailer. Polite whistles of admiration greeted each limb as it was lifted out and laid on the ground. She looked as good as when I last had her out to grease and condition her before I went abroad, even through the dust and murk of half a decade. Willing hands soon put that to rights, and by nightfall she was ready to rig.

Next morning the wind was a shade stronger, but also a shade more contrary. However, we rigged and polished assiduously, interrupted by many whistlings for the right wind. Had we a winch, all would have been well, but for a bunjy launch it was decidedly risky.

By about half-past three the wind had either backed sufficiently, or else we could wait no longer and so imagined it. Anyway, it was arranged that S. Robinson Jones (over from the Mindbank Edgetable Club) should make a test flight in " Mercyboco "—I declined that honour myself, as I had not flown for over six years and was distinctly doubtful and curious to see how I should perform. We gave him a superb bunjy-launch : I took a hand on the rope myself, and saw the result from below. With very little trouble he achieved 500 feet and stayed there, just below the low cloud. He landed after a quarter of an hour—" Mercyboco " had flown again !

THIS IS IT

At last the climax of six years of waiting had come . . . I strapped myself in. . . " Walk . . run (a long, long pause) . . . Let go ! " Something hit me in the back. Held her well down until nearly over the launching crew, and up we went. Turned left into the oblique wind towards the Gulley, and noticed that it was *uncommon* rough. My elevator and rudder must have aided progress materially by their flapping. As for the ailerons, thank God I was not in a " Kadet." I noticed that I had not risen more than about twenty feet above the top. Bags of speed, can't afford to stall her, and anyway it will improve control. Found a bit of lift at the gulley, and more on the far side. Wind must be at least 45° to the hill. Now, let's try a turn—damn steep, isn't it ? But we don't seem to be turning much. What the hell is this gale blowing in my right ear ? Oh, I see, bubble wedged hard over to the right. Now, rudder follows the bubble . . . Good God, does it, or is it the other way round ? Try it anyway . . . Oh dear, that was *most* unfortunate. Miles out over the valley. . . Mr. Cobb, are you *quite* sure that we are sinking as much as that ? . . . I seem to be drifting very fast ; it's time to turn up wind again. Probably best to complete this right-hand circle to get into position. . . .

MARVELLOUS

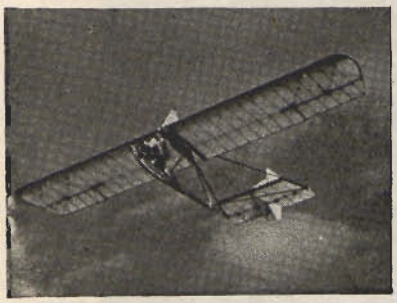
Pardon me, I didn't know I was quite so close to you—really, the people on the launching point were running quite fast. . . . No lift again, I seem to be well below the top now . . . I do hope I won't go to the bottom : that would be most ignominious. . . Look here, I really *must* settle down. I've never flown like this before ; if we don't do better I won't be landing " Mercyboco " anywhere : we shall merely cease to be airborne before very long. Ah, here comes a bit—up we go. 10 feet per second. That's much better . . . Now we had better get on to the downwind beat. H'm . . . turn not quite so hamfisted this time, and still rising. . . Gosh, end of the beat again. Left turn—anyway we seem to be holding our height at about 100 feet. There seem to be a large and curious crowd on the launching point—are they waving ? Give them a thumbs up, anyway. Isn't this marvellous !

D. AND B.

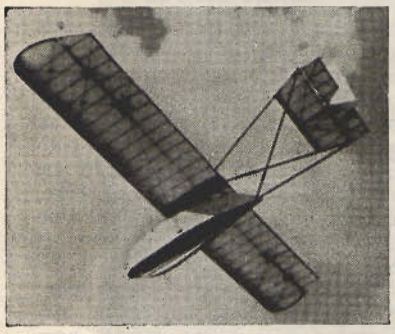
To think I've had to wait all these years for it. Pity there's no view and the beat is so short. Now about this airspeed : let's try to get it down a little. . . Yes, much better, heading into wind and as near as dammit standing still. Try it in the lift over the gulley—should make a reasonable bit of height. . . . Damn and blast, stalled her. . . . Oh well, I suppose

(*Continued on page* 24)

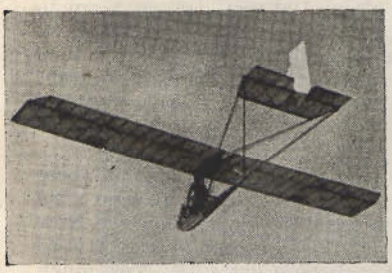
INITIAL TRAINING GLIDERS



THE ORIGINAL PRIMARY.



THE "NACELLE" PRIMARY.



THE PRODUCTION PRIMARY.

THE FINANCIAL AS

THE excellent article on club organisation appearing in the May issue leads one to think that some notes on the financial aspect of club gliding might be either interesting or salutary. Before the war, club finances were relatively unimportant to the larger clubs. The requisite proportion (30%) of any capital expenditure could be raised without much difficulty and on the whole, the pre-war years saw a steady extension of facilities and equipment.

Without assistance and in the face of vastly increased costs, financial stability becomes as important to a club as to a business. Clubs which value their existence and have the future of the gliding movement at heart will do well to plan their future policy with due regard to the facts. Heaven help the club that indulges in what may aptly be termed "Blind flying."

An analysis of the flying sheets of one of the larger gliding clubs for 1938, a typical year, gives the following results, from which a future basis may be deduced :—

LAUNCHES.		1938	Future
Training.			
Primaries	2	2,279	
Nacelles	1	358	
		——	1,500
Circuits and Soaring.			
Nacelles	1	715	
Kadets	2	437	
		——	750
Falcon I	1	119	
G.B.	1	293	
Gull I	1	48	
		——	250
Falcon III	1	156	100
Private Machines	8	516	400
Totals	18	4,921	3,000

The future estimate is merely for the purpose of computing the cost *on the basis given* for each machine.

A point worth emphasising is that one hundred flying members had the use of eighteen machines, that is 5.5 members per machine. Although this figure is obviously uneconomical, if it rises above ten, there will be a falling off in membership.

In discussing gliding it doesn't seem to matter if you don't know what you are talking about. Not many people do and the other fellow never does. In costing, however, you must know exactly what you are talking about. So when we talk about Machine Maintenance, we mean the annual sum required to keep a machine in flying order and to replace it at the end of its natural life. In other words, repairs, maintenance and depreciation. Most pilots have their own ideas about the cost of maintenance, but the figures quoted below are based on manufacturing and club experience over some years.

Basing our calculations on seven club and six private machines for one hundred members and estimating the cost of equipment, etc., to the best of our ability we obtain the following data :—

COST AND MAINTENANCE OF MACHINES.

	Cost	Maintenance	%
Primaries (2)	250	250	100
Secondaries (2)	400	200	50
Sailplanes (2)	500	150	30
Two-seater (1)	450	90	20
	1,600	690	

PECT OF CLUB GLIDING

COST AND MAINTENANCE OF WINCHES.

	Cost	Maintenance	%
Winches (2)	200	20	10
Cable (2)	40	40	100
	240	60	

COST AND MAINTENANCE OF RETRIEVING CARS.

Beaverettes (3)	30	30	100

HOUSE EXPENSES.

	£
Rent	60
Rates	50
Taxes	16
Printing and Stationery	30
Lighting and Heating	35
Telephone	6
Accountancy	15
Bank Charges	5
Cleaning	25
Repairs	16
Sundry Expenses	42
	300

Having disposed of just over £1,000 a year with a stroke of the pen, we now pass on to the cost of launching a machine. Here again, opinions and estimates will differ, but for this purpose petrol has been taken at 2s. 6d. per gallon. The cost has been divided into launching, retrieving and machine maintenance on the basis of 3,000 launches a year.

LAUNCHING.	Cost for 3,000 Launches £ s. d.	Cost in pence per launch d.
Winch cost (per annum) ..	60 0 0	4.8
Petrol	18 15 0	1.5
RETRIEVING.		
Retrieving cars	30 0 0	2.4
Petrol	37 10 0	3.0
Cost of Launches ..	146 5 0	11.7d.

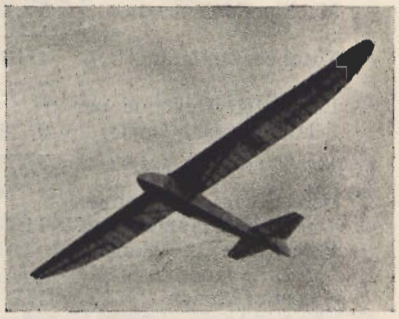
MACHINE MAINTENANCE.

	Launches	£ s. d.	s. d.
Primaries (2) ..	1,500	250 0 0	3 4
Secondaries (2) ..	750	200 0 0	5 4
Sailplanes (2) ..	250	150 0 0	12 0
Two-seater (1) ..	100	90 0 0	18 0
	2,600	836 5 0	

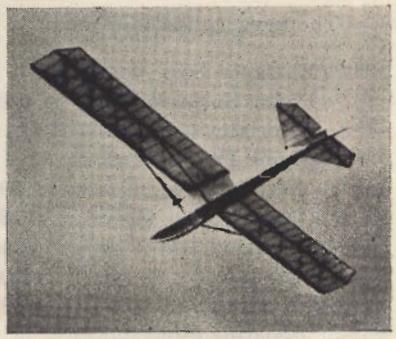
From this we can now work out the cost of operating each class of machine and amuse ourselves with some percentages. The percentages are obviously wrong, as many people have already taken the trouble to point out. So far, however, no one has calmed down sufficiently to explain the error.

(*Continued Overleaf*)

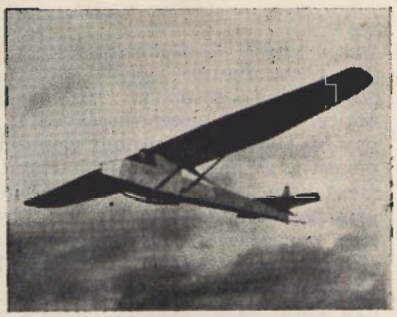
SECONDARY TRAINING GLIDERS



"GRUNAU" SECONDARY.



"KADET" SECONDARY.



"TUTOR" SECONDARY.

TOTAL COST PER LAUNCH FOR EACH TYPE.

	Primary	Secondary	Sailplane	Two-seater
	s. d.	s. d.	s. d.	s. d.
Launching & Retrieving	1 0	1 0	1 0	1 0
Machine Maintenance	3 4	5 4	12 0	18 0
Total cost of launch	4 4	6 4	13 0	19 0
Estimated Revenue per launch (see below)	0 6	1 0	2 0	2 0
	%	%	%	%
Percentage of Revenue to cost of launch ..	11.5	15.8	15.4	10.0
Percentage of Machine Maintenance to total cost of launch ..	77	84	92	95

The total cost of 3,000 launches or one year's gliding is thus :—

	£ s. d.
Total flying cost as above ..	836 5 0
House Expenses	300 0 0
	£1,136 5 0

The next step is to estimate a year's revenue from all sources.

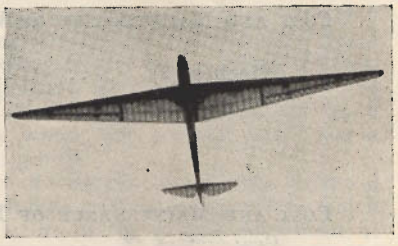
Entrance Fees	20 at £2	2 0	42 0
Flying Subscriptions	100 at £4	4 0	420 0
Associate do.	50 at £1	1 0	52 10
Flying Fees—			
Primary	1,500 launches at	6	37 10
Circuits	750 do. at	1 0	37 10
Soaring	250 do. at	2 0	25 0
Two-seater	100 do. at	2 0	10 0
P. Owners	400 do. at	2 0	40 0
Soaring hire			50 0
Two-seater hire			50 0
Hangar Fees			50 0
Crash Fees			105 0
Gate, Bar and social efforts			216 10
			£1,136 0

These figures can be rather illuminating. Take the case of a pupil flying a primary. He pays 11.5% of the cost of each launch. A notice to that effect displayed in the hangar might persuade him to pay his flying fees without grumbling and might even lead him to postpone the assuagement of his thirst until after the machines and equipment have been put away. There is an apparent loss of 3s. 10d. per primary launch. Allocate one-third of flying subscriptions and entrance fees, one-quarter of gate receipts and £60 for crash fees, and the loss still remains at 1s. per launch or £75 per year.

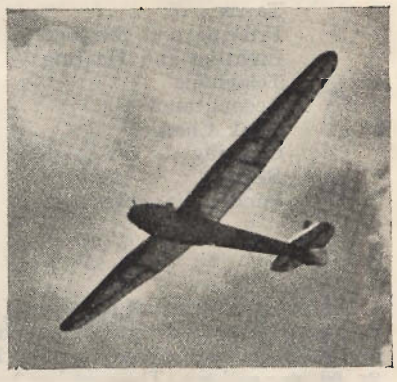
Similarly there is a loss of £18 per year on secondaries after allowing £30 for crash fees. Incidentally the unpopular private owner who always seems to be trying to take a launch out of turn, pays practically the whole of the loss on club flying himself.

In conclusion it may be said that the moral is that training does not pay. If we have to teach people to glide we must have a primary which is simple, robust and above all, cheap.

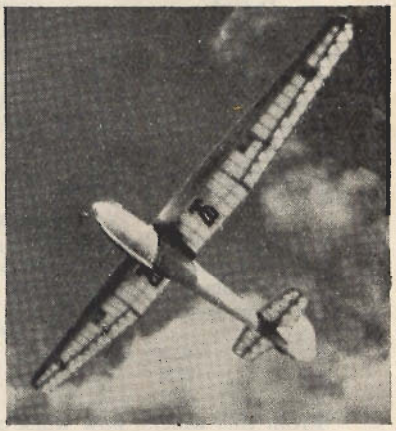
ADVANCED SAILPLANES



"RHONADLER" SAILPLANE.



"RHONSPERBER" SAILPLANE.



"RHONBUSSARD" SAILPLANE.

THE USE OF RADIOTELEPHONY IN GLIDER INSTRUCTION

By PEDRO J. NOIZEUX.

RADIO transmitters and receivers have been simplified and perfected enough to suggest their use in the tuition of flying and gliding, especially in advanced training for soaring pilots.

In flying powered craft, after a period of dual, the pupil suddenly finds himself alone in the aeroplane, and it is then that he really begins to learn to fly, to accept responsibility, and to acquire the necessary reflexes. The pupil knows that from then on the success of the flight must depend on him alone.

MUCH ASSISTANCE

Actually, although he goes on acquiring confidence, he may equally easily acquire bad habits which delay his training. Generally the instructor is watching from the ground and can make rudimentary corrections by means of flags or signals. On landing he amplifies these and the pupil takes off again to correct his faults on the following circuit. Sometimes the instructor must go up again himself to make a point clear. This is obviously a slow and inefficient method. If some means can be devised whereby the fault is checked in the instant of making it, instruction can be speeded up. It is easy to see that much assistance can be given directly in such matters as correct bank on a turn, gliding angle for landing, safety from collision, etc. This is conveniently achieved by means of radiotelephony.

ESPECIALLY AEROBATICS

Since 1941 this type of radio instruction has been used with great success by the **ARGENTINE GLIDING CLUB ALBATROS,** where it has fundamentally changed the system of advanced training, particularly in aerobatics. The calm voice of the instructor and the knowledge that one's every movement is watched and guarded from the ground, adds so much to self-confidence that even the nervous can attempt and perfect complicated manoeuvres with ease and accuracy.

The installation, both on the ground and in the air, must be simple and economical, and if limited to close range should cover only the following points :—

(1) Communication up to 2 miles from the field (about the maximum permitted to the instructor if he is to watch adequately).

Finochietti instructing in Aerobatics.

(2) Simple and rapid installation in any aeroplane without the necessity of special fitments beyond the antenna, which may be permanent.

(3) An apparatus cheap to buy and maintain, something that does not need expert knowledge or very delicate adjustment.

(4) A set that creates no interference over local stations.

SHORT WAVE

For these reasons very short wave is the most suitable. The small antennae can be fitted with least disturbance to the ignition system. The range is more or less limited to the horizon, eliminating interference from a greater distance. It is easier to find a free wavelength. And finally the power of the transmitter and the size of the receiver can be reduced and simplified.

The disadvantages of ultra short waves are :—

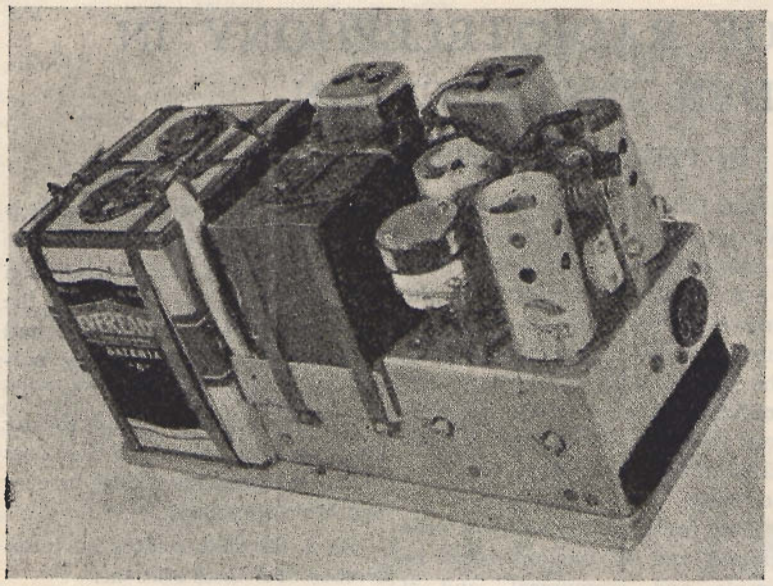
(1) Relative instability of synchronisation.

(2) Disturbing influence of vibrations and shocks.

(3) Interference produced by ignition of launching cars and aeroplane.

(4) Noises produced by metallic contacts.

(1) and (2) were a nuisance in the first sets because the pilot had to tune in constantly. But these inconveniences were eliminated by the use of rigid supports for bobbins and connections, and above all by employing quartz crystals in



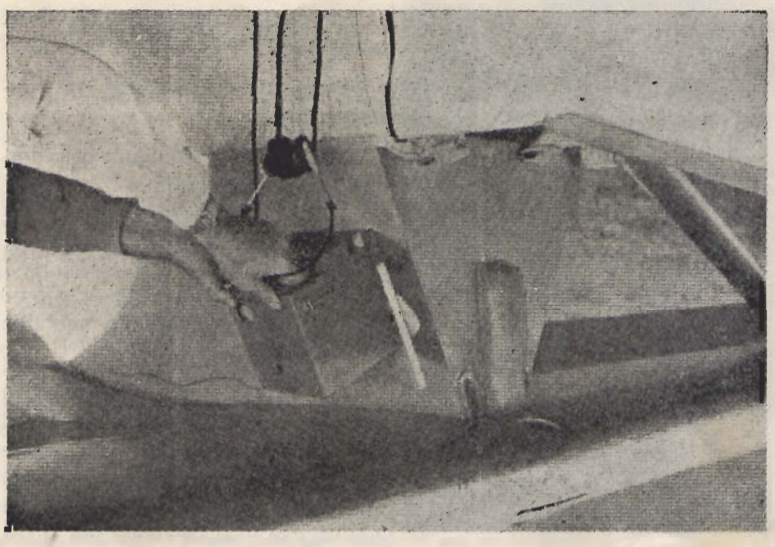
Ultra short-wave receiver—open. This view shows condenser-adjuster screws.

the oscillators or transmitter and receiver.

Interference produced by ignition sparks was not so serious, as it disappeared from between fifty and a hundred yards from the motor concerned, though it continued to be noticed while aeroplane towing. This was eliminated by fitting an insulator at the end of the cable nearest the aeroplane.

INSULATION

Another cause of trouble was that imperfect contact and scratching of metal parts such as aileron control wires, etc., produced receiver noises. At times this could be improved by tightening up the cables concerned, and in any case it is advisable to avoid as far as possible all metallic contacts, which can be corrected by the use of wooden blocks or insulating tape.



Fitting the receiver into the " Baby ".

Transmitter.—We use a very simple transmitter, light to carry and easy to work. It is of 30140 Kc/s and consists of 4 valves :—

1 6V6 crystal oscillator.

1 6V6 " dobladora " (sorry—non-technical translator ! V.P.)

1 6V6 dobladora connected to the antenna.

1 6V6 modulator with carbon microphone.

In the lower part of the case is a motor-generator connected to a 6 volt car battery. In front at the base are two switches, usually worked with the foot. The filament switch is connected before beginning to transmit, and the other only when the instructor wishes to talk. The total consumption is approximately 14 amperes.

The antenna is car type, about 6 feet long, connected to the circuit by a small lamp, whose light indicates that the set is working normally. Due to the length of the microphone cable the brilliance of this lamp varies with the distance of the instructor from the set, but this does not apparently affect the transmission, which is about 2 watts.

Receiver.—As in the case of the transmitter, the design must be simple and light. We use a superheterodyne receiver with a crystal oscillator and C.A.V., whose only control is a switch to light the filament. Any tuning in must be done with a screwdriver. The antenna, of car type, is pegged in to a wooden insulated support clamped on to the glider between the wings, and the receiver, together with its batteries, fits nicely into the barograph cupboard. We have tried to combine ordinary available materials in as compact a form as possible, but a specially designed set could be manufactured on an even smaller scale.

Transmitter-receiver ultra short wave.

The receiver is 5 valve :—

1 1A7 mixer.

1 1Q5 crystal oscillator.

1 1Q5 multiplier.

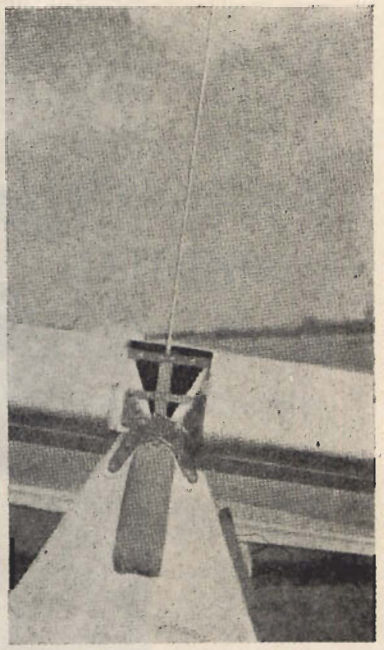
1 1N5 amplifier of F.L. (465 Kc/s).

1 1D8 diodo-triodo-pentodo.

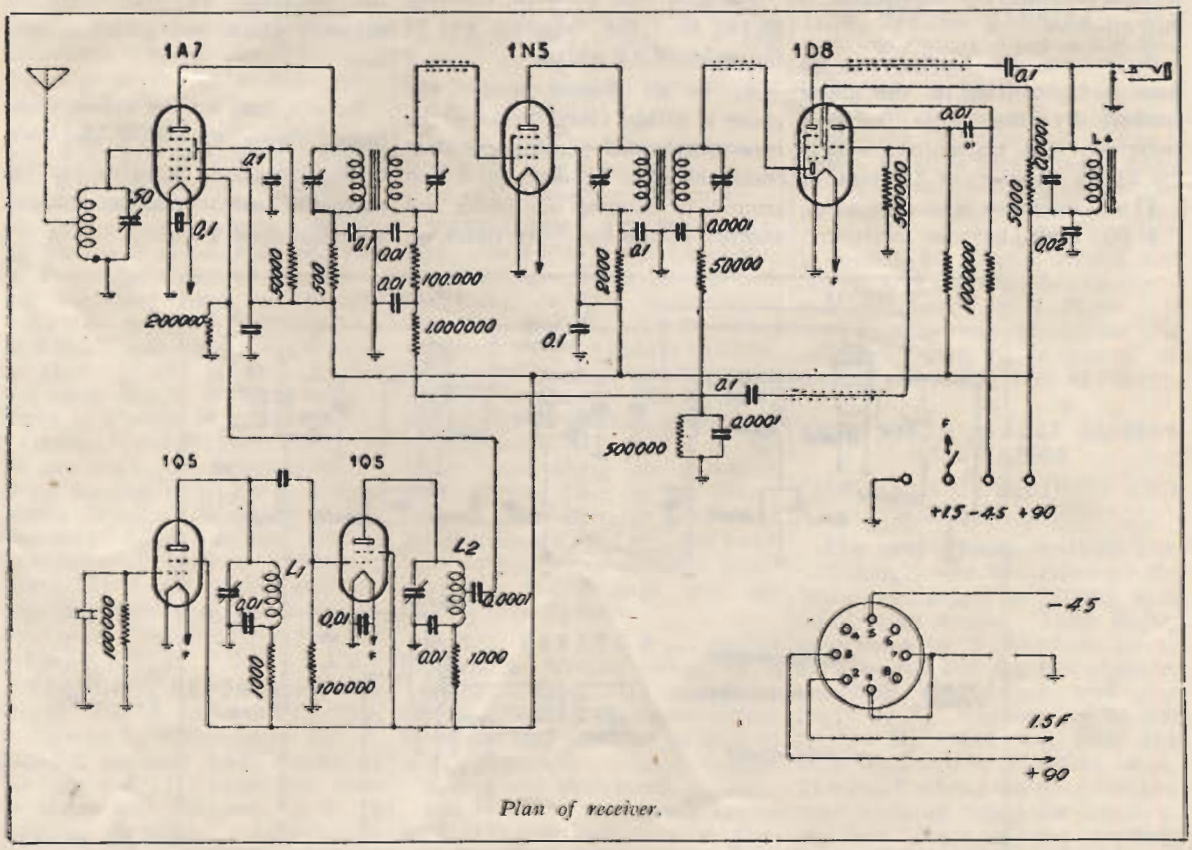
The bobbins are on rigid supports and vibration of connections is avoided as far as possible, but no special precautions such as elastic valve supports have been taken.

DASHBOARD LOUDSPEAKER

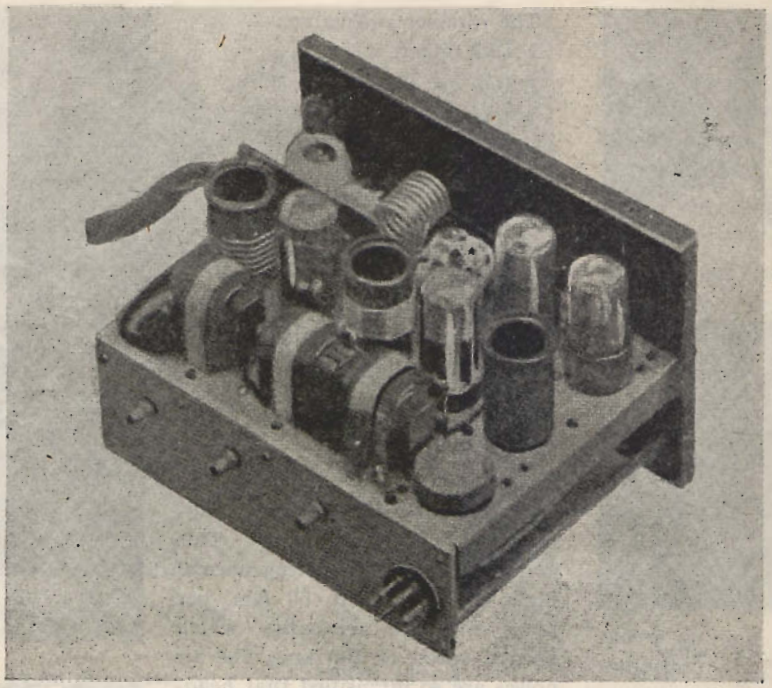
Due to the silence of motorless flight it has been found possible in certain cases to fit a small loud-speaker to the dashboard. This is quite satisfactory during normal flight at from 40 to 60 Km. per hour, but for aerobatics which need a speed of 100 kms. the air noises are so intensified that head-



Antenna support in " Grunau Baby ".



Plan of receiver.



Ultra Short Wave Transmitter-Receiver—Open.

phones are necessary—though in a cabin sailplane the loudspeaker is still effective.

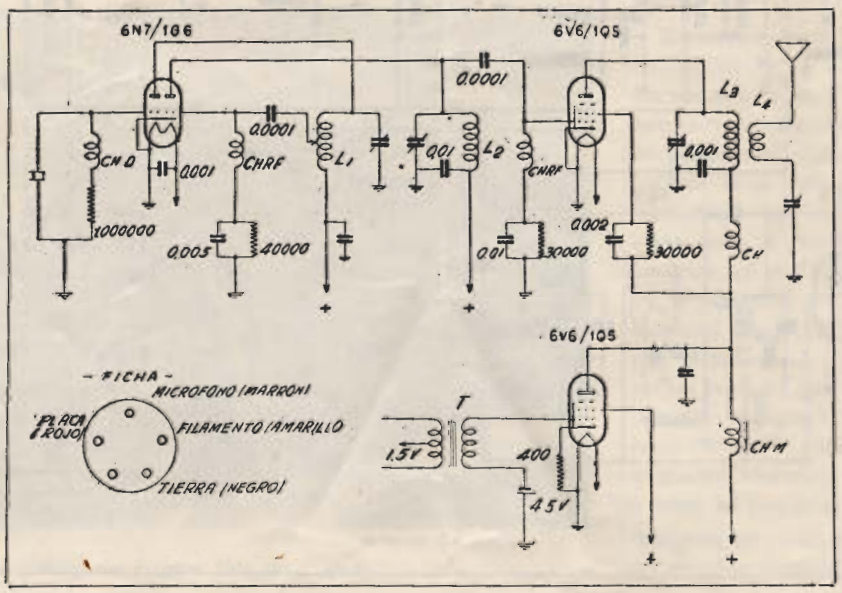
Sometimes in exhibitions we have a transmitter on the glider worked by the same receiver batteries. This transmitter, weighing 2½ lbs., consists of 3 valves :—

1 G6 oscillator and multiplier.
1 1Q5 multiplier.
1 1Q5 modulator.

Using a car antenna emitting 30,140 Kc/s the radiation was of the order of 0.2 watts.

As in all demonstrations the glider is within visual distance, the transmitter used permits excellent communication between pilot and ground, or between one glider and another in the air. At times we have used the same transmitter in the aeroplane for communication between plane and glider in the tow.

Substituting for the valves mentioned above, 6N7, 6V6, and 6V6 respectively, with a higher tension plate, the same transmitter radiates approximately 2 watts.



Plan of Transmitter.

A high launch with a "Grunau" at Beveridge taken from the winch.

AUSTRALIAN GLIDING ASSOCIATION

R. DUCKWORTH, Secretary.

VICTORIA

THE GLIDING CLUB OF VICTORIA

Flying was carried out on seven days. Dual instruction to trainees amounted to 45 minutes 30 seconds, and 3 passenger flights were made in the "Merlin."

LAUNCHINGS were by Winch No. I.A. 114 (Somerton), Winch No. 2 (Mordialloc) and Winch No. 3, 10 (Beveridge). *Total launchings for* 1945 now amount to 1,020 for 41 hours 23 minutes 35 seconds. At Beveridge on 2/9/45 the following members went on to the "Kadet" from the "Utility":—K. Ellis, Rob Dowling, Leo Dowling, A. Hardinge and R. Pollard. On the same day R. Roberts made a flight of 2 hours 58 minutes in the "Grunau," and H. Bartram one of 35 minutes in the same machine—slope soaring in a Force 4 to 5 North Wind. Members of the Beaufort Gliding Club visited Beveridge on 19/8/45—a Force 7 North Wind was raging and the arranged display of slope soaring by the G.C. of Victoria was not attempted.

TRAINING REPORT.—Of the Group No. 2 trainees, L. Pitt, I. Lacey, L. Schumacher and F. Dowling are now doing downwind landings and "S" turns from tows to about 600 feet and up to 1½ minutes' duration. Applications for Group No. 3 trainees have now been called for from the Associate list.

NEW PRIMARY GLIDER.—This machine is now finished except for rigging and testing. A new 3-wheel sprung trolley for ground handling of primary gliders was finished on 26/8/45.

NEW WINCH.—Construction of Winch No. 4 is to be carried out as time and circumstances permit.

VANDALISM AT MORDIALLOC.—On 9/9/45 it was found that the Club sign on the hangar door had been defaced, necessitating immediate removal. On 16/9/45 it was found that the hangar had been forcibly broken into and the wings and tail surfaces of the "Eagle" primary glider slashed, apparently with a knife—about 50% of the fabric area being so damaged. Damage was done to the Winch (No. 2)—the battery was found hanging by one lead and the headlight smashed. Mordialloc police inspected the damage and are making investigations.

W.A. VISITOR.—Arthur Farmer, a private owner of a "Grunau Baby II" sailplane (Subiaco, WesternA ustralia) visited Beveridge and Fawkner on 24/8/45 and inspected Club hangar, machines and equipment.

Ian Robinson and Geoff Taylor (ex-P.O.W.) arrived back in Melbourne on 10/9/45. Ian was present at Somerton on 16/9/45 and had some flights in the "Merlin."

ADVANCE YEA ASSOCIATION, SPRING CARNIVAL.—The Club was invited to put on a gliding display at this Carnival on 22/9/45, and two "H.17" sailplanes and Winch No. I.A, were taken up from Melbourne (70 miles) for this purpose. Weather permitting, a number of winch-towed flights were to be made in the vicinity of the recreation reserve. One "H.17" is owned by Davies, Wood and Nixon, and the other (a new one—just completed) by N. Hyde. If the weather was unsuitable the sailplanes were to be placed on display inside the carnival reserve.

NEW SOUTH WALES GLIDING ASSOCIATION

CUMBERLAND GLIDING AND SOARING CLUB

The new primary machine (the "Griffon") was test flown at the Walgrove Airstrip on 26/8/45, with satisfactory results. Three flights were made by N. Kershaw, up to between 100 and 300 feet altitude, including one circuit, and one flight by M. Waghorn up to 200 feet. The wind was from the W.N.W. Force 4, Beaufort Scale. The Buick towing car gave trouble, thus finishing flying for the day. Members doing ground training

were :—B. Vickers, J. Selke, A. Palmer, R. Ash, A. Ash, K. Long, L. Diekman and Miss B. Palmer.

PHOENIX GLIDING CLUB

Honorary Secretary, John R. Edwards, in letter dated 7/9/45, states that the work on the Club's glider is now to the stage where the fabric is being prepared in readiness for covering and it is expected to be finished within the next few weeks. Donation of 5/- was forwarded to the A.G.A. by the Secretary.

BEAUFORT G. & S. CLUB (D.A.P.) CHULLORA

Some primary training has been carried out at Merrylands and Chullora, but no details are available.

SYDNEY METROPOLITAN GLIDING CLUB

Jack Munn has furnished the following report on flying day at Walgrove on 26/8/45. " It was an excellent day for soaring, perhaps one of the best I have ever put in. Flying commenced at 12.45 p.m. and finished at about 5.30 p.m., 13 flights being made for a total of 1 hour 37½ minutes' duration, with the ' Falcon ' two-seater. Heights of between 900 and 1,440 feet were attained on the tow. On one flight with D. Reid as passenger, the towing speed reached 110 miles per hour, and I had to release. Taking off at 3.48 p.m. with W. MacLachlan as passenger, I reached 1,650 feet altitude from a launch to 980 feet, for 11 minutes' duration, climbing in a 3 feet per second thermal. Unfortunately I had to leave the thermal owing to getting too far away from the airstrip in the strong wind. Trainees making flights in the ' Falcon ' with myself and M. Waghorn as instructors were :—W. MacLachlan, R. Cosstick, A. Parsons, B. Rees, D. Reid, and S. Button. No thermal soaring was indulged in, but several flights were prolonged for a while, particularly on one when I endeavoured to circle in the thermal that Harry Ryan caught in the ' Kite II.' On 8/9/45, flying commenced at 11.15 a.m. and finished at about 3 p.m., heights of between 600 and 950 feet were being attained on the tow—the wind was blowing across the Airstrip, hence the poor heights compared with the previous flying day. Eleven flights were made for a total of 50¾ minutes. On 9/9/45, flying commenced at 11.4 a.m. and finished at 5 p.m. Heights of between 600 and 1,100 feet were attained on the tow, and the longest flight was of 7½ minutes' duration. Twenty flights were made for a total of 1 hour 45 minutes. Visitors making passenger flights in the ' Falcon ' during the week-end were S./Lt. Stevens (Fleet Air Arm) and Lt. Robinson. Instructors were J. Mumm and M. Waghorn, and trainees making flights were :—S. Button, S. Lake, W. MacLachlan, R. Cosstick, B. Rees, A. Parsons and C. Hughes. C. Hughes and R. Cosstick are ready to go solo."

SYDNEY SOARING CLUB

Harry Ryan has furnished the following report on flights made at Walgrove Airstrip with the " Kite II " sailplane. On 26/8/45, 8 flights were made for a total time of 1 hour 19 minutes. Taking off at 1.12 p.m., M. Waghorn made a thermal flight to an altitude of 2,800 feet for a duration of 34 minutes. Later Pat Neary, taking off at 2.45 p.m., reached 1,500 feet for 10 minutes, and H. Ryan, taking off at 4.41 p.m., reached 1,500 feet for 9 minutes. Jack Munn, Steve Newbigin and Frank Whitlock also made flights. On 9/9/45, wind conditions varied from Force 1 to Force 3 Beaufort Scale, and from N.W. to S.E. in direction. The party arrived late on account of car trouble. The " Kite II " and winch arrived at about 11.30 a.m. On the first attempted launch the winch stopped. On the second attempt the cable broke, and on the third try the launch was a bit slow, but the pilot (H. Ryan) was able to get 950 feet on the tow. After cruising around for a while, he found a thermal at the end of the strip—a hawk was using same and followed the machine around. The thermal was rough and strong in the centre —about 15 feet per second. He climbed to 2,400 feet, but had to leave it on account of getting too cold (in shorts and open shirt). The duration was 25 minutes. Taking off at 2.40 p.m., M. Waghorn was launched to 1,100 feet for 5 minutes, and at 3 p.m. Pat Neary made a climb to 1,500 feet in a thermal, for 20 minutes' duration. On the next flight, Jack Watt, after a launch to 1,000 feet, dropped the cable over a house, trees and power lines (much delay) —duration 5 minutes. At 5 p.m., Frank Whitlock was launched to 1,000 feet for flight of 5 minutes. Total for the day—5 flights for 1 hour duration.

TECHNICAL GLIDING CLUB OF SYDNEY

On 26/8/45, the two-seater primary glider was flown at Walgrove Airstrip by Jack Watt, but details are not available.

A.W.A. GLIDING CLUB

The primary glider is ready for assembly and is to be inspected by the Technical Committee of the N.S.W. Gliding Association before covering the wings and control surfaces. A trailer is to be built for transporting the machine.

WESTERN AUSTRALIA

PERTH GLIDING CLUB

Work is proceeding on the two-seater, and the Club expects to have it finished about November. The Buick tow car is being overhauled. The Club has obtained the use of a room in the Y.M.C.A. building, for its monthly meetings —at present there are 15 members, including 3 Associates. The gliding site at Lake Pinjar is still rather damp but should be dry enough to be usable in November.

SOUTH AUSTRALIA

GLIDING AND SOARING CLUB OF S.A.

The gliding film did not arrive in time for the Meeting on 30/8/45 owing to the Victorian Railways strike. The Shell Company put on a good screening of films and the evening was a success. Arrangements were made to screen the gliding film at the Y.M.C.A., Gawler Place, on 24th September, 1945.

SUBSCRIPTIONS

The circulation of *Sailplane and Glider* is limited by its paper quota. This is the reason for the reduction in size, and the thinner and therefore lighter paper. The publishers can dispose of far more copies than can be printed. To be sure of your copy, therefore, it is necessary to take out an Annual Subscription of 13/- post free for twelve numbers. Publication date is the 5th of the month which the issue is dated. Cheques, Money Orders, etc., payable to *Sailplane and Glider*, and crossed.

Letters to the Editor

Rhone House,
Hady Hill,
Chesterfield, Derbys.
18th, July, 1945.

DEAR SIR,

It may be of interest to many of your readers to know what the R.A.F. in Germany is doing with the facilities available there for Gliding and Soaring.

My own Group (84), has set out to provide Instructional and Advanced Sailplaning through organised courses. My work in the Group virtually ended with the final move to our occupational areas and being the only officer available who knew anything about Gliding, I was asked by the A.O.C. to see what could be done, taking a long term view.

The first problem was a site and after much travelling through our area, I finally decided on the old German site of Gitterhalle, about 20 miles south of Brunswick just on the N.W. edge of the Hartz Mountains. It is not the best soaring site available, but the best which combines primary training and soaring on one site.

The hill facing S.W., rises some 100 metres above the valley with a fine Club house, Hangars and Workshops on the top surrounded by pine woods. The landing ground is in the bottom as at Dunstable. The whole site was requisitioned. There was no structural damage to any of the buildings, but its state can be imagined following its evacuation by the Germans, looting by the D.P.'s, (Displaced Persons), and our own troops passing through. All the machinery was taken away or damaged, and the Gliders and Sailplanes damaged beyond repair. A mournful sight for an enthusiast to see such machines as Weihes wrecked beyond repair. However, we got to work. Six pilots were specially chosen to be trained as Instructors by me, but first they had to undertake all the administrative work of getting the place shipshape. Meanwhile, my main preoccupation was getting aircraft and the workshops functioning. A crew was given me, two " Queen Marys " sent down and with the help of our Disarmament section, aircraft in Stores located. A local branch of the Herman Goering Werkes was instructed to put essential machinery in order, with the local electrician, plumber, etc.

By July 1st, I had a goodly number of Primaries, Grunau IIs, plus several Olympias, Weihes and a Kranich 2-seater, and we were able to commence flying, first by bungey launch from the top of the hill and then by winch in the bottom.

Teaching pilots who have been flying Typhoons and Spitfires to fly a Sailplane is a tricky business. I thought that it would be possible to put them straight on to Grunaus, but two skids wiped off in one day taught me a lesson, and I relegated them all to a day on a Primary, doing 50 ft. hops, much to their disgust at the time. However, they were big enough to say that they learnt more and realised the wisdom of the move. At any rate, Grunau skids seem now to be safe, and they are flying really well. Two of them have been over in England for a week at an A.T.C. Instructors' Course, as our A.O.C. has very wisely decided that the facilities we are offering will not be restricted to pilots but open to all ranks, flying and non-flying.

For myself, all the hard work was amply repaid on the day I flew an Olympia, and in a dead calm was able to stay up from a winch launch to 400 ft. for 5 minutes. I am looking forward, during what time remains to me there, to getting to know this machine really well. She handles very nicely, the controls are positive in action—on extended circuits I could not find any vices—and she circles easily. General handling is very similar to the Bussard, but circling will not be so tiring, as once in a circle she likes to stay in. When I get chance to fly the Weihe, I will let you have my impressions, the Germans say she is better than the Minimoa.

Thanks to the encouragement and help from my A.O.C. (A.V.M. Huddlestone) downwards, at any rate one Group of the R.A.F. will, I feel, not only take their gliding and soaring seriously, but in a manner which will provide more enthusiasts to the Clubs at home when those participating return to civilian life.

W/C. E. SWALE, D.F.C.
(Derby and Lancs.),
84 Group H.Q.,
B.L.A.

EDITORIAL—(*Continued from page* 1)

Contrasted with this the lot of a paid Club Instructor is a good deal more assured. Wise Clubs insure their Instructors for a reasonable capital sum, together with adequate payments for injury necessitating absence from work or business.

It may be that under the new Government Pensions Scheme such matters will be taken care of. But it is an important point for Clubs to watch, and for members also, who can, however, themselves insure on fairly satisfactory terms.

LATEST NEWS

We hear from a reliable source that the world's altitude records have been beaten both for single plane and two-seater sailplanes by German pilots.

* * *

In a "Kranich" two-seater a pilot, who lost an arm from frostbite, achieved the phenomenal height of 32,000 feet in a standing wave known as " The Alpine Wall."

* * *

In a " Horten IV " tail-less glider another pilot reached the height of 28,000 feet, but as he had to bale out this does not count as a record even if the first report of the 32,000 feet flight is not true.

* * *

No German sailplanes will be made available in this country. This has been decided as an item of Inter-Allied Policy. So those enthusiasts who hoped for a cheap German sailplane as one of the fruits of victory will be disappointed.

* * *

At least twelve Gliding Clubs are foreshadowed in the plan for the welfare of the British Forces of Occupation in Germany in Europe. These are short of sailplanes already, most of the German ones having been wantonly destroyed either by the advancing infantry, or displaced persons and others, even if they were not stolen by interested parties.

* * *

The Editor and Dr. Slater are just off to visit the Royal Air Force Gliding Clubs in Germany and hope to bring back some very interesting information.

CLUB ANNOUNCEMENTS

LEICESTERSHIRE GLIDING CLUB

In view of the sufficient numbers already enrolled the membership lists have been closed until further notice. Don't forget our monthly "get-together" at the Victory Hotel—every third Friday of the month. Come and meet the gang.

Monthly "get-together" dance, every third Friday of each month.

THE MIDLAND GLIDING CLUB LIMITED

The Secretary invites enquiries *re* post-war programme at Long Mynd. Subscription rates, etc., forwarded to those interested on application to:—F. G. Batty, F.C.A., 2, Lombard Street West, West Bromwich, Staffs.

DERBYSHIRE & LANCASHIRE GLIDING CLUB, GREAT HUCKLOW, TIDESWELL, DERBYSHIRE

Still on the active list. Club activities will commence as soon as civil flying is permitted. Full particulars, booklets, etc., from Secretary, 87, Fargate, Sheffield, 1.

NEWCASTLE GLIDING CLUB, Ltd.

(founded Feb. 1930)

Applications for Membership now invited in Reorganised Post War Club.

Special Registration Fee 6/-

Ensures Membership when activities restart.

Further Particulars apply

HON. SEC., 25, HOLME AVENUE, NEWCASTLE 6

The Yorkshire Gliding Club, Sutton Bank, Yorkshire.

The Club will offer full flying facilities as soon as Gliding activities are permitted. Complete programme of Training from abinitio to advanced soaring stage—including unexcelled Club Flying—will be published later.

KENT GLIDING CLUB

Will all ex-members and others interested and living in the Maidstone or Chatham area, contact the Secretary:

MRS. R. H. HADDOCK,
"LENHURST,"
HARRIETSHAM,
KENT

ROYAL AERO CLUB GLIDING CERTIFICATES—*Continued.*

"A" Certificates. (243).		School.	Date taken.
3095	George Donald Taylor	S.W.83, Moreton Valence	8. 7.45
3096	Roy Weightman	L.147 E.G.S., Fairlop	29. 7.45
3097	James Tingate Allan	N.E.31 E.G.S., Usworth	12. 8.45
3098	Raplh Bishop Simons	E.102 E.G.S., Snailwell	6. 8.45
3099	Kenneth George Leighton	E.104 E.G.S., Snailwell	6. 8.45
3100	John George Mendick	N.E.31 E.G.S., Usworth	11. 8.45
3101	Sidney William Kenneth Woskett	L.147 E.G.S., Fairlop	5. 8.45
3102	Janusz Josef Lewkowicz	84 Group Gliding Club, R.A.F., B.L.A.	17. 7.45
3103	Derek Willis Braithwaite	Ditto	24. 7.45
3104	George William Watson	Ditto	17. 7.45
3105	Kenneth Cavendish Fitzroy	M.41 E.G.S., Knowle	17. 8.45
3106	Anthony Derrick William Mattin	E.103 E.G.S., Snailwell	6. 8.45
3107	William Hepworth	N.W.188 E.G.S., Cark	21. 5.45
3108	Peter Collinson Jackson	Ditto	8. 7.45
3109	Eric Ralph Timm	Ditto	8. 7.45
3110	Kenneth John Edward Wenden	L.149 E.G.S., Gravesend	12. 8.45
3111	David Ernest Corlett	N.E.26 E.G.S., Woolsington	12. 8.45
3112	Raymond Palmer	N.E.31 E.G.S., Usworth	12. 8.45
3113	Ernest Belcher	M.45 E.G.S., Meir	14. 7.45
3114	Antony Ronald Le Lievre	C.121 E.G.S., Halton	8. 7.45
3115	Peter James Fishwick	N.W 192 E.G.S., Little Sutton	5. 8.45
3116	John Bradley Oakes	Ditto	11. 8.45
3117	Laurence Frederic Ivin	M.50 E.G.S., Hereford	29. 7.45
3118	Frank Derek Platt	N.W.185 E.G.S., Barton	8. 7.45
3119	John Charles Beecham	E.107 E.G.S., Lincoln	8. 8.45
3120	Robert John Rhys Lewis	M.44 E.G.S., Rearsby	9. 8.45
3121	Francis David Swinnerton Cook	M 41 E G.S., Knowle	17. 8.45
3122	James Ridley Tait	N.E.27 E.G.S., Woolsington	3. 6.45
3123	Terence Ernest Reardon	C.123 E.G.S., Bray	12. 8.45
3124	Peter Illingworth Dobb	Ditto	12. 8.45
3125	Alfred Woods	L.143 E.G.S., Croydon	4. 8.45
3126	Desmond Trevor Trigg	M.41 E.G.S., Knowle	17. 8.45
3127	William Henry Barber	S.E.167 E.G.S., Fairoaks	14. 7.45
3128	Reginald James Henbest	Ditto	27. 7.45
3129	Edward George Clarke	Ditto	29. 7.45
3130	Walter Alfred King	Ditto	21. 7.45
3131	John Richard Bird	Ditto	29. 7.45
3132	Derek Frank Rattenbury	Ditto	29. 7.45
3133	William John Inglis	N.E.27 E.G.S., Woolsington	12. 8.45
3134	Vincent Joseph Morgan	Ditto	6. 5.45
3135	Tudor Glyndwr Thomas	S.W.88 E.G.S., Wroughton	12. 8.45
3136	Donald Michael Brook Lawson	M.44 E.G.S., Rearsby	10. 8.45
3137	John Rushton Noble	N.E.31 E.G.S., Usworth	12. 8.45
3138	Archibald Ernest Pitcher	L.149 E.G.S., Gravesend	5. 8.45
3139	John Geoffrey Chisuall	L.147 E.G.S., Fairlop	11. 8.45
3140	Trevor John Hobbs	W.65 E.G.S., Cardiff	12 8.45
3141	William Edward Jones	S W.88 E.G.S., Wroughton	19. 8.45
3142	Reginald Ringwood Rich	W.63 E.G.S., Abereonway	29. 7.45
3143	John Herbert Holland	N.E.31 E.G.S., Usworth	11. 8.45
3144	Harold Roy Howells	M.41 E.G.S., Knowle	17. 6.45
3145	Owen David Zanker	M.42 E.G.S., Loughborough	5. 8.45
3146	Henry Charles Herbert Graves	L.144 E.G.S., Heston	17. 6.45
3147	William Bernard Avery	C.125 E.G.S., Denham	18. 3.45
3148	Derek Arthur William Pullen	L.143 E.G.S., Croydon	29. 7.45
3149	Leslie Gerald Hatch	C.123 E.G.S., Bray	26. 8.45
3150	Henry James Winson	Ditto	12. 8.45
3151	David Behor Benazon	Ditto	12. 8.45
3152	David Frederick Ogilvy	Ditto	12. 8.45
3153	Jack Richard Danson	L.149 E.G.S., Gravesend	12. 8.45
3154	Frederick Kenneth Hart	L.146 E.G.S., Fairlop	10. 6.45
3155	Bertram Thomas Bellis	M.51 E.G.S., Long Mynd	25. 8.44
3156	Alfred Arthur Rigg	L.149 E.G.S., Gravesend	12. 8.45
3157	James Stevenson	S.4 E.G.S., Abbotsinch	12. 8.45
3158	James McCallum	Ditto	22. 7.45
3159	Alexander Norman Ferguson	Ditto	29. 7.45
3160	Peter Dickson	E.107 E.G.S., Snailwell	6. 8.45
3161	George Ernest Pratt	L.146 E.G.S., Fairlop	27. 5.45
3162	Brian McPherson	N.W.181 E.G.S., Blackpool	22. 4.45
3163	Henri Bouckxon	Ditto	15. 7.45
3164	Gilbert Louis Gustaaf Vergnocke	Ditto	15. 7.45
3165	Thomas Genes	Ditto	22. 8.45
3166	Alexander William Robson	Ditto	22. 8.45
3167	Keith Reginald Chaplin	E.104 E.G.S., Snailwell	6. 8.45
3168	Andrew Judd Dale Thomas	M.41 E.G.S., Knowle	17. 8.45
3169	Robert Callender	N.E. 31 E.G.S., Usworth	12. 8.45
3170	William Kennedy	203 E.G.S., Newtownards	18. 8.45
3171	Ronald William Hawley	M.43 E G S, Walsall	22.10.44
3172	John Louis Pearce	S.W. 89 E.G.S., Christchurch	1. 8.45
3173	Sidney Mason	N.E.31 E.G.S., Usworth	12. 8.45
3174	Kenneth William Silcox	S.W.94 E.G.S., Yate	19. 8.45
3175	Leonard Eric Bell	L.149 E.G.S., Gravesend	26. 8.45
3176	Albert Ronald Coppock	C.130 E.G.S., Cowley	11. 8.45
3177	Cyril Howitt	Ditto	14. 8.45
3178	Nicholas Kent Manley	M.41 E.G.S., Knowle	17. 8.45
3179	Arthur John Cuming	C.124 E.G.S., Aldenham	11. 8.45
3180	Berwyn Bird	L.147 E.G.S., Fairlop	5. 8.45
3181	Walter John Worthington	L.148 E.G.S., Southend	3. 6.45
3182	Gerald Daniel Palmer	M.44 E.G.S., Rearsby	29. 7.45
3183	Stanley Daniel Rosenbaum	L.148 E.G.S., Southend	12. 8.45
3184	John Sidney Mundy	Ditto	12. 8.45
3185	William Frederick Hoffman	M.41 E.G.S., Knowle	26. 8.45
3186	Michael Turle Carwardine	S.W.87 E.G.S., Weston-super-Mare	18 8.45
3187	Robert Alexander Tohertoff	Ditto	17. 8.45
3188	Douglas Henry Empleton	Ditto	17. 8.45
3189	Denis Gordon Potter	Ditto	14. 7.45
3190	John Alexander Galt	M.44 E.G.S., Rearsby	9. 8.45
3191	Rex Hawthorn Mears	M 41 E.G.S., Knowle	17. 8.45

ROYAL AERO CLUB GLIDING CERTIFICATES—*Continued.*

	"A" *Certificates* (243).	*School*	*Date taken.*
3192	Jean Dabos	84 Group Gliding Club, R.A.F., Salzgitter, Germany	17. 7.45
3193	John Irvine	Ditto	1. 8.45
3194	Hamilton Morton Esdaile	Ditto	7. 8.45
3195	John Kenneth Goode	M 44 E.G.S., Rearsby	31.12.44
3196	Ronald Finlay McGregor	C.124 E.G.S., Aldenham	19. 8.45
3197	Kenneth Richard Davis	L.149 E.G.S., Gravesend	26. 8.45
3198	Robert Hepple	N.E.31 E.G.S., Lambton Park	8. 4.45
3199	Peter Charles Garrett	S.W.89 E.G.S., Christchurch	21. 7.45
3200	Stephen Frederick Kelly	L.147 E.G.S., Fairlop	5. 8.45
3201	Edwin Abram	N.W.189 E.G.S., Carlisle	4. 8.45
3202	Ian Orchard	Ditto	4. 8.45
3203	Thomas William Robinson	Ditto	4. 8.45
3204	Ronald Watson	Ditto	28. 7.45
3205	Kenneth Frank James Parfitt	84 Group Gliding Club, R.A.F., Salzgitter	5. 7.45
3206	James Harrold	N.E.21 E.G.S., Lambton Park	26.11.44
3207	Peter Smith	Ditto	28. 4.45
3208	Thomas Nigel Malcolm Bayne	S.W.87 E.G.S., Weston	17. 8.45
3209	John Edgar Johnson	Ditto	17. 8.45
3210	Wilfred West	C.123 E.G.S., Bray	18. 8.45
3211	Robert Brian Osborne Alabaster	Ditto	12. 8.45
3212	John Sebastian Francis Boston	Ditto	11. 8.45
3213	James Heyes	Ditto	18. 8.45
3214	Harold Rogers	C.130 E.G.S., Cowley	3. 7.45
3215	Frederick George Nutt	Ditto	14. 8.45
3216	Frederick Charles Pocock	Ditto	14. 8.45
3217	Eric Oliver	N.E.31 E.G.S., Usworth	1. 9.45
3218	Arthur William Nixon	N.E.21 E.G.S., Lambton Park	7. 8.44
3219	Edward Charles Wyatt	C.125 E.G.S., Denham	10. 7.45
3220	Maurice Dixon Davison	N.W.192 E.G.S., Little Sutton	8. 7.45
3221	Dennis John Green	L.147 E.G.S., Fairlop	29. 7.45
3222	Gerald Wynne Cantello	L.149 E.G.S., Gravesend	26. 8.45
3223	Kenneth Victor Cooper	L.144 E.G.S., Heston	28. 7.45
3224	Anthony Edward Devine	C.121 E.G.S., Halton	6. 5.45
3225	Philip Birt Davies	M.41 E.G.S., Knowle	26. 8.45
3226	George Peter Walker	N.W.183 E.G.S., Woodford	27. 5.45
3227	Kenneth Montague Purford Arkell	L.147 E.G.S., Fairlop	19. 8.45
3228	Ronald Olaman	N.E.21 E.G.S., Lambton Park	29.10.45
3229	Peter Thomas Lemon	L.146 E.G.S., Fairlop	19. 8.45
3230	Cyril Smith	N.E.22 E.G.S., Kirbymoorside	8. 7.45
3231	George William Hartley	Ditto	8. 7.45
3232	Francis William Blades	Ditto	8. 7.45
3233	Howard George Arthur Evans	L.143 E.G.S., Croydon	26. 8.45
3234	John Clement Everitt	C.126 E.G.S., Booker	26. 8.45
3235	Neville Arthur Beesley	M.44 E.G.S., Rearsby	20. 4.45
3236	John Morton Gibson	N.E.21 E.G.S., Lambton Park	18. 3.45
3237	Alan Edward Hillyer	S.W.163 E.G.S., Portsmouth	12. 8.45
3238	Roy William Beaumont	C.130 E.G.S., Cowley	11. 8.45
3239	Lionel Edward Lambert	Ditto	26. 8.45
3240	Walter David Treadwell	M.43 E.G.S., Walsall	24. 8.45
3241	John Leonard Pee	M.41 E.G.S., Knowle	17. 8.45
3242	Richard David Patrick Johnston	L.148 E.G.S., Southend	1. 7.45
3243	Kenneth Donkin	N.E.31 E.G.S., Usworth	1. 9.45
3244	Alan George Rossiter	W.74 E.G.S., Carew	11. 3.45
3245	Charles Edward Richardson	N.E.21 E.G.S., Lambton Park	8. 4.45
3246	Ian Walter Revell	N.E.26 E.G.S., Greatham	8. 7.45
3247	Alan Chilton-Merryweather	Ditto	29. 7.45
3248	Malcolm Wright	Ditto	14. 7.45
3249	Thomas Roger Bracewell Threlfall	M.44 E.G.S., Rearsby	9. 8.45
3250	John Reginald Weaver	S.W.94 E.G.S., Yate	12. 8.45
3251	Eric Hedley Lockwood	M.48 E.G.S., Bretford	31. 8.45
3252	Rex Bryan Hayden	L.146 E.G.S., Fairlop	10. 6.45
3253	Robin Edward Taylor	M.48 E.G.S., Bretford	31. 8.45
3254	James Crawford Canney	N.E.187 E.G.S., Stretton	30. 6.45
3255	Frederick Howard Coleman	Ditto	30. 6.45
3256	James Peter Berry	Ditto	26. 8.45
3257	Raymond Reginald Charles Vine	S.E.161 E.G.S., Brighton	2. 9.45
3258	Albert Ernest Swinnerton	W.68 E.G.S., Stormy Down	2. 9.45
3259	William Alan Carruthers	N.E.31 E.G.S., Usworth	9. 9.45
3260	Peter Barrington Thomas	W.68 E.G.S., Stormy Down	2. 9.45
3261	Benjamin Charles Baugh	L.149 E.G.S., Gravesend	19. 8.45
3262	Victor Frederick Woodbridge	L.143 E.G.S., Croydon	26. 8.45
3263	Kenneth John Williams	E.105 E.G.S., Snailwell	6. 8.45
3264	Harry Trevor Piggott	L.143 E.G.S., Croydon	11. 8.45
3265	Alan William Rawe	S.E.167 E.G.S., Fairoaks	4. 8.45
3266	Wilfred Eric Mayhead	Ditto	19. 8.45
3267	Keith Roland Sturt	Ditto	15. 7.45
3268	Lionel Ivor Alfred Taylor	Ditto	19. 8.45
3269	Douglas George Seymour	Ditto	24. 6.45
3270	Gresham Lawrence Busby	L.142 E.G.S., Stapleford	7. 4.45
3271	John Mervyn Francis Vincent Rawlings	203 E.G.S., Newtownards	26.11.44
3272	Ian Richard Perowne Abel	S.E.168 E.G.S., Rochester	29. 7.45
3273	Harold Frederick Benton	Ditto	5. 8.45
3274	William Peter Watson	Ditto	12. 8.45
3275	Thomas Philip Fisher	Ditto	19. 8.45
3276	Kenneth John Bryant	S.W.94 E.G.S., Yate	4. 8.45
3277	Patrick Cyril Edward Wade	M.42 E.G.S., Loughborough	5. 8.45
3278	John James Veall	E.105 E.G.S., Snailwell	6. 8.45
3279	Peter Hicks	N.E.21 E.G.S., Lambton Park	24. 3.45
3280	Frederick Stanford Golding	L.142 E.G.S., Stapleford Tawney	17. 3.45
3281	John Kyrle Hankinson	B.A.F.O. Glider and Sailplane Club, B.I.A., Germany	12. 8.45
3282	George William Keedy	N.E.31 E.G.S., Usworth	9. 9.45
3283	Howard Wright	M.42 E.G.S., Loughborough	5. 8.45
3284	Anthony John Walker	M.48 E.G.S., Bretford	31. 8.45
3285	Ronald Milnes Wilkinson	M.41 E.G.S., Knowle	17. 6.45
3286	Peter Harrison Swinhoe	N.E.31 E.G.S., Usworth	9. 9.45

(*Continued Overleaf*)

HOME AGAIN !—*Contd. from page 11*

we'll get the hang of it in time. . . Over to the far edge. Tut, no lift here this time. Better turn, there will be nothing further along. Now, bank first, and let's have lots of it . . . that's enough . . . rudder . . . hullo, getting a bit steep, hold off . . . what the—oh, Aileron Drag, I'd forgotten all about it. Quite a reasonable turn this time—back over the downwind edge of the gulley when it's completed. We're getting the hang of things now. . . . Lots of handkerchiefs waving—flagging me in obviously. Well, we've had twenty minutes, *and* we are a hundred feet up, so might as well now while the going is good. . . . My gosh, we're fairly batting downwind. . . . Now, can I get round into wind or not ? . . . Yes . . . I think so. Here we are, rather far from the hangar, but never mind that . . . Now bags of speed, don't forget the wind gradient . . . touch of rudder . . . take off drift . . . Blast . . . I thought I had plenty of speed in hand. The bump wasn't much though.

Good God, look at the windsock ! ! ! Was I really staying up in that ? DESERT RAT.

NATIONAL MODEL AIRCRAFT EXHIBITION

BRITAIN'S second National Aircraft Exhibition will again be held at Dorland Hall, Piccadilly, London, S.W.1., from December 14 till January 12, 1946.

The exhibition, organised by " The Aeromodeller ", will be open for 23 days, and has in consequence been planned on far more ambitious lines.

There will be displays of Jet-propelled planes, Helicopters, Seaplanes, Rocket-driven Gliders, Flying boats, High-performance sailplanes, " Duration ", scale, semi-scale and Competition type aircraft, as well as continuous Round-the-pole-flying.

A series of competitions, free of entry to all-comers has been arranged with £300 in cash prizes and solid silver trophies—the largest yet offered in Aeromodelling—for the best Non-flying and duration models of any type. There will also be senior and junior championships in all classes with the addition of silver trophies. Every type of model will, therefore, be well catered for.

ROYAL AERO CLUB GLIDING CERTIFICATES—*Continued.*

	" *A* " *Certificates.*	*School.*	*Date taken.*
3287	Eric Antony Robert Humpston	M.42 E.G.S., Loughborough	3. 6.45
3288	John Wilkinson Twells	N.W.189 E.G.S., Carlisle	2. 6.45
3289	William Samuel Tolley	Ditto	5. 5.45
3290	Frederick Murray	Ditto	21. 5.45
3291	Sidney Harper	Ditto	21. 5.45
3292	Kenneth Walter Dowell	M.44 E.G.S., Rearsby	10. 1.43
3293	Harold Anthony Edwards	S.W.94 E.G.S., Yate	18. 5.44
3294	Ernest McLintock	N.W.185 E.G.S., Barton	8. 7.45
3295	Frank Waltee Codling	L.143 E.G.S., Croydon	26. 8.45
3296	Robert David Bates	N.E.27 E.G.S., Woolsington	9. 9.45
3297	John Read	L.148 E.G.S., Southcud	1. 7.45
3298	Eric George Depper	M.41 E.G.S., Knowle	26. 8.45
3299	Reginald Noel Stone	C.126 E.G.S., Booker	1.10.44
3300	Geoffrey Donald Fletcher	N.W.181 E.G.S., Blackpool	26. 7.45
3301	Frank Bertrand Burningham	N.E.27 E.G.S., Woolsington	9. 9.45
3302	Daniel George Sullivan	L.149 E.G.S., Gravesend	9. 9.45
3303	John Woodger	S.W.83 E.G.S., Moreton Valence	26. 8.45
3304	William Ernest Joseph Jarvis	C.130 E.G.S., Cowley	19. 8.45
3305	Ernest John Ellett	Ditto	19. 8.45
3306	Norman Victor Gwyn	Ditto	19. 8.45
3307	William Ralph Gomm	Ditto	25. 7.45
3308	James Vernon Baker	Ditto	19. 8.45
3309	Thomas Charles John King	Ditto	19. 8.45
3310	Herbert George Toyer	Ditto	19. 8.45
3311	Arthur Richard Tolley	Ditto	26. 8.45
3312	Robert John Chidwick	S.W.88 E.G.S., Wroughton	19. 8.45
3313	Alan Richard Simmonds	L.149 E.G.S., Gravesend	9. 9.45
3314	David Roy Hooper	S.W.89 E.G.S., Christchurch	9. 9.45
3315	Derek Philip Matthams	L.146 E.G.S., Fairlop	17. 6.45
3316	Bernard Alfred Sparrow	C.124 E.G.S., Aldenham	12. 8.45
3317	Donald Richard Arthur Benford	S.E.161 E.G.S., Brighton	9. 9.45
3318	Peter Derek Campbell	C.123 E.G.S., Bray	12. 8.45
3319	Mazwell Diaz	Ditto	9. 9.45
3320	Piers Nigel Morshead	Ditto	11. 8.45
3321	Philip Jackson	M.41 E.G.S., Knowle	26. 8.45
3322	David Ralph Henning	W.70 E.G.S., Swansea	17. 8.45
3323	Raymond John Bragg	Ditto	17. 6.45
3324	Anthony Carlyle	S.3 E.G.S., Macmerry	15. 9.45
3325	Patrick Walter Gould	Ditto	15. 9.45
3326	John Alexander Neilson	Ditto	15. 7.45
3327	Robson Nixon Lockey	N.E.31 E.G.S., Usworth	12. 8.45
3328	Ian James Fairweather	S.3 E.G.S., Macmerry	15. 9.45
3329	Francis Owen Zanker	M.42 E.G.S., Loughborough	9. 9.45
3330	John Murray Kirkby	N.W.183 E.G.S., Woodford	17. 6.45
3331	Peter John Campbell	N.W.188 E.G.S., Cark	21. 5.45
3332	John Randall Marsh	Ditto	28. 5.45
3333	Alan Stenton Peacock	N.E.31 E.G.S., Usworth	16. 9.45
3334	Ronald Speakman	N.W.183 E.G.S., Woodford	9. 9.45
3335	Bernard Roy King	M.49 E.G.S., Derby	9. 9.45
3336	Leonard Richard Northwood	Ditto	9. 9.45
3337	Albert Edward Mellors	M.42 E.G.S., Loughborough	5. 8.45

	" *B* " *Certificates* (41).		
3102	Janusz Josef Lewkowicz	84 Group Gliding Club, R.A.F.	19. 7.45
3103	Derek Willis Braithwaite	Ditto	26. 7.45
3104	George William Watson	Ditto	18. 7.45
2287	Geoffrey King	L.146 E.G.S., Fairlop	29. 7.45
2551	James Ewart Bamber Mitchell	S.E.167 E.G.S., Fairoaks	19. 8.45
3142	Reginald Ringwood Rich	W.63 E.G.S., Aberconway	12. 8.45
2276	Leslie John Howe	L.146 E.G.S., Fairlop	20. 8.45
1862	Robert Hales	S.W. 84 E.G.S., Haldon	25. 8.45
3146	Henry Charles Herbert Graves	L.144 E.G.S., Heston	8. 7.45
3147	William Bernard Avery	C.125 E.G.S., Denham	10. 6.45
2323	Louis Richardson	C.124 E.G.S., Aldenham	26. 8.45
2600	Audrey Mary Barry	S.E.163 E.G.S., Portsmouth	19. 8.45
3192	Jean Dabos	84 Group Gliding Club, R.A.F.	18. 7.45
3193	John Irvine	Ditto	3. 8.45
3194	Hamilton Morton Esdaile	Ditto	10. 8.45
3054	William Ian Brewer	N.W.187 E.G.S., Stretton	19. 8.45
3093	Frank Latham	Ditto	26. 8.45
3205	Kenneth Frank James Parfitt	84 Group Gliding Club, R.A.F., Salzgitter, Germany	9. 7.45
3214	Harold Rogers	C.130 E.G.S., Cowley	28. 8.45
3215	Frederick George Nutt	Ditto	30. 8.45
3218	Arthur William Nixon	N.E.21 E.G.S., Lambton Park	29.10.44
3219	Edward Charles Wyatt	C.125 E.G.S., Denham	19. 8.45
3107	William Hepworth	N.W.188 E.G.S., Cark	6. 8.45
2942	Peter Lewis	N.W.190 E.G.S., Cranage	26. 8.45
2881	Reginald Wilmot Roddan	Ditto	26. 8.45
2880	James Wigley	Ditto	26. 8.45
2165	Arthur Edward Ashwell	S.E.167 E.G.S., Fairoaks	5. 8.45
3271	John Mervyn Francis Vincent Rawlings	203 E.G.S., Newtownards	7. 1.45
3280	Frederick Stanford Golding	L.142 E.G.S., Stapleford	18. 3.45
3281	John Kyrle Hankinson	B.A.F.O. Glider and Sailplane Club, Germany	19. 8.45
3287	Eric Antony Robert Humpston	M.42 E.G.S., Loughborough	12. 8.45
3288	John Wilkinson Twells	N.W.189 E.G.S., Carlisle	28. 7.45
3289	William Samuel Tolley	Ditto	21. 5.45
3290	Frederick Murray	Ditto	15. 7.45
3291	Sidney Harper	Ditto	27. 5.45
3293	Harold Anthony Edwards	S.W.94 E.G.S., Yate	10. 3.45
3301	Frank Bertrand Burningham	N.E.27 E.G.S., Wolsingtou	9. 9.45
3300	Geoffrey Donald Fletcher	N.W.181 E.G.S., Blackpool	31. 8.45
3331	Peter John Campbell	N.W.188 E.G.S., Cark	29. 7.45
3332	John Randall Marsh	Ditto	2. 9.45
3117	Laurence Frederic Ivin	M.50 E.G.S., Hereford	16. 9.45

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