SEPTEMBER, 1947

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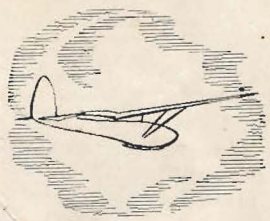
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THE FIRST JOURNAL DEVOTED TO SOARING AND GLIDING

SEPTEMBER 1947 ★ Vol XV No 9

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Front Cover: *Max Schachemann glides on S18 II above the high plateau of Montana-Crans in Rhone Valley.*

Bunjies and Bicycles

CINDERELLA on the morning after the night before could not be feeling more forlorn than the British Gliding Movement must now be feeling. At one fell sweep our petrol for transport to our gliding sites is taken away, and doubtless also petrol for winch launching, retrieving and aerotowing has gone. We are back where we were in the war except that we have permission to fly, and we have also machines and our sites, although some of us have not yet got our club-houses back.

In the bitter struggle for mere existence which now confronts us, there may be little time for a sport which takes long days as toll from its devotees, but the time spent at the club, on the airfield or in the air will be all the sweeter for that.

At least we know now where we are—on our own feet. It is finally clear that there can be no subsidy, at least as it existed before the war, although it may be disguised in the form of A T C Gliding, but even that, which is said to cost the astronomic figure of £130 an hour, may be curtailed. Still there is no denying that we have suffered a blow which would daunt all but the stoutest of hearts. However, Sailplane pilots are not without courage, both physical and moral, and there is little doubt that they will adjust themselves to the new conditions, which have their other side.

To begin with, we have escaped regimentation, or so it appears, for that would have been an inevitable concomitant of a subsidy. Modern times with their passion for planning and conformity, have also brought with them restrictions on the liberty of the subject. In this respect we are better off than our German gliding friends, who, twelve years ago were just as badly off as we are, but dare not comment on the fact. But some of them, it is true, found happiness in gliding in the Hitler Youth Movement, an accommodation with their conscience which many of them now bitterly regret.

Secondly, under the new conditions, the pilot with a bicycle will be just as likely to get a club flight as will the owner pilot who usually has his car, sailplane, trailer and all. For there will be little inducement now for cross country flights, since there may be no petrol at all for retrieving. In this respect the event may bring good in its train, for gliding was rapidly becoming known as the sport of the rich man.

There are two outstanding considerations, however, which may lead the Government to relax their rules somewhat. One is the need for exports of all sorts. Few Sailplanes have been exported so far, largely because of the high cost and heavy freight charges, and there are some signs that our manufacturers are thinking again about this factor (although under our system of Social Benefits and taxation there seems to be little they can do about it). Next year also there are to be the International Contests in Great Britain, unless the venue is changed to some less benighted country. It would be both a blunder and tragedy if these contests were not to be held here, or our teams unable to compete because of lack of facilities beforehand. As the total savings in imports due to the petrol cut only amounts to £5 million, a sense of proportion may lead to a relaxation of this total ban so far as gliding is concerned. This is also true of the ultra light aircraft industry, just beginning to get into its stride. It is idle to pretend that there would not be a much larger sale for the Chilton Aircraft or the new Slingsby affair, for example, at four or five hundred pounds, than for the heavier powered two-seaters at over a thousand pounds. The benefits to be gained from the release of a few hundred pound sterling worth of petrol, if such release led to a new export trade, might weigh in the scale in favour of such release. However, such an event would hardly be likely not to be accompanied by restrictions under the Ministry of Supply, and it is freedom we want, not restriction.

Well, its up to us now. The gliding movement depends on what we do from now on. This is the time to make up our minds what we want, to dig our toes in and resist Government interference, to run our own affairs, instead of running after Government Departments.

The Observer of August 24th forecast that the petrol restrictions would drive power pilots to take up gliding. If that were so, they would be welcome, for only true enthusiasts would pursue their flying if it were expressed in terms of bicycles and bunjies.

THE GULLFINDER

By L. N. SCHULTZ

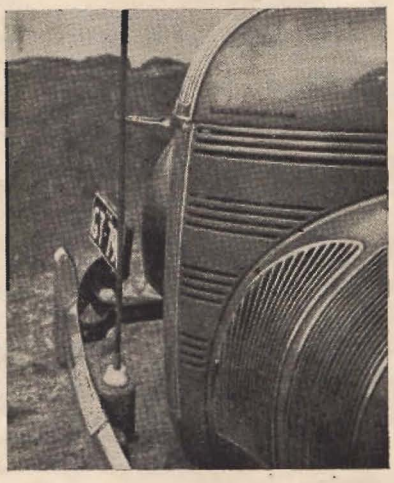
Fellow Inst., Radio Engineers Aust.

THE story of the Australian record-making flights of the " Gull " at Easter 1940 and again during January 1946 have already been described in SAILPLANE. During these tours a " Moth " was used as the tug and the ground party travelled by car with trailer attached. There were several " Gull " pilots in the party and we followed the " Gull " to its landing point after each flight, and took our turns in flying it.

The Easter 1940 effort was the first serious cross-country sailplaning which had been done in Australia, so until we commenced our first flight we had not considered the problem of finding the " Gull." For the first couple of flights we tried the arrangement of having the " Gull " pilot ring a hotel in a town in the direction we thought he might go. Then the ground party rang or drove to the hotel and made enquiries. This was not at all satisfactory, so we changed the plan to ringing the police station in a town we thought would be on the route. This was better but there was still a big loss of time and sometimes unnecessary driving. Incidently during the Easter four days, we drove nearly 1,200 miles for approximately 320 miles of gliding.

We decided after the Easter 1940 experience that radio communication would be very desirable. And after further experience in our 1946 flights, when we drove nearly 3,000 miles in three weeks, radio became a must item.

The Gullfinder Trans-Receiver was built to solve our problem, a description of it will, I am sure, be of value to others who soar cross-country. The equipment was designed by the writer with the object of providing the utmost simplicity for the pilot. It is a telephony transmitter and both the receiver and transmitter are crystal controlled, so there is no tuning to worry about, consequently, the only controls to operate are an " On OFF " switch and a Volume Control. To talk the pilot presses a button on the microphone. The pilot's control box is situated in the cockpit as shown in Fig. (1); this operates the Trans-Receiver remotely where it is mounted under the centre section fairing. A short length of coaxial cable connects from the set to a small aerial coupling coil further aft in line with the trailing edge of the wing. The aerial is unique, as it consists of a length of P.V.C. insulated wire glued in streamlined position along the trailing edge of the wing. It is 48 feet long and loops back on itself around the inboard ends of the ailerons so that it may continue along the edge of the ailerons. The set weighs 8 lbs., headphone, microphone and cords, etc., 3 lbs., and the dry batteries 9 lbs., making a total of 20 lbs. With the batteries used the set may be operated for 15 hours continuous. And gives an aerial power of 1 watt.

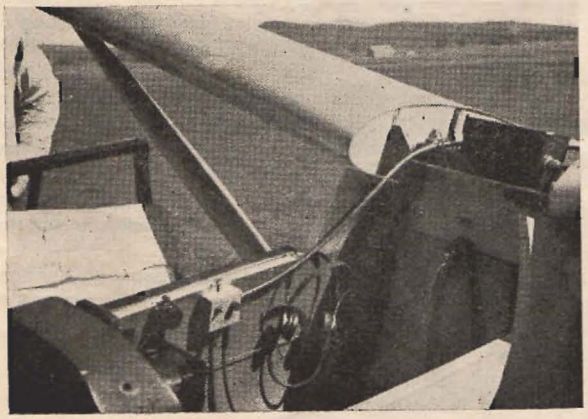


The ground station aerial system on the front bumper.

The whole equipment is made for quick installation and removal, and is held in place by snapslide fasteners, and not more than 30 seconds time is necessary to have it in position.

The ground station is installed in the car which tows the trailer and is identical and interchangeable with that in the " Gull." When it is used in the car, dry batteries are dispensed with and a genemotor is plugged into the set and runs off the car battery.

The car aerial consists of a 16 ft. vertical whip type, mounted in the centre of the front bumper.



The " Gullfinder " cockpit installation showing pilot's control box and headphones.

Performance

The radio was tried out under working conditions during our Easter 1947 trip with the following results.

It was found that reliable communication could be had when in the air, up to between 35 and 40 miles, and when the " Gull " was on the ground, between 10 and 15 miles. Under these conditions we found that by following in the car we could easily keep in contact from the time the " Gull " took off until it was about to land. And during that time communication was as reliable as a telephone.



" Doc " Heydon operating the " Gull " from the ground station.

We kept 15 minute schedules and the following is roughly what was said on one short flight of about 33 miles from near Parkes to Forbes N.S.W. The " Gull " was aero-towed from the R.A.A.F. 'drome about five miles from Parkes.

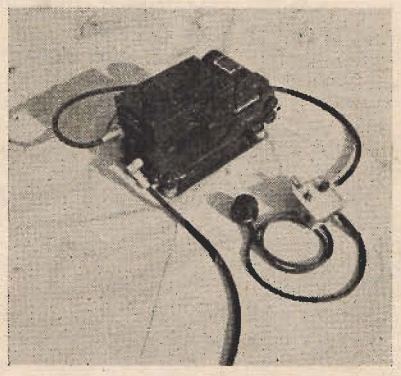
" Gull " to VK2ANM.	I have just let go at 2,000 ft., will call you on next sked.
" Gull " to 2ANM.	Getting fair lift at 5—10 ft. I'll get away now towards Forbes.
2ANM to " Gull."	We could not receive you on last sked, owing to electrical interference while we were in the town getting petrol. Where are you now ?
" Gull " to 2ANM.	I am about 10 miles from Forbes at 3,000 ft. I can see you on the road.
" Gull " to 2ANM.	I am now at 2,000 ft., 3 miles south of Forbes.
2ANM to " Gull."	We are in Forbes will stop here and have a drink.
" Gull " to 2ANM.	I am on the ground eight miles S.W. of Forbes.
2ANM to " Gull."	Where can we find you ?
" Gull " to 2ANM.	Drive along the Marsden Rd. until you cross a bridge, then about a mile further on there is a gravel crossing to the right, turn off here and I am in a paddock about 1½ miles in.
2ANM to " Gull."	We can't find the crossing, can you give us further directions ?
" Gull " to 2ANM.	I saw you pass along the road, you are past the crossing. If you keep a continuous listening watch I will direct you, as I can see you through the tree . . . . you are at the crossing now turn there . . . . now look over to your left and you should see me.

For readers who are interested in more technical detail, the Transreceivers operate on 3505 K.C., and are built in discarded Y.G. beacon receiver chassis using miniature tubes. The transmitter section uses a 1T4 crystal oscillator, driving a 3A4 Pentode modulated amplifier, which is modulated by another 3A4. Both plate and screen are modulated.

The receiver employs six tubes, 1T4 RF, 1R5 pentagrid converter with crystal-controlled oscillator section followed by two 1T4 intermediates on 200 K.C., 1S5 Diode detector, the triode portion of which is used as a sub-modulator when transmitting, the one audio stage is a 3S4 ; this tube is used when transmitting as well as receiving to give side tone. The battery load is L.T. 1.5 volts 0.4 to 0.6 A send receive, and H.T. 180 volts 22 M.A. to 55 M.A. send receive. The act of pressing the talk button switches receiver filaments off and transmitter filaments on and at the same time changes over the aerial by means of a miniature relay.

The R.F. input and output impedance of the Transreceivers is 50 ohms and they feed either the " Gull " or can aerial through a coaxial cable and matching unit. The " Gull " aerial is a current fed doublet, resistance approximately 100 ohms, and the car aerial is a Marconi type, resistance approximately 42 ohms.

It is, of course, fundamentally wrong to be using aerials which are polarised in different planes. In view of this the results obtained are of interest to those with a knowledge of propagation. It was found that very consistent fading occurred at about 35 miles and that the signals from the " Gull " tended to be stronger than those from the car at that distance. Also on one occasion when the writer was in the " Gull," he was able to check definitely that he lost the car signals completely at 30 miles whenever the " Gull " aerial was broadside to the direction of the car and either banking or turning the "Gull" brought the signals in. Again, when the " Gull " landed it was found that the car could receive it from the ground well at over 15 miles, whereas the reverse was not the case. Reception of the car by the " Gull " on the ground was limited to a maximum of 10 miles. As a result of this experience it was thought very likely that transmission with the " Gull " on the ground was probably entirely by skywave, because the aerial is only about 3 feet off the ground and most of the radiation would be at a very steep angle. Consequently, on our next week-end's flying, we tried erecting a doublet along the roof of the trailer in which we transport the " Gull," the length 27 ft. and height about 8 ft. Tests were then conducted between the " Gull " on the ground at Camden 'drome N.S.W. and the car and trailer at Razorback



The " Gullfinder " complete.

Continued on page 9



5. From the 'C' to the Silver 'C' (continued)

THE gap between " C " and Silver " C " is much greater than any of the others, and there are many pilots who never manage to cross it ; but with a certain amount of luck, a great deal of time and patience, and a determination to let nothing stand in the way of your training the coveted laurel leaves can be yours. You may have to wait for years if your luck is not in, but if you spend these years practising steadily you will be ready to seize the chance when weather and time are in your favour. On the other hand the combination of a good week and a good sailplane may make you a Silver " C " almost before you have become accustomed to wear your " C." But this is not often the case, because there are three steps to surmount and these are so graded that the final badge is almost equally difficult over any kind of country and in any climate.

The necessary qualifications are a gain in altitude of 1,000 metres, a distance (measured in a straight line) of 50 kilometres, and a flight of five hours' duration. You may combine distance and height or duration and height in the same flight, but the duration flight must be terminated on the same field from which you took off. Here the slope soaring people have a definite advantage, for it is infinitely easier to stay up for five hours in a steady up-current than it is to fight your way from thermal to thermal or cloud to cloud. Height, on the other hand, is much easier in countries with clear skies than in our cloudy England, though now the technique of wave soaring is being studied great heights should no longer be exceptional. Distance is probably easier under cloudy skies, though navigation then becomes much more difficult. Here, too, the problem of retrieving crops up. If your Club possesses an aeroplane and can fetch you back in tow that same evening you are lucky. More often the fact that you have to get back somehow and be at the office on Monday morning decides your destination. Double summer time is a distinct advantage, for it means distance flights can be made on Saturday afternoons with a reasonable chance of covering the fifty kilometres well before thermal conditions pack up. In the tropics it is dark by seven, and very possibly all up-currents will have ceased by four. Here we can go on flying till well after eight o'clock for most of the summer, and it is still daylight until nearly midnight. The retrieving crew can arrive and have the machine dismantled and in the trailer before it is too dark to find a dropped spanner.

When you set out for your five hours or your distance, remember that cold, hunger, or discomfort can force you down. There is little you can do about the discomfort. Sailplanes are very narrow and anyway parachute and safety straps leave little room to wriggle, especially as you will need plenty of warm clothes. The temperature varies enormously but mainly from " cold " to " colder," and draughts sweep in around your legs and the back of your neck. It is a good idea to pad your ankles with newspaper, and to wear your socks up outside your trousers like a skier. A scarf, a thick jersey, and a leather jacket will not be too much even if the ground temperature is in the nineties, and it is as well to have a pair of gloves. If your machine is open you will need a flying helmet and a good pair of goggles.

Then, too, you have to think of food—fruit for hot weather, chocolate for cold, together with malted milk tablets or something of that kind. And maps. And money. And the telephone number of your retrieving crew.

It is better to have the permission of your Instructor before you contemplate a distance flight. With his greater experience he can tell you what conditions you are likely to meet and can point out to you on your own map the most obvious landmarks. Once you are sufficiently expert to be fairly sure you can get where you please a retrieving crew can set out soon after you get away and you can arrange that they telephone back to the Club every so often for news. Then when you eventually land they ought not to be far behind you. But for a beginner this is obviously useless, and you have to reckon that it may be many hours before you can be fetched home again. It is as well to have some stakes and ropes to secure the machine in case you have to leave it unattended while you find a telephone, though in England people will probably materialise out of nowhere as soon as you land. The problem then is to keep them off the sailplane and it is better to pick out the most responsible looking citizen and ask him to stand guard.

You will usually have had time to choose a good landing ground and it pays to keep one in mind whenever you are losing height. If you are being retrieved by aerotow see that the field is big enough and level enough for the plane to take off again, and if by road that you are not going to have to lift the glider over several hedges to reach the car. When landing in a ploughed field the direction of the furrows is more important than the direction of the wind. Avoid marshy soil and growing corn, and if there is nothing below you but a forest remember

that you can damage the machine much less by landing gently on the treetops than by crashing into their trunks in too small a clearing. Watch out for high tension and telegraph wires, which have a nasty habit of being much less visible from the air than from the ground. And lastly, if for any reason you have to bale out, first unfasten your safety straps then jettison the cabin cover (if any) and pull yourself out by grasping the nose of the sailplane. This will free your parachute from the back of the seat and make quite sure it is not caught anywhere. Practise doing this on the ground. You will probably never need it, but if you do there isn't much time to think.

VERONICA PLATT.

TESTING OUR SAILPLANE RADIO

By M. M. WAGHORN

SHORTLY before Easter 1947, Len Schultz suddenly announced that he had finished making the 2-way radio set he had designed for Dr. Heydon's Slingsby "Gull." Plans were rapidly made for an Easter week-end trip, and in our spare time during the two preceding weeks, the "Gull" was briefly overhauled and the radio set and aerial were installed.

Early in the afternoon of Thursday, 3rd April, a party consisting of Martin Warner, Selwyn Owen, Pat Neary and Len Schultz, left Sydney in the latter's "Pontiac" towing the "Gull" in its trailer. They were aiming to reach Parkes, about 230 miles due West of Sydney, by midnight. This is just inside the wheat-growing belt of New South Wales, where we found soaring conditions so good both in 1939 and Christmas 1945. Next morning I flew up in the "Tiger" and we met on the R.A.A.F. Aerodrome at Parkes shortly after breakfast.

The weather report for the week-end was not promising; the whole of South-East Australia was in the influence of a region of high pressure which was almost stationary, and over our part of the country a strong inversion existed at about 6,000 ft. We knew we could not expect good soaring conditions and this was borne out by our experiences of the next three days.

The first day, Good Friday, was spoilt to some extent by the discovery that a rear spring in the car had broken. However, whilst Len went back into town to try and get it repaired, we decided to carry on and do some local soaring at the aerodrome.

Martin Warner had a short soaring flight. Sel Owen flew for an hour and did a short out and return flight to a place about twelve miles up-wind. Pat Neary, who is a new-comer to the "Gull" group and had not previously soared in the machine, had a very enjoyable flight of about an hour and 20 minutes, during which he reached cloud base at about 5,000 ft. There was still every evidence that the inversion still existed, however, as the clouds were extremely shallow and their tops were all at the same level.

Meanwhile, Len returned with the good news that the spring was repaired, and as soon as Pat had landed, the radio, resplendent in black "crackle" lacquer finish, was installed in its shockproof quick detachable mountings in the "Gull." A few scientific looking tests were carried out to ensure that the aerials were tuned, and after we had all been given a lecture by Len on the "drill" for transmitting, I towed him off in the "Gull" seven or eight miles from the aerodrome in order to check reception. After carrying out some tests on the tow, he finally released at about 2,500 ft. I got back to the ground fo find that the radio was working perfectly. Martin Warner, in a very professional voice, was conversing with Len, preceding all his remarks by the approved call sign "VK-2ANM to 'Gull'." What with this, the "Over to you—over" and "Rogers" that were flying about, one half-expected to hear him suddenly yell "Tally-ho—three M.E.'s!"

After flying around for a while at 4,000 ft. or so, Len announced that he would do some aerobatics, during which we unmercifully, if not rudely, criticised him from the ground. After he had landed we put away the "Tiger" and "Gull" in the hangar, thoroughly satisfied with the first day's tests and departed townwards for a drink.

The next day, Saturday, was not promising in appearance, but after one abortive launch, Sel Owen managed to get away in a weak lift at 11.45 a.m. As soon as he got to 3,000 ft. he set off across country in a southerly direction towards Forbes, and the car and trailer immediately followed, keeping in regular contact with him on the radio every fifteen minutes, as had been agreed. However, conditions were pretty grim and he found he had to struggle very hard to maintain height and was down to 1,000 ft a couple of times during the first hour and a half. His average ground speed was not more than about fifteen miles per hour, so the car found it very easy to keep up with him, and at times even to keep him in sight.

However, Sel, being an airline pilot and presumably accustomed to such juggling, found it quite possible to transmit on the fifteen minute schedules, struggle with weak thermals and even to transmit several times to amateurs throughout the country so that Len could get reports of reception through the Wireless Institute.

After two hours the lift died away altogether and Sel was forced to land after having travelled about 30 miles in two hours. From the paddock in which he landed, which was about half a mile from the road,

Sel was able to see the car and trailer coming along and even to tell them on the radio when they had passed the turning into his field.

As it was still quite early in the day, I flew over and we launched Martin, but there was no lift and thermal activity had completely ceased. Next day it was my turn and after two launches on which I failed to soar, I finally got away at 12.15 p.m. and circled in about 3 ft. a second lift to 4,000 ft. I stayed in the vicinity of the launching paddock and reached the base of several flat looking little clouds, but in each case the lift disappeared completely within two or three hundred feet of cloud base. I was keeping in touch with Len in the car. The procedure used was to transmit immediately after the release from the aeroplane and then at ½ hour intervals. The radio was easy to operate. I wore the head phones all the time and merely switched on and used a hand press-to-talk microphone for transmitting.

After hanging about in the vicinity of Forbes for half-an-hour I was exhorted by Martin on the ground to "get cracking," as conditions were not going to improve. So with that difficult decision "to go or not to go," made for me, I set off rather doubtfully.

On one of the early schedules Len told me that he was going to wait until I got far enough across country for the transmission and reception to be fading before setting off with the car and trailer, and so I carried on reporting my height and position every ½ hour. The clouds cleared away and conditions improved.

It made the soaring very much more interesting to be able to exchange comments with the people on the ground every now and then. The only difficulty I ran up against was that ½ hour schedules always seemed to occur after I had flown for some distance in sink and had just found a little bit of lift. This necessitated circling carefully, watching the variometer to try and centre the thermal and at the same time talking intelligently into a microphone.

When half-way between Marsden and West Wyalong, after having flown through several patches where the reception and transmission was bad, Len told me that he was about to start from the paddock 45 miles away.

After waiting for half-an-hour Martin Warner and Sel Owen took off in the "Tiger," flew 30 miles along the road and landed in a paddock beside it and waited for the car to come along with the latest news of the "Gull's" whereabouts. By carrying on in this way, with intermediate landings at West Wyalong and Tallimba Crossing, both the "Tiger Moth" and trailer were able to keep within 30 or 40 miles of the "Gull" all the while.

Whilst over West Wyalong and at a decent height, I carried out some experiments for Len by flying on Easterly, Southerly and Westerly bearings for a time, whilst transmitting continuously so that he could find whether the orientation of the aerial had any effect on the range. As far as I was concerned, it didn't.

Between 3.30 p.m. and 4.00 p.m., I struck a period when lift was very scarce, so we arranged to reduce the time between scheduled transmissions to five minutes. The flight continued uneventfully, except for an occasion when I was able, during a transmission, to tell them that a large and ferocious-looking eagle was formating on my inner wing tip at 4,500 ft. until 5.15 p.m. when I landed in a paddock some distance from the road. The flight had taken five hours, and a distance of about 90 miles was covered. Only one thing marred my satisfaction—the barograph had stopped inking after 2 hours so the Silver "C" is still a dream.

My last transmission to the trailer party was made at 900 ft. After landing, I propped the wing up into a horizontal position and continued to transmit, as had been agreed, every fifteen minutes. On the third try I distinguished, but could not understand, a message from Len, and on the fourth schedule he came in loud and clear. By this time a local farmer and his wife had arrived and I was able to send them off on to the main road to act as guides and warn the party with the trailer, by radio, to look out for them. The trailer finally arrived with Len and Pat Neary after dark, and we proceeded to camp there and then. The "Tiger" had landed at a town 12 miles away.

Due to difficulties in obtaining petrol and oil for the aeroplane during a public holiday, Easter Monday's flying was badly handicapped by a late start. However, Len Schultz got away on the first launch at 2.15 p.m. from a paddock close to the one in which I had landed, and proceeded to make good time towards Temora. The party with the car had more packing up to do than usual and were a little late in starting. However, they were able to keep in touch quite well, except for periods when the car was hemmed in by buildings or trees, which reduced the efficiency of the aerial. It was a great pity the launch had been so late because Len would doubtless have done by far the longest flight of the trip on this day. About two hours before his launch, some active-looking, although small, clouds had formed in streets for a time. As it was he landed after 3 hours in the air, 50 miles away from his launching point just beyond the town of Temora, within 45 minutes of sunset. He had reached a maximum height of 7,000 ft.

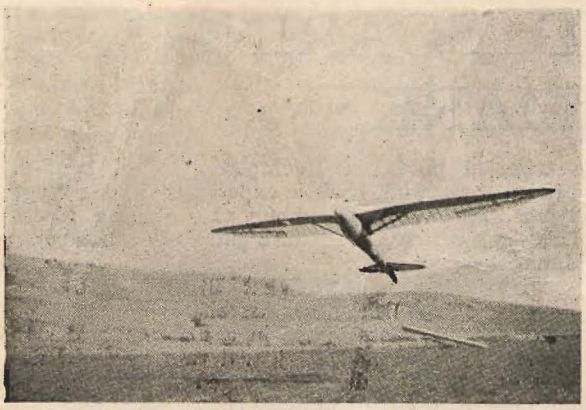
The party with the car, who were some distance behind him, located him entirely by radio, after dark. Len had landed close to a main road and as the transmissions got louder and he knew they must be close, he asked them to switch their headlights on and off as they drove along the road. In this way, without any outside help whatsoever, the trailer located Len and the "Gull" in the field in complete darkness. The "Gull" was immediately de-rigged and the party set out for an all-night drive of some 300 miles, which ended in them getting back to Sydney at 7.00 next morning.

Our final conclusions on the week-end are that a radio increases enormously the pleasure of cross-country soaring, especially for the people following in the car. The news gets particularly exciting as the end of the flight approaches and the pilot is able to pass on his thoughts and fears of the landing which is soon to come. I cannot comment technically on the radio; I believe that is going to be described thoroughly in a separate article, but there is no doubt that from the point of view of an ordinary pilot, the equipment is perfect.

THE THRILL OF SOARING FLIGHT

By "PIKKIE" HAMMOND

THE first post-war Gliding Rally to be held in South Africa commenced on 13th October, 1946, at the Defence Gliding site at Quaggapoort, situated about 5 miles west of Pretoria.



The "Kirby Kite" in which the flight was made

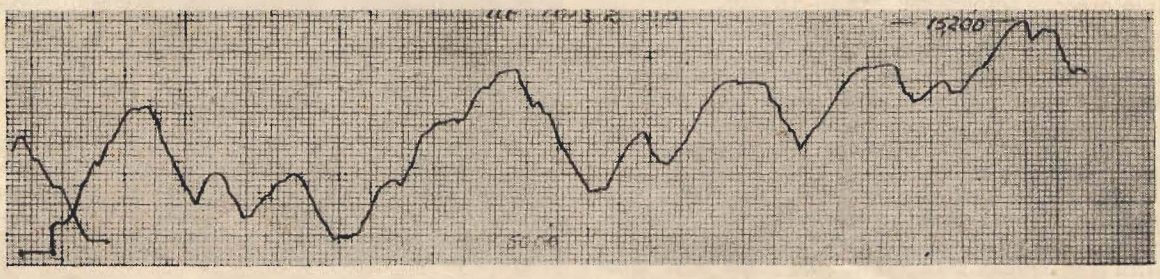
During the first few days the weather was unfavourable and very little was accomplished. During the latter part of the Rally, weather conditions improved, with the result that some good performances were made, including my own flight of 15,200 feet above sea-level.

There was a north-westerly wind of about 10 miles per hour prevailing which determined my nomination of an airfield on the outskirts of Witbank 70 miles east of Pretoria as my goal. After being winch launched in a "Kirby Kite" (open cockpit type) sailplane to a height of 1,000 feet I immediately started circling. On finding a good thermal I gained height to 6,000 feet above my release point in about 20 minutes and headed east downwind over Pretoria. After a few minutes I found myself losing height so rapidly that I decided to make for a small airfield just north of Pretoria, which I reached at 2,000 feet. I found some thermals here and gained a bit more height but soon this thermal faded out and I found myself losing height once more. This time I really made up my mind to land on a small ploughed field near a farmhouse. As I made my approach to land I felt a small up-current which gave me new courage. I did a quick circle to investigate and slowly I began gaining height. To my great delight soon afterwards the force of the thermal increased and I felt that this was another opportunity to reach my goal. At a height of 8,000 feet, after being in the air for just over 2 hours, I flew over the Premier Diamond Mine, which is 30 miles east of Pretoria and also the ploughed hills near Pretoria, which nearly saw a premature ending to my flight. It may be remembered that the world famous Jonker diamond was found near the Premier Mine. Thinking about diamonds and looking at the great big alluvial hole, my attention was momentarily distracted and I lost the thermal I was in. My concern was short-



'Pikkie' Hammond in cockpit of "Kite"

lived as soon afterwards I found several small thermals which seem to be numerous in this area. After a few ups and downs I found a steady one, which I used to good advantage. But as the thermals appeared to be very weak and with Witbank 130 miles away, still as my sole object I looked round anxiously. Away to my right I sighted a grass fire. I decided to fly in that direction thinking that I may encounter some good lift there. On my way I passed through some very tough and bumpy up-currents which made me forget all about grass fires



'Pikkie' Hammond's barograph

instantly. I battled with the elements trying to find the greatest lift area. As I gained height the lift became steadier. The lift was fairly strong and soon I reached a height of 15,000 feet. At this altitude I was experiencing extreme cold, and as I was only lightly clad it was with great reluctance that I left this wonderful thermal and at an altitude of 15,200 feet I decided to head for my goal. Steadily as I was losing height I was making distance. I arrived over my destination at 5,000 feet. I experienced a great thrill of satisfaction as I circled round deliberately losing height to make my landing at Witbank Airfield 70 miles away from Pretoria precisely 4 hours 11 minutes after being launched at Quaggapoort. The lift I experienced throughout my flight was on an average of 5 feet per second.

GLIDING AND SOARING IN DENMARK.

THE first experiments with motorless flying in Denmark were carried out in 1909 by E. Dessau and J. E. Nyrop. They had designed and built a glider, which, placed on a special railcar, could be started down a hill-side.

As a first start with a human being was forbidden by the authorities, a sandbag was placed in the pilot's seat. A special pendulum control, invented by the Dane Ellehammer, the first man in Europe to fly, should have stabilized the glider. The first start however had no success as the glider crashed and gliding was put on the shelf until later.

In 1923 after a lecture in the Royal Danish Aero Club, held by the German glider-pilot Martens, interest in motorless flying was roused again.

In the following years different experiments with German and Danish gliders were made, but it was not until 1933 that the first " A " Certificate was acquired and in 1934 and 1936 the first " B " and " C " Certificates were taken.

The first real results were obtained in 1936 when the Danish sailplane duration records were increased by 30 and 32 minutes with a " Grunau Baby II " in the upwind at the steep cliffs at Tisvilde in North-Sealand.

In 1938 F/Lt. Frits Rasmussen, who was killed in the Finnish winter-war 1940, was the first to earn the Silver " C " Certificate and in 1939, J. Erikson set up a Scandinavian duration record for 12 hours. He used a re-built " Stamer-Lippisch " glider.

The German occupation of Denmark on the 9th April, 1940, put an end to all flying except model-flying. Some months later gliding was again allowed but only at five places and the maximum height was not allowed to exceed 200 metres. In spite of these strict stipulations the glider-pilots went on with their training.

In order to employ the Danish Air Force pilots the Danish Government ordered the building of some " Schulgleiter SG-38 " and " Grunau Baby IIb " with which the unemployed pilots trained eagerly. As all Danish military forces were imprisoned in 1943, military gliding ceased, but these years made the Danish Air Force realize the importance of gliding and soaring flying.

After the end of the war in Europe the glider-pilots again won supremacy in the air over Denmark. H. W. Jensen set up a very fine record in 1946. With a " Grunau Baby II b " he made a 40 miles flight, reached a height of 9,600 ft., and flew 4 hours and 27 minutes in thermal soaring. The same year a team of pilots were competing in Alleberg in Sweden, but owing to little experience in long range flying they were not among the winning terms. This was the first time Danish glider-pilots competed abroad.

DANSK SVÆVEFLYVER UNION (DSU)
(Danish Gliding Association)

In 1934 all pilots joined in a union in order to promote the sport. DSU joined the Royal Danish Aero Club and gradually arranged training camps, educated instructors and made co-operative purchase of materials for glider building in order to make the sport as cheap as possible.

DSU is operated by a committee chosen by all clubs in the country. The chairman is E. Dessau, the pioneer from 1909, and the daily business is attended to by a skilled glider-pilot and engineer.

In comparison with e.g., Sweden the glider-sport in Denmark is of a very small size. This is due to the fact that the whole sport economically must be borne



" 2G " Danish 2-Seater Trainer.

by the pilot himself. He has to pay a contingent to his club, to DSU and to the Royal Aero Club.

The sport receives no subsidy. Only once in the history of DSU has the Danish state given financial support. That was in 1941 when the state gave them £1,750, thus enabling DSU to build five " Grunau II b's," but it was more as an employment measure in order to keep the wheels in the military factories running, than as support to the economically weak DSU.

If DSU do not get some subsidy to educate instructors for the clubs to buy performance sailplanes and necessary ground equipment such as winches etc. a very slow development of gliding is to be expected, and the Danish chances in competitions abroad will be insignificant.

But in spite of the difficult conditions the pilots are continuing the work, looking forward to the day the government will see the importance to youth of this improving and educating movement and encourage it by giving a subsidy. Without this there will be no Danish sailplanes participating in the Olympic Games in 1948—if the sailplane competition will be admitted to the Games at all.

The following figures show briefly the present extent of the sport in Denmark.

About 40 clubs with altogether 1,000 members have joined DSU. The clubs possess 31 gliders 15 sailplanes (" Grunau Baby IIa " and " IIb ") and one performance sailplane (" Olympia ") ; and furthermore 16 gliders, 11 sailplanes and 1 performance sailplane are being built.

Up to the 18th February 1947, the following Certificates were acquired : 761 " A " Certificates, 422 " B " Certificates 272 " C " Certificates 67 " S " Certificates 3 Silver " C " Certificates no Golden " C " Certificates.

In 1945, 13,175 starts in gliders and sailplanes compared with 16,004 in 1946 were made.

Danish glider and sailplane types. During the last few years various Danish designs have seen the light. The general opinion is that the " Schulgleiter SG-38 " is no longer up-to-date and an easily built glider with better performances is much needed. The " Polyt," designed and built by students at the Technical High School in Copenhagen seems to fulfil this wish and is furthermore approved by the Danish Air Ministry. The " Polyt " has already been built in several clubs and it differs from " SG-38 " in the fact, that it is double-strutted, has a torsion-stiff tail-boom and is better shock-absorbed. The airfoil used is Gottingen 497 and the gliding angle is 1 : 12

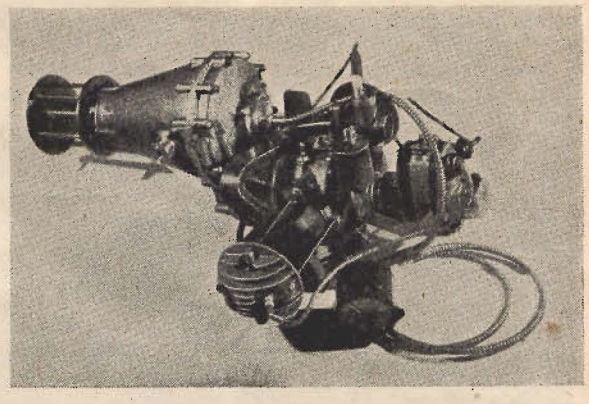
Danish glider pilots have just like their Swiss friends realized that the education of glider pilots is too slow in the ordinary way. Instead of single-seated " Primaries " they will have two-seaters, enabling the instructor to go in the air with his pupil and instruct him during the flight and not after The duration of the training will be much shorter, the training itself more intensive as the instructor can correct his pupil in the same moment he makes a wrong manoeuvre and the instructor himself will get more flying.

For this purpose a two-seater primary " 2 G " has beeen designed by engineer Hogslund. The test flights have completely fulfilled all expectations. " 2 G " has a gross weight of 700 lbs. with two passengers gliding angle is 1 : 13 and sinking speed 26 m.p.h. (1.15 m/sec.). For the time being an interesting motor-glider is under construction in Copenhagen. Two sailplane pilots and engineers Johansen and Zöylner have produced a selt-designed 2 cyl. 4-stroke horizontally-opposed motor giving 18 h.p. at 4,000 r.p.m. (1,520 propeller r.p.).m and a gross weight of 53 lbs.

The motor will be installed in a single seated sailplane which the engineers have designed for this purpose. The motor-glider has the following data :

Airofoil NACA-N60, gross weight 550 lbs. including motor, wing area 122 sq. ft., gliding angle, 1 : 20 (with propeller freewheeling), sinking speed, 20 m.p.h. With motor-power : cruising speed, 62 m.p.h., maximum speed 78 m.p.h., and maximum climbing speed 54 m.p.h. With this motor-glider the constructors expect to carry out studies of the thermal conditions over Denmark which can be of great use for all sailplane pilots.

All this should show that Danish pilots are working eagerly and with an unyielding confidence in their sport. Therefore they cannot understand what took place in Denmark after the capitulation. The Germans left in Denmark about 25-30 fine sailplanes



The Danish 18-h.p. horizontally-opposed motor.

of different types (" Kranich," " Olympia," " Govier," " Rhönsperber," and " Minimoa ") to an amount of about £25,000 and DSU were of course interested in the purchase of some of these performance planes, but all applications were useless. All the planes were burnt in Denmark or transported the long way to Germany to be burnt there. With some of these planes the sailplane and glider sport in Denmark would have been 10 years forward in development to-day.

THE GULL FINDER—(*continued from page 2*)

Mountain, 5 miles away and about 500 ft. higher, in clear line of sight. We then found that the signals were unreadable compared with full strength when using the vertical aerial. But with the " Gull " in the air signals were again full strength, using the horizontal aerial at both ends.

The answers to these results have not yet been decided upon, but it is considered desirable and possible to improve the ground to ground range in some way. One way which would assist is a change in frequency, but in this respect we are bound to remain on the allotted channel. After some further tests, it is anticipated improvements will be made.

The writer would appreciate any comments from readers who have studied such a problen as the one presented.

HOW BIRDS MAINTAIN THE GLIDE

By ERIC HARDY, F.Z.S.

MASTERPIECES of bird flight, the endless gliding performances of the albatrosses that follow hour upon hour in the wake of a ship crossing the tropical seas, or those of their relatives the fulmars which may be seen around our own coasts in summer and in the cold nothern seas throughout the winter, bring forth the admiration of every amateur aviator. For it is when a bird soars or sails with wings extended like those of a glider that it comes nearest to the flight of man-made machines. By slight adjustments of the wing to meet the changes in air current, birds maintain height for considerable periods, and the type of wing they use varies from the long narrow wing of the albatross to the broad, almost rectangular wing of the vulture. I have watched the griffon vulture, which is bigger than an eagle, circling high in the sky over the eastern deserts with only an occasional visible movement of its wings. The buzzard does much the same, but for shorter periods, over the mountains of Wales and Lakeland, and our larger gulls like the black-backed gull and the herring-gull will maintain prolonged sailing flight against an uprising current of air.

The seagull flies much like a plane, for with an almost negligible expenditure or energy it takes advantage of both the natural air currents and those created by itself for support and motion. It has a similar method of steering with its tail, and turning up or down the rear edges of the wings for manoeuvring. If a stiff breeze is blowing all that is required in many instances is to extend the wings at a slight upward angle to the horizon so that the underparts of the wing present kite-like surfaces: the rapidly moving air flies the bird. When soaring or rising, the buzzard that is using a stream of air too small for it to turn in, moves rapidly as soon as its spiral takes it out of the thermal current, swinging round in a circle until the rising air current again pulls it up sharply, so sharply that the quill tips open out like the slots of an aeroplane and prevent a stall, or loss of flight control, but produce that ragged appearance of the wing tips.

The bird's skeleton is constructed to meet the mechanical needs of its flight. The bones of the back and loins are relatively few and are connected together firm enough to form a nearly inflexible column, and there is a high keel on the breast bone to provide a base for attaching the powerful breast muscles which move the wings. Flightless birds like the ostrich have no such large breast keel. You will see that the quills or " flight feathers " are narrower towards their tips, so that when the wing is extended they can control the size of the " slots " which prevent stalling. Moreover, the feathers are worth a little further study, for there is more width of feather behind than in front of the shaft or stem, so that the centre of air pressure is behind the shaft and the feathers twist upwards at the rear edge.

The first forms of gliding in bird flight are not when the pigeon glides on to its loft with half-extended wings, for that is mainly the principal of the parachute. We see it in large birds-of-prey, and sometimes storks and herons, which have a sailing flight, whereby a few beats of their proportionally large wing-surfaces are followed by a rest, and the bird sails along with outstretched wings that appear to make no movement for a few minutes, when a few more beats are given to maintain height. Slight variations of wing position enable the gliding bird to take advantage of helpful currents: the stillness of the bird is only apparent. A bird cannot " sail " in perfectly still air for any long period, otherwise it would break all natural laws relating to falling bodies.

In the air the gliding bird is in perfectly stable equilibrum. Its wings are attached at the highest point of its chest so that the weight of its body hangs below them. In order to produce a reaction against the resistance of air which repells the body upwards and forwards, the wing acts upon the air like a wedge or an inclined plane. If you open out the wing of a dead bird you will notice that it inclines both downwards and backwards, while near its extremity it is horizontal and somewhat slightly turned up, so that its under surface is directed somewhat backward. The outstretched wing of a gliding bird possesses a relatively great area and is markedly convex on the upper surface and concave on the lower, like an open umbrella. The advantage of a structure of feathers attached to a prolongation of the arm-bones is that in the upward beat of the wing its feathers will turn, like an oarsman feathering his oar, and lessen the resistance to the air. And as the direction of the wing can be altered in accordance with the direction of the air currents, and the fan of tail feathers can be opened or closed, raised and lowered, or turned at various angles, to act as a rudder, we have in the gliding bird a complete piloting of its body as air currents change. A breeze is necessary of course for the buzzard's successful soaring, and then the bird uses its wings as a yachtman uses his sails, to select those forces of air which move it in the desired direction even when this is almost in the teeth of the wind.

Although the " air sacs " in a bird—there are nine in the pigeon—extend along the hollow wing-bones and thus lighten the bird and help to " float " it in the air, their main purpose is presumably to cool the bird's body from the great heat created by its expenditure of energy, and to store reserves of air for respiration.

The following table illustrates my remark that the great gliders and hoverers have a proportionally larger wing surface than the birds which do not glide.

Name.	Approximate Weight in grammes.	Wing Surface sq.c.m.	Wing loading in pounds per square foot.
Vulture ..	1535.00	3233.0	.864
Kestrel ..	128.94	642.0	.288
Kite ..	620.14	1904.0	.6624
Barn-Owl ..	128.94	442.0	.5904
Water-Rail ..	170.50	101.0	3.312
Great Tit ..	14.50	31.0	1.440
Blackbird ..	88.80	106.0	.720

THE SAILPLANE

Birds with relatively short wings cannot make good gliders, and although they also have a habit of occasionally resting the wings in flight, it is by closing them between the short flurries of wing-beats, which mark the undulating flight of finches. The little goldcrest for instance has a wing-expanse of but 6 ins. and the bullfinch of 9¾ ins., compared with 36 ins. in the case of the barn-owl and 70 ins. in the case of the gannet. But the influence of body weight is shown by the fact that the British bird with the greatest wing-span, the mute span, with a spread of 86 ins., is not a glider. Its body weight is over 18 lb. On the other hand the heron with a wing span of 68¾ ins. has a characteristically sailing or gliding flight, for despite its size this grey bird of the waterside weighs only 3½ lb. The greater black-backed gull, a very successful glider, has a wing-span of 63 ins. but a weight of only 2 lb. 14 oz., whereas the pheasant, weighing but a few ozs. less, has only half this wing-span and can but use a parachuting glide back to ground after its initial flight for height.

THE WORLD'S GREATEST THERMAL



JOINT ARMY-NAVY TASK FORCE Photo.

This photograph taken from a A A F plane shows the steam cloud rising from the under-water atom bomb test carried out on the 25th July, 1946. The column is expanding high into the air and outwards from the base, engulfing ships in the lagoon.

B.G.A. ANNOUNCEMENTS

Application of Kemsley Flying Trust

THE Board of Trustees of the Kemsley Flying Trust held their first meeting on 28th July, 1947.

The Trustees are now in a position to announce the broad principles of what is required by them from Gliding Clubs making application for loans.

General. The Scheme to be administered by the Trustees has been drawn up largely on the basis of the Scheme of application of the gliding subsidy which existed before 1939 and which worked well in practice. It has been adapted to embrace such other interests as the Light Aeroplane and Model Clubs.

Application. (*a*) Immediate financial assistance may be given to existing gliding clubs by loans on terms mutually agreed upon for purposes of expansion and consolidation where certain basic conditions are complied with.

(*b*) New clubs who show a reasonable prospect of becoming self-supporting organisations may similarly be assisted subject to the fulfilment of certain basic conditions.

The Trustees are informed that it is advisable that claims for assistance should be considered on a regional basis, and when more than one organisation exists in a particular locality they should be encouraged to amalgamate their interests.

Where a Club or Organisation is a member of a recognised Central Association (*i.e.* the B.G.A. in the case of a gliding club) any claims or requests for assistance shall in the first place be made to such Association and considered and investigated by a Standing Sub-Committee appointed by the Association for that purpose, before being passed on to the Board of Trustees with any recommendations and observations.

In cases where an organisation or individual is not represented by a Central Body, any claim for assistance should be investigated by the Secretary to the Trustees, who will make his report and recommendations to the Board of Trustees.

Purpose for which loans may be made. It is primarily intended that loans shall be made for the provision of capital assets, but variations from this principle in particular cases may be made at the discretion of the Trustees.

Capital assets shall include :—

(*a*) Sites and airfields of proved suitability for the purpose for which they are intended.
(*b*) Storage and maintenance accommodation for aircraft and equipment.
(*c*) Aircraft and major equipment necessary for their operation.
(*d*) Club house accommodation.

Amount of assistance. In order that a Club or other Organisation may prove its capacity for self-help and to ensure full appreciation of the benefits derived from the Trust, it is considered that they should be prepared themselves to make contribution towards the purchase of capital assets. This will also ensure the investment of an effectively larger capital sum than that offered by the Trust, and is likely in deserving cases to attract assistance from other sources.

The terms of security, repayment and rate of interest are at the discretion of the Board of Trustees. The amount available is £100,000, spread over a period of seven years.

Conditions Governing Loans. In the absence of special circumstances it is proposed that the following shall be the basic conditions of any loan :—

(*a*) Security of tenure of a suitable and approved site or airfield.
(*b*) Clubs and Organisations wishing a loan shall be required to form themselves into a Limited Liability Company or Friendly Society.
(*c*) The Trustees shall satisfy themselves that a Club to which a loan is made is operated to satisfactory standards of instruction and maintanance.
(*d*) The Trustees or their representative shall be permitted reasonable access for inspection purposes to any premises, buildings or equipment which is the subject of a loan and to request the production of a balance sheet.
(*e*) In the case of Clubs and Organisations whose assets are vested in the Directors and Shareholders of a Private Limited Liability Company the Trustees may require that any loan shall be secured to the Board of Trustees by allocation of Shares or such other security as the Trustees may accept.

Documentary Proof. The following list of documents which may be required by the Board of Trustees in considering applications from Clubs or similar Associations is appended for information and guidance :—

(*a*) Lease or tenancy agreement in respect of the site.
(*b*) Ministry Licence or other certificate of approval of the site for the purpose for which it is intended.
(*c*) Certificate of approval from the Licensing Authority (or other recognised Central Authority) in respect of the Chief Flying Instructor and Ground Engineer(s).
(*d*) Approval of the Local Authority, Building License, Architects' Certificate and Builders' accounts in respect of any building loans.
(*e*) Certificate of Airworthiness, Certificate of delivery in good condition and manufacturer's invoices in respect of aeroplanes or gliders.
(*f*) Certificate of delivery in good condition and manufacturers' invoices in respect of equipment or component parts.
(*g*) Copy of Memorandum and Articles of Association, for retention.
(*h*) Copies of audited accounts and balance sheets, for retention.

As announced in Para. 5 of Circular No. 5/47, the Council of the British Gliding Association has set up a special Kemsley Committee to co-ordinate gliding club schemes before submitting them to the Board of Trustees.

The Secretary of the Trustees is Lord Kemsley's representative, Mr. B. Meads, whose services are available to the Clubs for the purpose of advice and general assistance in preparing their claims. Clubs wishing to avail themselves of this service should inform the Secretary of the B.G.A. The Trustees appointed are, The Duke of Sutherland, K.T., P.C. ; Captain H. S. Broad, M.B.E., A.F.C., ; H. W. H. Moore. ; Col. R. L. Preston, C.B.E. ; Commander A. Goodfellow. ; Wing-Commander J. R. Ashwell-Cooke, M.B.E.

Clubs wishing to make application for loans are therefore invited to do so. Letters should be addressed to the Secretary of the British Gliding Association, Londonderry House, Park Lane, W.1.

The R.N. Gliding and Soaring Association have been accepted as a temporary Associate Member. The Northern Gliding Club has transferred to Associate Membership.

At its last meeting the Council of the B.G.A. instructed me to bring to your attention the danger of permitting gliders of a type not officially approved being flown by Club members on Club sites.

The Council feels that if a serious accident were to occur during such flights, not only might the Club find itself in a difficult legal position, but also the efforts of the B.G.A. to avoid the future imposition of Statutory Certificates of Airworthiness would be prejudiced.

As far as the manufacturers of gliders are concerned, the B.G.A. Flight Test Group (which co-operates closely with the A.R.B.) is available at very little cost to do any necessary handling, stability and performance testing. The indiscriminate test-flying described is, therefore, entirely unnecessary and valueless except possibly in the case of particularly experienced pilots whose opinions might be worth having.

The Council therefore strongly urges all Clubs to issue and enforce regulations covering this matter. For its part, the Council has requested its Technical Committee to prepare and keep up-to-date a list of all gliders which are type approved.

You are asked to bring this matter up urgently before your Committee, and it would be much appreciated if you would advise the Council, through me, of any steps taken.

The following have been appointed by the Council as a Committee to check, co-ordinate and forward Club schemes to the Kemsley Trustees, with powers to co-opt :—

Mr. D. G. O. Hiscox.
Mr. B. Thomas.
Mr. T. Rex Young.
Mrs. A. C. Douglas.
Mr. B. Meads (Lord Kemsley's representative).

C's of A.

The Air Registration Board requests that the notice of Clubs, and of individuals, constructing gliders be drawn to the fact that if a C. of A. is required it is essential that the Board shall have the opportunity of inspecting the gliders during construction. Instances have occurred when the Board has been first approached when the construction is almost complete.

Tephigrams.

A stock of these is now available through the courtesy of the Meteorological Office. They are printed on each side.

The cost is 2/- per dozen.

Certificates and Badges.

A recent meeting of the Council of the British Gliding Association, to which the Royal Aero Club has delegated the issue of gliding certificates and badges, has reviewed the charges for the issue of Certificates and Badges in the light of post-war costs and a year's experience.

After full discussion and consideration of all the circumstances it was decided that it was necessary to suspend the issue of certificates at half price to certain organisations. The Council regretted being forced to make this decision but considered it inevitable in view of the increased charges of printing, staff labour required for making out the certificates, recording and card indexing, postages, and also the increased cost of the badges themselves.

There will, however, be no increase in the charges for certificates, which will remain what they were before the war, *i.e.* 5/- each.

The charges for badges will henceforward be a flat rate of 5/- each for the " A ", " B " and " C " badge, with a 2/- refund for any blue enamel badge returned in good condition in exchange for a higher category badge. Silver and Gold Badges will remain at 10/- each.

The alteration in charges will take effect from the *1st September*, 1947.

International Contests, 1948: Seeded Pilots.

As a result of the 1947 Contests, and for other reasons in certain cases, the Council requests all Clubs to give special facilities to the following pilots, all of whom are considered to have claims for consideration for the 1948 Contests.

Captain R. C. Claudi.
Mr D. P. Dewsbery.
Flight-Lieutenant R. C. Forbes.
Mr. F. T. Gardiner.
Mr. D. F. Greig.
Mr. T. S. Haynes.
Mr. W. Morison.
Mr. C. Nicholson.
Flight-Lieutenant J. A. Pressland.
Mr. G. O. Smith.
Mr. G. H. Stephenson.
Mr. L. Welch.
Mr. C. J. Wingfield.
Mr. P. A. Wills.

The Council wishes to stress that this list is not exclusive. All pilots carrying out meritorious flights will be considered, and Clubs are specially requested to give encouragement and help to all promising members, and to bring outstanding flights to the notice of the Council.

E. H. D. SPENCE, *Secretary*.

BRITISH NATIONAL GLIDING CONTESTS 1947

(*Goal Flights in italic*).

Sunday, 22nd June

Contest No.	*Name.*	*Distance flown.*	*Landed at :*
27	Wills	*56*	*Dunstable.*
11	Morison	36	Brackley.
12	Claudi	22	Weedon.
24	Pringle	17	Daventry.
	Total for day : 131 miles.		

Tuesday, 24th June

27	Wills	75	Lindholme.
7	Nicholson	93	Church Fenton.
8	Sproule	10	Desford.
9	Dewsbery	6	Stoke Goulding.
18	Cole	23	Castle Donnington.
16	Bergel	37½	Hucknall.
25	Furlong	16	Smoyle, between Leicester and Loughborough.
22	Hiscox	16	Smoyle, between Leicester and Loughborough.
15	Armstrong	53	Pontefract.
21	Greig	85	Castleford.
20	Gardiner	15	Nr. Odstone.
Moswey	E. Schaffroth	81	Pontefract.
14	Forbes	*109½*	*Catfoss.*
6	Crease	36	Heanor, 8 miles W. of Hucknall.
12	Claudi	102½	Elvington, E.S.E. of York.
17	Havercroft	*71*	*Finningly.*
11	Bolton	84	Ardsley.
13	F./Lt. Hughes	77	Knotting Grange, N. of Bransley.
24	T. Hughes	60½	E. Retford.
1	Young	58½	Camphill.
23	Horsley	20	Ashby-de-la-Zouch.
	Total for day : 1,129½ miles.		

Wednesday, 25th June

5	Ellis	52½	Empsons Farm, 10 miles N.E. of Peterborough.
16	Kendall	32	Spanhoe.
10	Welch	*117½*	*Coltishall.*
19	Faulkner	88	Hunstanton Recreation Ground.
20	Fender	67	Ely.
24	Pringle	15	Leicester Golf Course.
7	Nicholson	*104*	*Langham.*
13	Hanks	31½	Grafton Underwood, near Anstey.
25	Rushton	7	Anstey (Kettering).
15	Armstrong	*74*	*Downham Market.*
12	Williams	95	Lavenham Aerodrome.
8	Sproule	*117½*	*Coltishall.*
27	Wills	130½	Ormesley.
1	Turner	59	" Three Horseshoes," beyond Peterborough.
2	Slazenger	*114*	*Horsham St. Faith.*
21	Stephenson	*127*	*Beccles Aerodrome.*
9	Dewsbery	*113½*	*Horsham St. Faith.*
22	Ruffle	*117½*	*Coltishall.*
6	Pressland	*87*	*Manby.*
24	Pringle	44	Grantham Aerodrome.
14	Forbes	95	Watton.
17	Haynes	*120*	*Framlingham.*
23	Horsley	*114*	*Norwich Old Flying Club.*
S. 25	Haberstitch & Fahrlander	126	Happisburgh.
Moswey	J. Seifritz	*118*	*Rackheath.*
	Total for day : 2,166½ miles.		

Thursday, 26th June

14	Forbes	65½	Maltby.
S. 25	Wurth & A. Douglas	106	Full Sutton, E.N.E. of York.
7	Nicholson	*58*	*Gamston (N. of Notts).*
8	Sproule	23	Castle Donnington.
13	Hanks	3	Nuneaton.

BRITISH NATIONAL GLIDING CONTESTS 1947—*Cont.*

Contest No.	*Name.*	*Distance flown.*	*Landed at :*
16	Bergel	23	Wymeswold.
1	Jennings	23	Wymeswold.
21	Greig	22	Loughborough Aerodrome.
22	Hiscox	24	Wymeswold.
24	T. Hughes	24	Castle Donnongton.
25	Furlong	20	Heather, just beyond Ibstock.
26	Neilan	15	Desford.
27	Wills	34	Hucknall.
4	Thompson	37½	Salterford, near Hucknall.
5	Ellis	40	Lowdham Grange.
18	Cole	54½	Near Clowne, E. of Chesterfield.
Moswey	Schaffroth	*60½*	*Skellingthorpe.*
10	Morison	54	Swinderby.
2	Wijewardine	58½	Thorpe Saldan.
9	Dewsbery	72	Doncaster.
20	Gardiner	*72*	*Doncaster.*
15	Robertson	60	Shire Oaks, Near Worksop.

Total for day : 949½ miles.
Total for 4 days : 4,376½ miles.

Friday, 27th, and Saturday, 28th, were unfavourable days, and no aircraft got away from the aerodrome in spite of repeated attempts.

The contests closed at 4.00 p.m. on Sunday, after a few competitors had added to their marks by gaining points for height. No distance marks were awarded. A resume of the mileage covered by aircraft getting away from Bramcote during favourable days is given above. Short flights are not shown.

The complete markings if re-printed in SAILPLANE would occupy five pages, and it is felt that these are not of sufficient general interest for this to be done.

CHARLES WINGFIELD

THE British Gliding Fraternity in general and the M.G.C. in particular are justly proud of the fine performance put up by Charles Wingfield in the recent American competitions. Alone he held the bridge for the British Gliding in the New World, and he very nearly brought back the highest award; in fact he did bring back the highest award for himself—the Golden "C," which is No. 2 only in this country.

Hearty congratulations, Charles, from us all!

One cannot help feeling that, given a little luck he probably would have brought back the major award, and certainly it was not through want of pluck or trying that he failed. He did nearly 50 hours in the air and flew over 1,000 miles in battle against the leading American pilots, who were playing on their own home ground.

During the war Charles saw much service in North Africa on Wavell's staff and elsewhere, and held down a number of interesting jobs. When he returned in 1945, although he already had his Silver "C," to use his own expression he "had to get his hand in" once more. It was quite clear last year that this was fully accomplished, for his flight to Red Hill when he dropped in on Ann Douglas was perhaps the most meritorious flight made from Long Mynd on a British machine.

At the end of this year he was unanimously elected Chairman of the Midland Gliding Club; but before this he had given much valuable service to the Club including the use of his kite "Gracias," to all qualifying Club members.

He is now the happy possessor of a new "Olympia," which he flies with his usual skill; it cannot be doubted that with it he will help to unravel some further mysteries of Long Mynd air-flow in the near future.

As Club Chairman his action qualities and his enterprise make him the keystone upon which the success or otherwise of its operations will depend.

Of these qualities the most outstanding is thoroughness and caution, blended with that spirit of discovery without which life is meaningless; his colleagues would like to take this opportunity of putting on record their appreciation of his past efforts, coupled with a hearty vote of confidence for the future.

C.E.H.

NEWS IN BRIEF

THE Grampian standing wave is to be explored, weather permitting, after September 20th, by Terence Horsley with the support of the Naval gliding contingent. Horsley's articles on this subject in the December 1945 issue of SAILPLANE will be remembered. It should be possible to obtain Gold "C" height in this standing wave, and we are hoping that someone will be successful in this endeavour.

THE B.G.A. Design Contest for the best two-seater Sailplane is not yet decided. The number of competitors has been reduced to six, and it is hoped that the result will be announced in September.

THE Committee of the London Gliding Club has announced that Mr. R. C. Reid has resigned from the post of Chief Instructor.

BOOK REVIEW

"GLIDING AND ADVANCED SOARING"

by A. C. Douglas with contributions by P. A. Wills, C.B.E., and Dr. A. E. Slater. John Murray, 16/-.

THERE are some books which literally take one's breath away. This is one of them, and it does so in two senses. In the first sense there is Philip Wills' own account of his record and altitude flights which are beautifully written, full of interest, and with half-a-dozen invaluable glimpses in every page of the real " coeur " of soaring. Will (or should we say Wills ?) *versus* Matter, such as would only be written by someone who has also what it takes in guts as well. In the second sense one's breath is taken away that so much pedestrian reading matter should have been placed in the same book. What is training " patter," " layout," " tools, materials, jig building and repairs, some (British) soaring sites " doing in the same covers as Wills' stories to say nothing of Dr. Slater's scholarly contributions on History and Meteorology ? Yet there is a lot of sound sense and experience in the nine chapters the authoress has contributed ; and clearly she is almost mistress of her subject. But not quite. The chapter on Geological influences, for example, lacks the one simple scientific truth which could be put into one sentence which would have made sense out of the welter of fact contained therein. The one sentence which I failed to find is simply—" Light colours and hard surfaces reflect heat ; dark colours and soft surfaces absorb it."

The chapter on sailplane design is inadequate and misplaced in this book.

I am disappointed about this book, for I had hoped so much that it might be the English Classic on this subject, but it isn't. The authoress's English gives me the impression she was very tired when she wrote it, and some of it is slovenly, and, distressingly, in her chapters there are misprints and/or printing repetitions which are signs of hasty production and inadequate proof reading.

No, Wills and " the Doc " must write their own books in their own way, and it is to be hoped they will not permit themselves to be the subjects of this sort of " cavalage " again. If the Doc ever writes his own book it will be worth a guinea a minute, but if he does I hope he too will give a little more thought to the " layout " of his matter.

There are some beautiful pictures in the book, but was it necessary to use art paper for the reading matter ?

V.B.

INTERNATIONAL RALLY

(Southend Municipal Airport)

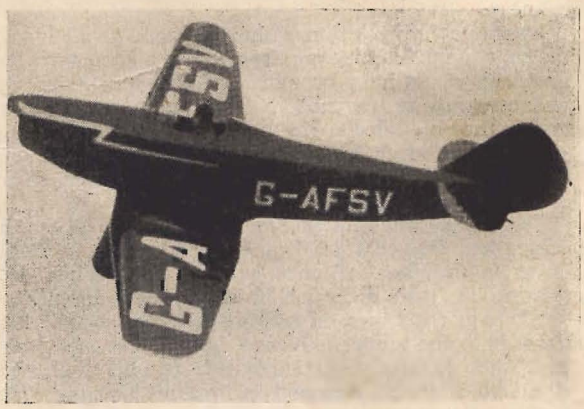
ONE of the most interesting machines competing in the Air Races at the International Rally at Southend Municipal Airport on August the 9th, was the little " Chilton " monoplane.

This tiny machine, with a wing span of only 24 feet and of fighter-like appearance, attracted a great deal of interest and admiration from the large crowd and provided one of the first exciting moments of the afternoon in the second heat of the Southend Cup, when it overhauled all earlier starters only to be caught and passed by the scratch machine, the " T.K.2," right on the finishing line.

Before the final was run off, S./Ldr. R. L. Porteons demonstrated the " Chilton " literally right under the noses of the assembled crowd. At no time during a very polished display was the " Chilton " more than a few hundred feet off the deck and always well within the aerodrome perimeter, a marked and pleasing contrast to the huge 5,000 feet loops of the " Vampires " displayed some minutes previously.

The final proved disappointing to ultra light supporters in that the " Chilton " was not among the first three, but there is little doubt that had the wind dropped the little " Chilton " would have been better placed. It was, however, a gallant attempt and S./Ldr. Porteons had a very trying ride in conditions which were comparatively rough for such a light machine.

The " Chilton " had the distinction of being the only competing machine flying on a " Permit to Fly " as opposed to a C. of A., this " Permit to Fly " being one of the first to be obtained through the efforts of the Ultra Light Aircraft Association. The Association has at last been successful in its efforts to obtain the re-introduction of Permits to Fly, by the M.C.A., and it is to be hoped that other ultra lights will soon be supporting the " Chilton " at future meetings.



The " Chilton " in action at Southend

Details of the " Chilton " with 44 h.p. Train Engine are as follows :—Span, 24 feet ; length, 18 feet ; weight empty, 380 lbs ; all up weight, 650 lbs. Top speed 135 m.p.h.

SOUTH AFRICAN GLIDING

FROM KOPJE TO CLOUD-BASE

THE first post-war South African Gliding Competitions, at Quaggapoort, near Pretoria, showed once again that thermal soaring conditions over the High Veld can be pretty good. No high-performance sailplanes were available, but the equipment of the war-time S.A.A.F. Gliding Wing had recently been re-purchased by the South African Gliding Association, on behalf of the clubs, from a helpful War Stores Disposal Board, and aircraft as unpretentious as pre-war " Grunau Babies " managed altitudes and distances approaching the standards of Bramcote.

The Argus Trophy team prize was won by the Defence Gliding Club with a " Kirby Kite," flown by Major Mayhew—pre-war Silver " C " holder, now Director of Repairs and Maintenance, S.A.A.F.—Captain Connor and Corporal Hammond. Old-timers derived some nostalgic satisfaction from the Defence Club's achievements with the original machine with which Wills introduced thermal soaring to South Africa in 1936, when he established the first S.A. distance record with a goal flight of 32 miles from Quaggapoort to Rand Airport.

The Pidsley Memorial Trophy, for the best individual aggregate, went to Corporal Hammond, who also put up the best altitude—9,600 feet above start, or 14,000 feet above sea-level—during a 70-mile goal flight to Witbank. Readers in more humid climates may be interested to know that this height was attained by plain thermal soaring, without reaching cloud base. Davidson, of Pietermaritzburg, flying the Rand Gliding Club's " Grunau Baby," had reached a height only 400 feet less during a similar goal flight a day or so previously ; it is suspected that the Witbank Flying Club were somewhat intrigued by these planned arrivals of successive motorless aircraft, flying well above even the solo ceiling of the local Piper Cubs. An altitude of 7,200 feet above start was later attained by Dommisse in " Falcon III " with a passenger.

The longest flight of the meeting was made by Rainey in the Rand " Grunau Baby." Picking up a thermal at hill-top level, he crossed Johannesburg after the usual struggle through the Jukskei valley down-draught, which had earned the respect of competitors at the 1938 meeting. With a valedictory loop 7,000 feet above the Johannesburg Light Plane Club at Baragwanath, the nominated goal for the flight, he continued part Palmietfontein, temporary terminus of the York service from London, and crossed the Vaal River at Vereeniging, thereby passing from the Transvaal into the Orange Free State. Leaving the B.O.A.C. flying-boat base at Vaaldam away to port, something suspiciously like frontal lift was encountered as Heilbron was approached, and it became possible to fly straight along the edge of some dirty-looking weather to starboard for some time without circling or losing height. A landing was finally made at Petrus Steyn, after covering 129 miles from Quaggapoort. Other interesting cross-countries were those of Connor to Grootpan (70 miles—landing on a farm previously visited from Quaggapoort in 1938 by Rainey in the " Baby "), Mayhew to Vereeniging (63 miles), Hammond to Oogies (62 miles), and Rainey to Devon (58 miles).

The best duration of the meeting was Gray's 4 hours 24 minutes in the Rand " Baby " ; the 5-hour duration test is probably the most difficult of the Silver " C " qualifications to secure in the Transvaal.

AASVOGEL.

AUSTRALIAN GLIDING ASSOCIATION

THE latest circular received has news of fresh beginnings and fresh endeavours by existing clubs. In spite of reduced membership the South Australian Club is making fresh efforts and intends to retrieve the position. Work on the new open strut-braced " Zoegling Primary " Glider is proceeding satisfactorily. Fuselage is being built. Rudder, tailplane and elevators have been made and wing ribs and spars ready. Modifications are to be made to the two-seater glider, including fitting a landing wheel and putting pedals instead of rudder bar in the rear cockpit. This glider was exhibited in the Royal Adelaide Exhibition. The Club received an award of a Bronze Medal and £5.

Mr. Kevin Sedgman has been appointed Assistant Instructor.

Ray Duke is building a workshop preparatory to building an " Olympia " sailplane. Mr. H. O. Bradley has nearly finished his " H.17 " sailplane.

A HINKLER GLIDING & SOARING CLUB, comprising four members—Ron Cosstick, Aub Parsons, B. Rees and Geoff Badgery—possessing a " Grunau " and the use of a " Moth," owned by Fred Hoinville, has begun at MacArthur Onslow's Aerodrome at Camden N.S.W. Along with Cliff Miller they are building a " Chilton Olympia."

They recently sold their " Grey H.17 " to another group, Norm Schmidt, Max Virtue and others, from Glen Innes.

This group have the use of an air strip at Glen Innes and appear to be teaching themselves by the old method of auto-tows and ground skid.

THE MT. GAMBIER GLIDING AND SOARING CLUB has been formed in South Australia. (We hope to have some interesting news and photos from this club in due course.—Editor.)

THE GLIDING CLUB OF VICTORIA now have their own very bright news letter, " Ear Bash," from which we learn they are organising the Social side as a means of raising money and getting non-flying members. A list of charges shows that a low hop Primary launch costs 9d., all other launches 1/6. Soaring costs 12/6 an hour. Winches can be hired at 1/- a launch, providing your own petrol. Trailers hired at 1d. a mile.

AUSTRALIAN GLIDING



WESTERN AUSTRALIA
(Caversham Airstrip).

1. *Ric New and Neville Wynne.*
2. *C. Bentley and W. Major.*
3. *Harold Luckly and C. Bentley and the Perth Gliding Club primary glider.*
4. *R. Duckworth (Victoria) about to fly the "Grunau" owned by W. Major (right).*

WESTERN AUSTRALIA
(Caversham Airstrip).

5. *De-rigging the "Grunau."*
8. *The "Grunau" trailer.*

VICTORIA (Fawkner).

6. *Trailer for "Merlin" and "Utility." Winch No. 2 (right).*
7. *Group of members of the Gliding Club of Victoria.*

NEWS FROM THE CLUBS

LONDON GLIDING CLUB

This notice of London Gliding Club activities has a rather big job to do, as it has to try to give an account of all that has taken place since the last notice, which recounted events up to the end of March.

During April an instruction camp was held throughout the week beginning at Easter.

A number of Club members attended the Easter Rally at Leicester, though the poor weather in those parts prevented anything much being done there. In fact, much more flying was done on Easter Sunday and Monday at Dunstable than at Leicester, as the prevailing half gale was blowing straight at our hill and provided plenty of interesting ridge soaring.

Another feature of April flying was the first cross-country flight of the year from Dunstable. On 28th April, F. Foster flew the Club "Gull" to Witham (Essex), a distance of 52 miles. Had he carried a barograph this flight would have gained him his Silver "C" height and distance.

Whitsun was the occasion of our second one-week instructional camp. The month of May also produced Silver "C" height (actually 3,600 feet above release) for O. W. Neumark in the "Tutor."

In June the National Gliding Contests at Bramcote took place. The Club entered the "Gull" with Messrs. R. C. Reid, C. A. P. Ellis and F. Foster as pilots; O. W. Neumark acted as "general help." The team won the Firth-Vickers' Trophy for a flight of 55 miles by Ellis (from Bramcote to a point between Crowland and Thorney). On the next day Ellis flew from Bramcote to a point 40 miles distant, landing in what appeared from the air to be a delectable country seat. Closer investigation showed, however, that this place, known as Loudham Grange, had now been converted into a Borstal Institution.

Although the "Gull" was the only London Gliding Club entrant in the National Competitions, many other Club members entered their own machines. Among these were P. A. Wills (individual winner with his "Weihe"), D. F. Greig and G. H. Stephenson with their new "Olympia" (winners of the "Eon" Cup), D. Hixcox and C. L. Ruffle with the first British "Olympia" (on this machine Ruffle distinguished himself by doing a 120 mile goal flight, gaining Silver "C" height and obtaining his 5 hour duration all in one flight) and R. Cole and N. Marsh with another "Olympia."

At Dunstable, flying took place as usual during June. O. W. Neumark, in the "Gull" did his Silver "C" distance (51 miles, Dunstable to Bowers Gifford, near Southend) and on the same flight climbed to 5,800 feet.

To date, July, which started with good weather, has given W. Huxley his Silver "C" height (4,000 feet) in the "Gull," while on the next day H. Wheatcroft also got his Silver "C" height (3,600 feet) in the "Tutor."

Another feature of July activities has been our use of Marsworth Aerodrome for really high winch launches. Using the full length of the runway we are able to launch to heights between 1,000 and 1,500 feet, giving excellent chances of thermal contact on a suitable day.

During the last week of July we were pleased to receive a visit from a group of A.T.C. Instructors (who brought their own equipment with them) intent of doing some soaring. Despite decidedly unsuitable weather, all those requiring "C's" succeeded in getting them before the end of the week; a very good effort we thought.

Before concluding this account with a summary of flying time and certificates gained, we would like to draw the attention of readers to a scheme for temporary membership which we are putting into operation. On payment of 2 guineas, any member of a Club affiliated to the B.G.A. may become a temporary member of the London Gliding Club for one month and will be entitled to full use of all our facilities. Proof of membership of the B.G.A. and of flying ability are required; the decision as to which types such a member may fly rests with the C.F.I. at Dunstable.

Summary

June: 286 launches
100 hours' flying time
1 Silver "C" distance
5 "C" Certificates
2 "A" Certificates

July: 729 launches
210 hours' flying time
2 Silver "C" heights
8 "C" Certificates
2 "B" Certificates
5 "A" Certificates

Of the above total the A.T.C. contributed:—
251 launches
16½ hours' flying time
8 "C" Certificates

THE YORKSHIRE GLIDING CLUB

Flying.—The first soaring was Sunday, 6th; 2 launches for 1 hour and 35 minutes' flying. On Friday evening, the 11th, 5 Staff Officers of No. 64 Group passed "C" Certificate tests. They are W./Cr. McKern, S./L. Letten, F./Lt. Halton and F./O.'s Dixon and Wilkinson, 8 launches for 1 hour's flying. On the 12th, the "Kite" was delivered duly repaired and test flown by Barker; altogether there were 10 launches for 3 hours' 9 minutes' flying, the high spot of the evening being a descent to the bottom by Lawson-Tancred, his landing in a field of sheep, and the unfortunate result to one of the flock. The "Tutor" gathered a little wool, but suffered no damage. On Sunday, the 13th, we had a visit from Mr. Pollard of the *Yorkshire Evening Post*—he was given a ride in the type 20 two-seater, but soaring conditions were not of the best, 18 launches for 4 hours' flying. On the 19th, with a south-east wind of about 15 m.p.h., there was little to interest anyone except R. C. Pick, who contacted thermal off a winch launch, and made a flight of 13 minutes with a maximum height of 2,000 feet. The

following day with similar weather conditions, Pick found his thermal again, this time reinforced, for he managed to make a cross-country flight to Croft Airfield, near Darlington, 21 miles away. He had 2,800 feet maximum height and had hoped to reach Newcastle, but found no more up-current after entering the industrial haze in the Stockton area. The A.T.C. course began, and all the members had their inaugural circuits. Total, 17 launches for 1 hour 43 minutes. The 21st was unfit for flying, one test launch only being made. On the 22nd, 23rd, 24th and 25th the A.T.C. course proceeded with either light S.W. or easterly winds, giving 117 launches with no more soaring than a few masterly " delayed descents " ! A spot landing competition on the 24th was won by Earnshaw with an error of 10 feet only. Saturday, the 26th, was the end of the A.T.C. course, and the members of the Club course began to arrive. There were hill-soaring conditions most of the day, and the " Falcon I " was occasionally in cloud at 800 feet. Henney, Geary, Humpston and Earnshaw of the A.T.C. qualified for " C " Certificates, and Tanner (Club Course) likewise gained his " C." 24 launches for 3 hours' soaring. On the 27th the weather was unfit for any flying until 15.00 hours, after which the club course members began launching—11 circuits for 10 minutes' flying time. On Monday the 28th, the wind remained in the south-east ; course members flew, in all, 40 circuits. On the 29th, the wind was W. by N. to N.W., 10 to 20 m.p.h. with some shallow thermal activity. Pilcher did his 5 hours' duration for Silver " C," flying his own " Kite II " ; Dr. de Redder did his 5 hours in the " Falcon I," and Coulson, Mercy, and Pritchard qualified for " C " Certificates in the Club " Tutors." At times, the veer of the wind knocked all the stuffing out of the lift for minutes at a time and occasionally the sheep at the bottom were in peril again ; however, the news that these sheep have been reinforced by some young bulls resulted in very accurate flying, and some very wise returns to base before running out of altitude altogether ! Total of 20 launches and 14 hours 18 minutes. The 30th, 31st, and 1st August were all S.E. winds and the course circuited merrily on, waiting for a wind that never came. There were 83 launches in these three days. The course finally ended without another soaring day, although it was extended for those who could stay until Monday, 3rd August. The members of this course are to be congratulated on the standard of their flying—in spite of the large number of launches and landings no damage was suffered by any aircraft, apart from 2 skids which were in any case very much worn and torn !

General.—The club-house has at last arrived, and at the time of writing its erection is ahead of schedule. Work on the A.T.C. hangar proceeds, albeit slowly. A very welcome visitor this month-end was Dr. Slater, whose musical talent (including the whistle !) was much appreciated, and whose company was greatly enjoyed. It was a great pity that we had no soaring weather for him. Air-Commodore Reynolds (A.O.C. 64 Group) visited during the month. The A.T.C. " Falcon III " has gone down to R.A.F., Driffield, to provide some flying for A.T.C. Cadets in camp there ; S./L. Hartness has provided a team of pilots, including himself, to fly it. Burningham brought the Newcastle " team " down, but unfortunately, again, in the wrong weather—we are making an arrangement for them to keep their " Tutor," and to fly it, at Sutton Bank.

DERBYSHIRE AND LANCASHIRE GLIDING CLUB

The fine weather continues, but a south-east wind has persisted almost continuously throughout the month. A Club flying week was held from 26th July to 5th August, which was attended largely by pilots under training. Although the weather was fine only two and a-half days' soaring were possible, and a bag of nine certificates cannot be considered satisfactory for a week's work. We were pleased to have Doc. Slater with us for part of the week and hope to see him again before long.

5th July. Wind W.N.W. 20. Interest centred on the " Spalinger S.25," which was flown by G. O. Smith, A. L. Slater and B. Thomas, all of whom took club members up as passengers. The red " Olympia " and Coleman's machine were also out, and it was fairly obvious that the sinking speed of the " S.25 " was little inferior to the " Olympia." Dickson and Jefferson flew the " Kite," and Jim Lawless flew the " Tutor." Total, 9 launches, 4 hours, 9 minutes.

6th July. Wind W. 20. Sunday was a good day for soaring with lift up to 2,000 feet and a fair amount of broken thermal. The " Tutor " did not manage to stop up until after 4 o'clock, when Schofield held it up for 40 minutes. The " G.B. II," however, took off at noon and Harry Midwood put in an hour. Jefferson had two flights totalling 1 hour 24 minutes, and Roger Dickson and Glowachi had an hour each. Glowachi's method of approach was to dive down the centre of the field cross-wind and land off a stall turn. Our new Polish member had a field day, having 34 minutes in the " Kite " and a further 43 minutes later.

Eight instructors flew the " Spalinger," and, generally speaking, restricted their flights to half-an-hour. Basil Meads was amongst those who flew the " S.25 " and gave it his blessing. Five " Olympias " were out, and practically all the private owners had at least half-an-hour each. Total, 43 launches, 28 hours 56 minutes.

7th July. Wind S.S.W. 20. A little crowd turned up about 6 o'clock, hoping to fly the " S.25," but as often happens, by the time the first machine was ready to be launched, conditions had deteriorated. Armstrong had the first launch in the " S.25 " and took Pat, his wife, with him. Pat took her "C" in 1939, but has had little opportunity of indulging since. There was some comment on Stan Armstrong's choice of passenger, the general rule so far being to take someone else's wife. Cyril Kaye took his son Mike for a trip, whilst Louis Slater flew Stan Armstrong's " Olympia." Kaye chose the west slope and Slater the south slope, and a most unusual sight for spectators was the two machines on different slopes soaring comfortably at the same height. Total, 5 launches, 2 hours 5 minutes.

12th July. Wind West, 5 m.p.h. The day did not fulfil its early promise and although there was a cap-full of wind from the west, it never filled the windsock. The " Penguin " was out and 8 members had slides. Geoff Russell, George Blomfield, Roper, Whitworth and

Haughton had low hops in the "Dagling," and the "Tutor" and "G.B. II" did circuits. Totals, 38 launches, 51 minutes.

13th July. Wind West, 15 m.p.h. The new primary squad started low hops in the "Dagling," and twelve of them had their first experience of being airborne. Ten pilots flew the "Tutor," but only Margaret Swale managged to soar, holding up for 17 minutes, much to the disgust and envy of her fellow pilots. More of the instructors tried out the "S.25," including Charles and Alfred Verity and Robertson. All the instructors have now flown this machine and most of the members have had a flight. Although conditions were not by any means good, the "Olympias" and the "G.B. II" managed to put in about 10½ hours. Total, 48 launches, 14 hours 27 minutes.

20th July. Wind S.S.E. 15. Six pupils had low hops in the "Dagling," and the "Kite" and the "Tutor" did circuits. Jefferson managed to hold up the "Kite" for 30 minutes on the south slope. The "S.25" made two soaring flights in the hands of Gerry Smith and Eric Taylor, but all the rest were delayed descents. Totals, 49 launches, 2 hours 31 minutes.

26th July to 5th August. The summer camp was rather disappointing, plenty of sunshine but hardly any west wind. About sixteen members were catered for, and in addition there were about another dozen in caravans. There were just over 450 launches and about 60 hours' flying.

On Monday we had to concentrate on training, as the wind was south. David O'Kelly, who has had previous power experience, took his "A" and "B," and Bill Stansfield also took an "A" and "B."

Tuesday was one of the two good days. The "G.B. II" was flown by Harry Midwood. Phil Leech and Buck Benton, also by Doc. Slater. Arthur Edney and David O'Kelly took their "C" without any difficulty. The conditions were rather unusual, the lift gradually improved throughout the day, and the cloud bank in the west produced an evening thermal. At nine o'clock, however, the thermal practically disappeared, leaving smooth lift up to about 500 feet; later on, however, it was possible to reach 2,000 feet after an hour's hard work.

On Wednesday the *ab-initios* had it all their own way, having 62 launches on the open "Dagling." Geoff Russell, Martin Simons, Robin Dolan and Frank Reeks showing some progress, which produced "A's" for all of them, the following day with the exception of Martin Simons, who, for some unaccountable reason, pushed the "Dagling" into the ground from about 100 feet and wrote it off. He sustained a broken leg and some injury to his back.

BRISTOL GLIDING CLUB

Our Chairman, Rex Young got his "Silver" height on August 4th with 3,950 feet from a wind-launch at Lulsgate. As he had qualified for duration in Czechoslovakia and distance from Bramcote, he is our first post-war Silver Badge holder.

Our first ex-balloon winch is now nearing completion, and awaits wheels and drums. The two-drum idea, though rather unorthodox, is justified by the comparative ease of the modification, and should reap large dividends on the aerodrome provided due care is taken on the two lines. On one drum, lying on the centre-line of the winch, the cable is spread mechanically by lateral movement of the drum itself. The other drum, mounted outboard in A.T.C. manner, has a hand spreader for the time being. A really fine job has been made of this piece of equipment by members under the eye of our Ground Engineer. Modification of the second winch will, naturally, be influenced by the results obtained with the first.

On Sunday, 21st September, an "At Home" is being held at Lulsgate, and, of course, all gliding people will be most welcome. The new "Slingsby" two-seater, and, we hope, the "Nimbus," will be among the attractions. Aero-tow and winch-launching facilities will be available.

The good weather has produced a number of worthy thermal flights and enabled Messrs. McDougall, Green and Smith to secure their "C's." Chairman Rex Young went to Clevedon and back in his own machine, which occupied some ninety minutes.

Landings made in fields adjacent to the aerodrome have become too commonplace to merit comment additional to that supplied locally.

Many important developments are expected in the near future in connection with our impending expansion, and we hope the ultimate result will be more complete utilisation of our equipment and more flying for everybody.

LETTERS TO THE EDITOR

BEST FLYING SPEEDS

I am pleased to see that my article advocating the use of the best Gliding Angle has drawn comment in your pages. I hope it has also caused discussion in Sail-flying circles, as I do not believe it is yet sufficiently appreciated that the only *real* advantage the high-performance sailplane has over such lowly but excellent machines as the "Kite I," "Grunau," etc, is that of Speed Range. Any discussion, therefore, which helps to show the best way of utilising that speed range is of importance.

In criticising my views Mr. Pirie falls into that common error of spoiling his own (very good) case by over-stating it. Speaking of the point of view he supports, I said in the very first paragraph of my article—"there is no doubt his argument is academically correct." My whole point was that, although there exists a method of calculating the right answer, this method depends upon outside Meteorological information which may, or may not, be available or correct; whilst adherence to the best gliding angle gives you *very nearly* the right answer simply and positively as I have shown.

Mr. Dewing's letter on the subject shows a nice appreciation of the problem, and I suggest that his mathematical analysis and Mr. Pirie's graph and figures both tend to confirm my original contention, *i.e.* that for the practical Sailplane pilot, it is better to know very nearly the right answer for certain than the absolutely right answer perhaps.

GERARD O. SMITH.

LETTERS TO THE EDITOR

During the last two months we have been operating in conjunction with the Royal Engineers' Gliding Club on sites to the east and west of Harrogate.

We bring a " S.T.G. " and they a " Cadet." All our new *ab-initios* are now flying satisfactory straights on the " S.T.G.," also some of the R.E. members have made short hops in it.

Some of our older members who have been instructing the A.T.C. at Rufforth also come over occasionally to help with the winch and make demonstration circuits in a " Cadet."

We tried the " S.T.G." on the winch last week-end by fixing the elastic rope on the end of the winch cable. Just a short sharp wind on the winch and off the " S.T.G." shoots almost to the end of the field; however, it's now in its fourteenth year and was never designed for winching, so we take good care not to pull it up too much.

Next week-end we hope to try a new site which the R.E. Club has found near Ripon, and later, when the new people have acquired more skill, we may try some of our old haunts in high Pennines.

Yours faithfully,

ERIK T. W. ADDYMAN,
Hon. Sec. The Aircraft Club.

F./Lt. Neubroch, in his interesting recent articles, refers more than once to the ground-speed of a cross-country flight at a cold front as necessarily limited to the speed of the front itself. Ground speeds considerably greater than this may in fact be attained by flying along the front continuously in one direction, particularly when the lift is strong enough to enable a high airspeed to be maintained without loss of height.

A well-documented flight of this type was made by Winter in a " Minimoa " during the South African competitions in 1938. The " Minimoa " was seen above Pretoria immediately before the front arrived at 15.28 hours, and landed at Panplaats, 105 miles away to the east, at 16.15, which corresponds to an average ground speed of at least 100 m.p.h. An analysis of the records of autographic instruments over a wide

Continued on page 23

ROYAL AERO CLUB GLIDING CERTIFICATES

(Issued under delegation, by the B.G.A.)

GLIDING CERTIFICATES: " A " .. 191 (6567—6754)
" B " .. 85
" C " .. 57

GOLD BADGE: 1

SILVER BADGES: 5

No.	*Name*	*A.T.C. School or Gliding Club*	*Date taken*
		" B " CERTIFICATES	
1153	William Lawson	Scottish Gliding Union	2. 6.47
1880	Denis Raymond Counsell	106 G.S.	15. 6.47
2142	Clifford Flogdell	84 Gp. G.C.	11. 6.47
2970	Gordon Leslie Dollery	Portsmouth G.C.	28. 6.47
3043	Clifford Chadwell Dorman	Bristol G.C.	29. 6.47
3080	Ernest Arthur Cunningham	203 G.S.	22. 6.47
3695	Gerald William Leal Floyd	145 G.S.	29. 6.47
4295	Peter Bryan Hogarth	68 G.S.	19. 5.47
4506	Richard Philip Green	125 G.S.	29. 6.47
4593	Geoffrey Ronald Jackson	146 G.S.	12. 7.47
4881	Stuart Arran	181 G.S.	23. 6.47
5807	Peter Rivers Doudney	81 E.G.S.	11. 5.47
5858	Gordon Capps	108 G.S.	22. 6.47
6153	Leslie Herbert Thomas	145 G.S.	2. 6.47
6307	John Sidney Boyle	2. Gp. G.C.	13. 4.47
6411	Eric George French	Somerset Aero Club	29. 6.47
6504	David Charles Lyall	Bristol Gliding Club	18. 6.47
6518	Stanley Roy Lane	83 G.S.	22. 6.47
6564	William Randall Ford-Hutchinson	12 Gp. G.C.	1. 6.47
6565	Rowland Scott	Ditto	28. 5.47
6568	Peter John Hilton Perkin	Somerset G.C.	18. 6.47
6569	Hew Dacres George Butler	4th Armoured Brigade G.C.	26. 5.47
6570	Alfred Butterfield Walston	84 G.S.	8 6.47
6573	Donald Osborne Finlay	2 Gp. G.C.	22. 4.47
6574	Ronald Milton	Derby and Lancs.	1. 6.47
6581	Charles Lynas	B.A.F.O. G.C.	18. 6.47
6582	Wiktor Burhardt	84 G.S.	15. 4.47
6583	Bedrich Froelich	84 Gp. G.C.	27. 4.47
6585	Peter John Langstone	85 Wing G.C.	4. 6.47
6590	William Verling	148 G.S.	20. 4.47
6594	Christmas Robert George	4th Brigade G.C.	2.11.46
6600	I. Kwiatkowski	Breve n/Bugiem	8. 5.35
6601	James Edwards	85 Wing B.A.F.O.	14. 6.47
6602	Philip George Pickett	140 Wing G.C.	20. 4.47
6603	Alan Frederick Groves	151 R.U. (A.)	26. 5.47
6605	Donald Frank Adcock	135 Wing G.C.	27. 4.47
6607	William Douglas Campion	135 Wing G.C.	29. 5.47
6611	Ronald Joseph Toasland	82 G.S.	5. 8.46
6612	Richard John Smith	Ditto	1. 6.46
6613	John Alexander Peter Perks	Ditto	2. 3.47
6614	Richard Frederick Symons	Ditto	1. 1.47
6621	James Donald Joseph Dennigan	B.A.F.O. G.C.	20. 1.47
6626	Peter Prosser Hanks	Ditto	21. 5.47
6628	John Mellers	83 G.S.	29. 6.47
6635	Maurice Stanley	B.A.F.O. G.C.	14.12.46
6636	Reginald Joseph Robert Dyer	84 Gp. G.C.	15. 6.47
6637	John Franklin Seddon	Bristol G.C.	29. 6.47
6638	John Polson McGregor	140 Wing G.C.	19. 6.47
6641	Michael Bentin	123 G.S.	22. 6.47
6643	George Clifford Bourne	Southdown G.C.	11. 5.47
6646	David Robin Fisher	4th Armoured Brigade G.S.	26. 5.47
6649	Cecil Howard Filmer	Condor G.C.	28. 6.47
6651	Ray Thomas Wheeler	49 G.S.	22. 6.47
6652	Paul Harwood Blanchard	Cambridge University	3. 5.47
6656	Francis Stewart Goodie Lewis	84 G.S.	14. 6.47
6661	Stanley Edward White	Somerset Aero Club	22. 6.47
6662	Anthony James Ralph Reilly	166 G.S.	1. 6.47
6664	George William Scarborough	London G.C.	31. 5.47
6667	Roy Edwin Hollis	85 Wing G.C.	1. 6.47
6670	Eric Martin	84 Gp. G.S.	24.11.46
6672	Kenneth Hirst	12 Gp. G.C.	1. 6.47
6673	Tom Astwick	Ditto	28. 6.47
6678	Arthur Derek Rudin	135 Wing G.C.	30. 3.47
6681	Henry Hindle Manson	B.A.F.O. G.C.	3. 7.47
6683	Gordon Colquhoun Porteous	Derby and Lancs.	26. 5.47
6684	Julius Posener	Air Division G.C.	6. 7.46
6685	Peter Parker	London G.C.	19. 4.47
6687	Roger John Graham	85 Wing G.C.	16.12.46
6689	Ivor George Applin	Bristol G.C.	29. 6.47
6690	Frank Edward Wheeler	148 G.S.	10. 5.47
6695	D.Arcy John Cannon	84 Gp. G.C.	26. 5.47
6698	Derek Gordon Reid	B.A.F.O. G.C.	24.11.46
6700	Herbert Frank Bishop	123 G.S.	1. 6.46
6707	James Grant Meiklejohn	84 Gp. G.C.	21. 5.47
6709	Ian Macdonald	183 G.S.	15.12.46
6711	Michael Turner	B.A.F.O. G.C.	14. 6.47
6712	Denis Frederick Willboud	47 G.S.	6. 7.47
6716	Henry Lawson-Tancred	Yorkshire G.C.	27. 5.47
6717	Leslie Reginald Dixon	28 G.S.	10. 7.47
6736	Frederick Donald Topps	47 G.S.	6. 7.47
6742	Sidney William Farley	81 G.S.	11. 5.47

LETTERS TO THE EDITOR—*contd.*

area gave the speed of the front as 18 m.p.h.; and the pilot balloon and anometer observations available indicated that the "Minimoa" was unlikely to have had a tail-wind component of more than 20 m.p.h. An average airspeed of something like 80 m.p.h. must therefore have been maintained along the front, in reasonable agreement with the pilot's report of an indicated 140 km./hr. for much of the flight.

R. C. RAINEY,
Rand Gliding Club, S.A.

In March you were kind enough to publish an appeal to ex-members of the Royal Air Force to send details of their war experiences to the Air Historical Branch. The response to this appeal has been most satisfactory and I would be very grateful if you would publish the thanks of the Air Ministry to all those who have contributed to our needs in this respect. Individuals have received personal letters of thanks, but I feel that a public expression of appreciation is also required.

At the same time I would like to renew the appeal, as we cannot have too much of this valuable material. I, therefore, repeat below the substance of our request:

Any officer, non-commissioned officer or other rank who served with or was attached to the Royal Air Force during the period of hostilities is invited to send to the Head of the Air Historical Branch, Air Ministry, Whitehall, details of any action or event personally experienced or witnessed which strongly impressed him as typical of the spirit of the Service or the conditions and atmosphere in which operations were conducted. Consideration will be given to all incidents reported wherever they took place—whether illustrating conditions and operations in or over Europe, the Western Desert, the Burmese Jungle or the High Seas. The comparatively unimportant incident, if sufficiently colourful, may be as valuable as the account of a major operation.

All information submitted should be as circumstantial and as carefully authenticated as possible in order that it may be compared with official records.

P. B. JOUBERT,
Air Chief Marshal

GLIDING CERTIFICATES—*continued*

No.	*Name*	*A.T.C. School or Gliding Club*	*Date taken*
6746	Michael Duncan Young	49 G.S.	1. 6.47
6747	Azmat Bakhsh Awan	84 Gp. G.C.	23. 6.47
6748	Ronald Morris Sheperd	47 G.S.	6. 7.47
6750	Thomas Davidson	Scottish Gliding Union	22. 6.47
6751	Sandy McAdam Clark	Ditto	22. 6.47

"C" CERTIFICATES

1347	Peter Nigel Julian Allan Richardson	Derby and Lancs.	21. 6.47
1732	Alfred Richard Verity	Ditto	15. 6.47
861	John White	S.W. 81 G.S.	27. 6.47
2111	Desmond John Vicktor Green	84 Gp. G.S.	12. 5.47
2274	Kenneth James Jones	Midland G.C.	29. 6.47
2929	Samuel Alexander French	3 G.S.	17. 6.47
3950	Peter Francis Swain	48 G.S.	13. 7.47
4056	Eric Thomas Smith	Bristol G.C.	6. 7.47
4721	Ralph Schofield	Derby and Lancs.	15. 6.47
4572	Stuart Haslett	41 G.S.	13. 7.47
5602	George Frederick Ball	163 G.S.	15. 5.47
5831	Albert Arthur James Simmonds	Lubeck G.C.	18. 6.47
5896	Arthur Cleaver	London G.C.	6. 7.47
6004	Charles Edward McAndrew	151 (A.) G.C.	31. 5.47
6174	Ronald Frank Tayler	Bristol G.C.	22. 6.47
6237	Alan John Norris	4th Armoured Brigade	25. 5.47
6307	John Sidney Boyle	2 Gp. G.C.	6. 5.47
6346	Patricia Annette Blackwell	Surrey G.C.	13. 7.47
6350	Herbert Faulner Wardale	Derby and Lancs.	15. 6.47
6367	Richard Domville Poland	London G.C.	29. 6.47
6408	Frank William Lyster Shepard	Yorks. G.C.	29. 6.47
6453	Margaret Swale	Derby and Lancs.	21. 6.47
6481	Brian McGraw	Ditto	29. 6.47
6500	George Ian Benson	Ditto	21. 6.47
6573	Donald Osborne Finlay	2 Gp. G.C.	25. 4.47
6583	Bedrich Froelich	84 Gp. G.C.	27. 5.47
6600	Henryk Kwiatkowski	Bezmiechowa	12. 6.36
6602	Philip George Pickett	140 Wing G.C.	1. 6.47
6605	Donald Frank Adcock	135 Wing G.C.	25. 5.47
6607	William Douglas Campion	Ditto	1. 6.47
6626	Peter Prosser Hanks	B.A.F.O. G.C.	4. 6.47
6635	Maurice Stauley	Ditto	13. 4.47
6638	John Polson McGregor	140 Wing G.C.	20. 6.47
6643	George Clifford Bourne	Southdown G.C.	13. 6.47
6652	Paul Harwood Blanchard	Cambridge University	20. 6.47
6656	Francis Stewart Goodie Lewis	84 G.S.	19. 6.47
6664	George William Scarborough	London G.C.	5. 7.47
6670	Eric Martin	84 G.S.	5. 7.47
6672	Kenneth Hirst	12 Gp. G.C.	29. 6.47
6678	Arthur Derek Rudin	135 Wing G.C.	30. 3.47
6683	Gordon Coquhoun Porteous	Derby and Lancs.	21. 6.47
6685	Peter Parker	London G.C.	5. 7.47
6698	Derek Gordon Reid	B.A.F.O. G.C.	9. 4.47
6707	James Grant Meiklejohn	84 G.C.	8. 6.47
6716	Henry Lawson-Tancred	Yorkshire G.C.	27. 5.47
6717	Leslie Reginald Dixon	28 G.C.	11. 7.47

GOLD BADGE

2	Charles John Wingfield	(703)	13-7.47

SILVER BADGES

94	O. V. Neumark	(1248)
95	A. R. H. van Baerle	(4802)
96	P. P. Hanks	(6626)
87	D. G. Reid	(6698)
98	D. L. Barker	(5220)

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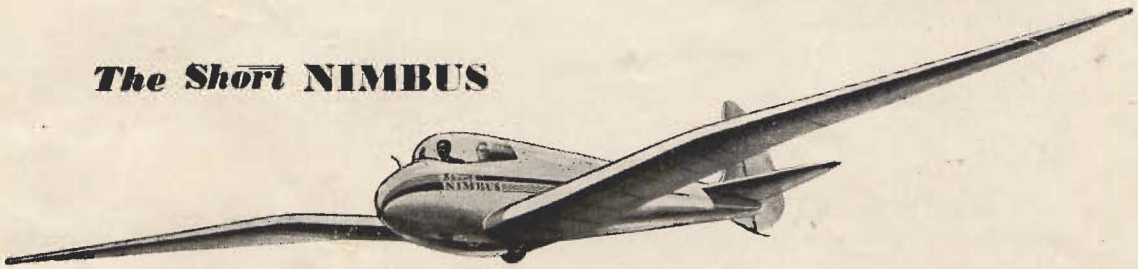
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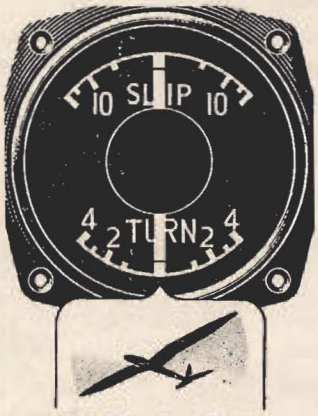
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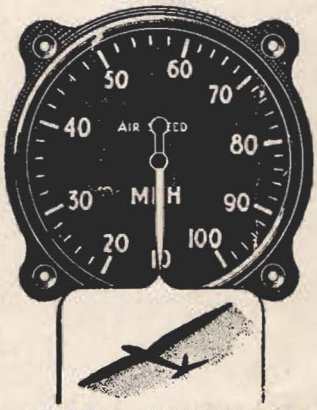
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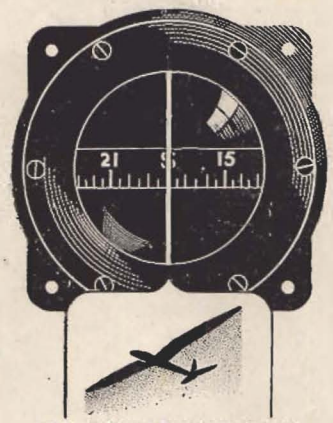
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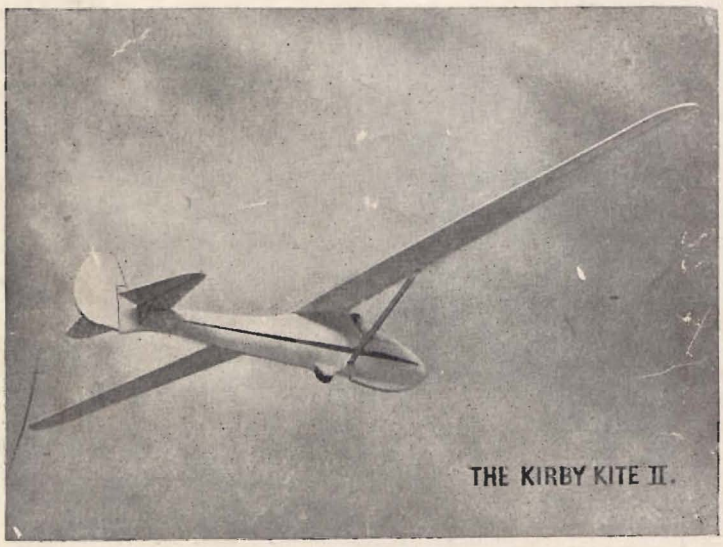
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