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AUGUST, 1947

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Sailplane and Glider

The First Journal devoted to Soaring and Gliding

Sailplane and Glider

and ULTRA LIGHT AIRCRAFT

THE FIRST JOURNAL DEVOTED TO SOARING AND GLIDING

AUGUST 1947 ★ Vol XV No 8

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Front Cover: *Associated Press Photograph. "Kranich" coming in to land during the National Gliding Contests at Bramcote.*

EDITORIAL

THE National Gliding Contest at Bramcote showed us that England probably has what it takes both as regards machines and pilots to put up a respectable show in the International Competitions next year.

The only competition came *hors concours* from the Swiss, flying their light single seat "Moswey III," and the "Sp 25" two-seater. The two seater showed its paces in no unmistakable fashion, and its pilot, Hans Würth demonstrated skill of a high order which brought forth a notable tribute from his passenger, Ann Douglas, who shared a 125 mile flight with him.

The results had one thing in common—the leading personalities were not flying British-made machines. We leave our readers to draw the conclusions from this fact; but we do not imagine that if Philip Wills, Sproule of the Navy's team and Forbes of the B.A.F.O. Gliding Association could have found a better machine than the "Weihe" they would not have stuck to that machine. This being so, it is a good thing perhaps that the "Weihe" will be available. It may be that the "TM 2"—the laminar flow airfoil version of the "Olympia"—will approach the "Weihe" performance, but there seems to be nothing else in sight which is as good.

The B.G.A. Design Competition winners will be hard put to it to get a prototype flying by next spring. Charles Wingfield's success with the British-built "Olympia" in U.S.A. seems to indicate that there is no insuperable competition to be expected from U.S.A., even if their pilots enter and come over here.

Another conclusion to be drawn from the results is that experience tells, except that Capt. Claudi's performances make a monkey of that idea, but in general it seems to be true. A team of six which included Wills, Nicholson, Dewsbury, Forbes and Claudi would be very hard to beat, on present showing so that our pilots at least give us some cause for confidence.

But there is one question raised by the Competitions which must cause a good deal of hard thinking. How are the public to be drawn in to take an interest in the affair?

It is true that Bramcote, in many respects ideal, is too far from centres of population to have hoped to get large numbers of spectators there. But publicising Gliding and Soaring does not start at Bramcote, it should end there; and the Annual Competitions should be the Mecca of every sailplane enthusiast, pilot or not.

Publicising the sport is in a large measure the work of the Clubs. The existing Clubs do very well, but they are far too few to cope with all the pupils they might have if they were both cheaper and more accessible. Without a car one has to spend the greater part of the day on the way to the field, and with a car petrol coupons are the problem.

Something might be done in the way of arranging a bus to meet the two first trains in the morning and take people to the two last trains at night, and also, perhaps, in negotiating with railway and bus for some form of cheap return glider's ticket only usable at week-ends. With this and some effective posters on the stations many more people might be tempted to come and see for themselves whether gliding would really appeal to them and whether they could afford it. Then once they are on the field something in the way of passenger flights must be obtainable, either in two seater (or larger) gliders, or else in the towing plane. A permanent poster at the gate could advertise this, with the price clearly written—and not too high. It is better to attract a steady stream of the five-shilling order who may become members than to cater only for those who can afford to pay more but for that same reason have other sports available. A restaurant would be an inducement, but in these days lunch is so difficult to manage that perhaps a soft-drink bar and a tea stall will suffice, while an area in one corner can be set apart for cars and picnic parties.

But there is a limit to the amount of money that can be brought in by these means and it looks as if few Clubs will ever be rich enough to offer cheap flying unless they have some form of State support. But this, too, has its disadvantages; it is difficult for an impersonal body to give benevolent assistance without usurping autocratic control. The personal touch counts enormously in the atmosphere of a successful Club, and any form of outside control should be kept as elastic as possible so that this personal touch may not be lost. The problem is to achieve outside monetary help without at the same time collecting a crop of tiresome restrictions.

With these thoughts in mind we await the recommendations of the Whitney Straight Committee.

METEOROLOGY AND SOARING FLIGHT IN SPAIN

By CAPTAIN SANTIAGO MAR

(*Chief Meteorologist at Monflorite*).

BY centralising Gliding Clubs into Schools, it has become possible for meteorologists to dedicate their maximum attention to this form of flight. And the intimate relation between the two has enabled them each to help the other. One can see this clearly in the Monflorite School of Gliding in Huesca. Pilots in flight have discovered new meteorological phenomenona; science has tried to explain them, and so deduce methods for improving the actual flights.

At first, flights were made more or less haphazardly, diving into a sea of surprises, the pilot employing only the well-known methods of thermal and slope soaring. But the discovery of great natural phenomena led to such an increase in the heights obtainable that the meteorologists came along with their apparatus to try and add similar heights to their knowledge. At first the results were not very clearly defined, but although there is still much to learn, enough has been done to demonstrate the great importance of meteorology in soaring flight.

We will speak especially of the school at Monflorite (Huesca), since it is there that Spanish sailplane pilots have made their most important flights, achieving real triumphs in the soaring world. The school is situated on a plateau which has as its Western margin a hillside over a mile long and 200 feet high, overlooking the hollow wherein lies Huesca. There are created slope-soaring conditions which permit sustained flight to a normal height of 300 to 1,000 feet. Remember that the prevailing wind at this point is West owing to the peculiar conformation of the Ebro valley, which although the wind above may vary from the first to the fourth quadrant, sets up a current called the "aerial Ebro" which affects the surface direction so that it is more directly from the West. Thanks to this factor the pilot's life at the school is really hectic when there is a strong wind even somewhat from the North, and it is possible to see twelve machines passing and repassing all along the slope. A good example of this is the flight of Professor Juez. In his attempt on the world duration record he flew for 52 hours 38 minutes, but was unfortunately forced to descend owing to a sudden drop in the intensity of the West wind.

Soaring flight based on thermal currents due to the rise of hot air is well known, but owing to the fact that the normal altitudes reached seldom exceed 5,000 to 8,000 feet they lose interest by comparison with the standing wave. One must not forget that thermal flight is indispensable to enable one to reach those waves. Theory and practice on adiabatic movements of the air mass make it relatively simple for the meteorologist to predict those days on which cumulus clouds will form above the School. Scientifically the fact that there are cumulus in advance of a cold front whose temperature is inferior to the air currents that exist around them, complicates matters somewhat, but thanks to the combination of meteorology and soaring flight all these problems are gradually solving themselves.

The most important phenomenon to-day, both because it is relatively unknown and because of the influence it may have on soaring flights of the future, is the standing wave, known here as the "ondulatoria." About twelve miles North of the School is a small range of hills called the Guara, whose maximum height is about 6,500 feet. On certain days with a special isobaric content a mass of cold air strikes against this range, produced by a strong North wind and causing on the lee side the meteorological phenomenon which we are studying. Trials with meteorographs (which register on a smoked strip pressure, temperature, and humidity), together with information from the pilots, has helped us to see clearly the form of these waves. We see first that due to the special configuration of the wave the horizontal velocity of the wind is greater in the up area than in the down area—that is to say, there is a compression of the layers of air on the windward side of the wave; the odd thing about this wave is that instability of the atmosphere exists to a level of 6,500 feet above ground level, which makes for thermal activity and creates cloudy (stratocumulus) rolls at the limit permitted by the condensation level and the first inversion layer. One must not confuse these rolls with the classic lenticular clouds of the Moazagotl type; these are altocumulus and easily distinguished. Our rolls are at altitudes of from 5,000 to 8,000 feet, their's from about 16,000 feet.

The technique we employ is this; the sailplane is bungy launched from the school hillside and slope-soars till it finds the thermals necessary to carry it to the higher levels of the standing wave. The relation between thermal and wave is so involved that the inexperienced pilot would hardly know whether he were flying in thermal or wave (though the wave is by nature stable and the thermal unstable), because the technique of wave soaring—upwind and rising without circling—may be used actually well before entering the wave proper. That is because there is an arrangement of thermals underneath the up zone of the wave and only the roughness of the air, if such exists, will indicate where one is flying in thermal activity. Exactly above the School is one of the waves produced by the range of hills, and with the assistance of this phenomenon it has been possible to gain the world altitude record for two-seater sailplanes of 6,000 metres above sea level. Actually on one of such special days any sailplane could easily get above 3,000 metres.

We might say, too, that the combination of enthusiastic pilots and meteorologists should make it possible to beat this record yet again, since when the exact origin, formation, and situation of the standing wave is known it will certainly be used.

AUTO-TOWING ON RUNWAYS

By S. FALLOON

Cambridge University Gliding Club

(Continued from July issue).

Parachute. It is of course vital to keep the wire taut after release, from the plane, and for this purpose a small 5 feet diameter linen parachute is used which is carried folded in an old sock attached to the nose of the plane. On release of the cable this is pulled out and opens within 20-30 feet. The method of folding is important and is shown diagrammatically in *Fig.* 2. (Note, *Figs.* 1 published in July issue, and 2 normally form part of the handling instructions used at Cambridge).

Storage drum. In the original conception of the solid wire technique it was hoped that a perfectly straight wire with no " set " in it would be available; it was therefore decided to store it on a drum of such diameter that the elastic limit of bending would not be exceeded on winding up, and a 4 feet diameter drum was chosen. In practice the wire is supplied in a 2 feet diameter coil and retains this set in use (hence the wear at " high spots ").

It seems likely therefore that a 2 feet diameter storage drum could well be used in a second model.

The rope is stored separately from the wire on spokes on the side of the wheel carrying the drum, the whole assembly is shown in two views in *Fig.* 3.

For winding and unwinding purposes the drum mounts on a spigot on the side of one of the towing cars.

Breakages and repairs. No rules or people can be perfect and breaks may occur. In the instance mentioned above the wire was once used when the parachute had not been clipped on at " B " (*Fig.* 1) and came down in a tangle. An attempt to pull it out straight without removing some twists resulted in three kinks and subsequent fractures on opening the kinks out. (A short length of 100 feet was omitted on mending to minimise the number of joints).

The method of mending developed is shown in *Fig.* 3, and is best described as resembling a steel copy of the familiar porcelain " egg " insulator used in wireless aerials; with the difference that holes instead of grooves run the length of the egg.

The wire is cut at a point where it is straight; passed through the central hole of the egg for about 9 in.; bent round any convenient rod of about $\frac{3}{8}$ or $\frac{1}{2}$ in. diameter; pushed back through the opposite hole; the bend worked into place; and the free end given a close single, turn round the entering wire; the other wire is treated similarly.

Such a joint if properly made, breaks by fracture of the wire at the bend, at about 1,400 lbs.

Clearly half such a joint could be modified to replace the end grips described above. This mend is regarded as an emergency operation, and it is proposed to set a limit of 5 per 1,500 feet length of wire; any more would be considered to imply gross carelessness, or dangerous old age in the wire.

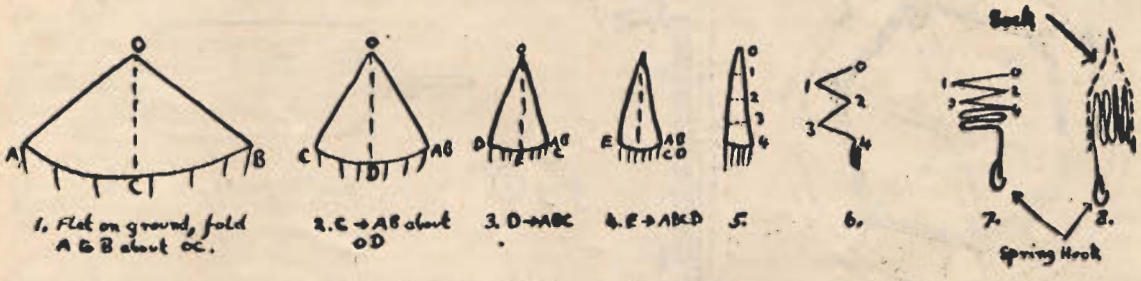


fig (2) Parachute Folding

Use. The detailed use is fully covered in the club instructions reproduced below, but a brief general description may be helpful.

Before the start of flying the wire is unrolled from the storage drum and laid out flat and straight on the runway, and inspected from end to end. The end " A " is then attached to the plane and the parachute clipped on at " B ". The end " E " is attached to the truck and a launch carried out as usual. As soon as the release is pulled the parachute is pulled from the sock, opens, and acts as a " drag " on the wire preventing it falling in a snarl and kinking. It is important that the pilot releases before the towing car is too near the end of the runway, or it will not be able to continue moving in order to keep a pull on the wire against the parachute.

As soon as the parachute is down, the car stops, releases the end " E," returns to " A " and retrieves to the launching point. (When towing unloaded wire deceleration should be gradual, otherwise the wire overruns and curls up).

The wire obtainable is not rustless and particular attention to drying and oiling after use is necessary.

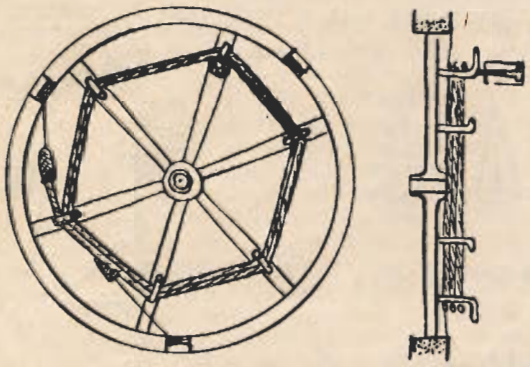
APPENDIX I.

Solid launching wire. Provisional routine. Flexible wire rope or sisal can kink without irreparable damage, and will stand 20-30 splices if broken. Solid wire must *under no circumstances be allowed to kink or snarl* and it is *essential* that the handling routine is always followed exactly if any value is to be gained from the trial and use of this wire.

The main intention of the routine is that the wire will always be stretched out in a straight line by pulling from one end. Experience has shown that normally the lengths of 2 in. rope at the ends act as anchors, and prevent the wire from rolling up after stretching, but during the initial unwinding an old motor tyre must be attached at A by a spring hook to act as an anchor.

The complete launching length is shown in *Fig.* 1.

Storage Drum.



The length is stored on the drum in the following order :—

(1) E to D wound on spokes.
(2) 1 ft. approx. past D the wire enters drum through slot.
(3) Wire wound on drum.
(4) 1 ft. before C wire leaves drum through slot.
(5) C to A wound on spokes, A secured by string.

Routine. Start of flying, 3 persons needed.

(1) Mount drum on spigot on truck, secure by washer and key.
(2) Free end A and attach to anchor (tyre).
(3) Truck forward at walking pace, drum controlled by hand, *never let wire get slack.*
(4) Truck end E off, demount drum.
(5) Fold parachute, insert in sock on plane with 1 ft. of shrouds projecting (see note).
(6) Check rope and links etc. at plane end.
(7) Attach end A to plane.
(8) Clip parachute to rope at B.
(9) Check rope and links etc. at truck end, test *weak link* by twisting copper wire to see if free.
(10) Attach end E to truck.
(11) Launch.
(12) Plane releases (when truck has still 100 yds. of runway to go), parachute opens, truck immediately slows to about 10 m.p.h.
(13) Parachute lands, truck *stops.*
(14) Release end E.
(15) Truck drives to end A of rope.
(16) Attach end A to truck, *keeping wire taut,* release parachute.
(17) Retrieve wire to launching point, but *not* past plane.
(18) Release end A from truck, and *make sure it is taut and straight.* Repeat from (5).

Closing down. 4 persons needed.

(1) Truck end E attached to drum spokes.
(2) Wind on rope E to D.
(3) Pass wire onto drum, wind on wire D to C, passing through *dry* and *oily* rags in succession. (Omit *dry* if no rain during use).
(4) Last foot of wire off drum, wind rope C to A on spokes.
(5) Make fast at A, oil wire grips at C and D.
(6) Pour about ¼ pint of oil onto wire on drum.

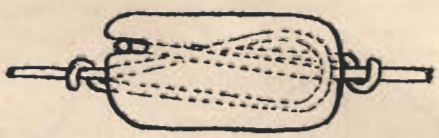


fig ③ "Egg" joint.

(7) Store drum so that wet rope does not drip onto wire.

Parachute folding. The correct order is shown in *Fig.* 2, and must be followed.

Important. If the parachute fails to open, *the wire must be examined over its whole length* and freed from any tendency to kink *before* any attempt is made to tow it back to the launching point.

The original wire was obtained from British Ropes Ltd.

4. From the 'B' to the 'C' *(continued)*

UP to now you have been occupied purely with "gliding"—that is to say, with learning to keep the machine either circling or in straight flight, but always towards a lower level. The time has now come to soar or gain height, and it is on your capacity to do this that depends your future as a sailplane pilot. Your first soaring flight will be more a matter of luck than of judgment. For some reason the machine will be reluctant to come down, and before you can get it back to earth you may find you have already achieved the necessary five minutes for a "C". On an exceptionally good day this can be done even with an open primary, and it is progressively easier according to the capabilities and streamlining of the secondary glider used. On some days only the very highest performance sailplane will stay up at all, whereas on others there is so much lift about that even a brick could fly . . . But on a normal flying day it is the pilot who uses his head and all his knowledge of meteorology, together with all he has read and heard, who gets the utmost out of the flight. That is why some people will stay up tranquilly for hours though others come down again and again, even when using superior machines.

If you have been learning on a hill site you will have discovered that on certain days when the wind is blowing against the side of the hill it will lift pieces of paper up from the slope and whip them away over the top. That same force is sufficient to hold a sailplane an appreciable height above the surface of the hill, and by beating up and down along the line of the ridge a pilot can remain in this area of uplift often for hours at a time. There are two important things to be remembered about this form of soaring. The first is that all turns should be made outwards from the slope, and the second that it is useless to try and land on top of the hill when you have already lost height; far better have to drag the machine up from the bottom than put it out of action for months because you have packed it up by trying to land with insufficient height to manoeuvre. A minute's careless flying may cause months of unnecessary work for the Club carpenter, so pocket your pride and land on the field below if you are not quite sure you can make it successfully.

Getting your "C" over flat country is rather more difficult, as you are dependent on thermals. These are up-currents induced either by heat bubbles breaking away from the ground surface, or else by convection under cumulus clouds, or, more rarely by an air formation known as a "standing wave." The standing wave is a phenomenon peculiar to certain localities, and is the subject of research in several countries at this time. So far as one can see at the moment, it resembles the action of water running down a slope and rising over a small obstruction in its path. The amount of disturbance caused by the obstruction seems to vary more with the speed of the water than with the height of the obstruction, and the ripples caused affect the surface of the water for some little distance downstream. But that is only a theory and may have been exploded even before this gets into print. Unless you are lucky enough to live in one of these localities, you will have to find your up-currents under clouds or over man-made peculiarities such as asphalt roads, large buildings, cornfields, or smoke. And you will find that down-currents are just as prevalent and much easier to find! (Incidentally, if ever you want to come down in a hurry, a steep spiral in a down current is a great help.)

The first indication of an upcurrent is usually a small bump, accompanied often by a clear shrill whistling of the wind. If you have a variometer of the Cobb-Slater type you will see the green ball rising; if of the German type the needle will waver above zero. But even without any variometer an experienced pilot will already be able to feel the presence of an up-current and will begin circling. Up-currents vary tremendously in width and in intensity. Yours may be very wide and not very strong, in which case you will be able to make shallow circles and still read lift on your variometer all the way round. But it is much more usual to be in strong lift on one side of your turn and in equally strong downcurrent on the other. The problem then is how to get into the centre of the up area and so make use of the maximum lift possible.

This can be done in various ways. You can widen your circle towards the up and tighten it in the down, you can come right out of the turn, go straight upwind for a second or so and try again there, you can change the direction of your turn, or you can try a sideslip out of the down area towards the centre. All or any of these methods may centre you properly, though on the whole changing the direction of the turn is the least advisable as you may easily lose the up area altogether. Experience is the only guide here. It will gradually get easier, and the first moment of watching the variometer mark a rise all round the 360° is a thrill indeed. The narrower the thermal, the steeper should be your turn. Keep the angle of bank constant and go on circling steadily till the variometer no longer

(continued on page 16)

CLWYD FLIGHT

By

W. E. CREASE

RISING 1,000 to 1,500 ft. above the Vale of Clwyd, the Clwyd Hills run in a long curve from Prestatyn on the North Wales coast, south nearly to Llangollen.

Early in 1946, the writer was looking for a job. Of those offered, the choice fell on Shell Research Laboratories near Chester—chiefly because Chester was only some fifteen miles from those same Clwyd Hills, and even on the map their superb soaring possibilities were evident.

Early investigation, confirmed that the map told no lie, and subsequent exploration on foot and by motor bike—what that poor motor bike went through—convinced the writer that this is the finest soaring site in Great Britain. The main ridge, facing W.S.W., is approximately 14 miles long and rises at its highest point to 1,800 ft.—1,600 ft. above the valley floor. The ridge is almost knife edged, so that lift occurs on both West and East faces. On each side of the main ridge long spurs run out, forming a series of huge bowls. These bowls act as funnels, so that soaring is possible on almost any wind.

North of the main ridge, a subsidiary lower ridge, reached by crossing a mile wide gap, extends a further six miles up to the coast. Although lower, this ridge is, if anything, the more important, as the main ridge, though superb for soaring, is rather inaccessible and has very little suitable landing ground at the top. This lower ridge has both landing grounds and accessibility. The question in the writer's mind was "Can the gap be crossed?" This question is at last solved. It can!

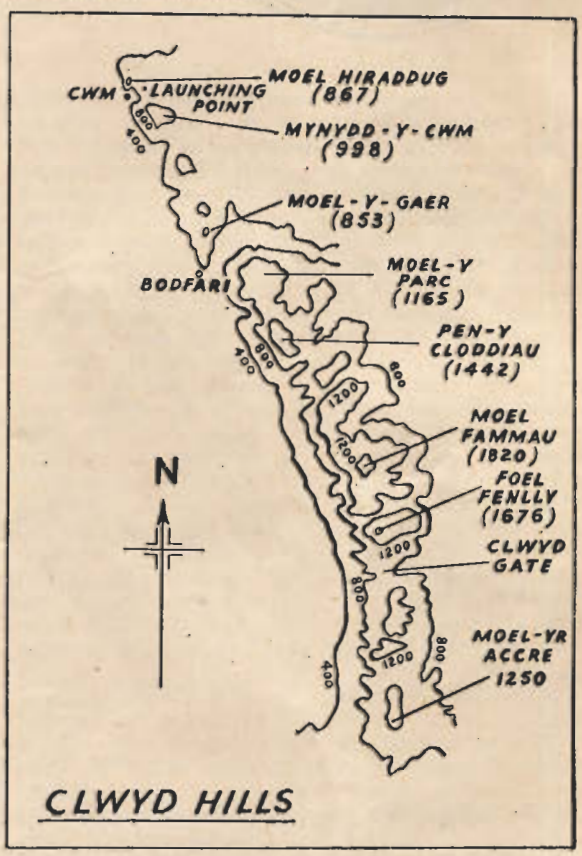
After the very first survey of the ridge, the writer put on order an "Olympia," and, incidentally, a "Kite II," but this machine had to be cancelled in the end, due to a variety of circumstances.

It was a long and weary wait!—from March '46 to May '47—but Elliotts, "upon whom be the blessing," beat their delivery date by a month, to give the writer delivery on 18th May. Even then, the weather proved fickle, and flat calm—practically unknown in the Clwyds—prevailed for two successive week-ends.

Saturday, June 7th, dawned with heavy rain, but the forecast was, "clearing later in the West." So the writer, and a most self-sacrificing body of friends, set out for the North ridge; to the very field, the writer has since learned, from which the great Eric Collins and party tried out the ridge in 1934.

The machine was rigged almost as the rain cleared and, a Beaverette serving as Bungy squad, I was launched from the field shown on the accompanying map. On the West wind, lift was gained all the way to Mynydd-y-Cwm and after reaching 200 ft. above the top I crossed back to Moel Hiraddug which took me up to 1,300 ft. I spent the rest of the flight, 1½ hours, getting acquainted with the "Olympia," in broken thermals up to 2,200 ft.

It was the following day, Sunday, that produced the big stuff. The wind was South West and almost too strong for safety. I was launched from the same field and, again flying towards Mynydd-y-Cwm, lost height to 400 ft. I was just looking for a landing



field when I rounded the corner into wind and thereafter went up at 10 ft./sec. to 1,300 ft. At that height I started off to the South. Over Moel-y-Gaer I was at 1,600 ft. and decided I could make Moel-y-Parc, even allowing for downdraught over the Bodfari gap. In fact, the down hardly existed and I reached the upcurrent over Moil-y-Parc at 1,400 ft. Then the lift really got going. Moel-y-Parc took me to well over 2,000 ft. and the first slopes of Pen-y-Cloddiau to cloud base at 2,500. As I wanted to see where I was going, I put the speed up, first to fifty-five and then to sixty-five, but over Moel Fammau I was still forced up into cloud and had to

open up about 1½ ins. of dive brake in order to keep the green ball down. Over Clwyd Gate I was able to shut the brakes again and beyond Moel-yr-Accre the red ball came up for the first time in ten miles. At this point I noticed that a vast rainstorm had blotted out the Snowdon and Carnedd ranges to the West and it was time I went back. Turning, I put the speed up to 65 m.p.h. and high-tailed it for home. I reached Cwm at 1,700 ft. with the storm still a couple of miles upwind. I had time for one victory loop and then a quick circuit and landing, using lots of dive brake to get down. The whole flight had been more like power flying, using the dive brakes as throttle. The sixteen and a half miles back from Moel-yr-Accre had taken me 18 minutes, a speed of 55 m.p.h. across a 30 knot wind !

What the full possibilities of this ridge are, is still to be discovered, but it certainly seems that 3,000 ft. or even 3,500 ft., starting from 400 ft., is possible in a strong wind ; Silver " C " height on hill lift ? Sixteen miles appears to be the beat on winds South of West, but should increase to about 24 miles on West or W.N.W. winds. Three thousand feet on the " Olympia " into eight miles will go !

Now, who's going to visit the North Wales Club, with or without their own machine, and share the fun ?

NEW BRITISH GLIDING RECORDS

WHILE the Royal Navy Gliding and Soaring Association team for the National Contests was practising at the R.N. Air Station, Yeovilton, British 2-seater Goal and Distance Records were set up in a " Kranich II " by Commander C. Nicholson and Lt.-Comdr. (E.) Peter Blake, R.N.

The following is an extract from the log, with an additional comment by Lt.-Comdr. Blake.

Date, 17th June, 1947.

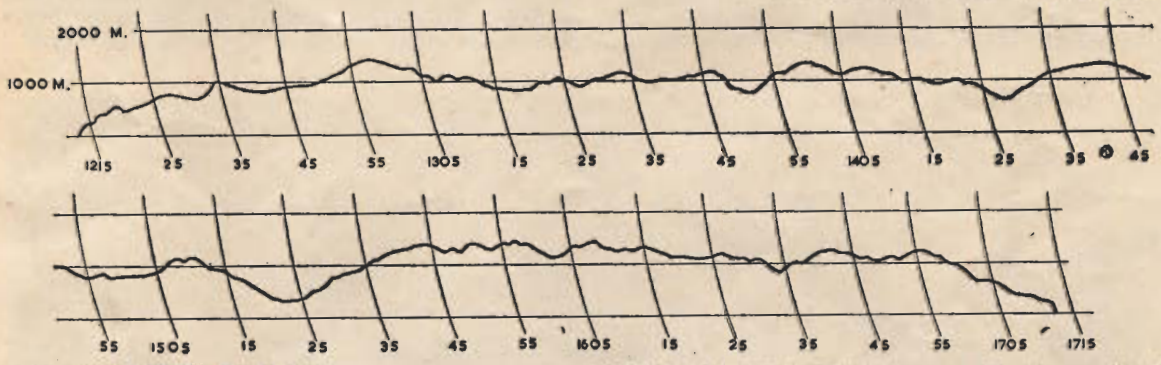
Goal. R.N. Air Station Bramcote (116 miles).

1215.—Airborne from Yeovilton on tow from " Tiger Moth."

1221.—Slipped at 1,900′ 1 mile North of Yeovil.

1235.—3,200′ East Pennard.

1245.—3,100′ Glastonbury.



1255.—4,000′ Wells (in cloud).

1315.—2,600′ 5 miles West of Radstock.

1330.—3,200′ 5 miles S.E. of Whitchurch.

1345.—4,000′ 4 miles N.E. Bristol (in cloud).

1400.—3,400′ Chipping Sodbury.

1535.—1,000′ over Breedon Hill about 8 miles S.W. of Evesham. The map shows ground at 961 feet here ! We were within easy *speaking* distance of a tractor driver who must have given his revolving seat some hard wear in his antics to follow our circling overhead.

1545.—3,100′ 6 miles West of Evesham.

1708.—1,900′ over Bramcote.

1715.— Landed.

Our chosen track was considerably out of wind for the light and intermittent thermal activity encountered, and taking into account the low cloud base (3,700′, increasing slightly towards end of flight). To make good a track of 040° mag. we had to steer 070° to 090° between thermals. The flight was a long one in consequence, taking 5 hours at an average ground speed of 23 m.p.h.

Lift decreased appreciably as soon as cloud base was reached, and although intermittent cloud flying was frequently indulged in for short periods no great increase in height was ever obtained in cloud.

The " Kranich II " had been specially fitted in the hopes of encountering good altitude flying conditions in the National Competitions. Nicholson, in the front cockpit, had a German Horn type combined gyro horizon and turn and bank indicator driven from a 24-volt accumulator and rotary converter fitted between the feet of the occupant of the rear cockpit. A normal electric turn and bank was fitted in the rear cockpit for use in the event of failure of the pilot's instrument. Each cockpit contained a Slater-Cobb variometer, altimeter, and A.S.I., and the front cockpit only had a compass. Pitot Head heating was controllable from the front cockpit.

Oxygen was available to both pilots from a single bottle stowed behind the rear seat (some gymnastics being called for to operate the main control valve), leading to two regulators (operated from the rear seat) and two economisers connected individually to oxygen masks. Some 3—5 minutes was considered necessary from the order " Oxygen " until both occupants had fitted their masks and supply was regulated.

Due to the release mechanism being defective the undercarriage was lashed on for the Yeovilton—Bramcote flight.

Lieut.-Commander (E.) G. P. Blake, R.N.

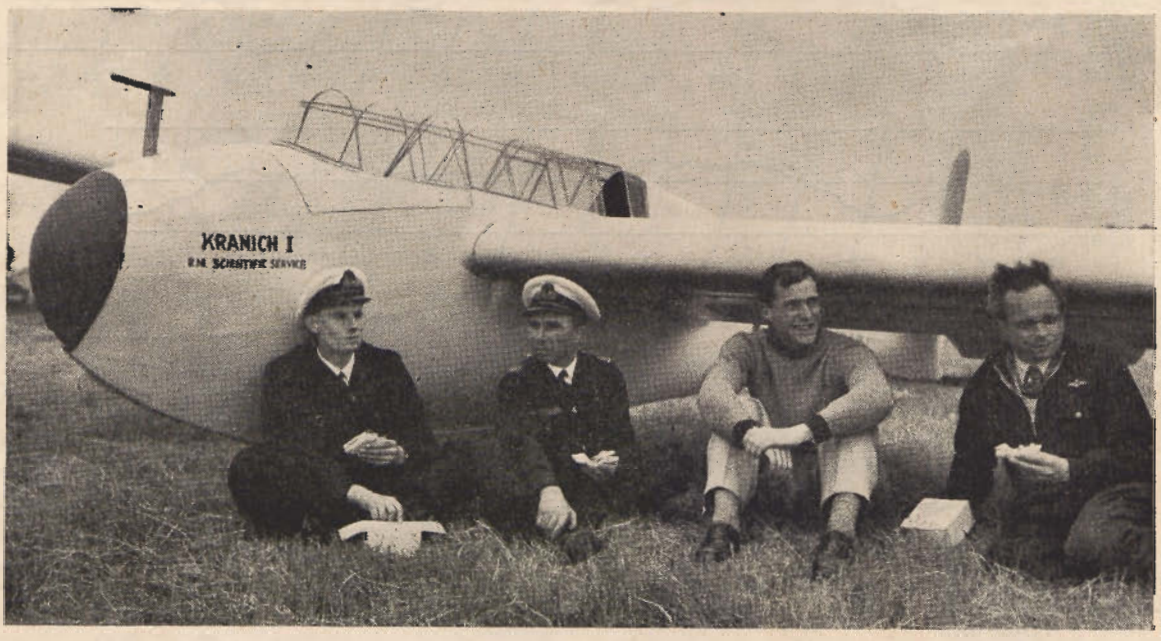
NATIONAL CONTESTS

THE National Gliding Contest at Bramcote from the 21st to the 29th June was most interesting from the soaring viewpoint, because it demonstrated very clearly that goal flights are relatively simple over our island, but that that same island is far too small ; and from the organisation viewpoint, because it showed just how much we have to learn before we can hope to make a success of anything so large as the Olympic Games next year. It looks as if Bramcote would be an excellent place, from the point of view of both location and accommodation. But it is quite obvious that without the ungrudging help, all day and every day, of the Navy, we should have been able to do hardly anything. There were nothing like enough non-flying helpers to deal with cables and all the million and one other odd jobs, aerotows devolved on to those few willing horses who worked double so that the others might lunch in peace, and even the sailplane pilots themselves were often so slow getting into their starting places that launches were delayed for everyone else. But fortunately we have been able to have a dress rehearsal now, and we will hope it all goes right by next year. It ought not to be so difficult. Pilots and machines arrived on the Saturday, and actual competition flying began on the Sunday. I think it will be easier to give a day-to-day resume.

Philip Wills climbs into his parachute and collects points.

84 *Group talk it over with the Marshal.*

Sunday, 22nd June. Tolerable weather, but not much lift. The spectators and refreshment tents gave it the air of a flying display rather than of serious competitions, and Mr. Trimmer's acrobatics in the "Olympia" were very welcome. Only four pilots succeeded in scoring points—Philip Wills gained a very useful lead of 264 with a goal flight of 56 miles to Dunstable, rising in cloud to 9,900 feet, a gain in height of 7,870 feet above release point. Next best was W. Morrison ; he failed to reach his goal so missed the 33⅓ per cent. bonus, but flew 36 miles and gained 6,500 feet in height, which gave him a



Associated Press Photo

The Royal Navy Gliding Team break for lunch. (Left to right) : Lt. A. P. Stevens, R.N. ; A/C Officer H. L. Kent, R.N. ; Lt. H. C. N. Goodhart, R.N., and Commander C. Nicholson, R.N.V.R.

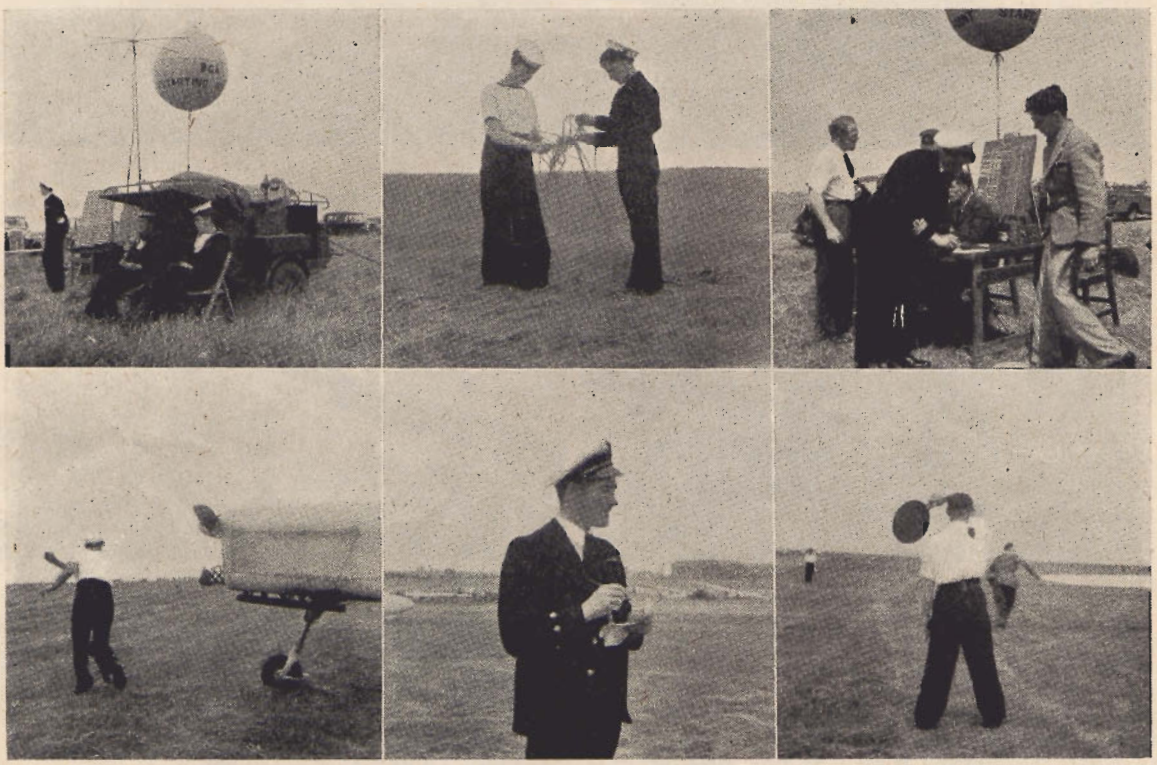
BRAMCOTE 1947

total of 130 points. Captain Claudi and J. W. S. Pringle scored as well.

Monday dawned grey and overcast, and no-one was able to make any distance. There was a certain amount of lift and at one time eight sailplanes were circling together under the same cloud, but no marks were given for duration, and only those pilots who were able to get more than 1,500 feet gain in height last day. There was also a Czech team present, with 2 aeroplanes and a sailplane; and 2 Spaniards, Juez and Ara, but unfortunately with no machines.

Tuesday proved to be very pleasant, and fourteen machines made flights of over thirty miles. Only two succeeded in reaching their goal, the first being F./O. Forbes, 110 miles to Catfoss, and the second S./L. Havercroft, 70 miles to Finningley, the first

THE NAVY LENDS BOTH HANDS



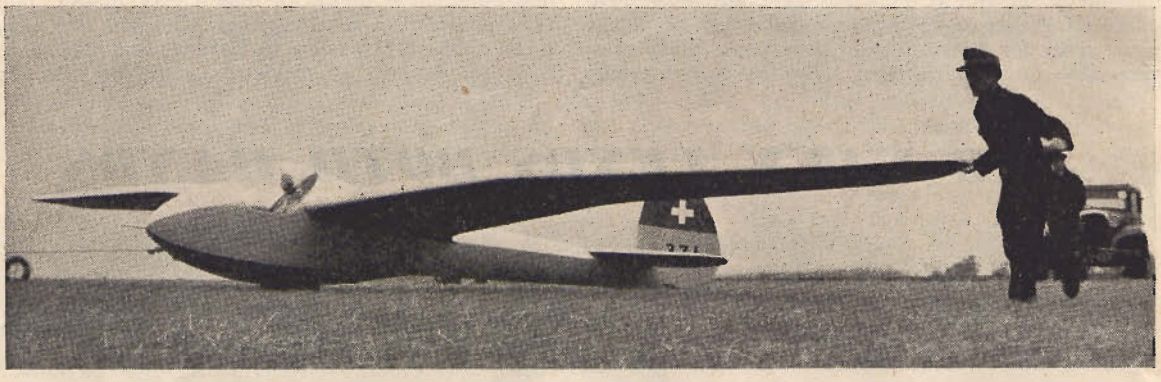
Top. Left: Matelots sitting patiently beside the "R.T." Centre: Struggling with the tow rope. Right: Lt/Cdr. A. Hutchings taking charge of the destination chits. (W/Cdr. Hanks and F/O. R. C. Forbes behind).
Bottom. Left: Swinging the prop. Centre: Taking the starting times. Right: Waving off the tug aircraft.

were able to score. Ann Douglas scored 7 points, S. Haynes one, while the Swiss "Moswey" made its first score of two. This is a very pretty little machine and the Swiss team were most efficient. Although the unfortunate word "National" meant they were not in the running for the Contest proper, I was glad to see they were awarded a special prize for consistent excellence in cross-country flying, together with another for their brilliant aerobatic display on the

in a "Weihe" and the second in an "Olympia." Other scores were the "Kranich" (Nicholson and Blake), Church Fenton, 94 miles; Bolton, Ardsley, 88 miles (but he unfortunately wrote off his machine against a cricket pavilion and injured his back); Armstrong ("Olympia") and Seifritz ("Moswey"), Pontefract, 81 miles; Greig ("Olympia") Castleford, 85 miles; Claudi ("Weihe"), 102 miles; F./Lt. Hughes ("Weihe") 76 miles; Philip Wills ("Weihe")

76 miles; T. Hughes (" Olympia ") 61 miles; R. Young (" Olympia ") 59 miles; W. E. Crease (" Olympia ") 41 miles; H. C. Bergel (" Olympia ") 38 miles. On this flight the " Kranich " reached a height of over 8,000 feet, making a new British two-seater height record of 6,700 feet gained.

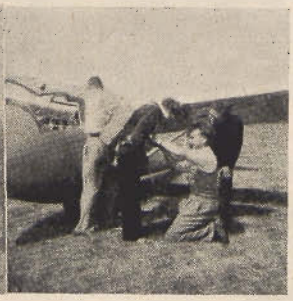
Wednesday. Easily the best day of the meeting—twelve flights of over 100 miles, and twelve pilots who reached their declared goal of the 24 who went (" Olympia "), 115 to Norwich; Slazenger (" Olympia "), 112 to Horsham St. Faith, and Dewsbery (" Olympia "), likewise; Nicholson (" Kranich "), 104 to Langham; Pressland (" Olympia "), 85 to Manby; and Armstrong (" Olympia), 75 to Downham Market. Besides these Forbes (" Weihe ") and Williams (" Weihe ") each flew 95 miles; Faulkner (" Olympia ") 85 miles; Fender (" Olympia "), 69 miles; Turner (" Olympia")



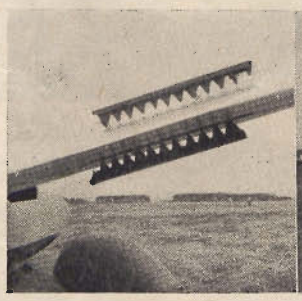
Associated Press Photo

Switzerland's entry: the " Moswey III," piloted by E. Schaffroth, taking off.
The P.O.W. interpreter holding wing-tip gained his Silver 'C' in the Luftwaffe, near Berlin.

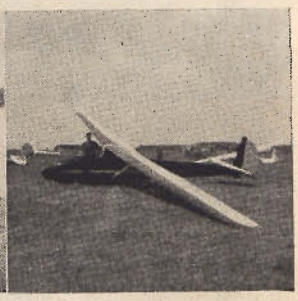
Juez and Ava from Monflorite, Spain, talking to Ann Douglas and the Marshal, Frank Reade.



The Swiss help Ann Douglas into her parachute before her flight in the " Spalinger " 2-seater.



Brakes of the Swiss single seater " Moswey III " piloted by Ernst Schaffrotte, and Julius Seifritz.



The black and white " Kite " was laid on for visitors.

away. The day's total mileage was 2,144, and with a good wind from the West machines were landing all along the Norfolk coast. It was most exciting waiting in the Control tower as result after result came in within a few minutes of each other, and the Mess in the evening was a barren waste with almost everybody away retrieving. The Swiss two-seater, " Spalinger S.25," landed right on the coast at Happisburgh 125 miles away, setting up a new Swiss two-seater distance record.

Philip Wills had the bad luck to land three miles short of his goal after a good flight of 127 miles. The twelve who achieved their goal were Stephenson (" Olympia)", 126 miles to Beccles; Haynes (" Olympia "), 120 to Framlingham; the Moswey, 118 to Rackheath, a Swiss goal flight record; Sproule (" Kranich "), Welch (" Weihe "), and Ruffle (" Olympia "), 115 to Cotteshall; Horsley 55 miles; Ellis (" Kirby Gull "), 50 miles; Pringle (" Olympia "), 45 miles; Kendall (" Olympia "), 33 miles; and Hanks (" Weihe "), 32 miles. Quite a day.

Thursday looked as if it should be another good day, but after Wednesday it proved disappointing. The contestants were a bit optimistic about their goals, and only three arrived, one being the Swiss " Moswey," and the others, Gardiner and Nicholson, in an " Olympia " and " Kranich " respectively; their three distances were 60, 72 and 58 miles. The best flight of the day was quite unexpected. The Swiss invited Ann Douglas to fly in their two-seater " Spalinger," and starting off after 4 p.m. only decided at the very last minute that they might as well take a map. Three and a half hours later they landed at Pocklington, 106 miles away! Only two people, Hughes and Morrison, noted down heights

greater than 5,000 feet, but most of the rest soared to over the 4,000. There were two flights of over 70 miles (excluding the " Spalinger "), three of over 60, and four of over 50, so although the day's flying was not so sensational as that of the Wednesday, it was quite satisfactory.

Friday. Rain all day, which was perhaps just as well, as it gave the teams time to recover a bit from their strenuous daily flights and nightly retrieving

The Cambridge Club " Kranich " with Ann Douglas, Wijewerdine, and the Spaniards.

North Wales relax while awaiting a retrieving call from their Olympia.

trips. The improvement in the general temper was quite noticeable after the day's rest, and there was an improvised party in the Ward Room that evening, limbering up for the official one which was dated for the following night.

Saturday. A poor day. The rain had cleared off and it looked hopeful, but there were no thermals. There was a thunderstorm promised for later in the evening, and most people took off hoping to find it,

The Czechs with their " Praga " aeroplane.

" Jock " Forbes who did very well in the air but had bad luck on the ground, breaking two ribs in a Jeep accident.

but it passed far to the South. Launching went on till after nine in the evening, which made things distinctly difficult for the Wrens and Stewards in the Mess, as more and more people drifted in later and later to be fed.

Sunday, the last day. Thin ragged cumulus, sunshine, and a good wind, but the Committee decided that all flying was to finish at four so that results could be checked and announced right away. I am afraid I have no notes for the day's flights, as the tug pilots proved more elusive than ever and left me no time to observe. . . . . But a full list of the prizes follows, together with the points gained by each team. Altogether it was a very interesting and enjoyable week, and certainly a triumph for the " Olympias."

VERONICA PLATT.

PRIZE LIST

LONDONDERRY CUP

Gliding Club nominating as a member of a club team the pilot earning the greatest number of marks.

Contest No. 7. Royal Naval Gliding and Soaring Association (C. Nicholson and P. Blake)

L. du GARDE PEACH TROPHY

Best Club team during the National Gliding Competitions

Contest No. 7. Royal Naval Gliding and Soaring Association (C. Nicholson and P. Blake)

FIRTH VICKERS TROPHY

Best performance by a British pilot in a British designed and built sailplane at the National Gliding Competitions

Contest No. 5. C. A. P. Ellis.

EON CUP

For competition among entrants of whichever type of British-built glider is numerically the strongest in the Contest. Awarded to the entrant of the glider of that type who earns the greatest number of marks.

Contest No. 21. D. F. Greig.

LORD KEMSLEY'S PRIZES

Vouchers for Gliding Equipment to the Value Shown

Club Prizes

Contest No. 10.	Surrey Gliding Club	£100
Contest No. 11.	Surrey Gliding Club	£75
Contest No. 2.	Cambridge Gliding Club	£50

Entrants Prizes

Contest No. 27.	P. A. Wills	£50
Contest No. 7.	Royal Naval Gliding and Soaring Association	£30
Contest No. 14.	Association of B.A.F.O. Gliding Clubs	£15

Pilots Daily Prizes

1947				
June 22	Contest No. 27	P. A. Wills	£10
,, 22	,, ,, 11	W. Morison	£5
,, 23	,, ,, 10	Mrs. A. C. Douglas	£10
,, 23	,, ,, 17	S. Haynes	£5
,, 24	,, ,, 14	R. C. Forbes	£10
,, 24	,, ,, 7	C. Nicholson	£5
,, 25	,, ,, 21	G. H. Stephenson	£10
,, 25	,, ,, 2	R. C. G. Slazenger	£5
,, 26	,, ,, 20	F. T. Gardiner	£10
,, 26	,, ,, 9	J. P. Dewsbury	£5
,, 27		No awards	
,, 28		No awards	
,, 29	,, ,, 7	C. Nicholson	£10
,, 29	,, ,, 17	S. Haynes	£5

PILOTS SPECIAL PRIZES

Three Vouchers for £10 each

June 26, 1947. Seifritz, Swiss Moswey, for exceptionally fine cross-country flight.

June 25 and 26, 1947. Haberstich and Wurth, Swiss S. 25, for outstanding cross-country flights.

Souvenir Prizes

Antique Silver Spoon to each member of visiting teams from Switzerland (8), Czechoslovakia (8), and Spain (2).

Prizes in Kind

(1) One Sensitive Altimeter (Newman Aircraft Co.), to each of the following pilots for meritorious cross-country flights :

R. C. G. Slazenger	R. C. Forbes
J. A. Pressland	G. H. Stephenson
C. Nicholson	D. F. Greig
J. S. Sproule	C. Ruffle
J. P. Dewsbury	T. Horsley
L. E. Welch	P. A. Wills
W. Morison	M. Schaffroth
D. Bolton	E. Seifritz
R. Claudi	K. Haberstich
R. M. Williams	H. Wurth

(2) Voucher for 15 gallons of paint or dope (Cellon Ltd.), to the Derbyshire and Lancashire Gliding Club, for best performance by a secondary type of Club aircraft.

(3) To Slater-Cobb Variometers (A. L. Slater, Esq.), to—

(a) Swiss Moswey, for outstanding cross-country flight, 26th June, 1947.

(b) Swiss S.25, for exceptionally fine cross-country flight, 26th June, 1947.

(4) Back type parachute (S. Kenneth Davies, Esq.), to E. Schaffroth, Swiss Moswey, for aerobatic display and consistently fine cross-country flights.

(5) Two Recording Barographs (Anonymous), to (a) T. Horsley and (b) C. Ruffle, for outstanding cross-country flights, 25th June, 1947.

(6) One set of Sailplane Instruments (K. D. G. Instruments and Pullin Ltd.), to North Wales Cross Country Soaring Club for a meritorious first appearance in the Contests.

Note : Two sets of sailplane instruments (K. D. G. Instruments and Pullin Ltd.), one sailplane compass (Somerset Aero Club) and two recording barographs (Anonymous) have yet to be awarded, after the flying records have been fully analysed.

Final Markings.

Order	Contest No.	Entrants	Marks
1	27	P. A. Wills	610
2	7	R. N. Gliding and Soaring Association	481
3	14	Association of B.A.F.O. Gliding Clubs	418
4	12	Association of B.A.F.O. Gliding Clubs	351
5	21	D. F. Greig	334
6	17	H. C. G. Buckingham	307
7	9	R. N. Gliding and Soaring Association	293
8	10	Surrey Gliding Club	285
9	11	Surrey Gliding Club	282
10	2	Cambridge Gliding Club	273
11	15	J. S. Armstrong	245
12	20	F. T. Gardiner	223
13	22	D. G. O. Hiscox	206
14	8	R. N. Gliding and Soaring Association	190
15	23	Viscount Kemsley	183
16	6	North Wales Gliding Club	135
17	1	Bristol Gliding Club	114
18	24	G. W. Pirie	100
19	19	C. L. Faulkner	93
20	13	Association of B.A.F.O. Gliding Clubs	87
21	5	London Gliding Club	82
22	18	R. T. Cole	74
23	4	Derby and Lancs. Gliding Club	33
24	16	H. C. G. Buckingham	25
25	25	Major J. E. D. Shaw	6
26	26	Major J. E. D. Shaw	3

Hors Concours

Swiss Moswey	397
Swiss Two-seater S.25	323

B.G.A. ANNOUNCEMENT

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.

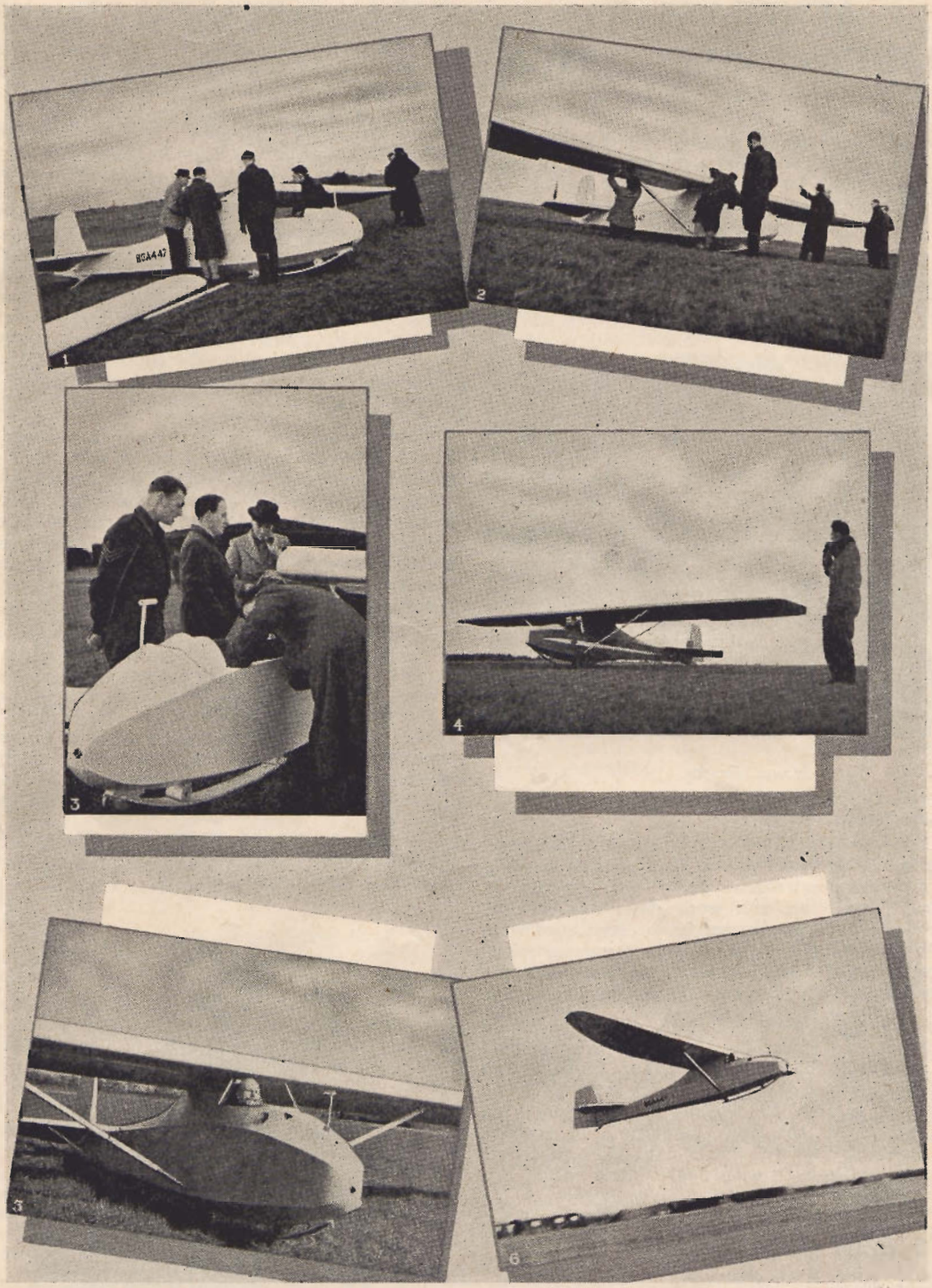
The charges for Badges will henceforward be a flat rate of 5/- each for the " A," " B," and " C " Badge, with a 2/- refund for any blue enamel Badge returned in good condition in exchange for a higher category Badge. Silver and Gold Badges will remain at 10/- each.

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

CORRECTION.

VERONICA PLATT asks us to apologise for and to correct an error in her article " Gliding in Spain " (June issue) which, she says, was the result of her inability to read the notes she made recently in Spain. The last three lines of the third paragraph should have read : " The School pays board, lodging, laundry, and clothes, while letting the pupil have special boots at a cheap rate."

BRISTOL GLIDING CLUB.



Photos contributed by Frank Buckley.

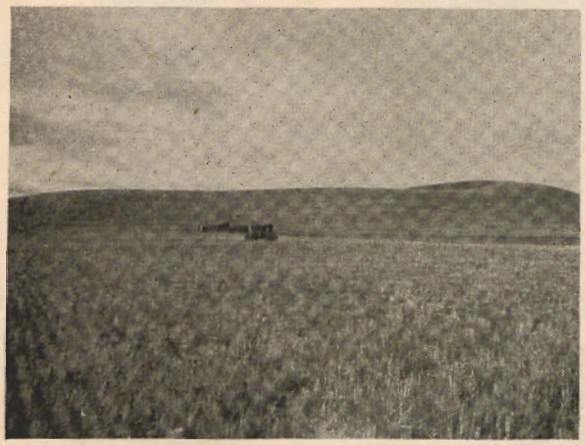
1.—*Rex Young and Keith Turner discuss the rigging of the "Grunau."*
2.—*The "Grunau" nearly ready for test-flight by Turner.*
3.—*Sergeant Small, Keith Turner and Rex Young.*
4.—*Philip Stanbury, Gloster's Chief Test Pilot, resorts to lower wing-loadings for his week-end flying. (Right) Treasurer Farrar lunching.*
5.—*Robert Hinton poses the "Grunau" for a picture.*
6.—*The Club's cream "Grunau Baby IIb," the ex-German machine allocated to the club by the B.G.A.*

AUSTRALIAN GLIDING ASSOCIATION

Victoria.

Gliding Club of Victoria. Thermal Soaring. R. Roberts, 1 hour—1,200 to 5,500 ft. altitude—the best net climb for 1947. During the flight he got as far away as Fawkner—8 miles and returned with about 2,000 ft. altitude at Somerton.

E. J. Desmond (an ex-R.A.A.F. Instructor) has been appointed Instructor in charge of two-seater training.



Mount Fraser.

South Australia.

Waikerie Gliding Club. Over Easter A. DeLaine, L. and G. Middleton of the Gliding and Soaring Club of South Australia attended the activities at Waikerie Aerodrome, and were given instructional flights in the 2-seater. Several passenger flights were given to spectators at 5/- per launch. A new member, J. Shanks (ex-R.A.A.F. with 2,000 hours logged) had his first flight without a motor—and enjoyed it.

Two Seater Sailplane: Details of this machine which is being constructed by the Club. Wing span—53 ft. Length 25 ft. Wing area, 201 sq. ft. Approximate weight empty, 350 lbs. Aspect ratio, 14. The wing section is Gott. 426 slightly thickened merging into Clark. Y. at the tips. Landing gear consists of twin wheels set well back with skid in front. Seating is side by side with dual control cabin.

The fuselage bulkheads are finished and the fuselage is being assembled. Work is to start on the wing ribs in the near future.

New South Wales.

Sydney Metropolitan Gliding Club. Easter Monday. J. Munn was aero-towed in the " Falcon " to 1,100 ft. altitude where he released in a light thermal. " Unfortunately," he says, " I went through the light thermal and on turning back was unable to locate it. I lost height to 900 ft., where I contacted another thermal and after a lot of hard work in—from zero lift to maximum 5 ft. per second, I managed to get to 3,100 ft., where the lifted petered out in an inversion. Duration was 51 mins. On the same day Ron Cosstick was auto-towed to 1,000 ft. in the Silver " Grunau " and thermal soared to 4,000 ft. Duration was 1 hour 55 mins.

Gliding at Parkes: Sel Owen, Len Schultz, Martin Warner, Merv. Waghorn and Pat Neary visited Parkes Aerodrome with the " Gull " Sailplane over Easter. Sel Owen flew to 8 miles past Forbes, Merv Waghorn flew 80 miles to Temora, but there were no other long flights. The party was mainly interested in testing the radio and were very pleased that it is a success in that it is reliable up to 35 miles while the sailplane is in the air, but on the ground the distance is much shorter. A description of the *Radio Equipment* by Gil Miles is as follows :

Crystal controlled transmitter and receiver, both in the same case weighing complete with microphone, headphones, pilot's control box and batteries, about 20 pounds. The car and the glider unit are interchangeable. Carrier power 1 watt. 6 valves in receiver. 3 valves in transmitter. Aerial was horizontal in the " Gull " wing (inside). The equipment was designed and built by Len Schultz. Wave Length 350 Kilocycles was used.

TASMANIA

Gliding and Soaring Club of Tasmania.

A revival of activities at Hobart is to be made as soon as possible, and Tasmania gliding enthusiasts should contact the Honorary Secretary, Mr. Howard D'alton, 42, Alexander Street, Sandy Bay, Hobart.

As soon as can be arranged, a screening of the 16 mm. film—" Flight Without Power—The Art in Australia," will be made.

Ted Desmond alongside the " Blue Grunau " at Beveridge

ULTRA LIGHT AIRCRAFT ASSOCIATION

Extracts from Bulletin No. 8, July, 1947.

In the last issue of the Bulletin G/C. E. L. Mole expressed the hope that before long there would be enough ultra light aircraft types to enable us to hold our own races and sporting events. We feel that this is a side of our future activities which might well be developed with great advantage, not only because participation in such events would give members something to work for but also because the events themselves could be made very attractive to the public. That in turn might well lead to increased membership.

Having had these ideas at the back of our minds for some time, we were particularly interested to read the recent Editorial in " The Aeroplane " on " Next Year's Racing " and in particular to see mention of the Lowe-Wilde Drone as a one-time potential dirt-track racer of the air. The words " dirt track " conjure up exactly the form we feel air racing should take if it is to be of any interest to the general public whose support, after all, can go such a very long way towards keeping a local club going.

Racing and aerobatic events at air displays have tended to become less and less interesting to the spectators as the speeds of aircraft have gone up. Nobody wants to stand in an enclosure and watch one aircraft after another flash past and then wait five or ten minutes before they reappear on the next lap; we feel rather that a return to closed circuit racing within the perimeter of the aerodrome is the answer but this can only be accomplished by using comparatively slow flying, highly manoeuvreable ultra light types. After all, dirt track motor-cycles do not lap at phenomenal speeds yet the spectacle is there and the same might be said of ultra light racing.

As a passing thought, we suggest that horse-racing tracks might be used for this form of air racing. These tracks offer many advantages not the least being that there are plenty of such tracks in all parts of the country, they are usually very conveniently placed close to some centre of population, the tracks themselves are sufficiently large to provide a useful circuit while at the same time aircraft following the course would be within sight of the spectators all the time, the area enclosed by the track would in most cases be adequate as a landing ground for ultra lights and finally, there is usually adequate accommodation for spectators and facilities for preventing gate crashing.

U.L.A.A. Badge Design Competition—Results

By the 1st June the closing date, 30 designs had been submitted as entries in this competition. Many very interesting ideas were put forward and it was obvious that a great deal of thought had gone into the majority of the designs submitted. Consequently, the Committee had a very difficult job when it came to judging the various entries.

To be effective the badge of any organisation should, so far as possible, indicate clearly the activities or interests of the organisation concerned and it is worth while, therefore, to consider briefly just what points our own badge should bring out. The flying aspect of our activities is obvious and the majority of designs showed this clearly. The fact that our type of flying is of the " powered " variety (as opposed to gliding) was not so clearly illustrated and only a very small minority of the entrants attempted to indicate our interest in low-powered or light-weight flying.

No single design incorporated all these points and the First Prize of £3. 3s. 0d. was accordingly awarded to Mr. J. F. Hughes of Rugby whose design most closely approached this ideal.

The majority of members with whom we have discussed the matter agree that our badge should incorporate some indication of the wearer's flying experience and ability and the Second Prize of £2. 2s. 0d. went to Mr. J. R. Hopper of Nottingham who submitted the only design incorporating this feature.

The Third Prize of £1. 1s. 0d. was won by Mr. S. B. Cain of Greenford, Middlesex, for a design which, while not meeting all the requirements for a members' badge, would nevertheless be useful as an emblem for Association and members' aircraft.

Production of a final design incorporating the various ideas contained in the prize-winning entries has now been undertaken by two suitably qualified members of the Association and we hope to be able to publish an illustration of this badge in due course, together with details of the proposed grading of ultra light pilots.

We offer our thanks to all those members who sent in entries and hope that all concerned, especially the unsuccessful contestants, will agree that the final badge design is the best possible compromise.

Group Formation

We are pleased to be able to report the formation of an ultra light aircraft Group at the Royal Aircraft Establishment, Farnborough. While the majority of its members will be recruited from the Establishment Staff, we understand that enrolment of outside enthusiasts will be permitted and we look forward to being able to report interesting developments from this Group in the future. Arrangements have already been made for the Group to use a Common Room in the Establishment as a meeting place and it is expected that other facilities will become available in the near future.

A Experimental Group has been formed in the North London area to undertake special work on behalf of U.L.A.A. One of the Group's first jobs will be the reconditioning of the Comper " Swift " aircraft recently presented to the Association and later, members of the Group will undertake, when required, the construction of aircraft from prototype kits of parts supplied by manufacturers entering this field. This latter scheme will work on a sort of " try it on the dog " basis whereby snags and possible difficulties in the erection of aircraft from

kits of parts will be discovered and overcome before the kits are placed on the market. It is anticipated that manufacturers will find this scheme of considerable value and we believe that the work of the Group generally will prove of benefit to all members of the Association.

In view of the special nature of the work involved, membership of the Experimental Group will be restricted to those who have had practical experience in some branch of aeronautical engineering. It is hoped that eventually the Group will be able to secure a permanent headquarters and flying ground in the Barnet (Herts) area but in the meantime, negotiations are in progress with a view to obtaining the temporary use of workshop accommodation in Hendon.

In last month's Bulletin we gave certain details of the Train-engined " Chilton " and have now heard from Mr. Ward (Managing Director of the firm) that the speeds quoted were those estimated prior to flight trials being carried out. The actual speeds obtained in flight were: maximum 135 m.p.h., cruising 115 m.p.h. Mr. Ward disagreed with our remarks that the airframe's construction called for greater skill and workshop facilities than required for Class II types and pointed out that there is not a single machined part in it. The prototype aircraft was built entirely by himself and one skilled woodworker, using only a bandsaw, electric drill and welding equipment. This news will be encouraging to prospective amateur constructors of the " Chilton."

The original " Chilton " with 44 h.p. Train engine has now been reconditioned by Messrs. Air Schools Ltd. at Derby, and we were delighted to see it feature on the programme of the International Air Rally at Derby on the 21st June. The aircraft is extremely smart and well finished, looking rather like a miniature Hurricane in the aircraft park. Without exaggeration it attracted more attention from the crowd than any other aircraft present there. Prior to take off the pilot (Sqn. Ldr. R. L. Porteous) Chief Flying Instructor of Derby Aero Club—who has just joined U.L.A.A.) amusingly demonstrated the " Chilton's " lightness and handiness by wheeling it with one hand by the tail skid along the front of the enclosure. His subsequent demonstration was one of the best events of the day and consisted of a series of smooth aerobatics—dives, loops, rolls and rolls off a loop—all carried out at low level and giving convincing evidence of the aircraft's performance and manoeuvrability. Incidentally, the compactness of this display was most refreshing to watch after the enormous space required by high speed aircraft of the earlier events, and indicated that U.L.A. aerobatics have a definite spectacular value for future flying events.

Tipsy " Junior "

We have heard that the construction of the first prototype Tipsy " Junior " is now completed and it should be ready for flight test in Belgium by the time this Bulletin appears. The first prototype is fitted with a Walter " Mikron " engine of 62 h.p. but the second will have a J.A.P. " Aeronca " flat twin engine of 37 h.p. The aircraft is of great interest to us being the first post-war U.L.A. design to fly, and we hope to have the opportunity of seeing it demonstrated in this country before long.

Slingsby Type 28

The new Slingsby motor glider is proceeding well. The fuselage conversion was completed in a very short time and it is now undergoing engine and tank installation. It is expected to be ready for flight test early in July and should be the second post-war U.L.A. design to fly. A Scott Flying Squirrel engine is being used for the first prototype and it is hoped to get a modified 750 c.c. Coventry Victor flat twin for the second aircraft.

Possible New U.L.A. C. of A. Category

Our negotiations over the re-issue of the pre-war Permit to Fly for U.L.A. types has resulted in the suggestion by the Air Registration Board that a new category C. of A. might be considered for our purposes, and we were asked to put forward our proposals. Consequently, on the 26th June we held a meeting at Londonderry House attended by fifteen interested designers and technical experts, at which the existing C. of A. regulations were discussed in detail in relation to U.L.A.A. requirements for cheapness and home built construction.

NEWS IN BRIEF

SEVERAL German sailplanes have been sent by the U.S. Army to the Southern California Soaring Association for determining their flight characteristics to compile performance data on them.

A SUGGESTION has been put forward by Allen Ash, Honorary Secretary of the New South Wales Gliding Association, that a combined flying meeting of Australian Gliding Clubs and private owners be organised for the Christmas 1947 Holiday Vacation, under the auspices of the Australian Gliding Association—proposed *locale*, Parkes Aerodrome in New South Wales, which has already proved to be a suitable locality for cross-country and thermal gliding.

THE Aircraft Club informs us that week-end Gliding Meetings will be held at 1400 hours at Rudfarlington, Harrogate.

AT Bishop, California, Harlan Ross—South Californian Soaring Association—soared a Cessna 140 airplane from 5,500 to 15,000 feet and a distance of 20 miles during which time a lift of 2,000 feet per minute climb was encountered.

BEGINNERS' PAGE *(continued from page 5)*

shows rise. At first you will get giddy after a few circles, but gradually you will become so accustomed to it that it will be much easier to fly in small circles than in a straight line !

If your rise should take you right up to the base of a cloud do not try to enter it till you know something of blind flying. It is cold and dark and foggy in there, and very difficult to tell whether you are flying straight or even the right way up. Let discretion be the better part of valour and leave clouds alone till you know more about flying.

NEWS FROM THE CLUBS

LEICESTERSHIRE GLIDING CLUB

When a squad of sturdy-looking workmen marched on to Rearsby aerodrome and began knocking the Club's hangar down, members swiftly rallied to the aid of the sailplanes stored therein.

But there was little they could do about it, and no one had boobed. The hangar, Air Ministry property anyway, had been sold over the Club's head to a market gardener down Rotherhithe way. Near-by Ratcliffe, home of the local Aero Club, happily came to the rescue, and the machines were quartered in a spare hangar before further damage might be done by the elements.

The incident came at the end of a series of mishaps that might have disheartened most. Keenness of spirit has prevented any drop in morale though, and dark hints about new and better quarters promise better things.

Members are considering a claim for the world record in mass flittings, having swopped from Ratcliffe to Rearsby and vice versa so often and so swiftly as to leave the locals between a trifle dizzy. Right now the Club is flying from Ratcliffe—we think.

The spring rally netted new members whose enthusiasm is unquenchable. Novices and ex-Service flyers are going ahead with training. Neubroch, who holds the Silver "C," has joined the Club, and Sharpe is on the first leg of the same award.

Strange things prompt us to generosity. Shaken by the sound of the crash when a heavy landing damaged a sailplane skid, a local hosiery manufacturer, standing in the Aero Club bar, wrote out a cheque for £500 on the spot. Members just as quickly accepted it and a Kirby Kite II on order is the result.

YORKSHIRE GLIDING CLUB

Flying.

On the first of June we opened with a very moderate sort of day; 15 launches for 1 hour 44 minutes, including 6 passenger flights. The 7th was a rough day and we had a visit from Newcastle — Messrs. O'Grady, Burningham, Fidler, Varley, and Allan—and others. They brought their "Tutor," and O'Grady and Burningham soared the Yorkshire club "Kite" also: 5 hours 40 minutes flying and 8 launches. The 8th, Sunday, was rougher still, but the "Newcastlers" were out bright and early with their "Tutor" and were soon joined by various members in the "Kite" and the Yorkshire and A.T.C. "Tutors." It is consoling to fly new aircraft on these rough days and to be able to think (at any rate) that the creaking is the happy voice of the timber enjoying its youthful fling, and not the last rattle of senile decay. Death-watch beetles hate spruce anyhow! The 15th June was a launching - practice day, mainly for some R.A.F. and A.T.C. officers from Grantham — one "A"! The 21st was again similar with light variable wind; 9 launches for 20 minutes—several "B's." We made a few radio tests with the Type 38 sets—if they are going to be any good for pupils in early soaring and circuiting stages they will have to be loud enough to be heard through a speaker. It is too dangerous to put a tyro in headphones. We are developing a small amplifier and will proceed with these experiments at leisure. The 22nd brought a N.N.W. wind—always a nasty direction at this site, and Brian Hartness, making a test flight was caught by the "clutchin' 'and," and had to land in the next field. He ground-looped to avoid an obstruction and damaged the fuselage. The 29th was a decent soaring day; but thermal activity was not of any great order, and in any case the "Kite" was away for repair. Several heights of around 2,000 ft. above the start in "Tutors." We had 3 "C's"—W/Cr. Field, S/Ldr. McCullough, and Capt. Shepherd. The last went and bought himself some power flying before he started gliding, and has found 'conversion' quite easy. One or two old "customers" arrived for passenger flying; it really is nice to get people turning up time and time again to repeat the experience, and speaks well for our 'drivers.' Norman Sharpe, flying for the first time since his recent illness, tested the A.T.C. "Falcon III," and as an old exponent of the type advised a few rigging adjustments which we had the pleasure of trying out with him in the late evening when the valley was filled with lots of mysterious lift. These evenings are rare, especially in the sort of weather we get these days, but are well worth waiting for. 25 launches and 9 hrs. 37 mins. flying for the day. Total for the month: 78 launches, 28 hrs. 16 mins. flying. The month of June might have been kinder.

General.—We have had two pieces of crashery this month, both unfortunate, but neither of them serious. A little extra patience and prudence might have avoided at least one of them, but in each case it was a matter of being caught out by something we usually get away with. Winches have been rather troublesome at times, spares and repairs not being very easy these days. On the 29th we had a visit from Air Vice-Marshal Lees, and as it so happened he arrived on a decent flying day. The A.T.C. hangar is still in course of erection, and although it has not yet been possible to start work on the new clubhouse from Huddersfield (which we have mentioned so many times in these notes), there is every likelihood that something will happen in that direction in the very near future. Anyhow, we promise not to mention it again until it does happen! The Course began on the 26th July, preceded by the A.T.C. Course a week earlier. The main object of both courses is soaring practice. We shall still be glad to consider

new members, especially the hard-working variety, or at any rate, not less hard-working than those members we have already !

G. H.

BRISTOL GLIDING CLUB

Last month brought some real gliding weather to Lulsgate, and the week-end air, if not exactly black with sailplanes, was often seen to support one of the Club fleet—sometimes both at once. " B " Certificates, Messrs. Williamson, Green, Smith, Clapham, Applin, Dorman, and Seddon, got their " B " Certificates, and Smith and Tayler their " C's." •

Tremendous launches have been done recently when the wind has been fresh and westerly, the highest recorded so far being to 2,100 feet. The cable, incidentally, is 3,900 feet in length. The longest thermal flight by a Club aircraft has also been pushed up, to 29 minutes, by a " C " aspirant. The " Cadet " has also been thermal-soared on several occasions for many minutes.

The aerodrome has now been denuded of the annoying hay-crop which so complicated gliding during the last two months. It will be long remembered for its manifold perils; the savage ground-loop which was the lot of any poor wretch who let his wing-tip drop too near its treacly embrace; the two-foot spheres of wet grass hurtling along the line at the winch-driver; the searches for lengths of broken cable; long manual retrieves of errant tyros from the rough, usually under the cold eye of note-taking officialdom. Worst of all, of course, the dreadful abrasion of cable and skid-plates on the enforced and gritty runways. However, it cannot be said that the perils were all on our side, for man, beast and tractor have, on occasion, been flailed by falling cable, and one venerable rake-wielder was seen to be airborne for some time through stepping across the cable at the wrong moment.

Another landmark of this period was the first landing outside the aerodrome, when the " Grunau " was, perforce, put down in a field heavily studded with angular cows. The main Bristol-Bridgwater road lay between this field and the aerodrome, but the usual gallery of motorists rallied bravely and handed the fully-rigged machine over the two hedges into the airfield, causing a major traffic crisis.

The doings of the Club team at Bramcote have been described elsewhere, but we must at least say that they all seem to have enjoyed themselves.

In general, things are going well; Membership is growing steadily, and the need for more machines is becoming painfully apparent at times. We are hoping that this aspect will improve before the season wanes.

(*Pictures on page* 13).

THE ULSTER GLIDING CLUB

We thought that 1946 was a pretty grim year, with its poor weather, only one machine and few folk to fly it, but 1947 is running it very close in the matter of bad weather and lack of revenue.

The new " Tutor," all shining in silver and grey, arrived early in February and we obtained permission from The Air Ministry to use Mullaghmore aerodrome, with its endless runways and spacious hangers, for training purposes. We intended to do some hard work in the fine days of early Spring when the foreshore at Magilligan would be unuseable, but the Clerk of the Weather ordained otherwise and we were more concerned with preventing things blowing away than with flying.

Things improved a little during March, so towards the end of the month we locked the hangar doors for the last time and stole away to our old habitat by the sea. With what meagre results will be seen from the following sad chronicle.

March 23rd. The foreshore still very rough after the winter storms, low cloud, no wind, and some drizzle. The " Tutor " was rigged and finally circuited once by the Secretary. After that the rain descended in earnest, so that was that.

April 8th. The weather was poor for the whole week-end but improved a little by tea-time on Tuesday. William Liddell circuited the " Tutor " and John Reid did some useful slides and hops to get his hand after a lapse of seven years.

May 18th. Not a good week-end—the wind on the Saturday was in the wrong quarter and accompanied by a penetrating drizzle. The more energetic members devoted themselves to clearing unwanted boulders from the entrance to the site. Others performed Herculean feats diverting the course of the stream that had deposited the aforesaid boulders. Sunday dawned wet and cheerless but matters improved by mid-day and the " Kite " and " Tutor " were rigged. We welcomed two new members from the Fleet Air Arm at Eglinton—Irvine Bowman and Murray Hayes, the latter arriving in quite the oldest M.G. that ever was. After watching " how it was done " they were each given a chance to soar the " Tutor." Bowman achieved one hour and his " C " certificate on his first flight—nice work; His only soaring experience previous to that was with Sproule in the " Kranich." John Reid also had his first soaring flight since the war and made a faultless landing after thirty-five minutes. MacDermott and the Secretary meanwhile disported themselves in the " Kite " but had to pack up soon after tea-time owing to lack of lift.

June 15th. The weather was not too good to start with but cleared up by lunch time so William Liddell in his " Gull " and Billie Douglas in the " Kite " were duly hoisted up aloft and told to stay there until the tide went out again. Meanwhile the " Tutor " was rigged and flown by Beck and Bowman until sundown, and then stowed away—with the " Kite " and " Gull " still in the air ! William eventually came in to land and was followed a few minutes later by Billie Douglas with six hours fifty-six minutes and the Ulster Duration Record to his credit. Well done, Billie ! It is rumoured that he had intended to be back in time for Church but we fear his watch must have stopped. Fidler of the Newcastle Club and his wife visited us that day but unfortunately we were not able to manage a flight for him, though he worked like a Trojan putting things together.

June 21st. The towing car being out of action with internal troubles we were grateful to William Liddell for the use of his brand new

Austin — wisely limited to one tow per machine. Conditions were ideal and the " Gull," " Kite," and " Tutor " were soon well up in the air, en route for Binevenagh Mountain where the maximum lift was to be found. Bowman and Liddell in particular had great fun chasing each other round the clouds. John Reid in the " Tutor " made his first solo trip to the mountain and back and was suitably impressed with the lift to be had above that mighty escarpement. When the wind is in the right quarter you could almost soar a bus there.

June 22nd. Sunday morning broke fair and bright so some of the keener types rose at crack of dawn intending to get up in the air before the tide came in at breakfast time and stay there. Carl Beck was first away but the wind veered and petered out forcing him to land after only five minutes. The tide and the wind being where they were nothing further was done that day, though the " Kite " was kept assembled until well after tea-time in the faint hope of the wind obligingly veering to the right quarter. The members slept or sunbathed according to taste.

DERBYSHIRE AND LANCASHIRE GLIDING CLUB

Good weather has again favoured operations during June, which started with a cracking week-end, reported last month. A summary of flying activities is as follows :— Launches, 379 ; Soaring, 99 hours 39 mins. ; Certificates, 9 " C's," 1 " Silver C."

Ten or so of the younger members who have only been able to have spasmodic training between September and April have now taken excellent " C " Certificates and the Club is the better off for having a large and vociferous gang of enthusiastic new members. Congratulations to all of them. There has been little *ab initio* training this month but another batch of trainees is coming along.

The National Competitions provided good experience for the Club team. George Thompson, who has made consistent progress since April only requires five hours for his silver badge. Charles Faulkner completed his silver badge tests at Bramcote, and the Club team, although out-classed in the " Grunau," have acquitted themselves well. Armstrong and Robertson also put up a good show in their own " Olympia," the former with a flight of 85 miles to Pontefract and a goal flight of 74 miles and the latter with a flight of 55 miles.

June 4th. A small party consisting of A. L. Slater, J. S. Armstrong and B. Thomas had a pleasant evening on the south slope flying the red " Olympia." Half-an-hour each, push the machine away, a quick drink in the bar and away home. Total 3 flights. 87 minutes.

June 7th. Wind West 35 m.p.h. Too strong for beginners but Gerry Smith did two hours in the red " Olympia." Zita Paddon, John Radford, and Cyril Kaye flew the Club " Kite " and Armstrong and Jefferson flew the " G.B. II." Total 7 launches. 7 hours 41 mins.

June 8th. A cold and miserable day, the wind eventually moderated to about 40 m.p.h., and Gerry Smith was pooped off hopefully and retrieved thankfully after forty minutes.

June 9th. There seemed to be a flap on to get Tony Dolan five hours soaring before Friday the 19th to enable him to qualify for Bramcote. The wind was N.W. 25 and the weather was warm and clear. The evening thermal obliged and Tony took off in his " Olympia " at 7.30 and landed at 10.30. Louis Slater reached 3,200 feet and Armstrong in " G.B. II " reached 2,000 feet. Michael Sharp in " G.B. II " had a poor launch and failed to connect. 4 flights. 5 hours 35 mins.

June 14th. Wind N.W. 20. The " Kadet " was tested over the edge and conditions pronounced fit for attempts for " C's ". At first the " Kadet " would only just stop up and Bert Wardale needed two attempts to stay up more than five minutes. Bert has been the unluckiest in the race for Certificate but he thoroughly deserved it when he did get it. Schofield and Richard Verity also took " C's." Lawless, Leech, and Midwood all flew the " Tutor." Three " Olympias " were out, also the " Kite." The " Kadet " meanwhile did 17 circuits. Total 34 launches. 16 hours 33 mins.

June 16th. Week night parties are becoming the thing, Wardale, Richardson, McGraw, Margaret Swale and Leslie Benson fitted themselves up with a winch driver and an instructor and enjoyed a nice quiet evening. Some of them may have had hopes for their " C's " but circuits in the " Kadet " were all that conditions permitted. Total 11 launches. 35 mins.

June 19th. The same old crowd monopolised the " Kadet " as they did on Monday. Brian McGraw, Margaret and Leslie each had six circuits. The dizzy dames' efforts to walk straight afterwards were considered to be rather overdone.

June 21st. Wind N.W. 20 m.p.h. The day started quietly with the " Kadet " just failing to hold it. By lunch time the " Kadet " was holding a comfortable 600 ft. and the " Olympias " were at 1,000 ft. At tea time, the " Olympias " were at 2,000 and at 10 p.m. they were at 4,000 ft. At 11.20 p.m. the " Kadet " was shot down from about 2,000 ft. with a red verey flare.

Having decided that it was fit for the " Kadet," Margaret Swale was launched and proceeded to justify our hopes with a steady flight of 13 minutes. In quick succession Richardson, Porteous, and George Benson were sent off to obtain " C's." After that it was just one glorious scramble between the four of them to get the " Kadet " into the air as quickly as possible. Margaret had 42 minutes, Richardson 63 minutes altogether, Benson 14 minutes and Porteous 15 minutes.

Leech, Lawless, Midwood, and Wardale managed 4½ hours between them in the " Tutor," whilst Thompson and Jefferson had 1½ hours in the " Kite." Buck Benton descended from the winch in honour of the occasion and ordered himself a launch in the " Kite " just to prove that he really can take it or leave it.

The " Olympias " were hard at it from morning till night, going higher and higher as the evening thermal developed. Only three " Olympias " were out but four pilots had 7½ hours between them. Last to take off, Gerry Smith reached 4,100 and attempted again

to reach Kinder Scout, for which his machine is named. However, it proved beyond reach.

Richardson was the last to land at 11.20 p.m. after spending 45 minutes at 2,000 ft. in the "Kadet." Totals, 27 launches, 16 hours 33 minutes.

June 22nd. Wind North 5 m.p.h. Not a very good day. A few circuits in the "Kite," "Tutor," and "Kadet" and a general air of listlessness and bad temper. A sheep met a sad and untimely end by hooking its horns on the wire and letting go at 50 ft. The corpse was left on the field as a solemn warning to other sheep who think that if they can only get a high enough launch, they can get an "A" without any damned interference from instructors.

The "Penguin" and the "Primary" had a better day and Reeks, Blomfield, Bailey, and Hall had their first experiences of being airborne. Haughton, Young, and Roper patiently endured slides in the "Penguin." Total 70 launches.

June 23rd. Leslie Benson, complete with attendants, again had a shot at her "C" but had to be content with seven circuits.

June 25th. Brian McGraw, Margaret Swale, Leslie Benson, and Dick Thacker had a private session, having eleven circuits between them. The "Kadet" is still intact but the wear and tear on the instructors is considerable.

June 28th. Wind East 10 m.p.h. Circuits in the "Kadet" and bumps in the "Primary." Bill Stansfield, a willing worker we should like to see more often, had a low hop in the "Kadet." He should soon be ripe for an "A." Total 24 launches.

June 29th. Wind West 15/20 m.p.h. A day of variable lift. Charles Faulkner managed his five hours in his "Olympia" thus completing his Silver "C." Leslie Benson, pipped by her brother George last week, took her "C" with a flight of 10 minutes and peace and tranquillity was restored to the Benson ménage. Brian McGraw also obtained his "C." Gerry Smith had a total of 4¼ hours in his "Olympia," as if he had not enough in his log book already. Charles Verity also had nearly 3 hours in his "Olympia," to make up for the years the locusts have eaten.

Milton called down instructor Kaye's wrath and indignation by doing a very long circuit in the "Kadet" in which he followed the hill round very carefully until he found himself behind the back wall, which is just where Cyril said he ought not to be. Then, opening the throttle which wasn't there, he sat down on the wall that was there.

Flying closed down early with an air of hushed expectancy and at 10.15 the "Spalinger" two-seater towed by an Auster and flown over from Bramcote by Armstrong and Taylor, touched down and was speedily ushered into the hangar.

LETTERS TO THE EDITOR

Wot, figures of 8, and tail to a storm front? How come, Flt.-Lt. H. Neubroch? You are sadly out of date. Present-day technique is to fly *along* its front straight and level, edging towards it or away, according as to whether you want more or less height. At least five notable long-distance flights have been made this way in the Argentine, and they hope soon to bring off one of 400 miles as the fronts sometimes extend over six or seven hundred miles.

VERONICA PLATT.

"Lynwood," Horsham, Sussex.

Many of your issues contain an exhortation to "Wear your badge and wear it proudly." I am a pre-war "C" certificate holder, and have carefully examined this column in your paper each time it has appeared. But I have yet to discover if the feature in your paper (e.g. April, p. 24) is an advertisement and if so by whom it is inserted. Had it given any indication of *how* one could get the badges—to whom one wrote, what papers had to be submitted and what the cost was, I should have been wearing a badge long ago.

Many others may be in the same position as myself and I think the sale of badges would rocket upwards if full information (especially an address) were supplied.

Perhaps you can enlighten me and also others on this matter.

GEORGE C. VARLEY,

Henderson Hall,
Newcastle.

N.B. In case you do not possess the badge but have earned it this is how you set about getting it. You write to the British Gliding Association mentioning the year in which you qualified and ask if they will give you the number of the "A" certificate and also the date on which you qualified for your "B" and "C". If certificates have been properly earned they will issue duplicate badges if you have lost yours. If they have no trace of your having qualified in the proper manner with the certificate signed by a qualified observer you will have to take your tests again. If your club does not hold the necessary application forms these can be obtained from the B.G.A., Londonderry House, Park Lane, W.1.—EDITOR.

I have been rather fascinated by Mr. G. O. Smith's solution to the Best Air Speed problem, and have read through his article many times. In carrying on the problem to include various head or tail wind components, I came to the conclusion that three days of slide-rule-bashing and graph-plotting

could surely be circumvented, and eventually found another method of solving the problem.

RED BALL	20 HEAD		10 HEAD		NO WIND	
	ASI	MLS	ASI	MLS	ASI	MLS
10	62	1·2	58	1·3	54½	1·5
5	51	1·7	48	2·1	45½	2·5
3	46½	2·5	44	3·1	42	3·9
2	44½	3·4	42	4·4	40	5·5
1	42	6·1	40	8·2	39	10·7
·5	41	11·5	39	16·0	39	21·5
0						

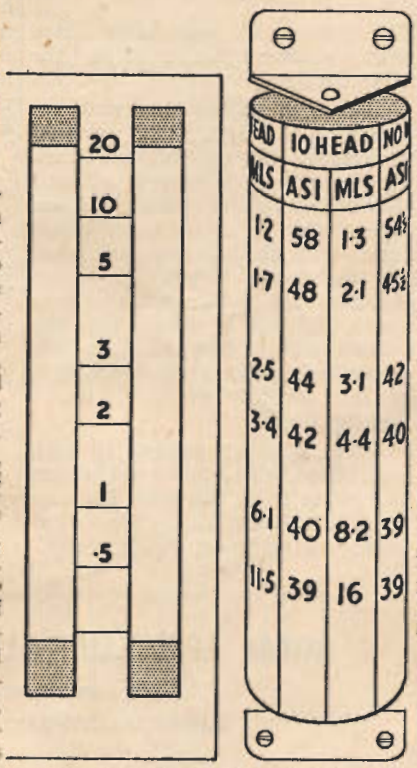
My solution depends on the half-forgotten fact that a line taken from the true origin of a performance curve forms a tangent to the curve at the speed giving the smallest gliding angle. To introduce upcurrents, move the origin downwards; for downcurrents, move the origin upwards; for tail winds, move the origin to the left; for head winds, move it to the right.

The easiest way I found of doing all this was to make a tracing of the graticule, making sure that the tracing has on it the true origin, *i.e.* where sinking speed equals zero, and forward speed equals zero (most curves as published cut off short of these values for space-saving reason). You do not need to draw in the whole of the graticule, just several vertical lines, which can be labelled "Groundspeed," and horizontal lines labelled "Red Ball readings") at the same markings as are on the variometer, 0.5, 1, 2, 3, 5 and 10 in the case of the Cobb-Slater.

For zero wind conditions, place the tracing over the graticule in the normal position, and then shift it vertically up or down until you find the position where the tangent, the curve and the "Red Ball" line coincide. The easiest way of introducing the tangent line is to use a perspex ruler with a line scribed down the middle of it.

Winds can conveniently be introduced into the picture in 10-mile lots, by setting up the tracing 10 m.p.h. to the right or left of the previous setting, and then proceeding as before with the vertical adjustments to bring the tangent, curve and red ball lines into coincidence.

One of the things a pilot wants to know when cruising is how far he can glide from a certain height. The gliding angle in each case can be calculated from the tracing figures of groundspeed and Red Ball reading, and should be presented in the form of the number of miles he can glide per thousand feet of altitude.



The final presentation to the pilot can be in the form of a chart placed alongside of the variometer, or wrapped round a small cylinder mounted beside the variometer, with vertical columns for wind conditions, subdivided into a column for Airspeed and a column for Distance per thousand feet. The cylinder is rotated until the appropriate column faces the pilot.

Note.—It is desirable that the performance curve be on a scale not smaller than that used in Mr. Smith's article (page 2 of the March 1947 issue).

Examples that I have checked by laborious calculation seem to be within 5%, which is probably as closely as one can interpret the variometer reading. If any one can see any flaw in this simplified method, let him speak. I make no claims to infallibility.

J. C. NEILAN.

I read your note about a so-called preponderance of foreign news in the April SAILPLANE and want to tell you something about the fact.

The gentlemen who protested miss the real spirit and soul of gliding *as a sport*, which, if the enthusiasts in every part of the world would collaborate and know about each other, would contribute to the necessary friendship between peoples.

Although I was unlucky enough not to have been born in Britain, I have been a reader of SAILPLANE quite a time, and some years ago often regretted the lack of interesting material.

It is not very thrilling to read about the hair-raising 32 min. 15 sec. flight of Mr. So-and-so, even though it did take place in England.

Any of the existing gliding magazines would be happy if it had as much and as interesting information about soaring in foreign countries as SAILPLANE.

And please do not forget foreign subscribers who, by reading an English magazine would eventually be converted into buyers of British goods.

Yours truly,

LEO FOLLMANN,

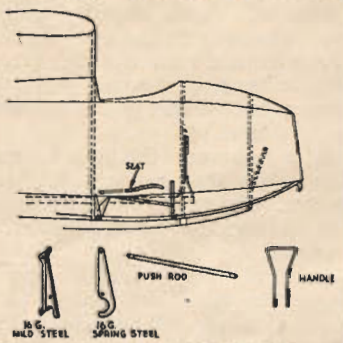
Buenos Aires.

From information available to this Group through the medium of SAILPLANE AND GLIDER and members who have taken active part in gliding in England, winch towing of gliders and sailplanes from a point near the nose of the fuselage appears to be the rule. Only recently have we noticed reference to the results obtained when the point of attachment has been moved further back.

It is thought that some information on our experiences of auto towing and winching, both from the nose and the C.G. or belly tow may be of interest to your readers.

Members of this Group first tried moving the tow release position back on primary type gliders as early as 1932, when flying with the Melbourne Gliding Club. It was found, when towing from the nose, that as the glider climbed, the control column had to be pulled back until the column was right back against the harness, and often a most uncomfortable time was experienced at the top of the climb through the glider bucking badly.

An attachment was designed to fit on either side of the skid in a line under the control column, 1½ in. dia. rings of ⅜in. gauge material were attached to a "V" piece from the tow wire. These fitted into the latch on the releases (see sketch). Heights up to 900



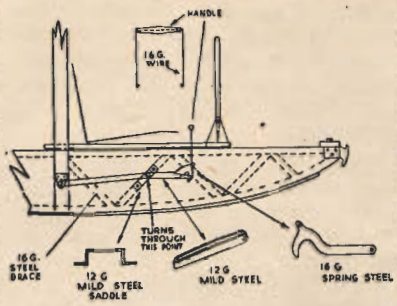
Double release mounted on bulkhead and flush with bottom skin of fuselage. Two oval holes cut for entry of tow pieces. line V

to 1000 feet were obtained in the primary gliders by auto tow on 1200 feet of wire.

The first sailplane to be fitted with the C.G. release was the "Golden Eagle," first flown on September, 1937.

These releases are under the back of the seat, in line with the leading edge, and attached to the bottom of the leading edge bulkhead (see sketch).

The "Golden Eagle" and a "Grunau Baby II" (imported from Germany by the Gliding Club of Victoria) were both test flown on the same day at Laverton, Victoria. First flights were from the nose releases by auto tows. After several of these flights, it was found that heights obtained varied between 400 and 600 feet. When the rear release on the "Golden Eagle" was tried, heights from 800 to 1000 feet were made.



Double rear releases as fitted to "Zoegling" and "Rhon Ranger" Primary Gliders about 1932.

The "Grunau" was later fitted with a similar attachment and the same results obtained.

The tow, either by auto or winch is smooth, and without bucking at the top of the climb. The height is obtained without effort. The control column position during the take off and climb varies with the machine and point of attachment. Usually, however, the take off and initial climb to about 150 feet is made with the column slightly forward, then it is eased back until, at the top, it is in the neutral position, or is slightly back.

Advantages are many. In fact, once tried, no one would revert to towing from the nose for auto or winch launching. The climb is smooth and fast, full control is available all the time. In the event of a broken cable, it is not necessary to make a sudden change in the position of the control column, as the glider rides smoothly over into a glide. Heights up to 1600 feet have been obtained with the "Golden Eagle" using 3300 feet of wire on a winch tow, and heights up to 2400 feet in a strong wind have been obtained by a "Grunau Baby II" used by the Gliding Club of Victoria (see SAILPLANE AND GLIDER, Oct. 1946).

In Victoria, nearly all utility, two-seater gliders and sailplanes have releases fitted well back from the nose. Some have been fitted with a single release located on one side only of the skid. Some of the machines fitted are: "Slingsby Kadet", "UT. 1", "Beaufort Two-seater", "Merlin", "Grunau Baby II", "Kestrel", and "Golden Eagle".

A letter dealing with this subject, and giving the information contained herein has been sent to the Technical Committee of the British Gliding Association.

Hoping that this may be of some assistance.

H. G. RICHARDSON,
President and Technical Officer.
The Victorian Motorless Flight Group, 36, Mills Street, Burwood, E.13.

ROYAL AERO CLUB GLIDING CERTIFICATES

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

GLIDING CERTIFICATES: "A" .. 42 (6424—6566)
"B" .. 68
"C" .. 39

SILVER BADGES: 5

No.	*Name*	*A.T.C. School or Gliding Club*	*Date taken*
	"B" CERTIFICATES		
1347	Peter Nigel Julian Allan Richardson	Derby and Lancs.	25. 5.47
1455	Gwladys Violet Sybil Aldridge	Midland G.C.	29. 7.46
1968	John Michael Kidd	144 G.S.	1. 6.47
2645	Lionel Frank Savery	68 G.S.	25. 5.47
3003	Peter John Royce	Surrey G.C.	5. 4.47
3273	Harold Frederick Benton	Rochester G.S.	17. 5.47
3522	Gerald Ivor Lewis	68 G.S.	19. 5.47
3620	John Sinclair Macpherson	85 Wing G.C.	6. 4.47
3838	Cyril Richard Taylor	Ditto	31. 5.47
3949	John Allan Littler	R.A.F. Middle Wallop	12. 6.47
4056	Eric Thomas Lyndon Smith	Bristol G.C.	27. 5.47
4336	John Gilhesty Robson	146 G.S.	25. 5.47
4368	Ian McDougal Cobbe	181 G.S.	2. 6.47
4390	James Wright	184 E.G.S.	1. 6.47
4416	Charles Frederick Carter	144 G.S.	31. 5.47
4928	Peter Perman	Ditto	10. 5.47
4942	Raymond Alan Glass	203 G.S.	10. 5.47
5063	Charles William Stubbs	146 G.S.	24. 5.47
5197	William John Hyde	Ditto	25. 5.47
5327	James Cecil John Farrell	166 G.S.	1. 6.47
5402	Peter Travers Ross	London G.C.	17. 5.47

GLIDING CERTIFICATES—*continued*

No.	*Name*	*A.T.C. School or Gliding Club*	*Date taken*
5618	Alastair Barrie Stevens	167 G.S.	31. 5.47
6041	Michael Ian Darlington	122 G.S.	25. 5.47
6335	Arthur Harold Manners Edney	Derby and Lancs.	24. 5.47
6397	John Francis Wood	London G.C.	26. 6.47
6403	Gerald Richmond Edge	Midland G.C.	11. 5.47
6408	Frank William Lyster Shepard	London G.C.	26. 5.47
6418	Brian Mcgraw	Derby and Lancs.	26. 5.47
6420	Samuel Philip Russell	Leicester G.C.	26. 4.47
6425	Brian Deaves	Midland G.C.	18. 5.47
6426	Kenneth Ewart Machin	Cambridge University G.C.	26. 4.47
6427	John Crampton	R.A.F. Lubeck	17. 5.47
6446	Maurice Richard Bishop	Ditto	14. 5.47
6447	Joseph Kenneth Lance	Bristol G.C.	11. 5.47
6448	Geoffrey Reece Scott	49 G.S.	8.12.46
6449	John Roderick Mathieson	Royal Artillery	15. 5.47
6451	George Norman Snarey	Yorkshire G.C.	8. 5.47
6453	Margaret Swale	Derby and Lancs.	1. 6.47
6456	James Marston Heron	Bristol G.C.	5. 4.47
6458	Philip Charles Bolt	151 R.U. (A.)	4.12.46
6459	Philip Winfield Leech	Derby and Lancs.	18. 5.47
6473	George Elliot Cecil Loftus Williams	68 G.S.	11. 7.46
6474	Peter William Helson	Imperial College G.C.	3. 4.47
6490	Irving Lawrence Bowman	Royal Naval G.U.	1. 5.47
6492	James Lawless	Derby and Lancs.	18. 5.47
6493	Andrew Coulson	Newcastle G.C.	1. 6.47
6495	Richard N. Cook	44 A.T.C. School	18. 5.47
6496	Hugh Lambert Reilly	166 G.S.	1. 6.47
6500	George Ian Benson	Derby and Lancs.	1. 6.47
6503	Kenneth Frank Venn	151 Repair Unit (A.)	29. 3.47
6511	Robert Thornley Bowring	49 G.S.	25. 5.47
6512	Arthur Varela Cid	Lisbon	5. 9.34
6513	Anthony T. Peters	Poland	10. 1.39
6517	Kenneth Harvey Garner	London	25. 5.47
6527	Mervyn Terence Sanders	Bristol G.C.	11. 5.47
6528	Arthur Adair McKernan	203 G.S.	29. 5.47
6529	Philip Allen	28 G.S.	2. 13.43
6530	Dudley Frederick Alexander McKinley	R.A.F. Gaydon	23. 7.46
6531	Arthur Frederick Stevens	Midland G.C.	5. 4.47
6533	Samuel Anthony Blackman	Cambridge University G.C.	1.12.46
6537	Frederick Watkin	Yorkshire G.C.	8. 5.47
6543	Denis Foot	92 G.S.	15.12.46
6544	Duncan Alexander Dobbie	Yorkshire G.C.	7. 6.47
6547	Thomas Arnott Moffat	Air Division G.C.	4. 8.46
6553	Peter Murden	Surrey G.C.	24. 5.47
6555	Peter Laurence Sell	140 Wing G.C.	22. 9.46
6561	Geoffrey Thomas Southern Harborne	95 G.S.	15. 6.47
6562	George Trehane Collins	Ditto	18. 5.47

"C" CERTIFICATES

124	Cecil Palmer	162 G.S.	25. 5.47
1431	Albert Henry Pocock	4th Armoured Brigade G.C.	31. 5.47
1455	Gwladys Violet Sybil Aldridge	Midland G.C.	29. 7.46
1498	Anthony Jeffrey Hayes	Surrey G.C.	25. 5.47
2062	Francis Dennis James	2 Gp. R.A.F. Ierlinghausen	7. 5.47
2184	Norman Henry Augustus Clark	140 Wing G.C.	10. 6.47
2214	Stanley Walter Howard	140 Wing G.C.	12. 6.47
3381	Leonard Patrick Sanday	Midland G.C.	19. 4.47
4235	John Howard Gaston	62 Gp. R.A.F.	23. 4.47
5264	David Lynn-Pratt	4th Armoured Brigade G.S.	26. 5.47
5402	Peter Travers Ross	London G.C.	6. 6.47
5733	Roger Frank Pollard	Ditto	7. 6.47
5774	George Cecil Fidler	Newcastle G.C.	7. 6.47
6014	Alexander Ian Charles Munro	4th Armoured Brigade G.S.	26. 5.47
6066	Alan Keith Butcher	London G.C.	25. 5.47
6075	Richard Western Herbert	4th Armoured Division	25. 5.47
6225	David Evan Daniel	Ditto	7. 6.47
6254	John Frederick Perlee Archbold	R.A.F. Oerlinghausen	20. 4.47
6257	Philip Reynolds Mattew	Ditto	2. 4.47
6349	Donald Brown	4th Armoured Division	25. 5.47
6397	John Francis Wood	London G.C.	5. 6.47
6403	Gerald Richmond Edge	Midland G.C.	7. 6.47
6425	Brian Deaves	Ditto	6. 7.47
6444	Jack Rawlinson	151 R.U. (A.)	27.10.46
6445	John Crampton	R.A.F. Lubeck	17. 5.47
6446	Maurice Richard Bishop	Ditto	17. 5.47
6458	Philip Charles Bolt	151 R.U. (A.)	21. 5.47
6459	Philip Winfield Leech	Derby and Lancs.	27. 5.47
6490	Irving Lawrence Bowman	Royal Navy Gliding Unit	18. 5.47
6493	James Lawless	Derby and Lancs.	25. 5.47
6503	Kenneth Frank Venn	151 R.U. (A.)	26. 5.47
6512	Arthur Varela Cid	Lisbon	29.10.34
6513	Anthony T. Peters	Poland	15. 7.39
6517	Kenneth Harvey Garner	London G.C.	5. 6.47
6532	Barry Anthony Travers Hammond	84 Gp. G.C.	15. 5.47
6533	Samuel Anthony Blackman	Cambridge University	14. 4.47
6543	Denis Foot	92 G.S.	27. 5.47
6547	Thomas Arnott Moffat	Aid Division G.S.	18. 9.46
6555	Peter Laurence Sell	140 Wing G.C.	4.12.46

SILVER BADGES

89	R. H. Dresner	(5051)
90	D. M. Pickering	(6248)
91	W. O. Nicholas	(6259)
92	N. W. Kearon	(5291)
93	I. Bourne	(5827)

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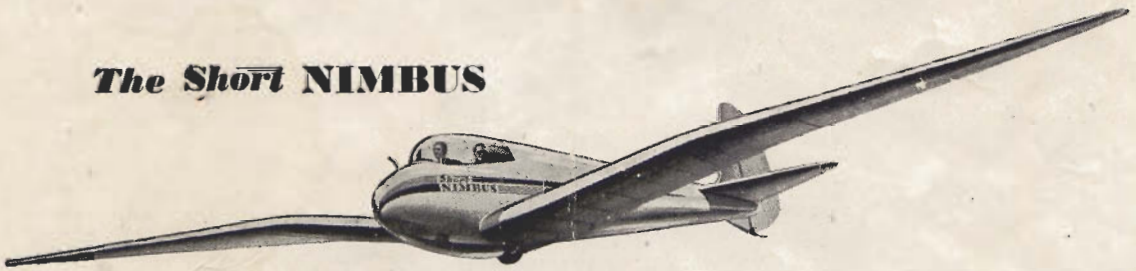

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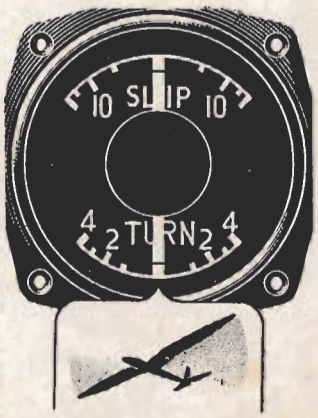

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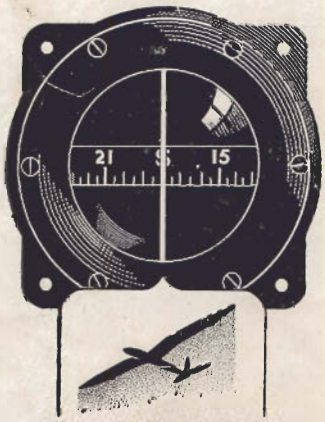

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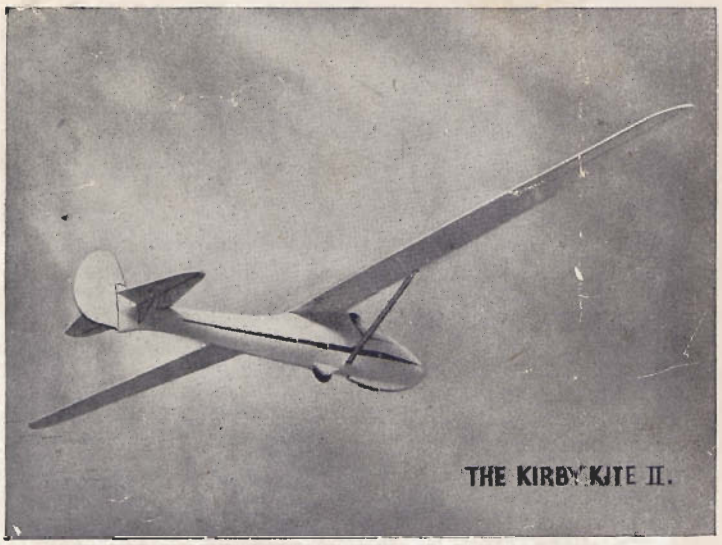

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