Sailplane and Glider

The First Journal devoted to Soaring and Gliding

JANUARY 1948

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Sailplane and Glider

and ULTRA LIGHT AIRCRAFT

THE FIRST JOURNAL DEVOTED TO SOARING AND GLIDING

JANUARY 1948 ★ Vol XVI No 1

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Front Cover : *Type 21 Slingsby two-seater, piloted by Squadron-Leader E. J. Furlong, at Dunstable. Photographed by F.H. Wallace with a "Balda" camera. Stop F 6.3. Film Verichrome. Exposure 1/250 sec.*

Editorial

GLIDING is in the doldrums in common with all British Aviation at the moment. The high costs of flying, the difficulties of transport to and from gliding sites, and the fact that so many would-be pilots have not yet adjusted their minds to the fact that if they want gliding " laid on " they will have to lay it on themselves, all are factors in this state of things. The State wastes ten million pounds in one year in Civil Aviation pursuing a policy of trying to make the facts fit the theory instead of inducing a workable theory from the facts. The benign Minister of Civil Aviation spends £40,000 of a grateful nation's money in an air trip round the Pacific—the poor get rich and the rich get poorer—nobody can do what they wish except the Government who, although elected on a minority vote, assume dictational powers over the lives and social habits of the whole nation. What a mad picture.

There are however, still a few well-intentioned people in the world, of good morals who pursue the even of their way and try to bring stability into the mad chaos of it all. They have begun by helping themselves to do the things they want to do. The members of Gliding Clubs who work in their own clubs making and repairing their machines, the members of the Ultra Light Aircraft Association who, with a precious little encouragement (although they acknowledge gratefully the Royal Aero Club's help) are designing and building their own aircraft, all show the spirit of self help which is the best strain of our breed although overlaid by modern civilisation with so many non-essential distractions and easily achieved amusements.

To the aid of those who would help themselves have come the manufacturers, in a bid to cut down the cost of a delivered Sailplane. They have re-designed all their sailplanes in ' kit form ' at about two-thirds of the normal price for the benefit of those across the seas who cannot afford the freight of an assembled machine, and of all who may not have the facilities or the skill and knowledge with which to build a sailplane of their own from the beginning. On another page in this issue will be found the new prices of the Slingsby machines which should tempt many people who are deterred by its cost from owning a machine.

If four people clubbed together to buy a Cadet or a Tutor ' kit ' to assemble themselves, they could hardly help learning a good deal about the mechanics of flying and the elements of construction which would be of immense value if it came to making repairs, which is a good deal better than having your flying " laid on " and not knowing whether the span is an octave, what makes a chord, and if the C.G. really is the piano stool.

Only a few days ago a letter was received at this office from an enthusiast in Hong-Kong who wishes to acquire the plans with which to build a G.B. With a group of friends he is prepared to face a mountain of difficulties and a year's hard work for the prospect of gliding at the end of it. He is not unique in the world. Our friends in Australia who are nearing completion of an Olympia from plans supplied by this office three years ago are typical of the gliding devotee.

The new kit development will enable such people as those to build their own machines in a matter of months without too much of the wearying struggle to get things and materials to begin.

We welcome this step therefore as one which will open the delights of gliding to a far wider circle of adventurous spirits than would otherwise be possible both at home and abroad. It will also serve to increase our exports and in time perhaps to lower prices as production rises and sales increase. Gliding then may be within the reach of the adolescents and others of modest means.

Things are beginning to happen. First the Kemsley Fund and now this. If we could get free use of certain airfields that would be another cut in overheads which would be very valuable.

"CENTRE OF GRAVITY-LAUNCH"

By HEINZ FUNK

Technical Supervisor R. A. F. Gliding Club, Oerlinghausen.

OF all the attempts to improve or to simplify methods of launching gliders into the air, the C. of G.-Launch is doubtless the one of the greatest importance for future development of Gliding, as it combines the advantages of greater heights to be gained (top heights approximately 50% of cable length), with the same lengths of cable, with a far smoother launch.

But as every increase in efficiency goes on expense of safety, this method bears certain dangers as well, which can only be avoided by a skilful operation as far as the pilot, the winch operator and the instructor are concerned and by a thorough knowledge of the limits of safety.

The brief idea of the C. of G.-launching method is to make the direction of the cable pull go through the Centre of Gravity, or better expressed, through the Centre of Pressure, whilst the glider is in the climbing attitude. By a comparison with the Nose-Launching method all the advantages will become clear and can be easily explained.

The cable pull attached to the nose of the glider will during the climb cause a nose heavy momentum, which has got to be balanced by an equal tail-heavy momentum from the elevator, thus requiring the stick to be held fully back on the climb. Under these conditions the lift produced on the wings, besides carrying a part of the weight, has got to counterbalance two downward directional forces, the cable force being the useful one for climbing, whilst the " downpull " on the elevator is to be considered as a parasite force without any use for the climb at all, even producing considerable drag. (*Fig.* 1.)

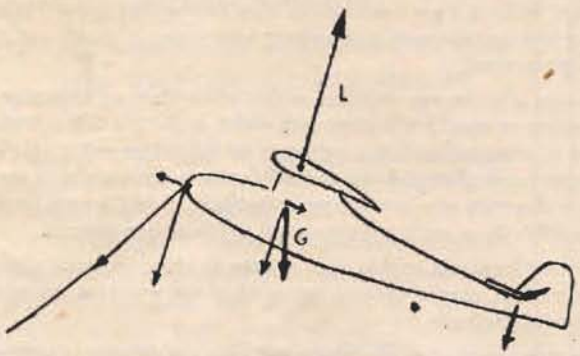


Fig. 1.

The total amount of the downward directional forces, consisting of the corresponding components of the weight, cable pull and elevator effect, must at all times be counter-balanced by the lift. The two downward components of cable pull and elevator are reversely proportional to their distances from the Centre of Pressure. Thus, on a " Baby " for instance, a quarter to third of the lift produced is needed to counterbalance the downforce, produced by the elevator on account of the climbing rate.

These disadvantages can be avoided, if the direction of the cable pull goes through the point at which the lift-force is attached, whilst the glider is in the climbing attitude. The glider will then have a far steeper climb, as the total lift reserve is utilized for climbing. The launch will be far smoother too, as the elevator will remain stable in the neutral position during the climb, and so the usual " pitch," which on a nose-launch is caused by the break-away of the slipstream on the fully displaced elevator, will not occur.

The designs for attachments show various forms, the best of which seems to be the " Bottom-Attachment." Hereby the release coupling is fixed at the bottom of the fuselage, beside the skid slightly in front of the Centre of Gravity. The actual coupling is screwed between two strong wooden spars, which themselves are mounted rectangularily between the main bulkhead and the next bulkhead in front.

By this bottom attachment the glider, once erected into the climbing attitude, will obtain a lateral stability, maintaining the glider in such an angle with the cable, that the direction of the cable pull will always go through the point of pressure, if no elevator forces are produced additionally.

Assuming the cable angle would become smaller, direction of cable pull would pass behind the Centre of Pressure, so causing a tail heavy momentum, which will bring the glider back into the desired angle without any movement of the controls. The same will happen in case of an increased angle by causing a nose-heavy momentum. So on account of the distance between the Centre of Pressure and the bottom attachment the glider will stay in a perfectly smooth climb without any touch on the elevator and on its own accord follow the steepening cable in a fixed angle, until it comes into the normal gliding angle on top of the winch.

This angle of steepness on the climb with neutralized elevator depends on the inclination of the line between Centre of Pressure and cable attachment to the vertical axis of the glider. Were the release to be fixed right underneath the Centre of Pressure the glider would tend to take an angle of 90 degrees to the cable, which is impossible, as the forward component of the cable pull would become zero, and no forward motion could be maintained. It would therefore be necessary to hold the stick forward all the time during the launch. With the attachment too far forward the natural climbing angle would be too flat and conditions would become similar to the Nose Launch.

The release should be fixed so that an angle of

about 60 degrees is included between the line cable attachment—Centre of Pressure and the longitudinal axis of the glider. Thus the launch will proceed with the correct angle with the elevator in a position where it stays on its own. Once the glider is in the climbing attitude. This method of launching is therefore far simpler as any other, and only the first part—the change from the ground attitude into the climbing angle—needs some skill and experience. As the way of controlling it is dependent on several variable circumstances, the correct method of handling cannot be standardized.

On the first acceleration of the glider, by the increasing cable speed the pull attached to the bottom release will cause a tail-heavy momentum against the inertia, which is acting on the Centre of Gravity higher above. (*See Fig.* 2). This tail-heavy momentum would cause the glider to jerk up into the climbing position too suddenly, if it is not checked by a forward movement of the stick.

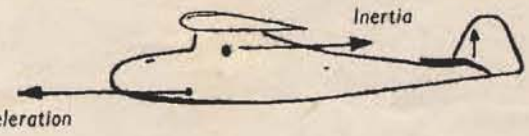


Fig. 2.

But this acceleration momentum varies with the weight of the glider, with the way of speeding up the cable and even with the wind speed, with a strong wind considerably reduced cable speed will be necessary to get the glider off the ground, so the acceleration will be less too, which makes it difficult to forecast the correct position of the stick for the take-off. Under normal circumstances the glider will even take off and immediately take the nose up with the stick fully forward.

After this initial acceleration, when the cable speed becomes permanent, the glider must be kept turning further round its lateral axis by easing the stick gently back towards the neutral position. If the stick is held forward too long or too far, the elevator with increasing speed will become more and more efficient and cause the glider to stay in the horizontal attitude or even make the nose drop again. As under these circumstances no load is put against the cable pull, the winch will rev up, and the glider will still fly parallel to the ground without any tendency of taking the nose up. When eventually the stick is pulled back it will jerk up due to the overspeed on the winch.

This point of lateral instability must be passed with a careful operation of the stick by letting the glider gradually but permanently turn round its lateral axis until the natural climbing attitude is reached in about 100 feet height. Once this point is passed, and a certain angle is reached, one can feel the erecting momentum of the cable pull in the stick, and it is only a matter of letting it gently back towards its neutral position to smoothen out the curve of climbing.

A second kind of design for a C. of G. Attachment is the so-called " Shoulder Attachment." The aim of this method is to attach the cable as close as possible to the Centre of Pressure. For this reason the release has got to be outside the fuselage, attached to the side wall, slightly underneath and in front of the Centre of Pressure. To avoid any bank, because of the eccentric placement of the release, two couplings must be used and the winch cable must therefore end into a fork.

By this attachment very little momentum is produced by the cable pull, so the climbing path is to be controlled by the elevator from take-off to the top of the launch. The disadvantages are : firstly, the need of two release couplings, the co-operation of which must be reliably guaranteed. Secondly, as on this launch there is no determined tendency of the glider or the stick to stay in a certain attitude during the launch (which is a big help, especially for beginners unable to judge the correct angle of a safe climb), the cable angle might be easily exceeded to an unsafe degree.

Safety in Centre of Gravity Launches.

The present unhindered spreading of the C. of G. launching method to nearly all types of gliders raises questions of great significance regarding the safety of the glider. The idea of making the cable pull go through the Centre of Pressure to increase the efficiency of the climb, is already very old and the first experiments were made in Germany in the year 1933. But in spite of all the above described advantages the idea was objected by designers and scientists on account of safety for a long time. Only due to the war-time requirements for increase of efficiency in the mass-production of glider pilots was the compromise dared, and the C. of G. attachment issued for two types of gliders. The " Baby IIb," which has a higher safety factor, as it was originally designed for aerobatics, and the " Kranich," which is fairly suitable for this purpose because of its flying weight. (Explanation later.) But even after this official issue the voices of scientists and designers did not stop warning. Nowadays all these scruples are forgotten, there is scarcely one type of glider which has not been converted, and, I who know the danger, am nervously awaiting the advent of a converted Primary Trainer. For this reason the limits of safety may be recalled to the memory of all, who are dealing with conversions of gliders, execution of C. of G. Launches and decisions about strengths of the winch cable.

Let us first consider the forces working on a glider during the whole launching procedure.

On take-off the flying path and the cable pull are nearly in line, that means cable speed and glider speed are equal, cable pull covers only drag, lift carries only the weight of the glider. As the glider ascends into the climbing attitude, the ratio between cable speed and glider speed increases with the increasing cable angle until it becomes 1 : indefinite at a cable angle of 90 degrees. (Cable angle is the angle between cable and flying path.)

At the same ratio the cable pull increases, and it has necessarily at all times to be met by the increased lift.

(to be continued.)

GLIDING IN FRANCE

By
GUY BORGÉ

ON the 13th November, at St. Auban Sur Durance, M. Lafargue, an instructor, climbed to 21,381 feet in a stationary wave, in a Nord 2000 "Olympia."

He had been towed to 3,000 feet at 9.30 a.m., and his flight was timed 5 hours 15 minutes.

If the Aero Club of France recognizes this performance, it will be a new French altitude record.

Present altitude record holder, Eric Nessler, in a "Minimoa," 11,850 feet, in 1938, at Pont St. Vincent.

The lack of thermo-barographs had previously

"Emoochet" Sailplane.

prevented the St. Auban pilots from breaking this record.

In 1945, the French Air-Sports Service decided to purchase some sailplane winches. Two models were available: the Ford and the Aerazur.

So that the respective qualities of these winches could be compared the Service ordered ten of each. After severe tests at the National Centres it was decided to purchase 200 Fords, built by the French Ford Society, at Puteaux (Seine).

The Ford winch is powered by an 8-cylinder lorry engine. It is fitted with twin spools on either side of the frame, at the rear. Each spool holds 4,000 feet of wire.

The object of having twin spools is so that two independent launches can be carried out before the retrieving car has to go into action. And by retrieving both launching wires in one operation, both time, labour and petrol are saved. It is estimated that one launch costs less than the one-fifth gallon of petrol consumed by winch and car together.

The equipment of the winch cabin consists of two emergency shears, two progressive wire brakes—one for each cable; a lever for selecting whichever spool

Ford winch ready for action at Lyon-Corbas.

is required; a hand-operated throttle; a speed-indicator; oil pressure and water temperature indicators; an electrical starter, and a Klaxon.

By means of the four-speed gear-box, the wire speed can vary from 10 to 70 feet/second, and the winching force from 2.750 pounds to 730 pounds.

When launching operations are finished for the day it only takes a matter of seconds to make the winch ready for towing behind a car or lorry. A hydraulic pump lowers the wheels, thus raising the frame clear of the ground. For the reverse process the opening of a tap is all that is necessary.

The Aerazur winch is of similar construction and has the same devices, but its engine is slightly smaller, 6 cylinders in line, and it has an electrical Cotal gear-box. This gear-box gave difficulties during the running, and that was why the Service preferred the Ford.

The Ford winch is in general use throughout France to-day. It is a very reliable machine, and enables sailplanes to be launched in any conditions with safety and efficiency.

SAILPLANE QUIZ

Veronica Platt, after an absence of three months abroad, continues "Beginners' Page" with a Quiz. Her first contribution to this new feature appears on page 8 of this issue.

Slingsby "Gull IV"

UP TO THE OUTBREAK OF WAR IN 1939, the centre of gliding and soaring activity was in Germany, due entirely to the lavish support of the German Government, which had its own special reasons for fostering the natural urge of youth to take up an adventurous sport.

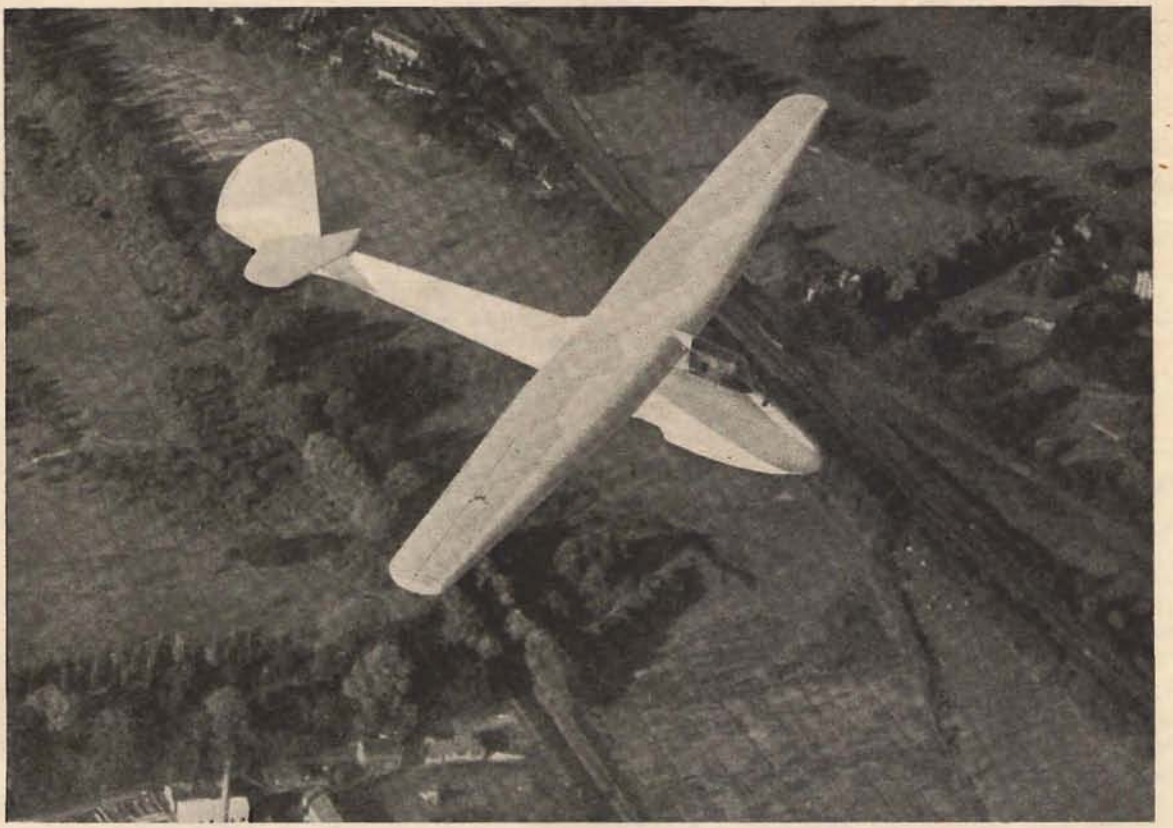
In Great Britain research and development in this field of aviation was carried out by a few enthusiasts, with the financial backing of individuals whose sole aim was to encourage the growth of this splendid sport for the peaceful enjoyment of their fellow-countrymen and the fraternisation of youth throughout the world.

In pre-war years Slingsby glider aircraft were known or flown in all countries interested in the new sport.

The popularity of the sport is now greater than ever; the demand for machines has been enormous. Shortage of supplies and labour have restricted the growth; the need for a complete revision of designs has also caused some delay in production.

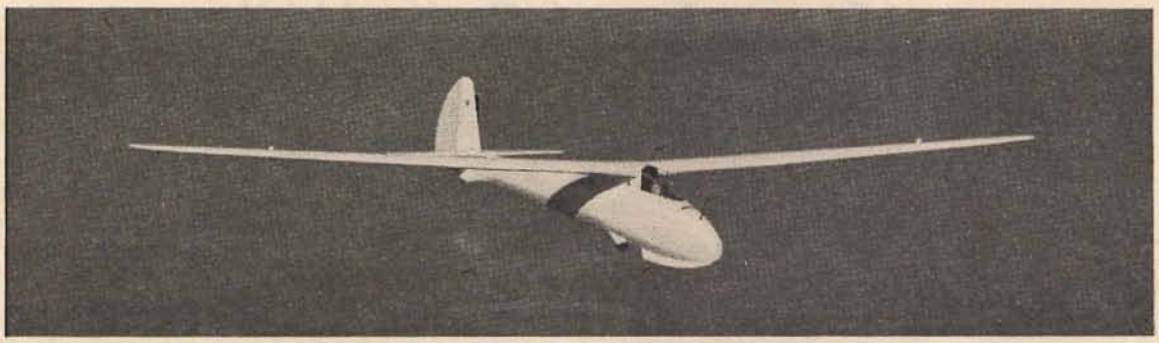
Slingsby Sailplanes Limited could have taken the "short cut" by producing machines of 1938 vintage or even German types, being in possession of all German production drawings. Commercially it would have been a sound policy. Nevertheless Gt. Britain could not afford to discourage the splendid aspirations of its own people whose superior design ability was demonstrated so conclusively during the war years.

A range of British gliders and sailplanes has been designed and produced for all purposes; training types, two-seaters and high-performance sailplanes. The "Gull IV" is the latest and best sailplane of the 15 metre span class to be produced to date. Experts who have flown the machine agree that its handling qualities and general performance are superior to the German "Olympia," a sailplane designed in 1938 by Hans Jacobs of Darmstadt. Official tests for comparison with the German "Olympia" were carried out by a selected test team, and the following extract from the report is



THE SLINGSBY "GULL IV"

This high performance sailplane, latest of the 15 metre span class to be produced to date, is undergoing official flight tests by B.G.A. Test Group No. 1 at Redhill.



Another view of the "GULL IV."

most encouraging. (An index figure for 100 was taken for the German "Olympia). "Longitudinal stability 125; rolling power 110; spin 100; spiral stability 100; cockpit 150." Conclusive proof of the advancement made in design during the past nine years, and the wisdom of giving full support to our own designers.

The well-known high standard of Slingsby craftsmanship and the best possible quality materials used in the construction assures the purchasers of machines second to none.

SLINGSBY "GULL IV."
Span: 49′ 10½″. Weight empty: 467 lbs.
Gliding angle at 40 m.p.h. 1 in 26.
Sinking speed at 38 m.p.h. 2.3′ per sec.

MY SILVER "C" CROSS COUNTRY FLIGHT

By ANN BLACKWELL

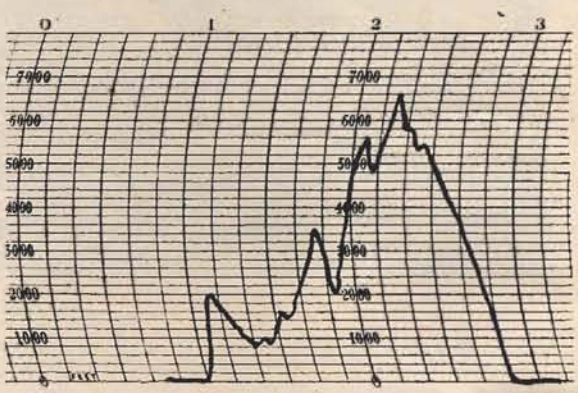
WHEN, on August 25th, I drove from Maidenhead to Redhill, as was my custom most Sundays, before the abolition of the basic petrol ration, there was nothing further from my mind than a Silver "C" cross-country flight. But by the time I reached Redhill Aerodrome, conditions were very promising; bright sunshine, a light N.E. wind blowing and some good looking cumulus cloud beginning to build up.

I found the Club in a state of unusual activity. The "Weihe" and "Eon Olympias" were already booked by earlier birds than I, and waiting to go off on goal and cross-country flights; I resigned myself to less exhilarating occupations. However, it was my lucky day. Conditions steadily improved. At 14.30 hours one Club "Olympia" landed back at base after a short out and return flight, so I seized a map, some money and a jacket, and was soon in the cockpit.

I was towed off from Redhill Aerodrome at 15.00 hours by an "Auster" flown by Mr. H. Kendall, and I released seven minutes later at a height of 2,000 feet on the eastern boundary of the airfield. The thermals, by this time, did not at first appear to be very active: two privately-owned "Olympias" were circling below and to the west of me with small success.

I kept north of the airfield, slowly drifting downwind, searching for lift over cornfields and groups of houses, but lost height almost steadily to 800 feet, and thinking that my luck was out, made for home. On my approach to the airfield lay a large cornfield with two stacks in it, and I decided to try this as a last hope. Here I found a little turbulence, and gentle lift up to 2 feet per second, and slowly scraped back to 1,000 feet again.

I had by now drifted somewhat dangerously downwind of the airfield, and heading back to my two stacks, again found weak lift and circled up to 1,600 feet. By this time I had decided that the air was more thermally active to the west of Redhill, and as



Gatwick lay within easy reach, continued circling and drifting with the wind until I was over Horley town.

It was here that I first picked up really good lift, and was soon up to 3,500 feet and out of trouble. Over Gatwick airport I suffered a further short setback, losing 1,500 feet before I found good lift again, but finally climbed to 5,500 feet and made up my mind the time had come to set off for the South Coast.

Conditions were so good here that I was able to fly from one mass of cumulus to another, each time finding lift. The maximum height attained during the flight was 6,700 feet, and at this point I was just inside the base of a large cloud over the South Downs. The " Olympia " I was flying was, unfortunately, the Club's latest acquisition, and at that time not fitted with blind-flying instruments; I soon left that cloud in a somewhat undignified position. However, the lift there was such, that had I been more experienced, I could have reached a far greater height.

Now, beneath me and to my left, the South Coast stretched away into the distance; Tangmere, Thorney Island, and further, Portsmouth. A large cloud over Thorney Island offered no lift, so I pushed on to Portsmouth, and arrived over the airport with 4,000 feet in hand. I debated whether to continue or to land here. The lateness of the hour, and pictures of a return journey by train persuaded me that discretion was better than valour.

With 4,000 feet to dissipate as I would, I idled my way earthwards, to touch down on Portsmouth airport at 16.50 hours, approximately 49 miles from my starting point. Apart from the first few moments of anguish and near defeat, I had experienced no major difficulties.

The climax of the flight by far, was the aero-tow out of Portsmouth, which, with the aid of six local stalwarts pulling on the tow-rope, proved only just large enough to permit our exit. We landed back at Redhill in the halflight of a day memorable for the Surrey Gliding Club, as over 400 miles had been successfully covered on cross-country flights.

Ann Blackwell's Silver " C " duration flight was completed some weeks ago.—Editor.

NORTH WALES SOARING CLUB

HOLIDAY CENTRE

IT is proposed next year, if sufficient support exists, to form the North Wales Soaring Club as a Soaring Holiday Centre, operating full time and providing soaring from *ab-initio* to Silver " C " standard. Details of the proposed set-up are given below, but before such a scheme can be put into operation, the promoters feel they must have some reasonable evidence that such a centre would be of interest to soaring pilots and prospective learners.

The promoters would therefore like to ask all people interested to write briefly to the address below, stating :—

(1) Whether they would like to spend such a holiday.
(2) Whether a week or a fortnight would probably be preferred, and in what month of the year.
(3) How many hours previous soaring or power experience.

This would of course in no way commit them, but would enable the promoters to form a reasonable idea of the support which could be expected.

Details of Proposed Centre.

Situated in North Wales—in very fine country and within three miles of the sea—the Centre would provide soaring for all classes of pilot.

A twenty mile beat in S.W. to West winds makes two-seater training a practical proposition and all training would be of this type. The long beat and the fact that 2,000 feet or more above launch is obtainable on hill lift is an attraction for the intermediate pilot while, for the expert, Gold " C " distance is available in a straight line downwind on all winds between West and North.

Subsidiary sites provide soaring in almost all wind directions.

Equipment would be a two-seater—probably a " Nimbus "—and " Olympias." Pilots would be given training on the two-seater until they were considered safe to graduate to the " Olympia." Numbers would be limited to four pilots per machine in any one week so that all pilots could be sure of ample flying. Under these circumstances an *ab-initio* pilot should, in average weather, reach " Olympia " standard in a fortnight.

Adequate facilities would be provided for Silver " C " and cross-country generally.

Bunkhouse accommodation would be provided for single pilots, while married couples would be given comfortable double cabins. It is hoped to provide a high standard of catering, while adapting this to the rather erratic meal-times of pilots.

Membership, Flying and Accommodation Charges.

Flying membership would be £1 per week (5/- per day, £3 per annum). Non-flying membership, 5/- per fortnight (10/- per annum).

Flying charges would be 17/6 per hour on " Olympias," 22/6 per hour dual instruction, 27/6 per hour for two pilots flying the two-seater together. All these rates would be increased by 2/6 during June, July and August, and reduced by 5/- during the six winter months.

Bunkhouse accommodation would be £4 per week, inclusive of all meals. Double cabins, £8 per week.

Accessibility.

The Club would be situated about 3 miles from Prestatyn, which is on the London—Holyhead main line. Transport would be provided from station to Club—and for all cross-country flying—to those without their own transport.

All enquiries to :—

W. E. CREASE,
" Fairholme," Woodlands Road,
Hough Green, Chester.

ANNOUNCEMENT

SLINGSBY SAILPLANES & GLIDERS are now manufactured and distributed solely by Slingsby Sailplanes Limited at Kirbymoorside, Yorks, where, with additional capacity, this well-known firm has centralised its activities, thus allowing Messrs. Martin Hearn Limited, of Hooton Park, to give full scope to the production of commodities now in very great demand.

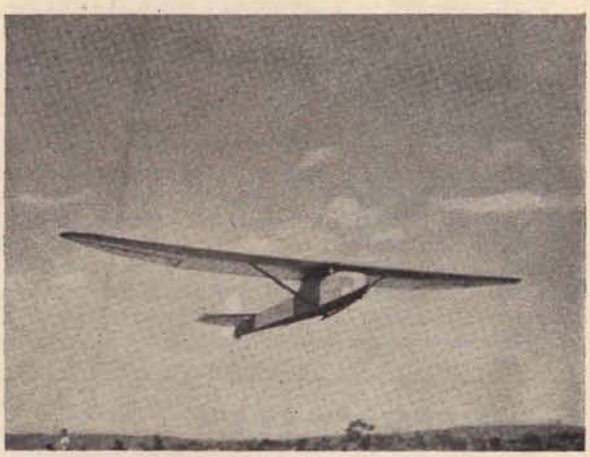
Beginners' Page by VERONICA PLATT

SAILPLANE QUIZ

1. CONSTRUCTION AND HISTORICAL

1. What is the chord of a wing ?
2. What is " lateral stability ? "
3. What is the difference between manoeuvreability and controllability ?
4. What is meant by " sweepback " ?
5. What is the function of ailerons and where are they situated ?
6. What is the " critical angle of attack " ?
7. What is " aspect ratio " ?
8. In what year was the North American Continent first crossed by a glider in tow ?
9. Who was the first woman to fly across the English Channel and when ?
10. When was the first regular scheduled transoceanic passenger service ?
11. Can you name the machines in photographs 1, 2 and 3 ?

(*Answers on page* 15.)



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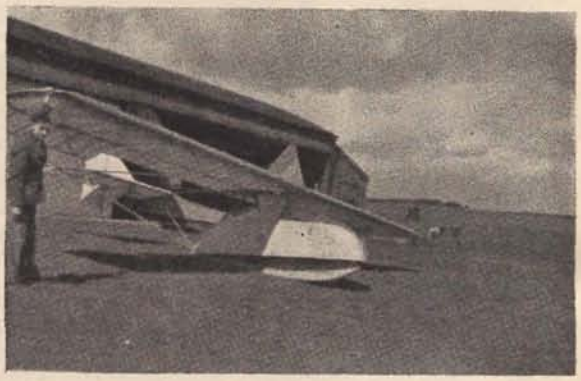

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ULTRA LIGHT AIRCRAFT ASSOCIATION

THE Special Advisory Committee on Private Flying has laboured and—let us face it—brought forth a mouse ! Many of the non-financial recommendations contained in this preliminary report are, undoubtedly, very much worth while, but we venture to suggest that it hardly needed a Committee of eleven, holding meetings over a period of six months, to arrive at conclusions which were pretty generally accepted already, at least by those who really *are* interested in flying. But the suggestion that the only way to save private flying in this country is for the Government to pay subsidies to the tune of £900,000 annually seems to us to be absolutely the wrong approach to the problem. What we hoped would happen as a result of Lord Nathan's decision to set up this Advisory Committee was that some really sound and original plan would emerge for putting private flying on its feet, and by this we mean all types of private flying, not just our own particular brand. Instead, we get a re-hash of the pre-war subsidy plan—only more so ! Surely subsidies of this type, direct subsidies based on hours flown, have been proved in the long run to be bad things. Ten years of varying degrees of subsidies before 1939 certainly resulted in more people getting "A" licences than would otherwise have been the case, but what is there to show now for all the millions of pounds paid out in that period ? Is the man-in-the-street any nearer being able to get his "A" licence without excessive outlay either by himself or by the Government ?

One of the most regrettable results of the pre-war subsidies was that it perpetuated a type of aircraft which was, inherently, expensive to operate and whose first cost rose steadily. Subsidies also encouraged the growth of a type of flying club which could never be expected to pay its own way without financial help from the Government. What happened ? When these clubs try to operate without subsidy, as they have been doing since the end of the war, they immediately discover that they are running at a loss. So they start to clamour for more of the drug which alone can keep them going, the drug called "Subsidy."

Subsidies mean, in the last analysis, one thing only. They mean that clubs are operated beyond their resources, that members of these clubs are encouraged to fly beyond their means. The whole country is in its present sorry financial situation because we have all been living beyond our means, existing on a subsidy from the U.S.A. ; and did we feel the draught when the subsidy was withdrawn, when the American loan came to an unexpected end ! Let us, we flying types, take a lesson from that. If by some miracle the Treasury decides to pay the subsidy suggested, there is no doubt that comparatively cheap flying will return ; but that cheap flying will last only so long as the subsidy continues. It will do nothing, nothing at all, to reduce the extremely high overhead charges inseparable from the normal methods of normal club operation. Therefore, at some future date, if it is decided that the subsidy cannot be continued, we shall get a repetition of to-day's depression in the private flying world. That is not the way to build up a sound flying movement. Surely the array of talent on the Straight Committee can think up a better solution than that laid down in their Preliminary Report ! We of U.L.A.A. do not claim that our own plans are necessarily the most perfect, nor are they the only means of providing cheap flying. But at least they constitute a fresh approach to the problem. Could not the Straight Committee think again ?

We are very glad to be able to report that the Gloucester Flying Club, which has been operating on a communal basis for almost two years, albeit with conventional light aircraft, has applied for Associate Membership of U.L.A.A. Full affiliation cannot be effected at this stage since the Club is not an ultra light aircraft Group, but we are informed that the Club is taking steps to investigate the possibilities of starting an ultra light section.

In spite of the pessimists who are constantly "proving" that club flying cannot be provided at less than about £4 per hour, the Gloucester Flying Club has demonstrated just how effectively prices can be cut if things are run on a communal basis. Although they have had a struggle to keep going at times—and what club hasn't, what with petrol and other restrictions—the Manager of the Gloucester Club informs us that they are still able to offer dual instruction in "Tiger Moths" and "Magisters" at the low rate of 25/- per hour. In passing, it is extremely interesting to note that the figures of operating costs for club aircraft quoted in the Preliminary Report of the Special Advisory Committee on Private Flying (the Straight Committee to you) prove that the Gloucester Flying Club's rate is perfectly realistic. Taking the figures tabulated in the report in respect of the operation of three aircraft valued at £800 each for 500 hours per year each and deducting therefrom all the non-essentials (non-essential, that is, from the point of view of a communally-operated club), such as salaries (£2,800 annually) ; sundries to wit, local transport and various (£130 annually, a mere £2. 10s. per week) and cleaning material (no less than £35 per year), and so on down the list, we find that our flying would cost exactly 25/6 per hour in *conventional light planes* as opposed to the irreducible minimum of £3. 15s. 9d. per hour quoted in the Report.

Who is right ? The ordinary flying clubs which supplied the figures from which the rate of £3. 15s. 9d. was computed and which are moaning that they will have to close down unless a subsidy of £2 per hour is paid immediately ? Or the Gloucester Flying Club which, in the face of pessimistic forecasts of its collapse for more than a year, continues to offer flying at 25/- per hour ? And at which type of club will you find the best air-faring spirit ?

But to return to sanity ! Group Captain L. Andrews, Manager of the Flying Club, has extended a cordial invitation to any of our members who care to visit the Club, either by air or road. Why not go and see how it works ? (N.B. The G.F.C.

operates from Staverton Aerodrome, Bamfurlong Lane, Cheltenham, Glos.).

We have been informed by the Ministry of Civil Aviation that members of flying clubs can obtain special allowances of petrol for the purpose of travelling to their club aerodrome in order to take part in club flying activities. Applications for this special allowance, which can be obtained either in respect of members' private cars or for a " Club car " used for collecting several members, should be made to the Regional Petroleum Officer for the area concerned. All applications must be backed up by a certificate from the Club Secretary stating that the petrol is required for the purpose outlined above and that the person making the application is an " operational " member of the club in question. The word " operational " is used in preference to " flying " so as to cover people who might act as ground crews without actually flying themselves.

In addition to the above allowance, we have also been informed by M.C.A. that ultra light Groups will be able to qualify for allowances of petrol for their aircraft on the same basis as ordinary flying clubs. This amounts to sufficient petrol for 58 hours, flying per month per aircraft, and applications for this allowance should be made by the Group Secretary direct to the Regional Petroleum Officer for the area concerned.

Members or Group Secretaries who find they are unable to obtain the allocations to which they are entitled are asked to send full particulars to the Hon. Secretary, U.L.A.A., who will take the matter up with the Ministry of Fuel *via* the appropriate department of M.C.A. It goes without saying that any misuse of petrol obtained for either of the above-mentioned purposes will almost certainly result in loss of the privilege by the flying community as a whole, and everybody is asked, therefore, to co-operate in ensuring that this hard-won concession is not abused.

Two rather misleading errors have crept into articles published recently on the subject of ultra light aircraft. The first, which has resulted in a large number of letters being received by the Hon. Sec., U.L.A.A., occurred in an article in *The Aeroplane*, dated November 7th, reviewing the Straight Committee Report. A correction has now been published in the Correspondence section of the paper (*Aeroplane*, November 28th), but for the benefit of those members who may not have seen the correction, we would point out that there is no truth in the statement attributed to the Straight Committee, namely, that existing ultra lights and those yet to be designed would be limited to flights within a radius of three miles of their base. What the Report actually said was that ultra lights operating under a Permit to Fly would not be permitted to make flights extending beyond three miles from the coast of the United Kingdom. So far as ultra lights yet to be designed are concerned, no operational limits have yet been laid down, but it is expected that they will be governed by exactly the same rules that apply now to ordinary light types.

The other mistake crept into an article written by the Hon. Sec., U.L.A.A., entitled " A Report on Ultra Light Aviation," in the November issue of *Aeronautics*. In this, ultra lights were defined as aircraft with an all-up weight not exceeding 1,000 lb., having a flying speed of not more than 75 m.p.h. The last portion should, of course, read " having an engine of not more than 75 b.h.p."

DESIGN.

Good news for the ultra light aircraft movement ! A well-known motor-cycle engine designer and manufacturer, whose identity cannot for the moment be revealed, has offered to design and produce a suitable engine for ultra light aircraft. He appreciates that there will not be an immediate market, but considers that until such an engine is available, the U.L.A. movement—which he considers to be in the national interest—will never move forward and other countries will take the lead. We admire this public spirited view and are confident that his enterprise will in due course be fully rewarded as the movement increases and extends throughout the country.

In view of the above offer, it has now become necessary to define our engine requirements in detail for the designer's guidance. This must be done with the greatest care to ensure that the engine produced will meet our needs for a number of years ahead. Consequently, a design questionnaire was prepared by the writer and sent out to a number of people well-known for their experience in the U.L.A. field, in order to ascertain their views. An analysis of the replies received to date is given below for general interest; from this the Design Sub-Committee is preparing a statement of our requirements. We should be glad to receive any comments and criticism from members interested.

Analysis of Replies to Questionnaire.
(*The figures in brackets denote the number of recommendations received favouring each point in question*).

(i) *Type of Engine.*
- B.H.P. (20/25 (2) : Flat twins (2).
- B.H.P. 25/30 (11) : In-line twins (3) ; flat twins (7) ; flat four (1).
- B.H.P. 40/50 (25) : Flat twins (2) ; inverted 3 cyl. in-line (1) ; 3 cyl. radial (3) ; 4 cyl. in-line (9) including (6) who suggested the inverted type ; flat four (8) ; inverted ' V ' four (2).
- B.H.P. 60 (4) : 3 cyl. radial (1) ; flat four (2) ; inverted 4 cyl. in-line (1).
- B.H.P. 66 (1) : Inverted 6 cyl. in-line (1).

(ii) Two stroke (7) : Four stroke (34).

(iii) Sleeve valve (3) : Side valve (4), O.H.V. (25).

(iv) Method of operation if O.H.V. : Push-rod (19) ; O.H. Cam-shaft (6).

(v) Propeller drive : Geared (11) ; ungeared (30).

(vi) Max. engine R.P.M. : 1200 (1) ; 2000-2300 (6) ; 2500-2700 (13) ; 2800-3000 (12) ; 3500 (2) ; 5000 (1).

(vii) % of take-off power for max. continuous; cruising : 66% (4) ; 70% (8) ; 75% (8) 80% (13) ; 85% (6).

(viii) Oil system: Petrol (3); pressure (33); dry sump (20); wet sump (10).

(ix) Max. dryweight acceptable (lb./B.H.P.): 1.6—1.9 (2); 2—2.4 (9); 2.5—2.9 (11); 3—3.5 (11); 4 (5).

(x) Maximum fuel consumption acceptable (lb./B.H.P./hour): 0.45 (2); 0.50 (3); 0.55 (9); 0.60 (6); 0.75 (2).

(xi) Cylinder Construction: "Cheapest" (2); cast iron (4); forged steel turned (14); cast alloy and liner (9).

(xii) Cylinder head: "Cheapest" (2); light alloy (22); bronze (1); copper (1).

(xiii) Induction system: Single carburettor (17); twin carbs. (5); fuel injection (1); rootes blower (1); induction fan (1).

(xiv) Exhaust system: Open stubs (10); manifold and/or pipes (10).

(xv) Ignition system: Twin magnetos (12); single mag. with twin circuits (4); single mag. and coil (3).

Although not necessarily accepted by the Association, a summary of the above analysis is of interest. There is a demand, broadly speaking, for two classes of engine, the most favoured being a four-cylinder 40/50 B.H.P. unit, either of the in-line type (preferably inverted), or horizontally opposed. The other demand is for a 25/30 B.H.P. flat twin engine, presumably for motor gliders. The engines preferred in both cases are 4-stroke types with push-rod operated overhead valves, developing maximum power at 2500—2700 r.p.m. and driving ungeared propellers. They must be capable of maintaining up to 80% of their maximum power for continuous cruising. Cylinder construction would be of forged steel (turned) and the cylinder heads would be of light alloy. A dry weight of 3 to 3½ lb./B.H.P. is acceptable with a fuel consumption of 0.55 to 0.6 lb./B.H.P./hour.

The following design points, included in the replies received to our questionnaire, will be of interest:—

(i) In general, reliability, cheapness, ease of maintenance, simplicity, quietness and smoothness were held to be the primary considerations for the design, with weight, fuel consumption and frontal area of more secondary importance. Two members considered that fuel consumption with such small engines was of no importance at all! One member suggested that construction should follow good motor cycle practice and the extra weight be accepted, as it was essential for cheapness to avoid unnecessary machining. An investigation into the possibilities of adopting cheaper automobile practice was also recommended.

(ii) As regards auxiliary equipment, most replies required the minimum necessary. Ten replies, however, favoured the provision for electrical generators and ten required starters (including two "mechanical" and one "simple ratchet" type). It must be remembered, however, that provision of electrical equipment involves the installation of a battery and the necessary wiring which will add to the weight, cost and maintenance complications.

(iii) Sir Roy Fedden (who designed the successful "Cherub" U.L.A. engine of 1924) considered that our first choice should be an engine of not less than 60 b.h.p. In addition he recommended a 750 c.c. four-stroke engine of the Triumph "Speed Twin" layout or, alternatively, a 1000 c.c. 4-cylinder two-stroke type as per the latest U.S.A. outboard engines.

(iv) Mr. A. R. Weyl (designer of the Dart "Kitten" and other U.L.A. types) wrote an interesting paper in which he stressed the importance of avoiding vibration in order to allow a lighter and simpler airframe. He suggests that noise damping should be a primary consideration of the U.L.A. movement, otherwise we will be severely attacked and our growth curtailed. He recommends enclosing the engine completely and using an exhaust injector system to provide a forced cooling draught. He prefers plenty of excess power to give safety during the take-off and climb and to allow the engine to be cruised at not more than 70% of its maximum power, with consequent increase in life and reliability.

(v) Another interesting paper was received from Mr. F. N. Slingsby (of Slingsby Sailplanes Ltd.). He considers that we should give first priority to a 50 h.p. inverted 4-cylinder in-line engine which would be suitable both for a light two-seater and a high-performance single-seater. The second priority should be filled adequately by the Wren flat-four engine of 30 h.p. should its performance, weight, etc., come up to expectations. He recommends this engine, as it is a compact power unit for which much of the proto-type testing has already been carried out. Mr. Slingsby stresses the need for four cylinders to give the quietness and smoothness essential to make the U.L.A. movement appeal to the community.

(vi) Both Mr. Weyl and Mr. Slingsby considered that the engine should be supplied complete with cowlings and cooling baffles to ensure correct cooling and to avoid the need for each aircraft constructor to beat them out.

(vii) Mr. J. G. Giles (of our Design Sub-Committee) suggested that a standardised engine mounting should be developed for U.L.A. types for the convenience of aircraft constructors. All engines would have to be designed or adopted to suit.

(viii) Two members stressed the point that the engine should be suitable both for pusher and tractor installations.

(ix) The Aerotec Research Group of Bristol sent in a most valuable paper giving details of a proposed four-cylinder in-line four-stroke engine of 40/50 b.h.p. which they expect should be suitable for U.L.A. requirements for the next six or seven years. One of the interesting points recommended is pre-heating of the induction manifold up to 80% throttle opening, but with cold air induction over the top 20% of the throttle range to gain maximum power for take-off.

(x) Mr. R. G. Carr (designer of the "Wren" aircraft and engine) suggested that rather than prepare an engine specification for the designer, we should arrange a cash prize for a design competition. Also, to encourage manufacturers, the Government should guarantee up to a stated limit for the tooling costs. We only wish these suggestions could be implemented! Mr. Carr considered that if two sizes of engines were required, the smaller should be

designed to use half the parts of the larger, which would cheapen the whole output of both types.

(xi) Mr. E. O. Tips (designer and manufacturer of "Tipsy" aircraft) recommends as his ideal a 40 h.p. inverted 3-cylinder in-line engine with single sleeve valves working in light alloy cylinders. He considers this design should give a well-balanced and light engine, easy to maintain and very cheap if produced in fairly large quantities.

(xii) Sqn. Ldr. R. L. Porteous, well-known demonstrator of the Chilton aircraft, suggests manufacture under licence in the U.K. of the French Train engines, one of 4 cylinders giving 44 h.p. and the other of 6 cylinders and giving 66 h.p. Both are in-line types.

(xiii) Mr. F. H. Dixon, test pilot for the Fairey Aviation Co. and "Tipsy" Aircraft, considers that a 60 h.p. engine similar to the 100% reliable Walter Mikron, but weighing slightly less, would be a sure winner for both single and two-seater aircraft. He also has a strong desire to see the excellent Triumph Speed Twin cylinder components put to use in the air, and suggests a flat-four engine consisting of two Triumph 500 c.c. cylinder blocks cast in light alloy with steel liners. This would make a cheap engine using well-tried components.

(xiv) Although most replies favoured aluminium alloy cylinder heads, the suggestions for heads of copper and bronze are of interest. A copper alloy head has recently been adopted on the latest Bristol aero engines, as the increased thermal conductivity enables greater take-off boost to be used without detonation. The disadvantages of copper over aluminium alloy heads are, of course, in cost and weight. The writer doubts if copper heads would really be justified for U.L.A. engines, though aluminium bronze might be considered.

(xv) Mr. R. H. P. Nott (of our Design Sub-Committee) suspects that considerable trouble in the form of gear teeth failure, etc., would be likely to occur with twin-cylinder engines fitted with geared propellers, owing to torsional oscillations of the drive. This suggestion is borne out by trouble experienced with a well-known pre-war twin-cylinder U.L.A. engine.

(xvi) Mr. J. P. Grosscurth recommends that three types of in-line engines should be developed, using 2, 3 or 4 standard proprietary 500 c.c. motor cycle cylinders in view of their availability and cheapness. He also makes the rather revolutionary suggestion of driving the propeller from the cam-shaft through a combined thrust and rubber/metal cush drive! This would certainly be a neat way of securing a 2/1 reduction ratio for the propeller drive, but the writer doubts whether the development of such unorthodox design would be justified at this stage. The idea, however, should give designers food for thought.

DECEMBER FRONT COVER

Details of the photograph published on the front cover of the December issue were not available when that issue went to press. They are:—"Weihe," photographed at Utersen by a member of 85 Wing Gliding Club. Camera: Zeiss Ikon Super Ikonta. Film: Kodak Verichrome 27°. Stop: "F8." Exposure 1/100th (with yellow filter).

AUSTRALIAN GLIDING ASSOCIATION

(Extracts from recent flying reports).

GLIDING CLUB OF VICTORIA

Somerton.

Aug. 24. E. Desmond in Grey "Grunau"—launched to 1,000 feet—climbed to 1,400 feet (16 minutes).

Sept. 7. K. Chamberlain in Grey "Grunau"—launched to 1,000 feet—climbed to 1,600 feet (19 minutes). L. Dowling in Grey "Grunau"—launched to 900 feet—climbed to 1,500 feet (18½ minutes). Frank Dowling made his first flight in the Grey "Grunau" on Sept. 7th.

Sept. 21. E. Desmond and L. Beck in the "Merlin," launched to 900 feet, reached 1,400 feet (8 minutes).

Sept. 28. E. Desmond in Grey "Grunau," launched to 1,500 feet altitude, reached 1,800 feet (15 minutes).

GLIDING AND SOARING CLUB OF SOUTH AUSTRALIA

September. A course of 8 pupils; R. E. Killmier, A. G. Killmier, B. Selfe, A. DeLaine, R. Duke, G. Tolhurst, G. J. Middleton and L. F. Middleton, have commenced training in the nacelled "Fledgling" primary glider. Flying has been carried out on 4 days at One Tree Hill (near Salisbury), 15 miles north of Adelaide, and one pupil (L. F. Middleton) who has had considerable power flying experience is now doing circuits—others following on skids and low hops.

Instructor Kevin Sedgman has carried out several dozen flights in the "Fledgling," and reports that the machine handles well; best flight to date being 4 minutes 5 seconds from 750 feet altitude winch launch.

Mr. John Wotherspoon has made several short flights of 10 and 12 minutes' duration in his English "Eon" (No. 19), "Olympia" (B.G.A. 531) Sailplane, but has not yet been fortunate enough to encounter good conditions.

SYDNEY SOARING CLUB.—The Slingsby "Gull" is being reconditioned (including re-covering with fabric) preparatory to a Christmas—New Year "Holiday Tour" in Central New South Wales.

RADIO FOR SYDNEY GLIDING CLUBS.—Mr. Gil Miles has constructed two complete radio ground stations (in size approx. 9" x 9" x 6") operating on 131.7 to 131.9 megacycles wave band, for the N.S.W. Gliding Association. There are no tuning controls—all that is required is to connect to 6 volt car batteries, and either talk or listen. The radio is designed for communication on flying field mainly for between glider and winch.

CANBERRA.—Our long silence should not be interpreted as inaction. Here is a summary of our activities. The machine used has a Clark Y. 18 section, area 154 square feet, span 45 feet, weight empty, 330 pounds, design by Arthur Powell, and built by designer and Roy Raymond, and others.

Late in January 1947, Ron Southwell got picked up by a cloud at 800 feet altitude and before he knew what had happened found himself at 2,000 feet altitude. He was still uncertain at the time he got down after 11 minutes' flight.

The rest of the warm months were lost in repairing minor damage to the fuselage (two stitches in Roy Raymond came out in no time), but we took the opportunity to put a wheel in, which greatly helped handling on the ground. Fencing wire was replaced by 2,000 feet of wire rope, with which we could get 1,400 feet launching height by auto-towing, and average flights of 5 to 6 minutes. So we spent the winter, improved by a few loops by Arthur Powell and Ron Southwell, and trials of a primitive but not sufficiently sensitive, variometer. Spring found us with the first of the Cobb-Slater type variometers made by Arthur Powell, the green and red balls having tooth brush handles as the source of raw materials. Using this, Gurth Kimber picked up the first of the spring thermals on 28th September, 1947, at 1,300 feet, and reached 2,250 feet before he lost it. He seemed to come down very quickly with a total flight of 16½ minutes.

On 12th October we had a new, and more sensitive version of the Cobb-Slater installed, and some heavy cumulus in waiting. Arthur Powell found cloud lift at 1,400 feet, gained a maximum height of 1,700 feet, and after a loop finished with a flight of 23½ minutes.

2nd November. Light N.W. wind and about 30% cumulus, gradually dissipating. There was no luck in the morning, but at about 1.10 p.m. Gurth Kimber was launched to 1,400 feet and at 1,200 feet picked up lift which carried him to 2,000 feet. Losing this he dropped to 1,200 feet, where he picked up a second thermal which carried him to 3,500 feet and a total flight of 46½ minutes. Further flights failed to find lift.

16th November. Light E. wind with calm interludes; cloudless. There was no luck in the morning, and as launching became unsatisfactory in the complete calm, we broke off for an early lunch. Starting again at 12.30 p.m. with a light wind, Roy Raymond got 300 feet lift and a total flight of 11 minutes. Gurth Kimber was launched immediately after to 1,200 feet, where he picked up lift to over 2,000 feet. He then picked up a series of thermals to 3,500 feet, lost them to descend to about 2,500 feet, and then picked up lift which carried him to 5,100 feet. A short cruise over Canberra showed that lift was to be found everywhere, and there seemed no difficulty in maintaining a height of 5,000 feet (to the mental refrain of Silver " C " and no barograph !)

QUEENSLAND.—*Toowoomba Gliding Club*: " Falcon " two-seater (J. Munn design) is completed and members of the Club are awaiting an opportunity for making test flights.

TASMANIA.—*Gliding and Soaring Club of Tasmania*: The Club has purchased the Red " H.17 " sailplane from the Hinkler Soaring Club, N.S.W., and the machine has been transported to Hobart.

Flying operations are at present held up on account of absence of rims on the Club's Hudson tow car and lack of towline.

SWITZERLAND TO FRANCE

By
GEHRIGER

MY flight from Berne to Grenoble was not a declared goal flight because I was forced to put down 8 miles to the north-west of that town. My machine was a " Weihe." I was towed off at 11.05 at Dallikon on the 27th August and I landed 324·73 km. away (about 220 miles) at 18.07 at La Buisse. The maximum height I reached was 8,000 feet. On the morning in question the sky and the clouds were typical of the end of August, stable base and thermic conditions which prompted one to contemplate a long distance flight. I hesitated between Lyons (332 km.) and Grenoble (330 km.) and then decided on Grenoble because it does not possess a 60 km. plain around it which it would be necessary to cross in order to land there, which might have been very difficult in the evening.

The base of the clouds cumulus was in the region of Regensberg, where I cast off from my towing aircraft at 1,800—2,000 metres, which did not seem to me to be higher than the Jura mountains. I had about 400 kms. to make. At 50 km. per hour this would take 8 hours; I had therefore no time to lose; I decided not to make for height but to content myself with the mean height of 1,550 m. above sea-level (about 5,000 feet). Above Birrfield I was down to 500 m., but I was joined by a " Moswey " in the company of which I managed to make some height to cloud base. Then there followed a long speedy course the length of the outside chain of the Jura mountains. Near the Taubenloch gorge I penetrated a mountain of cloud but owing to my faulty compass I lost my direction and the high speed at which I was flying did me little good. The quarter of an hour wasted on this experience and other similar ones were cruelly missed at the end of my journey.

After passing the Chasseral I came to the end of the clouds. I only just made La Brevine with the help of a following wind. The sun came out and the sky became a despairing blue. I suddenly envisaged a landing in the region of Geneve since there seemed to be no lift about and if I could succeed in maintaining my course in that direction.

But hope was not at an end. In the region of St. Claude and Bellegarde clouds began to form. Suddenly the whistlings and groanings of my aircraft began again and once again I was 8,000 feet above sea-level. At 16.15 I descended in the direction of Collonges. The storm was beating on Bellegarde, and the somewhat stable cloud base had a tendency

to weaken. I then decided to change my plan and to make for Lyons instead of Grenoble. But my hesitation was momentary and I turned towards Annecy, in spite of everything I had not done so badly so far, so why not continue in the same direction ?

I was looking down on Lake Bourget; East of Chambery I again found height underneath the Den-du-Nivolet.

What was I to do ? Beneath me was the gliding centre of Challes-les-Eaux. At least 15 gliders on the ground, not one in the air. It was not a good

Skizze des Flugweges.

The Mont-Vuache appeared to be full of fate ; its top was covered by the storm. The Mon-de-la-Balme near Annecy was clear of the storm. Forced with the prospect of an immediate landing I turned on my course along the Semnoz mountain. A slope wind again carried me higher, and after half-an-hour

sign. It was a quarter past five and the evening calm was weakening the thermals. Between Grenoble and me there was a massive cloud bank nearly 7,000 feet high which I must fly round, preferably to the north, where the lift would undoubtedly be better. Otherwise the fact that smoke

from the chimneys of Chambery was blowing towards the south, although in the valley of the Isere it was contrary, hardly recommended the line of the Isere. I turned myself towards St. Laurent-du-Pont, but was unable to find enough height to enable me to glide down to Grenoble. I tried the narrow gorge of St. Etienne. When I came out of it the wind was exactly opposite. I lost all my height in a few minutes and was quite happy to land on a little patch of lucerne in the middle of a country bristling with obstacles. Immediately after landing the rain fell in a veritable tempest, so great that it was only with difficulty that we managed to keep the aircraft on the ground. The next day the Air Club Dauphine kindly brought it back to Challes les Eaux, where a "Moth" towed me towards Switzerland in ideal time compared with my seven-hour flight of the previous day.

Moral of this story.

1. You can't begin a long distance flight too soon in the day. Nine o'clock in the morning is the latest time you can start.

2. Add to your predicted course a distance of about one-third to provide for detours and false manoevures.

3. Study the map well before you begin. A mountain of 7,000 feet in front of your nose when you had no idea that there was one, is a most disagreeable surprise. A line of mountains is a very great help in the long distance flight, providing you are on a course parallel to it.

GEORGE MEDAL AWARD

Flying Officer Victor McNabney (203228), *Royal Air Force Volunteer Reserve* (*Training Branch*), *No. 203 Gliding School, Air Training Corps, Reserve Command.*

ON 16th July, 1947, a glider piloted by Mr. R. A. Glass, an instructor attached to No. 203 Gliding School, crashed on a hillside in an inaccessible part of the Downhill Gliding site near Coleraine in Northern Ireland, seriously injuring the pilot. In the early stages of the rescue work, the main rescue party, which included Flying Officer McNabney, could not approach the wreckage beyond a point about fifty feet above it. Flying Officer McNabney was lowered by a rope to the wreck, where he made the pilot comfortable. The rope was then used in an attempt to lift Mr. Glass up to the main party. Whilst this was in progress, Flying Officer McNabney climbed up, in darkness, alongside Mr. Glass, who was unconscious, shielding him from bruising, and holding him out of the stream of a waterfall. After 30 feet of this climb had been acheived, further rescue gear became available. While attempting to adjust this on Mr. Glass, Flying Officer McNabney fell back to a ledge where he lay unconscious for approximately 30 minutes. Had he landed only a few feet away, he would have fallen a further 300 feet, on one side, or into the path of the waterfall on the other, where he might have been drowned while unconscious. When Flying Officer McNabney regained consciousness, Mr. Glass was dead and no further help could be given to either of them. Flying Officer McNabney was stranded on a ledge washed by the waterfall until rescued next morning.

Flying Officer McNabney, who lives at 106, Belfast Road, Bangor, Co. Down, was born in September, 1925. In civil life he is an electrician.

SAILPLANE QUIZ

Answers.

1. The chord of a wing is the straight line distance from leading edge to trailing edge.

2. Lateral stability is stability about the longitudinal axis—the wings' tendency to return to level flight after being displaced, either by an intentional movement of the controls or by atmospheric disturbance.

3. Manoeuvreability is the ability with which an aircraft may assume any position, controllability is the ease with which the pilot can control such manoeuvres. For instance, an aircraft which is inherently stable is less manoeuvreable than one more sensitive to pilot's control, though for that very reason it makes a better school machine.

4. A wing is said to have sweepback when the centre tip of the leading edge attack the air in advance of the wing tips. Its function is to increase directional stability about the vertical axis.

5. The ailerons give lateral control of the aircraft about its longitudinal axis. They are located along the trailing edge and are controlled by the pilot, being connected by wires or rods to the "stick" and by hinges to the rear wing spar so as to have free up and down movement. They are a part of the main lifting surface of the wing.

6. The critical angle of attack is the angle at which the air flow about the wing changes abruptly, resulting in sudden changes in lift and drag. It is from this position that spins, sideslips, and dives develop.

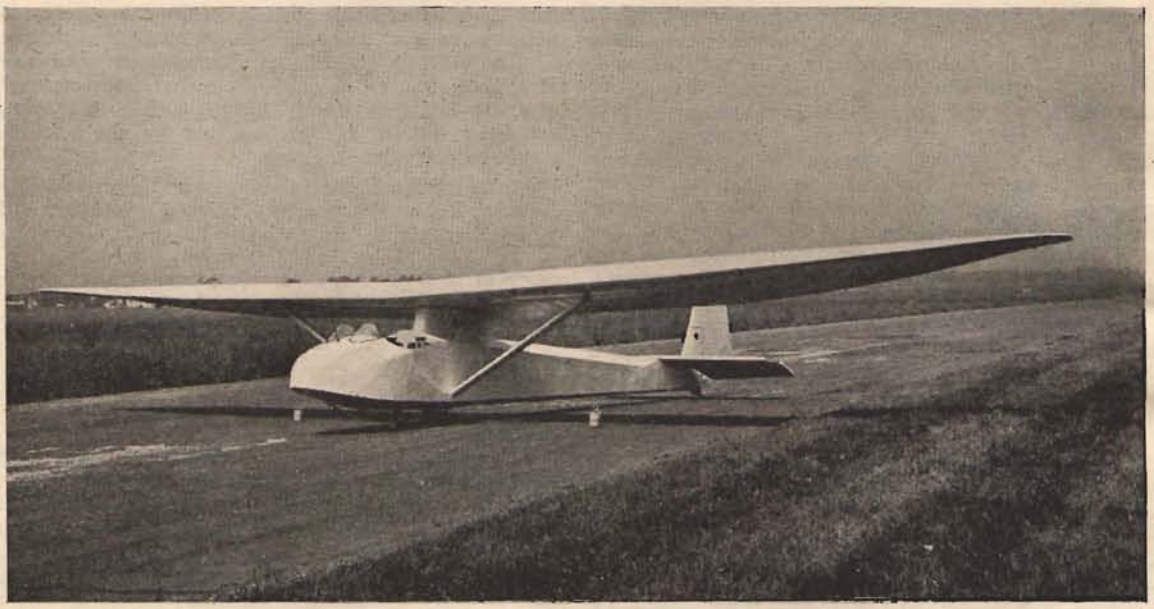
7. The aspect ratio of a wing is the relation between span (length) and chord (depth), and is mathematically shown as a fraction. For instance, if the overall length of the wings is 42 feet and their width three feet, the aspect ratio is 42/3, or 14. Up to a certain point the lift increases with the aspect ratio, until the wing becomes too narrow in width for efficient reaction from the air.

8. In 1930. From San Diego to New York, taking eight days and making nineteen scheduled stops. Total flying time 36 hours 47 minutes.

9. Miss Harriet Quimby, in 1912.

10. In 1932 by the "Graf Zeppelin," between Friedrichshafen and Brazil. On her September flight she made the crossing from Pernambuco to Friedrichshafen in 67¼ hours, mail from Rio de Janeiro to Berlin taking 4 days.

11. (1) "Grunau"; (2) "Kirby Gull"; (3) "Dagling" (Nacelled Primary).



The "SLINGSBY T.21 B" Side-by-Side Two Seater Sailplane.

DESIGNED from sixteen years' experience in development, construction and pilotage of all types of sailplanes, the "T.21 B" is the latest general purpose two-seater trainer for all stages of gliding and soaring instruction. A structure low in weight and of great strength, ensuring economical launching and maintenance costs.

Controls are as light and effective as a single-seater sailplane. Cockpit is roomy and comfortable with maximum vision.

Fitted for catapult or winch launch, and aero-tow up to 73 m.p.h.

The "T.21 B" is now used by the three leading gliding clubs of Great Britain.

Span	54 feet	Empty weight (equipped)	592 lbs.
Wing Area	260 sq. feet	Overall length	27 feet

PERFORMANCE WITH FULL LOAD.

Gliding angle at 42 m.p.h. ..	1 in 21	Minimum sinking	2.7 ft. sec.
„ „ „ 52 „ ..	1 in 18	Stalling speed	28 m.p.h.

Designers, Manufacturers and Sole Distributors :—

SLINGSBY SAILPLANES LIMITED

KIRBYMOORSIDE, YORK.

PIONEERS OF BRITISH GLIDING.

NEWS FROM THE CLUBS

LONDON GLIDING CLUB

November. The amount of flying this month has proved to be the big surprise of the year. There was no indication during the opening week-end that this was to be The Big Month. Sunday, November 2nd, provided very rough conditions with a wind reaching 25 m.p.h. from S.S.E., in which various "Tutors," the "Red Olympia," and our "T21" were circuited until the latter landed up a particularly steep bit of our "aerodrome" and running backwards on its wheel, tripped over its own tail and broke off a corner of the elevator. Some enthusiast then had the bright idea of organising a spot-landing sweepstake, in which we were unwise enough to become involved. Reilly attempted some impromptu "kiteing" in the No. 4 "Tutor," and despite the fact that our winch is not properly equipped for this sport, he was "played" for some while until forced to cast off at 1,500 feet after an initial launch to 600 feet.

The next day, Monday, November 3rd, the wind veered on to the hill behind a front and conditions would have been good but for the cloud base being down to 1,100 feet and the almost continuous rain. Three "Tutors," two "Gulls," and the "Krajaneck," were able to soar until sunset, most of them having reached cloud base at some time.

Sunday, November 9th, was an outstanding day in which 34½ hours were flown, and Marmol took his "Krajaneck" 34 miles to Stanstead Airport. His actual point-to-point time for this trip was only 25 minutes, of which 20 minutes were spent flying at 50 m.p.h. on a compass course inside a continuous cloud street. Despite the fact that he stopped circling soon after entering the cloud, and flew on a straight course most of the way, he nevertheless reached a height of 5,000 feet. The street in question took up most of the L.G.C. with it, but as the cloud base was at 2,000 feet nobody else felt inclined to risk a cross-country. Nobody else, in fact, found much lift inside the cloud, and it is perhaps significant that Marmol went up into its northern fringe. Its southern border was proved to be particularly weak.

The following week was noteworthy for almost continuous west winds. On Monday, the 10th November, Buckley qualified for his Silver "C" duration, followed by Marmol on Tuesday, the 11th, who flew for 7 hours 48 minutes, and thereby completed his Silver "C" tests. He followed this with some night flying on Wednesday, the 12th, when he landed at 20.55 hours in total darkness on top of the Downs when the wind suddenly veered round to the north. It was so dark that Mr. and Mrs. Walker, who were keeping watch, had difficulty in finding him.

On Saturday, the 15th, Reilly, who had previously bought out Saunderson from the "Minimoa" syndicate, used this machine to fly his Silver "C" duration test, and on the next day Godfrey Lee carried out his 5 hours in the "Blue Gull."

This day, the 16th, equalled our previous best of 38 hours, and moreover established a post-war record for the number of machines in the air together. No less than eleven were flying at the same time during the afternoon, amongst these being a "Scud II" owned by Allan, and doubtless more familiar with its surroundings than its owner—but we are still not quite sure of its colour last time it was at Dunstable.

At 13.25 hours, on November 20th, Marmol was launched on what proved to be the longest soaring duration flight yet recorded in this country, and also a national record for his country—Czechoslovakia. He landed at 14.30 hours on November 21st, after a night in which the conditions were far from favourable—overcast sky and a wind which restricted him to a very short beat and never more than 600 feet of altitude. We suspect that this is probably a world's duration record for night soaring—some 15½ hours between sunset and sunrise. Once more Walker took charge of the ground organisation and spent a sleepless night attending to temperamental hurricane lamps.

Sunday, November 23rd, was another good day in which we logged 36 hours, although conditions were extremely boisterous and all ailerons worked overtime. Launderdale had the misfortune to overturn his "Cumulus" on the hill-top, but it appears to have been but little damaged. Although slope soaring was the order for the day, our two-seater, amongst others, reached 1,000 feet. The next day, the 24th, was also good, and Cocheme did his Silver "C" duration in his "Olympia," which for some reason has not yet become known by its colour, as is the custom when distinguishing machines of the same type.

Although Tuesday, the 25th, was an equally good day, nobody turned up to fly, and flying on Sunday, the 30th, had to be restricted to ground hopping owing to the poor visibility, although the wind was westerly. The total flying time for this month, therefore, rests at 258 hours, which is the second time this year our monthly total has exceeded 200 hours. Moreover, a considerable quantity of qualifying flights were accomplished, including no less than 8 Silver "C" duration tests, these including, in addition to those already mentioned, Messrs. Wood, Waid and Perkins, who all qualified on the same day, November 13th. Also there were four "C" flights, by Mitchell-Smith and Tapp on November 9th, and Renshaw and Sell on November 15th; Mitchell-Smith only obtained his "B" on November 1st.

The only serious piece of crashery this month occurred on November 16th, when Novak impaled No. 2 "Tutor" on the metal straining post at the corner of the boundary fence. The entire club stood and watched him fly the full length of the field a few feet above the fence, apparently searching for its most substantial portion, which he eventually found at the extreme end, and was almost about to pass it by, when he suddenly turned and smote it.

It now appears almost certain that, unless December is a complete wash-out, we shall top the 1,000

hours' mark this year, as the following summary shows :—

Summary of flying for month of November.

Number of launches ..	.. 330
,, ,, hours flown	.. 258
,, ,, Certificates, 1 " B " 4 " C "	
,, ,, Silver " C " duration tests ..	8
,, ,, Silver " C " distance tests ..	.. 1

Summary of flying for the eleven months Jan.-Nov. 1947.

Number of launches ..	..4441
,, ,, hours flown	.. 998
,, ,, Certificates, 38 " A " 28 " B " 36 " C "	

YORKSHIRE GLIDING CLUB

October and November.

Flying. Flying has taken place on only five days in the two months of October and November, the first one in October being on the 12th, when O'Grady, Burningham and several Newcastle members brought the " Olympia "—the first time that one of this type has soared at Sutton Bank. Newcastle and Yorkshire Club " Tutors " also flew, there being 13 launches for five hours' flying. There was no more soaring weather until the 9th November, when the two-seater " T.20 " had five passenger launches —total of flying just over 2 hours. On the 15th November, Filler had the first launch of the new syndicate which has acquired Jowett's " Kite "—the rest of the joint owners being Burningham,O'Grady, Varley and de Redder (from memory only !). The next day, 16th, the remainder of the same " Kite " party flew their new aircraft. The Newcastle and Yorkshire " Tutors " and a " Cadet " were also in the air, making 16 launches in all for 11 hours' flying. The last flying day of the month was the 23rd, when an extremely strong and gusty westerly wind blew with ever-increasing force, conditions finally becoming unsafe for flight. It was a memorable experience to sit at a thousand feet or more (O'Grady was above 2,000 feet at times)—facing into wind with the nose well down, battling at all costs to keep in front of the ridge. In this position, riding out the crests and troughs of the roaring invisible air-wave, with the " green " and " red " hitting the tops of their respective tubes in turn—the sensation seemed like riding on the operational end of a yo-yo ! ! Coming in to land was not so funny, and we came a little nearer than usual to " buying it."

General. It would have been a sorry record of flying this time (not that we pretend that 22 hours is anything very clever for two whole months)—had it not been for the Newcastle members. Many Yorkshire Club members have become apathetic ; we know that transport is difficult, but the average Newcastler has a longer distance than the average Yorkshire member, and one feels that if they can do it, so can we. An Extraordinary General Meeting in November disclosed various ways and means by which members may get to the Bank ; flying members who were not there should get in touch with the Hon. Secretary. The end of the year is very close now, and it has not been a good one. We have had the hottest and the coldest spells for very many years, and it seems doubtless that these extreme conditions do not make for good soaring weather, any more than they gladden the hearts of the Ministers of Coal, and of Potatoes. Drought, flood, frost and heat—not many west winds and more down draughts than up-currents. The old-fashioned topsy-turvey British weather mixture, fine when it should rain, and cold when it should be warm, seems to suit our crops, our soaring and our tempers best !

As these notes will appear in January 1948, may we wish all our gliding friends at home and overseas a very Happy New Year, and the free enjoyment of the air wherever they may be ?

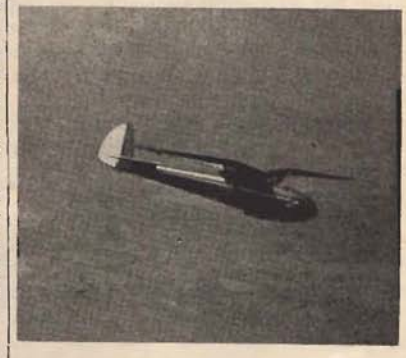
BRISTOL GLIDING CLUB

The last month has afforded little enough flying news from Lulsgate, although a fair amount of hard work has been done. The " Tutor " and " Cadets " have been hacking steadily round on circuits, the success or otherwise of any given day being judged by the number of launches realised, a total which seems to bear no relation to the man-hours put in but varies with the serviceability of the ground-equipment, the cluefullness of the duty instructor and, inversely, with the number of cable-breaks. At the time of writing, we are deprived of the services of two of our vehicles, due to mechanical failures, which does nothing to expedite operations.

To provide members with the opportunity of sampling hill-soaring and of trying for their five hours' duration, the Midland Club has agreed to let our " Grunau Baby " live at the Long Mynd for the winter months, where it will be

Ken Fripp with his rebuilt " Ventura."

available to week-end parties from Bristol. It is considered that, given the average quota of westerly winds, the " G.B." is likely to earn its keep more readily in Shropshire than at Lulsgate when there are no thermals about, apart from the good which will accrue to the Club by the widening of its members'



The " Ventura " in flight piloted by Ken Fripp.

experience. The aircraft is due to be towed to the Mynd, but so far its departure has been delayed, once by slight damage and twice by bad visibility.

The good news of sufficient petrol for two journeys per week to the site has been somewhat offset by the extreme difficulty of extracting from the Petroleum Office sufficient for two per month. These omnipotent officials, apparently enraged

at the idea of people being allowed petrol to go flying, have employed to the full their time-honoured and practice-perfected tactics of delay, blank refusal, more delay, technical quibbles, a great big delay and finally a very thin bundle of coupons. The allocation of these is based on the theory that the motorist is sure to ask for twice his real requirements; therefore halve his figure, halve it again because he has tried to pull a fast one, and then deduct up to two-thirds of the remainder if any of his earlier applications seem not to be sufficiently humble. Only two members have as yet reached the final stage of being allowed to go gliding.

PORTSMOUTH GLIDING CLUB

We have joined forces with the Portsmouth Aero Club, a move which we believe will be a great advantage to both clubs. Our members can now enjoy the social amenities at the comfortable club house with its well-stocked bar and its excellent catering facilities. The subscription to the Aero Club is 3 guineas per annum, with an extra 2 guineas to join the gliding section. Flying fees remain unaltered at 1/- for hops and 1/6 for circuits with special aero-towing rates, which should make the club popular with private owners.

The co-operation with the power section of the club is very encouraging, and when the "Tiger Moth" tug was due for its C. of A. overhaul another aircraft was immediately fitted with the towing mechanism so that there would be no cessation of advanced training.

On November 8th the "Ventura" was rigged and hopped for the first time by Rogers, one of the Aero Club's instructors, and Johnny Pears, Flight Engineer on the "Ambassador," and both were enthusiastic about her. Circuits with spot landings were flown by Parslow, Dollery and Fripp.

OERLINGHAUSEN GLIDING CLUB
(late 140 Wing G.C.)

(*Extracts from November letter*)

This is our first News Letter produced under the new heading, which will be the Club's official name in future. As was explained in our last issue we are now an independent Club, catering primarily for soaring pilots; but with full training facilities for all persons who do not belong to the local "Wing" Clubs. It is understood that 135 Wing are planning to continue operating their Club on Gutersloh Airfield, so that all 135 Wing gliding enthusiasts should train at their own Club to "Grunau Baby C. of G." launch standard, and then join this Club for their future activities and attempts for their "C" Certificates. Transport will continue to be provided from Gutersloh to Oerlinghausen on Wednesdays and at week-ends.

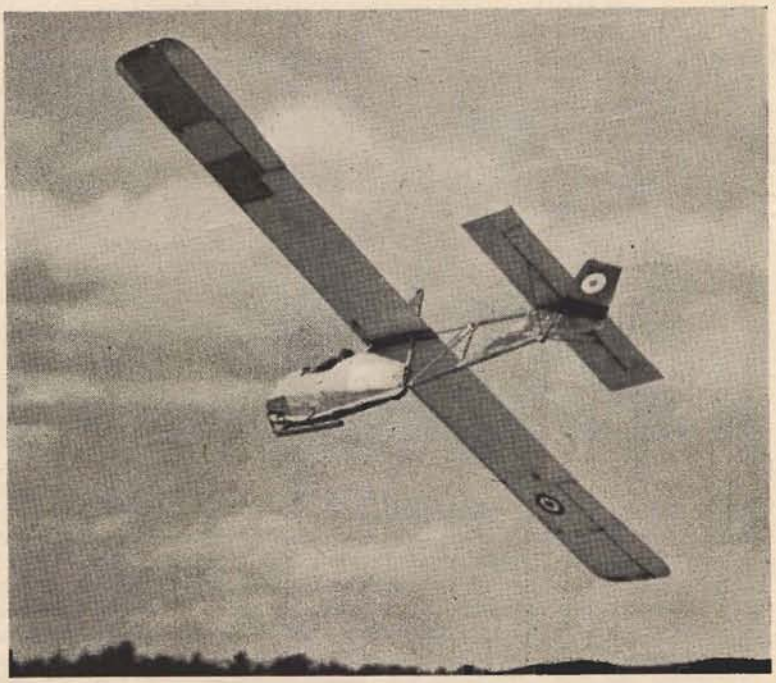
At the moment there is a hive of activity going on in and around the Club, chiefly in connection with the runs to Salzgitter to collect gliders and equipment.

14th. After a showery morning the weather cleared and we were able to glide. Capt. Woodhouse flew a "Baby," whilst A.Q.M.S. Harris and S./Sergt. Mellor received dual in the "Kranich." Miss McKenzie and Miss Holmes were also given dual in this machine, but due to there being no horizon to speak of, the former had another attack of "stallitis." The longest trips were made by Capt. Woodhouse and F./O. Archbold, who both kept their "Babies" airborne for 8 minutes.

15th. No gliding. Opportunity was taken to show cine-films of last winter which gave our newer members a preview of what they will probably get during the next four months.

16th. After a dual trip with the C.F.I., Mr. Tillyer went off to try some hill-soaring, but owing to the altimeter in B.13 over-reading by about 50 metres he got too low and sensibly landed by the Club-house. Not so Mr. Grey, who, late in the afternoon was seen by the Assistant C.F.I. to leave the hill at what looked from the "Kranich" like 100 metres. He made the field all right but only just.

This brings us to rather an important point. It can be seen from the above incident that very few people do a cockpit check when they enter an aircraft. This check should consist of testing the controls for full and free movement, spoilers for correct action, and finally setting the altimeter to zero before take-off. As the latter is rather prone to sticking it should



The "Boat."

be tapped lightly from time to time during the flight.

Cpl. Lowman converted to the "Weihe," but had the misfortune of a cable break at 150 metres. It is much to Lowman's credit that he made a successful circuit and good landing after this.

18th. Fine, sunny but somewhat chilly. Light wind from the S.W. and little or no cloud. We had the "Boat," one "Baby" and a "Weihe" out, the latter for its new pilots—Cpls. Matthew and Lowman. Lt.-Col. Dickson and Lt. Lewis were flying the "Baby" quite well, and Sgt. Jones managed

The Club's "Kranich"

a fair circuit. S./Sgt. Hammond carried out a good hop in the "Boat," a marked improvement on his last few attempts, whilst Major Boyd did a magnificent ground-slide down the whole length of the field.

Towards 4 p.m. frost started forming on the wings and windscreens, and after a delay caused by a bad cable break we flew the aircraft back to the hangar and had them tucked away for the night by 5.15. Lt. Lewis rather annoyed us by carrying off the flying log in his car. Members are asked to ensure that all Club equipment is removed from their vehicles before they leave the field. This is also the Flying Control Officer's responsibility.

19th. Weather conditions were suitable for full gliding. Two winch lines were in operation with "Babies," the "Weihe" (all for Matthew) and a "Kranich" on the Advanced side, whilst the Beginners had two "S.G.38." First people to arrive were a few stragglers who had not yet been posted from 140 Wing. The Army, with few exceptions, were conspicuous by their absence. Too cold for them ?

"Baby" pilots seemed to be getting barely enough height for a proper circuit, and one prospective member—A./C. Simon's second "Kranich" trip, a height of only 90 metres, was obtained. This made us realise that the wind had dropped considerably and was slowly backing to E.N.E., so we flew all the gliders back to the hangar and re-started from there.

All pilots on the Advanced side were flying "Babies," except of course, Cpl. Matthew, who is fast becoming efficient in the "Weihe." Capt. Woodhouse was continuing his practises in "B.13," using the covered-in hood ready for his forthcoming "Meise" conversion. Henderson's last trip was a rather frightening spectacle. He bounced after a heavy landing and—heaven help the poor lad—*pulled the stick back.* This, of course, resulted in his "Baby" stalling at about 8 ft. and hitting Mother Earth with a rending crash, but, miraculously enough, without any damage to pilot or glider. Another heavy landing was made earlier on by Gruenberg which, with his experience was considered quite unnecessary, and resulted partly from a low turn over the landing area contrary to all flying orders. He was grounded for the rest of the day.

CAMBRIDGE UNIVERSITY GLIDING CLUB

As far as the Gliding Club is concerned, the new academic year has started with great momentum. With membership now open to everybody who may be interested in the sport, whether members of the University or not, flying and ground personnel from several nearby R.A.F. stations have joined our ranks. Some of these members have already reached "A" certificate standard, and are forging ahead for their "B's."

Last year's achievement of 24 "A's," 22 "B's," 10 "C's," and 2 Silver "C" Certificates, provided the Club's instructors with plenty of experience in *ab initio* training. Several new methods have been introduced this year, not only to improve the standard of instruction, but also to check progress up to the beginning of every stage. It is thus hoped to reduce, and as far as possible eliminate "crashery." It is now necessary for every pupil to satisfy the instructors on a dual circuit in the "Kranich," before being allowed to make a solo circuit in the "Cadet." And further, two instructors must initial the pupil's flying card before allowing him to proceed to the next stage. The former measure is working very well thus far, several pupils having made use of the horizon on a turn for the first time, having been too busy to notice it previously.

Philip Wills kindly lent us his film, "Plane Sailing," which, along with "The Private Life of a Gannet," was shown to the Club on November 13th.

On November 26th the Club was honoured with a talk from Prof. D. Brunt, who spoke on some "Meteorological Aspects of Gliding." The lecturer brought a fine collection of slides, among which were photographs showing cloud streets both parallel and perpendicular to the wind direction. Such was the interest aroused by the talk, that when the writer beat his retreat to College three minutes before the midnight curfew, he left several members still climbing in thermal bubbles — while colleagues were denying the existence of the very same thing.

On Nov. 7th P. R. Wijewardene gave a fine display of aerobatics in the "Olympia" on the occasion of the open day at Marshall's Airport. He found the machine unwilling to roll off the top of a loop, and his most determined

efforts to make it do so gave great delights to the crowd below. He has since been brimming over with ideas for a highly manoevrable machine, with a very low moment of inertia about the rolling axis, to facilitate in keeping in the average thermal.

The remarks—" High hop, very unsteady "—entered on P. H. Blanchard's flying sheet, were very significant. This intrepid aeronaut —badgered by some half-dozen less intrepid fellows—was strapped in the old " Cambridge " intent on catching or approaching Ca. Nim. from an auto-tow. We were a little late but we set off down the runway in blinding rain with Blanchard riding quite a storm on the end of the wire. At about 100 feet he released, much to the disappointment of everybody under shelter on the ground. He was left to ride out the subsequent 50 m.p.h. squalls by himself, and the way he kept that machine on the ground was lovely to watch. The reason for his early release was, of course, the associated electricity, and his dislike of being adjacent to lightning flashes when on the end of 1,500 feet of wire. He reported several minor shocks even when on the ground.

The " Cambridge " has been withdrawn for a while, as the fabric has become dangerously brittle. Quite feeble pushes with a finger can cause a hole; this is the first time the Club has experienced such trouble.

" Mac " Head has made a magnificent perspex cover for one of our " Tutors." It is the last word in comfort and all-round visibility, and the sound-proofing is such as to cause several pilots to doubt the A.S.I. when first flying under the hood.

There are still a few difficulties to be cleared up before the " Kranich " may be aero-towed by " Tiger Moth." Tom Hughes, flying Mr. Slazenger's " Gemini," towed the ' Kranich " from Marshall's to Bourne with Mr. Pringle at the controls.

A few words in recognition of some of the fine work Paul Blanchard has put in during the past two months would not be amiss. By organising and maintaining a five-day flying week, and putting into practical operation the recommendations of the Committee on flying instruction, he has done much to make this term so outstandingly successful.

Finally, we extend a welcome to all gliding colleagues who happen to be in the area, to drop in at Bourne for a trip in the "Kranich," or maybe just for a little helpful criticism.

DERBYSHIRE AND LANCASHIRE GLIDING CLUB

November.

1st. Five members flew the " Tutor " and Derek Roper and Barbara Richards did high hops in the " Cadet." Conditions were not quite good enough for the " Tutor " to maintain height. (8 launches.)

9th. Cyril Kaye made a test flight in the " Tutor " and pronounced it good. McGraw, Richardson, Wardale, and Margaret Swale had from a quarter to half-an-hour each. Leslie Benson landed the " Tutor " on the moor at the expense of a broken skid, the penalty for a wrong approach technique.

In a soaring wind it is usual at Camphill to execute an outward turn which is kept on until the machine is over the field. At the south end of the slope it is usually possible to make a downwind turn and still have room to turn into wind, but at the north end the field narrows and a careless downwind turn will inevitably take the machine behind the back wall with results ranging from the unpleasant to the disastrous.

The Club " Grunau " was flown by nine pilots. Jim Lawless had just over an hour, Midwood, Leech, Dickson, Sharp, Thompson and Breeze had flights up to half-an-hour each. Five " Olympias " were out and seven pilots put in 11 hours between them. Maximum heights attained were in the region of 2,000 feet. (23 launches.)

16th. Conditions were rather unusual, a light wind and lift which, although it was never very good, remained smooth and steady throughout the day. Shepard was first off in the " Olympia." He remained in the air for 1 hour 30 minutes, but did not exceed 600 feet. Midwood was next in the " Grunau," followed by Charles Verity in his " Olympia." Soon half-a-dozen " Olympias " and the " Grunau " were up together. The lift was never quite good enough for the " Tutor." Training was continued in the " Cadet," Russell, Roper and Baker had two circuits each, and Barbara Richards had a high hop. (22 launches.)

23rd. Although 30 m.p.h. is not what one would call a really strong wind, but as it was a bit south of west, rough conditions were anticipated. Three " Olympias " were launched in quick succession and, for a change, there was a fair measure of agreement in their verdicts, namely, that it was rough enough. Gerry Smith took the " Tutor " up to make quite sure conditions were unsuitable for training; he landed ten minutes later, fully convinced that it was not even fit for Chief Instructors in " Tutors." Jefferson, Dickson and Midwood flew the " G.B." (10 launches.)

29th. Wind direction and conditions being suitable for training, the " Cadet " was brought out, but owing to delays and bad visibility only one flight was made. Derek Roper flew a good circuit to complete his " B " Certificate. It was a great deal of labour for one flight but the result justified the effort.

30th. First thing in the morning the wind, what there was of it, had a touch of east and the winch was disposed accordingly. Gordon Porteous, paying a visit from London, circuited the " Tutor " followed by Roper, Baker, Russell and S./L. Lenton, a new member from Oerlinghausen. Barbara Richards then essayed her oft-repeated high hop with turns, but a stone pile got in the way. The result and modifications to the nose of the " Cadet " were viewed without enthusiasm, and the machine was returned to the hangar.

About lunch time, the wind, without strengthening appreciably, backed on to the north-west slope and good lift up to 1,000 feet in light air was experienced. The visibility was appalling. It was about the nearest approach to flying in fog we are likely to have.

Peter Richardson had the best flight in the " Tutor," staying up threequarters of an hour. Margaret Swale had 20 minutes, and five members flew the " G.B." (25 launches.)

Considering the advanced season, the results for November are fairly satisfactory. 89 launches and 41

hours' soaring with one "B" Certificate.

At the beginning of November a party of six with two trailers took the "Spalinger" to Derby Airport and rigged it. It was collected by Hugh Kendall and Mrs. Blackwood, and subsequently returned to its proper owners in Switzerland. We should have liked to have kept it, but the crisis created by petrol rationing and the difficulty of foreign exchange made this impracticable.

When one door closes, another opens. Several members visited Kirbymoorside during the month and flew the latest "Slingsby" side-by-side two-seater. Although the "Type 21B" is a different type of machine from the "Spalinger" it may prove to be more suitable for our purpose, and we hope to take delivery of a "Type 21B" before Christmas.

The Serviceability board presents a bleak appearance with both "Cadets" out of action and a primary and "Nacelle" still out of commission. The amount of damage sustained by the club machines during the year is both worrying and disappointing. The high cost of repairs may cause a restriction of training or a modification of ideas on the subject of dual instruction.

LETTERS TO THE EDITOR

I should like to be given the opportunity of correcting any impression which may have been gained from the December issue of SAILPLANE that the Bristol Club offers Olympia-flying to pilots with only 4½ hours' solo experience.

In actual fact, the existing requirements stipulate that would-be "Olympia" pilots must have had certain minimum experience on elementary, intermediate and sailplane types, plus eight hours' gliding, quite apart from previous piloting experience. The attainment of these minima does not automatically render any pilot eligible to fly the "Olympia" since a high standard of ability, recent practice, and one year's accident-free record are also required.

The Club policy relating to this machine is to preserve it for the serious sailplaning enthusiasts among our members and so provide for them facilities for cross-country and altitude flights for the Silver, and maybe, the Gold "C" awards.

MAURICE R. CHANTRILL,
Hon. Secretary,
Bristol Gliding Club.

I am enclosing a copy of a newsletter, containing news of our doings, such as they have been. As you can see, there really hasn't been much to write home about. However, I hope that next year I will be able to report continual flying activity. We are very seriously handicapped at the present by the lack of a permanent flying field. This problem has been vigorously tackled by the Victorian Soaring Association and we think it may soon be solved.

On behalf of all the members of our Group I'd like to wish you all a very happy Christmas, and we do hope, most sincerely, that somehow or other next year will be the start of better times. We hope, too, that you'll be able to keep on gliding and that the situation isn't as grim as first reported. It's about time you people had a decent break—if we over here could do it, believe me you'd get it.

With all good wishes to our English friends, I remain,

Fraternally yours,
GRACE ROBERTS,
Assistant Secretary.
Victorian Motorless Flight Group.

I do apologise for leaving the Beginners' Page high and dry for several months, but I was on a business trip round South America with my husband. You will be relieved to hear that I have returned in considerably better shape than I set out—see November number ! !

Food, clothes, wine, and sunshine—it was good to see the world from the other side for a change. I even managed to get three days' gliding at my old Club, the Albatros in Buenos Aires, and am now sold on the advantages of two-seater training in the later stages. Two flights with Lucas and two with Picón in one of those inelegant but most flyworthy "Schweizers" gave me an hour's soaring and rubbed off many odd corners.

One of the things that had been worrying me was a tendency to drop below the towing plane in a sudden strong thermal and not be able to pick up height again in time to prevent the cable breaking. Picón made me fly far above, way below, and right beside the towing plane till I felt I knew all the answers—which of course I ought to have done anyway, after a couple of hundred tows solo. But it is a fact that even wireless instruction cannot check a fault quite so quickly as being able to ask a question and have it answered by the instructor in the same machine at the very moment the problem occurs. On the other hand, I find it most exasperating to soar with anyone else. It is distracting, because the "feel" of soaring is entirely a personal and individual matter. It may be a fact that his way would centre the thermal better—it probably would; but you want to try your own method. And if it doesn't work, added to the annoyance of having lost your thermal you have an unspoken "I-told-you-so"; but that may be a temperamental hazard that applies to me alone. . . .

To revert to travelling: how absolutely impossible it is to convince anybody that you really want to see the local Gliding Club more than anything else. Whether by reason of sheer disbelief, awkwardness of transport, or the wishes of the majority, I find myself having visited all the luxury Golf Clubs in South America. And very nice too—but what I *wanted* to see was half-a-dozen sailplanes and the usual crowd of toughs flying them !

VERONICA PLATT.

Mr. Wijewarden's letter, in the November issue, and his suggestions cannot be too strongly supported.

It would appear that our prowess in international competitions is merely an indication of average calorie intake relevant to that of the other contestants, so long as the media represent a fairly static state of design such as golf

balls, tennis rackets and goalposts.

With objects less limited in potential technical development, such as sailplanes, quite possibly our showing in international events might be more satisfactory—providing our competitors, in their many tongues, don't shout "Vive la sliderule" instead of merely "Vive le sport."

A glance through the 1944 Typenbuch on German sailplanes shews 27 of them to have better gliding angles and sinking speeds than the "Olympia." Discounting the "D31" (which was never built) and two "Horten" tailless machines, and assuming a Nazi mendacity factor on all machines except the "Olympia," there is still a formidable array of very high performance machines.

It is not suggested that design data is merely pinched from these machines (although a substantial proportion of it is available.) It is merely pointed out that enough information is available to build suitable competition machines without pursuing technical trends which have been tried before and found inadequate.

The "Olympia," good as it is, was designed to a rather rigid specification drawn up under circumstances rather different from those now prevailing. When sheer performance featured high in the design criteria the same designer, Hans Jacobs, produced the "Reiher" with a gliding angle and sinking speed 29% better then the "Olympia."

If it is decided that British chances would be improved by a new, and all British, sailplane there is precious little time for a design competition followed by the belated and inevitably modified issue of drawings to the shops. Sailplanes are seldom produced with the facility sometimes optimistically anticipated.

Yours faithfully,

F. LINDSLEY.

ROYAL AERO CLUB GLIDING CERTIFICATES

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

GLIDING CERTIFICATES "A" .. 215 (7286—7500).
"B" .. 93
"C" .. 35

SILVER BADGES: 5.

No.	*Name.*	*A.T.C. School or Gliding Club.*	*Date taken.*
		"B" CERTIFICATES.	
3385	Betimer Tuke	Martin Hearn G.C.	1. 9.47
3509	R. E. Richardson	Ditto	1. 9.47
3765	George Paterson	1 G.S.	26.10.47
3928	James Inglis	Ditto	19.10.47
4113	Edward Roland Hunter	125 G.S.	5.10.47
4446	Alan Pratt	135 Wing G.C.	15. 4.47
4951	Alfred William Hall	Lubeck G.C.	4.10.47
5354	Michael Ivor Gee	Cambridge U. G.C.	14.11.47
5502	C. R. Brown	105 G.C.	18.10.47
6263	Herbert Deakin	183 G.S.	19.10.47
6269	John Edward Parsons	103 G.S.	19.10.47
6312	Roy Robinson	183 G.S.	9.11.47
6315	Norman Mather	Ditto	9.11.47
6502	Ernest Alfred William	143 G.S.	12.10.47
6524	D. Blyth	144 G.S.	16.11.47
6639	K. B. Newman	Southdown G.C.	12.10.47
6674	A. R. Adams	144 G.S.	8.11.47
6762	George William Payne	143 G.S.	9.11.47
6845	G. W. Cope	144 G.S.	8.11.47
6904	Jack Andrews	123 G.S.	12.10.47
7131	Donald Hanson Tapp	London G.C.	5.10.47
7145	Andrew Reid	49 G.S.	9.11.47
7284	Kenneth Roger French	161 G.S.	19.10.47
7287	Ralph S. Spackman	Surrey G.C.	20. 8.47
7286	Leslie Watt	5 G.S.	5.10.47
7289	William Warden	12 Gp. G.C.	12. 6.47
7295	Reginald Bostock White	B.A.F.O., G.C.	16. 8.47
7297	Alfred Herbert Warminger	84 Gp. G.S.	26. 5.47
7304	Brian Laurence Higgins	B.A.F.O., G.C.	14. 5.47
7306	Eric Francis Garland	82 G.S.	20. 8.47
7308	Patrick James Lale	135 Wing G.C.	26. 5.47
7309	John Thornett Lawrence	B.A.F.O., G.C.	16. 7.47
7313	Herbert Derrick Rubeu	84 London G.C.	12. 4.47
7315	Eric Dixon-Childs	R.N. G.C.	23. 3.47
7326	Frank William Sidney Britton	85 Wing G.C.	16. 7.47
7332	Jack Philip Fabesch	167 G.S.	16. 8.47
7340	John Leslie Walker	45 G.S.	19.10.47
7342	Ralph Osborne Edwards	124 G.S.	19.10.47
7345	Harry Robert Gold	135 Wing G.C.	12. 8.47
7348	Harry Melville Arbuthnot Day	146 G.S.	27. 7.47
7355	Ronald Vincent Yates-Walmsley	83 G.S.	12.10.47
7356	Warwick Pascoe Grenfell	84 G.S.	2. 9.47
7357	Arthur Ronald Tooze	Somerset Aero Club	8.10.47
7372	Oliver Ackerly	84 Gp. G.C.	20. 9.47
7376	Dennis Malcolm John Wood	84 Gp. G.S.	20. 9.47
7377	Francis Andrew Tarjan	4th Armoured Brigade	25.10.47
7379	Peter Henry John Walker	84 Gp. G.C.	14. 6.47
7386	Cyril Wells	Southdown G.C.	7. 9.47
7391	Leonard Batin	141 G.S.	12.10.47
7392	Philip Trevor Vaughan	102 G.S.	5.10.47
7394	Frederick Martin Hall	R.A. Aero Club	16. 9.47
7399	Leonard Douglas Beale	84 Gp. G.S.	21. 9.47
7402	James Clifford Willey	151 R.U. (A.)	31. 8.47
7404	Frederick Lambert Peacock	4th Armoured Brigade G.C.	22. 6.47
7405	John Oliver Avarne Walkeden	84 Gp. G.C.	13. 8.47
7406	Lawrence Wynn Richards	Bristol G.C.	20. 9.47
7407	Stewart Douglas Baxter	84 Gp. G.S.	5.10.47
7408	Alfred William Tillyer	140 Wing G.C.	11.10.47
7411	John Douglas Watson	Cambridge U. G.C.	9. 8.47
7413	Ian Gordon Dow	B.A.F.O., G.C.	22.10.47
7414	James Robert Turner	139 Wing G.C.	9. 8.47
7416	Reginald Harold Hilsdon	Condor G.C.	26. 6.47
7420	Hugh Lindsay McCullough	R.N. G.U.	31. 8.47
7421	Paul Roland Sanderson	Martin Hearn G.C.	31. 8.47
7427	John Frederick Collier	B.A.F.O., G.C.	8.10.47
7435	Derek Royston Smith	4th Armoured Brigade G.C.	7. 8.47
7437	Edward Dayrell Handley	146 G.S.	4.10.47
7442	Gordon Foster Clemmson	Cambridge U. G.C.	9.11.47
7448	Desmond Patrick Fowler	140 Wing G.C.	14. 9.47
7451	Raymond Wardle	B.A.F.O., G.C.	22.10.47
7452	Dennis Sullivan	R.A.E.T.C., G.C.	23. 8.47
7456	Gerald Joel Kleinman	B.A.F.O., G.C.	31. 5.47
7461	John Hopwood Evans	Ditto	22. 6.47
7463	Lawrence William Sadezky	84 Gp. G.C.	24. 8.47
7469	John Alfred Theodore Jones	135 G.C.	14. 9.47
7470	Walter Neville Lenton	140 G.C.	23. 8.47
7475	Bernard Frank Holdrup	Condor G.C.	13.10.47
7476	Basil Hedley Cronk	Ditto	27. 7.47

GLIDING CERTIFICATES—*continued*

No.	Name.	A.T.C. School or Gliding Club.	Date taken.
7477	Henry Earnest Peedle	Condor G. C.	25. 6.47
7478	Thomas John McArthur	Ditto	22. 6.47
7479	Denis John Matthews	Ditto	28. 6.47
7482	Lewis Philip Thomas	84 Gp. G.C.	2.11.47
7486	Ranjit Lal Jetley	R.A. Aero Club	15. 7.47
7489	Peter Perlee Archbold	Ditto	17. 8.47
7490	Harold Frederick William Tarnow	146 G.S.	30. 8.47
7491	Thomas Keith Grieve	R.N. G.U.	31. 8.47
7493	Clifford James Wynne Kindell	Ditto	31. 8.47
7494	James Henry Farr	Ditto	1. 9.47
7495	William John James Croft	Ditto	31. 8.47
7496	John Martin Brucn	Ditto	31. 8.47
7497	Basil George Fleetwood Nash	Ditto	31. 8.47
7498	Murray Gordon White	Ditto	1. 9.47
7499	Christopher Denis Boyd	Ditto	31. 8.47
7500	Norman John Kiln	106 G.S.	25. 7.47

"C" CERTIFICATES.

1011	Peter Knowles Renshaw	London G.C.	15.11.47
2074	W. Jones	22 G.S.	19.11.47
2142	C. Flogdell	84 Gp. G.C.	28. 9.47
3502	Walter Alexander Campbell	203 G.S.	16. 7.47
4446	Allan Pratt	135 Wing G.C.	29. 5.47
4881	Stuart Arran	Midland G.C.	5.11.47
4966	George Rea	Ditto	16. 9.47
5444	Cecil John Winser Herold	B.A.F.O., G.C.	19.10.47
6195	Lionel Gordon Sherriff Thomas	Ditto	31. 5.47
6553	Peter Murden	Surrey G.C.	9. 8.47
6604	Robert George Christmas	4th Armoured Brigade	4. 8.47
6784	William Wallace Sheppard	Midland G.C.	9.11.47
6681	Henry Hindle Manson	B.A.F.O. G.C.	19.10.47
7131	Donald Hanson Tapp	London G.C.	19.10.47
7247	Richard Pinder Sell	Ditto	15.11.47
7297	Alfred Herbert Warminger	84 Gp. G.S.	28. 5.47
7309	John Thornett Lawrence	B.A.F.O. G.C.	31. 8.47
7315	Eric Dixon-Childs	R.N. G.U.	24. 8.47
7326	Frank William Sidney Britton	85 Wing G.C.	20. 8.47
7345	Harry Robert Gold	135 Wing G.C.	13. 8.47
7356	Warwick Pascoe Grenfell	84 G.S.	21. 9.47
7386	C. Wells	Southdown G.C.	2.11.47
7394	Frederick Martin Hall	R.A. Aero Club	23. 9.47
7402	James Clifford Willey	151 R.U. (A.)	19.10.47
7404	Frederick Lambert Peacock	4th Armoured Brigade	6. 9.47
7405	John Oliver Avarne Walkeden	84 Gp. G.C.	14. 9.47
7408	Alfred William Tillyer	140 Wing G.C.	19.10.47
7414	James Robert Turner	139 Wing G.C.	22.10.47
7448	Desmond Patrick Fowler	140 Wing G.C.	9.11.47
7452	Dennis Sullivan	R.A.E.T.C. G.C.	26. 8.47
7461	John Hopwood Evans	B.A.F.O. G.C.	19.10.47
7463	Lawrence William Sadezky	84 Gp. G.S.	16.10.47
7470	Walter Neville Lenton	140 Wing G.C.	30. 8.47
7478	Basil Hedley Crouk	Condor G.C.	13.10.47

SILVER BADGES.

120	G. Walker	(6343)
121	Mrs. P. A. Blackwell	(6346)
122	J. G. Meiklejohn	(6707)
123	H. Falkner	(6258)
124	A. Malaney	(5173)

CLUB ANNOUNCEMENTS

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