SAILPLANE AND GLIDER

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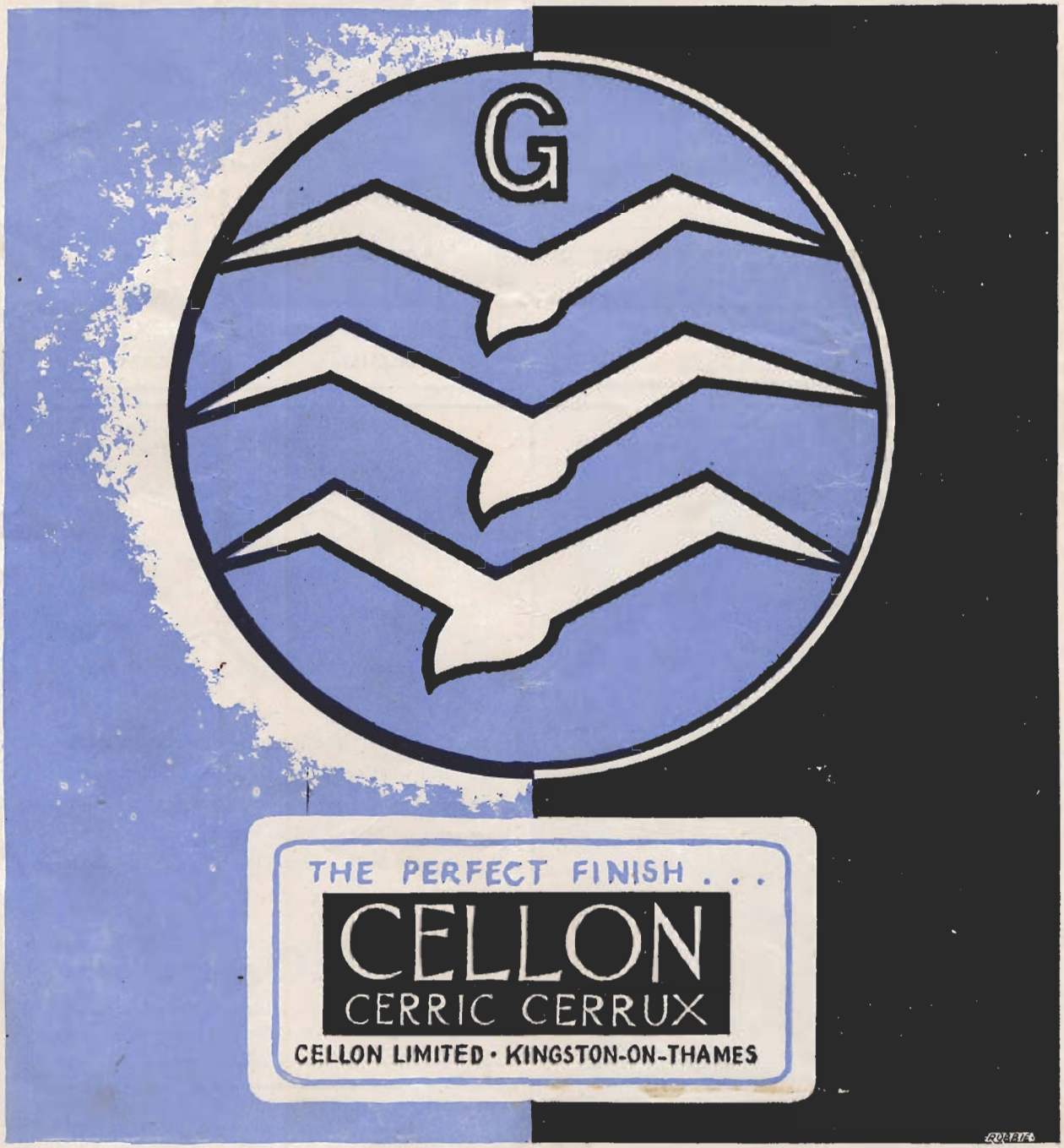
The First Journal devoted to Soaring and Gliding



Sailplane and Glider

THE FIRST JOURNAL DEVOTED TO SOARING AND GLIDING

AUGUST 1945 ★ Vol XIII No 7

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VOCATION

ONE day, in the not too distant future, civil gliding will restart. We do not yet know whether there will be a subsidy, or what regulations will be made for the operation of clubs. But pre-war clubs and pilots want to get going again as soon as possible, and many new people, including A.T.C. boys (judged by the enquiries received by the gliding clubs) want to start.

Now it is this very fact which requires serious contemplation, and if not considered when the clubs recommence, may be a source of heartburning and difficulty.

Gliding clubs are organisations of co-operation, and depend for their smooth running on the ability of the large majority of members to do the right thing at the right time. They are essentially organisations produced by, and dependant on, team work, without the necessity of anyone to give orders, or even directions. Anticipation is highly developed.

Before the war, as new people joined, they were quickly absorbed into the smooth flow of events produced by the majority of members, and were soon able to play their own small part in the whole.

When the clubs restart, this will unfortunately not be the case. There will be many who will not return, casualties among gliding club pilots, in action and on active service, have not been light. The new faces will considerably outnumber the old.

This may tend to make it difficult to recover the essential atmosphere of unselfishness and co-operation. The new-comers will not know what is expected of them as part of their privilege of membership, or if they do, they will not be trained in how to do it, and because they are unable to take their part in the actual operation of club flying, they may think the club inefficient. This will get nobody anywhere. These new members may also not know how slender are the possibilities of covering the costs of a gliding club, let alone making a profit, due to the flying charges being kept within the reach of the largest possible number of people. As a result, they may not be very pleased at having to heave, and carry, and walk when there is an apparently good towing car standing by idle; but petrol costs money, and if it is just as quick to do the job by hand, then the members will benefit in the long run, as the money saved will invariably be spent on more and better aircraft.

How is this tendency to be overcome, how will it be possible to teach this larger proportion of members both to fly, and operate the club equipment, according to the traditions that have built up the British Gliding Movement so quickly and firmly.

The answer, of course, lies with those people who have already belonged to the gliding clubs. They know what is required, how

(*Continued on Page* 20).

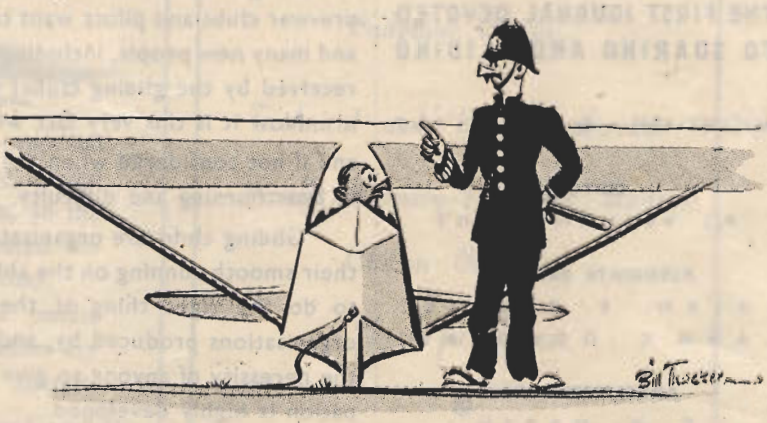
FROM POWERED-AIRCRAFT TO SAILPLANE

By ARTHUR CLARK

"SSH! Don't say anything about your power flying." This would have been good advice to a new member of most gliding clubs before the present world catastrophe. For some reason the gliding enthusiast was a little too purist; a little too reminiscent of the sailing yachtsman who metaphorically wore a false nose the better to look down it at the speedboat "driver." What of the future?

It does not require any prophetic instinct to state that many experienced power pilots are going to take to soaring. Luckily, the last five and a half years have brought the adherent of motorless flight and the pilot of powered aircraft much closer together. The former have proved once again that gliding and soaring experience is a great help in learning to fly powered aircraft; and the latter have shown in connection with A.T.C. gliding instruction that power experience helps when taking up gliding.

In fairness to the pre-war gliding fraternity, it must be admitted that they had some grounds for their antipathy to power pilots, in the number of their precious aircraft which were damaged, written-off or badly flown by power pilots. What was the reason for this? It was two-fold. First, the power pilots often had very few hours and a superiority complex where gliding was concerned, and were thus all set to take sides on the theme that "a little knowledge is a dangerous thing." Secondly, of the instructors at gliding clubs, few had any power experience, and fewer still probably, gave sufficient thought to the special considerations which, if not pointed out to a power pilot, can lead him into difficulties when first taking to gliding and soaring.



"Been Specifically Warned."

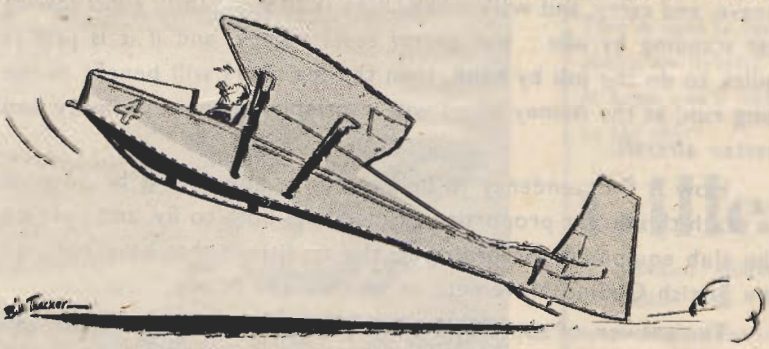
The question of lack of experience will not arise with most of the power pilots who gravitate towards gliding and soaring in the years immediately after the war. But the question of their "conversion course" to gliders and sailplanes justifies a little careful thought if they and the gliding clubs are to reap the maximum benefit from their membership.

The gliding instructor should have a fair experience of power flying (something in the neighbourhood of a hundred hours' solo flying at least). This will enable him to understand the psychological and practical approach of the power pilot to flying.

There is nothing uncommon in what the power pilot should be told. The points are all common knowledge amongst gliding people, and that is where the danger lies. They must not be thought "too obvious" to mention to an experienced pilot. Unless their importance is emphasized, the pilot cannot be on his guard against making errors into which the unguided application to gliders of his power experience may lead him. Drift provides an excellent example.

Any experienced pilot is appreciative of the effects of drift in navigation and cross-wind landings, but the normal air speed of a glider is frequently only a few miles above the wind speed. This fact must be emphasised or insufficient allowance for drift may be made during the final turn into wind over the leeward boundary of the airfield. On these the pilot may look well ahead into the field only to find at the last moment that due to drift during the turn, he is going to touch down on the wrong side of the hedge. The writer of this article has first-hand knowledge of one valuable sailplane lost in just this way. The pilot had power experience, was new to gliding and had not been specifically warned. A contributory cause was the presence of a down current during the approach.

A power pilot will undoubtedly be aware that he may get lift in a glider or sailplane. He may also be fully aware that he may experience down currents. But does he fully appreciate the significance

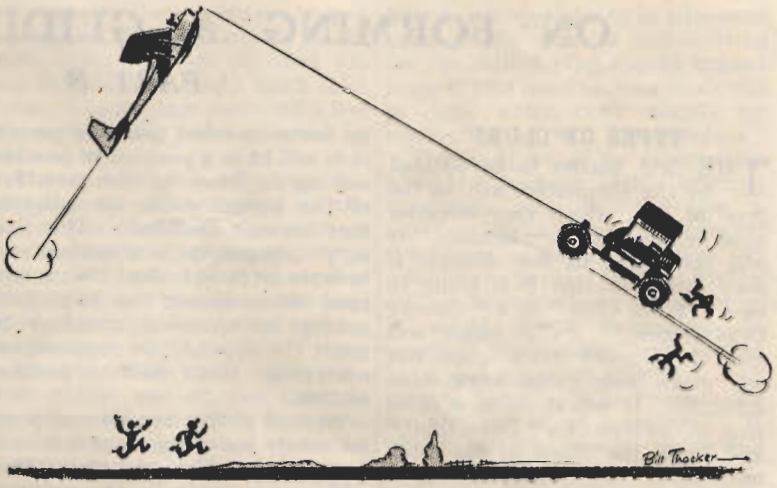


"Trying to get into a 3-point position."

of a down current on the approach ? His previous experience will enable him to judge accurately his path of glide and to come in low over the hedge to make a short landing. But if a strong down current is experienced on the approach—well, there's no engine on a glider ! So the power pilot should be warned to have what he may think is unnecessary height in hand on the approach, or better still that he can safely make his last turn within the field. He is unlikely to overshoot even in a small field because of the low ground speed and quick pull up once the skid is on the ground.

And about putting that skid on the ground, he will almost certainly find himself trying to get into a three-point position even if he remembers there is no undercarriage. So attention must be called to the nearness of his posterior to the ground as he sits in the aircraft before take-off. Most gliders cannot be put down on the skid and tail together in a fully stalled condition, but have to be " wheeled " on. If a power pilot does experience difficulty in touch down, it is a good idea to advise him, for a few landings, to glide gently at the ground and then put the stick slightly forward as soon as he touches. The flat glide will ensure a reasonably good landing in this way.

But if glides are flat the climb on a winch launch is very steep. Most power pilots cannot repress surprise on first seeing a glider launched by winch, and seldom climb as steeply when first trying it themselves. Frequently, they find their air speed a little low on the climb, and responding to natural instincts put the control forward instead of back to increase it. This results in poor height being obtained, which could lead to difficulties in completing a circuit. A few words of explanation beforehand of the fact that on the climb the pull of the cable (and therefore the air speed) is partly due to the speed of the winch and partly to the rate of climb, will avoid a misunderstanding.



" The Climb is Very Steep."

Generally, the pilot will find the controls on powerless aircraft unresponsive by comparison with powered types. Much greater movements will normally be required.

On secondary type aircraft, with little penetration, it is always worth pointing out that the approach can be shortened by a gentle dive, since, unlike powered types this does not result in anything like a proportionately long float after levelling out.

The introduction of a power pilot to gliding is a conversion course and not flying training. The time taken will therefore be short, in many instances a matter of only a few flights. Two-seaters will be even more valuable for expounding the art of hill soaring than with *ab initio* training. The beginner will have more time while waiting his turn to fly, or during weather too windy for him to fly, to learn the art of the sport from the words of wisdom of the Silver " C " merchants.

A set of good instruments in the aircraft will also help. The power pilot is used to instruments. With their aid he can check up on his flying and see that he is performing as he has been told to do beforehand.

And that telling beforehand—it is most important. The choice of words is important. The right degree of emphasis at the right time is important. The power pilot has become used to training which uses a well-tried and established patter, and will carefully note what is said. So no ambiguity. A flight in a single-seater after wise verbal instruction can be more valuable than a two-seater flight with poor instruction.

Everyone will not agree with all of this article. That is inevitable. Some will consider that the theme is over emphasised. Be that as it may, the proof of the pudding will be in the eating. Wise instructors will give the subject the thought it deserves.

" The Wrong Side of the Hedge."

ON FORMING A GLIDING CLUB

PART II

TYPES OF CLUBS

THE first matter to be decided by the Committee will be the type of club which they consider most suitable for their locality. It will help them in this decision if they know whether it is going to be a " Town Club " or a " County Organization." The latter will give them much more scope but will make their initial work more difficult. It would be as well to plan on the lines of a " Town Club," and leave the name of the Club until later. If a County Club is to be the aim, then it should in the first place be " built around " the principal town or city, and then branch out to the most prominent towns and populated areas in the county. The procedure of forming a County Club must of course vary considerably with different counties.

TYPES OF CLUB

It is suggested that consideration should be given to the following possibilities :—Shall the new Club be

(1) Branch of an existing Club.
(2) Primary Training Club.
(3) Soaring Club.
(4) General Purpose Club (2) and (3).

It is obvious that (1) and (2) would be " Town Clubs " and that (3) and (4) could be either " Town " or " County " Clubs.

BRANCH CLUBS

Before the war both the Yorkshire and Midland Gliding Clubs (County Clubs) successfully operated Branch Clubs, in which I understand the participants were given membership in the parent club.

This should be a very safe and economical method of starting a club and would enable the promoter to obtain that expert advice and guidance which it will be difficult to obtain otherwise.

It would therefore be advisable for the founders of a new club to approach the nearest existing club for their terms, and their consideration of the formation of a branch club in the proposed district. The founders could weigh these terms against the prospect of forming an independent club. It must be borne in mind that the parent club will be in a position to provide soaring facilities for the members of the branch club, immediately they become qualified. This is a very important consideration, because an independent club would have to accumulate a large percentage of qualified members to merit the expenditure required for equipping this most important section.

As civil gliding has been stopped for nearly six years, there is now a very large number of " ab-initios " waiting to enrol in the existing clubs.

This will impose a burden on the primary flying side of these clubs, and it is apparent that they may find it necessary to form branch clubs to relieve pressure and congestion on their main training site.

Existing clubs may also be in a position to obtain earlier deliveries of the first post-war machines, on account of their previous business transactions with manufacturers, and their established stability.

PRIMARY GLIDING CLUBS

If it is decided not to amalgamate as a branch of an established club, it would appear necessary to concentrate on primary training only. The life blood of the club will consist of young men who, apart from some ex-A.T.C. cadets, will have had no opportunity to learn the rudiments of gliding. These young men must be given priority consideration, and the few experienced gliding pilots will spend their early membership giving their services to this instruction.

It may be found that only about 40 per cent. of beginners will continue their instruction much beyond this stage, and therefore unless there is a large population to draw upon, and good publicity, the prospect of obtaining sufficient support to operate advanced instruction, will be very remote. This wastage percentage must be kept low.

Under these circumstances the promoters would lose their advanced fliers when they had reached the limit of the clubs' instruction, as these members would be prepared to pay the expense of travelling to the nearest club which provided the facilities required.

SYNDICATES

Or these advanced members may join together and form a syndicate, operating their own sailplane, perhaps in gipsy manner and sharing the total costs. The club would be wise to offer concessions to such a syndicate, and take at least one share in it, as it can be the forerunner of future club developments in the art of soaring.

Apart from the possibility of this syndicate, the club would have to settle down to remain a Primary Training School, and be a most useful cog in the perpetuation of the Movement.

There are a few advantages in concentrating on primary instruction, and it is foolish for people—mostly inexperienced—to look down on this stage of flying. It should be remembered that a large percentage of people are quite satisfied with the extent of " Sport " which is provided by such local flying. Indeed, as already stated, a large proportion of the membership of all clubs is composed of persons in this stage of training.

A primary club will only require a flat field for its activities, or a gentle slope of the bowl type, or it can be operated on a stretch of sound sea shore, as the Ulster Club does. Its machines can be standardised and interchangeable, and trailers and other such auxiliaries will be unnecessary. Its members could be trained up to " C " standard.

TRAINING DEVICE

Before leaving this type of club it would be as well to suggest that as a preliminary to actual flying, and during the present ban on civil flying, up to the time when post-war machines are made available, enthusiasts could construct a training device.

There have been many types of training devices created in the past, and they mostly fell out of favour because they instilled into the pupil certain habits, which retarded their progress when they went into the glider. The main disadvantage was that the training device, not being

designed strictly to aerodynamic standards, was very coarse on controls.

Promoters of a new club may be prepared to overlook this disadvantage, to enable them to start some sort of activities at once. As they may not have a glider for several months after the restart of the Movement, the pupils will not experience this change of instruction from Trainer to Glider. On the other hand they may be able to concentrate on the design of a training device which is aerodynamically correct.

Should the promoters decide to start with a training device, a machine is suggested which will provide an interest, and at the same time enable pupils effectively to understand the rudder and elevator controls.

This machine consists of a pair of skids 6 feet long and 10 inches deep, fixed sledge fashion 18 inches apart. A piece of 1½ inch diameter steel tubing about 4 feet long passes through the skid at the C of G of the loaded machine, and takes the form of an axle upon which two "Austin" 7 wheels are mounted 3 feet 9 inches apart.

It has a large wedge shaped fuselage 11 feet long and 18 inches wide, constructed of plywood top and bottom with ⅜ inch thick solid sides. This fuselage is erected 3 feet above the skids, and supported by vertical struts.

The rudder and elevators are attached to suitable spars at the tail of the machine. The area of the rudder was approximately 8 square feet, and the total surface of the elevators was 11 square feet. Wire bracing was used where necessary.

In a wind of 10 to 15 m.p.h., both rudder and elevator controls were found to be quick in action, control being maintained up to the last few m.p.h. The method of launching was by catapult. The cost of this gear was under £2.

This information is included as a description of the apparatus known to the writer, and it should be possible for any interested club organizers to make many improvements, should they consider the adoption of some such device.

SOARING CLUB

It is possible that a syndicate as already mentioned could grow into a club specializing in advanced soaring only. Such a club catering for the skilled pilot should attract persons who have become proficient in clubs which cater mainly for instruction up to "C" standard.

This club would be expected to provide the most highly efficient machines, and facilities for a number of separately operated syndicates of private owners. It would have to cater for aero-towing and all other methods of launching. It would dabble extensively in practical meteorology and should have well-equipped premises, with trailers, barographs and parachutes for the use of its members. It would provide special retrieving facilities, and develop radio communication to and from sailplanes.

With such a concentration of skilled experts there would be an urge for research, and one can visualize progress in rocket launching, advances in flying technique, machine design and the knowledge of the mysteries of the air.

Such a club hardly comes within the scope of this article, but it is certainly the type of club which new promoters should have at the back of their minds.

GENERAL PURPOSE CLUB

This type of club is an extension of the primary club with elementary soaring facilities. It is a club which may have to operate on two sites, due to the topography of the district—a flat site for primary instruction and an intermediate soaring site, enabling members to carry out continuous circuits, and satisfy the ½ hour duration members.

Two sites would mean a duplication of certain equipment and buildings, and will naturally be avoided if possible. The promoters of this club will therefore require a site with a ridge suitable for soaring, combined with a safe primary winching area.

Such a site is sure to be away from the populated areas and provision may be required for the accommodation of members over week-ends. It will certainly be worth while going 30 or 40 miles to acquire this site.

A general purpose club will provide a fleet of machines to cover all stages of training up to Silver "C" standards, even though pilots may have to attend other clubs, or special sites, fully to qualify for this certificate.

Most clubs will come under this category.

FINANCE

Sound finance is essential to the health of a club. The financial side is the pace-maker for progress. No matter how fast the members can advance, this will be restricted if proper attention is not given to a carefully planned budget.

It is of fundamental importance that capital expenditure should be met by raising capital for that purpose. It is not practicable for a club to issue debentures as they are unlikely to be able to offer a proposition to business people. They should not beg from outside, and that leaves only their members and supporters. Here they can obtain loans from the more wealthy members, in the form of advance fees and subscriptions, and create capital by making a profit on the running of the club.

Money grows. You must have some money or assets to get more money. The affairs of the club must be conducted on a paying basis and the Committee must not hesitate to ask the members for sufficient funds to ensure this.

It is their job to make the position perfectly clear to the members. Unless those in charge of the management and finances provide proper paid up facilities, they cannot hope for any permanence in their club.

Repairs can be the biggest item in the running expenditure, and this is very difficult to budget. Research into crashery is essential. It may be less expensive materially to do your own repairs, but if they are major repairs, you must provide for the financial loss, both of flying time and stagnation of interest, due to the machine being out of commision for a long period.

Some new clubs may appear fortunate in enrolling a "Fairy godfather" who will give them generous financial support. While this will be accepted with open hands the Committee should take great care that the policy of self-help is not affected by this generosity. It has been known for a club to collapse completely as soon as this fount of finance dried up.

It is a good policy to have two banking accounts. Current and Deposit Accounts. The profits on the running of the club should be placed in the deposit account and held for future capital expenditure.

FINANCIAL PROVISIONS

In the first year it will be necessary to budget for the following expenditure :—

- Purchase of initial equipment—Aircraft, trailers, etc.
- Purchase of auxiliary equipment Winch, retrieving cars, etc.
- Rent of site.
- Hangar—Purchase or rent.
- Rates on hangar.
- Third party insurance.
- Allowance for repairs and maintenance; purchase of tools.
- Administration and expenses.
- Depreciation, running expenses and reserve.

To offset this expenditure you will have the following short list of sources of income :—

- Entrance fees and subscriptions.
- Flying fees.
- Donations.
- Subsidiary Income — Dances, grazing, etc.
- Advances and loans from members.

It will be apparent that some hard work must be put in to make it possible for the income side to more than balance the expenditure side.

BUDGETING

Any figures, which in the present chaotic state of costs would be more of a guesstimate than an estimate, are sure to be controversial. I have seen the financial reports of several clubs in my time, but they do not appear to bear any basic relation to each other. My guesstimate of current costs, based upon proposed aircraft prices is 130 per cent.. above pre-war. Calculated upon this increase, I made a rough budget for a club operating immediately with 2 primaries, 1 "Kadet" and 1 "Grunau Baby," assuming they had to erect a hangar similar to that already described. It would require 100 members paying an entrance fee of £2 2s. 0d. and a subscription of £10 10s. 0d.

This of course would not be acceptable, and the only clubs who can start equipped with all types of machines will be those exising with a nest egg in Capital, which they will have to dip well into.

Therefore the new starter clubs will have to commence with say, 2 primaries.

It was my intention to submit detailed budgets in this article, but after several attempts I find it will be advisable not to do so. No amount of juggling with figures will bring a budget for a new club with only 2 primaries, within a scope of less than a necessary 100 members paying £2 2s. 0d. entrance fee and £6 6s. 0d. subscription. And even at these subscriptions the services of the club could not be compared with pre-war.

Therefore this item must be left pending a decision by the authorities on whether the Movement is to be subsidized again, or the publication of figures from any reader who can solve the problem.

INSURANCE

It is not worth while taking out insurance to cover damage to machines, in flight and ground risks. This can be brought more or less under control by an efficient Flight Committee. It will be necessary to take out insurance for third party risks, and for Fire, Storm and Tempest on the club buildings.

Pre-war third party insurance for an unlimited number of club

(Continued on page 18)

Revised Order of Production

In view of the unexpected demand for the "Kirby Kite" and the "Olympia II," we have decided to plan the quantity production of these machines forthwith, with priority over the higher performance types.

Kirby Kite II. An improved version of the now famous pre-war type known throughout the world for its excellent qualities. The post-war type will include landing wheel, tail trimmer, and other features.

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Our production programme will also include the following :— **Type 21** side-by-side two-seater training machine of 54 feet span. The prototype has been flown by many well-known sailplane pilots and voted a winner.

Gull III. A full cantilever version of the "Gull I," a machine of exceptional performance. The prototype, now undergoing tests, will be illustrated in an early issue of the *Sailplane*.

Petrel II. A high-performance competition type most suitable for British conditions.

Every Machine produced will be up to the highest standards of workmanship and tested by our own sailplane pilots with many years of soaring experience. Sailplane pilots will also supervise the detail production.

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AUSTRALIA :	Light Aircraft (Pty) Ltd., Sydney.
SOUTH AFRICA :	Thomas Barlow & Sons Ltd., Johannesburg.

A GLIMPSE OF THE FUTURE

By J. A. SIMPSON.

Of all aircraft, the sailplane embodies the highest developments in aero-dynamic and structural design; and of all forms of flight, soaring requires the best meteorological knowledge and the most advanced flying technique. To study the achievements of sailplane pilots is to obtain a preview of aviation progress.

SPEAKING at the close of the 1932 season on the Wasserkuppe, a leader of the movement noted that no records had been broken that year, and concluded that the days of phenomenal progress in gliding were at an end—future enthusiasts must be content to raise the standards of the average pilot to the pinnacles reached by the record holders of that day. No new sources of energy for soaring flight were to be found, he said, and the era in which progress was achieved by the discovery of new flight possibilities had passed.

Since then, due to the discovery and use of wind thermal and standing wave conditions, and to the tremendous increase in the effriciency of sailplanes, the duration record has been doubled and the altitude and distance records tripled. Such is the fate of one who attempts to predict the future of this sport.

Nevertheless, the temptation to make such predictions is very great. Is it possible to do it scientifically, by studying past records?

Soaring records, which are not very important in themselves, do show performance trends, and throw an interesting sidelight on the state of the art. Thus it is worth while to study records of the past in attempting to predict performances of the future.

The easiest way to do this is by means of graphs, on which the record flights are plotted against the year in which they are made. If the points fall across the graph in haphazard fashion they tell us little; but if they lie on a smooth curve it is reasonable to suppose that this may be extrapolated, or projected into the future, to give us some idea of what lies ahead. At least a standard may be established against which we can judge future flights. Let us consider the international records since 1921, when soaring for pleasure began.

Consider first the duration records, In the early years duration attempts were the most important flights of all, and sailplanes were designed primarily with low sinking speeds for slope soaring. As time went by, duration flights became less important, but still there were hardy souls to be found, sitting out the hours in the grim solitude of their glider cockpits, and steadily pushing up the record time, until these flights became more a matter of physique than performance. It is said that Ernst Jachtmann made many long preliminary flights to harden himself before establishing his astonishing 56-hour record in September 1942.

Although a straight line fits the points of this graph fairly well, and shows that the time has increased by about 2½ hours each year, it does not seem possible that this can go on much longer, and the peak has probably been reached. What pilot will want to hill soar for more than 2½ days?

It was not until thermal soaring was attempted by Kronfeld in 1929 that altitude records began to climb, but since then there has been an ever greater increase each year, the curve being of parabolic form. Altitude flights, which also require gliders of low sinking speed, have recently been made in atmospheric standing waves. A flight to 40,000 feet under such conditions was recently reported from Grunau, where the 1941 record was established, but as it was not recognised by the F.A.I. it is not considered on the chart.

What does the future hold? There is no sign that the altitude curve has reached a peak: in fact, it is now climbing more steeply than ever, so we must assume that even greater heights are to be attained. However, when sailplanes fly to these altitudes heated clothing and oxygen must be carried, and if they are to go any higher a pressurized cabin will be required, all of which increases the weight, and therefore the sinking speed. Is it too much to expect that someone will go to 60,000 feet before equilibrium is reached?

Lastly, consider the distance records. These lie even more closely to a smooth curve, this time of hyperbolic form. Slowly at first, when pilots depended on finding suitable hills to extend their flights, distances were more rapidly increased as soon as the discovery of thermal currents permitted soaring over the plains. At present the record is being improved at the rate of 50 miles per year.

Recently the most successful distance flights have been made under wind thermal conditions, and have only been limited by the duration of good soaring conditions each day. Records can be improved if higher trip speeds can be attained, or if flights can be continued through the night. Sailplanes for distance flights are now designed with emphasis on high cruising speed, rather than the lowest possible sinking speed, and although there is a limit to the efficiency of these aircraft, only a few very special types have even approached it yet. We can expect that before this limit is reached means will be found to continue flights at night; sailplanes used for duration flying have already been equipped with landing lights and flares for this purpose. The graph indicates that soaring flights of 1,000 miles will be made by 1950.

It will be noticed that no records have been established since 1942. What will be the effect of the war? Will these years, lost to gliding, cause a downward kink in the curves, or will recent aeronautical progress result in an unexpected upward jump? Time alone will tell.

PERSONAL

Mr. and Mrs. J. A. Simpson wish me to say "Hello!" for them to all their Gliding friends over here. They expect to be visiting again "before too long."

PROGRESS IN CANADA

SINCE my last contribution on gliding in Canada I have received considerable additional information that will do much to amplify our present knowledge of progress and conditions out there.

THE SOARING ASSOCIATION OF CANADA

This body was formed to further the sport and to negotiate on behalf of the clubs in dealings with the Department of Transport. Under a regulation made in 1930 a local Inspector of the Department was empowered to forbid gliding unless carried out in the presence of a commercially licensed power pilot. Despite the obvious drawbacks of such an order it has been imposed in some instances, bringing the activities of the clubs concerned to a standstill.

It was suggested that the Department might entrust control to a responsible body formed to approve instructors and promote the sport.

Consequently early in 1944 a questionnaire was sent out addressed to all the known clubs and individuals interested in gliding; it asked for details of their equipment and facilities and their attitude towards the formation of a National Organization.

From a survey of the replies received the following items of interest become apparent.

There were about twenty active clubs or groups, with a combined membership of approximately five hundred, operating in early 1944. There is however a large body of interest as yet untapped which would come into the movement if more facilities were available.

Most of the clubs operated from aerodromes or farming land and suffered from much interference with their activities due to the temporary nature of their hold on the sites.

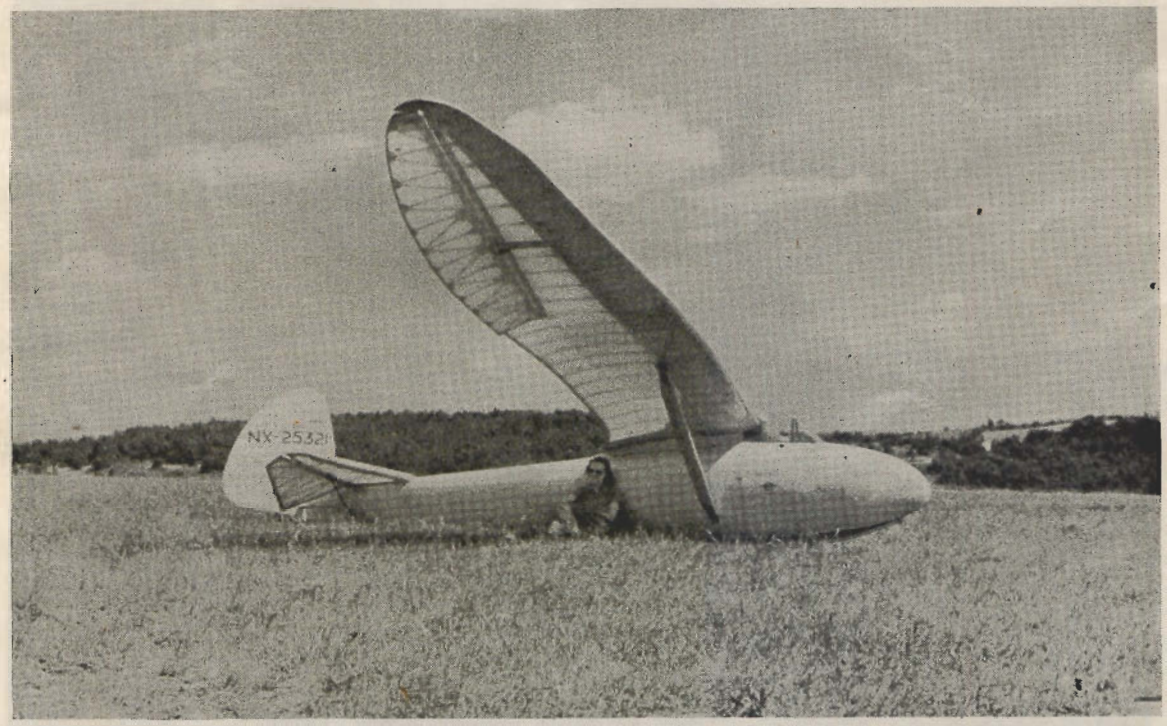
Equipment was almost entirely home built, materials and drawings were hard to obtain.

Most clubs suffered from a shortage of experienced instructors, and it was estimated that although there were seven Silver "C" pilots in Canada (three Canadian and the rest Polish) there were not more than fifteen "C" category pilots.

It was universally agreed that a National Organization would be a "good thing" and should be formed; the clubs were willing to contribute towards its support.

THE FIRST MEETING

As a result of this last declaration a preliminary meeting was held in Ottawa on the 21st April, 1944. Among those present were Mr. J. A. Simpson, who acted as Chairman, Mr. B. S. Shenstone, formerly of the London Gliding Club, and member of the Technical Committee of the B.G.A., and F./Lt. D. MacClement, formerly Chairman of the Cambridge Gliding Club. In addition there were representatives from the De Havilland, McGill University and Gatineau Gliding Clubs, and officials from the Canadian Flying Clubs' Association and the Department of Transport. Altogether eighteen individuals interested in various aspects of the



Slingsby's Kirby Kite, a popular Sailplane in England. This Picture taken during McGill Club participation in the American National Soaring Contest, 1941.

sport were able to attend ; it must be remembered that because of the distances involved representation from all parts of Canada could not be obtained.

The purpose of the meeting was to appoint a small temporary committee with four objects :—

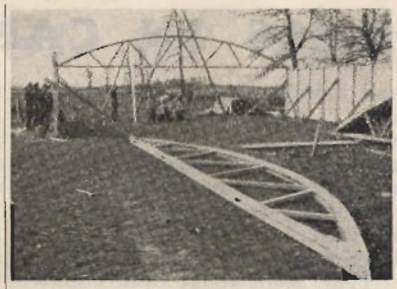
(1) To draft recommendations to the Department of Transport regarding possible modification of the present Air Regulations as they affect gliding.

(2) To develop an organization for the administration of gliding in Canada.

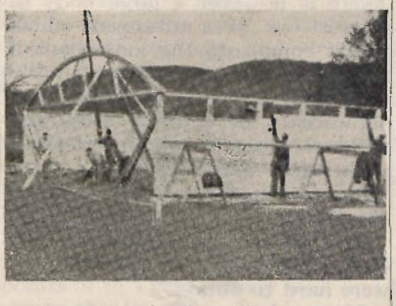
(3) To draft the constitution of a proposed Canadian Gliding Association, to be submitted to the established clubs for their consideration.

(4) To suggest a programme for the post-war development of the gliding movement.

In actual fact very much more ground was covered than that set out above, the most urgent question was that of the Regulations and in that connection it was pointed out that they fell into two categories. Those affecting the safety of the public and those affecting the safety of the participants. The former should come under the Department of Transport, but the latter should be the concern of the S.A.C.



"Hanger Construction Stage 1. *Gatinau Gliding Club."*



Stage 2. *Another View to see if it is in line.*

Incidentally, the name " Soaring Association of Canada " was adopted at this meeting and its objects were defined as follows :—

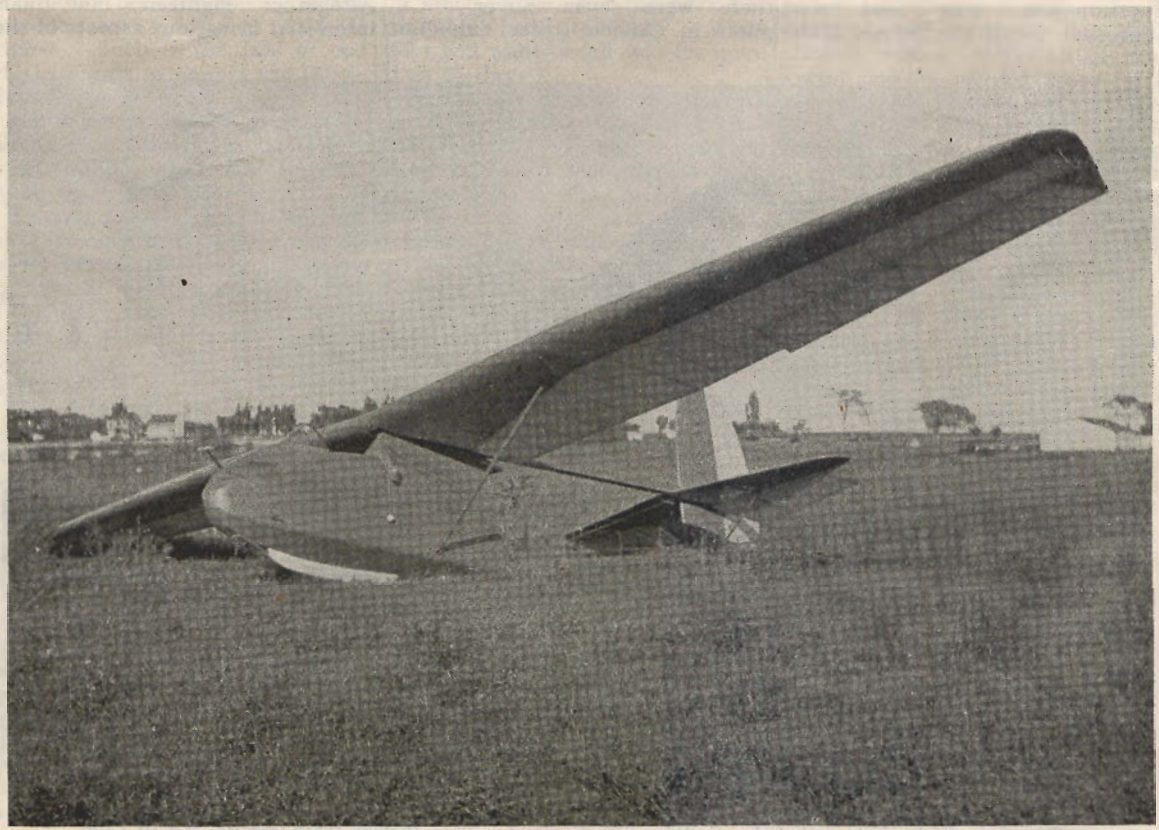
" To promote the art of motorless flight, and to represent gliding and soaring in Canada."

In addition to the executive committee five regional directors were appointed, the country being tentatively divided up into Pacific, Prairie, Ontario, Quebec and Maritime areas.

Sub-committees were set up to work under the following titles :—

REGULATIONS. More or less self-explanatory.

TECHNICAL. Airworthiness and design, investigation of accidents, inspection and technical information.



Canadian Wooden Aircraft Company's " Robin."

MEMBERSHIP. To promote membership.

FINANCE AND INSURANCE. Advice to treasurer and help to member clubs.

CONSTITUTION AND AFFILIATION. To draft the S.A.C. constitution, to prepare affiliation with the C.F.C.A. and the S.S.A. and possibly other bodies, it is to be hoped that the " other bodies " include the B.G.A.

EQUIPMENT. Supply and manufacturers, there are three firms engaged in manufacture in Canada now.

PUBLICITY AND CORRELATION. The S.A.C. executive undertook the work of this committee.

COMPETITION. At present not sitting, I believe.

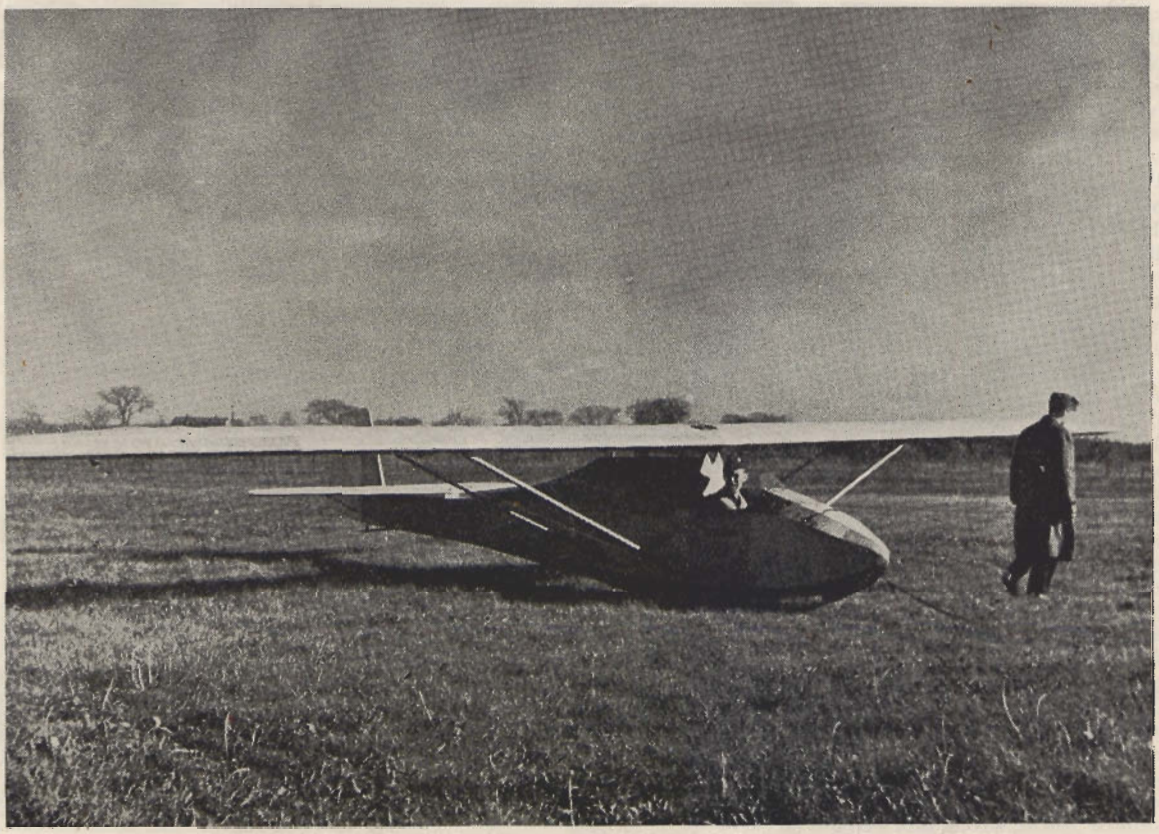
The question of approval of instructors was discussed at some length; the official present, although he could give no definite ruling, thought that temporary authority would be issued if the applicant was recommended by the S.A.C. Another point brought up in connection with the exchanges on licensing was the desirability of some equivalent to the German Official " C." Here the statement was made that after the war the authorities would probably overhaul the existing regulations, so again no pronouncement could be obtained.

Stage 3. *Roof Framework Appears*

Stage 4. *Covering almost Completed*

The jobs of the various sub-committees were gone into in some detail and I have received cyclostyled Information Bulletins issued by them covering recommended practice in the selection of sites, specifications for winches and launching ropes, cables and wires, a list of machines at present approved for use in Canada, an outline of the qualifications that will be required of instructors for different stages of the pupils' progress and the first three parts of the airworthiness requirements.

Attention was directed to the shortage of experienced instructors entailing either some form of Central Flying School or else an individual touring the various clubs to bring



Modified "Kadet" built by Dick Noonan and his Air Cadets, St. Catherines, Ontario.

the instruction up to the requisite standards. Mention was made of the camp organized by the Gatineau Club, and it was suggested that a start could be made in training members from other clubs there.

Many other aspects of policy and development were discussed and plans were outlined for future. There can be no doubt that the S.A.C. was needed and now it has been formed the outlook for gliding in Canada is bright.

The Gatineau Club took a leading part in the initial organization and the executive committee is drawn from among its members. Its influence on development is obvious and a short account of its more recent activities may be of interest.

THE GATINEAU GLIDING CLUB

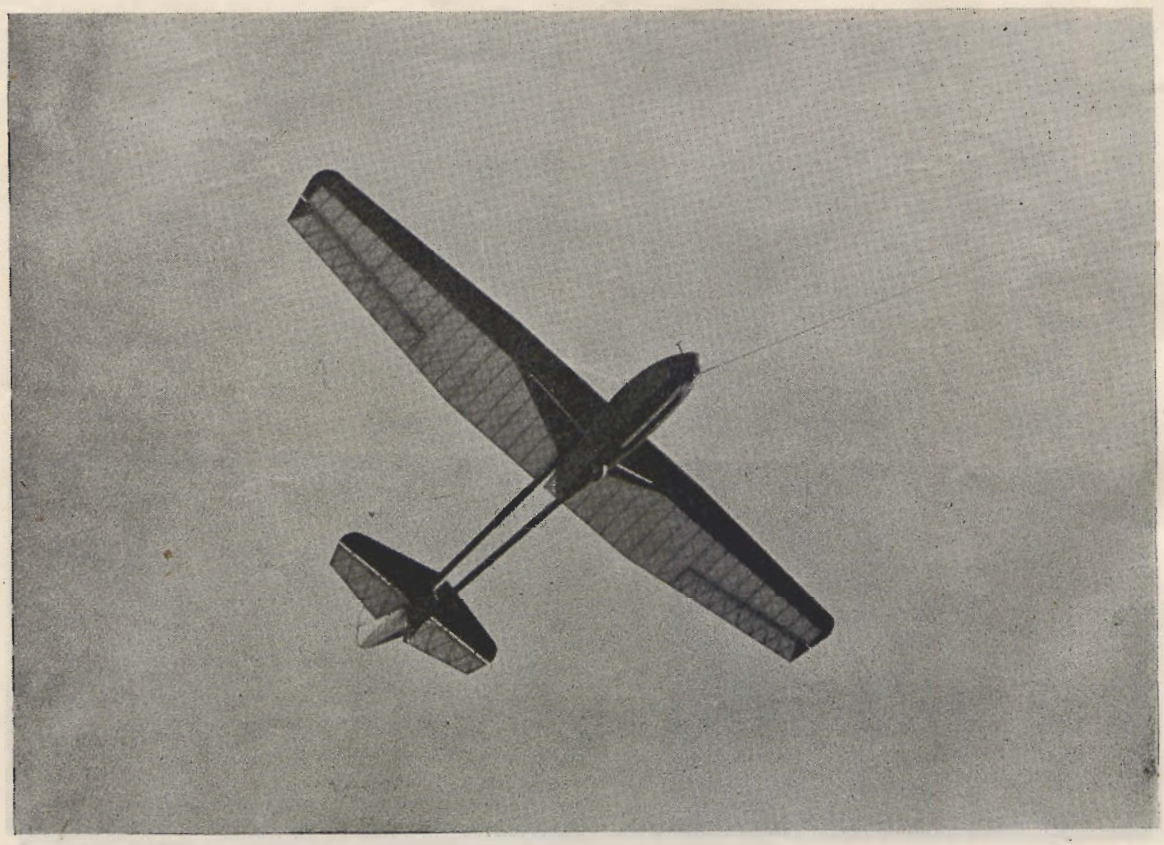
This is the name now adopted by the Ottawa group I described in my earlier contribution. It appears to have made giant strides since my visits despite one or two unfortunate incidents, among them the wrecking by a spring gale of the hangar so painstakingly erected. However, as the old one would have had to be extended or replaced shortly, the blow was taken philosophically, and by resolutely forfeiting much good gliding weather the new hangar has been built. Many difficulties were overcome, and judging by photographs received the results are worthy of the effort.

The club fleet has now been extended, and for the instruction camp to be held this summer it is hoped to muster from various sources as many as nine primaries, utilities, and secondaries. Last year the club obtained about fifteen certificates, including three " C's," and as the membership is increasing this number will no doubt go up.

The site appears to be proving satisfactory, Jim Simpson flying a " Falcon " succeeded in climbing to 1,600 feet in thermal lift, slope soaring has proved possible in very light winds, particularly when assistance is gained from small cumulus clouds on hot sunny days. The numerous large flat fields at the bottom afford comfort to the inexperienced but care has to be exercised to avoid drifting too far back owing to the thick woods along the top.

CONCLUSION

This has been a summary from the latest information available. Obviously much more will have been achieved by the time it appears in print. Through her great effort and under enthusiastic leadership, Canada is pushing her way to the fore. We shall have to keep on our toes here in Great Britain for the day of the Commonwealth Soaring Competition is not far off.



Mere Ground Hopper's View of the " Robin " Climbing.

SAILPLANE FLIGHT BETWEEN ARGENTINA AND URUGUAY, CROSSING THE DELTA

By ALBERTO SAN MARTIN.

ON the 9th December, 1944, at Merlo, flying Rhonbussard 17 P2, the " Indio " of the Albatross Club, I was launched by Alfredo Finochietti in the old Pelican to a height of 1,000 metres, this being close to cloud base. On this day there was a gusty South wind of 30 kms. and a sky 90 per cent. covered by most unusual cloud streets.

I made several turns and allowed myself to be drawn up into a cumulus with a ride of 2 metres per second. Instinctively I applied the flaps, but immediately took them off again and dived till I was flying along with no lift. In this way I approached at 90 kms. in a Westerly direction the Spalinger, piloted by Arnold Widmer. He was a little lower than I was, but we began circling together and soon reached the base of another cloud. (As we had set out with the intention of flying together we had agreed not to get into cloud.) There I began my first glide towards the West, so that the strong wind should not immediately take us out over the River Plate ; our idea was to drift westwards and cross the Parana Delta between the towns of Zarate and Ibicuy, where the width is about 30 kms., and from there continue over the province of Entre Rios.

As the upcurrents were not very strong and as we had already found that much below the cloud level they were definitely weak and far apart, we flew for some time in short glides so as not to lose too much height. 50 minutes later, as a consequence, we found ourselves flying over the River Parana de las Palmas, behind Tigre. Up till then we had flown together, near enough to each other to see each other smile ; but here the Spalinger, a sailplane of very high performance and with more actual height than I had, began a glide towards the West to get further from the river, but immediately turned towards me and stayed flying in zero near my Buzzard. I took it that his glide had not been very successful and that he had therefore returned to my zone to get height again before setting out. Later Widmer told me that he had returned to wait for me so that we could go on together to firm ground. That was why the Spalinger, after gaining height, insisted on gliding westwards, whereas I, somewhat more selfishly, waited to see him find an upcurrent before I got in behind him to make use of it as well. So I stayed where I was, flying in zero.

I saw the Spalinger begin a glide, losing height very rapidly, and he finally landed far away in the West. In order not to get caught up in such a great zone of downcurrents as the Spalinger had evidently encountered, I began to glide towards the South, that is to say, with a head wind. It was the only direction in which I could see a possible landing field, as I was already over the Delta.

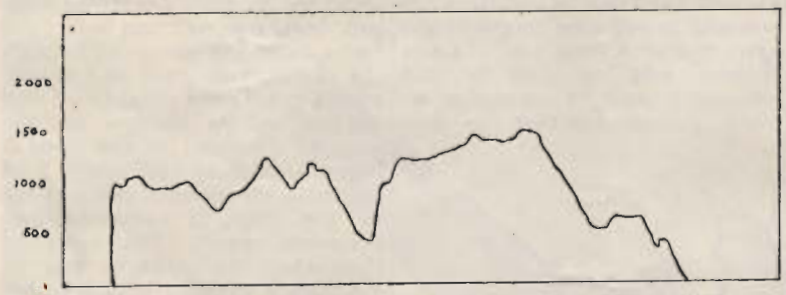
At about 500 metres I found a metre up-current and by the time I had centred it well it had turned into four metres. So here began my flight to Uruguay. From 500 metres I arrived at 1,300, right under the clouds. The strong wind had sent me well out over the Delta, but I felt unworried because the clouds were good and on my route I could see a cloud street well defined by its shadow on the ground. Arrived at the cloud I began to glide at high speed. All the brisk up-currents given to me by the clouds I converted into horizontal speed. That is to say that when the sailplane rose at 4 metres a second I kept my nose down till I was flying at zero. To do this meant I was flying at 100 kms. or more (I had no air speed indicator). Now and again, when the noise and the feel of the stick warned me that I was flying too fast, I slowed up and flew inside the cloud. There I noticed little turbulence and was actually sucked in so smoothly that I decided to try gliding in the cloud. Each time I came out I flew along in zero and so was displaced by the wind along my route. In the clear patches I could see on my right front the Uruguyan coast, well defined by the River Uruguay. According to my compass I should take a line on 60 degrees and arrive nicely, whereupon the next time I got into the

cloud I kept an eye on compass and bank and turn indicator. Although my horizontal visibility was nil, I could sometimes see far below the shine of the water and the marshes of the Delta. Where the River Plate and Parana joined I could see one of the big northern river boats. I knew then that I was flying over the Entre Rios Delta.

Flying 60 degrees inside the clouds I came out of my street, which ran due North, parallel with the boundary between Argentina and Uruguay, along the river of the same name. For this reason I decided to leave the cloud street and glide towards the next one, away on my right. I could clearly see the details of the Uruguayan coast and pick out the cities of Carmelo and Nueva Palmira. So I decided to gain the greatest height possible to enable me to reach the other street. I began to circle in cloud with the greatest possible attention, but owing to my inexperience in blind flying I did heaven knows how many turns and could appreciate by ear that my speed varied in a most capricious way. I don't know in what strange positions the Bussard flew, but actually the cloud was never sufficiently thick nor turbulent to be dangerous. A few minutes—or perhaps seconds—later I began to see light. I knew that the variometer registered a steady rise, but to tell the actual truth I expected to come out still below cloud level, when I saw in front of me a marvellous spectacle. I was flying above the cumulus, which I calculated must be only about 200 metres thick, as my altimeter registered now 1,600 metres. This lovely spectacle lasted a very short time, however, for on coming out of my cloud there were no more up-currents and I had to glide as fast as possible to reach the next cloud street.

Here I began to fly East, losing 2 metres per second. I arrived under the next street but unluckily very low. In front of me I could see very easily the two cities before mentioned. Nueva Palmira, more to the North, was the nearer, so I turned towards that, flying always below the clouds in the hope of picking up another up-current. In this way I lost about 1,000 metres in height. According to my calculations, even with a tail wind I could not reach the coast, and there I began to get worried about landing, because what from above I had taken for islands were no more than beds of reeds and where there was solid ground there were many trees. Seriously, until this moment I had not bothered about the landing, because I had had plenty of height and good up-currents. And now, luckily, at about 600 metres I saw with joy that the needle of the variometer began to shift from 2 metres down-current towards zero. I began to circle very cautiously indeed and confess that I did not even try to centre well inside the thermal for fear of losing it in the trying. How well a pilot flies when he is in a fix ! From zero it went up a few centimetres, then began an interminable period of zero which can be well appreciated from the barograph. But slowly I was being displaced towards the coast ; I had left the last islands of the Delta and managed to cross in steady circles the River Uruguay (which here measures some 6 kms. wide) without losing height. When I had gained the coast I dared to breathe again, quite tired out with the effort of pulling the stick a little as if to help the Bussard along. I was already flying over Nueva Palmira when I found a small up-current, but it seemed better to make sure of the landing, so I lost what height I had left looking for a good field where I could get shelter from the strong wind and where the aeroplane might land and fetch me.

I landed at 17 minutes past four, after two hours 17 minutes flying, having covered a distance of 97 kms., sixty of which were over the Delta of the rivers Parana and Uruguay.



Barograph

The Use of Glider Pick-up in Soaring Clubs

By Ing. A. RYLSKI-SCIBOR, A.F.R.Ae.S.

THIS war has brought many new ideas to aeronautics. It is certain that they will make it more attractive and easy.

Recreated soaring and gliding clubs will use them as attractions for air-minded young people.

One of the new ideas which will be introduced to the clubs is the picking up of gliders by aeroplanes.

Glider pick-up was developed in America from air mail pick-up, which has been used by the Americans since 1939.

Experiments in the pick-up of military transport gliders were first made in 1940 and since then the special winch for glider pick-up has been successfully developed. This winch, known as model 80-X, is used in the Dakota type transport aeroplane, and is able to pick-up transport gliders weighing up to 8,000 lb.

It is easy to foresee the use of this invention being extended to soaring clubs. It will be used to fetch gliders which have landed somewhere in the country after cross-country flights on thermals. The maximum weight of a high-performance glider is unlikely to exceed 650 lb. for a single or 900 lb. for a two-seater.

The aerodynamic drag of a high-performance, compared to that

of a transport glider, is small. It is obvious that for picking-up a high-performance glider a much smaller and less powerful aeroplane will be used. The winch will also be much smaller and of simpler design. What will be the comparison between road and air transport for bringing back a glider which has landed some way from its base ?

The writer has had some experience of the organisation of gliding in the Carpathian mountains in Polish Silesia.

To fetch a glider back even after a short flight wasted a very long time, at least half a day, and usually a whole day.

Every pilot will appreciate having a means of returning to his base as quickly as possible. In days with good soaring conditions it is important, when there are only a few gliders, that they should be available for as much of the time as possible. This is especially important during flying contests.

Let us take as an example a club from which about 250 long distance flights a year are made. The cost of road transport of a glider which has landed about 60 miles from its launching base will be approximately £8.

The cost and the loss of time involved come from the necessity of dismantling the glider, loading it into a trailer, travelling back to the base, and making it airworthy again.

One more point against road transport must here be added. Experience has shown that the vibration during road transport shortens the life of a glider, mostly by damaging glued joints and fittings.

The cost of aeroplane glider pick-up and of towing back to the launching base, depends entirely on cost of air mile flight. For an aircraft fitted with a 100 h.p. engine the cost of an air hour will be approximately £3.

The total flying time, including picking-up a glider, depends on the aircraft's average speed in free flight, and with a glider in tow, and also on the pick-up organisation.

A rough calculation shows that with an average aircraft speed about 120 m.p.h., and with glider in tow of about 90 m.p.h., the time of whole operation of pick-up will be about 80 minutes. The total cost will amount to about £4.

THE GLIDERS PICK-UP ORGANISATION

It is suggested that one aircraft, fitted with the pick-up winch, would serve for more than one local gliding club.

One can imagine a central aerodrome, shall we say one of London's on which gliding clubs in the surrounding country would maintain one aircraft fitted for pick-up, sharing the maintenance costs. The aeroplane could be called by phone, and fly as directed to the glider's landing place. It would circle over the glider and, if necessary, drop some parts of the pick-up ground station.

HOW THE GLIDER'S PICK-UP IS EFFECTED

The picking-up of the high-performance glider would not differ much from that of the mail bags as it is done in United States of America. The glider pick-up system consists of three main units : the pick-up gear, the contact unit, and the ground station.

The pick-up gear is fitted into an aircraft and consists of an electrically-driven winch with automatic braking system which is used to give a steady acceleration to the glider. The main part of the winch is the drum on which is wound the cable. On the end of the cable is fitted a hook. (*Fig.* 1.)

The contact unit consists mainly of a retractable arm usually fitted under the fuselage. Its length is about 10 ft. Inside the fuselage is fitted the cable-guide with an emergency cable-cutter and the hook's retainer.

The ground station consists of two 15 ft. high poles. These poles are placed in the ground 20 ft. apart in such a way that after the loop has gone, they fall outwards. On the top of each pole is a small spring steel clip, holding the towing rope. The general arrangement of the loop is shown in *Fig.* 1. The glider's end of the towing rope is attached to the release unit on the glider.

As the aeroplane flies over a ground station, the hook, placed on the end of the contact unit's arm, catches the loop stretched between the two poles of the ground station. When contact is made, the cable becomes taut and the drum begins to rotate.

At first the drum is allowed to rotate freely, then the brake is automatically applied. The drum decelerates until it stops.. The slowing down of the drum accelerates the glider, and when the drum stops the glider has attained the speed of the tug.

This action takes approximately 5 to 7 seconds, during which time the glider will take-off.

The take-off run of such a glider is no more than about 200 ft. (According to American's reports.) The glider is fully accelerated in about 500 ft., and the acceleration does not exceed 0.5 of the acceleration due to gravity.

SHORTENING OF THE CABLE AFTER PICKING-UP

At the end of take-off, the combined length of the cable and the towing rope on glider is considerable.

During pick-up the speed of the aeroplane relative to the glider decreases rapidly, but as a result of its high initial value the first length of the cable is about 200 yards.

This is too much for towing, and to reduce it to a reasonable length the cable must be wound on to the drum. Rewinding is effected by means of an electric motor.

After shortening the towing cable to the required length the drum is locked.

SUMMARY OF SUGGESTIONS AND PROBLEMS DESCRIBED

The picking-up unit, contact unit and the ground station should be re-designed and adjusted for gliding sport by somebody with experience.

The cost of glider pick-up used for amateur soaring will probably be much smaller than that of road transport. The loss of time involved will be reduced from days to hours.

The delicate construction of a high-performance glider is much more subject to damage during road transport than during aerial towing and pick-up.

These few points show that it would be worth while designing a British pick-up gear and adjusting a low-powered aeroplane to make glider pick-up available to clubs in the country.

(*While not agreeing with some of the figures, and especially costs, in the above article, it is published as giving material for considerable thought.*—Ed.)

Letters to the Editor

ORGANISING CLUBS?

Goodwell House,
Brancepeth,
Co. Durham.
Oct. 13, 1944.

DEAR MR. RICE,

I was interested in your letter in the SAILPLANE advocating comprehensive organisations for sporting flying. I think your idea is a good one in theory, because, as you point out, a united movement is very necessary, especially in dealing with Authorities.

I am not so sure, however, how it would work in practice. Model flyers and gliding people have a good deal in common, of course, such as their poverty; in this part of the country, at least, most of the people who go in for gliding do so in the first place because it seems to be the cheapest way to get into the air; only later are they captivated by its special charm. Aero club members, on the other hand, seem to belong to an entirely different class, both temperamentally and financially (one might add, socially, too; we cannot pretend that that is entirely irrelevant), and I cannot see the two groups working together to any extent. Of course the picture may be different in Leicester, but not much, I imagine.

For example, I can't see any Aero Club welcoming the prospect of gliders being winch-launched all over its aerodrome, nor would the gliding people like it; there is no room for any other flying where winching is going on.

The position at Newcastle was that there was a Model Club operating on the Town Moor, a Gliding Club operating on a field about 10 miles out (with soaring expeditions when possible), and an Aero Club some miles from both. Intercommunication was minimal, and co-operation ditto. In truth, none had much to offer to or receive from the others. The modellists weren't going to travel miles when they had a free flying ground on their doorsteps—a ground which was, of course, not available to either of the others. The gliders wouldn't have minded using the Aerodrome, but weren't allowed, naturally. And the power pilots thought the gliding field not flat enough for them, even if they had wanted to land on it.

Of course, a few modellists joined the Gliding Club, a few gliders joined the Aero Club, and either abandoned gliding or oscillated ineffectually between the two, and a few power pilots tried gliding; of the latter, most crashed and departed, but one or two stuck it and became good soaring pilots. The Aero Club might have co-operated in aero-towing, but didn't; perhaps they weren't asked—I don't know. But generally speaking the three groups minded their own business, and I don't see myself how else they could have done. Flying may have been the common denominator, but it certainly didn't bring them to terms; everything else was so radically different.

Like you, I have often thought that a knowledge of theory would help people to get on and enjoy their flying more, but the doses have to be very small and highly sweetened; it is not in human nature to submit to a mental discipline without a very strong motive. People who fly for sport are certainly anxious to have their questions answered as they arise, but the idea of being "trained" is usually less attractive. I am reminded of Jerome K. Jerome's remark that the most popular game in the world is the game of "school," the only trouble being that everyone wants to play "teacher." I feel that, at the present time, when everybody is planning to "train" somebody else, one is apt to forget that there are still people who like to do things for themselves in their own ignorant fat-headed way, picking up the necessary knowledge as required. You will find the gliding and model clubs full of people like that. I don't know about the aero clubs, but my impression is that they look on flying as being like taking a boat out on the river—a nice way to spend a nice afternoon; and there is always the bar.

Although, as I said at the beginning, the prospect of presenting a united front to Authority sounds advantageous, what would it really mean? The aero-modellists have nothing to gain—they are practically beneath the notice of the law as it is, so what more could they desire? In any case, their own Association can do more for them than a local Aviation Centre. Gliders would merely run the risk of coming under the same C. of A. Regs. as power craft, and that would kill gliding for all but the rich. It is possible that a central organisation representing all types of sporting flying is the answer, but as far as I can see the three branches must remain independent, though whenever they *can* usefully co-operate they should obviously do so. But don't let's be "planned" too much, or we shall all retire and take to dominoes (or is somebody planning to make us "domino-minded" too?).

All this sounds very pessimistic, but isn't really. I am sure gliding has a great future ahead of it (not a prosperous one, but one of work, sport, and achievement), but the clubs must keep their individuality.

Yours truly,
W. E. HICK, M.B., B.S.

Woodside,
Rhu,
Dumbartonshire.
14th June, 1945.

DEAR SIR,

I think Mr. Rice's first suggestion—the formation of a pool providing country membership of all associated gliding clubs—is an excellent one.

It has always been one of my misfortunes to find myself, having paid membership fees to one club, being moved out of that neighbourhood into the territory of some other club, and however keen one is, it is apt to be a bit staggering to the family finances to keep on joining clubs here, there and everywhere.

I would certainly take advantage of such a scheme.

Yours faithfully,
J. C. NEILAN.

THERMAL

Manor Farm,
Great Somerford,
Chippenham.
2/7/45.

DEAR SIR,

Could soaring pilots use a cartridge or small rocket which would leave a ribbon of smoke for a hundred yards or so? Projected across the area of a suspected thermal so that it might define the area of lift.

Fired vertically it might indicate layers of increased wind velocity and be of use in dynamic soaring.

Yours faithfully,
K. B. BATCHELOR.

TECHNICAL "GEN" FROM GERMANY

53, Arbor Road,
Croft,
Near Leicester,
4/6/45.

DEAR SIR,

I observe that all gliding and building of gliders and sailplanes is to be forbidden in Germany.

It is to be hoped that the B.G.A. have duly impressed on the Air Ministry the vital importance to British Gliding of obtaining all the technical data available at such centres as the Wasserkuppe and also the importance of arranging for some, at least, of the latest German products to be brought to this country for inspection and trials or alternatively for full reports on the machines to be compiled by experts and made available as early as possible, as while spruce may be in short supply at the moment, designers are not.

Yours faithfully,
P. H. BALL.

SOARING FLIGHT

By TERENCE HORSLEY

FOR the first time in England a book on soaring flight has been published which is not designed as a standard text-book. Although there is much good advice on learning to soar, the author's prime motive is to convey an idea of the exhilaration of soaring to those who have not yet done it.

The book was published on June 15th, so there has not been time to read it right through before sending this review to Press. Part of it describes the author's own experiences, and it appears that he was won over to soaring by being given a ride, as a newspaper correspondent, in a " Falcon III " when the " evening thermal " was discovered for the first time in England at the National Contest of 1936 in Derbyshire. He describes how he passed through the various stages of instruction, did thermal and ridge soaring, crashed on one occasion through being unprepared for a down-current, and later, as a ferry pilot during the war, took the opportunity to learn more about the up-currents used for soaring. During this time he performed an amazing climb, in a " Blackburn Shark " weighing nearly five tons, in a " standing wave " in the lee of the Grampians.

I think the most valuable part of the book is the group of chapters in which the author puts across to the general reader the meteorological knowledge required of an advanced sailplane pilot. Up till about ten years ago, people in the British gliding movement would merely echo each other's phrases about the need for knowing a lot of meteorology, without the slightest idea where to begin. Some would search the text-books in vain for helpful information. The fact is that, beyond the basic physical principles, sailplane pilots have themselves had to find out almost every detailed fact about the behaviour of the atmosphere which they need to know. If you doubt this, ask any professional meteorologist what is the average length of life of a cumulus cloud, or whether the " standing wave " (the nature of which you may have to explain to him) could be used for soaring flight.

Besides all this, there is also technical information about the design and construction of sailplanes, and about their aerodynamics. But on page 31 it is stated that when flying speed is increased by steepening the glide, the increase in the rate of sink is " roughly proportional " ; obviously the sink must be greater than this.

The Kent Gliding Club should be given the credit of being the first club formed after the revival of 1930 (page 266).

Terence Horsley is well known at many leading clubs, as he moved about the country in his various journalistic appointments in pre-ferry days. His services to the movement include inducing the Manchester *Daily Dispatch* to offer valuable prizes, and to send a " Falcon III " to the international meeting of 1937 ; also circumventing the Air Ministry's ban in the spring of 1940 by getting permission for club flying from Fighter Command.

A. E. S.

ON FORMING A CLUB—*Continued from Page 6*

machines, with cover up to £5,000, could be obtained for £5. This policy is not at present available, and unless some combined approach is made by clubs, this insurance will be £2 10s. 0d. for each machine.

This third party policy must cover machines in the air, on the ground and when being towed in trailers.

The fire, storm and tempest on hangar and equipment is a straightforward policy, with the inclusion of a clause permitting the storage of a certain amount of petrol.

In regard to personal injury to members, the club must arrange for indemnity certificates to be completed immediately upon enrolment. It should also be noted that members' private policies are usually affected when they take up gliding, and they should learn from insurance brokers what extra endorsement is necessary.

When the club is in a position to employ servants of any sort, they become liable for Workmen's Compensation Insurance, even for part time or unpaid employees. Common dangers such as being knocked down, or injured while travelling to the club, or on any club business, can become the liability of the club.

Compensation is based on the employees' total earnings from all sources, and not merely on the salary paid by the club.

Health and Pensions and Unemployment Insurance must be paid for casual employees, if there is an arrangement of weekly or regular employment—one or more days a week, providing the cards have not already been stamped by the person's full-time employer. In other words if the person is absent from their regular full-time employment the club must stamp the cards for those weeks if he/she is employed by them.

This will also apply to the hire of a pianist or other musicians if the engagement exceeds 4 hours per week.

GLIDER DAMAGE

It has been the practise in many clubs to run a form of insurance in which members can cover themselves against the payment of machine damage liability to the club. The premiums and the cover vary considerably, and they are designed to cover a percentage of crashery costs, based upon the different stages of training.

TAXES

Schedule " A " tax is payable on club-owned buildings. Where the club is the tenant of buildings the owner is responsible. In this case, if the club receives a demand they should pay it, and deduct it from the next payment of rent. If the club fails to deduct this tax from the *next* payment of rent, it loses the legal right to deduct that specific instalment.

Schedule " D " tax can be claimed from the club only from profits from investments or outside lettings. They are not liable for tax on dividends from co-operative breweries.

Gliding clubs are liable for the payment of War Damage contribution.

Retrieving cars and winches are exempt from payment of Road Tax, only providing they are never driven on the highway. It is illegal to drive these vehicles to and from the flying field if they have to traverse a thoroughfare to which the public have a right of access.

Trailers which come within specified constructional limits are exempt the payment of a road tax, and if a club proposes to build its own trailers, the applicable regulations should be carefully considered. (An article appeared in the SAILPLANE in 1931 explaining these regulations.)

CLUB TAX

If the club is registered for the sale of intoxicants a charge of 3d. is levied upon each £1 worth of intoxicants purchased by the club for re-sale to members.

RATES

Rates are payable on all club buildings, whether temporary or permanent structures. It is the duty of the secretary to furnish a return on a form provided by the local authority, giving the particulars necessary for assessing the rateable value of the buildings.

Local rates are levied in accordance with this valuation of the land and/or property.

If the officials of the club consider this valuation excessive, they may appeal to the Local Assessment Committee, on a special form provided by the Rating Officer

My own experience with such an appeal was to an Assessment Committee composed mainly of Socialist Councillors, and their view on gliding was that it was a sport of the wealthy, and therefore the first principle of stinging the rich should apply. As a result working class people struggling to pay the minimum possible subscription to a gliding club, were doomed to contribute £38 each year on behalf of their hangar, for which they received no direct return. (It was a Rural Area where we did our own scavenging.)

The rateable value of rented club buildings should be equal to the annual rent less a sum to cover the average annual cost of repairs, when the club is responsible for these repairs.

This deduction for repairs is based upon one-fourth when the annual rent is between £28 and £40 ; and one-fifth, or £10 (whichever is the greater) when the annual rent is between £40 and £100. For a gross rent exceeding £100 the allowance for repairs is £20 plus one-sixth of the excess over £100.

If the club are owners of permanent buildings they must assess the rent which they consider the buildings are worth, which will be about 5 per cent. of the capital cost. They can then estimate and check the rateable value as shown above.

Temporary structures owned by the club cannot be assessed on the above percentage. The percentage will vary with the type of building and will be greater than 5 per cent. of the capital cost.

I understand that more than one Gliding Club has experienced prejudice in the matter of rental valuation, and this matter should be carefully considered and expert advice obtained.

(*To be continued.*)

THE YORKSHIRE GLIDING CLUB

A MEETING of the Yorkshire Gliding Club Committee was held recently to discuss the prospects of re-opening the Club for Flying at the earliest opportunity.

In view of the number of officials away on active service it was essentially of an exploratory character.

Valuable ground-work was done, however, in forming provisional plans for future guidance.

The Club found itself in a sound financial position, but, failing financial or other help from the Air Ministry or the B.G.A., it must of necessity build up its assets before being able to offer the same amenities as pre-war.

The recommendations agreed upon were in accordance with the Club's previous policy which has proved so successful. These were that the maximum flying facilities for members should be provided in the shortest possible time commensurate with absolute financial security.

A further report will be given when the National position of Gliding is clarified.

KENT GLIDING CLUB

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

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

ROYAL AERO CLUB
GLIDING CERTIFICATES

"A" *Certificates* (110).		*School.*	*Date taken.*
2660	Hugh Edgson Wright	S.E.161 E.G.S., Brighton	4. 5.45
2661	William Arthur Percy Quinn	C.125 E.G.S., Denham	18. 3.45
2662	Norman Albert Bates	M.41 E.G.S., Knowle	26. 4.45
2663	Reginald Percival Sargent	S.E.161 E.G.S., Brighton	22. 4.45
2664	Peter George Nixon	M.45 E.G.S., Meir	18. 3.44
2665	Dennis Norman Cooper	N.W. 181 E.G.S., Blackpool	25. 3.45
2666	Lionel John Parr	S.E.167 E.G.S., Fairoaks	8. 4.45
2667	Edward Henry Sims	Ditto	2. 4.45
2668	Malcolm Gordon Platt	Ditto	2. 4.45
2669	David John Manley	L.141 E.G.S., Kidbrooke	22. 4.45
2670	Cyril James Barefoot	S.E.161 E.G.S., Brighton	15. 4.45
2671	Edward William Charles Hiscock	C.123 E.G.S., Bray	8. 5.45
2672	Lionel Vivian Hickman Barnes	Ditto	10.12.44
2673	Douglas Thomas Arnott	M.41 E.G.S., Knowle	26. 4.45
2674	Robert Livingston Arnott	Ditto	26. 4.45
2675	Harry Dobson	N.W.183 E.G.S., Woodford	8. 4.45
2676	Harold Leonard Kent	M.45 E.G.S., Meir	15. 4.45
2677	Harry Thomas Dumbleton	M.41 E.G.S., Knowle	21. 5.45
2678	Hanry Chrisptoher Morris	C.130 E.G.S., Cowley	22. 4.45
2679	George Edward West	Ditto	22. 4.45
2680	David Alexander Ogilvie	M.41 E.G.S., Knowle	26. 4.45
2681	John Alexander William Allen	E.107 G.E.S., Lincoln	19.11.44
2682	Dennis Richard Ogden	M.41 E.G.S., Knowle	26. 4.45
2683	George Douglas Trotter	203 E.G.S., Newtownards	21. 4.45
2684	Gordon Farquharson	N.W.184 E.G.S., Woodford	15. 5.45
2685	Dennis Le Grove	N.E. 25 E.G.S., Hedon	6. 5.45
2686	Kenneth Lee	N.E. E.G.S., Sherburn-in-Elmet	6. 5.45
2687	Malcolm Flack	Ditto	6. 5.45
2688	Dennis Morris Baker	N.E.26 E.G.S., Greatham	28. 4.45
2689	Raymond Francis Graham	N.W.186 E.G.S., Speke	27. 5.45
2690	John James Clarke	L.146 E.G.S., Fairlop	15. 4.45
2691	Edward Douglas Fuller	C.121 E.G.S., Halton	8. 4.45
2692	Donald Francis Mulford	W.62 E.G.S., Cardiff	2. 5.45
2693	Haydn Lewis Bertram Castle	Ditto	2. 5.45
2694	William Leyland Grey	N.W.186 E.G.S., Speke	27. 5.45
2695	Leslie Mills	M.45 E.G.S., Meir	11. 5.45
2696	Barry Joseph Crabtree Taylor	C.125 E.G.S., Denham	27. 5.45
2697	Harry Roberts	M.45 E.G.S., Meir	11. 5.45
2698	Peter Alexander Hall	N.W.186 E.G.S., Speke	27. 5.45
2699	Eric Edward Wheeler	L.146 E.G.S., Fairlop	15. 4.45
2700	Anthony Horan	N.W.186 E.G.S., Speke	27. 5.45
2701	John Gilbert Little	N.W.183 E.G.S., Woodford	27. 5.45
2702	Dennis Frank Pullen	M.44 E.G.S., Rearsby	27 5.45
2703	John William Knight	S.W.89 E.G.S., Christchurch	22. 4.45
2704	Norman Roy Harben	M.43 E.G.S., Walsall	13. 5.45
2705	William Edward Hall	Ditto	13. 5.45
2706	Eric Benjamin Twemlow	Ditto	13. 5.45
2707	Edward Alexander Strutt	Ditto	13. 5.45
2708	Ronald Thomas Dean	N.W.183 E.G.S., Woodford	29. 4.45
2709	Charles Brian Dale	M.47 E.G.S., Great Hucklow	26. 5.45
2710	Roy Laurence Hatt	W.65 E.G.S., Cardiff	24. 5.45
2711	Henry Michael Alan Bristow	M.41 E.G.S., Knowle	26. 4.45
2712	Kemeth Johnson	M.45 E.G.S., Meir	25. 3.45
2713	Anthony Birchenall Fielding	N.W.183 E.G.S., Woodford	27. 5.45
2714	Allan Arthur Bapty	M.41 E.G.S., Knowle	26. 4.45
2715	Anthony John Chatwin	L.146 E.G.S., Fairlop	15. 4.45
2716	Albert Greetham Zealand	M.43 E.G.S., Walsall	13. 5.45
2717	Geoffrey Vivian Bloomer	S.E.167 E.G.S., Fairoaks	23. 4.45
2718	Ronald Charles Dunglison	Ditto	24. 4.45
2719	Alan Peter Boyd	Ditto	20. 5.45
2720	David Prideaux Watt	Ditto	20. 5.45
2721	Dennis Woods	N.W.183 E.G.S., Woodford	27. 5.45
2722	Ernest Andrew Hindle	Ditto	27. 5.45
2723	Anthony Ernest Darling	S.E.162 E.G.S., Hamsey Green	25. 4.45
2724	Richard Hogg	M.45 E.G.S., Meir	18. 5.45
2725	Vernon Goodwin Ward	M.43 E.G.S., Walsall	13. 5.45
2726	John Clarke	N.W.181 E.G.S., Blackpool	10. 3.45
2727	John Cusick	Ditto	11. 3.45
2728	Ian Cochran Campsie	Ditto	18. 3.45
2729	Kenneth Frank Forrester	N.W.186 E.G.S., Speke	27. 5.45
2730	Frank Stuckey	N.W.184 E.G.S., Woodford	27. 5.45
2731	Francis Mullany	N.W.183 E.G.S., Woodford	27. 5.45
2732	Richard Keith Hall	S.W.87 E.G.S., Weston-super-Mare	27. 5.45
2733	George Albert Shaw	N.W.183 E.G.S., Woodford	17. 3.45
2734	Harold Roy Killin	N.W.184 E.G.S., Woodford	18. 3.45
2735	Derek Frank Wright	M.48 E.G.S., Bretford	22. 4.45
2736	James William Love	N.W.183 E.G.S., Woodford	27. 5.45
2737	Gerald Harp	M.45 E.G.S., Meir	11. 5.45
2738	Charles Ernest Crump	S.E.163 E.G.S., Portsmouth	25. 3.45
2739	Thomas Morrow	203 E.G.S., Newtownards	8. 4.45
2740	Leonard Farquharson Crystal	N.W.183 E.G.S., Woodford	27. 5.45
2741	Reginald George Upton	M.45 E.G.S., Meir	18. 5.45
2742	Geoffrey Francis Sharples	N.W.181 E.G.S., Blackpool	11. 3.45
2743	David Quayle	N.E.29 E.G.S., Lambton Park	30. 5.43
2744	Ronald Norman Whittenbury	C.122 E.G.S., Harrow	30. 7.44
2745	Albert Unger	S.E.162 E.G.S., Hamsey Green	25. 4.45
2746	Cedric Raymond Webster	M.44 E.G.S., Rearsby	20. 5.45
2747	John David Green	C.122 E.G.S., Harrow	27. 5.45
2748	Ralph Broad	N.W.190 E.G.S., Cranage	26. 5.45
2749	Thomas Lawrence King	M.45 E.G.S., Meir	27. 5.45
2750	William John Box	M.48 E.G.S., Bretford	22. 4.45
2751	Sydney Stuart Sylvester	L.148 E.G.S., Southend	8. 4.45
2752	Eric James Woods	Ditto	8. 4.45
2753	Eric John Ducker	Ditto	20. 4.45
2754	James Robert Joseph Rutherford	Ditto	21. 4.45

(*Continued Overleaf*)

CLUB ANNOUNCEMENTS

LEICESTERSHIRE GLIDING CLUB

In view of the sufficient numbers already enrolled the membership lists have been closed until further notice. Don't forget our monthly "get-together" at the Victory Hotel—every third Friday of the month. Come and meet the gang. Aerial garden party, Sept. 1st—get details from Secretary, Park Road, Blaby, Leicester.

Monthly "get-together" dance, every third Friday of each month—Aug. 24th, Sept. 21st and Oct. 19th.

THE MIDLAND GLIDING CLUB LIMITED

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

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

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

NEWCASTLE GLIDING CLUB, Ltd.

(founded Feb. 1930)

Applications for Membership now invited in Reorganised Post War Club.

Special Registration Fee 5/-

Ensures Membership when activities restart.

Further Particulars apply

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

The Yorkshire Gliding Club, Sutton Bank, Yorkshire.

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

WANTED, new or secondhand, copy of "SAILPLANE," Oct. 1938, Vol. 9, No. 10.
Box 2, "Sailplane."

Royal Aero Club Gliding Certificates—(*Cont.*)

		Gliding School	Date taken
"*A*"	*Certificates*		
2756	Henry Walter Skinner	L.148 E.G.S., Southend	21. 4.45
2755	Peter Anthony Harland	Ditto	21. 4.45
2757	Mark Naylor Williams	Ditto	21. 4.45
2758	Reginald George Curtis	Ditto	21. 4.45
2759	Raymond Charles Dean	Ditto	28. 4.45
2760	Leonard William Hall	Ditto	21. 4.45
2761	Douglas William Orr Heddle	L.146 E.G.S., Fairlop	27. 5.45
2762	Leslie Slater	N.E.31 E.G.S., Usworth	10. 6.45
2763	Roy Douglas McKenzie	C.122 E.G.S., Harrow	13. 5.45
2764	Thomas Raymond Michael	N.W.31 E.G.S., Usworth	10. 6.45
2765	Daniel Mannus	203 E.G.S., Newtownards	27. 5.45
2766	John Mellor Pogson	N.W.184 E.G.S., Woodford	27. 5.45
2767	William Ponton	N.E.31 E.G.S., Usworth	10. 6.45
2768	Alan Weir	N.E.27 E.G.S., Woolsington	6. 5.45
2769	Douglas Granville Carlisle	N.E.31 E.G.S., Usworth	10. 6.45
"*B*"	*Certificates* (19).		
2661	William Arthur Percy Quinn	C.125 E.G.S., Denham	14. 4.45
2676	Harold Leonard Kent	M.45 E.G.S., Meir	15. 4.45
2678	Henry Christopher Morris	C.130 E.G.S., Cowley	12. 5.45
2679	George Edward West	Ditto	12. 5.45
2657	Albert Edwiu Berger	N.W.184 E.G.S., Woodford	25. 5.45
2684	Gerdon Farquharson	N.W.184 E.G.S., Woodford	25. 5.45
2704	Norman Roy Harben	M.43 E.G.S., Walsall	16. 5.45
2705	William Edward Hall	Ditto	16. 5.45
2706	Eric Benjamin Twemlow	Ditto	16. 5.45
2707	Edward Alexander Strutt	Ditto	15. 5.45
2101	Harold Percival Rhodes	N.W.184 E.G.S., Woodford	27. 4.45
2716	Albert Greetham Zealand	M.34 E.G.S., Walsall	16. 5.45
2725	Vernon Goodwin Ward	Ditto	16. 5.45
2726	John Clarke	N.W.181 E.G.S., Blackpool	10. 3.45
2569	Kenneth James Arthur Fripp	S.E.163 E.G.S., Portsmouth	27. 5.45
2743	David Quayle	N.E.21 E.G.S., Lambton Park	16. 1.44
2744	Ronald Norman Whittenbury	Glider Pilot Regiment	1. 5.45
2751	Sydney Stuart Sylvester	L.148 E.G.S., Southend	28. 4.45
2752	Eric James Woods	Ditto	29. 4.45
"*C*"	*Certificates* (7).		
860	Angus John Edward Benton	M.47 E.G.S., Great Hucklow	13. 8.44
2701	Norman Roy Harben	M.43 E.G.S., Walsall	16. 5.45
2705	William Edward Hall	Ditto	16. 5.45
2706	Eric Benjamin Twemlow	Ditto	22. 5.45
2707	Edward Alexander Strutt	Ditto	16. 5.45
2716	Albert Greetham Zealand	Ditto	2. 6.45
2725	Vernon Goodwin Ward	Ditto	16. 5.45

VOCATION—(*Continued from Page* 1.)

the work is done, and how the equipment is operated. Some of these people were instructors, or spent much of their time winch driving, retrieving, or doing many of the invisible, thankless tasks that are so necessary. They will do so again. Such people ARE the clubs. Others concentrated their energies on improving their piloting abilities, they became in many cases, private owners and spent their weekends and free time "following the weather," wandering between the sites, and taking any opportunity of cross-country and altitude flying. Their contribution to British Gliding was also great. To join their ranks was the aim of every beginner, and their requirements improved the breed of British high-performance sailplanes.

It is with these people that the future of British gliding lies. They have the experience of the efficient operation of civil gliding. Between them they know every side of the job, from the correct wording of membership forms, to the breaking of records; and above all they know that it is only unselfishness, co-operation and hard work that make gliding and soaring the fine sport that it is. It is the responsibility of each one, not only to obtain the maximum personal pleasure, but to pass on his knowledge and assist the instruction of the many who are to eventually carry on where we will leave off.