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Sailplane and Glider

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THE FIRST JOURNAL DEVOTED TO SOARING AND GLIDING

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CONTENTS

Front Cover: *"Soaring an open Primary"* *Photo by Wolf Hirth.*

We regret that owing to lack of space a number of features and photographs have been held over until next month.

THE KEMSLEY FUND

THERE is a great lightening of the heart in Gliding circles since the announcement by Press and Radio of the fact that Lord Kemsley is making available to the Gliding and Soaring Movement as well as to those who wish to fly light aircraft, a sum equal to £100,000 spread over the next seven years. It is to be a loan, at a nominal rate of interest, repayable in twenty-five years. Its object is to stimulate private flying.

Its administration is left to representatives of the Kemsley interests, of the B.G.A., and the Royal Aero Club.

This isn't, on the face of it, a subsidy, and it is to be hoped that the Government won't take it in that light either. But, on the other hand, in view of the economic crisis, it is difficult to imagine a Government Subsidy. Nevertheless, since the money is to be advanced in the form of loans, it is to be expected that it will be advanced against some form of security. The most durable security is land and buildings, which in terms of gliding means gliding sites and hangars, bunk-houses and kitchens, and after that equipment and machines. In short, the loans are a form of capital, and the effect may be to make gliding cheaper, in addition to enabling gliding to be practised in more places because of more clubs and facilities. In this it differs from a subsidy which is meant to cover the difference between cost and what is paid. We devoutly hope that a subsidy will, therefore, not be required, since we are of the opinion that a subsidy would mean more State Control, which we are profoundly convinced is harmful. But the need for a subsidy can only disappear if the new stimulus enables the Movement to grow, and grow quickly, to several times its present size. It's the old story, the more people engage in it, the cheaper it will become, but at present it is too dear to make it possible for large numbers to enjoy it.

The number of "A" Certificates now in existence is about five times what it was before the war, yet—apart from the Services Clubs—the number of devotees in the Clubs is considerably less than the 1939 figure. This may to some extent be due to a shortage of machines and equipment. In 1939 there were nearly 400 sailplanes of all types in this country. To-day, there are only about 100. If the Kemsley money can be used to re-equip the Clubs and enable them to build up to their pre-war establishment of machines (if not more), that will be a great boon.

But the number of "A" Certificates gained is no real guide to the health of the Movement. Most of them were gained by members of the A.T.C. at no cost to themselves. The daily fifty hours' soaring achieved in some Service Clubs can only be equalled occasionally in the civilian Clubs at a Meeting and Congress, where machines and pilots come from everywhere to take advantage of special facilities. Present experience shows, too, that half of them are private owners.

It seems, therefore, that the new holders of the "A", most of whom seem to have taken their "B" if they got the chance, need not so much encouragement to go further, but the *opportunity* of going further.

The present chief barrier is cost. The average Club entrance fee to-day is 6 guineas. Before the war Club members were able to compound their flying fees for £5 a year. Now the average is £10 a year, making £16 6s. a year without taking into account fares and food. The cost cannot be much less than 12/- a week—far more than the average youth or girl gets as pocket-money to-day, or can spare from tax depleted earnings.

One wonders, therefore, some scheme of assisted Club Membership could not be evolved. Could not selected juniors who show keenness, say, for four week-ends, be admitted at a special junior entrance fee of, say, 30/-, and after a few ground slides be accepted or rejected by the Chief Instructor for a "scholarship" admitting them to full membership and a compounded year's flying fee of, say, half the normal amount?

The result to the Movement would be to increase the number of "C's" and Silver "C's" and to the Clubs more members and machines. To the country it would mean that stimulus for which we believe the Kemsley Fund was created.

CONVECTION AND THE SOARING PILOT

By F/Lt. H. NEUBROCH

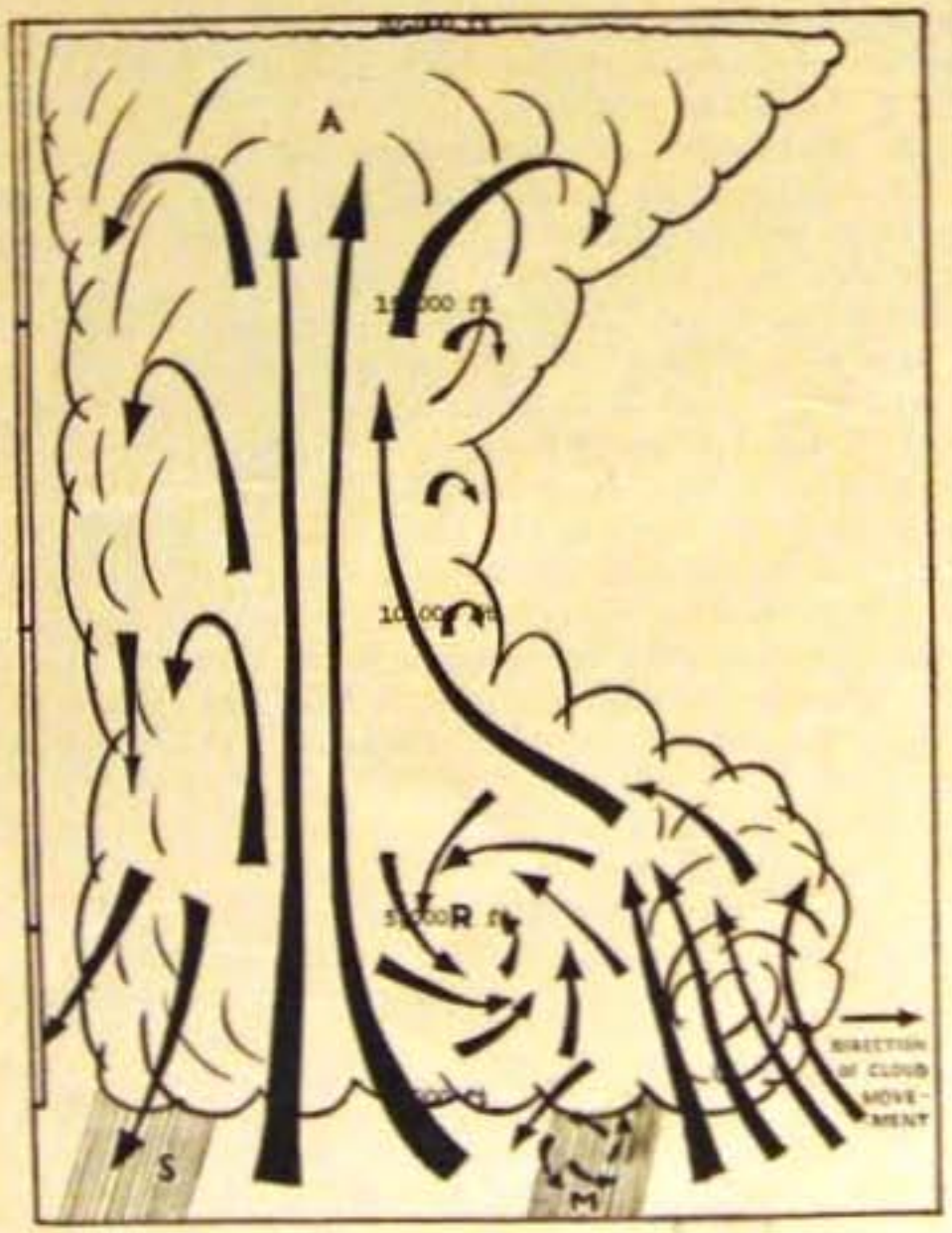
Continued from April Issue.

II

THUNDERSTORMS.

FOR many years now altitude records to the glider pilot have been associated with cumulonimbus clouds, and these again, with their powerful rising currents, cause thunderstorms. Few readers will have forgotten Mr. Philip Wills' description of his brilliant flight of June 23rd, 1946, when he established a new British altitude record of 15,207 ft. above the point of release. He wrote of one memorable minute when he rose by 2,000 ft., a rate of climb which compares favourably with that of quite a number of quite powerful service aircraft. Under favourable conditions, thunderclouds may extend to well above 30,000 ft., so that, for a long time to come, all new altitude records will be set up by pilots venturing into the still somewhat mysterious dark of cumulonimbus clouds.

What, then, are the atmospheric conditions which give rise to the largest of convection clouds? First, an adequate supply of moisture for cloud development; secondly, a sufficiently steep lapse rate over a range of not less than 10,000 ft. (In this country, Cb cloud base will usually be found between 6,000 and 10,000 ft.) These conditions are most frequently found in the summer in a shallow depression or a col. Unless the storm is stationary or moving very slightly, it will usually be associated with a cold front sweeping across the country, in which case it may move over the surface at speeds up to 50 m.p.h.



A—Anvil *R—Roll cloud*

M—Main rain area *S—Secondary rain area*

(*Fig. 1. Section through typical fully developed cumulonimbus cloud*).

Ever since Mac Kegel's flight in 1926, glider pilots have used the vigorous upcurrents in front of the roll to soar up and down a cold front, using a figure of eight technique similar to the one used in ridge-soaring, and advancing across country at the speed of the front. This method of cross-country flying, though it will often yield the distance necessary for the Silver Gliding badge, is not without disadvantage. As has already been mentioned, the cross-country speed will be no greater than the speed of the advancing front, rarely over 40 m.p.h., and soaring pilots have long learnt to use cloud streets to attain ground speeds sometimes twice as high. Secondly, unless the sailplane pilot has a towing aircraft at his disposal to take him to the front, launching requires careful timing: if the few seconds of calm just ahead of the storm are missed, there is not likely to be another chance of contacting the roll. And lastly, there is quite some danger that the pilot may find himself inadvertently inside the roll, virtually unable to control the flight—or to end it if he should so desire. On June 9th, 1946, Signalman Huntley, a member of the Air Division Gliding Club, covered the necessary distance for his Silver "C" by starting ahead of a cold front; later he found himself inside the roll and seems to have described manoeuvres which, on reconstruction, could have been none other than a whole series of loops!

But to return to altitude soaring in cumulonimbus. Several excellent descriptions of flying in cumulonimbus have been published in this journal; they all emphasise the necessity of having a sailplane in first-class condition in which the pilot is thoroughly experienced; a complete blind-flying panel and the ability to use it under the most trying conditions is absolutely essential and, if thunderclouds are to be fully explored, so are oxygen and heating equipment. Some form of de-icer will perhaps also be developed. Even so, a word of warning with regard to venturing into cumulonimbus is not out of place.

Mr. Phillip Wills would divide cumulonimbus clouds into two classes: those extending vertically up to about 17,000 ft., which should be treated with the utmost respect, and those of about twice that height which should be approached with a degree of awe. When it is remembered that the larger hail pellets, which are sometimes found in this cloud, require vertical currents with the speed of express trains moving in opposite direction, and that the

transition from up to down currents is liable to be very sudden, it is not surprising that even the largest service aircraft have been known to break up, in cumulonimbus, and that it is, therefore, considered an offence to enter a thundercloud unless there is absolutely no other course open to the pilot; sailplane pilots must face the possibility of a parachute descent and a lost sailplane, before deciding to enter the purple darkness of this the most violent of convection clouds.

Sailplane enthusiasts who wish to study cumulonimbes clouds with a view to altitude flights will be interested in the following observations based on experiences of a large number of pilots who took part in the Rhoen contest of 1938. An unusually large number of ascents above 3,000 metres—seventy-two in all—were made during the two weeks of the competition, by far the larger number in thunderclouds. Barograph traces for 52 flights show that 34 pilots reached 13,000 ft., 14 reached 16,500 ft., 3 reached 20,000 ft., and one pilot, Drechsel, reached more than 25,000 ft.

The synoptic situation during the second half of the period was particularly favourable to such developments. The chart of August 4th, typical of this period, showed a well-developed stationary High with its centre over Sweden, with a trough over Northern Russia and shallow depressions over Brittany and Southern France. The pressure gradient was negligible and the Rhoen was in an area of little or no wind.

Upper air ascents every morning and the early development of some altocumulus castellatus showed that instability was present. Around noon, there were light and variable winds associated with the formation of cumulus, some of which developed in the late afternoon into real giants of cumulonimbus, with thunderstorms, hail, anvil tops and all.

All pilots concurred in the following observations:

1. Vertical currents commenced sometimes several hundreds of feet below cloudbase with relatively low rates of climb of 3 to 5 ft./sec. The air seemed to move up quite smoothly in a sort of tube. This smoothness was always stressed, and it was claimed to be most noticeable where lift was greatest, i.e., in the centre of the tube. Inside the cloud, lift increased rapidly but the smoothness persisted.

2. The horizontal extent of these areas of lift was usually great enough for the pilots to gain height by circling; this was also shown by the barographs which recorded uniform rates of ascent through a range of several thousand feet. Even when flying straight and level, it was not usual to find the limit of lift immediately.

3. When, however, the limit of areas of lift was reached, extremely violent turbulence set in abruptly. The fact that several sailplanes disintegrated in cumulonimbus was put down to this.

4. The following were given as average variometer readings:—

below cloud base	3 to 10 ft./sec.
in cloud	15 to 25 ft./sec.,

rapidly increasing to maximum reading. Barograph traces gave rates of lift in excess of 75 ft./sec. on a day when the environment curve (actual temperature) was 6° C below the adiabatic from cloudbase to a considerable height. Maximum lift (50 to 75 ft./sec.) was usually found between 15,000 and 25,000 ft. It was due to such terrific upcurrents as this on August 6th that the pilot Spaete reached 24,000 ft. in 24 minutes. Downcurrents immediately outside the tube of rising air were in the nature of 12 to 20 ft./sec.

Pilot: FICK
Date: 3.8.38.
Height: 6,500 *metres.*

Pilot: LEMM
Date: 6.8.38.
Height: 6,200 *metres at top of trace.*

Pilot: DRECHSEL
Date: 5.8.38.
Height: 8,100 *metres.*

Different scale used for each trace.

(*Fig. 2*).

5. It was thought that the area of lift decreased with height rather in the manner of a cone, so that it was necessary to fly in ever-decreasing circles to remain in it. Near the ice crystal "anvil" top, the air seemed to gush outwards and down like the top of a fountain, and turbulence would become extreme.

6. ICING. This was usually not encountered frequently, and Drechsel gave 15,000 to 25,000 as the worst layer. The effect of hail was sometimes disastrous, damaging both wings and fuselage. A well-designed cockpit hood was important to protect the pilot. It was, however, claimed, that hail constituted a danger only when it combined with extreme bumpiness.

7. LOW TEMPERATURES. A cockpit to all intents and purposes sealed off from the outside was claimed to give sufficient protection against the low temperatures met at height. This had, however, the disadvantage of getting the hood frosted over early in flight. Provision of some kind of cockpit heating was stressed. It was also thought that low temperatures constituted one of the main dangers to a pilot abandoning aircraft. One of the pilots, Scheidhauer, was badly frozen after a parachute descent.

(*To be continued*).

THE TREND OF SAILPLANE DESIGN

By Group-Captain L. P. MOORE

Continued from April Issue.

Rudder and aileron control are interconnected so that left stick gives both bank and yaw to port in correct proportion to one another. As correction to powered take-off swings is not a problem and as air brakes obviate the need to resort to side-slip, I see no real snag in the two-control method advocated, leaving the feet free for stamping to get warm.

The air brake control operates like a motor throttle. "Throttle" forward takes off brake and extends the glide during the approach to land as does a burst of motor on a powered aircraft. Likewise "throttle" is opened for take off and cruising and closed for landing.

A landing/handling wheel is not required for real lightweights and hence is not incorporated. A tail grip is provided for catapult launching as well as for hand towing on a trolley.

their effectiveness in reducing the tendency for the wing tips to stall before the roots has never been accorded proper priority. The Germans claimed before the war as a result of their intensive research into tailless sailplane design, a much greater improvement of aspect ratio than I have taken.

The outcome of my prescription is accordingly a 45-footer with a wing loading of approximately 5 lbs. per square foot, as for the single-seater.

It is customary nowadays to take side-by-side seating for granted, but I can see no case for such an arrangement and the best reasons for having tandem seating. Whether the motive for side-by-side seating is an urge to keep warm or arises from affection for one's passenger, I have never been able to ascertain but for the drastic price that has to be paid for these doubtful facilities in the form of over-

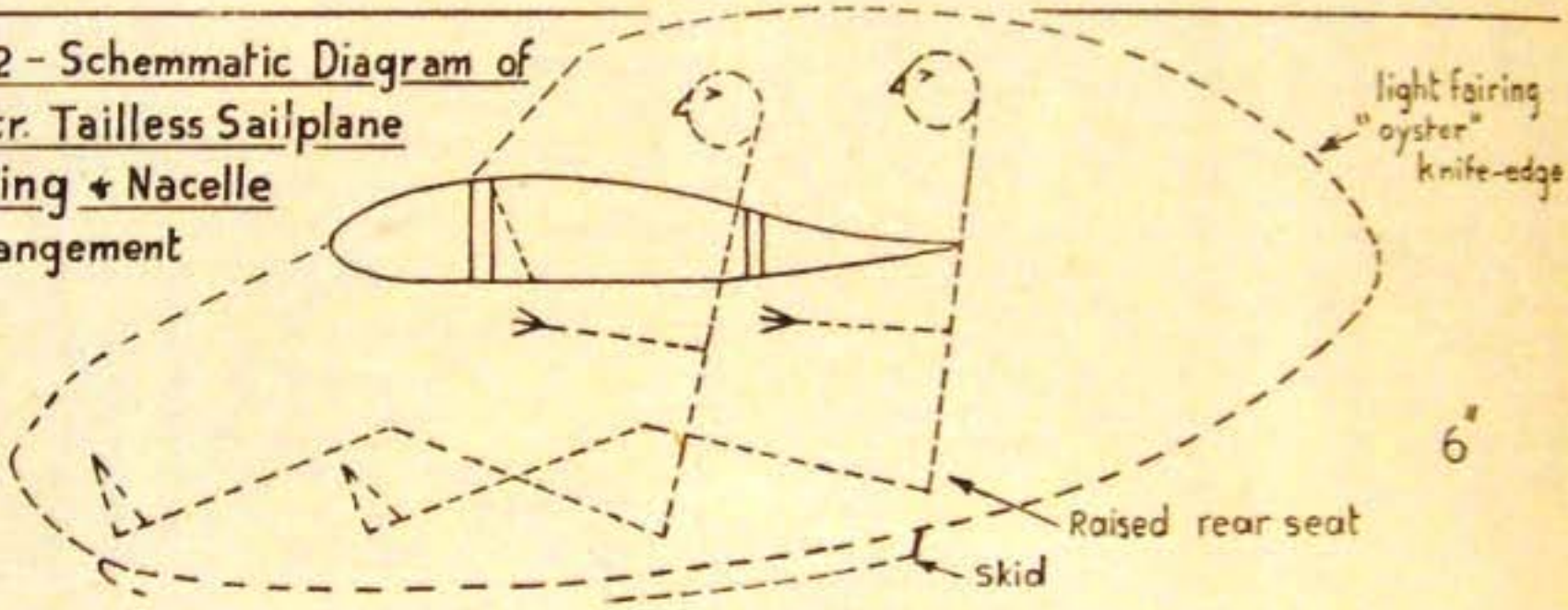


Fig. 2 - Schemmatic Diagram of 2-Str. Tailless Sailplane Seating + Nacelle Arrangement

The Two-Seater.

For the two-seater I envisage quite a different approach: it will be tailless. For the type of single-seater just described, the weight of the fuselage aft of the pilot is inconsiderable but for the two-seater, that portion of the total weight will inevitably be large if the design be orthodox. The two-seater being much heavier than the single-seater in the fully-loaded condition, will have extra inertia fore and aft to prevent over-sensitiveness in that plane for the tailless type without having to employ a large amount of wash-out towards the wing tips.

There is not need for a weight in excess of 200 lbs. for such a sailplane nor for a wing span of more than 45 feet. The centre section of the wings forms a chassis for taking most of the loads of pilot, passenger and controls and the remainder of the nacelle is little more than a super-light fairing.

Again we assume an aspect ratio of 18, but in this case, because the rudders are placed at the wing tips in the form of vertical "en-caps," the effective aspect ratio will be considerably more than the geometrical one which can therefore be about 16. I feel that this point in favour of wing tip rudders, together with crowding and elbow-digging in rough air conditions, the psychological effect of assymetrical seating upon accurate flying and the relatively poor field of view resulting from "sitting on the side" of the nose, but above all, for the formidable increase of drag induced by the broader fuselage, no claim is strong enough to justify it.

There are, nevertheless, important advantages inherent in side-by-side seating and some explanation as to how it is proposed to compensate for them is therefore required. They are as follows:—

(i) Trim is not altered when flying solo.
The tandem seats will be much closer together than usual, with the rear seat occupant sitting legs astride the front seat—as on a toboggan. The leg stretch need not be uncomfortable. Trim can then readily be made good by elevan trimmers.

(ii) Fuselage liable to be longer and heavier. There is no fuselage in the ordinary sense, in this tailless design and the closer seating fore-and-aft will help here in reducing the size of the chassis.

(iii) Two instrument panels required.
The rear seat occupant will sit higher than the front seat occupant, over whose left shoulder he will have an adequate view of the instruments used by his companion, and situated in the top left corner of the panel.

(iv) The pupil can watch "how his instructor does it."
An advantage of negligible importance. Far better that he should feel his instructor's reactions by lightly holding his own set of controls.

Both occupants will get a wide field of view. Soaring flight involves almost continuous weaving so that the view towards the inside of the turn is the criterion (n.b. the fallacy of "the good view to be had by virtue of a parasol arrangement"). The backward sweep of the wings enhances the view even for the rear seat passenger.

Rocket Launching.

I believe in an illustrious future for liquid-rocket launching—in fact to the ultimate exclusion of the much more unwieldy and uneconomical aero-tow method and even the high winch launch method. The enormous amount of wartime research on rocket launch and motor techniques has provided us with enough information to enable this possibility to be exploited safely almost at once. Hence provision has been made in both types being discussed for fitment of rockets. The exhaust problem is easy for both types, but the effect on centre of gravity of the variable fuel weight is not easy to allow for.

The weight saving advocated for future sailplane design is, of course, all in favour of rocket launching. I hope that the B.G.A. will drive like anything through the medium of its admirable newly-constituted technical groups, in this direction. Miniaturisation and tail lopping should go hand in hand with development of liquid rocket launching methods and devices.

Angle of Attack Meter.

There is a good future also, it seems, for the angle of attack meter to augment if not even to replace the air-speed indicator and to take the place of present-day fore and aft indicators. I believe, too, that this new interesting indicator may even replace the gyro-horizon if used differentially on either wing tip. Its immunity from icing trouble and its independence of high cruising speed or the alternative electric motor are strong points in its favour.

Speed Contests.

I am no speed fiend and hold the purest views on the sport of sailplaning, but I make no apology for appealing for speed contests at sailplane meetings in order to improve the breed insofar as qualities of penetration are concerned. I envisage a long beat to and fro across the face of the soaring ridge, turning at both ends around a marker and with a rigid "rule of the road" for opposite beats. The sailplane to complete the maximum number of beats within a given time would be the winner. Staggered starts and limitation of numbers would make for safety. A long beat and a steady wind would be further requirements; indeed there are usually low-cloud windy days during a meeting when other forms of competition other than, perhaps, duration, are not possible. Skill would certainly be a factor in such a contest, but the predominant one would be the penetration qualities of the competing sailplanes; and we should go full out to encourage the latter.

Conclusion.

Of all the points which I have suggested for emphasis in sailplane design of the near future, I would give prominence to much reduction in size, especially for the two-seater, tailless fashion for all two-seaters and liquid rocket launching facilities for all types. I hope that the B.G.A. will be really bold in this respect when the time comes for them to judge the two-seater design competition shortly to be before them.

FORMATION AND OPERATION OF A GLIDING CLUB

A Lecture read before Aerotech F.C. No 1 on Dec. 19th by Ann Douglas.

Continued from February issue.

Aircraft.

The first necessity, therefore, is a machine for ground slides. It is preferable that this machine should be kept for the sole purpose of dragging its wings and bounding from ridge to ridge, and it can be a very cheap machine in first cost. It need not be strictly airworthy (provided it cannot be flown) and can often be made up from bits.

The pupil should be transferred from this vehicle at the earliest possible moment, and do his last few ground slides on the machine in which he will hop.

From this stage through to circuits, only one machine class is required. Two types come to mind which fill this period of the pupil's life adequately. They are:—

(1) The German "S.G. 38 Primary," and although this is an open (cockpitless machine) it has excellent flying and handling characteristics, and is to my mind ideal.

(2) The "Kirby Cadet." This is an orthodox secondary, and has been developed by the A.T.C. It is a good little trainer, but requires more care to fly than the "S.G." An advantage of the "Cadet" is that "Tutor" wings can be fitted to the same fuselage, and the machine given a better performance for the benefit of the more advanced pupils.

For elementary soaring on a hill, both the "Cadet" and "Tutor" are suitable, although the better the performance of the latter allows the machine to be soared at a greater height, and therefore with added safety.

If, however, "C" flights have to be made on thermals from a flat site, then a machine of "GB II"

or "Kirby Kite" performance is of more use. It will take further practice flying before the pupil is competent to attempt to soar on these types, but the "C" will probably be obtained just as quickly.

From the above it will be seen that a Club could operate from scratch to the "C" stage on a hill site, on one type of aircraft only; the "Cadet" (or even the "S.G.38"). The former having the wider use, especially with the alternative "Tutor" wings.

From the point of view of spares, this standardisation of types is a great help.

In any elementary Club there should always be at least one more-advanced machine for the use of instructors, and as something for the pupils to aim at. The "Grunau IIb" is an excellent machine for this job, as it combines the functions of a good secondary with a useful soaring and acrobatic performance.

The Germans spent years studying the problem of trainers, and produced the complement of "S.G.38" and "Grunau IIb" for all elementary Club work, and they certainly seem to be almost ideal.

Numbers of Gliders.

On an average there should not be more than 8—10 active flying members on any one glider, and incidentally, not more than two primary training gliders operating from any one winch. More than this will only lead to a very slow rate of training and dissatisfied members. If the Club acquires an advanced sailplane there should only be 4—6 members on its normal flying list, with either a higher flying charge or increased subscription to compensate for the low numbers. Advanced machines should be used to take advantage of their performance, and on soaring days it is infuriating for the pilot to have to land after 20 minutes when it has taken him 15 to find a good thermal.

With regard to reserve aircraft. On trainers there should be one reserve for one to three gliders in use, and two reserves for 4—8.

Glider Equipment.

(*a*) *Instruments.* For elementary training these are not essential, and not even desirable. It is far better for the pupil to find his place in the air, by feel and by looking where he is going, and not by hypnotising needles in the cockpit.

When the pupil attempts accurate circling is time enough to start giving him Variometers, A.S.I.'s and Altimeters, and these are all that is necessary on a secondary sailplane.

If an advanced machine is acquired, this should be fully equipped with blind flying instruments, barograph and parachute; again so that its performance can be made full use of. It should also have a trailer.

(*b*) *Seats.* All Club glider seats should be padded with sorbo, or its equivalent, and have provision for back and seat cushions which cannot slip forward and get in the way of the stick.

Launching Methods.

The mehod to be used for training and general launches is largely dictated by the site itself. If this is a large rough grass field then winching is the answer; if a disused runway aerodrome, then auto-towing may be preferable.

If the Club is situated on the crest of a hill, then the bungey can be used extensively, although it is not suitable for early training as the acceleration is too great, and the flight too short, to enable the pupil to learn quickly, or without a certain degree of crashery.

Aero-towing cannot be considered as a regular means of launching in an elementary Club due to expense. It is valuable for advanced flying, or for a Club using dual instructional methods. Apart from the expense, however, it is a safe and simple method of starting intermediate training flights.

With regard to winch or tow car power, it is difficult to have too much. A low powered unit is frequently run at almost maximum output with consequent high wear, and is virtually useless for heavy machines or on very still hot summer days.

About 40 h.p. is good enough, and means that continuous training launches will take very little out of the engine, with consequent increase in reliability.

Launching Cable.

For elementary training launches 20 cwt. cable is suitable and hard-wearing, although softer launches can be made with about 500 feet of rope at the glider end.

Rope is really better and smoother for all launches, but its rate of wear is higher than cable. In addition it is difficult to get two or three thousand feet of rope on to an ordinary winch drum. A compromise such as suggested above works very well, and the rope and cable can be quite safely joined together with a fisherman's knot bound with insulating tape to reduce ground wear on the knot.

Whatever method of ground launching is used, it is vital that there should be an adequate system of emergency release. On an auto-tow car, this can take the form of an automatic Ottfur release at the tow rope attachment point on the car.

On a winch it should consist of a built-in guillotine operated by the driver. The frequent small boy with an axe is not 100 per cent., and anyway there is always a tendency, when short of crew, to delegate this job to just anybody who may either omit to do anything at all, or half sever the cable in about 30 places, so that much of it has to be cut out and thrown away.

Nylon should not be used for winching, because as soon as the load is off the end of the rope, it expands throughout its length and will burst any ordinary winch drum.

To be continued.

NEWS IN BRIEF

THE MARQUIS OF LONDONDERRY has accepted the Presidency of the British Gliding Association and has given a trophy to be competed for according to International rules at the next British National contests which are to be held in this country between June 21st and 28th as a preparation for the International contests which are to take the place of the Gliding Olympic events in 1948.

CAMBRIDGE University Gliding Club is to admit ex-R.A.F. pilots who are not members of the University. Prospective members are asked to write to Mr. G. A. Hookings, 7, Chalmers Road, Cambridge.

AT a special meeting of the Board of Directors of the Southern California Soaring Association it was voted to have a series of contests for 1947 to determine the West Coast champion. This will probably be in place of a regular West Coast contest unless a suitable sponsor is found. The first in the series was held at K Field, March 22 and 23.

A NEW unofficial goal flight record for a "2-place" was recently set up by Bill Putnam and Roy Parker—from K Field to Needles, California. Time in the air was 3 hours and 40 minutes.

MONTROSE boys who join the A.T.C., now under process of being re-formed in the town, are going to have the chance of flying from the local aerodrome during the summer as well as learning to glide at the gliding club which is operating at Arbroath.

A NEWSREEL cameraman and the donor of the Consolidated-Vultee Altitude Trophy were passengers in the S.C.S.A.'s LK during the San Diego Glider Contest.

MR. J. BEST-DEVEREUX, who has recently taken up an appointment with the Air Registration Board, has relinquished his duties as managing director of Technicair Limited.

FIRST trial flight of the "Wanderlust" took place recently and was pronounced successful. Messrs. K. W. Radburn and T. E. Brown are the designers, and their company, Broburn Sailplanes Ltd., already have many orders, mainly for export, for their machine. (Photograph on page 14).

WE understand that 10 "SG 38's", 10 "Grunaus" and 3 "Avias" were among the gliders recently transferred to the U.K. from Germany. The number which will be released to the B.G.A. is not yet known.

84 GROUP Gliding Club has started the season most successfully with "Jock" Smith completing the last leg of his Silver "C" with a flight into Russian territory, which unfortunately resulted in the temporary loss of the glider—their only "M.U.13." Up to 50 hours per day aggregate hill soaring has been recorded.

ROGER DICKSON—Derby and Lancs. Club—says that the recent storms and blizzards caused considerable damage to the club premises; that it will take many months of hard work to get things back to normal.

MR. EDGAR GRANVILLE has accepted the position of Chairman and Managing Director to Portsmouth Aviation Ltd., and Mr. L. M. J. Balfour has been appointed Vice-Chairman and Deputy Managing Director. Mr. D. Escott, formerly General Manager, has been appointed to the Board in the capacity of Works Director.

SOARING Association of Canada reports that the Department of Transport has given its approval for a tow hook installation on "Tiger Moths" using the Ottfur Hook, with maximum tug loads up to 566 lb. This will enable the "Pratt Reid" to be tow-launched.

SECRETARY Soaring Association of Canada, Le Cheminant, says that they are re-conditioning one of the three German "GB's recently delivered, in addition to an "MU-13." The machines will be distributed around clubs for research work. He adds: "We hope to have ours flying very soon, when the quest for a national site will continue as one phase of our activity, with the development of a relative airflow indicator as a more scientific project."

Leicester Gliding Rally

MACHINE "LINE UP" AT RATCLIFFE AERODROME ON APRIL 5th.

(Compiled by Cdt. J. M. Houlding, No. 1 (F) Sqdn. A.T.C.)

D.F.S. Kranich II VS 213 from Gosport, Hants; R.N. Aircraft.

Grunau Baby IIb VS 220, also R.N. Aircraft from Gosport.

Rhonbussard, B.G.A. 337, owned by Col. Philip Cooper.

Eon Olympia II, owned by J. Cecil Rice.

Slingsby Kirby Kite II, owned by Fl./Lt. Davies of 13 O.T.U. Gliding Club R.A.F.

Slingsby Kirby Kite II, owned (presumably) by parent company, being the prototype. Flown by Fl./Lt. Davies.

Sport-Flugzeugbau Minimoa, owned by a syndicate from the London Gliding Club, consisting of Dr. Edmunds and Messrs. Latto, Wright and Sanderson.

D.F.S. Weihe, B.G.A. 433, owned by Philip Wills, flying for the first time after a major overhaul.

Grunau Baby II, B.G.A. 370, owned by the Leicestershire G.C. Recently rebuilt by the Hawkridge Aircraft Co., Ltd., after a bad crash.

APRIL 6TH.

Eon Olympia, owned by Rex. Young.

Slingsby Kirby Kite II, first production, owned by Martin Hearn, Ltd., piloted on its second test flight by "Pop" Rimmer.

Slingsby Kirby Tutor, B.G.A. 479, owned by Martin Hearn, Ltd. Not assembled.

LEICESTER EASTER

1. *Dr. Lois Dickinson, keen member Leicester Gliding Club.*

2. *Seen on first day. Philip Cooper in background.*

3. *Winch Driver Arthur Sheriff and Master Julian Blunt.*

4. *" Grunau " being assembled.*

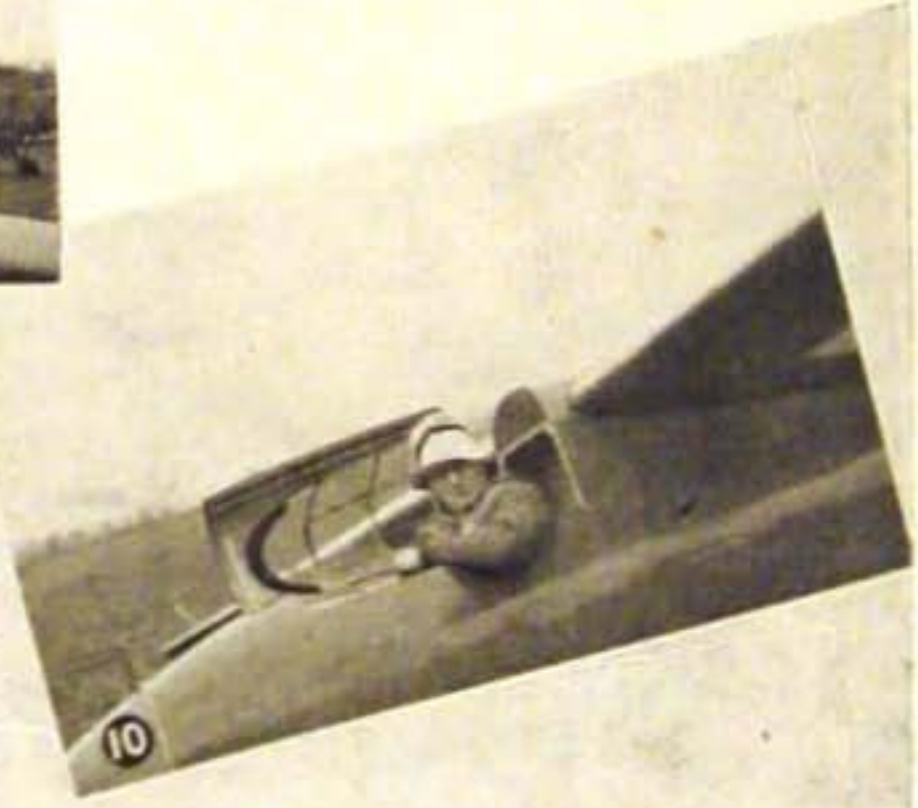
5. *Getting winches ready.*

6. *Assembly continued.*

GLIDING CLUB RALLY

7. *William Courtney, Air Correspondent Kemsley Press goes for a trip in the Navy's "Kranich."*
8. *Dr. Slater and F/L. Pressland.*
9. *Navy's "Kranich."*

10. *Philip Wills about to be launched.*
11. *Left to Right: F/Lt. Neubrock, Mrs. Pressland, F/Lt. Davies, F/Lt. Smythe, F/Lt. Pressland. Machine is "Kite II."*
12. *F/Lt. Davies about to take off in the "Kite II."*

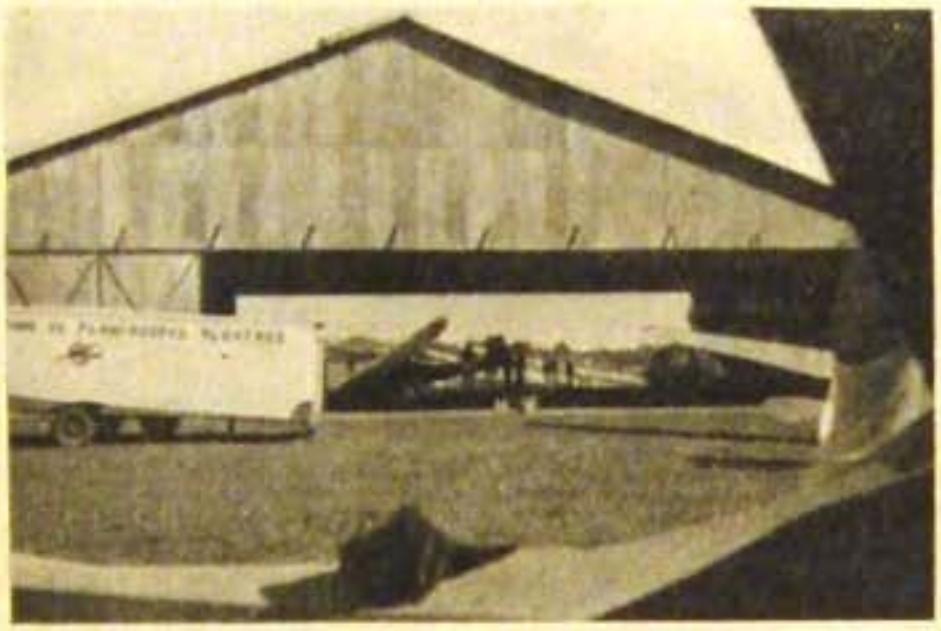


ARGENTINE NOTES

By LEO FOLLMANN

THE 2nd Argentine National Soaring Contest began at Merlo on the 2nd February. We were unlucky in our weather for the first week, but in the second we had grand results.

Thanks to some very generous financial assistance from the Y.P.F. (Government Oil Company) pilots and helpers only had to pay 30/- for their two weeks'



board and flying. The Y.P.F. provided all the petrol and oil, £200 for general expenses, 50% of the board and lodging, an aircraft and a pilot for control of goal flights, and 5 prizes. From the Club we got free lodging in the Chalet. We have 4 tow-planes (3 " Pelicans " and 1 " Travelair) and all tows and retrieving trips were free. This was a great encouragement to try for distance and there were some excellent flights. Nothing less than 50 kilometres, one hour, or 500 metres gain in height could be counted. Now for details.

On the 2nd we had bad weather, on the 3rd, extra training for the upcountry pilots who were not so accustomed to air towing. On the 4th we began the Contest. There were 16 teams, 5 of which flew high-performance sailplanes and the rest " Grunau Baby IIa's. The first group all came from the Albatros and consisted of the " Viking " (fitted with new and very efficient airbrakes), the " Spalinger," and 3 " Rhonbussards " (wot—no " Olympia " ?). Of the " Babys," five were Albatros and one each from Cordoba, Tucuman, Azul, Gonzalez Chaves, Pehuajo, and Villa Ballester, so the whole country was well represented. Each machine was shared by two pilots, only one of whom was a woman, Lucia Pfeifer; however, she and her partner came second in the Baby group. (Congratulations ! V.P.). The final classification was :—

1st. " Spalinger."
Pilots Laplace and Dori. 2306 points.

2nd. " Bussard."
Pilots Conde and Moreno. 1569 ,,

3rd. " Viking."
Pilots Chourrout and Madsen. 1293 points
(High-performance sailplanes.)

1st. " Grunau Baby IIa."
Pilots Valdes and Hennings. 996 points.

2nd. " Grunau Baby IIa."
Pilots Rietz and Lucia Pfeifer. 746 ,,

3rd. " Grunau Baby IIa."
Pilots Bona and Ortner. 689 ,,
(Sailplanes.)

Individual pilots. High-performance sailplanes.
1st, Laplace. 1342 points.
2nd, Conde. 1202 ,,
3rd, Dori. 964 ,,
" Grunau Baby IIa."
1st, Rietz. 584 ,,
2nd, Ortner. 546 ,,
3rd, Hennings. 542 ,,

I will give the day's results in diary form. Sorry I have no note of the weather, but you will be able to judge that more or less from the flights made.

4th February. 26 aerotows. Nothing but duration. Conde, 2 hrs. 12 mins.; Dori, 2 hrs. 12 mins.; Madsen, 1 hr. 53 mins.; and Bobzin, 1 hr. 42 mins., the latter in a " Grunau Baby.

5th February. No thermals, so only training flights.

6th February. 26 aerotows. Distances: Laplace (" Spalinger "), 193 km.; Juhasz, Valdes, and Rietz,

75 km. (of which the latter was a goal flight); Ayup, 74 km. All but Laplace flying " Grunaus.

7th February. 18 aerotows, but only one flight to collect a point. Dori (" Spalinger "), 125 kms.

9th February. 53 aerotows. Duration: Laplace (" Spalinger "), 4 hrs. 47 mins.; Chourrout (" Viking ") 4hrs. 16 mins.; Arguelles (" Bussard "), 4 hrs.; Mansilla (" Bussard "), 2 hrs. 19 mins. And in the " Grunaus," Hennings, 3 hrs. 33 mins.; Nasim,

2nd Argentine Soaring Contest

Photographs by LEO FOLLMANN.

1. *Take-off.*
2. *Flight-line.*
3. *"Scott Viking" landing with new Air Brakes out.*
4. *"Grunau Baby II."*
5. *Deliberations about Thermal condition.*

3 hrs. 45 mins.; Rietz, 3 hrs. 20 mins.; and Ortner, 2 hrs. 3 mins. Very little advantage to high-performance.

10th February. 21 aerotows and all 16 sailplanes left for distance. Only 4 made flights of less than 50 kilometres. 9 kilometres equals 5½ miles. I shall

have to leave you to work it out! Suppose I just give you the best of each day in miles? Here goes, then: Martinsich ("Bussard"), 270 kms. (165 miles); Conde ("Bussard"), goal flight, New Argentine Record, 260 kms.; Dori ("Spalinger"), 260 kms.; Vaque ("Bussard"), 125 kms.; Madsen ("Viking"), 130 kms.; and in the "Grunaus," Hennings, 155 kms. (100 miles); Ayup, 117 kms.; Fraguas, 75 kms.; Rietz, 73 kms.; Rojo, 65 kms.; and Ramaglio, 85 kms. (goal flight).

You can imagine we were quite busy organising retrieving trips with only 2 available aircraft plus 4 cars and trailers. Casadella, the "manager," used the following system; gave Bencidrina, a stimulant, to leaving teams and knocked arriving ones out by giving them Luminol to make them rest thoroughly! Nevertheless, when applying this devilish system to himself he fell ill and had to stay in bed for three days. Everybody laughed except me, as I had to do his work during that time.

11*th February*. In the morning we somehow managed to get 10 sailplanes ready and in 16 aerotows we chalked up for duration Ortner 4 hrs. 10 mins., Nasim 3 hrs. 44 mins., and Montechiarini 1 hour. For distance, Retun 112 kms., Valdes 120 kms., and Chourrout 238 kms. (150 miles), the latter in the "Viking" and the rest in "Grunaus." Good old "Viking"! Age does not weary her.

12*th February*. 23 aerotows. Duration: Vaque ("Bussard"), 1 hr. 29 mins. And in the "Babys," Ramaglio, 4 hrs. 20 mins.; Budaraceo, 2 hrs. 48 mins.; Bona, 1 hr. 38 mins. Distance: Laplace ("Spalinger"), 169 kms. (106 miles); Mansilla ("Bussard"), 85 kms.; and Madsen ("Viking"), 61 kms.

13*th February*. 17 aerotows. Duration only. Dori ("Spalinger"), 3 hrs. 6 mins; Madsen ("Viking" 2 hrs. 37 mins.; Conde ("Bussard"), 2 hrs. 22 mins. And in "Grunaus," Rietz, 1 hr. 48 mins.; Ramaglio, 1 hr. 21 mins.; Ortner, 1 hr. 13 mins.; and Faggi, 1 hr. 6 mins.

14*th February*. 25 aerotows but a very poor day, except for Laplace. He chalked up four hours twenty-five minutes in the "Spalinger," which stays up tranquilly when nothing else will.

15*th February*. 32 aerotows. All duration again. Conde ("Bussard"), 4 hrs. 15 mins.; Arguelles ("Bussard"), 1 hr. 7 mins.; Dori ("Spalinger"), 1 hr.; Madsen ("Viking"), 1 hr. 19 mins.; Mansilla ("Bussard"), 1 hr. 49 mins.; and in the "Grunaus," Ayup, 1 hr. 46 mins.; Fraguas, 1 hr. 23 mins.; Montechiarini, 1 hr. 21 mins.; and Valdes, 1 hr. 8 mins.

16*th February*. Last day and the best. Laplace in the "Spalinger" flew 402 kms. (250 miles) in

8½ hours, gaining 1990 metres in cloud. Conde ("Bussard") did 297 km., Chourrout ("Viking") 170 kms., Mansilla ("Bussard") 106 kms. And in the "Babys," Sastre 135 kms. (85 miles), Lucia Pfeifer 50 kms., Retun 64 kms., and Hennings 66 kms.

On the afternoon of the 17th we had a kind of a circus with aerobatics, double tows, and Hennings disguised as a girl flying a primary as badly as he could. The climax was reached when Lucas arrived with his "Travelair," towing Laplace and Conde. We were all tired out but very happy, and hope the next contest will bring new and even better performances.

World's Youngest "B"

JOHN MICHAEL HINTON, who was born on the 7th March, 1934, joined the Bristol Club last year, and speedily showed his intense keenness by appearing on all occasions to help at the newly-reformed Club. He became an expert retriever and is always on hand when there is work to be done. He took his "A" on December 1st last and his "B" on the 30th of March. If all goes well he will take his "C" before the end of the present season. It is interesting to note that had he been in the A.T.C., which he could not have joined for nearly 3 years yet, he would not have been allowed to take his "B". Is he the youngest "B" ever known? What about it Australia and America?

NORTH SOMERSET GLIDING CLUB
EASTER MEETING

Waiting for the weather.

Members of the Club and their friends.

CLUB PERSONALITIES

LONDON GLIDING CLUB.
RONALD C. REID
Chief Flying Instructor

RONALD REID joined the London Gliding Club in August 1946 as chief instructor, and rapidly became one of the leading personalities of the club.

His flying career started at the age of nine—17 years ago—when he first became airborne in a glider of his own make, constructed somewhat precariously out of sacking, a pair of sheets, and plywood. After a nearly tragic episode in this "machine," he pursued his fate by taking flights with the Northern Aircraft Aviation Company, and Alan Cobham's circus, the latter treating him to long periods of aerobatics and free rides (at the age of 11). After this he became, as he puts it, completely crazy on flying.

At the outbreak of war Reid joined the South African gliding scheme, and became an instructor for a few years, until the school closed down for lack of pupils, as there was no conscription in South Africa. He then transferred to an advanced training school at Kimberley, and flew "Oxfords" for 9 months. After trying unsuccessfully to join the British Glider Pilot Regiment, he went to an R.A.F. Glider Training School in England, until he was demobbed. He then applied for and obtained the job of full-time instructor at the London Club, where he is now training many *ab initio* pupils with marked success, achieving good results and popularity among all members.

A TRIP IN THE SHORT "NIMBUS"

THE first day of actual Spring—a real April day with bright sun, blue sky, a South-west wind, a cumulus at about 2,000 ft.—was well chosen for the Press demonstration of the Short "Nimbus" at Rochester.

It's a two-seater tandem and of the not very fashionable low wing variety. It looks good and aerodynamic, with good lines, a fair-sized elevator and fin, and although the wing roots are close to the ground the gull wing lifts the wing clear above the height of the usual obstacles that inevitably seem to be around when anybody makes a more than usually involuntary landing.

I climbed in the back seat, with T. E. Weekes, the pilot, and found it the roomiest cockpit I have ever flown in. One sits high, so there is not the usual need for leg room forward, and a more vertical pressure in the rudder pedals is achieved.

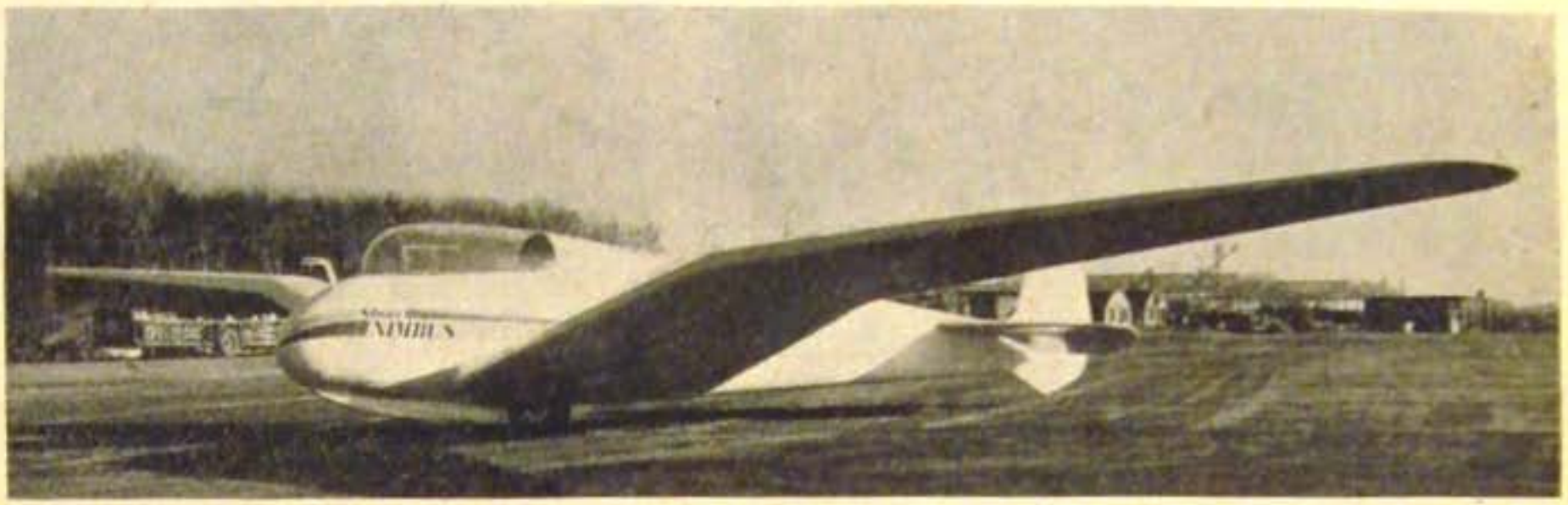
The Perspex hood just left my bare head with room to turn (my 6 ft. 2 ins. are a bore in a "Kranich" where the lid always bears on my shoulders), and the excellent view on all sides completely removed any idea of claustophobia.

We took off in a 5-10 m.p.h. wind in an incredibly small run—about 40 yards, I should say—Weekes took it up and I took over after release. The clock showing 55 m.p.h. in the climb. We worked off excess speed and I settled down first to fly as slowly as possible. At 38 (the clock stuck a bit) the note of the wind dropped and the "feel" went so I pushed it up to 42 m.p.h. There was - two in the "Cobb Slater." I started to turn. A bit slow in the ailerons, I thought, but quite sudden (one would expect that). Nevertheless a tight "rate 1" turn, which would no doubt be extremely useful instructing on a crowded small hill-soaring site. I turned into wind to approach. There was – 4 on the vario-short. You will have gathered that the "Nimbus" is dual controlled.

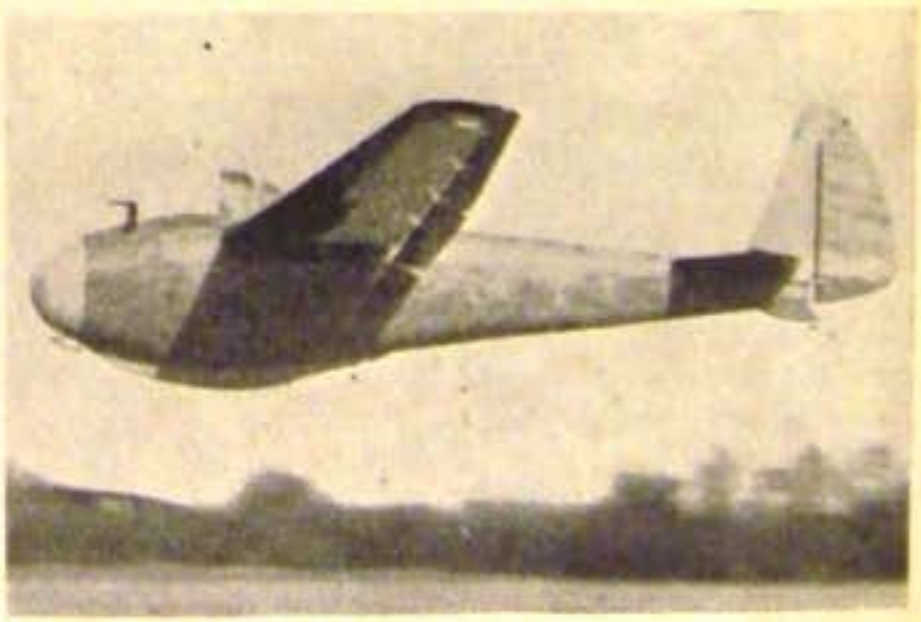
Weighing the room, the view and the comfort against the better aerodynamic qualities of the "Kranich and the "Falcon III," the only two-seaters which have so far come my way, it's the best I've flown. But I could wish it cost half the £750 the first model is going to cost the Midland Gliding Club.

V.B

We needed the spoilers, which seemed about as efficient to me as those on the "Grunau Baby IIb," but we made no use of the gadget for controlling the aileron droop, but then we hardly expected to, and there was such a queue to fly that time had to be



Short "Nimbus"



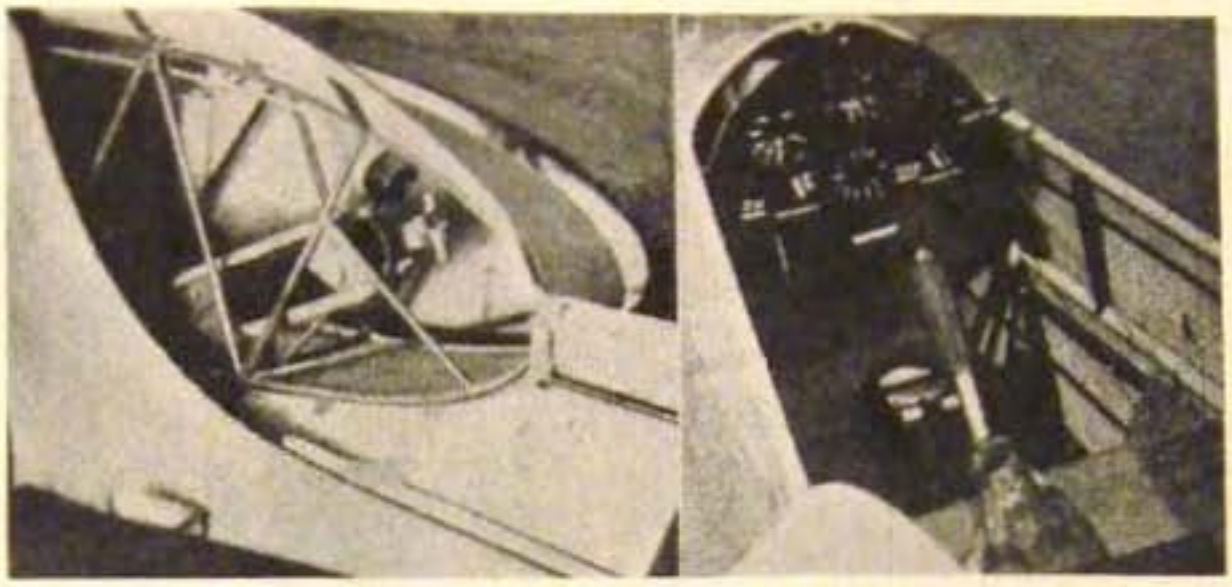
The "Wanderlust" *Brokarn Sailplanes Ltd.*

WOLF HIRTH'S ENGINE ASSISTED SAILPLANE, THE HI 20

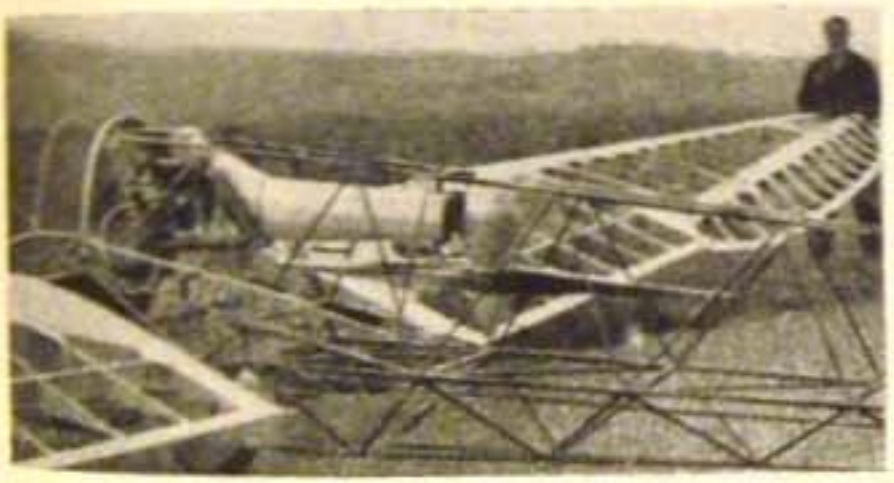
(Flugsport, Sept. 1944.)

WOLF HIRTH began to build his engine-assisted sailplane in 1937. A special engine had already been developed for this purpose; it was intended that this should first be thoroughly tested in a prototype sailplane so as to overcome all teething troubles, before installing it in a high-performance machine.

This prototype had neared completion when the war began and the scheme had to be abandoned for the time being. During the autumn of 1941, work was resumed, and the first flight took place on October 25th, 1941. A few small improvements were then carried out until work had to cease once again.



The pilot's cockpit: looking backward (left) and forward.



"Hi 20" during construction.

Wolf Hirth's engine-assisted sailplane, "Hi 20," was a cantilever midwing machine. Wings and tail were the same as in the two-seater sailplane "Goevier," *i.e.* wooden framework covered by ply and canvas. The fuselage consisted of tubular steel covered by canvas, and there was a landing wheel mounted behind the centre of gravity, as well as a nose-wheel and tail-skid sprung by means of a rubber ball. The original design included two wheels mounted in the wings, but these were not used in the prototype.

The engine, a 25 h.p. Krautter, was fitted together with the air-screw and gears on a strut which was mounted on the fuselage by means of a turning joint. A system of levers enabled the pilot to retract the engine into the fuselage, or to extend it. It had been proposed to close the small opening on top of the fuselage to take the propeller and gears by faired flaps, but this refinement was not incorporated in the prototype.

The strut carrying the engine was enclosed in a duraluminium fairing which was also used as a cooling duct. Cold air entered through the two intakes on either side of the fuselage underneath the wings into a reservoir whence the airscrew, rotating just behind a vertical slit opening at the back of the fairing, drew it up the fairing and through the opening.

The throttle control was mounted on the control stick. A fire-extinguisher in the port wing-root was within easy reach of the pilot, and the fuel cock was

Engine assembly in its original form. (H. A. Katz and U. Huetter.) Right: engine assembly installed.

in the starboard wing-root. The propeller was so positioned that the slipstream hitting the elevators exactly cancelled the nose-heavy effect of the pusher airscrew.

Dipl. Ing. W. Krautter, of Stuttgart, specially designed the air cooling of his two-stroke four-cylinder engine for motor-assisted gliders and sailplanes. Specifications for this design required small dimensions and weight, an efficient cooling system, trouble-free operation, small petrol consumption, simple maintenance, and the ability to restart easily in all circumstances and attitudes, giving an immediate and adequate performance.

Cubic capacity was 500 ccs, bore 51 mms. (20.01 ins. approximately —all following English equivalents are approximate), stroke 62 mms. (2.44 ins.). At 5,500 r.p.m. the engine developed 25 h.p., and the weight, including a special ignition device and carburettors, was 20½ kgs. (45.2 lbs.).

The design included two carburettors mounted on top of the engine, but a common tank was built into the fuselage. Average consumption was approximately 250g./h.p./hr. (.55lb./h.p./hr.). It is worth mentioning that the original power of 17 h.p. was increased to 25 h.p. by changing the suction.

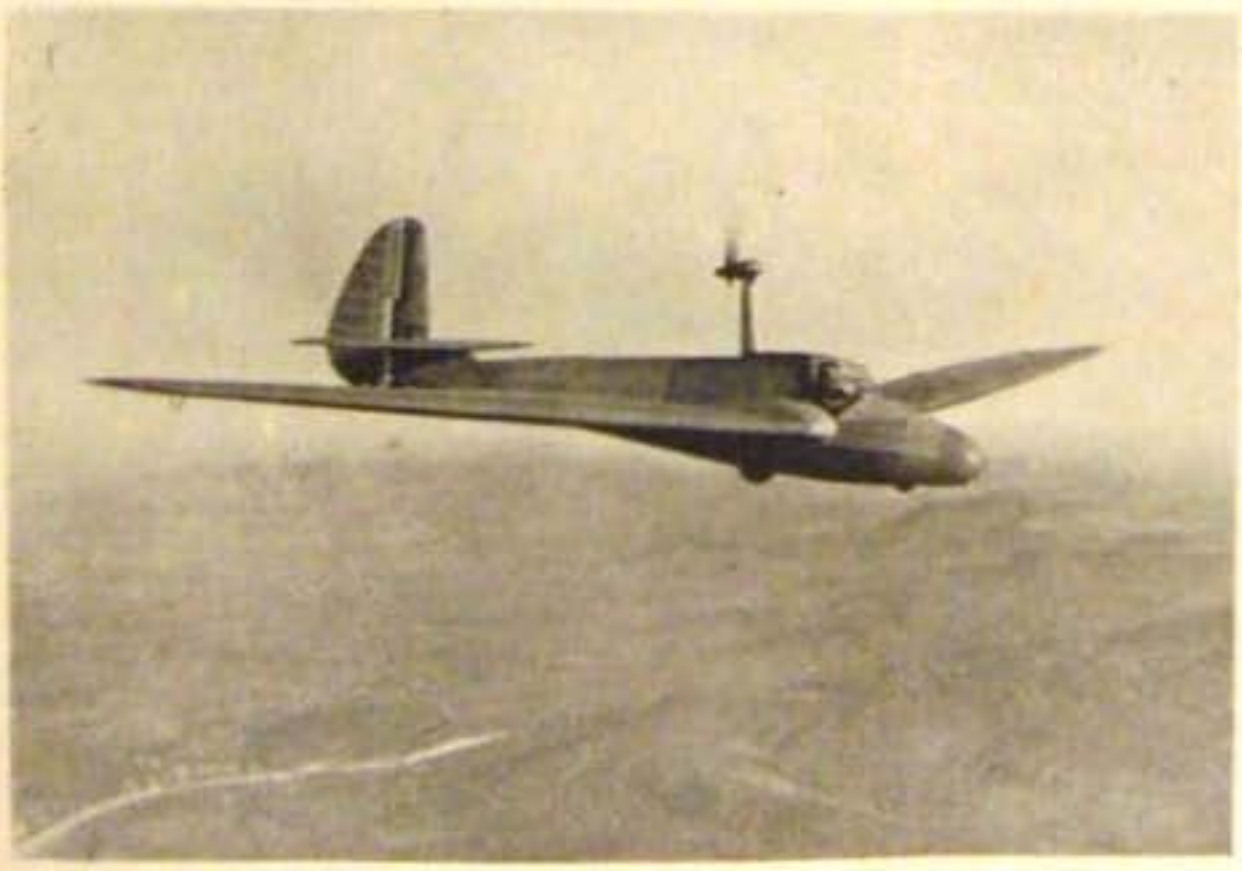
The airscrew (diameter 1.4 m., 4.59 ft.; pitch, .84 m., 2.75 ft.) acted through gears at the ratio of 1 : 2.3.

The entire engine assembly was thoroughly tested before being installed in the prototype, running for approximately 12 hours in periods of from 10 to 90 minutes. The photos now published were taken during the first flights, and no flight performance figures are available at this time.

Wolf Hirth's "Hi 20" with engine and airscrew retracted, soaring over the Schloss at Nabern Teck.

These are the dimensions and calculated performance figures :—

Wingspan	14.8 m. 48.4 ft.
Length	6.9 m. 22.6 ft.
Height	1.92 m. 6.3 ft.
Wing area (incl. ailerons)	18.7 sq. m. 93.64 sq. ft.
Tailplane and elevator area ..	2.65 sq. m. 28.37 sq. ft.
Rudder area ..	1.66 sq. m. 17.86 sq. ft.
Dihedral	5°
Sweepback	3°
Empty weight ..	280 kgs. 617 lbs.
Full weight	380 kgs. 837 lbs.
Wing loading ..	20.3 kgs. sq. m. 3.8 lbs. sq. ft.
Maximum speed ..	105–110 km.p.h. 65–68 m.p.h.
Cruising speed ..	85 km.p.h. 53 m.p.h.
Landing speed ..	55 km.p.h. 34 m.p.h.
Initial rate of climb..	75–1.12 m./sec. 2½–3½ ft./sec.
Best gliding angle ..	1 : 20
Best sinking speed ..	3 m./sec. 3 ft./sec.



The "Hi 20" with airscrew in operation.

[1] *Translated by Fl. Lt. H. Newbrook.*

B.G.A. ANNOUNCEMENTS

GLIDING CALENDAR—MAY/AUGUST, 1947

May 24th—31st.
Midland Gliding Club Camp, Long Mynd.
London Gliding Club Course, Dunstable.

June 9th—21st.
Cambridge and Midland Clubs, at Long Mynd.
June 14th.
Royal Artillery Gliding Club Meeting, Larkhill.
June 21st—28th.
National Gliding Contests, Bramcote, Northants.
July 26th—Aug. 2nd.
Yorkshire Gliding Club Course, Sutton Bank.
July 30th—31st.
International Meeting at the Engadine, Switzerland.

August 1st—9th.
International Meeting at the Engadine, Switzerland.
August 2nd—10th.
Midland Gliding Club Course at Long Mynd.
August 2nd—16th.
Midland Gliding Club Summer Course, Dunstable.
Dates of National Soaring Competitions in Sweden and France, and other countries, will be notified when received.

National Gliding Competitions 1947.

The date is 21st—28th June, 1947. Details of the contests and site will be circulated as soon as certain negotiations now in hand are completed.

In principle, the Council decided to make the 1947 National Competitions a rehearsal for the 1948 F.A.I. International Competitions, so as to test out the flying site and obtain experience of the ground organisation requirements for the International Competitions.

Official Observers.

Clubs were asked to check their list of Official Observers and to notify the B.G.A. Offices of any changes as soon as possible.

Regulations for International and National Gliding Records, and Silver and Gold Badges.

The main differences are compared to pre-war :—

Records. Height is now counted as "Gain in height in free flight," and not from the point of release.

Silver and Gold Badges.

(i) Duration : There is now no need to return to the point of departure.

(ii) Distance : May be carried out also round a triangular course. The turnings must, of course, be observed.

(iii) Any flight counts towards both Silver and Gold Badges.

(iv) A sealed barograph must be carried on *all* the flights.

Tests for Silver and Gold Badges already carried out under the old regulations will remain valid, but those after 1st April, 1947, must be carried out under the new regulations.

Chief Inspector of Accidents.

The address of the Chief Inspector has been changed to :—19-29, Woburn Place, London, W.C.1. Telephone Number, TERminus 3366, Extension 4239. Please note this carefully, and in the event of an accident carry out the procedure already notified in Circulars No. 9/46, Para. 5, and No. 10/46, Para. 4.

B.G.A. Cups and Trophies.

The following awards were made for 1946 :—

1. De Havilland Cup : P. A. Wills, 15,247 ft.
2. Manio Cup : P. A. Wills, 113 miles.
3. Wakefield Trophy : Prince Birabongse Bhanubadth, 184 miles.
4. Volk Cup : H. Kendall, 58 miles.
5. Seager Cup : Lieut.-Com. (A.) J. S. Sproule and Lieut. (A.) J. Suthers, 103 miles.

(*See April issue* SAILPLANE)

As there were no National Competitions in 1946, the Du Garde Peach and Firth Vickers Trophies were not awarded.

Beaverettes.

Mr. J. C. Rice, Cosby, Leicestershire, still has a number of beaverettes, new tyres, but without cushions, batteries, or starting handles, at £55 each. Please write direct.

Barograph Charts.

Lithographic reprints have been made of German Barograph Chart No. 216 t. A limited supply is available at the B.G.A. Offices at £1 per 100 copies, or pro rata.

GLIDING RECORDS

Regulations for International Gliding Records, and for British National Gliding Records, under the *Code Sportif of the Fédération Aéronautique Internationale* and the Competition Rules of the Royal Aero Club. In force 1st April, 1947.

Preliminary Notes :

1. The requirements and the system of observation for both International and British National Gliding Records are identical.

2. Distances and heights are expressed in the metric system, to enable a National record to be submitted as an International Record without further documentation or delay. The required F.A.I. limits must be exceeded in each case.

3. The Royal Aero Club of the United Kingdom is the National Aero Club for Great Britain and Northern Ireland, and for such Dominions, Colonies, Dependencies or Protectorates of the British Commonwealth that do not have a National Aero Club of their own and are hence not independent members of the Fédération Aéronautique Internationale.

4. The British Gliding Association is the Gliding Authority recognised by the Royal Aero Club, and is responsible for all gliding matters, under delegation from the Royal Aero Club, in the countries mentioned in 3 above.

REGULATIONS.

A. **Categories:** Two categories of gliders are recognised :—

Category I—Single seaters.
Category II—Multi seaters.

B. **Recognised Records:** The following types of records are recognised :—

1. Distance (Distance en ligne droite).
2. Out and return (Distance à but fixé avec retour au point de depart).
3. Goal Flight (Distance à but fixé).
4. Height (Gain de hauteur).
5. Duration (Durée avec retour au point de depart).

C. **General Regulations—Categories I and II.**

1. **Claims.**

The chief pilot is responsible for making a claim to the national official organisation (British Gliding Association), enclosing the necessary documents, and, where possible, flying maps.

Claims are to be submitted within 8 days of landing unless there is a good reason for delay, acceptable to the national organisation.

2. **Barographs.**

A barograph, sealed by an Official Observer, must be carried on the glider.

The barograph must be carried in a location where the position error is not likely to be serious.

3. **Certificate of Start.**

A certificate of start, signed by an Official Observer giving :—

(a) Name(s) of pilot(s).
(b) Type of aircraft and registration number.
(c) Place, time, date of start, and co-ordinates of starting point.
(d) Method of launch.
(e) Estimated height of release above ground.
(f) Height of ground above sea level.
(g) Number of the barograph.

4. **Aero-Towed Launches.**

In the case of aero-towed launches, a similar additional certificate signed by the pilot of the towing aircraft giving time, date, height above ground and point of release.

5. **Measurement of Distances.**

Distances are measured by calculation of the Great Circle distance. For this purpose the globe is reckoned to be a sphere of radius 6,371.226 km.

Category II. (Additional to above.)

6. **Weight.**

A Certificate, signed by an Official Observer, that the average weight of the occupants, including flying clothing and parachute, is not less than 75 kg. (165.5 lb.) each. If necessary the 75 kg. is to be made up by fixed ballast. Parachutes and flying clothing are considered to be fixed ballast.

7. **Number of Crew.**

Each seat must be occupied by a person.

8. **Dual Control.**

The aircraft may have dual control.

D. **Official Observers for Gliding Records.**

Official Observers are either appointed direct by the National Aero Club, or by recognised Gliding Authorities by delegation from the National Aero Club. The testimony of Officers Commanding Military Air Stations, and of air traffic control Duty Officers on aerodromes is also recognised.

E. **National Records.**

The " nationality " of a record depends on the nationality of the chief pilot. A national record may be attempted in any part of the world, but it must be accepted and recorded by the National Aero Club of the pilot concerned. When a flight takes place in another country or covers several countries, the testimony of Official Observers of the National Aero Club or other witnesses of the countries concerned is accepted by the National Aero Club of the pilot.

F. **Observation of Records.**

Prior notice to the National Aero Club is not required for an attempt on a gliding record, but the presence of the required number of Official Observers and Timekeepers must be arranged.

G. **Definitions.**

Point of Departure (Point de depart).

This is considered to be the point of release (point de largage), i.e., the point where the glider commences free flight.

H. **Homologation of Records.**

In accordance with the general rules of the Code Sportif of the F.A.I., a gliding record may not be homologated if a member of the crew has carried out a parachute jump during the execution of the performance, or if the flight has ended in an accident having fatal results, or causing death within 48 hours to a member of the crew.

CATEGORIES I and II.

Type of Record—

1. DISTANCE (Distance en ligne droite).

Record must exceed previous one by—

10 km. (6.2 miles).

Regulations additional to General Regulations—

1. After landing the sealed barograph must be handed to an Official Observer, who will extract the chart, enter the name of the pilot, type of flight, sign and date it.

2. A certificate of landing signed by an Official Observer or two local witnesses, giving the name(s) of pilot(s), type and registration number of aircraft, place, date and time of landing.

3. The loss in height between the points of release and landing must not exceed 1% of the distance covered.

Type of Record—

2. OUT-AND-RETURN (Distance à but fixé avec retour au point de depart).

Record must exceed previous one by—

10 km. (6.2 miles).

Regulations additional to General Regulations—

1. Above.
2. Above.
3. Above.

4. The turning point is to be declared beforehand in writing to the Official Observer, and an Official Observer stationed to confirm it is reached. A 360° turn must be made round the turning point. The height at which the turning point is reached is at the discretion of the pilot, who, however, is responsible that his turn is observed.

5. Landing must be made within 1,000 m. of the point of release or geographical projection of the point of release if the launch is by aero tow.

Type of Record—

3. GOAL FLIGHT (Distance à but fixé).

Record must exceed previous one by—

10 km. (6.2 miles).

Regulations additional to General Regulations—

1. Above.
2. Above.
3. Above.

6. The name or location of the goal must be declared beforehand in writing to the Official Observer who will also mark and initial the co-ordinates on the Pilot's map. An aerodrome or gliding site should be selected for preference. In any case the landing must be made within 1,000 m. of the declared point.

Type of Record—

4. HEIGHT (Gain de hauteur).

Record must exceed previous one by—

5%.

Regulations additional to General Regulations—

2. Above.

7. The sealed barograph is to be handed to an Official Observer, who will verify that the seal is unbroken and see that the barograph, still sealed, with chart in situ, reaches the national official organisation. When checking the barograph the national official organization will take into account the barometric pressure and temperature at the point of departure, and the temperature gradient.

8. If the launch is by aero-tow the towing aircraft must also carry a barograph and execute a steep dive immediately after release in order to check the release height.

9. The height allowed is the difference between the greatest height registered on the barograph chart and the lowest previous point registered subsequent to release.

10. The I.C.A.N. scale of calibration is to be used.

Type of Record—

5. DURATION (Durée avec retour au point de depart.

Record must exceed previous one by—

15 minutes.

Regulations additional to General Regulations—

1. Above.
2. Above.
3. Above.

11. An official timekeeper must also give a certificate of times of release and landing. For this purpose a low grade accuracy watch is sufficient, provided it is checked one hour from the time of each observation. Alternately the sealed barograph should be returned to the national official organisation, which will check the time recorded on the barograph chart.

REGULATIONS FOR SILVER AND GOLD GLIDING BADGES AWARDED BY THE FEDERATION AERONAUTIQUE INTERNATIONALE, IN FORCE 1st APRIL, 1947.

GENERAL REQUIREMENTS.

1. There are three separate tests for each of these distinctions.
2. Not more than two tests may be carried out during any one flight.
3. Any tests may count towards both Silver and Gold Badges.
4. The pilot must be alone in the aircraft.
5. A sealed barograph must be carried for *all* the tests. It must be sealed and opened by an Official Observer, recognised by the National Aero Club.
6. All releases from aero-towed launches must be made below 1,500 m.
7. F.A.I. Silver and Gold Badges are recorded in registers of the National Aero Club of the pilot. National Aero Clubs reciprocally undertake to observe the tests for other National Aero Clubs and to transmit the necessary information to the National Aero Club of the pilot, in order that the badge and certificate may be recorded and issued.

If the pilot belongs to a country which has no National Aero Club, the issue of the badge must be recorded by the National Aero Club observing the test.

PARTICULAR REQUIREMENTS.

SILVER BADGE.

(a) **Duration.** A flight of not less than 5 hours.
(b) **Distance.** A flight of not less than 50 km. carried out
either (i) in a straight line
or (ii) round a triangular course, approximately an equilateral triangle, of which each side does not measure less than 17 km.

Any loss in height between the point of release and the landing point must not exceed 1% of the distance covered.

(c) **Height.** A flight of not less than 1,000 m. The height allowed is the difference between the greatest height registered on the barograph chart and the lowest previous point registered subsequent to release.

GOLD BADGE.

a) **Duration.** A flight of not less than 5 hours.
(b) **Distance.** A flight of not less than 300 km. carried out
either (i) in a straight line
or (ii) round a triangular course, approximately an equilateral triangle, of which each side does not measure less than 100 km.
(c) **Height.** A flight of not less than 3,000 m. The height allowed is the difference between the greatest height registered on the barograph chart and the lowest previous point registered subsequent to release.

ULTRA LIGHT AIRCRAFT ASSOCIATION

(Extracts from the 5th bulletin issued 1st April).

WITH the election of the Executive Committee the Association is ready to start its work in earnest, and we call on all those interested in ultra light aircraft to give us their active support.

Numerous air displays being organised all over the country will provide excellent opportunities for enthusiasts to meet others with similar interests and U.L.A.A. will make every effort to arrange for ultra lights to take part in such displays whenever possible. Demonstration of our types in this way should do much to publicise the many advantages offered by ultra light aircraft, but we look to our members to take advantage of such publicity to gather around them others who might be willing to form a local Group. In the meantime, it would be a very good idea if every member would make an effort to introduce at least one new recruit to the movement during the coming summer months.

The Whitney Straight Committee—or, to give it its official title, the Advisory Committee on Private Flying—has now started its work and as a result of approaches already made to the Ministry of Civil Aviation, representatives of U.L.A.A. were invited to attend a meeting of the Committee held on the 11th March.

The case for ultra light aircraft was put before the Committee on behalf of U.L.A.A. by Mr. R. W. Clegg, Hon. Secretary, and G./Capt. E. L. Mole, Chairman of the Design Sub-Committee. Apart from a general statement on the part ultra lights can play in the development of private flying due to the very low cost of operating this type as compared with existing " light " types, attention was drawn to the possibilities of getting large numbers of people into the air by encouraging amateur construction of ultra lights by local Groups. It was also stressed, however, that all work of this type was at present held up pending a decision on Permits to Fly and our representatives urged the need for an early re-introduction of such Permits.

This seems to us a very good idea, the more so as acceptance of it will entail official recognition by the Government of the various representative bodies, including U.L.A.A.

As we see it the various steps in the aviation ladder envisaged by Mr. Whitney Straight might well be (1) Aeromodelling in conjunction with the S.M. Ae. E. and its affiliated clubs for the very young enthusiast, who by designing, building and flying model aircraft will assimilate very useful knowledge; (2) A.T.C., W.J.A.C. and other youth movement training through which useful ground instruction and contact with full-sized aircraft will be obtained. In addition, senior members will be able to get actual experience in the air by means of the facilities offered for primary gliding training; (3) this step might conceivably be either in the direction of more advanced gliding up to " C " and " Silver C " certificate standard for those primarily interested in motorless flight through the medium of one of the various gliding clubs affiliated to B.G.A., or training in powered aircraft leading to a pilot's " A " licence through the medium of ultra light aircraft groups affiliated to U.L.A.A. Alternatively, the power-flight enthusiast might reach his goal after a phase of gliding training up to " B " certificate standard.

SUPPLEMENT

PART ONE—Contributed by Group Capt. E. L. MOLE.

The Committee is glad to welcome Messrs. E. O. Tips, Capt. G. C. Ross, C.B.E., and Mr. A. D. Ross as new members of the Association. Mr. Tips is head of Avions Fairey and Avions Tipsy in Belgium, Capt. Ross is Deputy-Director of Aircraft Maintenance and Repairs at the Admiralty, and his brother, Mr. Ross, is Managing Director of the London Office of the Coventry Victor Motor Co. Their membership adds greatly to our technical resources.

The Chairman of the Design Sub-Committee recently visited Brussels for a discussion with Mr. Tips on his new U.L.A. design, the Tipsy " Junior." This aircraft is similar in lay-out to his original single-seater " Tipsy," but has been designed with a view to extreme simplicity of construction. All spar laminations are of standardised cross section, as are all fuselage, longerons, struts, etc., and all ribs are identical. Mr. Tips considers it may be possible to offer for sale kits of parts for construction by Groups consisting of the metal parts and wooden structural sections cut to size.

The Tipsy " Junior " was intended to be powered by the French Mathis flat twin engine of 40 h.p., but owing to delay in this engine passing its type tests, construction of the aircraft had not been started. We have, however, been able to arrange the loan of a J.A.P. Aeronca engine to the firm by courtesy of Messrs. J. A. Prestwick & Co., Ltd., and Mr. Tips has agreed to start the production of a prototype " Junior " right away. It is hoped that the aircraft will begin its flight trials within two or three months and that it will be demonstrated in England this summer.

Our members may be interested to know that Messrs. Airwork Ltd. are offering for sale a B.A. " Swallow " with Pobjoy engine at a reasonable price. The aircraft has flown approximately 200 hours and is in good condition. It is without C. of A. at present.

An interesting suggestion has been received from Mr. J. Henderson concerning the possibility of developing U.L.A. floatplanes, and referring to the old Short " Cockle." This opens up a new line of thought, and we would be glad to receive views from members on the desirability of such types, and any suggestions on design. We consider such a project should be practicable provided that the power loading is not too great for take-off on water.

In paragraphs 18 and 19 of the Design Supplement to last month's Bulletin we made a slight error. Apparently the Air Registration Board are entirely responsible for the design, construction *and inspection* of light aircraft for C. of A. purposes, and the A.I.D. in no way came into the picture for these types. The main point, of course, is that until Permits to Fly can be granted to U.L.A. types instead of the

official C. of A., we shall not be able to build and operate our own aircraft.

In Bulletin No. 3 were given the broad pros and cons of the three main types of undercarriage, and we have received some interesting opinions from members on the points outlined. The following notes should be read in conjunction with paragraphs 13—18 of Bulletin 3.

The majority of views have favoured the conventional type of undercarriage (double wheel and tail skid or wheel) owing to its simplicity and cheapness. This is borne out by an analysis of members' replies to our recent design questionnaire:—Conventional, 27 in favour; Tricycle, 9 in favour; Single Wheel, 1 in favour.

A number of members expressed the view that the single wheel type would be ideal for our purpose were it not for its lateral instability on the ground. Mr. R. G. Carr, designer of the Wren Aircraft, pointed out that torque reaction of the propellor could not be counter-acted by ailerons during take-off until reaching about 25 m.p.h. forward speed. This is certainly true as regards our Class I and II types, but we suggest that motor gliders and auxiliary-powered sailplanes would obtain sufficient aileron control at a much lower speed to counteract the torque of their relatively smaller engines.

Various members suggested that the necessary stability on the ground might be obtained by providing light skids or wheel supports under the wings (which might be made retractable in flight), but Mr. E. O. Tips considered that there would be difficulty in design to make these supports strong enough to withstand drift during a cross-wind landing. Mr. L. E. Barynes, whilst agreeing with Mr. Tips, points out that the problem is not so severe with motor gliders and auxiliary-powered sailplanes as they land more slowly than the orthodox Class I and II types and retain their aileron control to a much lower speed. Moreover, the greater inertia and damping effect of their long span wings make them drop more slowly to the ground on landing by which time sideways drift should have been absorbed by the main landing wheel and skid. This theory was certainly borne out on Mr. Barynes' glider designs, and should make the single wheel undercarriage the most suitable for Class IV (auxiliary-powered sailplanes) and possibly for some Class III (motor glider) types.

As regards the tricycle undercarriage Mr. Carr suggests that this is the logical type for flying wing aircraft, and that it offers advantages of a steerable nosewheel and the possibility of a kind of deck-hook arrester. Mr. Marsden-Jones hazarded a guess (rightly) that Sqn.-Ldr. Kronfeld's comment regarding the longer take-off run of the tricycle on grass airfields was due to his experience on the "Cygnet," which is exceptionally heavy for its type. We take the view, however, that the rolling drag of grass surfaces will have a greater relative effect on very light aircraft—especially with smaller wheels and high-power loadings.

Mr. C. F. Parker considers that we need not worry about the longer take-off and landing runs of the tricycle, as most members will have to operate from aerodromes not being fortunate enough to have their own fields. We do not altogether agree with this view, as we consider that short take-off and landing runs are one of the main virtues of U.L.A. types and a major selling point of the movement. Except for Class I (High Performance) types, we hope Groups will be able to operate from private fields by a "friendly farmer" arrangement. Mr. Parker, however, makes the interesting point that tricycle undercarriage can quite easily be made retractable on U.L.A. types by means of hand-operated mechanism, thus saving the weight and complication of mechanical operation. This idea should appeal to our Class I enthusiasts.

We would be glad to receive further views from members as soon as possible on the pros and cons of the four types of wing position which were given in Bulletin No. 4 in order that a summary of opinion can be published.

PART TWO.—Contributed by Flying Officer I. G. IMRAY.

Only one meeting of the Flying Sub-Committee has been held since the last issue of the Bulletin. The object of this meeting was to prepare a paper for submission to the Whitney Straight Committee on operating costs for ultra light aircraft. The working out of these costs was based on a flying year of 600 hours for U.L.A. type III Aircraft. The various items considered included Maintenance (repairs and overhauls) Inspection, Hangarage, Insurance Depreciation, Workshops, and of course, petrol and oil. We can confidently say that the operation of ultra light aircraft, taking advantage of the services offered by U.L.A.A. will work out at less than 10/- per hour.

This was the last meeting to be held of the Interim Flying Sub-Committee, and I welcome the opportunity of tendering my thanks to those who have given their services in an advisory capacity, especially to G./Capt. E. L. Mole, S./Ldr. R. Kronfeld and G./Capt. T. H. L. Nicholls.

A word about P.I.C.A.O. regulations for pilots' licences which have recently been made public. At first sight they would appear to be comparatively hard conditions to improve. This is not the case. Essentially there is nothing very much different. The main differences are that before a potential pilot can begin to take "dual" he must pass a medical examination and obtain a Students' licence. As far as can be ascertained at the moment the students' licence will enable a pilot to fly anywhere in the United Kingdom, but he must produce proof of 30 hours' solo before he can obtain his new (P.I.C.A.O.) licence. Under the present conditions a potential pilot is limited to flying within a 3-mile radius of his 'drome until he has obtained his "A" licence. Unless he is a private owner a Club Chief Instructor would not allow him to set off immediately on a solo cross-country without at least one or two dual cross-countries and a bit more general flying, and this would bring him up into the 30 or 40 flying hours' stage.

Until complete details are published, it would appear that a Students' Licence will be sufficient to enable pilots to fly anywhere in the British Isles, but if they wish to fly abroad they must be in possession of the International Licence proposed by P.I.C.A.O.

SOARING ASSOCIATION OF CANADA

Report by Mr. B. S. Shenstone, the President of the Soaring Association of Canada, presented at the Annual Meeting, Toronto, Ontario, February 1, 1947.

IT must be realized that gliding in Canada is still in its infancy. We are still in the primary stages. Most of the work still remains to be done. We lack experience and we lack gliders and the gaining of both of these is difficult. We are also entirely on our own, having no Government recognition in the way of financial aid or any kind of indirect assistance. Therefore, what we achieve, we achieve by ourselves alone.

In 1946 great strides were made, solid work without headlines and without an accident worthy of notice by the Press.

It is not easy to gauge progress accurately in such a many-sided activity as gliding. However, when I have told you what has been going on you will agree that things are moving in the right direction. I shall stress the activities of local groups, for the whole life of gliding depends on local groups. The National Organization, the S.A.C., exists only to assist such groups in their endeavours to do more and better gliding and soaring.

1946 saw the first contest held in Canada. The prize was given by the British Aviation Insurance Company. The contest was for the longest duration flight during the aero show at the de Havilland Airport at Toronto in September, 1946. It was won by Les Baranowski, in a "Laister-Kauffmann" with a flight of 1 hour 54 minutes. The runner-up was Les Racey in the "Sparrow" with 1 hour 32 minutes. These flights were made under difficult weather conditions and would otherwise have been longer.

The demonstration given by the Montreal Soaring Council in December was a step forward in good publicity. At this show the Principal of McGill University sealed his presidency of the McGill Gliding Club by flying in a "Pratt-Reid TG-32."

Les Baranowski was loaned a "Laister-Kauffmann" and entered the Elmira Soaring Contest in 1946. This is the second time that there has been an entry from Canada at this contest.

Until recently there has been no source of gliders in Canada apart from private workshops. The recent offer of de Havilland of Canada to build "Sparrows" for $1,000 each is a great step forward. On the "Sparrow" one can train from the beginning to "C" Certificate, and flights up to 3 hours' duration have been made on the prototype.

Other sources of supply are "Schweizer" gliders made in the U.S.A. and obtainable through Leavens Brothers in Toronto, and various English types direct from the manufacturers. So far we have not been able to obtain prices of the English types delivered in Canada. Until we can design and build our own high-performance types we must depend on English and American types, and it is hoped that in 1947 examples will be seen here in the air. There are always gliders being built by various people in their cellars or in small shops. This will continue, and as far as I know there are at least 5 of various types being built now.

Four advanced training gliders (3 "Grunau Babies" and 1 "M-13) have been obtained from Germany by the National Research Council and will be made available to responsible gliding organizations willing and able to do serious technical investigations on them.

1946 saw the first introduction of privately-owned 2-seaters into Canada. These are 3 "Pratt-Read TG-32" obtained from the U.S.A. They are capable of quite good performance, but so far have been used mainly for practice. This year may see progress. Whether 2-seaters will be used for training or not is not yet known, but we now have an opportunity of comparing the merits of both single and 2-seaters for this purpose.

Having touched on some of the happenings of 1946 I shall now tell you something of the activities of the S.A.C., the national co-ordinating body. One of the major aims of the S.A.C. is to further gliding and soaring in a constructive manner by co-operating closely with the Department of Transport. That Department could easily stop all gliding by making adverse regulations or by instigating adverse legislation. Until recently certain rules were in force which made gliding very difficult. By a positive approach to the Department suggesting regulations more favourable to gliding and yet safe, the S.A.C. has been welcomed and its suggestions acted upon in many cases. As a result of our activities to date the Department has a certain amount of confidence in us, and this confidence we must keep at all costs. Unless the Department believes in the technical integrity of the S.A.C. and retains confidence in the soundness of our actions and point of view, gliding cannot continue to grow in Canada.

The recently issued requirements for gliding instructors and gliding pilots were worked out between the Department of Transport and the S.A.C., and a joint D.O.T./S.A.C. committee studies all applications for certification. Perhaps some will consider the instructor's requirements are steep. If we want people to glide safely the instructors must be experienced and the requirements clear and uniform. That does not mean that requirements cannot be altered. They will be altered as experience dictates.

All gliders must now be registered. This is a first step toward certification. Later, when the D.O.T. or the S.A.C. can handle the problem it is likely that certification will be required. This will exclude the use of all gliders considered unsafe. So far we have no such ruling and for the irresponsible there is plenty of scope for trouble. However, one can be safe by using only S.A.C. approved types and keeping them in good shape.

The S.A.C. has been working recently on obtaining D.O.T. approval of a hook installation on tug aircraft. A scheme is now approved for the use of the Ottfur hook on a "Tiger Moth." Conditions have been laid down for the approval for other tug types and other hooks. Up to now there has been no approved tug installation. At any time the D.O.T. could have stopped all aero-towing. We appreciate the Department's leniency in permitting it. The draft-

ing of such conditions and the design, manufacture and test of a prototype hook installation is a difficult job, and those S.A.C. members who worked on this are to be thanked for their efforts.

An inspection handbook is now being prepared. A first draft was made by Mr. Filip and F./L. Le Cheminant is carrying it further.

Airworthiness requirements for Canadian designed gliders are being slowly prepared. This is a heavy job and due to other work has not progressed far during 1946.

The S.A.C. has in 1946 undertaken to relieve the Royal Canadian Flying Clubs Association of part of the responsibility for representing in Canada the "Federation Aeronautique International." Working through the R.C.F.C.A. the S.A.C. will issue A, B, C and other certificates, appoint observers for records and other purposes and keep members informed of F.A.I. requirements. After all, we are looking forward to making and breaking some records, and without proper procedure the F.A.I. will not homologate them. For the privilege of doing this work ourselves we now pay one-third of the F.A.I. fee for Canada.

A stock of B and C badges has been ordered and should be available soon.

The S.A.C. is working on equipment which is useful and necessary for gliding operations. Drawings of a pulley tow scheme devised by Dick Noonan, of Winnipeg, will be issued soon. The development of an improved release hook is progressing in Winnipeg and Ottawa. Drawings of an S.A.C. winch are near completion in Ottawa. Other items are under consideration.

S.A.C. members are guiding the development of a training sailplane at the University of Toronto. This has been made possible by the vision of Professor T. R. Loudon, and when the prototype flies it may be the beginning of the first Canadian school of design. We hope for this and are assisting Professor Loudon to the utmost. In the future we may hope for the emergence of Canadian high-performance designs from this or other universities.

Only recently the S.A.C. has been successful in obtaining a ruling that gliding clubs approved by the S.A.C. may be chartered in Ottawa without paying a fee. Since the fee would otherwise be $100, every incorporated or chartered club is saved this much.

During 1946 the S.A.C. was fortunate enough to receive financial backing from a number of interested firms, and could not have accomplished what it did without their help. The firms were:—British Aero Engines Limited; Canadian Pratt and Whitney; de Havilland Aircraft of Canada; Dowty Equipment Limited; Goodyear Tire and Rubber Company; Massey-Harris Limited; Rolls-Royce Limited; Toronto Star Weekly.

The great interest shown by the British Aviation Insurance Company in the S.A.C. is outstanding. This firm has contributed in many ways and has done much to advance the S.A.C.

Now what of the actual flying done in 1946? It was mainly training, short flights and many of them. Pilots capable of longer flights willingly stayed on the ground and helped the others into the air.

There are now 27 gliding instructors in Canada and the number is, of course, growing.

In 1946 about 6,000 flights were made and the earning of 132 certificates has been reported. Last year only 73 were earned. Of the 134 there were 71 A, 60 B, and 3 C. Next year we want many more C's, and at least 175 certificates of all kinds.

Practically all this flying, all these 6,000 flights were made on 3 " Cadets," 3 " SGU-1-19," 1 " Dagling," 1 " Sparrow," 1 " Robin," or only 9 gliders in all. There is much more that can be done by greater use of the gliders we have and by obtaining more gliders as well.

With all these training flights and hard work we are working toward longer flights and higher flights. To give you an idea of what can be done with skill and a sailplane of only moderate performance, let us see what Les Baranowski accomplished. At the Elmira Contest and at Toronto he put up a flying time of 21 hours in only 8 flights. He reached 6,000 feet and flew 71 miles. That is the sort of thing we all would like to do, and if progress is made as it was made in 1946 it may not be long before such wishes are fulfilled.

As you know all this work done by the S.A.C. is voluntary and done in the spare time of busy men. Such spare time is scarce and that is why some of our developments have not moved as fast as we could wish. All members owe a great debt of gratitude to our Honorary Secretary-Treasurer, Flight-Lieutenant A. N. Le Cheminant, who has worked very hard all this year and the year before. We cannot overpraise him.

NEWS FROM THE CLUBS

EASTER AT LEICESTER

The weather spoiled the meeting at Leicester, but then that was to be expected when Doc Slater forgot his famous whistle. A list of machines which were there is printed elsewhere, and in addition there were the Press, including William Courtney, of the Kemsley Press, and the photographers. Circuits were mostly the order of the day, although Kit Nicholson found a bit of lift on the Saturday morning in Wills' "Weihe." The wind blew bitterly cold on Good Friday from the north, but was almost as cold next day, when it blew from the opposite direction.

On the Friday evening, William Courtney brought his 16 mm. Talkie Cinema, and after showing some twenty-year-old films from the Royal Aeronautical Society's Library, which were received with cheers, he showed some films of the American attack on Iwojima, in technicolour, which were voted by all as the best war films ever seen. The next night he showed some films of Japan after the occupation, including Hiroshima, also in colour and equally good.

Sunday was little warmer than Saturday, but it rained. Monday was marred by an accident to Philip Cooper's "Rhonbussard," which blew over in a high gust and was damaged. The wind was too high, however, for comfortable flying and not much was done, until the evening, when the Navy and the R.A.F. braved the elements with the "Grunaus" and the "Kite II." The latter landed at Rearsby, four miles away. Jack Rice made his first trip in his new "Olympia," and afterwards announced that to approved pilots the charge for flying it would be 5/-, probably the cheapest "fly" in the country to-day.

To improve the dull hour, Doc Slater talked about Standing Waves, and explained the Tephigram, and Terence Horsley gave a most informative talk about the Kemsley Fund, which everybody knows he negotiated for the Gliding Movement. Terence also explained the Hart Side Standing Wave to the new generation. By the way, does Crease from North Wales know anything about standing waves from the North Wales Mountains?

Neubroch, Pressland and Mrs. Pressland, Sheriff of the Leicester Club, worked hard to make the meeting a success, and a bearded card, whose name I never did discover, but who reminded me of the Grand Mufti of Jerusalem, not only worked hard but took every one's eye off the ball by the magnificence of his appendage, which had even the Navy envious.

V.B.

NORTH SOMERSET GLIDING CLUB

The Somerset Aero Club, inaugerated in June 1946 as the North Somerset Gliding Club, operates at Westonzoyland Airfield, near Bridgwater. During the winter, the Club has secured (from *ab initio*) 11 "A" Certificates and 8 "B"s.

At present operating 2 "Cadets" and an "Airspeed Tern" (shortly getting "Kite II") with both auto and winch launching, using "Beaverettes" for launching and retrieving. The "Beaverettes" are fitted with retrieving booms, incorporating an anti-over-run device designed by the C.F.I., which permits very fast retrieving, and obviates "running with the wing tip," and permits braking without fear of "over run" and incidental damage. Primary pupils are auto-towed on 300 ft. of cable, allowing closer observation of pupils' behaviour, and ensures the correction of dangerous tendencies in the early stages. Four spoilers are used during ground slides, two only for airborne slides, etc. Pupils then graduate *via* longer towing cables, eventually getting 1,000 ft., launches (auto) and mostly 3-minute circuits.

The winch used is the usual ex-R.A.F. balloon type, which has been converted and made mobile by the C.F.I., assisted by members. The job is mounted on "Beaverette" wheels and axles, and incorporates the original steering, using a "control" tow-bar, finished in black and silver, looking extremely smart and efficient.

On Sunday, March 30th, the club was visited by the Martin Hearn demonstration team, with George Collett, and the very capable "Pop" Rimmer.

"Pop" flew everything he could lay his hands on, including the club's "Cadets," and chiefly because "seeing is believing," instilled us all with supreme confidence in Messrs. Martin Hearn's products. In his hands, even a "Cadet" will do things which are definitely not on the book for U/T pilots!

The "Kite II" and the "Tutor" were ably demonstrated, and some of our members, and a contingent from Bristol Club had the pleasure of extended circuits off the winch in these machines.

The "Kite II" is definitely in a class of its own, and constitutes the ideal club soaring machine salient features being the cleverly designed wing, robust construction, and very easy ground handling allowed by the built-in wheel.

The club is making an effort to cater for beginners, by organising a series of courses throughout the summer. Each course being limited to ten members, for a seven days' "gliding holiday." An all-in charge of £10 10s. includes temporary membership, all flying fees, hotel accommodation, and transport to airfield, and, we must add the usual comment, "first come, first served."

(*For details see advertisement, page* 27).

YORKSHIRE GLIDING CLUB

Once more it is regrettable to report that no flying has been done during the month due to adverse weather conditions. The Bank was isolated by drifts of all depths—landslides and avalanches were also mentioned by various inspired correspondents, but must have been grossly exaggerated. The site is still there and so is the hangar and the tackle. Easter finishes to-day and the week-end has kept half-a-dozen or more of us busy with paint brush, hammer and saw—and as many others in inspecting, adjusting and lubricating aircraft, winch, retrievers and tackle. All the week-end a south-westerly gale roared and blustered day and night. It blew an ancient trailer over and across the road, and finally, overnight, rushed around to the north-east and blew with equal violence, accompanied by snow and sleet. Another disappointing holiday, but not a waste of time—the good flying days ahead will run all the smoother

because of the "chores" done during Easter. We *could* have used a few more working types, but maybe soaring weather conditions comprise the only acceptable alibi with some of the other married men!

The Course was discussed at the committee meeting held on 1st April and a sub-committee formed to deal with it. The fee will be £10 10s. for the week beginning 26th July, and if conditions should be disappointing, there will be the possibility of an extension over the Bank Holiday week-end. The cost to annual flying members will be £9 9s. or £8 19s. if they have paid annual insurance levy. It is essential that any intending members of the Course should immediately inform the Secretary, Mr. L. Alderson, of Lyndhurst, Sinnington, York. They should send him a booking fee of £2 2s., which will be returned if the application is not accepted or the Course cancelled, but not otherwise. We shall be glad to help with local hotel bookings, and for campers and caravanners, space will be available free charge, but no other facilities. The numbers will be kept small to give everyone good value for money. It is essentially a soaring course, and the minimum qualification for membership is a gliding "B" Certificate. Mr. Barker (the chief instructor) will be in charge, and he will be assisted by Mr. Hinchliffe. No. 28 G.S. A.T.C. will be holding the usual week-end courses, and there will also be two courses of one week's duration, the dates of which are not yet settled: it is expected that one will be in June and another in July.

A building, which used to be at our pre-war Huddersfield training satellite, is expected at Sutton Bank in the future. It is at present let, but subject to our tenant's reasonable convenience, and the difficulties (these days) in dismantling, transporting and re-erecting anything, it will make a very good temporary club-house. The news of the Kemsley Loan has just been made known and we should like to express gratitude to Lord Kemsley for his public-spirited act. As we have seen before, gestures of this kind by individuals in a position to make them, bring results of great national value both culturally, and in times of emergency and danger. It is hoped that the B.G.A. will lay down a sound and workable repayment scheme that will permit all clubs borrowing within their reasonable capacity, to meet their obligations to the fund honourably and easily.

NORTH WALES CROSS COUNTRY SOARING CLUB

The Club has been recently constituted with the object of providing cross-country flight for pilots who otherwise have no opportunity for this type of soaring. In particular, it is hoped to put Silver "C" within the reach of any experienced club or ex-Service sailplane pilot.

The club site is in North Wales, the soaring ridge, over 20 miles long, being formed by the Clwyd Hills. These lie about 15 miles west of Chester, and run from Prestatyn on the North Wales coast, south nearly to Llangollen.

Although a remarkable hill soaring site, the greatest merit of the place is its suitability as a starting point for cross-country flying. A large part of the ridge is an average of 1,500 feet high, and hill lift to 2,500 feet can be confidently expected on good thermal days. East of the ridge the ground drops steadily, and from there on there is no ground over 500 feet for 50 miles. Consequently, a pilot has only to contact a reasonable thermal to start off cross country with the knowledge that if this one fails, he has the best part of 3,000 feet to catch another. This beats aero-towing!

As far as range is concerned, Gold "C" distance is available in a direct line down wind on any wind from West to North-by-West, while the configuration of the ridge makes soaring possible in almost all wind directions.

Equipment consists of a "Kite II" and an "Olympia." These machines are fully equipped with blind flying instruments, parachute, barograph and maps. Full facilities for rapid retrieving are laid on.

Provided sufficient interest is forthcoming, it is hoped next year to operate the club on a full-time basis, possibly with two-seater training for beginners. This year operation will be at week-ends only—full Saturday and Sunday.

The two club machines will be entered for the National Contests, with teams of three pilots to each. Two vacancies exist in these teams, and applications from experienced pilots wishing to take up these vacancies will be welcomed. A fortnight's rally will be held during the first two weeks of September, possibly with a two-seater also present.

Membership.

As membership is expected to be largely visiting, membership fees will be:—

5/- per day. £1 per week.
£3 per annum.

Flying charges will be:—Cross-country: £1 basic charge, plus 2/6 per mile.

Hill soaring: £1 per hour, charged at 5/- per 15 minutes, with 5 minutes' grace.

Pilots applying for membership must show log books or other evidence to prove that they have had at least 15 hours' previous soaring experience.

All pilots, whether full members or visiting, must book their flying in advance, as numbers will be limited to four per machine per week; three per machine while week-end flying only is in operation. Private owners will, of course, be welcome at all times, and will be charged membership fees, plus 5/- per launch. They should, however, book in advance in order to be sure of a launching crew.

Accommodation can be arranged as required. All enquiries to:—W. E. CREASE, "Fairholme," Woodlands Road, Hough Green, Chester.

LONDON GLIDING CLUB.

The first day of March was most encouraging; Club machines flew 8 hrs. 16 mins. for a total of 12 launches, and private owners 5 hrs. 50 mins. The 2nd was better still, a total of 13 hrs. 47 mins was flown on club machines, for 31 launches.

March 9th. Although the snow lay thick on the ground, and winter sports were in progress on the hill, members turned up in force, and worked hard all day, doing all the retrieving by hand. The Kemsley Press came out and took a number of photographs, also getting the "gen" for a write-up of the Club and members, which, incidentally, we have not seen in the paper to date.

March 22nd. The wind being strong and south-easterly, circuits was the order of the day. Altogether 18 circuits were flown.

March 24th. A really good west wind was blowing, and although it was a Monday, Neumark flew for 2¼ hours, partly in cloud. This was a remarkable flight, as he got his "C" before the war and has not flown since. He only landed because it began to sleet, and the intense cold forced him down. Canvin came over from Bedford, and flew for 35 minutes, before he also had to land because of the cold.

March 25th. Three keen members turned up, although the wind was S.S.W. They tried to soar, but it was useless, and all three landed after flights of only 3 minutes.

March 29th. A poor day with light drizzle, but training was done in the two-seater, and ground hops were given.

March 30th. A large crowd of members turned up, and although the wind was S.S.W. Anson soared the "Tutor" for 2¼ hours over the bowl. Hurry got his "B" and Parker his "A." Flying hours for the day were 3¼ for 28 launches.

DERBYSHIRE AND LANCASHIRE GLIDING CLUB

During the winter Camphill was cut off for seven weeks. Eventually, on March 22nd, a few hardy souls waded through the remaining drifts from the bottom of the hill. Two trees had been blown down. Unfortunately they had fallen across the coalhouse and the wash room, completely demolishing the roofs of both. Apart from this catastrophe the club equipment and premises are very much better off than was expected, but the amount of work to be done to restore things to normal is still pretty terrific.

Feb. 2nd. The last people to leave the club in the blizzard just after lunch were only just in time as drifts were already forming to a depth of over four feet.

March 22nd-23rd. Trees and broken branches everywhere; removals and repairs occupied the whole week-end.

March 29th-30th. Preparations were afoot for the Easter holiday, and the Armstrong group were hard at work on their trailer. The "Olympias" were due to arrive during the week.

Good Friday, April 4th. Wind E.N.E. 5 m.p.h. The "Olympias" are here at last and also the "Kite" back from being overhauled and repainted. The club seemed very bright with so many new machines in the hangar and the two "Beaverettes" freshly painted training yellow. The Smith-Slater-Thomas combination got straight to work on their red "Olympia" surrounded by a large crowd of would-be helpers. After lunch an energetic training squad started operations, and before the end of the day Lawless, Leech, and Wylie were rewarded with their "A's." These are the first complete *ab initios* to be trained on the nacelle since the war. The "Kite" was circuited by several members after it had been test flown by Louis Slater.

Saturday, April 5th. Wind S.S.W. 30-35 knots. The Easter gales were blowing and the only machines to take the air were "Olympias." First off was Gerry Smith in the red one, followed about an hour later by Stan Armstrong in one of the blue ones which we understand is to be christened "Ferdinand." Both pilots came in from great heights with their brakes moaning, and in spite of the rough conditions which prevented either of them trying much in the way of experiment. They were really delighted with the machines. Louis Slater was next off in the red machine, and after about threequarters of an hour he, too, returned to earth highly delighted.

Unfortunately one of the aileron horns was damaged whilst the machine was being retrieved in the very strong wind, and this caused the machine to be US for twenty-four hours. Bernard Thomas flew the blue "Ferdinand" for about half-an-hour and was very satisfied with it.

The "Black Diamond" arrived back from Hooton Park, where it has been overhauled and repainted.

Sunday, April 6th. Wind W.S.W. 35 knots. The "Olympias" were again the only machines to take the air, and this time the third machine, owned by Swales (both of them), Shepard and Tony Dolan, also joined in the fun. It was found advisable to use the aileron locks when retrieving the machines in the very high wind which at times was gusting to well over sixty knots.

For the rest of the members there was lots of hard work on repairs and finishing the culvert which was started last year.

Monday, April 7th. The wind was just as strong as ever, but Met. promised a decrease in the late afternoon. The "Olympias" were flying most of the day, and after tea the "G.B." was tested by Shepard, who reported bad aileron adjustment. The "Kite" was slightly damaged when it did a short jump behind a towing car and escaped its keepers.

The red "Olympia" was flown until dusk and landed for the last time at 8.35.

Tuesday, April 8th. W.N.W. 40 knots. The wind was very strong and the two "Olympias" parked outside to enable the paper to be removed had very narrow escapes and the holders of the wing tips were not made any more comfortable by a howling blizzard.

The Cambridge Club starts a week's camp to-morrow, and a report will no doubt appear in these columns in due course.

THE BRISTOL GLIDING CLUB.

Our first "open day" at Lulsgate on March 23rd was marked by weather conditions of a type eminently unsuitable for gliding; rain-laden gusts, reaching forty m.p.h. at times, gave the few who managed to get into the air an extremely rough ride.

Despite this, the public rolled up in surprising strength, to be faced with an impressive array of aircraft and to see some competent flying during the brighter periods. Messrs. Elliotts, expected to demonstrate an "Olympia," turned up with no less than four of them, three arriving at the site by "Autocratic" tow. The "Meise," which they also trailered down for comparison with the production "Olympia," was slightly damaged on the way and did not appear. Martin Hearns brought a "Kirby Kite II" and a "Tutor" along for demonstration, complete with another "Auster" for aero-tow, so the Club hangar on the night before the flying day presented a scene of unprecedented opulence.

One regrets to record only thirteen launches on the day itself, seven of which were aero-tow. The "Kite II" flew a large proportion of these, sometimes in the hands of the demonstration pilot, with very creditable aerobatics, and sometimes in the hands of fortunate members. "Olympia" flying was confined to demonstrations, which were, however, a delight to watch. Two of these sailplanes are now

owned by Club members, Messrs. Young and Ryall. Our "Grunau" was circuited several times, but our "Cadet" and the visiting "Tutor" were not flown.

Happily, visitors and members who, tired of standing under the down-wind wings of parked aircraft waiting for the rain to stop, were able of find solace and society in the Club House, where the recently and efficiently organised canteen was in full blast. Among the visitors were Rice of Leicester, who arrived by "Whitney Straight," Doctor Slater, Wheatley of the Bridgwater Club, Lewandowski of the Polish G.C., some London Club folk in an "Auster," and Mrs. Douglas and Messrs. Welch, Morrison and Kendall of the Surrey Gliding Club, who did the ferrying and demonstration of the "Olympias." Bira was seen to drop in for two short visits in a "Messenger."

A more unmarred success was scored the succeeding night by the Club Dance, which met with the enthusiastic approval of all who attended.

John Michael Hinton, member of the Bristol Gliding Club, and youngest holder of a "B" Certificate. His age is 13.

The week-end after our open day a small party of members, at the invitation of the Bridgwater Club, visited Weston Zoyland Aerodrome, where the "Slingsby" aircraft were again being demonstrated. Conditions were more favourable, and our people had some enjoyable flights in the "Kite II" and "Tutor," thanks to Messrs. Martin Hearn and to the Bridgwater Club's hospitality and excellent use of their recently converted balloon-winch.

At the second Annual General Meeting, held recently, the considerable progress made during the last year and the strong position in which it has put the Club were clearly brought out. No basic alterations in policy or charges were found to be necessary, and the election of new officers and Committee brought few changes.

R. F. T.

CAMBRIDGE GLIDING CLUB.

The second post-war vacation camp was held at Camphill from April 8th—17th by the kindness of the Derbyshire and Lancashire G.C.

The weather was anti-cyclonic with very pleasant sunshine but unfortunately on most days with but little wind. The "Tutor" and "Cadet" were circuited intensively, some pilots being fortunate enough to delay their descents for some minutes. However April 14th was properly soarable and those who wanted to, gained their "C's". 1,000 ft. was reached in the "Tutor" but flights had to be short because of the large number of members who wanted to fly.

The "Cambridge," recently mended after its Long Mynd mishap, was damaged on its second flight from the site, but will probably not be out of action for long. Martin Hearns' kindly brought along the prototype "Kite II" and Mr. Pringle on April 10th reached 3,300 feet in this machine. The stall and spin of this aircraft however were found to be vicious and Hookings on his second flight had the misfortune accidentally to spin it in from 300 ft. above the ridge. By a miracle he escaped unhurt.

Three of the new Elliott "Olympias, owned by syndicates, were flying at Camphill during our visit. The Cambridge one is expected very shortly and reports already received show the Elliott "Olympia" is an outstanding aircraft.

In spite of the lack of proper soaring everybody enjoyed themselves and our most sincere thanks must go to Bernard Thomas, Mrs. Axelly, and all members of the Derbyshire Club. Useful experience was gained and the value of seeing another club in action and watching its training methods is considerable.

LETTERS TO EDITOR ARE UNAVOIDABLY HELD OVER UNTIL THE NEXT ISSUE.

ROYAL AERO CLUB GLIDING CERTIFICATES

"A" CERTIFICATES: 55 (6224—6278)
"B" CERTIFICATES: 36
"C" CERTIFICATES: 16.

No.	Name	A.T.C. School or Gliding Club	Date taken
3181	Walter John Worthington	148 G.S.	26. 5.46
4654	Eric John Pope	144 E.G.S., Heston	22. 9.46
5018	David Nicholas Bicknell	163 G.S.	2. 2.47
5623	John Edge	N.W. 192 G.S., Sealand	12. 1.47
5624	George Frederick Stocks	Ditto	1. 2.47
5919	James Nickson	183 E.G.S., Woodford	1. 3.47
6013	Brian Neville Bennett	192 G.S., Sealand	1. 3.47
6030	Alec Field Atkin	182 G.S., Salmesbury	25. 1.47
6116	Robert David Jackson	Somerset Aero Club	2. 3.47
6121	Dolores Theresa Moggridge	Ditto	19. 1.47
6124	Mark Charles Spry	95 G.S., St. Eval	16. 2.47
6125	James Edward Williams	Nth Somerset C.C.	21. 1.47
6224	Arthur George Huckle	4th Armoured Brigade G.C.	19. 1.47
6225	David Evan Daniel	Ditto	19. 1.47
6226	Ivor Evans	2. Gp. G.C.	28. 4.46
6237	Allan John Norris	4th Armoured Brigade G.C.	17.11.46
6238	John Frederick Giller	85 Wing G.C.	7. 8.46
6242	John William Frederick Bettell	Lubeck G.C.	15.12.46
6248	Derek Malcolm Pickering	2. Gp. G.C.	6. 9.46
6250	Harry Warner Johnson	Nth. Somerset G.C.	23. 1.47
6254	John Frederick Perlee Archbold	2 Gp. G.C.	15. 1.47
6255	Reginald Hugh Grice	Ditto	2. 2.47
6256	Joseph Andrew Christopher Hoare	Ditto	15.12.46
6257	Philip Reynolds Matthew	Ditto	11.12.46
6258	Hugh Falkner	Ditto	3. 7.46
6259	Walter Owen Nicholas	Ditto	17.11.46
6262	Edwin John Noel Canvin	London G.C.	10.10.46
6264	Arthur Elliott Lee	203 G.S.	2. 3.47
6265	Arthur Hallam Blyton	B.A.F.O. G.C.	24. 8.46
6268	Anthony John Mander Smyth	B.A.F.O. G.C.	19. 1.47
6271	Alexander Kennedy Robinson	2 Gp. G.C.	28. 7.46
6273	Stanley George Message	Ditto	31. 8.46
6274	Robert McCara Williams	Ditto	25. 8.46
6275	Hugh Mawhinney Gordon	203 G.S.	5. 6.43
6278	Brian Joseph Fisher Hartness	Yorks G.C.	—

"C" CERTIFICATES

2501	Bertram Sydney Adams	Dunstable	4.10.46
3218	Arthur William Nixon	28 G.S., Sutton Bank	29. 7.46
4349	Ramon Clackett	R.Ae. Tech. College G.C.	18. 1.47
4946	Frank Davenport Skelton	Dunstable	4.10.46
6226	Ivor Evans	2. Gp. G.C.	23.10.46
6238	John Frederick Giller	85 Wing G.C.	2.11.46
6248	Derek Macolm Pickering	2. Gp. G.C.	30.11.46
6256	Joseph Andrew Christopher Hoare	Ditto	8. 2.47
6258	Hugh Falkner	Ditto	11. 8.46
6259	Walter Owen Nicholas	Ditto	15.12.46
6262	Edwin John Noel Canvin	London G.C.	15.11.46
6265	Arthur Hallam Blyton	B.A.F.O. G.C.	20.10.46
6271	Alexander Kennedy Robinson	2. Gp. G.C.	4. 8.46
6273	Stanley George Message	Ditto	30.11.46
6274	Robert McCara Williams	Ditto	1. 9.46
6278	Brian Joseph Fisher Hartness	Yorks G.C.	21. 4.46

CLUB ANNOUNCEMENTS

THE MIDLAND GLIDING CLUB LIMITED

The Long Mynd, Church Stretton, Shropshire. Telephone: Linley 206.

Full particulars may be obtained from the Secretary, F. G. Batty, F.C.A. 2, Lombard Street West, West Bromwich, Staffs.

THE YORKSHIRE GLIDING CLUB, SUTTON BANK, YORKSHIRE.

Full flying facilities are available for soaring and power pilots.

An instruction course will be held from 26th July, 1947, for one week. Minimum qualification to enter, gliding "B" certificate. Fee, covering temporary membership and flying, £10. 10s. 0d.

No messing or clubhouse available. Entrants may camp, or we will help to secure local hotel booking.

Write for further details, or send £2. 2s. 0d. booking fee to Mr. L. Alderson, Lyndhurst, Sinnington, York.

Numbers STRICTLY LIMITED.

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

Phone Tideswell 207

To people living in the North Midlands the Club offers full soaring facilities at 10/- per hour in the club fleet of Sailplanes.

Primary training has started and power conversions are a speciality.

The clubhouse is fully licenced and meals are available if booked in advance. Whether there is flying or not there is always something doing every week end.

Subscription, 6 gns.; Entrance fee, 2 gns.; Non-flying members, 1 gn. If you are interested please write to the Hon. Secretary, 87, Fargate, Sheffield 1, for further details.

WANTED.

Wanted urgently Wolf Hirth's Text Book on Soaring. Good Price paid. Box No. 229.

THE KIRBY KITE II.

Slingsby Sailplanes and Gliders are now in full production in the largest and most modern factory exclusively devoted to this work in Great Britain. Design and development of this all-British range continues under the personal direction of Mr. F. N. SLINGSBY, Britain's leading Sailplane Designer.

Write for Handbook giving all details.

Developed from the pre-war Kite, the 1947 model is without equal in its class. Increased overall dimensions and a completely new wing has produced a machine with outstanding flying characteristics and a wide speed range. Quickly adjustable rudder pedals, central landing wheel and spoilers are other refinements. Open or cabin enclosed cockpit optional. Now in production.

TRIAL FLIGHTS

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All enquiries to:—

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Phone VICTORIA 9822 (extension 5).

The Short NIMBUS

low-wing sailplane — tandem dual-control — perfect vision

PERFECTED after exhaustive experiments by Short's team of aeronautical engineers with sailplane experience, the Nimbus presents new features of interest to sailplane enthusiasts.

A low-wing, two-seater, the Nimbus has a comfortable cockpit with the widest possible field of vision for both front and rear occupants. Important features are: dual controls; longitudinal trimming; dive brakes; and the added advantage of Aileron Droop adjustment while in flight. The air frame is also fully bonded to latest requirements.

With its wood monocoque fuselage, Perspex coupé and unobtrusive centre-wheel undercarriage, the Short Nimbus is a sailplane of clean, distinctive design. Ideal for instruction and aerobatics. Launched by winch or aero-towing, it is ideal for dual instruction in advanced soaring.

SHORT NIMBUS SAILPLANE

Wing Area	240 sq. ft.
Span	62 ft.
Overall Length	27 ft. 4 ins.
Aspect Ratio	16
Empty Weight	800 lbs.
Sea-Level Condition—2 Crew, each weighing 200 lbs.	
Maximum Gliding Angle	1 in 25.8
Sinking Speed	2.3 ft. p.s. at 38 m.p.h.
Stalling Speed	35 m.p.h.
Recommended Approach Speed	42 m.p.h.
Maximum Permissible Speed	130 m.p.h.

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