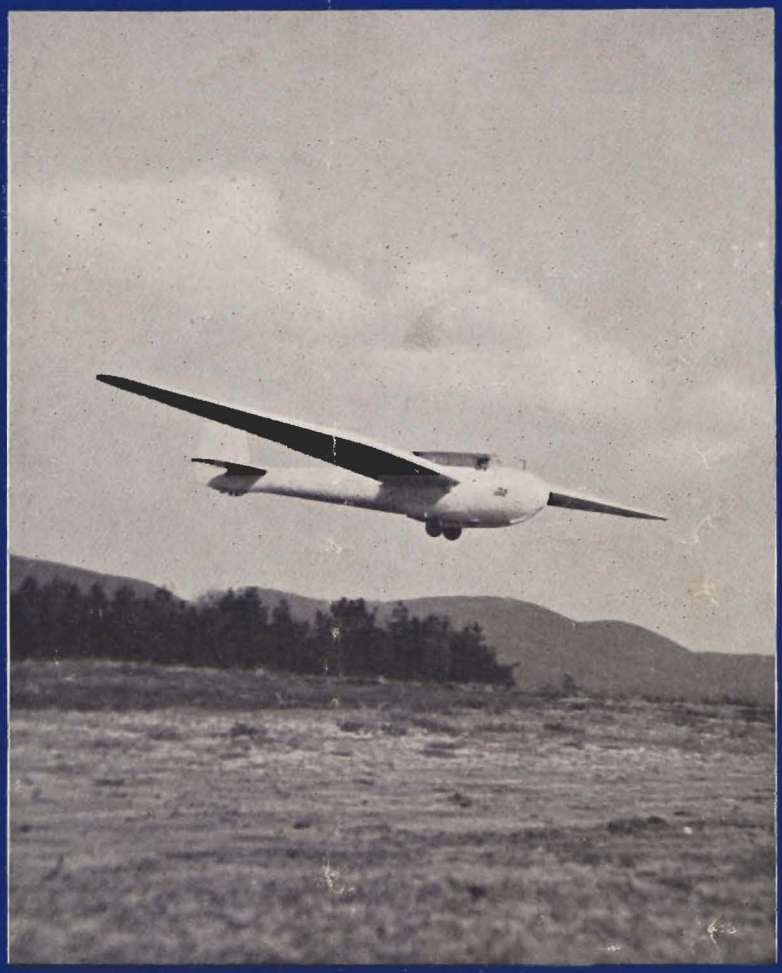
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Cambridge club page 5.

JULY, 1947

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Sailplane and Glider

The First Journal devoted to Soaring and Gliding



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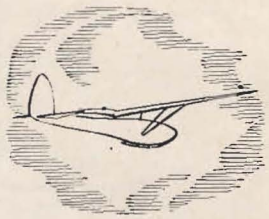
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THE FIRST JOURNAL DEVOTED TO SOARING AND GLIDING

JULY 1947 ★ Vol XV No 7

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Front Cover: *"Kranich" landing at Oerlinghausen, Germany—site of the 2 Group R.A.F. Gliding Club. Photographer: SQMS. P. Morley, 8th K.R.I. Hussars. Camera: Rolleicord II Triotar f/3·5 Compur Shutter. Film Gevaert Panchromosa 32° 'Stop' f/6·3. Exposure: 1/300 sec.*

EDITORIAL

THE NATIONAL CONTESTS

THE contests this year are intended as a rehearsal for the International Competitions next year, as a search for the best British pilots and machines, and as the usual British attempt to learn by experience how best to organise such affairs.

It was evident that much thought had gone into the organisation, but it was equally evident that good deal more was needed.

To begin with the sign posting of the meeting began too near the airfield. A sailor within five miles of the airfield and stationed there, knew nothing about it. Those sign posts which did exist directed the competitors to the wrong side of the field, with a five mile detour to the right entrance. On the Station itself there were no signs, other than the usual Navy directions "To the Church and Gymnasium", "To the Ward Room," etc. Nor was the way to the hangars routed, and one learnt in the British way, by trial and error that the most likely looking piece of tarred road was a cul-de-sac or dispersal point.

The ward room and quarters were marvellous, and the Navy welcome and courtesy up to their highest traditions. They gave up their wardroom, their dining room, even their beds, as well as their peace of mind to a host of strangers for ten whole days. Under the circumstances their restraint was beyond praise. It was true that it was a bore having to give up a ticket for every meal and drink, but under the circumstances there was no other way the BGA could pay for the £50 worth at least of daily aero-tows.

The Press complained that they had no advance notice of the meeting, and their information was indeed scrappy. One National daily put Wills' and Nicholson's record flights of the Tuesday down to the opening day. The Press liaison officer had been delayed and both local and national correspondents got away with a good deal of "duff gen." Next year they must have their own Press Room with its telephones, its pukka P R O, whom the BGA will no doubt borrow for the occasion and facilities which, if they came at all during the meeting, were improvised as time went on. It was too much to expect the hard worked Secretary to deal with the Press as well as the myriad of other things he had to deal with. No doubt next year the P R O will get to work as a whole time job, some three weeks before the meeting and seé that things are properly laid on for publicity.

Until Alan Goodfellow pointed out that the public were going to see nothing of the machines, their enclosure having been placed so far away for safety's sake, they looked like having a very boring time indeed. On the opening day it was his informed running commentary, broadcast from the Control Tower, half a mile away, which gave the proceedings such modicum of live interest as they had for the Public. No one had been detailed to keep him in the picture of what was happening at the starting point, and the Navy thoroughly enjoyed themselves passing over their trans receiver (field variety) in true service fashion, a deal of information which sounded quite different when heard over the tannoy. Only the informed knew when the Minister made his two flights. Such news tannoyed at the right moment would have lent a good deal of life to the proceedings at a time when it is of vital importance to get the Public interested. After all, it is their money we want.

Finally, as the Steward was heard to remark, "What a good job it was that the opening day was not a good soaring day. The chaos would have been unbelievable." It was certainly true that when machines did arrive at the starting point there were no pilots for the towing planes. Then and until the tow master began to throw his weight about, the affair reminded one of the widder woman in Shaun O'Casey's play about "The Troubles"—"The whole world was in a state of Chassis."

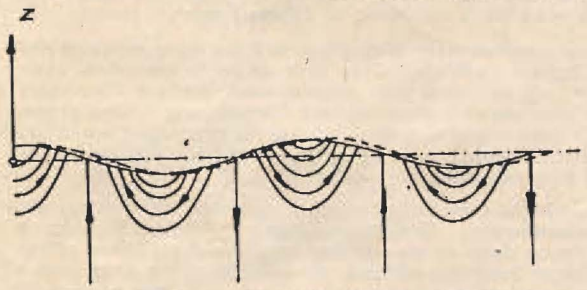
Enough has been said to show that next year things must be different. One heard a deal of criticism from the competitors, some of it of a personal nature. It appears to be a mistake to allow any competitor to take any part in the organisation. Next year of course this will not arise because many who were competitors this year will form part of the organisation. It is equally clear that there must be one person responsible for decisions of priorities. These democratic ways of organisation are all very well but when time is the important factor, a little bit of the Service discipline and order is not a bad thing. One thing is certain. Not only must each foreign team be asked to bring one English speaking person who understands Sailplaning terminology and practice, but the BGA must have its own team of language experts to guide our visitors around. What the Swiss and Czech visitors would have done without Keith Turner, Neubroch, and Newmark, and the Spaniards without Mrs. Platt is difficult to imagine. There will be Swedes, perhaps Finns, Danes, Dutch, as well next year and not only as competitors. Still it was a happy meeting and things got better as they proceeded.

A New Basis of Soaring Flight

By Professor Walter Georgii

(Extract from a lecture, with lantern slides, delivered to the Swiss Gliding Conference, at Olten, February 23rd, 1947.)

IT would seem that as far as record achievements are concerned, the possibilities of thermal convection soaring have been just about exhausted, or that at least no great surprises are in store. Have we then arrived on the summit of soaring progress? In the past, pilots and scientists have always worked close together to advance soaring flight. Realizing the hitherto hidden energies of the atmosphere, we recognize how versatile is the aero engine which



(Fig. I). *Cross section through a moving wave.*

nature has placed at the disposal of the sailplane; hitherto, when at the end of any given phase of development, we have always found ourselves at the beginning of yet another. For a number of years now, wave soaring has assisted thermal soaring. As yet we cannot trace the influence of wave soaring on the development of soaring as a whole; such flights as one to 26,000 feet, and another to 37,500 feet, in the Alps, and scientific research indicate that soaring has once again arrived at a momentous turning point, that the gates of the stratosphere have definitely been thrown open to the sailplane. To-day, wave soaring is still based on the Foehn, for it is in this phenomenon, well known to the inhabitants of mountainous regions, that it has shown the most remarkable results; but wave soaring does not by any means stop with those Foehn flights. The problem of atmospheric wave motion is far too complex to admit of such an interpretation.

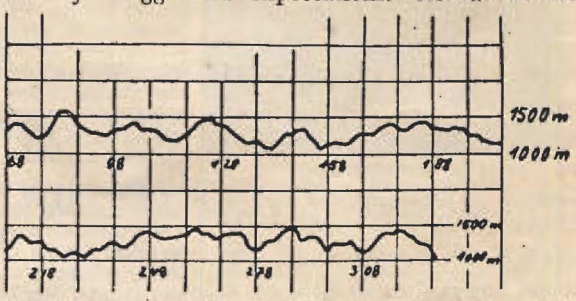
To arrive at a clear picture of atmospheric waves, it is best to start by considering water waves. These latter form a boundary between two media of different densities and come into being at the surface of the water because particles of both layers have been disturbed from their state of rest by the wind and are describing oscillations, under the influence of gravity, about their positions of equilibrium. These oscillations are transmitted to neighbouring particles and so produce a wave motion which continues along the surface. These surface waves are gravity waves, depending for their speed of travel on the wavelength, amplitude, and density of both media.

In the atmosphere, inversions occur in thin layers in which the temperature increases, instead of decreasing with height, as is usual. Such an inversion forms boundary layers in the atmosphere, with a weak but definite density difference which, as with a water surface, forms waves under the influence of the wind. Atmospheric waves may sometimes be recognized by the appearance of stratocumulus cloud.

A diagramatic representation of such a wave is given in Fig. I. At the front of the wave, in the direction of its travel, the motion is ascending, and at the rear it is descending. The vertical movement may be measured experimentally. By flying straight and level in a powered aircraft in a boundary layer, keeping at a constant height and giving more throttle when in a downcurrent and reducing throttle when in rising air, it is possible to register the throttle movements and so arrive at a diagramatic representation of the wave.

Is it possible to make use of the gravity waves occurring at internal boundary layers of the atmosphere? Figure II shows the barograph trace of a soaring flight of 103 miles completed in 1931. A cloudless sky made conditions quite difficult for a cross-country flight. The trace represents the flight from the 68th minute. We can distinguish quite a regular sequence of ascending and descending sailplane movements which remind us of up and downcurrents in a wave. The entire flight took place at a height of between 4,000 and 5,000 feet. It was carried out in a straight line without any circling in thermal upcurrents or any other deviations from course, and would certainly seem to admit of wave soaring as an explanation.

Such an example should not, however, give rise to any exaggerated expectations. As far as we

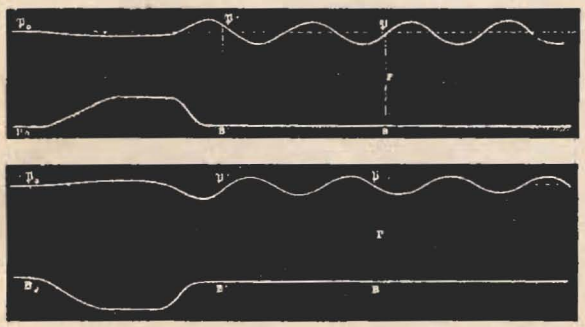


(Fig. II). *Barograph trace showing Kronfeld's flight through the moving wave of an inversion.*

know, the amplitude of gravity waves is relatively small, and it will be difficult to find the wavy layers unless they are associated with stratocumulus. But the above example does show that the soaring pilot should not, on suitable occasions, neglect the moving inversion wave.

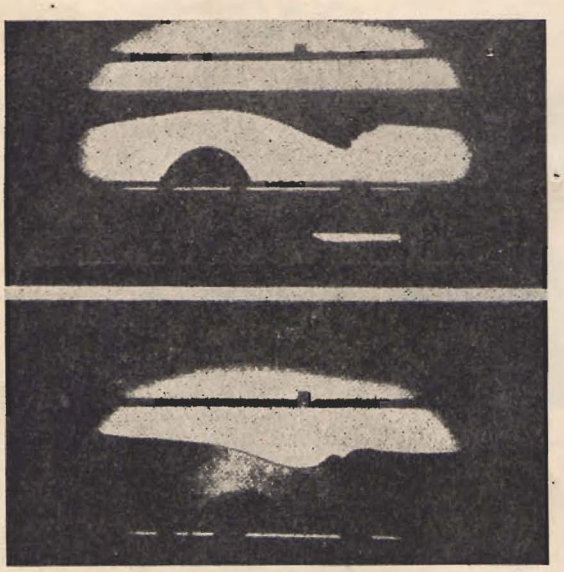
But when we consider the outstanding successes which were scored in the upcurrents of a wave during the past few years, we must realize that we are now dealing with atmospheric oscillations of quite a different magnitude and origin. We are concerned with the standing ground wave set up by an obstacle

on the earth's surface or other surface disturbances in the path of surface currents. Its amplitude may, under certain conditions, become very large. We can best illustrate this with another example taken



(Fig. III). *Standing wave over an obstacle, according to Lord Kelvin.*

from hydrodynamics. Water moving over an obstacle on the ground will show a lowering in the water level above the obstacle if the speed of motion of the water does not exceed the speed of the groundwave. (Fig. III). Under the same conditions, a negative disturbance on the earth's surface will cause a rise in the water level. These changes in the water level



(Fig. IV). *Standing waves over an obstacle, moving very fast, according to A. Defant.*

are caused by the fact that any changes in the condition of the stream can only propagate at the speed of the groundwave, while the total amount of water in the stream must remain constant even above the disturbance. Downstream of the disturbance, locally fixed waves may be found. If on the other hand the speed of the water exceeds that of the groundwave, the latter cannot make itself felt upstream, This results in a definite step-like rise above an obstacle. We can summarize this by saying that with a normal speed of flow we get a lowering of the water level above a positive obstacle on the ground. and a rising when the flow is very fast. (Fig.IV).

If we apply what we have seen with a free surface to an internal boundary layer formed by two fluid layers of different densities, we find the same behaviour, only more so. This applies particularly to to the free atmosphere when it is subdivided into inversion layers, so producing internal boundary layers. This analogy between hydrodynamics and meteorology has been confirmed by the theoretical investigations of A. Defant and J. Kuettner. G. Lyra found the answer by applying the basic hydrodynamic and thermodynamic formulae. He also showed that this is not necessary to subdivide the atmosphere according to internal boundary layers. Lyra proved that these waves will form in a steady, stable atmosphere, that they are not dependent on the presence of an inversion, nor on any particular wind-speed, but that they may form at any wind-speed.

Translated by F./Lt. H. Neubroch.



Hugo Casadella of Buenos Aires in an old "Grunau Baby" fitted with a 5-H.P. motor cycle engine. For mechanical reasons the engine was unable to lift the sailplane though it succeeded in maintaining height.

Beginners' Page by VERONICA PLATT

4. From the 'B' to the 'C'

YOUR "B" is safely behind you. Your "C" is a question of weather and luck, but if you are in training you will take a good "C" and from then on you never need look back. It is at this stage that you can see whether or no you have the makings of a first class pilot. Weather being what it is, it may be months before the chance of soaring comes; and here luck takes a hand as well, for some exasperating breaking of the cable, failure of the winch, or change of wind may occur just at the moment when you are already strapped in and ready to go. Gliding is like that; you need infinite time and infinite patience, and even then may see more recent pupils than yourself getting ahead for no apparent reason owing to that same combination of weather and luck. But don't worry. If you are the better pilot you will sail ahead of them again later on, and always be able to keep your lead.



Some of the essential jobs.

Being a better pilot is all a matter of training, and here, between the "B" and the "C," is a good chance to practice. You can spend hours perfecting your turns once you reach the soaring stage, but here is the moment when the proper foundation is laid. It is surprising how much can be achieved in a couple of minutes—literally only a couple of minutes, because that is all the winch launch will allow you if there is no up-current to help. There is time for at least two full turns or a reasonably sized figure of eight before coming into land. And here is the opportunity to learn sideslips. They are an easy and elegant method of getting rid of superfluous height—hardly fast enough if you are being sucked up into a cloud before you are ready to try one, but invaluable when coming in to land in a small area or over obstacles. Choose your landing spot, point your wing at it (that is to say, "down" as well as "towards") and put on opposite rudder. Keep up your flying speed and the machine will slide down an imaginary path cleared by the point of the wing. When sufficient height has been slid off, bring her round in a neat turn to face the landing spot and come in as usual. As in turns, you will probably find this easier to do in one direction than in the other. Practise both, and go on practising till even you have forgotten which side was the one you originally preferred. Make your slips steeper and steeper, but always bring her in to a chosen spot. And above all, keep up your speed; remember once again that in speed lies safety.

At about this stage you will also be trying steep turns. Here the thing to remember is that at an angle of roughly 45 degrees the effect of elevators, ailerons, and rudder changes. This is best understood from an actual model, but it is quite easy really. Imagine your machine at a steep angle. The ailerons and elevators which have been working laterally now move in a vertical plane, whereas the rudder, which up to now has been moving about the vertical, is working laterally. The result of this is that the up and down movement of the nose is now controlled by the rudder instead of by the stick. Too much inside rudder will cause the nose to flop, too much top rudder will cause the nose to rise; whereas pulling back the stick will now have no effect on the angle of the nose with the horizon, but will cause it to chase its tail ever faster round the sky. More scientifically, the action of the rudder is always to move the nose to right or left round the vertical axis of the machine. When this vertical axis becomes steeply inclined to the true vertical the rudder still moves the nose right or left with respect to the machine, although with respect to the earth the movement is now up or down. On a steep right turn, right rudder will drop the nose and top or left rudder will lift it. Similarly, for a steep left turn left rudder will drop the nose whereas top or right rudder will lift it.

Likewise, the stick affects the angle of the nose through the horizontal axis of the machine. So long as this axis corresponds roughly with the horizon, pulling back the stick will have the effect of making the nose try to catch the tail over your head. But when the horizontal axis of the machine gets tilted with respect to the earth with nose will still try to catch the tail over your head, only this time it will be going round and round. Think of yourself always as the vertical and the wings as the horizontal, and you will see that the action of rudder and stick is always the same with respect to the

machine. It is simply the world that has got tilted . .

But tilt or no tilt, you must keep up your flying speed. By now you will possibly be flying a machine with an air speed indicator. Don't rely entirely on this. They are often not very accurate and may even be sticking. You have learnt to fly by the feel of the wind on your face. Go on feeling it and listening to it. In this way you will notice a variation in speed appreciably before the air speed indicator will mark it. Notice that it is not called a speedometer, but an air-speed " indicator." Treat it as a rough and ready guide, but continue to fly by the wind on your face until you are advanced enough to try aerobatics and enclosed cabin sailplanes, and by then if it does stick it won't worry you. Remember, too, that the action of a turn is to slow you up and to make you lose height. Practise well away from the ground, drop your nose a little more than in level flight, and all will be well.

VERONICA PLATT.



Mrs. Platt and exasperated Instructor !

AUTO-TOWING ON RUNWAYS

By S. FALLOON

Cambridge University Gliding Club.

1. **Introduction.** With the availability to many clubs of ex-RAF aerodromes, the method of launching by means of auto-towing on a concrete runway is becoming more widely used.

In this country at any rate, this method is a new departure and the associated snags and problems were largely unknown when clubs started up after the war. The Cambridge University Gliding Club first used auto-towing about 10 months ago, and have been through all the stages to the point where the problem is considered to be solved in a cheap and efficient way.

The solution is the result of a considerable amount of development, and though relatively simple, definitely requires precise attention to detail for its successful use.

2. **Rope.** The towing line used for the first few months was ordinary 3 lay sisal rope, in sizes varying from 1½ in. to 1⅝ in. circumference. The towing car was usually about 20-30 H.P. and the planes Kirby Cadets.

The results obtained can be generalised as follows:— Length of rope, 1,500 feet; Height of launch, 500-700 feet; First break, 40-50 launches; Life of rope, 80-100 launches; Number of splices, 20-30; Cost per launch (rope only) 1/- to 2/-. For the benefit of those not familiar with auto-towing a brief discussion of these results and their implications is worth while.

Length of rope and height of launch. These are limited partly by the available runway, but mainly by the weight, which is of the order of 100 lbs., and which at the top of the launch is largely carried as a dead weight by the plane. An additional factor is the " drag " of the rope which has the two-fold effect of loss of power by the towing vehicle, and of causing the rope to hang more vertically downwards than it would otherwise do

Breakage. For reasons to be discussed later, the rope deteriorates rapidly to the point where launching stresses cause a failure. As indicated it is a general experience that the first break will occur after 40-50 launches, and qualitatively at least, the larger the rope, the more launches to be expected before the first break. After the first break the rate mounts rapidly, and, in spite of a team of enthusiastic splicers, a limit of 80-100 launches was all that could be obtained, at which stage the rate of breakage is usually 1 per 2 launches.

The obvious objection to this aspect of rope as a towline is of course the danger of " crashery."

The first 5 or 10 breaks occur at 50-100 feet, when, after the initial slow climb, the stick is pulled back for height, and any properly taught pupil can " cope." Later, however, breaks occur at any height, particularly during gear changes, or in slightly gusty conditions, and some " stall-ins " are inevitable. A natural corollary is the effect on the morale of beginners in the " high-hop " stage.

The other equally serious aspect is :—

Cost. Towards the end of the rope-using period, the cost per launch in rope alone was of the order of 1s. 6d., to which must be added the inevitable high rate of " crashery," usually limited to skids and shock absorbers, but none the less expensive.

Rope Deterioration. While it is not profitable to discuss this at length, certain definite conclusions have been reached at Cambridge, and in view of some misconceptions on this subject are worth putting on record. It would be nice and simple if one could assume that rubbing on the runway resulted in a uniform reduction of rope diameter, to a point where the breaking strain was equal to the stresses encountered in launching. This however is not so in practice, and the deterioration (we

prefer this word to " wear ")—of the rope is a rather complex process for which the runway is only partly responsible.

Briefly, the general picture is as follows :—A rope, however tightly stretched, is not absolutely straight and smooth, but has slight ripples in its length and protuberances on its surface, which rub on the runway more than the rest of the rope. After a few launches and return of the rope to the starting point, one " lay " at any place where rubbing has occurred is weaker than the other two and has less elasticity.

The result is twofold : (a) Being worn on the outside it naturally bulges out (due to internal pressure) and gets even further wear, (b) During a launch the stresses in the rope are such as to stretch the weak " lay " more than the other two, and so, on relaxation, it is a bit too long, which also results in bulging and excessive wear at this point.

A second factor in deterioration is less obvious, but is of considerable importance, namely the sudden shock of the " release " at the end of the launch. This tends to shake loose the fibres of the rope, on whose mutual friction the strength depends. This is particularly virulent where, as indicated above, one " lay " has worn excessively, and the mutual pressure of the " lays " upon each other is already much reduced. (Anyone doubting this " shake " effect as a contribution to deterioration, should take a short length of oldish sisal rope, extract a " lay," and see how easily it can be shaken to bits in the hands by alternate stretching and relaxing.

Use when wet is also found to accelerate deterioration.

Various expedients have been considered (and some tried) for counteracting deterioration. Impregnation with cart grease, tallow, and heavy oil, gave little improvement, probably because though reducing wear, they may at the same time have reduced internal friction between fibres.

Impregnation with tar or cellulose " dope " might well have given an improvement but has not been tried. Finally, since a major portion of the wear occurs during the retrieving of the rope to the launching point, doing this on the grass verge would have given some improvement.

Since however the weight and height limitation remains, a more radical approach to the problem is advisable, and as described below, has been very successful.

Wire. If one writes down the qualities lacking in rope but desirable in a towline, one gets :— 1. Lightness ; 2. Low windage ; 3. Resistance to shock ; 4. Resistance to wear ; 5. Cheapness.

The first two are of course already well known to winch users, and give the obvious answer in steel cable, (3) can be assumed, (4) was quite unknown, though predictable qualitatively, and (5) with flexible steel cable at about £15 per 1,000 feet made this solution a questionable one. Some trials were carried out both on 42 strand winch cable, and on 7 strand balloon cable ; both with about 1,800 breaking strain.

The results were very much as expected, namely that requirements (1), (2), (3), were met, but that, just as with a rope, slight unevennesses resulted in rapid wear and breakage of individual strands, with the usual unpleasant results familiar to users of stranded wire.

It therefore became necessary to turn to the material that has all the above qualities ; but which in addition, unlike the others, is not as all easy to handle under club conditions ; namely solid high tensile Steel wire.

That it can be handled successfully has now been proved by the results obtained, but that it requires strict attention to detail to obtain success is equally true, and for that reason the handling technique adopted at Cambridge is given in some detail.

The wire chosen was Polished Steel Piano Wire having the following properties : Diameter, .092 in. ; Length, 1,500 feet (reduced to 1,400 feet after 9 launches) ; Weight, 34 lbs. ; Cost, 9d./lb. ; Breaking strain, 1,800 lbs. nominal ; 1,930 lbs. measured.

The results obtained to date are :—

Number of launches	95
Reliability	No breaks during launches
Height on a 1,400 feet wire	Tutor 1,060 feet (1,000 feet regularly) " Olympia " 1,200 feet " Cadets " 800 feet estimated
Estimated life	100-200 launches (See " Wear ")

Wear. Like all materials tried this wire is not perfectly straight, and maximum wear occurs on " high spots." Micrometer readings of diameter along the length have been taken throughout the tests and are shown in the table below :

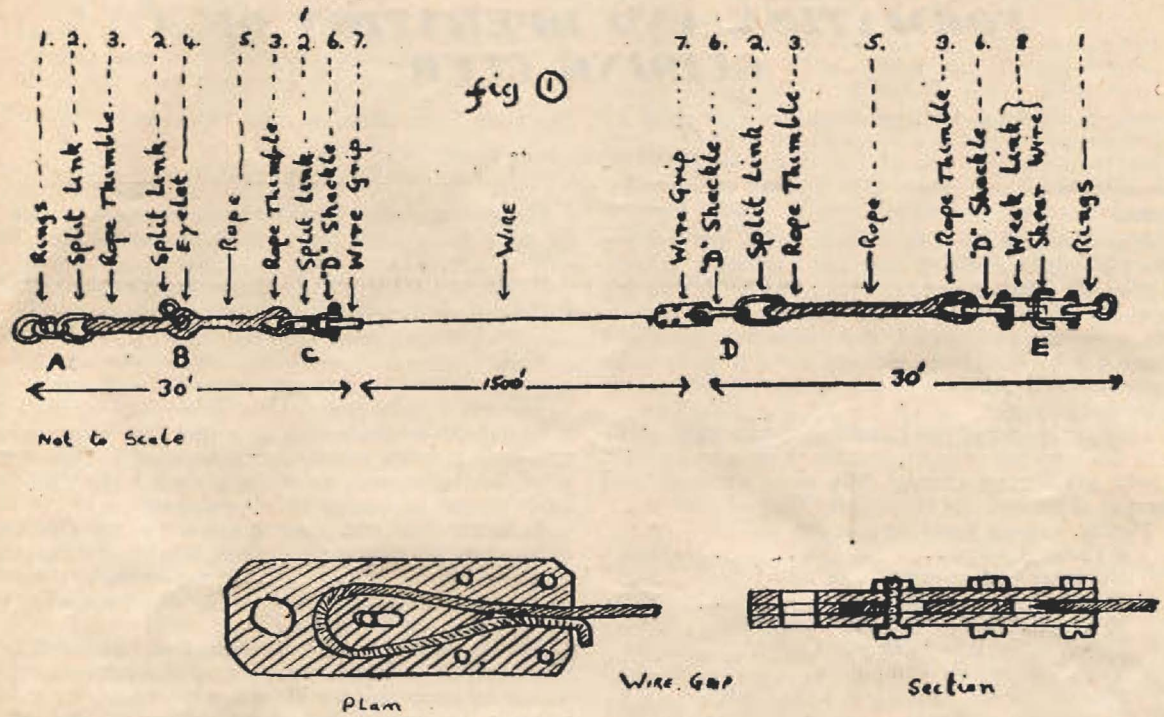
Total Number of launches	Max. diam.	Min. diam.
0	.092 nominal	
3	.0925	.0922
9	.0924	.0921
21	.0921	.0915
50	.0920	.080
65	.0920	.076
95	.0915	.052

As might be anticipated the wear is in the form of " flats," rather than even reduction of diameter, the worn portion being in the form of an arc of a circle closed by a chord. The strength, therefore, to a first approximation, being proportional to sectional area ; should be of the order of 1,150 lbs. at 95 launches. In a laboratory test, a specimen failed at 1,200 lbs.

It is hoped that a continuous gauging method giving cross sectional directly can be developed ; and using this to find weak and therefore " high " spots, these will be straightened by hand before wear becomes excessive. By this means a life of 200-300 launches may well be obtained.

Bucking. A slightly unpleasant phenomenon is occasionally encountered, namely " bucking " or oscillation of the plane, due possibly to the very low drag and damping inherent in the wire ; it can be stopped by temporarily reducing the steepness of climb.

Handling technique. It will have been appreciated that from the point of view of performance and economy this wire is a first class towing and launching medium. Anyone intending to use it *must* also appreciate that it is more easily spoilt by careless



handling than any other towline used in gliding. In the appendix is printed for information a copy of the instructions for handling laid down at Cambridge, and it must be emphasised that not one word of these instructions is considered superfluous if success is to be obtained; by following them the club has obtained 95 faultless launches.

After the 9th launch, inattention to detail caused the breaking of the wire during ground handling, in three places, and a lesson was learnt by all concerned.

As will be seen in the introduction to the handling instructions, the whole technique is directed towards keeping the wire straight and free from kinks, which in this wire will result in fracture it allowed to occur.

Description of equipment. The equipment comprises three main units: 1. Wire and terminations; 2. Parachute; 3. Storage drum.

A sketch of the complete towline assembly is shown in *Fig.* 1, where separate components are named and numbered; it is of course likely that minor modifications will be made as experience accumulates.

Certain units however are essential and some, having been developed specially for this wire, will be described separately.

(5) The ropes. These have a twofold purpose. (a) To give some elasticity to the assembly; (b) To act as drags or anchors against the natural tendency of the wire to curl up and "snarl" or kink.

(3) These are the normal type of thimble used at rope ends and are the only point where noticeable rope wear occurs (of course, as the pieces of rope are so short, a much heavier rope is used than that which gave trouble in the early days). At present binding with $\frac{1}{4}$ in. steel wire gives some protection, but a permanent steel cover shield will be used when available.

(7) Wire grips. These are shown in plan and elevation at the bottom of *Fig.* 1, and are self-explanatory; it is likely that a simpler termination will be used in future and the form of this is indicated below where "breakages" are treated. The grip in use at present has a strength slightly in excess of the breaking strain of the wire.

(8) This is a normal "weak link," in which the shear element is $\frac{1}{8}$ in. annealed copper wire, breaking at approximately 600 lbs., and is absolutely essential in the use of 1,800 lb. wire.

(2 and 4) Eyelet and ring for parachute attachment.

To be continued.

BACK NUMBERS OF SAILPLANE

We have uncovered a large selection of back numbers dating from 1934 onwards, the majority 1940. If readers desirous of obtaining copies will state their precise requirements we shall endeavour to accommodate them. There is a wealth of interesting and instructive detail in the matter of these numbers and, glancing through them, one cannot fail to be impressed at the progress made in the movement which was in its infancy in the early 1930's. Price 2/6d. per copy, post free.

FORMATION AND OPERATION OF A GLIDING CLUB

A LECTURE READ BEFORE AEROTECH F.C. No 1 ON DEC. 19TH BY ANN DOUGLAS.

Continued from June issue.

Costs.

It is when one starts to consider these, that visions of a flourishing and well equipped Club start to fade. For under present circumstances and with existing methods there is little doubt that a gliding Club is not a paying proposition, and unless overheads and waste can be drastically reduced there is really little point in starting a Club to-day, unless it bristles with fairy godfathers.

I expect many of you have gone fairly thoroughly into the question of costs, but for those who haven't, I will quickly go through the main expenses and income of an average elementary Gliding Club.

Firstly, Capital Costs.

2 Cadet Gliders	£490
Purchase and re-erection of Army hut	100
Winch and conversion	60
Retrieving beaverette and conversion	60
Cable, 3,000 ft. at £10 per 1,000 ft. ..	30
Tools and repair equipment ..	10
Spares (skids, fittings, links, components) at least	25
	£775

This comes to £775 and is about the minimum amount of equipment which a Club could reasonably start with. I am sure it is folly to take members' money without a second or reserve glider. The above figure also pre-supposes that all auxiliary equipment such as little trolleys and windsocks, etc., are made for nothing by members. It should also be noted that the above estimate does not include any trailers, advanced machines, or the ground slides mentioned earlier: with any luck the enthusiastic Club should be able to win something suitable for the latter from somewhere.

This amount, then, has to be raised. So, assuming that it has, we will go on to running costs.

Firstly, depreciation. About 25 per cent. is the lowest figure at which Gliding Club assets should be depreciated. About 20 per cent. is better, but is more than most Clubs can cope with in their first years.

Therefore £775 at 20 per cent. .. £155

The next highest item is rent, and about £1 a week is the lowest any farmer would be prepared to let land out these days, and this might include such conditions as night grazing, say £50

We will assume no paid staff, as we want to keep costs really low. Maintenance and repairs are to be done by members, and the amount put in for these depends to a certain extent on how gliders are insured. For advanced machines, I would recommend comprehensive insurance, but for trainers the premium is very high, so 3rd party is the better risk for a small Club.

3rd party insurance (Club fleet) .. £10

Maintenance and repairs should now be allowed for at a fairly high figure, and on two gliders the following would be fair £120

Petrol and oil is also high (for 2 gliders operated part-time) I should say at least £50

Then there is stationery, etc., say .. 15

And extras 10

This adds up to £410

So for 50 weeks in the year the Club must earn about £8 a week merely to cover itself. This is a great deal of money, so let us see what the Club is likely to get in income to compensate.

Entrance fees and subscriptions. As the Club is only operating elementary types, this cannot be put very high, as the facilities offered are limited. About £2 2s. entrance, and £3 3s. to £5 5s. subscription is as much as can be asked.

The number of members allowed in is limited by the number of machines, and a maximum of 25 should be permitted for the above 2 "Cadets." This is really too many, but quite a few of the first members in a new Club drop out very quickly, having joined only out of curiosity, with no real desire to glide.

It will probably be found that about ten replacements can be allowed in during the first year, and so 35 entrance fees and 4 guineas subscriptions add up to £220 10

This leaves, to be made from flying fees £189 10

With only two machines, no paid engineer, and part-time operation, only a low utilization rate can be expected, and nowhere near the 200 hours a year expected from a full-time earning sailplane will be obtained.

As most of the flights on the "Cadets" will be circuits, income had better be based on these than by the hour.

I should think 10 circuits a day for each machine is as high as will be reached on a yearly average of two days a week. This gives 1,000 circuits a year for each machine, but does not allow either machine any time off service. This should probably be allowed for at least at 20 per cent., so say 1,600 circuits a year for the two machines. At 2/- a circuit this will bring in £140

If, therefore, the Club does nothing further to bring in income, such as run a bar, etc., the position at the end of the year would show, on the above reckoning, a deficit of £49 10s.

I am sorry if this appears depressing, but it is surely better to look at the realistic side. There are many other ways in which the enterprising Club can make money to help pay for the flying, such as giving dances, and there is no real reason why finances cannot be kept on the right side.

It is, however, difficult to expand a Club while running as near the bone as this, and after a few months of operation, the advanced machine will probably seem as far out of reach as ever.

Now for a few points on actual operation.

Administration.

It is essential that the officers should each be responsible for a definite branch of the Club's activities. For instance, only the instructor for the day shall give advice on instructional matters. Nothing is more confusing or dangerous than a Club where members find those in charge countermanding each other's olders, however helpful their intention.

Although the actual operation of the Club must be in control of those financially interested, it is wise to have a committee of members in which all matters affecting the Club are brought up. This committee should be kept small so that it can work efficiently, but it will be found that through the committee grouses among members come to the notice of the management before they have time to develop. If the chief grouser is then co-opted on to the committee, it is often extraordinary how his worries disappear, and the Club may learn something to its benefit at the same time.

All Club regulations and notices should be clearly displayed, so that there is no excuse for members to feel that they do not know what is going on.

With regard to the collection of flying fees. These should be paid daily, both to save book-keeping and postage. If a member habitually omits to pay, he should be debarred from further flying until he does so.

Every Club should have among its members a Secretary and a Treasurer; an Instructor; someone in charge of maintenance and someone to look after ground equipment, and the ground itself. These people should be absolutely responsible for their jobs, and should not chop and change about, thereby confusing members.

Perhaps I should have mentioned earlier that any Club should become a limited company in order to protect itself. Particulars of the best and cheapest way of doing this being available from the B.G.A.

Lastly, a few words on utilisation of equipment.

Aircraft are bought to be flown, winches are made to be worked, and although it may seem obvious, the more that equipment can be used, the better it will pay for itself (unless it gets broken each time).

When I say used, however, I mean actually flown, not left sitting about on a wet and windy field waiting for the cable to be mended. Equipment should be regarded as losing money at all times when it is not in use when it is possible that it could be. It should not just be regarded as not making money, it is definitely *losing* it.

For instance, just two extra circuits squeezed into each Saturday and Sunday means an extra £20 income each year, and may make just the difference between blue and red in the account book. Obviously it is uneconomic to try to fly when the weather is unsuitable, but often hours and hours are wasted because of lack of forethought and efficiency on the part of the operators; winches run out of petrol, launching cables break due to lack of inspection, signalling flags get lost, and so on.

It is in the direction of efficient operation and a high aircraft utilisation rate that the answer to the economics of Club operation lies.

Finally, I would say that there is a great future for the Gliding Clubs. They can provide relatively cheap flying, which *is* flying, and a great deal of exercise, fun, and fresh air for a good many people. But the real aims of the Clubs should not be forgotten. They do not exist just to get thousands of people airborne on the end of a string, but to advance the art and science of high performance soaring, and to train pilots who will later develop the technique of advanced flying, build better sailplanes more cheaply, and find out more about the air in which they fly.

Soaring as a sport is only just beginning. Its future depends on the Clubs.

ANN C. DOUGLAS.

MERLO—LOBERIA
252 miles

By ROBERTO LAPLACE

President of the Argentino de Planeadores Albatros.

THE last day of the Argentine National Soaring Championship, dawned beautifully, and we all had great hopes of the weather. The meteorologists had announced good cumulus arriving around 11 a.m.

My turn came last among the high-performance sailplanes (I was flying the "Spahlinger"). The old Pelican climbed well, but we arrived at 1,500 feet with no sign of a thermal. However, I released, fearing I might inadvertently get above the competition limit, and after a short glide south I found something—a zero which grew into a rise of 6 feet per second. In a very steep turn I arrived at the top of the thermal at the moment when a wonderful cumulus formed over my head. I decided not to try and enter it because there were too many machines flying round about, so I set off at 75 m.p.h. towards the south. I passed below several clouds, each with its respective sailplane hanging below it and chose instead a most excellent thermal of 9 feet a second that sucked me up into the cloud. Spiralling steadily on the turn-and-bank I gained 2,400 feet inside it, coming out on the top. From here I went into a glide again and dropped from 6,600 feet right down to 3,000, planning my journey. It seemed that conditions were very much better inside the clouds than below them; I decided to do most of the flight on instruments. Into a cloud, out at the top, a swift glide to the next, and so on. As the afternoon wore on, so the conditions became better. I was reaching 88 m.p.h. in the glide and losing height at the rate of fifteen to twenty feet a second,



Senor Roberto D. LaPlace

but each time was able to regain the lost altitude inside a cloud.

Here I decided to find myself a nice cumulus with a tower so that I might perhaps gain the necessary 10,000 feet for the last leg of my Gold " C." The cloud appeared, a real pedigree cloud, very dark at the base, with a magnificent turret that must easily have reached above 12,000 feet. I settled down below it, and turning steadily went into it with a rise of 12 feet a second. 2,500 feet higher my varimeter was marking 25 feet a second rise, but, alas, this was the beginning of the end ! I must have got slightly off centre. There was a sudden terrific bang on the left wing and I found myself I don't know exactly how but I think upside down. . . . I started an involuntary but rapid spiral, put on the brakes in an attempt to correct it but with no result, and finally came out where I went in—3,000 feet gained and lost and the " Spahlinger " flying at 80 m.p.h. Whereupon I disciplined myself and said " No, go for distance ! "

I shortened the climbs and speeded up the glides, slightly changing my direction towards the west, where there were more cumulus. After 5½ hours I was already 187 miles from Merlo and 15 miles N.W. of the Tandil hills. The clouds were disappearing rapidly and I was losing all my precious height till I only had 600 feet in hand. I had never done slope soaring, but it appeared to be my only chance of salvation. I worked out the direction of the wind and picked a small slope, where I found a zero. There I stayed till it grew into a thermal, first of 1½ feet a second and later 3 feet. I glued myself to this till we reached 6,000 feet again. There I found another enormous cumulus, this time very dark and rather flat. I was unable to enter it, but I stayed there till another appeared. That looked better, but again I was unable to get inside it. The thermals for the day had finished and I knew from experience that if I abandoned that cloud I would soon have to land. So I stuck to it like a strap-hanger to a bus for two solid hours. It was beginning to get dark and from 6,000 feet I could hardly see the ground. The flight was definitely over. I could see the sea infinitely much clearer than the land, although I was at least thirty miles away from it. So I said goodbye to my friendly cloud and began to glide gently towards the lights of Necochea. In the last few minutes I found a small fire but it didn't help, and I had to land twenty miles this side of Necochea. I suppose I had lost those last twenty miles when I fell out of the cloud four hours before. . . But I had been flying for eight and a-half hours and had covered 252 miles, so I was satisfied. It was a good finish to the Contest.

NEWS IN BRIEF

SLINGSBY'S experimental glider, the " TX 8," piloted by John Leach, chief engineer of Slingsby Sailplanes Ltd. recently underwent trials at Kirby Moorside. The tug aircraft was a Standard Auster Military Mark VI (A.O.P.). The span of the " TX 8 " (54 feet) was just 1½ times the span of the Auster, and it is interesting to note that the drag of this 1,000 lb. glider equalled the total drag of the tug aircraft, that in spite of this the tow reached over 6,500 ft., and a level flight speed of 80 m.p.h. was attained.

SOUTHERN California Soaring Association report that a group of Soaring enthusiasts at Bakersfield, Calif., are planning to organise a glider club in the near future; that Irving Prue's midget magnesium sailplane has successfully completed its preliminary flight tests at El Mirage Dry Lake—the culmination of two years of spare time labour.

EXPERIMENTS on a Glider-lifeboat are now being conducted for the United States Coast Guard. The lifeboat, designed as a glider with detachable wings and tail, can be towed behind a search aircraft. Freed over the scene of a sea disaster, it lands on the sea where its wings and tail are released. The seaworthy hull, powered by a small petrol engine, is then operated as a motor-boat.

A CELLON Service van was in attendance at the B.G.A. National Gliding Contest which were held at Bromcote Aerodrome, Leics., between June 21st and 29th. The unit had a Spray Plant, and all necessary types of Cellon Finishes for servicing competitors machines free of charge.

IN one-and-a-half days at Scharfoldendorf (June 6th and 7th) BAFO Gliding Club put in 49½ hours' soaring—45 hours of which were on Sunday. Activities included 4 Silver " C " durations. Ian Bourne was at over 1,000 metres for hours in a Standing Wave in the " Weihe," closely followed by the " Grunaus."

MR. ESPIN HARDWICK,* president and founder of the Midland Gliding Club, has been awarded the M.B.E. for his work for the A.T.C. during the war. His name was included in the recent King's Birthday Honours List.

VISCOUNT KEMSLEY, who has offered to guarantee next year's international gliding contests against loss, donated £500 in prize money for the national gliding contests held recently at Bramcote R.N.A.S. airfield.

A NEW Irish gliding record of 6 hrs. 56 mins. for a continuous flight has been set up by Mr. W. J. Douglas, of the Ulster Gliding Club. He reached 2,400 feet altitude.

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* *Congratulations and best wishes from all in the gliding fraternity.*

NATIONAL GLIDING CONTESTS, 1947

SATURDAY, JUNE 21st was gathering day at the Royal Naval Air Command Station, Bramcote, near Nuneaton, for the competitors and others bent on business in the first post-war National Gliding Contests. The Navy personnel and machines had flown up from Yeovilton the previous Tuesday, and Kit Nicholson, re-embodied as a Commander RNVR for the Competition, claimed a two-seater distance record of 114 miles in the Navy's " Kranich " on the way, noted elsewhere in this issue, whilst Philip Wills reclaimed the single seater goal flight record, 132 miles, temporarily wrested from him by Jock Forbes on the continent a few weeks before.

A few machines were on the tarmac when I arrived in mid-afternoon, later than I should have had the way been sign-posted properly from A5 national road, and a few were being aero towed by contestants anxious to qualify for the minimum of starts by this means. The weather was dull and unpromising and few machines succeeded in doing more than delay their descent for a few minutes. The scene was enlivened by the arrival of the new Slingsby two-seater, the tandem affair which looks like the " Grunau Baby's " big brother. Leach had been aero-towed from Kirby Moorside in about two hours. The Swiss Team arrived with one machine—the " Moswey III," having left their other half at Calais, waiting for a boat. They arrived the next day.

After the evening meal there was a general congregation in the ante-room (sorry Ward-room) to discuss and arrange the details of the competition. Dudley Hiscox took the chair, Hugh Berhel explained the rules and answered questions about them at length, Sproule explained the procedure for marshalling take-offs and aero-tow drill. Alan Goodfellow (Steward) criticised the organisation, and Ann Douglas wound up the proceedings by asking for volunteers for a host of jobs for which no bodies existed. This meeting after examining credentials took about two hours and finished at nearly midnight.

Next morning, Sunday, dawned bright, cold, clear, and windy, which did not augur well for the " met " man, who had predicted more stable conditions and a wind from the SW. It soon became a very cold NW " cold front," and overcoats and sweaters were soon in evidence. The hangar was a scene of early activity, although everyone knew that there was no use getting ready for the official opening time. 10 a.m.

It was a grand sight in the hangar, with nearly forty machines in various stages of undress, including " Kranichs," the Slingsby side-by-side two-seater, the battle scarred veterans the " Gull II " and the " Falcon III " and plenty of " Olympias," the " Kite II," and " Kite I," a " GB II " several " Weihes," and the " Moswey III," most finished of them all.

In another hangar, that owned by the ATC were several yellow " Cadets " and the new two-seater. The Swiss " Spahiger 25," two-seater also arrived and was much admired. It reminded one of Wolf Huth's " Moazagoth."

Bit by bit and by degrees the machines made their way to the starting balloon, and people began to take-off. No one had any success until after lunch when the clouds having broken a little the Swiss pilot, Julius Seifretz got away under a small cu-nim and was soon lost to sight. So also were, Nicholson, Young, Hiscox, and Terence Horsley. After tea Wills and Claudi got away and were not heard of for a couple of hours. Seifretz was reported down fifteen miles away, and except Wills, who got to Dunstable (56 miles) and Claudi who reached Weeod (22 miles) the rest of the day was without event. Wills reached 9,900 feet, scored 120 marks and won the prize for the day.

Other events were the arrival of Lord and Lady Nathan, two two-seater trips by the Minister for Civil Aviation, one in the side-by-side Slingsby two-seater piloted by Leach, and the other in the " Gull II " piloted by Furlong. Afterwards Lord Nathan told the Editor that he intended to do all he could for gliding, which was most delightful " except that he was no sooner up than he was down."

The Spanish Air Attache, Col. Sartorius, with Srs. Juez and Arar, professional instructors also came. In answer to Ann Douglas' query if they had had any experience of the two-seater " Kranich," they shyly admitted to 1,700 hours soaring each including 700 hours on the " Kranich." Owing to the insurance restrictions they were only allowed to fly with a British qualified instructor, although no one in Great Britain could possibly have one tenth of their experience. One of those occasions when our well known " sense of humour " was required. In view of the circumstances one could have wished that the rules might have been relaxed. A party of Czech visitors to the Leicester Club also came, but without Jack Rice, delayed in Czechoslovakia by a broken aeroplane. The need to go to press with this issue made that all for the time being. A fuller account with results, will appear in our next issue.

CLUB ENTRIES

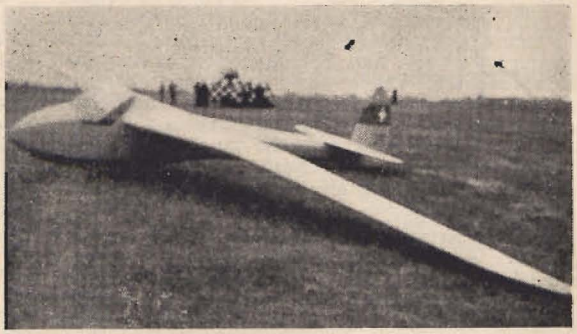
Contest No.	*Entrant.*	*Aircraft.*	*Colour.*	*Pilot(s).*
1.	Bristol G.C. ..	Olympia	Blue	T. R. Young, K. W. Turner, W. L. Jennings.
2.	Cambridge G.C.	Olympia	Blue	R. C. G. Slazenger, P. R. Wijewardene
4.	Derby and Lancs. G.C.	Grunau Baby II	Cream ; blue stripped rudder	Roger Bickson, G. Thompson, A. J. Dolan
5.	London G.C. ..	Kirby Gull ..	Natural varnish	R. C. Reid, C. A. P. Ellis, F. Foster
6.	North Wales Cross Country Soaring Club	Olympia	Blue	W. E. Crease, F/Lt. J. A. Pressland, F/L. H. Neubroch

(*continued on page* 14)

NATIONAL GLID

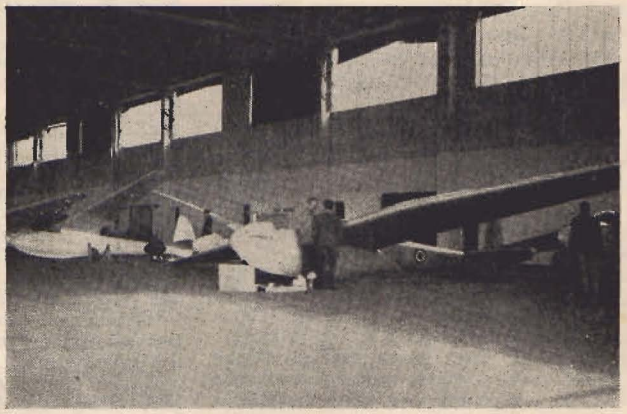


Squadron Leader Ian Bourne.



The Swiss "Moswey III."

The Navy erecting their "Kranich."





J. Simpson and J. Rushton and the Midland Gliding Club's "Kirby Kite."



Rex Young, Jock Forbes, Keith Turner, "Jenny" Jennings, and the Bristol Gliding Club's "Olympia."

ING CONTESTS



Captain Brewer, R.N., D.S.O., and Christopher Nicholson.



Captain Claudie.



The Swiss Team.



Inside the Hangar.



Portion of the line-up.

CLUB ENTRIES—(*continued from page* 11)

Contest No.	*Entrant.*	*Aircraft.*	*Colour.*	*Pilot(s).*
7.	R.N. Air Command Soaring Association ..	Kranich II ..	Light blue ..	C. Nicholson, Lt.-Com. (E) P. Blake
8.	,,	Kranich I	Cream	Lt.-Com. (A) J. S. Sproule, Lt. (C) H. C. N. Goodhart.
9.	,,	D.F.S. Olympia ..	Cream	J. P. Dewsbery, W/O. W. J. Heard, R.N.
10.	Surrey G.C. ..	Weihe	Scarlet and ivory	Ann C. Douglas, L. E. Welch
11.	,,	Olympia	Light blue ..	W. Morison, D. Bolton
12.	Association of BAFO Gliding Club	Weihe ..	Cream (H.9) ..	Capt. Claudi, F/L. R. T. G. Williamson
13.	,,	,,	,, (84G-3) ..	W/Com. Hanks, D.S.O., D.F.C. F/Lt. Hughes, D.F.C.
14.	,,	,,	,, (84G-1) ..	F/O. R. C. Forbes, S/L. Ian Bourne

INDIVIDUAL ENTRIES

Contest No.	*Entrant.*	*Aircraft.*	*Colour.*	*Pilot(s).*
15.	J. S. Armstrong ..	Olympia	Pale blue ..	W. M. Robertson, J. S. Armstrong S. D. Dickson
16.	H. C. G. Buckingham ..	,, ...	Red with cream line	H. M. Kendall, H. C. Bergel
17.	,, ...	,, ...	Cambridge blue with royal blue line	S/L. Havercroft, S/L. S. Haynes
18.	R. T. Cole ..	,, ...	—	R. T. Cole, N. W. G. Marsh
19.	C. L. Faulkner ..	,, ...	Cambridge blue ..	C. L. Faulkner, E. H. Taylor
20.	F. T. Gardiner ..	,, ...	Blue	F. T. Gardiner, R. E. H. Fender
21.	D. F. Greig ..	,, ...	,, ...	G. H. Stephenson, D. F. Greig
22.	D. G. O. Hiscox ..	,, ...	Natural	D. G. O. Hiscox, C. Ruffle
23.	The Viscount Kemsley ..	,, ...	Cream	T. Horsley, L. Slater
24.	G. W. Pirie ..	,, ...	Blue	J. W. S. Pringle, T. Hughes
25.	Major J. E. D. Shaw	Kite II	Cream	J. V. Rushton, S/L. E. J. Furlong
26.	,, ..	,, ...	,, ...	J. W. Leach, J. Simpson
27.	P. A. Wills ..	Weihe	Dark blue ..	P. A. Wills, J. C. Mutain

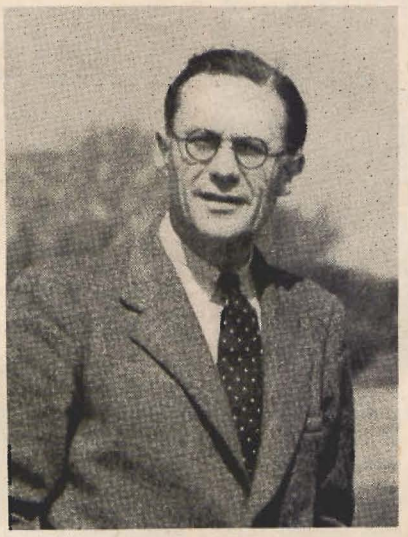
SWISS TEAM

Moswey III		Spalinger 25
Ernest Schafrotte	Eugen Suter	Fahrlander Hans Wurth
Julius Seifretz	Max Schafrotte	Huberstick

GLIDING PERSONALITIES

Terence Horsley

EVER since the announcement of the Kemsley Fund was made if there has been one name more on the lips of every keen gliding club member than any other, it has been that of Terence Horsley. On being asked, he is at some pains to state, as the author of a book on Soaring and the editor of a Kemsley newspaper " The Sunday Empire News ", he was called upon to investigate on his Chairman's behalf and at his request how best his chairman's wishes to be of assistance to private flying might be carried out. We can only say that he was a happy choice, and happy was the British Gliding Movement in finding to hand such a well-experienced and talented instrument to express its needs to someone able to help.



Terence Horsley.

An old Rugbeian, Terence wrote his first book " Odyssey of an out of work " and followed it in 1932 by " Round England in an £8 car ". In the war he became a pilot in the RNVR Fleet Air Arm, in which he became a Lt.-Cdr. (A) in command of 783 Squadron (flying class-rooms). He did 1,100 war-time flying hours. He also published " Find Fix and Strike " in 1943, " Fishing for Trout and Salmon " in 1944, and his widely known " Soaring Flight " in 1945. This latter contains the most distinguished writing of any book on Soaring that has ever come my way. His contributions to SAILPLANE in " Standing Waves " have gone round the world and been translated into several languages, as we have evidence in this office. The description of his first flight in a two-seater with Basil Meads in which they caught a Derbyshire evening thermal in 1936 is the most lovely limpid prose, and contains in a sentence the almost mystic appeal of Soaring to its devotees. " Soaring Flight," Eyre & Spottiswode (16/6), page 18-20. But lest it be thought that he is in anyway a self seeker, let it be recorded that he gave up promotion and a job in the Admiralty to go back to flying and instructing. His present interest in the Kemsley Fund if it stems from Lord Kemsley, also gives him another opportunity for service to his fellow would-be soarers. And that is how he would have it be. V.B.

FIRST INTERNATIONAL ENGADINE GLIDING WEEK AT SAMEDAN.

JULY 30th—AUGUST 9th, 1947.

THE two gliding rallies on the Jungfrau Joch which were held in the years 1931 and 1935 on a basis of international participation, the alpine flights which took place on the occasion of the ISTUS meeting in 1938 at Berne-Belpmoos and the crossings of the Alps performed by Hermann Schreiber gave impetus, in the last decade, to a development in the sport of gliding to which Swiss gliding enthusiasts have since made their most notable contribution: the conquest of the Alps by and for engineless flying.

During the war years the possibilities of alpine gliding were investigated so exhaustively at an extensive series of experimental camps, notably on the sunny slopes of the Rhone Valley and in the Grisons, that in 1943 it was possible to venture the great step of transferring the venue of the Fourth Swiss Gliding Championship to a place set in the midst of the High Alps, to Samedan.

The Samedan Competition of 1943 undoubtedly represents the climax, so far, in the development of the sport of gliding in Switzerland, since it was here that, for the first time on a large scale, the progress made by our pilots in alpine gliding was demonstrated to the world and the theory was confirmed that our alpine massif is really one immense

" Rhön ", offering magnificent opportunities for thermal gliding. With the Championship Contest at Samedan—which won for this gliding centre in the Engadine the reputation of being the " gliders'



A " Kranich " above the Piz Palir.

paradise "—the conquest of the Alps by gliding was completed and the last traces of hesitancy in the face of unknown obstacles and perils were eliminated. The gliding races of that unforgettable week, the target flights to Arosa and Davos and back to Samedan, crowned the aerological and aero-navigational conquest of the alpine world. Subsequently the gliding performances put forward at Samedan progressed year by year to ever greater heights, reaching in 1945 the record figure of 2534 flying hours for a total of only 2738 starts, so that with an average of 55 flying minutes per start the annual average for Switzerland was exceeded something like eight times over, and high-altitude flights attaining altitudes of 2000 metres above the starting point were of almost everyday occurrence.

With the First International Engadine Gliding Week the Swiss Aero Club desires to give pilots of all nationalities the opportunity of becoming acquainted with the beauty and adventure associated with alpine gliding, and of meeting old comrades again, and making new ones, in sportsmanlike competition.

The altitude flight competitions, target races and circular races are based on the experience gained in previous competitions, and particularly on that acquired in the course of last year's Engadine Flying Week, organized by the Academic Flying Group and the Upper Engadine Gliding Group, and promise keen struggles for position in the individual and overall classifications and for the coveted Muottas-Muragl Cup. Several countries have already indicated their intention to participate, and at least 20 gliders will take part in the Great Engadine Circular Flight, the " Tour de la Bernina ". The start and finish will be in front of the terrace of the Muottas-Muragl Hotel, and this race round the best-known peaks in the Bernina Group and over the passes and valleys of the Upper Engadine, will doubtlessly form the climax to the rally, and will offer, particularly to spectators on the famous mountain terrace, unusual views of a sailplane contest.

The First International Engadine Gliding Week at Samedan, as the first international competition



Panorama of the famous Gliding Centre of Samedan.

in alpine gliding, will be recorded in the history of engineless flight and will impress itself indelibly on the memories of pilots and spectators alike.

TYPES OF ULTRA LIGHT AIRCRAFT

By

R. W. CLEGG, Hon. Sec., U.L.A.A.

THERE always seems to have been a lot of confusion about what constitutes an ultra light aeroplane. Some people say it is one thing; others say it is something quite different and about the only point of general agreement in the past seems to have been that it is an aircraft smaller and lower powered than any conventional " light " plane.

With the formation of the Ultra Light Aircraft Association, it became obvious that the boundaries of the class would have to be defined more precisely so that the Association would know what types to foster, and this entailed the study not only of existing aircraft but also of various interested persons' ideas. As a result of this study two interesting facts very quickly came to light. The first was that no present-day British " light " aircraft scaled less than 1,000 lbs. fully loaded or had an engine of less than 75 b.h.p.; the second, that in no case had the all-up weight of any so-called " ultra light " ever exceeded 1,000 lbs. nor had they ever been powered with engines developing more than 75 b.h.p. Here, then, seemed to be a convenient—if arbitrary—dividing line between " light " and " ultra light " and this upper limit of 1,000 lbs. all-up weight and 75 b.h.p. was accordingly adopted by the U.L.A.A.

While any powered aircraft below that limit could now be regarded as an " ultra light," a study of the replies to a questionnaire completed by almost 100% of the Association's members indicated that no single type would meet all requirements and it became necessary, therefore, to divide " ultra lights " into clearly defined classes, each having its own particular characteristics. A multiplicity of types was obviously to be avoided, but so was any undue restriction in the range of types. We believe now that these two conflicting considerations have been reconciled—and most peoples' requirements satisfied—by a division of " ultra lights " into four classes. These are as follows:

Class I	High performance types. Normally only suitable for use by skilled pilots.
Class II	General purpose types. For use by the average amateur pilot.
Class III	Powered-glider types. For the beginner or for glider pilots converting to power.
Class IV	Auxiliary powered sailplanes. For extending the scope of present-day soaring.

Of these four classes, aircraft in the last category will be of most immediate interest to readers of THE SAILPLANE and this type only will be discussed in detail at this stage.

At first sight, the auxiliary powered sailplane (U.L.A.A. Class IV) seems to be the obvious answer to the problem of providing cheap powered flying. This is undoubtedly true if the question is considered purely from the point of view of fuel consumption alone but it should be noted here and now that the operative word is " auxiliary." The idea is that a very small engine should be fitted to a high performance sailplane not with a view to converting it into a powered aircraft (any more than fitting an auxiliary engine into a yacht turns it into a motor launch) but merely to provide the sailplane with a means of taking off and climbing to a suitable soaring height. The auxiliary engine can also be used when searching for thermals or for returning to base when lift disappears at the end of a cross country flight but in general the aircraft will be used as a conventional sailplane. But if that is to be the case, it is obvious that high performance as a sailplane can only be obtained if the necessary cleanness of line remains unspoilt. And that almost certainly means that some means must be provided whereby the auxiliary engine and propellor can be retracted and faired over when not in use.

This feature is incorporated in both the Carden-Baynes " Scud III " and the Wolf Hirth " HI 20 " (reviewed in the May issue of THE SAILPLANE) which, so far as we are aware, are the only two instances of auxiliary power having been added to a true sailplane. In passing, it is interesting to note that an engine developing a maximum horsepower of only 9 at take-off was found satisfactory in the " Scud III." Wolf Hirth on the other hand seems to have needed quite a bit more in the " HI 20 " which was fitted with an engine developing 25 b.h.p. In neither case does the fitting of an auxiliary engine appear to have interfered very much with the machine's performance as a sailplane, the " Scud III's " gliding angle of 1 : 24 and sinking speed of 2.2 ft./sec. at 35 m.p.h., and the " HI 20's " gliding angle of 1 : 20 and sinking speed of 3 ft./sec. comparing very favourably with contemporary sailplanes " pure and simple."

Sailplane purists will, no doubt, raise their hands in horror at the very thought of fitting an auxiliary engine. Yachtsmen did exactly the same thing in the past. Yet a yacht without some sort of auxiliary is now a very rare craft indeed. The change *had* to come when the sport was taken up by people who had to be back at work promptly on Monday mornings, people who could not afford to miss a tide or to be becalmed miles from port at the end of a week-end's sailing. In the same way the advantages offered by fitting an auxiliary engine to a sailplane become more apparent the more one studies the subject and there is no doubt that this type will find increasing favour amongst those who cannot afford to be stranded miles from home at the end of a cross country soaring flight.

True, they are not cheap in first cost because to the already high price of a sailplane must be added the cost of engine and retracting mechanism. But on the other hand neither launching winch nor retrieving car and trailer are required and that saving alone will easily outbalance the increased initial cost.

For the private owner the auxiliary powered sailplane is ideal since he can get airborne without any outside assistance and go in search of thermals whenever the mood takes him. For the club, too,

this type has much to commend it since the time wasted in stripping down, towing home and re-erecting after a cross country flight terminating away from base will be eliminated and the percentage of flying time thereby increased.

As already mentioned, the " Scud III " and the " HI 20 " are the only two known types of auxiliary powered sailplanes and there is little doubt that when first conceived (1935 and 1937 respectively) they were years before their time. Much additional research and development work remains to be done but there is every reason to believe that a big future lies ahead of this type. The U.L.A.A. is, therefore, particularly fortunate in being able to number amongst its members Mr. L. E. Baynes, co-designer of the " Scud III " and to whom we are already indebted for much useful advice on this subject.

For the people who are interested first and foremost in flying and who have taken to gliding because it offers at present the cheapest or most convenient way of getting into the air, aircraft in U.L.A.A. Class III (powered glider types) probably have more to offer than any other ultra light type and this class will, with the Editor's permission, be dealt with a subsequent article.

SURREY GLIDING CLUB

Summer Courses 1947.

The Club is proposing to hold the following courses at Redhill Aerodrome. The charges include full board and club facilities, use of the Squash court, and all flying.

(1) *Instructor Course. July 18th—August 4th inclusive*: Pupils should possess either a " C " Certificate, or a " B " Certificate, and an aeroplane " A " licence. The course will include Theoretical and Practical instructional training, winch driving training, aero-towing and dual instructional flying. (£33.)

(2) *Blind Flying Course. August 21st—25th inclusive*: Pupils should possess either a Silver " C," or a " C " Certificate and an aeroplane " A " licence. The course will include lectures, special Link instruction, and flying under the hood. (£15.)

(3) *Ab Initio Course. 2 weeks in September.* The date has not yet been fixed, but prospective pupils should write stating the two weeks which suit them best. (£12.)

The first two courses will be limited to six pupils each, and the third to ten pupils, so that maximum attention can be given to each person. Application should be made as soon as possible, stating qualifications and including a deposit of £2. Apart from courses, the club will be open to members for soaring and Silver " C " flights on weekdays from July 1st onwards.

ULTRA LIGHT AIRCRAFT ASSOCIATION

THE U.L.A.A. reports encouraging progress in its negotiations with the Ministry of Civil Aviation and the Air Registration Board regarding the re-issue of permits-to-fly for existing " ultra lights " and those soon to be built.

A decision is expected soon and the Association's optimism is such that in the June bulletin the chairman and honorary secretary (Mr. R. W. Clegg) says : " The time has come for real action. The Committee is so confident that amateur-built aircraft will be allowed to fly, that members are recommended unreservedly to go ahead with the formation of groups. Now is the time for groups to get down to the job of building ground trainers."

It is expected that two new " ultra lights " developed by members of the Association will be flying by the time this appears in print—Mr. E. O. Tips' " Tipsy Junior " (40 h.p. Mathias flat twin) and Mr. F. N. Slingsby's motor-glider.

The latter is the well-known " Kirby Cadet II " (or " Tutor ") glider with the addition of a 25 h.p. Scott Squirrel driving a tractor propeller, although a modified 750 c.c. Coventry Victor will probably be used on production models.

The wood-and-fabric aircraft uses the wing, rear fuselage and tail unit of the " Tutor " glider which is already in quantity production. It has a span of 43 ft. 4 ins., a top speed of 79 m.p.h., cruises at 70 m.p.h., weighs 680 lbs. loaded and lands at 33 m.p.h.

Both the " Tipsy Junior " and the new Slingsby product are likely to be made available to members in kit form. " There seems no reason," says the U.L.A.A. Bulletin, " why aircraft built from such kits should not be flying by late summer."

Group Capt. E. L. Mole, chairman of the U.L.A.A. Design Committee, reports, following a discussion with Mr. W. A. Weaver, managing director of the Coventry Victor Motor Co., that this firm have two engines suitable for " ultra lights " which they could put into production as soon as they receive a development order. One is a 40 h.p. flat four, air-cooled, side-valve type ; the other two-cylinder, 20 h.p. design, the power of which could be stepped up.

The Association has formed an experimental group and its first task will be the reconditioning of the 75 h.p. Comper Swift recently given to them.

The group is looking for a suitable field with some kind of hangarage which can also be used as a workshop.

It intends to design and build ground trainers on which the ordinary U.L.A.A. groups can base the construction of their own non-flying trainers.

Recent newcomers to the Association include Mr. A. R. Ward, managing director of the Chilton Aircraft Co. Ltd., a 55-years-old dentist (an ex-R.F.C. pilot and the Association's oldest member to date) and an Austrian university student.

NEWS FROM THE CLUBS

CAMBRIDGE UNIVERSITY GLIDING CLUB.

With the arrival of the club "Olympia" reported last month, the few members who have been allowed to fly it have not lost time and a total of 23 hours soaring has already been logged. Aero-towing from Marshalls has been the rule but Mr. Pringle showed us what could be done when he caught a thermal off an auto-tow from Gransden Lodge Aerodrome. Tom Hughes has been clocking in the hours and has 2 flights of 4 hours and one of 2 hours to his credit; on May 11th he gained his Silver "C" height by a climb from 1,500 ft.—5,100 ft. P. R. Wijewardene did Silver "C" height climbs on May 16th and 18th—the second one just to show that he could do it in spite of the barograph rather misbehaving itself on the first occasion. Little can be said against the "Olympia" except when Dr. Hick flew it for the first time and came down very disgruntled. This was during the heat wave and it then was discovered that the control wires had lengthened considerably and were much too slack.

The "Cambridge" flew again on May 24th and Dr. Hick climbed from 2,700 ft. to 5,500 ft. after an aero-tow. This thermal was a remarkable one for the flight was very late in the afternoon and conditions on the whole were very stable. That evening several members flew the "Cambridge" for the first time and compared with a "Cadet" or "Tutor" it is a revelation. One hard bitten ex-power type said it was the nicest aeroplane he has ever flown (wait till he gets on the "Olympia"). On May 31st the weather was very hot and stable and suitable for 4 members to have their first aero-tows; Adams was lucky however and caught a stray thermal which kept him up for ½ hour.

The "Cadet" and "Tutor" have now returned to Bourn which has the advantage of being much nearer Cambridge. The piano wire launching cable has been very successful and about 170 launches were obtained from the first length. Severe pranging during the month has however been a great worry to the Treasurer and will no doubt keep Warner busy for several weeks.

SCOTTISH GLIDING CLUB

At the recent Annual General Meeting, Mr. Rogerson retired from Secretaryship after nine years of arduous duty. The Chairman, Mr. T. Graham, expressed the feelings of the Club in view of Mr. Rogerson's recent bereavement, and thanked him for his valued work of the past years. Mr. Rogerson was elected as Hon. Life Member, in appreciation of his many efforts on behalf of the Club.

A. J. Thorburn, of Kirkcaldy, and J. C. Adam, of Edinburgh, were elected Secretary and Treasurer. Later, at a Directors' meeting, sub-committees were re-organised and provision made to allow co-option of several of the new members now joining the Club.

After much discussion a change against the trend of fashion was made when the Entrance Fees and Subscriptions were substantially reduced from last year's level. We have now returned to pre-war rates of £1 1s. Entrance Fee and £3 3s. Subscription. This has been done after much consideration, as last year nine out of every ten prospective members, recoiled when the sum of eight guineas was asked at the start.

Our financial advisers state that the annual income desired from each member will not be altered, but merely diverted to other methods of collection, and that as far as enrolling new members is concerned, it is bad psychology to present a large initial demand for cash to new-comers. With a larger membership and a steady flow of recruits, more energy is available on the flying field, while the profits in the clubrooms rise considerably.

The results as far as we are concerned have been immediate, as new members are enrolling steadily. The Kemsley Fund announcement has also added considerably to the number of applications.

The "Cadet" continues to hop and circuit on Balado Airfield, producing an ever-increasing number of pupils ready for the "C" test in the "Tutor" at Bishop Hill.

Among our new members is a lucky owner of a newly-delivered "Olympia," so this year will at last see greater activity over the Bishop.

DERBYSHIRE AND LANCASHIRE GLIDING CLUB.

May produced feverish activity at Camphill and a return to something like pre-war conditions. With six private "Olympias" and nine club machines, 60 hours' flying and 545 launches were obtained together with a crop of 20 certificates.

The change in weather led to some surprising developments. The enthusiasm of the first bunch of *ab initios* and their patience over months of bad weather was to some extent rewarded. They took every advantage of the weather by getting up at 6 a.m. nearly every Sunday morning and commencing operations by 7.30.

The advent of the "Olympias" added to the tone of the Club although little use was made of the superior qualities of the machines, in spite of favourable weather. On the other hand, there were some tentative nibbles at clouds, mainly by pilots anxious to get a Golden Badge before the Old Age Pension. The sight of three "Olympias" looping together gladdened the hearts of all except Freddie Coleman, who would have liked to borrow a Flit spray.

The lady members are proving useful additions to the Club, making themselves indispensable at meal-times, and setting the lads on

washing up with a charm that is hard to refuse. When they land "Cadets" on top of "Daglings" the instructors are just too kind and even the steely glint in Gerry Smith's eye is softened for the occasion. Things are not by any means what they were.



Sheffield "Telegraph & Star"—Photo

The Kemsley "Olympia" takes the air.

May 3rd.—Wind S.E. 10 m.p.h. Fair. Mainly a training day. Barbara Richards had her first slides in the "Penguin", and Jefferson managed to hold up the "G.B. II" for ten minutes in thermal. If the private owners had had their wits about them, there would have been an epidemic of Blackpool flights. The cloud streets from the S.E. were the best ever seen on this site. (Total 16 launches. 34 minutes).

5*th*.—Wind S.S.E. 15 m.p.h. Benton and Thomas took McGraw to the Club with the laudable intention of getting the latter his "A" Certificate. Everyone got soaked including a friend of Buck's, who came along to help but got his wooden leg full of water instead. (Total, 5 launches).

10*th*.—Wind West 17 m.p.h. Dull. Margaret Swale and Martin Simon did low hops until Martin went excavating. His subsequent work on the Nacelle fuselage was neither unnoticed nor unappreciated. (Total, 4 launches).

11*th*.—Wind N.W. 10 m.p.h. Fair. After a test flight by Louis Slater in the "Kite," Jefferson was sent off to do five hours in the "G.B. II," followed by George Thompson in the "Tutor." After 45 minutes both machines disappeared above 7/10ths cloud. Conditions deteriorated somewhat and Jefferson landed after 2 hours 25 minutes and Thompson after 2 hours or so. Subsequently Roger Dickson had an hour in the "Kite," which was also flown by Armstrong, Robertson and Jefferson. The "Golden Wren" made a welcome appearance for the benefit of Terence Horsley, who had his first experience of this nippy little die-hard. Two "Olympias" were out, flown by G. O. Smith, E. Swale, A. J. Dolan and B. Thomas.

Training squads were out in strength. Arthur Edney came down from Northumberland, had a hop, paid his bob and went back to Northumberland. Gordon Porteous and Brian McGraw took "A's", the latter finding himself at such a height over the centre of the field that he could not see the site. Fortunately he was intercepted on his way to look at the Club notice board to find out where he was. (Total, 71 launches. 18 hours 46 minutes).

17*th*.—Wind South 10 m.p.h. Fair. Mainly training and circuits. Leslie Benson, who has been a model of reliability so far, took a "A" Certificate and became the first girl *ab initio* to do so since the war. George Thompson repeated his success of the previous week by taking the "G.B. II" to 4,700 feet for the first leg of his Silver Badge. No one else found any thermals, but Jim Lawless, Phil Leech, Bert Wardale and Arthur Edney each completed the first leg of their "B's". (Total, 30 launches. 1 hour 30 minutes).

18*th*.—Wind South 5 m.p.h. Veering. More training. Eddie Swale managed 7 minutes in his "Olympia" and Leech, Lawless and Wardale gained "B's". These young "B's" are the ones who get up at 6 o'clock a.m. (Total, 18 launches).

24*th*.—Wind N.E. 7 m.p.h. The "Cadet" and "G.B. II" did circuits and Heck Booth and Charles Faulkner flew their "Olympias." Louis Slater flew Viscount Kemsley's "Olympia." The bungy hoppers were out in



Sheffield "Telegraph & Star"—Photo

Left to Right: Fred Coleman, Charles Faulkner, Louis Slater, Terence Horsley, "Heck" Booth, Len Larmouth.

force and several new members including Lello, O'Kelly and Betty Shaw had their first experience of balancing practice, slides and slide hops. Experience shows that time spent balancing in the wind is saved in later training. Arthur Edney completed his " B." (Total, 74 launches).

25th.—Wind S.S.W. 5 m.p.h. Circuits on the " G.B. II " and the " Cadet." Peter Richardson, taking up training where he left off in 1939, completed his " B " and went on to circuits. Glowacki, a Polish " C " with many thousands of hours on " Spitfires," " Typhoons " and " Meteors," was given a few hops and rapidly promoted to the " G.B. II."

Margaret Swale took her " A " in good style as befits the youngest member of a family bristling with D.F.C's. She watches Father Swale perform in his " Olympia " with an increasingly critical eye.

Three " Olympias " were out but apart from spasmodic flights of 15 minutes Gerry Smith was the only one to have a good ride, reaching cloud base at 3,000 feet and landing after 45 minutes. Richardson gained his "B." (Total, 71 launches. 5 hours 7 minutes).

26th.—Wind S.S.W. 10 m.p.h. Three schools working for the first time for many years. The " Nacelle " was bungied after being tested by B. Thomas, who was not very amused to read later some unauthorised comments on his Daily Report to the effect that he was improving but needed practice ! After enquiring diligently but fruitlessly for the culprit with a view to further discussion, he passed it off as a joke as best he could but seemed a bit thoughtful for the rest of the day. Cheer up, Bernard, it may have been a joke after all and, in any case, bungy launches *are* a bit tricky, you know.

All the " Olympias " were out and Charles Verity reached 4,000 feet and toured the countryside for an hour. The Kemsley machine performed well in the hands of Louis Slater, Terence Horsley and Zita Paddon, the latter landing safely in a spot not intended for sailplanes. It was a pleasant change to see some genuine soaring on the south slope and many pilots took advantage of the conditions to fly down to the Eyam end, where the best lift is usually found.

Both " Cadets " hopped and circuited merrily until our model pupil, Leslie Benson, accidentally released on take off and sat down on top of the " Nacelle." The occupant of the " Nacelle " was also disturbed and now talks through his teeth about the risks of balancing practice. Hard lines, Leslie. The way to the stars is via the winch and it's as well to have a bit of wire or something on the front of the machine.

This is the first flying accident since January 1946 but as we are due to have a new " Primary " on 6th June and have a spare " Cadet," training will continue unabated. Instructors will therefore moderate their premature rejoicings accordingly. Brian McGraw and Gordon Porteous completed their " B " Certificates. (Total, 73 launches. 12 hours 3 minutes).

27th.—Wind S.W. 10 m.p.h. Fair. A first-class gliding day. Phil Leech and Jim Lawless took faultless " C's ", but Bert Wardale was unlucky on each of his three attempts.

Thomas was first off, followed by Armstrong and Shepard all in " Olympias." After sprottling for nearly half an hour, Thomas joined Armstrong and Shepard at cloud base and had a slight discussion on whose cloud it was. When they had finished putting the wind up one another, they all popped inside and put the wind up themselves. Afterwards they chased one another around the sky like school kids and did a few loops and stall turns. Shep gave a polished display which included a half loop with a half roll off the top. Gerry Smith took off at 12.30 and tackled his blind flying in a more sober vein, climbing from 3,500 to 5,000 feet inside and returning full of wise-cracks and wisdom.

Stan Armstrong's second flight marred the rest of the day for everybody. Coming in low, he must have put his " Olympia " down a bit too hard and the result was a damaged fuselage. After spending months on making a really good job of his trailer, this was cruel luck. (Total, 49 launches. 15 hours 45 minutes).

31st.—Wind S.E. 10 m.p.h. The " G.B. II " and the " Kite " were brought out and flown by Harry Midwood, George Thompson and Brian Jefferson. It was a dud day for soaring and even George failed to find a thermal. The " Cadet " did high hops and circuits all day long in the hands of the regular stalwarts and four new members trundled along in the " Penguin." (Total, 55 launches. 30 minutes).

PORTSMOUTH GLIDING CLUB.

May 5th. Towing attachment finally approved by ARB. Clear had two aerotows in the " Scud III " in preparation for the approaching Air Display.

May 7th. Laid on another tow, taking up Robinson in the " Tiger " to enable him to take some photographs from the tug end.

May 10th. Dull, threatening sky, but we started the ball rolling with a demonstration of winch launching, using the " Scud II " and " III." Later Clear was aero-towed off in the " Scud III," while five " Spitfires " rocketed across the 'drome at zero altitude. Shortly after he was seen, still on tow, flitting through the clouds with a " Vampire " doing vertical rolls up into them.

Both machines were eventually displayed in the static exhibition.

We were delighted to welcome Mrs. Platt, who brought with her perfect models of the " SG38," " Grunau Baby," " Weihe," " Kranich," and the " Habicht," for display on our stand.

May 11th. " Back to earth "—hopping the " Kassel 20 " and circuiting the " Scud II " in a light West breeze. We were visited by Tuck, who obtained his " Silver C " at Salzgitter. He arrived in time to see the " Scud III " aero-towed. Clear soared from cloud to cloud in the vicinity of the airport for some forty minutes, then made off cross wind and inland to a distant cloud street away from the coastal influence. He landed at Shoreham airport where he received a very cordial reception. He said later that he flew along the cloud street at 70 m.p.h., and when the street finally gave out he completed the last few miles of the trip at the more leisurely 37 m.p.h. and 1.9 feet per second sink. His maximum altitude was 4,600 feet, and distance 34 miles. He started away at 12.55 p.m.

and both he and the retrieving crew developed such thirsts on the return journey that the trailer finally rolled up at the hangar at 12.55 a.m.

May 23rd. Ron Clear carried out a successful aero-tow in the "Scud II."

We believe that this is the first time a "Scud II" has been aero-towed, but apart from a sensitive elevator at the higher speed, it was highly successful. Bert Parslow, who owns the machine, had the next tow and liked it so much that he hooked up again directly he landed, and took off a second time just for practice.

May 24th. Training was the order of the day. Using the "Kassel 20," Dollery, Pears, Isaacs, Peter Davis, Beeson and Hillyer went through the hoop under the watchful eye of Parslow.

May 25th. Training squad hard at it again and Bert Parslow had three circuits in his "Scud II" to keep his hand in.

In the afternoon he saw a cloud street approaching and the ever helpful Portsmouth Aero Club laid on the "Tiger" at a moment's notice. Realising the opportunity to make his first cross country had come Bert climbed aboard complete with maps and a very determined expression.

In six minutes he released at 2,000 feet and disappeared along the street at high speed. After about 7 miles the lift faded out and he sunk down to 700 feet. He found a thermal over a sun-lit ploughed field, circled up to 2,600 feet and crossed the South Downs at Harting the site of his first bunjy launch many years previous.

He exploited two other "meaty" thermals and finally landed at Thursley 31 miles from Portsmouth after only 50 minutes flying time, including tow.

At a recent meeting it was decided to "wash-out" the entrance fee, and to keep the subscription at six guineas per annum.

THE BRISTOL GLIDING CLUB.

Our weekly launch totals, which were beginning to improve after the bad weather, have slackened off again temporarily due to our being confined to the runways while hay grows on our erstwhile playground. True, strips which are useful for slides have been cut for us, but circuit take-offs have to be from the asphalt, which is not too good for the skid-plates. Worst of all, the old bogey of cable-wear is well to the fore again, so we are hoping to be rid of the hay before long.

No particularly good thermal days have been enjoyed in the last month, but one more "C" has been gained, by David Farrar.

A visit to the Bristol and Wessex Aeroplane Club's Garden Party was made in some strength on Saturday, 17th May. The "Grunau" and Young's "Olympia" were aero-towed to Whitchurch, and the winch was brought over by road. The emphasis was, naturally, on power-flying, but we achieved a fair amount of operation towards the end of the day.

An "open day" is to be held at Lulsgate some time in August—a firm date and details will be announced shortly.

Work has now started on the conversion of one of our two balloon winches, fetched recently from storage at Weston. If at all possible, it is intended to make this a two-drum winch, one to be used for launching while the cable is being pulled back to the launching end from the other disengaged drum. This may prove tricky both in manufacture and operation, but we feel it is worth trying in view of the frequent occasions when time is lost in cable-retrieving.

YORKSHIRE GLIDING CLUB.

Although the first week-end in May was unfit, the month has been a great improvement on May 1946, in which we did only two launches. The 11th was a training day and likewise the 17th. The 18th was rather better with 21 launches for 1 hour 22 minutes assorted slope soaring and circuiting. The 25th was a busy training day and the two-seater earned its keep—40 launches; total time 3 hours 13 minutes. On the 26th and 27th the weather was fickle, neither a reliable hill-soaring wind nor any thermal activity worthy of the name. 40 launches and about 6 hours' flying for the two days. For the month, 115 launches and 11½ hours flying time. Two new members, Meggy and Lawson-Tancred began flying with the club during the month, the latter taking his "A", "B" and "C" on the 27th. There has been a good deal of South-easterly wind and quite often we have found the south-slope useful, although of course it is not too popular due to the shortness of the beat.

The course which begins July 26th is about filled—one or two vacancies remain at this time and there may be the odd non-starter. The A.T.C. hangar has arrived and erection has begun; this will relieve the space problem in the club hangar—it should be ready for use in about a month. Intending visitors wishing to bring aircraft, please note. A very good hut, 50ft. by 30ft., from our old branch at Huddersfield, is definitely coming, and erection will begin very soon. Both this building and the A.T.C. hangar should be in use by the middle of July if all goes well.

We feel that until the club can cater for the creature comforts as well as provide flying facilities there will be a shortage of members. We have now enough aircraft to give quite a reasonable number of people all the soaring practice they want; it is all new or comparatively new stock and we intend to maintain that standard. The next problem is the domestic side of the club, so that our members, already assured of sound though modest flying facilities can be likewise certain of a bed, a bite and a pint of beer at reasonable cost. Once these things are laid on it is no longer necessary to lose weight worrying about high-performance work—it comes of itself. During the month we had the privilege of a flight in the prototype Slingsby side-by-side two-seater. This is the "matey-est" passenger machine imaginable, and should bring in very good revenue indeed. There is no doubt that gliding clubs will have to make money, whether operating on borrowed capital or existing cash resources, and the "performance" of an aircraft from the financial angle is worth considering—which brings us to the Tailpiece:

A friend of ours used to own rather a skin tight affair, and having packed himself into his usual three flying suits, overalls, and parachute, and been finally forced under the "greenhouse," was about to be winched aloft, when he gave a frantic stop-signal. . . . He had discovered in the nick of time that both his legs were on the same side of the control column!

GLIDING HOLIDAYS
IN THE HEART OF SOMERSET

To help meet the demand for Primary Training, the Somerset Aero Club, Gliding Section, are holding a series of beginner's courses, of one week's duration at an "all-in" rate including temporary Membership of Club, Hotel Accommodation, and Transport to Airfield.

Tuition to "B" stage, at an all-in charge of £10 10s. 0d. for one week.

The Club uses Kirby Cadets, with both auto and winch launching.

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If you are a pilot of more than 15 hours experience, come and try soaring on the grand scale. The North Wales Cross Country Soaring Club offers you hill soaring over a 20 mile beat to 3,000 ft. above launch. Thermals, in the "Olympia," to almost any height or distance. For fuller details, see "News from the Clubs" in the May issue of SAILPLANE, or write to :—

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

ROYAL AERO CLUB GLIDING CERTIFICATES

(ISSUED UNDER DELEGATION, BY THE B.G.A.)

"A"— 173 (6351-6423)
"B"— 26
"C"— 24

SILVER BADGES—4

No.	*Name*	*A.T.C. School or Gliding Club*	*Date taken*
1806	Colin Dews	25 G.S.	18. 5.47
1899	Ernest John Strangeway	95 G.S.	27. 4.47
2305	Norman Henry John Cant	83 G.S.	13. 4.47
2940	Bernard Arthur Hudson	Surrey G.C.	21. 4.47
3167	Keith Reginald Chaplin	104 G.S.	20. 4.47
4019	Stuart Fursman	126 G.S.	13. 4.47
4251	John Cameron Allan	89 G.S.	27. 4.47
4331	Adrian Roger Ian Austin	Cambridge University G.C.	11. 5.47
5253	Thomas Russell Dawe	162 G.S.	12. 4.47
5640	Leslie Walter Crawford	163 G.S.	13. 4.47
5745	Frederick John Hanks	108 G.S.	11. 5.47
5947	Norman George Nugent	145 G.S.	13. 4.47
6350	Herbert Faulkner Wardale	Derby and Lancs. G.C.	18. 5.47
6361	Geoffrey Twyford Jarman	84 Group G.C.	25. 3.47
6367	Richard Domville Poland	London G.C.	12. 4.47
6368	Lionel Eric Moore	124 G.S.	2. 3.47
6372	James Stanley Green	85 Wing G.C.	2.11.47
6377	Donald Alan Scott	London G.C.	12. 4.47
6380	Wilfred Lawrence Jennings	Bristol G.C.	1. 9.46
6383	John Noble Cochrane	Cambridge University G.C.	10.11.46
6386	Walter Anselm Henry Kahn	2 Group G.C.	26. 1.47
6387	Thomas Edgar Roy Burdett	London G.C.	19. 8.46
6410	John Graham Renton	124 G.S.	11. 5.47
6414	John Wynne Owen	84 Group G.C.	19. 4.47
6417	Cyril Edward Coote	148 G.S.	3.11.46
6419	Bristowe Cooper Cocks	Lubeck G.C.	23. 4.47

"C" CERTIFICATES

1195	Thomas Jack Primrose	Midland G.C.	17. 5.47
1546	David Henry Dennett	Ditto	7. 4.47
1282	Michael Quentin Sharp	Derby and Lancs. G.C.	11. 5.47
2150	Norman John McDouald Fraser	London G.C.	4.10.46
2952	Jean Michael Hahn	Southdown G.C.	22. 4.47
3058	Peter Anthony Latham	84 Group G.C.	23. 3.47
4256	Peter Franklin Cedervall	Ditto	7. 5.47
4340	Ronald George Francis Fowler	143 G.S.	11. 5.47
4631	Cyril Lowe	Ditto	25. 4.47
4705	Philip William Doleman Winkley	Midland G.C.	20. 4.47
4903	Robert Joseph Hinton	Bristol G.C.	19. 4.47
4922	Peter John Morley	2 Group G.C.	30. 3.47
5191	Maurice Reginald Chantrill	Bristol G.C.	26. 4.47
5229	Michael Hugh Ferrar	Cambridge University G.C.	14. 4.47
5446	Norman Elliott Fawcett	Lubeck G.C.	27. 4.47
5592	David John Farrar	Bristol G.C.	11. 5.47
6361	Geoffrey Twyford Jarman	84 Group G.C.	28. 3.47
6372	James Stanley Green	85 Wing G.C.	12. 4.47
6377	Donald Alan Scott	London G.C.	14. 4.47
6380	Wilfred Lawrence Jennings	Bristol G.C.	12. 9.46
6383	John Noble Cochrane	Cambridge University G.C.	26.11.46
6386	Walter Anselm Henry Kahn	2 Group G.C.	21. 4.47
6387	Thomas Edgar Roy Burdett	London G.C.	18. 1.47
6419	Bristowe Cooper Cocks	Lubeck G.C.	7. 5.47

SILVER BADGES

85	W. A. H. Kahn	(Cert. No. 6386)
86	P. M. Wright	(,, ,, 5996)
87	R. M. Williams	(,, ,, 6274)
88	Bernard Thomas	(,, ,, 600)

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Fully reconditioned. In full flying order.

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LETTERS TO EDITOR

These have been unavoidably held over until the next issue owing to lack of space.

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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.

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Full Flying facilities are offered to all *Soaring and Power Pilots.*

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Phone Tideswell 207 **DERBYSHIRE**

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.

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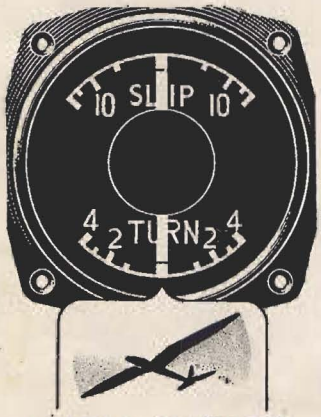
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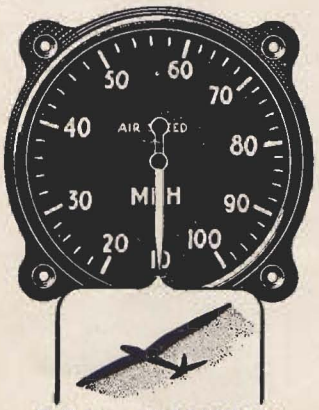
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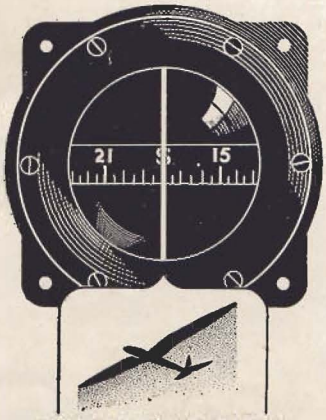
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