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THE SAILPLANE & GLIDER

Official Organ of the
British Gliding Association

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THE SAILPLANE & GLIDER

(Founded in September, 1930, by THURSTAN JAMES)

The only Journal in the World devoted solely to Motorless Flight.

OFFICIAL ORGAN OF THE BRITISH GLIDING ASSOCIATION.

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CONTENTS.

THE ADMINISTRATION OF THE ENDOWMENT FUND

IT is of the greatest importance that all connected with, and interested in, the Gliding Movement should be clear in their minds as to the objects in view in launching THE SAILPLANE Fund for the British Gliding Association, which has made such an excellent beginning. That everyone is not happy about the Fund is evident from the letters which appear in our correspondence column in the present issue. The two main questions which demand an answer are:

1. What are the objects of the Fund?
2. How is the Fund to be administered in order to achieve these objects?

Taking the first question, the objects are set forth clearly in the President's Appeal which is reproduced on page 147. There can be no question that the main object is to provide the British Gliding Association with sufficient capital to lift it above its present hand-to-mouth existence and to place it in a position to do something substantial for the Movement. It is for this reason that we have called the Fund an *Endowment Fund*. The term may not be strictly correct, for, during the next few months at least, a certain portion must provide the necessary income to keep the Association going. Nevertheless, the main object is to provide *Capital*, as distinct from *Income*, which may be invested, not necessarily in interest-bearing securities of the more usual kind, but in establishing and equipping a central technical, scientific research centre and instructional school and in procuring gliding sites and equipment for clubs. Interest-bearing securities must not be ruled out, for, if the dimensions of the Fund warrant it, there will be many suitable outlets for a substantial income.

It will be obvious, thus, that the objects in view are ambitious in character. And, if they are to be achieved, it is essential first that no effort should be spared to obtain subscriptions, both large and small, and, secondly, that the Fund should be carefully administered and not used up as income when it should be accumulating.

This brings us to the second question, viz., Administration. Let us first look, however, at the present sources of income and expenditure of the Association. Leaving out donations, the main sources of income are the entrance fees and subscriptions of members; the affiliation and capitation fees of clubs; fees for certificates of airworthiness; pilots' certificates and licences; profits on the sale of books, drawings, badges, etc.; profits on competitions and last, but not least, THE SAILPLANE, which is the property of the Association. As against this income we have a West End office, with its accompanying expenses, a Secretary and a typist. These items have been responsible for about 80 per cent. of the total expenditure to date, while the legitimate income from the sources enumerated above has provided only about 60 per cent. of those particular items of expenditure. These figures are only approximate, but they give a sufficiently exact picture of the present state of affairs to form a reliable basis for discussion.

If the Endowment Fund is to be maintained intact it is imperative that the British Gliding Association should balance its budget, and that quickly. We must bear in mind that the main work of the Association is carried out by its honorary officers without any appreciable expense falling on the main organisation. Nobody will deny that some kind of central office is necessary to act as a clearing house for correspondence and to keep the accounts of the Association. It is doubtful whether this part of the work could be done entirely in an honorary capacity. Whether the present organisation should be maintained on its present basis or reduced is a matter for consideration. It is a question that cannot be answered lightly, and we would suggest that a small committee might be formed, with advantage, with full powers to go thoroughly into the administration of the Association and to report to Council. The committee should be limited to three members, who should have the confidence of the Gliding Movement generally. On receipt of the report, the future of the administration of the Association would be decided by Council.

In putting forward these suggestions, we are not criticising the present organisation or any individual officers. We have affirmed on more than one occasion that the fact that the Association is still in existence is due largely to the wise control exercised by its Finance Committee. It may not be out of place to mention that both the Secretary and the typist have recently accepted reductions in their salaries. But there is no use disguising the fact that there does exist a certain amount of uneasiness throughout the

country as to the management of the Association's affairs, and until this is allayed and everybody in the Movement is pulling together with a united front, there will be no real progress. It is for this reason that we suggest a thorough investigation of the present administration. If this be undertaken without delay it will lead to renewed health throughout the Movement, and will ensure that the Endowment Fund is put to the use for which it is intended.

The question of the administration of the Fund proper must be left until this more urgent matter has been settled. But in the meantime it should be handled carefully and all expenditure be reduced to the absolute minimum essential for keeping the Association going.

ALL CLUBS—PLEASE NOTE.

The following resolution was passed by the Council of the B.G.A. at its meeting on Monday, July 18th, 1932:—

> "That all parts of a glider liable to come in contact with the pilot's head in the event of a crash must be padded. Failure to comply with this request will render the C. of A. invalid. The time allowed by the Council for this adjustment to be carried out is one month from the present date, i.e., July 18th, 1932."

ANOTHER REASON WHY YOU SHOULD JOIN THE B.G.A.

The Council of the British Gliding Association has entered into an arrangement with Imperial Airways, Ltd., in so far as European routes are concerned, whereby a rebate of 10 per cent. will be made to members of the B.G.A., provided:—

(a) They book direct through the B.G.A. or one of the Company's offices, i.e., not through an agency; and

(b) They produce their certificate of membership of the B.G.A. at the time of booking.

The above concession automatically extends to European Services of the Deutsche Luft Hansa (German), and the S.A.B.E.N.A. (Belgian), for whom the Imperial Airways act as general agents in this country. The Council feels that by allowing the members to retain the whole of the 10 per cent. rebate the membership of the Association is likely to be increased. Particulars of membership can be obtained from the Secretary, 19, Berkeley Street, W.1.

A BRITISH ATTACK ON THE DURATION RECORD.

At the time of going to press Flying-Officer E. L. Mole is at Catterick aerodrome, Yorkshire, awaiting favourable conditions for an attempt to break the existing endurance record.

During his first attempt, which was made last Sunday, but was frustrated by stormy weather, he rose 1,450 feet above his starting-point. He made a second attempt on Thursday, taking off at Sutton Bank at 11.50 a.m. On this occasion he reached 1,000 feet above his starting-point, but at 3.30 p.m. the wind dropped and at 3.50 p.m.—four hours after the launch—he decided to land.

The existing endurance record is held by Lieutenant William Cocke, United States Army, who, on December 19th, 1931, succeeded in remaining aloft in a sailplane for 21 hrs. 34 min.

Flying-Officer Mole already holds the British record, which stands at 6 hrs. 10 min.

THE NEXT BEST—AN INTER-CLUB MEETING.

SIR,—Following closely upon my recent article on long-distance flying and the 1932 Competitions came the decision of the B.G.A. Council not to organise a meeting this year. I strongly opposed the decision, and after the meeting immediately started to get an organisation together to run an inter-club show.

Your Leader on the matter in No. 11 issue considerably strengthened my cause, and I had almost completed negotiations with the Ilkley and Bradford Clubs, when I received a letter from Mr. Pilling, on behalf of the Furness Club, offering to run the show at Furness (one of the two sites provisionally selected by the Contest Committee), and further to guarantee a generous amount towards the expenses of the organisation. Their only stipulation was that the site should be inspected by experts.

It would appear from this that the contests are going to receive considerable support from the Northern clubs, and as the date was announced some time ago, we can, I am certain, rely upon a strong contingent from the South. I know that many members of Southern clubs arranged their holidays for that time, and have been tearing their hair out since the Council's adverse decision was published.

Under the altered circumstances, I feel sure that the Association will be ready to put up the trophies and possibly the small prize fund.

It is not proposed to give great publicity to the meeting, as we cannot afford to spend much money.

Given good weather and soaring, the crowds will roll up all right, if not during the first day or so, they will come later in the week when the news gets around.

My suggestion to Furness was a week's meeting, finishing on Saturday, September 3rd, in order to give people the Sunday to get home. All expenses of the organising club (or clubs) to have first call on the gate, after that a "Ditchling pool."

Now, to make it a success, firstly the site must be inspected. Secondly, we want entries, and as many and good as possible.

We are going to have a show, and a good one, and even if we do not make a lot of money (and we may even do that), we shall all have a thundering good time and some soaring on another site, and that is what we want.

Naturally, the competitions will be held under B.G.A. rules, and an open competition licence will be obtained by the organisers.

I had hoped to be able to send a definite statement about the site, entry fees, and everything else to you, but there has been so much to do and so little time that we have not yet completed the arrangements. Full details will, however, appear in the next issue of THE SAILPLANE; in the meantime, we want to ask all who want a good time and a gliding holiday to keep the date open and send in their entries immediately the final arrangements are announced.

DOUGLAS CULVER.

[We understand that the period August 27th to September 4th has now been fixed for the meeting.—ED.]

THE "SAILPLANE" ENDOWMENT FUND FOR THE BRITISH GLIDING ASSOCIATION

THE PRESIDENT'S APPEAL.

I appeal to all who have the interests of the Gliding Movement at heart to come forward at this time and support the Fund for the British Gliding Association.

The Association has been in existence for two and a half years. During this period it has demonstrated its value to the Movement, particularly in securing for the various clubs throughout the country the assistance which they require to enable them to carry out their activities in safety and without unnecessary restrictions and irksome regulations.

Funds are needed urgently for three paramount reasons:

1. **To enable the Association to carry on its work for the Movement as a whole.**
2. **The establishment of a central technical, scientific research centre and instructional school.**
3. **Ability to provide loans to clubs so that they may start with the essential equipment.**

Any subscription, for whatever sum, will be gratefully received, for I know that those who give at all will be giving generously.

I hope that all subscribers to "The Sailplane" will bring this appeal to the notice of their friends, whether the latter are members of the Association or not.

F. C. SHELMERDINE, President,
British Gliding Association.

* * *

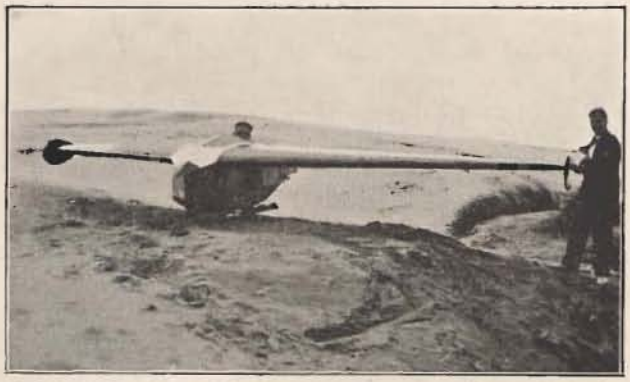
The following donations have already been acknowledged in THE SAILPLANE:—

	£	s.	d.
Lord Wakefield of Hythe	250	0	0
E. C. Gordon England, Esq.	5	0	0
S. Whidborne, Esq.	5	0	0
J. M. Symmons, Esq.	1	11	0
Dr. A. McGlaschen	2	2	0
F. Gardiner, Esq.	1	1	0
G. L. Bell, Esq.	0	2	6

The following donations, which have since been received, are gratefully acknowledged:—

	£	s.	d.
W. G. Carlton Hall, Esq.	10	10	0
R. F. Dagnall, Esq.	5	5	0
S. Humphries, Esq.	3	3	0
Captain C. H. Latimer Needham	2	2	0
L. Howard-Flanders, Esq.	1	11	0
A. I. Logette, Esq.	1	1	0
G. R. Paling, Esq.	1	1	0
E. D. Abbott, Esq.	1	1	0
H. Ward, Esq.	1	1	0
The Southdown Gliding Club (first donation, per Captain Stratton)	0	12	6
G. Humby, Esq.	0	5	0

Donations should be addressed to the Secretary, British Gliding Association, 19, Berkeley Street, London, W.1.



The " Bat "—the first tailless sailplane built in Australia.

INTER-CLUB COMPETITIONS.

Apart from the Inter-Club Competition which, we understand, is being organised in conjunction with the Furness Gliding Club, it is possible that similar meetings may be arranged during the next two months in different parts of the country. It should be unnecessary to remind those who are contemplating organising such meetings that they must comply with the Open Competition Rules of the British Gliding Association.

The following excerpts from these rules are published for the benefit of all concerned:—

(1) No club may hold a competition unless it is strictly confined to the club and its members, without the permit of the B.G.A.

(2) Permits are granted by the B.G.A. at the rate of 2s. 6d. per diem to affiliated clubs, and 2 guineas in all other cases.

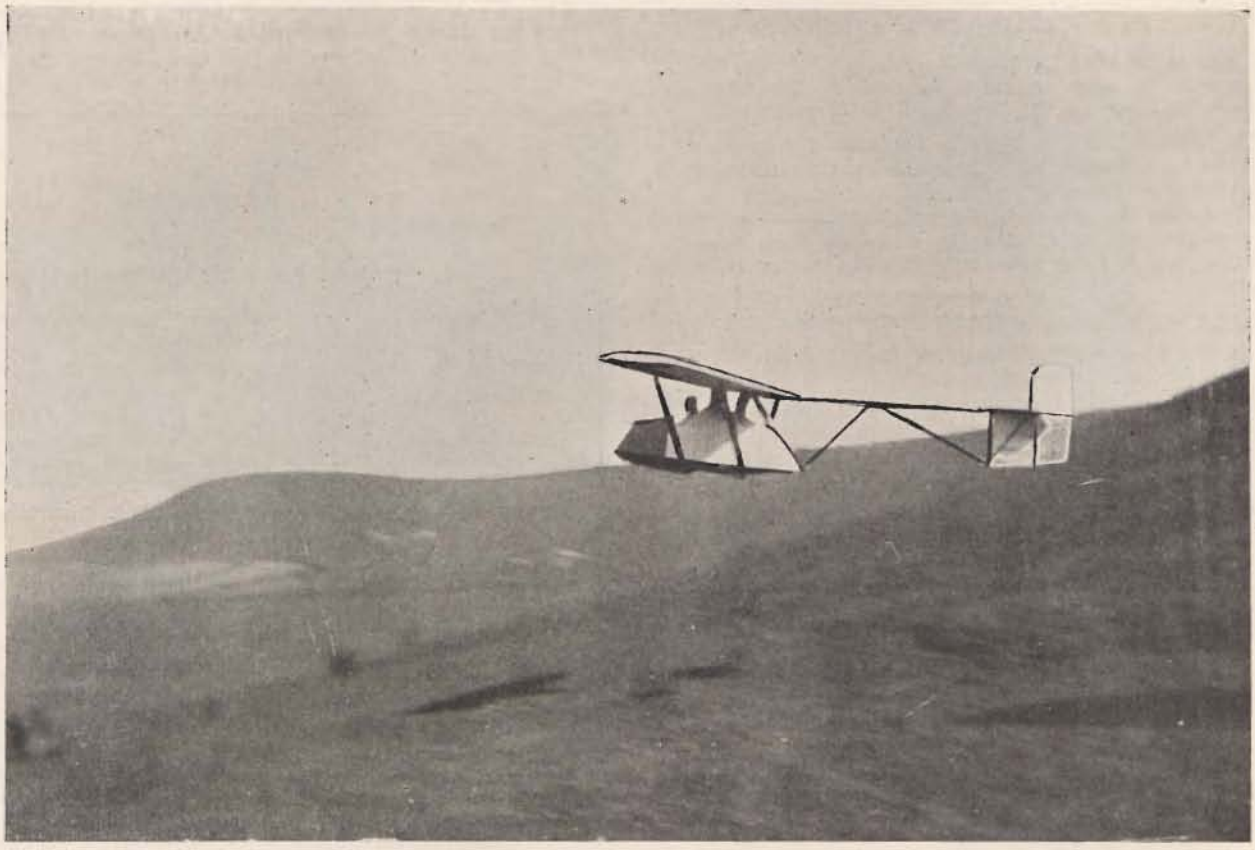
(3) All competitors must be registered with the B.G.A., the fee for which is 10s., but if he is a member of the B.G.A. no fee is payable, or if he is a member of a club affiliated to the B.G.A. the fee is 2s. 6d. Competitors are furnished by the B.G.A. with a certificate of registration which must be produced upon demand of an official of the meeting.

(4) An official programme must be lodged with the B.G.A. forty-eight hours before the holding of the meeting.

(5) All such competitions are to be held under the Open Competition Rules of the B.G.A. (see B.G.A. Handbook), which rules are designed to protect clubs, competitors, officials, and others taking part.

HOLS DER TEUFEL

By "KENTIGERN."



HOLS DER TEUFEL is a wire-braced monoplane whose sinking speed is low owing to moderate span loading and light wing loading, so that, although the induced drag is rather high, the profile drag is small in spite of a good many bracing wires.

The result of this design is that HOLS DER TEUFEL is a delightful machine to fly. It stalls at about 18 m.p.h. and flies comfortably at 23 m.p.h. with full control. The controls are effective, and the effect of this slow speed with full control is that the performance in light winds is practically as good as the PROFESSOR, because the higher sinking speed is set off by the ability to fly in exactly the best up-wind areas and to pass through them less quickly.

There are two of the type in England, one built and one erected here, and they both have these delightful characteristics. Easy to fly, very robust, simple to mend, and very effective for soaring.

With all these virtues, the wise man may decide to leave well alone; nevertheless, it does look possible to improve the performance somewhat without spoiling the other qualities. The three lines of attack that are suggested are: the substitution of spruce for fir wood, which would save weight without loss of strength; an increase in the height of the body, so that the shoulders of the pilot are streamlined; and having tapered wings of slightly greater span.

The present two-spar type of wing is probably best because the large chord and big camber must give considerable centre-of-pressure movement and the torsion bracing for a single spar would need to be heavy. Similarly, the "gate" type fuselage is probably the lightest possible and is very robust and stiff.

There are three advantages to a tapered wing, first that it is a better shape aerodynamically and gives slightly less induced resistance. Secondly, that it reduces the weight and area near the tip and so tends to improve lateral control; and, thirdly, that, for a fixed span, it moves the centre of area of the wing towards the centre (i.e., the weight is carried more inboard), so that the bending on the spar is reduced. This is only true of a moderate taper; extreme taper brings complications because the wing has to be twisted.

However, many people may think that the ordinary HOLS is better in its simplicity.

THE STRUCTURE OF THE WIND*

During the past five or six years experiments have been in progress at Cardington, Bedfordshire, in order to investigate the structure of the wind. The results have recently been published as a Geophysical Memoir of the Meteorological Office. The work was under the charge of the late M. A. Giblett in his capacity as Superintendent of the Airship Services Division of the Meteorological Office, and the results, which are now published, owe their design and thoroughness to his inspiration. When he lost his life in the disaster which befell the R.101 the plan of the report was already roughed out, but the completion of the work fell to the remaining members of his division.

The experiments may be divided into three parts: (a) the obtaining of instantaneous values of wind at different points at the same heights. For this four anemometers were used, three arranged at the vertices of an equilateral triangle of 700 feet sides, and the fourth in the centre of one side. Wind traces were made at all four of these points simultaneously with special open scale instruments.

(b) The obtaining of simultaneous values of wind at different heights above the ground. This was done chiefly by means of two anemometers with their heads at the heights of 50 feet and 150 feet respectively above the ground.

(c) The obtaining of open scale records of wind speeds and directions during sudden changes such as those which occur during thunderstorms and the passages of fronts.

The memoir is profusely illustrated with a number of reproductions of records of each of these investigations.

As is well known, the wind does not generally flow smoothly over the ground, but at one moment there is a gust of higher speed than the average, at another moment the wind lulls down. Thus on the anemometer records are shown periods of strong wind alternating with periods of lighter winds.

From the records of the four anemometers referred to above it is possible to examine the travel of these gusts from place to place, and the first result which was obtained from this experiment showed that the gusts varied very rapidly in form as they travelled over the ground. It is seen, for instance, that it is often extremely difficult to follow a particular gust recorded at one anemometer to the record of a neighbouring anemometer even at so short a distance as 350 feet.

It is found, however, that the gusts and lulls have very different characteristics under different conditions, notably according to whether heat is being given out to the air by a hot ground surface, as is the case usually by day, or is being passed from air to ground, as is the case on a clear night. This leads to a classification of the eddies which produce the gusts on the anemometer records.

By day it was found that the gusts had a very definite type; the onset of the gust was abrupt, while the falling away to the succeeding lull was gradual. Such gusts occurred at intervals ranging from about 30 seconds on a quiet day to about one hour when they were violent and were associated with thunderstorms.

These gusts are attributed to convectional eddies from the surface which are believed to reach up to heights varying from about 1,500 feet to 30,000 feet. Interspersed with these gusts are smaller and more rapid fluctuations of the wind which are supposed to be due to the air striking obstacles such as trees, houses, hedges, etc. The eddies which give rise to these fluctuations are designated *frictional eddies*.

When the sun sinks and the ground is no longer being heated, the anemograms show a fairly rapid decay of the convectional eddies, the frictional eddies only being left. And they, in their turn, are gradually damped down as the earth cools further, and the air of the lower layers becomes stratified.

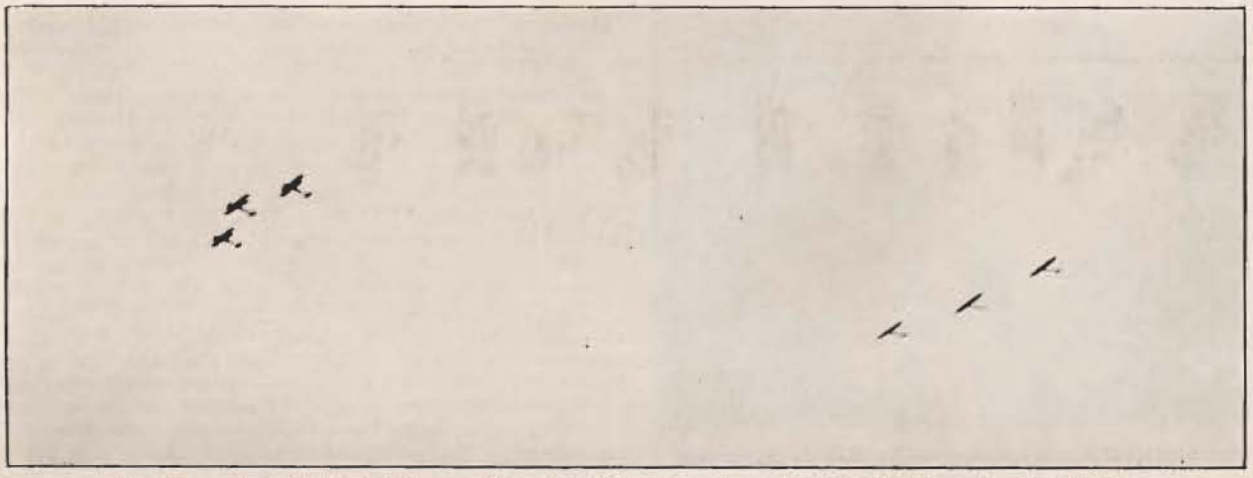
C. S. Durst, in a section devoted to a theory to account for the form of the convectional eddies, endeavours to draw a picture of the pattern of the wind as it blows over level country under daylight conditions. In this picture he associates the gusts that are felt near the surface with the inflow of air at the bases of columns of ascending air. These columns of ascending air reach up to the cumulus clouds, which may be seen scattered about the sky on a bright day. He supposes that these ascending columns are spaced out in a more or less regular pattern over the landscape. The distance from column to column in the down-wind direction varying from day to day from about 3,000 feet to about three miles. Across wind, however, his picture shows them to be more closely placed.

This picture is of more than ordinary importance to the sailplane pilot. If the theory put forward is true, the pilot having flown out of one ascending current would not have far to go before he could pick up another. Unfortunately there is at present very little information regarding the actual velocities of these up-currents. Again, information is lacking regarding the horizontal extent of the ascending columns. From the picture it would seem that they might be of the order of 500 to 1,000 feet across, but this must be purely speculative. It will, however, be a matter of great importance if they should prove of practical value, for the smaller the horizontal dimensions the smaller will be the "bull" the pilot has to aim at each flight from one ascending current to the next.

It would seem from the information available that these rising columns are not only confined to days when they are made visible by the presence of cumulus cloud, but it is to be expected that on such days they are the most pronounced.

This work, apart from the more obvious application to motorless flying, should be closely studied by every sailplane pilot who is taking his work seriously. He will find in it a mass of intriguing and useful information which will help him to understand much that at present forms an unsolved problem—the wind and its vagaries.

* The Structure of Wind over Level Country. M. A. Giblett et al. (Meteorological Office, Geophysical Memoir 54; H.M. Stationery Office; 10s.)



The three B.A.C.VII Sailplanes being towed in formation by "Moths" at the R.A.F. Display.

PARACHUTE DESCENTS FROM SAILPLANES

The Caterpillar Club, whose membership, as all should know, is confined to those flying men who have saved their lives by parachute, has received its first recruit from the Gliding fraternity.

He is Rudi Pätz, and he has written a detailed account of his adventure, which is printed in full by *Flugsport*.

A Difficult Start.

He was one of twelve pupils undergoing a course of training in towed flight at the Wiesbaden-Mainz aerodrome. They had hitherto been practising on the FALKE type, and to-day the transition was to be made to a high-performance machine, the CUMULUS, a PROFESSOR-type sailplane adapted for towed flight, with a sinking rate of over 3 feet per second. He strapped on his parachute (the first time he had worn one), and off he went, towed by a " Flamingo " at about 40 m.p.h. He found it difficult to keep at the correct relative height, as it was a day of strong vertical currents; both machines " danced up and down," and often one machine would be in a down-current when the other was trying to go up. At about 1,300 feet the casting-off signal was given, after which the " Flamingo " darted down steeply and unintentionally directed its slip-stream on to the sailplane, giving it an uncomfortable few seconds.

A prize had been offered for the first flight of an hour over the town of Wiesbaden, so he made off in that direction, finding himself in rising air all the way. Over Wiesbaden he alternately rose and fell, till at last he found a good patch of air which kept him rising at 2 or 3 feet per second till he had got up to about 2,000 feet above the town; looking down, he noticed everywhere numbers of people staring up at him.

Encountering a Storm.

When he had started his flight, there had been an unbroken line of cumulus crossing the sky from S.W. to N.E., the air on the ground being almost calm with a slight drift in the contrary direction. But, during the flight over Wiesbaden, Pätz had noticed a sharp shower approaching from the S.W. He had still fifteen minutes to go to complete the hour when the storm began to cross the Rhine, and before long the first few drops were wetting his goggles, which he had " put on again " (this suggests that goggles are correct wear for an aeroplane-tow, but are discarded when free flight begins). The variometer now showed 2 metres (6½ feet) rate of rise. Pätz suddenly conceived the ambition to climb to 1,000 metres above the casting-off point. By the time he had reached this height (4,600 feet), the hour was up, and, as he found himself to be close under the cloud-base, he decided it was time to return to the aerodrome. But he could not resist the temptation to perform a last circle over Wiesbaden. And that is what proved his undoing, for a few wisps suddenly appeared below him, and the next moment he was swallowed up in the cloud. He had tried to escape by increasing the speed to 50 m.p.h., but the plane went on climbing " like a lift," so he gave up the attempt and eased the stick back again. The machine went on climbing rapidly at 10 to 13 feet per second, while the altitude rose from 6,300 to 7,300 feet; but, strange to say, the speed showed a tendency to increase, although the pilot pulled the stick slowly back to prevent it. The pace soon grew fast and furious; the air-speed indicator passed the 70, 80 and 90 km. mark, till at 100 km. (63 m.p.h.) the pointer had reached the end of the scale. Then suddenly there was a violent jolt; his head banged against the padded side of the cockpit, then behind, then again in front; his left hand lost its grip, his right was torn from the joy-stick, there was a sound of cracking and breaking, and, just as suddenly " all was still "; he found himself alone in space, surrounded by nothing but milky-white cloud.

He at once congratulated himself on having the parachute, but too soon, for the expected jerk of its opening never came. He seized the package on his back, brought it round between his legs, and tore it open, only to find it empty! He said to himself, " Lost; 26 years; 2,000 metres; the end "; but then, on looking up, saw, to his joy, the parachute overhead; it had opened too gently for him to feel the shock.

Who said that the Secretary of the B.G.A. never does any work? Here he is selling " The Sailplane " at Brooklands on the final day of the King's Cup Race.

The Descent.

It was several minutes before he came out of the cloud; in fact, he was evidently being kept in it by the up-current, which he estimated to be 5 metres per second, equal to the sinking rate of the parachute. But finally an opening appeared, and on looking down he saw to his surprise a sailplane flying far below. He was still more astonished when he recognised it as his own CUMULUS, which he had been quite convinced had already broken up in the air. He watched it land in a wood and noted a few landmarks so as to be able to find it again, and then had to attend to his own landing. This also took place in the trees (" legs crossed, hands ready to grip "), but he received nothing worse than a clout behind the ear from a branch. He found the final 50 feet of his descent to Mother Earth the most trying part of the whole afternoon's ordeal; there was no foothold on the tree trunk at all—only a few rotten stumps which tore open his pants as he slid past. What with that, and the bleeding ear, and the rain coming down on him in buckets, when he sought refuge in a hikers' hut nearby he was taken for a tramp, until someone recognised the parachute straps for what they were. As he was taking the road back to Wiesbaden, a car rattled round the corner and there greeted him the beaming face of Mr. Sun, a Chinese pupil at the School, who but a short while before had been helping him on with his parachute, and was now, among others, scouring the countryside for his remains. To crown the end of a perfect day, Pätz received the 100-mark prize for his hour's flight over Wiesbaden. No doubt the short soaring flight of the parachute could have been added in, if necessary, to make up the required total.

An examination of the machine revealed what had really happened. The pilot had been thrown out through the right wall of the cockpit, breaking through the longeron and plywood. The release cord of the parachute was still

THE AUTOMOBILE ASSOCIATION WEATHER BROADCASTS

Notice to Airmen No. 42/1932 gives details of the summer time-table of weather reports and forecasts which are broadcast daily on a wave-length of 833 metres from the Automobile Association's radio station at Heston Airpost. These broadcasts are being found of increasing usefulness to an ever-widening circle of listeners. They should prove of considerable value to gliding pilots.

The weather reports refer to five routes and two areas, including the London area, and give time of observation, weather, visibility, amount and height of base of low cloud and the direction and force of the wind at each station.

The forecasts are divided into appropriate areas covering Great Britain and Northern Ireland.

The weather reports and forecasts included in the broadcasts are issued by the Meteorological Office, Air Ministry.

The summer time-table is as follows (times are given in British Summer Time):

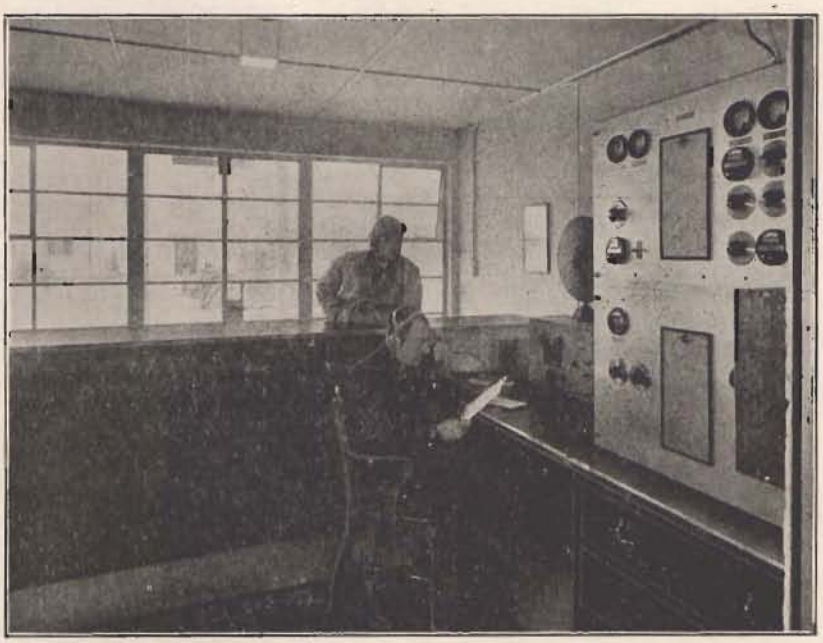
0930 Part I. 0800 hours observations on five routes and in the two areas.
Part II. Forecast for the period from the time of issue until dusk.

1030 Repetition of 0930 broadcast amended by any subsequent reports received.

1130 Recent observations on the S.E. Route and from supplementary stations elsewhere.

1230 Selected observations taken since 1100 hours on the five routes and in the two areas, with supplementary reports when available.

1330 Forecast for the period from the time of issue until dusk.



Interior of the A.A. Radio Station at Heston.

1530 Observations taken since 1400 hours on the five routes and in the two areas.

1630 Repetition of the 1530 broadcast amended by any subsequent reports.

1730 Forecast for the following day.

1830 Selected observations taken since 1700 hours on the five routes and in the two areas, with supplementary reports when available.

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attached inside the machine; it had evidently been cut by some broken part as the pilot shot out. Apart from this damage, the structure of the machine was intact, except for a few broken ribs in getting it down from the trees.

A Moral.

These happenings suggest at least two questions: Is a sailplane really safe inside a cumulus cloud? and, Can a pilot avoid getting drawn into such a cloud against his own will? It should be noted that Pätz's cloud was not just plain cumulus, but a shower of rain, and a heavy one at that. He himself attributes the accident to his having got into " the kernel of the storm-eddy "; apparently the Germans nowadays look on every cumulus-nimbus cloud as a miniature " cold front," complete with revolving eddy in the advanced part. What is more, the sailplane stood up to the strain perfectly, its only weak spot being the means by which the pilot was held in.

As regards the avoiding of cumulus clouds, the above adventure is rather similar to that of Groenhoff with his two-seater RHÖNADLER three years ago; in each case the pilot got too close under the cloud-base and suddenly found himself surrounded by cloud before he could do anything about it. The fact is that entering a cumulus from below must be quite different from flying into its side or its top. In the latter case, there is usually a sharply defined surface which a pilot can avoid or not, as he pleases. But when a sailplane goes up into a cloud through its base, it does not strictly " enter " the cloud at all; what happens is that cloud suddenly begins to form in the air in which it is flying; so a pilot who looks up at the cloud-base with the intention of nosing down before he hits it, has a false idea of what a cloud-base is, and will be taken unawares. Perhaps this is the real cause of the trouble. It should surely be possible to get away from the up-draught into a cloud provided the pilot starts doing so early enough. How about the following formula: if the border of the cloud is x times as far off as the height of its base above the sailplane, then the horizontal speed of the plane should be at least x times its rate of ascent, in order to get beyond the border of the cloud before being drawn up into it.

[This explanation is not quite clear. In a relatively small cumulus cloud the base is usually well defined, but in a larger cumulus, e.g., a squall cloud, the turbulent motion of the air below it causes the base to be more ragged and the sailplane pilot, sitting on a rising current, is in the cloud before he is aware of it. The main upward current is generally towards the front of the cloud, while in the rear there is, frequently, a descending current. A pilot who is caught in an up-current and wishes to get out of it has to decide in which direction he is going to fly. If he flies towards the back of the cloud he will, most likely, get out of the up-current sooner than if he makes for the front edge of the cloud. In a well-developed cumulus the speed of the upward current immediately below and within the cloud may easily assume dangerous proportions.—ED.]

A Lady Parachutist.

In the same issue of *Flugsport* is an account of two experimental parachute drops from a sailplane (voluntary this time!) by Lola Schröter, an experienced parachutist. She was taken up by Wolf Hirth in a two-seater which was aeroplane-towed to the requisite height. The first drop was from 1,300 feet with a self-opening parachute. She found that, in comparison with a similar jump from an aeroplane, the parachute was slow in opening, owing to her lesser forward speed after jumping out. She consequently lost more height than usual before it opened, and concludes, therefore, that the minimum safe height from which to drop from a sailplane is greater than with a power plane, and that a sailplane pilot who is going to jump to save himself must make up his mind quickly and not lose valuable seconds.

The second jump was from 2,600 feet over an admiring crowd at an air display, and she fell voluntarily 1,000 feet before pulling the cord to open the parachute. All went well.

A. E. S.

NEWS FROM OVERSEAS

[*The success of this page depends entirely on the efforts of people scattered all over the world. The news it contains is often extracted without thanks from their letters to which its compiler but infrequently replies. He hopes that they will not be thereby discouraged and that they will consider the helping forward of World Gliding well worth the trouble they take. Contributions should be sent to Thurstan James, 24, Norland Square, London, W.11, England.*]

PALESTINE.

The first glider in Palestine is steadily taking shape under the shadow of Mount Carmel, and indeed by the time these words appear in print will probably have flown. It is a B.A.C.VII, which is being built by Mr. R. N. Yates and his friends in a shed which has been generously lent by Herr Appinger, who has helped in many ways. No. 14 Squadron at Amman are very interested, and Flight-Lieutenant R. L. R. Atcherley recently flew over to see what progress is being made. The splicing of the control cables has been done by Rigger-Sergeant Jarvis from the same squadron.

NEW ZEALAND.

The Canterbury Glider Club have every reason to be proud of themselves. How many clubs starting from scratch in this country had to make their own dope? The Club held its first meeting on February 4th, 1931, when seven enthusiasts gathered together to discuss ways and means of furthering the sport of gliding. Since then the Club have built their own glider, made their own dope, and learnt to handle their machine.

Before the end of April 400 flights had been made, and 350 ground slides. Forty-eight members and visitors have handled the machine, and of these twelve members have flown from the top of a 40-foot hillock. Messrs. W. H. Went and J. Campbell have qualified for "A" licences. The membership of the Club is forty-five, and before the close of the season it expects to have a secondary machine.

FRANCE.

During the festivities at Clermont-Ferrand on July 8th to 10th Herr Robert Kronfeld made a notable soaring flight. He was towed off the aerodrome at Aulnat by a machine of the Aero Club of Auvergne, and after the two machines had circled above Clermont-Ferrand they went off towards Mont Dore. Here over the Banne d'Ordanche Herr Kronfeld released his machine and climbed to 3,000 feet. After remaining in the air for three hours he flew nine miles to Randanne, where he landed.

On July 11th a luncheon was held on top of the Puy de Dome, where Herr Kronfeld had taken his machine. At its conclusion he was launched in a light breeze of 6 to 7 m.p.h. Mists were gathering in the valley. He took off as a storm arrived. He climbed very quickly and disappeared in the clouds as the storm burst and the rain came pouring down. After remaining in the air for an hour Herr Kronfeld again flew to Randanne, where he landed.

According to *Les Ailes*, Herr Kronfeld thinks that the Banne d'Ordanche forms an excellent terrain and is as good as the Rhoen.

UNITED STATES.

No news has yet come to hand of the progress of the third Annual National Soaring Meet which began at Elmira on July 11th.

Lieutenant W. A. Cocke, U.S. Air Service, who holds the world's duration record with 21 hrs. 34 min., is planning to put this figure up to 100 hours. The attempt will again be made in Honolulu, but in a two-seat machine.

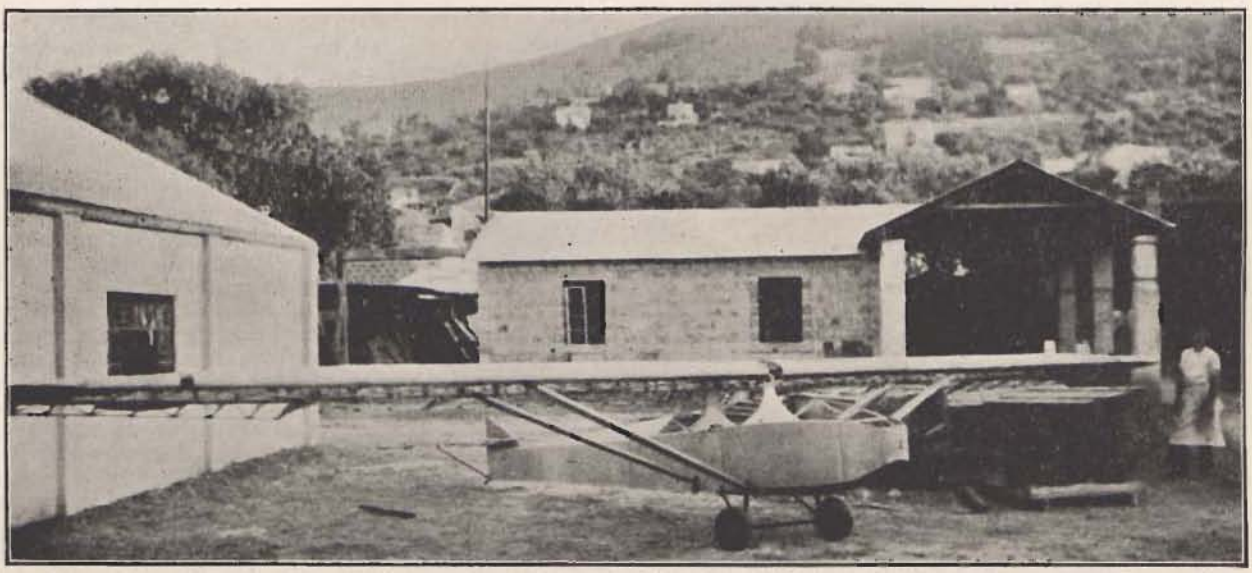
GERMANY.

The thirteenth Rhoen Competitions began on July 17th. The entry list is 30 per cent. greater than last year, and includes two entries from the Polish Aero Club. A full account will be published at the conclusion of the meeting.

Herr Gunter Groenhoff recently arrived back at the Wasserkuppe from Switzerland, where he had been convalescing. Soon after his arrival he flew some sixty-two miles in the FAFNIR.

At Leipzig recently four sailplanes were towed off the ground behind one aeroplane. The motorless machines were arranged in pairs. The machines so towed were the WILLI FABER II, the BOELCKE, a KASSEL 20, and the STANDARD.

Herr Wolf Hirth, who, under the auspices of the Deutsche Luftfahrt Verband, is touring Germany with a kind of Lowe-Wylde Circus, recently stayed up at Kustrin for a quarter of an hour after being towed up to 500 feet behind a car. In twelve days while visiting the clubs in Pomerania his circus carried 135 passengers. Each had an average flight of two minutes. The machine used was a two-seat GRUNAU 8.



The first glider to be built in Palestine. Captain R. N. Yates's B.A.C.VII which is being constructed near Mount Carmel.

CORRESPONDENCE

THE "LARK" SAILPLANE.

SIR,—The performance figures for the LARK, to which "D. C." refers, are actual test results and are therefore neither optimistic nor impossible. They are guaranteed by the makers, and personally I fail to see anything remarkable in them.

The first measured glide, against a slight breeze and over a level aerodrome, measured 495 yards. Afterwards the main skid was faired in and other parts cleaned up. With a little practice, Captain Larkin succeeded in beating this distance by a good 100 yards.

I have frequently checked the duration of these flights at from 50 to 60 seconds, and if it is necessary can mention the names of several others who will corroborate.

"D. C." will admit that this duration *must* give a distance of over 550 yards when considered with a wing loading of about 2 lb. per foot.

I entirely disagree with the method adopted by "D. C." to estimate the probable glide, which is based purely on the assumption that the machine could not attain a certain height.

We found, very definitely, that to climb a glider to its ceiling immediately after the launch does not give a long glide. The best results are obtained by keeping the machine low down, and I have frequently seen this particular glider cover the last 200 yards with the main skid not more than 10 feet from the ground. Further advantages of flying low are that energy is not wasted by high incidence and the machine receives the maximum effort from the launching-rope.

Therefore, to assume, as "D. C." does, that the glider is taken to its absolute ceiling in the first fifty yards is not reasonable. I suggest that a more scientific method would have been to ascertain the type of launching-rope, and the stretch and energy available in it.

We used a solid rubber 1½-inch diameter rope, without braiding, stretched out to, I should say, four times its original length. This rope gave an acceleration over the first 100 yards when taking into consideration the run of the crew after the actual instant of launching.

It is a remarkable fact that our longest glides were always made against a wind and never in a calm.

Undoubtedly the explanation is that in the first case a machine is air-borne in the first few feet of its run, whereas with no wind an appreciable fraction of the potential energy in the rope is lost in skidding the glider up to flying speed.

I hope shortly to build in England a glider of similar design to the LARK, and will then arrange for a 55-second, 600-yard glide to be demonstrated to "D. C."

W. S. SHACKLETON.

"THE SAILPLANE" FUND.

SIR,—Although I am of the most extreme poverty, I should like to give what aid I can to further a worthwhile effort to assist British Gliding. But before sending you my contribution I should like to know to what end the Fund is intended.

Mr. Gordon England's account of his recent visit to the London Club at Dunstable is of marked interest, if only for the laying bare of the foundations on which the London Club have built their organisation. It is even more interesting to substitute examples for generalities and compare thereby the contrasting policies of the Club and the Gliding Association.

As far as possible the Club consistently meets its recurring debts (or expenditure) out of income; that is to say, rent, wages, insurance and repairs are paid for by annual subscriptions and flying money. Its buildings, hangars and equipment are bought out of capital, and when this is lacking (as always) energetic drives are made to get it, either by donations, by time-honoured stunts or ingenious new schemes. Its executive officers, however, realise the limitations of human nature and know that people will not continuously donate large or small sums (extra to subscriptions) for meeting recurring liabilities.

The Association has always taken the other view. It has relied almost entirely, in principle if not in fact, upon donations to carry on its work. Now, supposing that its executive had decided from the start that only income derived from investments or from work done was available for meeting expenditure, its position would have been very different. I suppose in the past two years it has had something like £3,000, so that from investments it would now be receiving perhaps £100 a year—not much, but enough to enable certain activities to go forward.

Might not THE SAILPLANE Fund be regarded as capital? Let the Association buy with it equipment, high-performance sailplanes or meteorological apparatus. This could be hired out at charges to defray expenses and pay interest and insurance. British Gliding would benefit and the Association, from living a hand-to-mouth existence, would be an institution of substance with capital behind it.

THURSTAN JAMES.

* * *

SIR,—I was interested to read of the plan to provide the B.G.A. with an endowment fund, but at present I understand that the B.G.A. is spending more than its income (apart from charity), so that it does not seem to have the stability expected in the administration of an endowment fund.

May I therefore ask

1. How is the fund to be controlled?
2. Of what class of securities is it to consist?
3. To what objects is the income to be confined?
4. Whether the capital will be spent?
5. If so, for what objects?

G. M. B.

* * *

SIR,—The President of the B.G.A. has set us a formidable task in the objectives he suggests in his appeal to us to support THE SAILPLANE Fund for the British Gliding Association. Thanks to Lord Wakefield's generous lead, I think we may say that, with strict economy of administration, the first of the objectives is already secure, at any rate, for the next year or eighteen months, after which, it is to be hoped, the administrative side of the B.G.A. will be independent of donations.

The second and third paragraphs are an invitation for the Gliding Movement to take a definite step forward, and I for one believe that it is not only possible but imperative that we should raise the money necessary to turn the dream into reality. In these difficult times that can only be done if those of us who believe in the future of the Gliding Movement rally to the President's call with the determination to raise the Fund by every available means, especially that suggested by Colonel Shelmerdine.

SEYMOUR WHIDBORNE.

THE "NYBORG" SAILPLANE.

SIR,—In THE SAILPLANE for July 8th, Mr. C. H. Latimer Needham suggests in a letter that Mr. Scott Hall and myself were both led astray by the change in title of Mr. Needham's article. Mr. Needham had called this "Tendencies in Sailplane Design." After reading it through, I could find no justification in its contents for such a pretentious title, and, much though I regretted having to do it, substituted for the pious hope of Mr. Needham's title one more in keeping with his matter.

After all, I think Mr. Needham ought to be grateful to me if his article with my heading elicited such distinguished criticism. What would have happened had the same readers expected a comprehensive survey of modern sailplane design—not excluding the SUPER-SCUD now being built, and the extremely interesting Russian and Polish types as well as the ABRIAL low-wing tailless glider?

THURSTAN JAMES.

NEWS FROM THE CLUBS

CENTRAL SCOTLAND AIR YACHTING CLUB.

After nine months' steady work, totalling 1,600 man hours, in the Club workshop, the building programme has been completed. This included rebuilding of DICKSON Primary and fitting nacelle thereto, as well as a trailer, and other minor gear.

Training practice took place in a very favourable north wind at King o' Muirs on Saturday and Sunday, June 18th and 19th. Gardner made an excellent exhibition and was only prevented from prolonging his 18-sec. flight by ground restrictions.

The nacelle proved a great success, rather more as a contribution to pupils' confidence than to performance. The Club was delighted to have a visit from members of the Falkirk Gliding Club.

The following week-end the wind had changed to south, which is the one direction that prevents use of a sloping ground. The outcome of efforts to utilise the only flat ground that was available was a bad crack-up, which has ended flying activities for another three months.

DORSET GLIDING CLUB.

The lack of news from Dorset Gliding Club does not mean that no work has been done lately. On the contrary, the enthusiastic members who have the interests of the Club at heart have put in valuable time since our last report was published, and for the past few week-ends a considerable number of flights have been accomplished, without any major damage to machines.

Four new members have been enrolled since our last report, and the *ab initio* generally show promise. Two additional "A" and one "B" licences have also been qualified for during the past month.

We have also to record the acquisition of a second Club car, a Morris-Oxford, which has been fitted with spud wheels to assist in recovery and for use in launching.

The DAGLING has now over 1,000 launches to its credit, but it must be admitted that very little remains of the original structure.

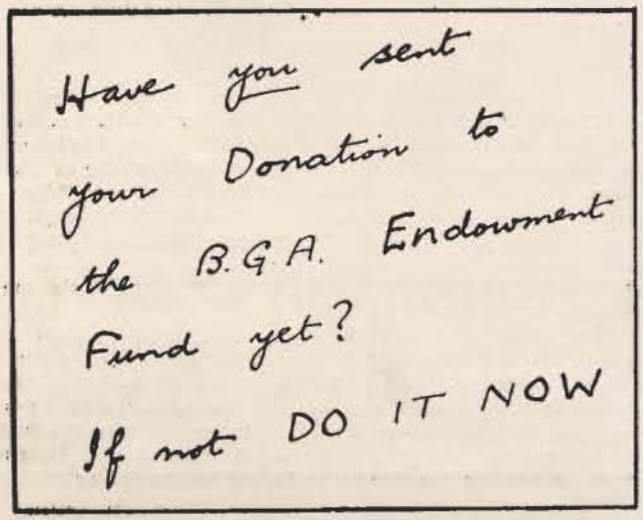
The DORSLING's flying time is creeping up, and on Sunday, July 3rd, Messrs. Secker, Haslam and Laver made two flights each, three of which exceeded 2 min., whilst the others were over 1 min. During the last flight of the day the pilot soared the DORSLING along the western ridge, and actually disappeared from our view towards Cattistock at the end of 2¾ min. He was so enchanted with his experience that he apparently forgot to turn in time to return to our own ground, but brought the machine down safely in a cornfield near Cattistock. The farmer was, however, most accommodating, and, apart from the extra labour involved in the recovery, no harm was done.

On Saturday afternoon, July 9th, the DORSLING was transported to White Horse Hill near Weymouth, together with the necessary launching gear, etc. The wind was unsuitable on this day, also repairs had to be effected to a wing slightly damaged in transit but on Sunday morning the machine was rigged, and the wind being more favourable, though rather light, flights were made from midday onwards. Taking off from the highest point on the ridge, 517 feet above sea-level, four consecutive flights were made over a circuit about half a mile in length, and the machine landed on the hill-top at the head of the Basin, where the height of the ridge is about 50 or 60 feet lower than at the starting-point, Secker, Haslam and Laver piloting in turn. On the fifth and last flight of the day, Laver, instructed by the Team Captain to "take her home" (the barn at the top of the Basin), failed to make the landing-spot owing to lack of height, and had to turn back over the Basin, making a circuit over the White Horse and landing in a field at the bottom. Unfortunately he struck a rough spot in landing, and DORSLING came to rest minus a wheel. Apart from this mishap, the meeting was an undoubted success, especially considering that the wind was very half-hearted and blowing too obliquely across the ridge to take proper advantage of, and that it was our first experience on the site. Conditions permitting, further trials will be made on the site next week-end.

Seven members spent the Saturday night under canvas on White Horse Hill. The weather was perfect, and a splendid view was obtained of a searchlight display by the Home Fleet anchored in Weymouth Bay.

We are glad to see our Hon. Secretary, Mr. A. J. Solomon, back at work again after his long spell in hospital with eye trouble, and readers may expect more regular reports in future. Also we are very pleased to see Mr. V. S. Gaunt, who experienced a serious illness last winter, with us at our meetings and looking so fit.

The Wright Challenge Cup presented to the Thames Valley Gliding Club by Squadron-Leader M. E. A. Wright, D.F.C., to be awarded to the member who puts up the best performance each year.



LONDON GLIDING CLUB.

Saturday, July 9th.

Hot and almost windless. KASSEL descending peacefully from the top, the R.F.D. prancing in the foot-hills with beginners.

Sunday, July 10th.

Blazing hot. Light southerly breeze. Launching beginners by hand. Occasional bangings, but nothing broken. Late in the afternoon an exodus to a deep reservoir. After tea the R.F.D. and POPPENHAUSEN were launched by car. Still no breakages, until the POPPENHAUSEN landed fast on the hardest ridge in the field. The distinguished passenger and pilot bounced like small peas, but the only damage to the machine was an unshipped air-speed indicator. Tut, tut. Yes; essentially tut.

Saturday, July 16th.

A gusty northerly wind, but the clouds stationary. Launches, by hand and later by car, of the new R.F.D., which has been fitted with a bath-like nacelle. She flies sweetly, and is novel, inasmuch as she *feels* so tight all over. Eventually a semi-auto-tow (rope and elastic direct to car) allowed Grimston to do a genuine Lowe-Wylde take-off and to return approximately to the launching-point.

Sunday, July 17th.

A sufficiently violent, gusty, northerly wind almost parallel to the ridge. The KASSEL was launched five times from the hill-top and emerged intact. Collins and Dewsbery managed to soar in the strictly limited area of lift for ten minutes each; their margin of height was virtually nil, and their flights were a pretty war of wits. A less controllable machine would have got out of hand, and even KASSEL was slung about like a small boat in a decent sea.

Meanwhile, Buxton had lost his height on his first about-turn in HOLS.

A "Moth," which landed outside the club-house, via a vertical edge-wise descent (which we have learnt to associate with a certain Major Travers), reported that conditions were, as yesterday, calm higher up, and in the afternoon the wind died out entirely on the ground. KASSEL, HOLS and the R.F.D.II were therefore hurled off the hill continuously, the winch boiling hard.

The R.F.D. behaved charmingly, steady as a rock and pretty turns, until a bad man took advantage of her. It started with a gross stall (later defined by him as "a sudden gust"—"tell me the old, old story"), turned into an equally gross side-slip, then into the worst stall in the memory of living man, then into a steep spiral (not a spin) bounded by power-wires, the hill, and a hedge, and finally—and miraculously—into a reasonably constitutional landing outside club boundaries. What *does* one do with people like that, who learn phenomenally quickly, who are looked upon as prodigies, and who then, suddenly, give the whole Club a fit of the screaming Heebie-Geebies?

HOW TO GET YOUR "SAILPLANE" FREE.

It has been decided that in order to encourage members of the Association and subscribers in obtaining new subscribers to THE SAILPLANE, free issue of the journal will be awarded as follows until further notice:—

To Members of the Association.

Free issue for six months to a member obtaining one new yearly subscriber.

Free issue for one year to a member obtaining two new yearly subscribers.

Free issue for one year and renewal of membership of the Association on obtaining four new yearly subscribers.

To Subscribers.

Free issue for one year on obtaining two new yearly subscribers.

OFFICIAL NOTICES

EXTRACTS FROM THE PROCEEDINGS OF THE 39th MEETING OF THE COUNCIL OF THE BRITISH GLIDING ASSOCIATION,

Held in the Library of the Royal Aeronautical Society, on Monday, July 18th, 1932, at 6.30 p.m.

Arising out of the Minutes.—R.A.F. Display: Sale of "The Sailplane."—Referring to the undertaking given by the North Kent Club to organise the sale of THE SAILPLANE at this Display, Mr. Kekwick reported that the Club had been unable to carry out the work owing to their not being advised of the arrangements before the morning of the Display. The Secretary reported that through an error on his part the letter which was sent to the Club on the Thursday had been incorrectly addressed, and expressed regret for the inconvenience caused.

Lord Wakefield's Gift.—The following resolution was carried unanimously:—

> "That the Council of the British Gliding Association, Ltd., being ever mindful of the never-failing generosity of Lord Wakefield of Hythe, do send his Lordship their most sincere and grateful thanks for his second munificent gift to the Association of £250."

Membership of the B.G.A.—The Council approved the election to membership of nine associate members.

Observers.—The Council approved the election of the following observers of the Thames Valley Gliding Club:—Mr. Enser, Mr. Redman and Mr. Camps.

New Member of Council.—The Secretary reported that Miss Joan Mack had been elected by the Thames Valley Gliding Club to serve on the Council.

Date of Next Meeting.—It was resolved to hold the next Council meeting on Monday, September 19th, 1932, at 6.30 p.m., in the Library of the Royal Aeronautical Society.

Election of B.G.A. Representative to serve on the Joint Aviation Committee of Lloyd's Register and the British Corporation Register.—On the proposal of the Treasurer, seconded by Mr. Houlberg, it was resolved:—

> "That the invitation to send a representative to serve on the Joint Aviation Committee of Lloyd's Register and the British Corporation Register be accepted, and that the Chairman be asked to serve accordingly."

1932 Competitions.—In view of the generous gift of Lord Wakefield, the Treasurer inquired if it was now the intention of the Council to authorise the Contest Committee to organise a National or International Competition in 1932. After discussion, the following resolution was passed:—

> "That the resolution carried at the 36th Meeting be rescinded."

THE BRITISH GLIDING ASSOCIATION

REGULATIONS GOVERNING AUTO-TOWING.

1. All gliders used for auto-towing must have a special Certificate of Airworthiness for that purpose, issued by the British Gliding Association. For training purposes a single-track undercarriage (i.e., one with a single wheel and/or skid) is advisable.

2. Any existing glider holding a normal C. of A. which is to be adapted for auto-towing must be reapproved for the special C. of A. For this an appropriate fee will be charged.

3. The towing-hook shall be fitted with a "fool-proof" release with the operating device close to the pilot's hand, and shall be of a type approved by the British Gliding Association.

4. Means for locking the release should be provided. (It is essential that beginners should be entirely under the control of the instructor.)

5. The towing-cable shall be of not less than 10 cwt. breaking strength and of extra flexible construction. It must be examined before each flight. A shock-absorber, consisting of a double link about 15 inches in length of $\frac{5}{8}$-inch braided elastic cord, with a 10-cwt. check cable to allow 50 per cent. extension, should be fitted. Good-quality $\frac{3}{8}$-inch diameter sash-cord may be used in lieu of steel cable, if desired.

6. An air-speed indicator must be mounted on the car well within the vision of the driver and connected to a pitot head mounted on a strut, at least 5 feet above any part of the car.

7. An instructor with experience of auto-towing shall always be in the car with the driver, seated in such a position that the glider and pupil are in full view throughout the flight.

8. A separate master throttle control shall be fitted near the winch brake, in order that the instructor can regulate the speed of the car in an emergency.

9. The towing car shall be of sufficient power and reliability to make a quick "get-away" and avoid stalling the glider close to the ground. A minimum of 20 h.p. is recommended.

10. On wet grass or on ground where wheel-slip is likely to occur, chains should be fitted to both driving wheels.

11. The glider shall be fitted with adequate harness for the pilot (and passenger). Harness to be of a type approved by the B.G.A.

12. If primary type gliders are used for auto-towing they shall not be taken to a greater height than 10 feet above the ground. Any infringement of this regulation will entail suspension of the Certificate of Airworthiness.

13. The point of cable attachment shall be with the limits as specified below:—

(a) For elementary training purposes: within the angle formed by lines drawn through the C.G. position (loaded), forwards and downwards, at 10 degrees and 40 degrees to the horizontal; and

(b) For advanced work: within the angle formed by lines drawn through the C.G. position (loaded), forwards and downwards at 10 degrees and 80 degrees to the horizontal.

REGULATIONS GOVERNING AEROPLANE-TOWING.

1. No glider shall be used for aero-towing unless in possession of a current B.G.A. Certificate of Airworthiness duly endorsed for aero-towing. Proof that the necessary strength requirements have been complied with must be shown.

2. The strength requirements, extra to those for normal category gliders, are:—

(a) The fuselage shall be capable of withstanding a load at the cable attachment position of 200 lb. horizontally, changing to 400 lb. vertically, with a factor 2. The loads to be taken as acting separately and together.

(b) Suitable drag bracing shall be present.

A towing speed of 45 m.p.h. has been assumed.

3. No elementary training type glider will be approved for aero-towing.

4. Gliders shall only be towed by aeroplanes properly equipped for aero-towing, approved by the Air Ministry, and with the Certificate of Airworthiness endorsed to that effect.

5. The towing-cable shall include a "weak link" to fail at a load equal to the loaded weight of the glider. The link to be fitted at the glider end of the cable.

6. Only pilots in possession of the "C" Soaring Certificate will be allowed to pilot gliders towed by aeroplane.

7. The minimum length of cable shall be 300 feet.

8. All gliders used for aero-towing must have a release definitely operable by the pilot.

Printed and Published in Great Britain for the BRITISH GLIDING ASSOCIATION by GALE & POLDEN, LTD., 2, Amen Corner, London, E.C.4.

BOOKS TO READ

Gliding and Sailplaning By F. Stamer and A. Lippisch.	An excellent handbook for the beginner. It represents the collective results of the writers' experiences since 1921, related in a clear and simple manner, and is admirably illustrated. 5/6 post free.
Gliding and Motorless Flight By L. Howard-Flanders and C. F. Carr.	A practical, up-to-date handbook giving expert information regarding training of pilots, organization of gliding clubs, construction and repairs, meteorology, etc.; with interesting facts regarding past achievements and pilots, and official information regarding Certificates. Second edition now ready. 8/- post free.
Henley's A.B.C. of Gliding and Sailflying By Major Victor W. Page.	A simple and practical treatise on modern Gliding. It describes the construction, launching and control of the leading types of gliders and sailplanes and gives instructions for building a strong, yet simple, primary glider, including working drawings. 11/- post free.
Sailplanes By C. H. Latimer Needham.	A comprehensive treatise dealing with the design, construction and pilotage of Sailplanes. Indispensable to everyone who intends to take up gliding seriously. 15/9 post free.
"Gliding" (The Year Book published by The Dorset Gliding Club.)	A valuable handbook full of useful information, and one that must make a wide appeal, both to those merely interested in Gliding and to the advanced pilot who requires more technical information. 1/9 post free.
Handbook of the British Gliding Association	A useful reference book for all persons and organizations interested in Gliding. It includes a diary, Rules and Regulations issued by the Association, a Glossary, and authoritative articles on a number of interesting subjects. 1/6 post free.

Obtainable from the British Gliding Association, 19, Berkeley Street, London, W.1.

TIME and TIES

There are few conferences at which we are not represented. We may be uncertain as to whether a customer is famous for his knowledge of economics or his elocution, but we always know how he feels about ties.

The other day we had an urgent order from a customer about to travel to Switzerland to speak at an important conference. It appeared that he liked to wear a special sort of tie when making his pronouncements, and by some dreadful mischance he had on this occasion mislaid his entire stock.

His ideal tie had to be made to special design from a certain material and had to be delivered at his hotel the following morning. Even in our vast stock of ties we had nothing that struck the exact note, so we promised to search London and to deliver the tie before twelve next day if we were successful.

It was a most exciting race against time, and unfortunately time won. Our messenger arrived at the hotel with the tie but very little breath, ten minutes after our customer had gone.

By this time, however, we were quite worried about our customer's speech, and we began to make rapid inquiries for the address of the hotel in Switzerland to which he was going. We knew that he was travelling by boat and train, so we realised that his tie could catch an air liner and reach Switzerland before him. It did—and the speech was a great success.

We would not like to assert that if all delegates to all future conferences wore Austin Reed ties the results would be Utopian, but in view of this little experience we feel that it might be worth trying. Anyway, we present the idea to the nation.

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