July 8th, 1932 Vol. 3 No. 12

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(*Founded in September, 1930, by* THURSTAN JAMES)

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

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TO BE OR NOT TO BE?

ALL uncertainty with regard to the 1932 Competitions has, at last, been set at rest. The preliminary notification that all arrangements for the Competition were in the hands of the Contest Committee, and that the organisers had the matter well in hand so early in the year, led hopes to run high. The subsequent news, month by month, of progress and achievement on the part of certain clubs changed hope into certainty that at last, in this year of grace, British Gliding would be able to put up a worthy show against her more formidable competitors. But, as the weeks passed, various uneasy rumours commenced to float around. What was the Contest Committee doing? Why had not the site been fixed? Then we learned, to our gratification, that a preliminary selection of sites had been made. Then, once again, silence. Now we know the truth. For the Council of the British Gliding Association has decided that, owing to the present financial position of the Association, there shall not be any Competition this year. True, there is a proviso that, if the final result of any demonstration which the Association *may* organise merits a competition being held, the matter may be reconsidered, but, since we have already entered July, there is not much time to organise a meeting if we are to wait for a possible demonstration and, afterwards, for a consideration of its results.

We were prepared to see some modification in the proposed arrangements for the Competition, in view of the present financial position, but we were *not* prepared to see it abandoned altogether, and we have no hesitation in stating that, in our opinion, the Council of the British Gliding Association have made a big mistake in coming to this decision.

In the first place, the decision reflects a regrettable lack of faith—faith in the clubs, faith in the members to rise above existing circumstances, and to show what they can do. If there is the will to hold a Competition this year—and we believe that, in spite of the Council's decision, there is a very strong feeling that such a meeting *should* be held—we have sufficient confidence in the clubs to believe that they will find the means of organising it and carrying it through without any financial loss to the Association.

The reversal of an earlier Council decision at a subsequent meeting is not an unknown thing in the history of the British Gliding Association, and if the Council sees fit at its next meeting to reconsider its recent pronouncement on the subject of the Competition, we shall not, on that occasion at least, criticise the apparent change of front.

We do not close our eyes to the fact that, in undertaking to organise a Competition on a large scale, there is a certain risk of entailing a financial loss. But past history has shown that the B.G.A. can run competitions and demonstrations *at a profit*, and surely it has never before been in the position to put up so attractive a show as it can this year. It only needs capable organising, and keeping the scale of meeting within proper limits, to make practically certain, in advance, that there shall be no serious loss.

If anything is to be done this year there is no time to lose. We would suggest, therefore, that those clubs who are really keen on running a Competition should get together and decide on the form the meeting should take, the best site on which to hold it, and the details of the organisation, so that, when the Council next meets, definite proposals may be formulated. It may be necessary to abandon the original idea of an International Meeting; it may be considered desirable to veto any question of prizes. An enjoyable and stimulating contest is possible without the latter. A meeting can be organised on quite modest lines and yet produce all the benficial effects which would accrue from a full-blown Competition such as that which was first contemplated.

A READY RESPONSE.

The immediate response to the appeal for an Endowment Fund for British Gliding, which appeared in the last issue of THE SAILPLANE, has exceeded all expectation. Lord Wakefield, with his charactertistic foresight and generosity, has, once again, come to the rescue with a generous gift of £250. For this benefaction all associated with the Gliding

Movement will be truly grateful. Other smaller, but no less acceptable, contributions bring the total to date to £264 16s. 6d.

In the present issue we print an appeal by the President of the British Gliding Association, and we feel sure that it will not fall on barren ground. It is not the amount which counts so much as the spirit that prompts the giver, and if all who are able come forward and contribute to the measure of their ability, the final sum which will be secured will be sufficient to set the British Gliding Association on a surer footing than it has ever been before.

"THE SAILPLANE."

In our last issue we referred to the fact that steps were being taken to ensure that, in future, there should not be any risk of serious delay in the publication of THE SAILPLANE.

For some time past the business side of the paper has been in the hands of a Management Committee, which is a sub-committee of the Finance and General Purposes Committee of the British Gliding Association.

It has now been decided that the Management Committee should assume full responsibility for the paper, and that in the unavoidable absence of the Editor, the remaining members of the Committee shall ensure that the editing and publication of THE SAILPLANE are kept up to date.

The constitution of the Committee is as follows:—

The Editor, D. E. Culver, S. Humphries and F. Pilling.

THE NATIONAL AVIATION DAY CAMPAIGN

Below we give details of the programme for Sir Alan Cobham's display up to July 26th.

Mr. Lowe-Wylde is accompanying Sir Alan and gives daily demonstrations of auto-towed and aeroplane-towed gliding, including passenger flights. Working in conjunction with Mr. Lowe-Wylde is a representative of the British Gliding Association, who will supply any information desired with regard to the Gliding Movement.

Clubs are advised to note the date on which the Display will be given in their locality and to take full advantage of the campaign to stimulate local interest in their activities.

July 9.—Sheffield: Coal Aston Aerodrome.
,, 10.—Barnsley: The Old Wombwell Aerodrome.
,, 11.—Goole: The Old Race-course.
,, 12.—Skegness: The Aerodrome.
,, 13.—Kettering: The Flying Ground.
,, 14.—Leicester: Desford Aerodrome.
,, 15.—Leamington: The Flying Field, Cubbington Road.
,, 17.—Coventry: Whitley Abbey Aerodrome.
,, 18.—Market Harborough: Cote Hill Aerodrome, Husbands Bosworth.
,, 19.—Petesborough: Castor Hill.
,, 20.—Hunstanton: Church Farm, Ringstead Road, Heacham.
,, 21.—Thetford: Lodge Farm, Croxton Road.
,, 22.—Cromer: Laurel Farm, Nortr Repps.
,, 23.—Norwich: Mousehold Aerodrome.
,, 24.—Great Yarmouth: Wheatcroft Farm, Gorleston.
,, 25.—Ipswich: Municipal Airport, Nacton Road.
,, 26.—Clacton-on-Sea: The Flying Ground, Alton Park Road.

PERSONALITIES IN THE GLIDING MOVEMENT

D. E. CULVER.

(Founder Member and First Chairman of Council, British Gliding Association)



Douglas Culver was born in 1898 and educated at University College School. In 1916 he joined the Grahame-White School as a pupil. His pilot's certificate, No. 3798, was obtained on November 12th, 1916. After ten hours' solo flying he was appointed a junior instructor.

In August, 1917, Mr. Culver joined the R.N.A.S. and served at various home stations until June, 1918, when he went overseas. He served with No. 204 Squadron, R.A.F. (Sopwith Camel), at Teteghem, Dunkirk. In August, 1918, he was shot down near Dixmude and made a prisoner of war.

In December, 1918, he was repatriated. As a result of injuries sustained when he was shot down the previous August, his left arm had to be amputated, and in June, 1919, he was invalided out of the Service.

Mr. Culver played a leading part in the formation of the British Gliding Association. After an article on Gliding had appeared in the *Aeroplane* in 1930 he got into touch with Mr. Thurstan James and helped him to organise the now historic luncheon at the Comedy Restaurant, at which the Association was founded.

Mr. Culver obtained his "C" certificate on July 18th, 1931. He is at present an instructor of the London Gliding Club and a member of Council of the British Gliding Association.

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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 Endowment 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 demonstration 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, which have been received up to the time of going to press, are gratefully acknowledged:

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. McGlaschen	2	2	0
F. Gardiner	1	1	0
G. L. Bell	0	2	6

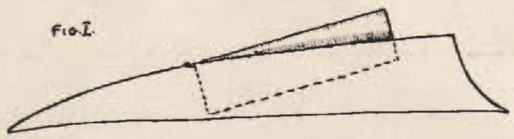
Donations should be addressed to the Secretary, British Gliding Association, 19, Berkeley Street, London, W.1.

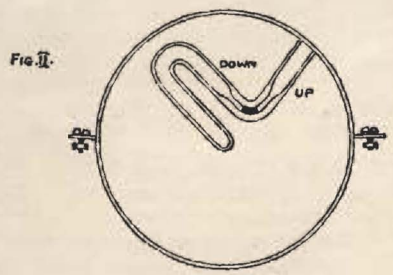
THE "ALTISCOPE"

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Considerable care has been taken to keep the size and weight down to the minimum, but as it is not possible to get the instrument into very small dimensions, the case has been made in such a way that it is easily mounted into the top panel of the fuselage, with the top half only of the dial protruding. By this means, room car be found for the instrument on most machines, and, as the protruding portion is of good shape, the drag is negligible (Fig. 1).





The interior of the instrument consists merely of a thermos flask which forms an air container of constant temperature. This container is connected with one limb of a transparent tubular portion, having a downward bend in the form of a U. The bend of the U is of smaller diameter tube than the limbs, and is filled with a coloured fluid. The second limb of the tube is open to the atmosphere.

The action is extremely simple. When the machine is rising, the atmospheric pressure falls, which causes an expulsion of air from the thermos, through the U tube, and the coloured fluid to bubble in the junction of the small and large tubes farthest from the container. Descent is indicated by bubbling in the opposite limb (Fig. 2).

Full particulars and price can be obtained from W. F. Stanley & Co., scientific instrument makers, High Holborn, or from George Culver, Ltd., White Lion Street, N.1.

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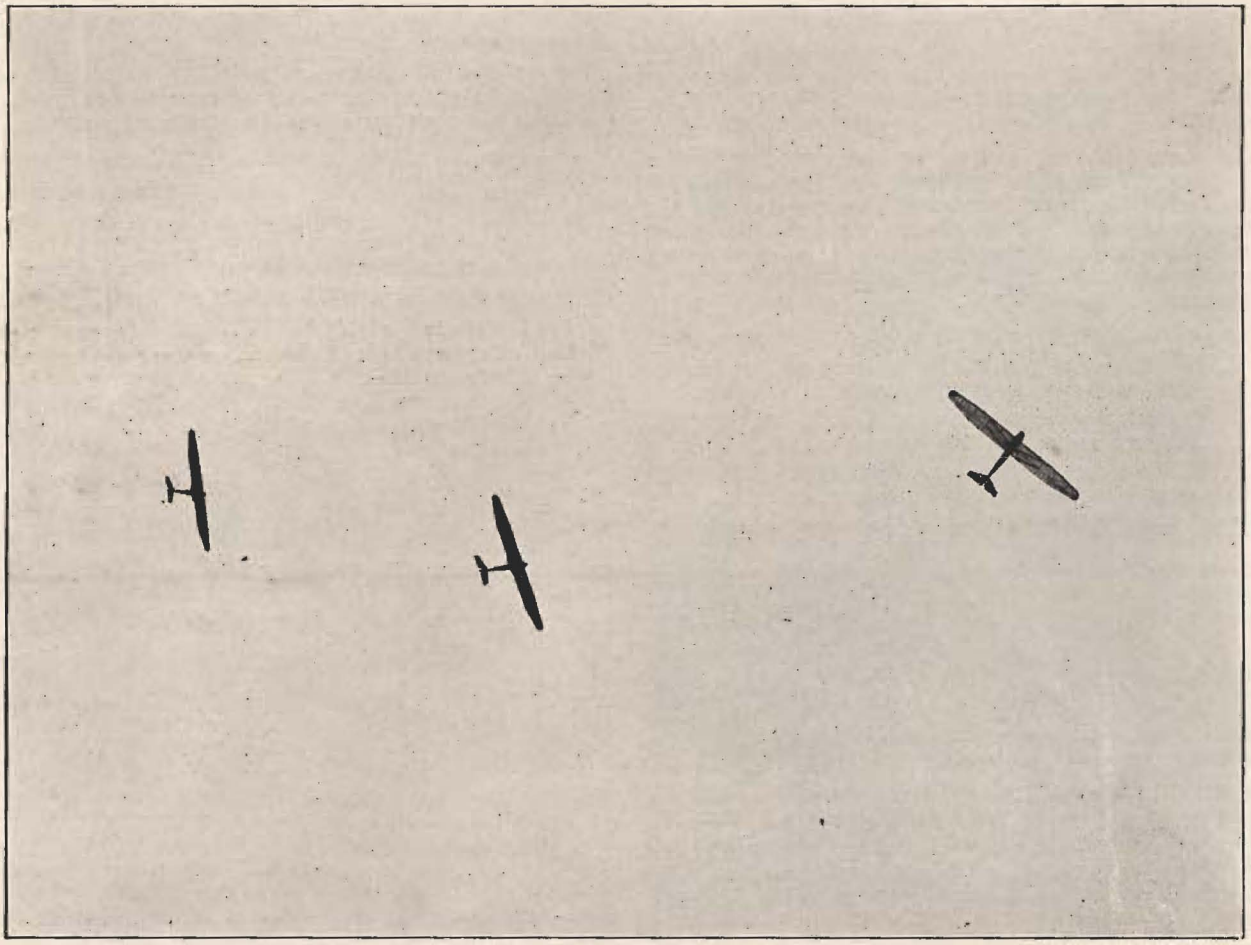
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THE ROYAL AIR FORCE DISPLAY



[*By courtesy of "Flight."*

The three B.A.C.VII's circling in line astern formation at Hendon.

The thirteenth R.A.F. Display was held at Hendon on Saturday, June 25th, in excellent weather. Those who were responsible, immediately after the war, for the Meteorological Office becoming a Department of the Air Ministry would appear to have known what they were about, for the Service enjoys, almost invariably, good weather for such major functions as the Display and the Schneider Trophy contest, even if its poorer relation, Civil Aviation, is not, perhaps, quite so fortunate.

The Display has been fully and ably described in those contemporaries which are devoted to power flying. Readers of THE SAILPLANE are interested, particularly, in one event which formed a distinctly novel feature in this year's programme. We refer, of course, to the demonstration of gliding which was included in the main programme.

Three B.A.C.VII gliders, which had been hired for the occasion, took off in formation towed by three "Moths" belonging to No. 24 (Communications) Squadron. The pilots of the gliders were Squadron-Leader J. J. Williamson, Flight-Lieutenant L. T. Keens and Flying-Officer E. L. Mole, while the towing aircraft were piloted by Flight-Lieutenant L. C. Barling, Flying-Officer R. F. Fletcher, and Flying-Officer W. F. Pharazyn.

Maintaining perfect formation, the machines climbed steadily to 1,000 feet. After executing a wide turn, and when over the centre of the aerodrome, the three gliders were released and immediately commenced a graceful descent to earth. Maintaining their original V-formation, they executed a wide left-hand turn, after which they formed line astern. Proceeding in this formation, they circled several times and then broke formation and came in to land.

Criticism has been levelled at the inclusion of this event in the R.A.F. Display, partly because gliding forms no part of regular Service training, and also because there was no exhibition of soaring flight. Whatever the reason for the inclusion of the demonstration, those associated with the Gliding Movement have reason to be grateful to the organisers for having given a distinct fillip to gliding at a time when it badly needs it. There can be no doubt in the mind of any unbiased spectator that the event was received with general approbation. The performance was excellent in every way and showed what can be attained by anyone who is keen on flying and to whom, for financial reasons, power-flying is prohibited.

The absence of any demonstration of soaring was due to the necessity for keeping the programme up to time. Had the critics been present at the rehearsal the previous day they would have witnessed the whole programme being held up for five complete minutes while three gliding pilots remained aloft refusing to come down. And they could have stayed up for much longer than five minutes! Further, the B.A.C.VII is by no means the world's *best* soaring machine. So much for the criticism. Let us forget it, and, rather, be grateful for an exhibition, before an admiring public, of one aspect of the oldest and newest and cheapest form of aviating.

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CORRESPONDENCE

THE NYBORG SAILPLANE.

SIR,—In view of the controversy created by my glider, it may be of interest to your readers to know that this glider has actually made a flight of 50 yards at an air speed of about 35 m.p.h.

As my air-speed indicator does not register below 40 m.p.h., the speed cannot be given accurately, but it is certainly less than 40 m.p.h.

This fact seems to refute the statement made by several people that this glider had a very high landing speed and a stalling speed of 50-55 m.p.h.

T. G. NYBORG.

SIR,—In the last issue of THE SAILPLANE I note that Mr. Scott Hall puts forward certain criticisms of the recent article in which I gave some particulars of the NYBORG sailplane (Vol. 3, No. 9). However, on most points I am in perfect agreement with Mr. Hall, and I venture to suggest that his letter might have been rather differently worded if the acting Editor had not, unfortunately I think, seen fit to change the title from the original form, namely, "Tendencies in Sailplane Design."

Furthermore, I suggest that the first person to be led astray by the change of title was the Editor himself when he added his editorial note concerning the aerodynamic properties of the fuselage!

Actually, of course, I was chiefly concerned with general principles of design and therefore did not attempt to analyse closely the details of Mr. Nyborg's machine.

Referring to the points raised in Mr. Scott Hall's letter, I agree that the speed over the ground on landing may be high, and with sailplanes as at present designed I, personally, am all for slow landing speeds, but if a steep gliding angle can be produced at will, so as to enable the machine to be levelled off just on the windward side of the hedge (or other obstacle), then the extra speed will not be so great a disadvantage; besides which, in an emergency, the speed can be quickly reduced by running the skid along the ground in a similar manner to the way in which an ordinary high-efficiency sailplane is landed down-wind.

The small rudder volume (rudder area X distance from C.G.), and consequent yawing instability at low speeds, is perhaps the weakest part of the design, and to this I have drawn attention, both in my article and in letters to the designer, but the suggested instability in pitch, during flight, is very doubtful. An examination of Fig. 1, on page 103, will show that the distance from the C.P. of the elevator to the C.G. is roughly 5 chords for the NYBORG against 4 chords for the WIEN and AUSTRIA. Some of this advantage is likely to be lost owing to the tailplane extending so far forward, and it seems probable that some improvement could be effected by cutting away the foremost part of the tailplane on both sides of the fuselage.



Martin Schempp starting on the "Schloss Mainberg" at Elmira, N.Y., for an altitnde flight to 3,130 feet.

It is, of course, necessary that the gearing between the control column and elevator should not be too sensitive.

The suggested minimum speed of 50 m.p.h. is in agreement with the figure I intimated in my first letter to Mr. Nyborg, but, however, I understand that it is his ambition to show that flight is possible at 30 m.p.h., or even less, with a K_1 of about 2.0, and unless he is successful in this respect I understand he will not proceed farther with the project. (It is of interest to note that in the last issue of THE SAILPLANE, "Kentigern" assumed a figure of $K_1 = 2.0$ for the vulture.)

Lastly, dealing with the view, put forward by both Mr. Scott Hall and Air Commodore Chamier, that the machine will be dangerous to fly, I agree that the test flights will need most careful handling, and my opinion on this point is well known to those concerned. Quoting from my article, "The new machine . . . may not be an immediate success, but it may be the forerunner of a new era in sailplane design." Perhaps Mr. Nyborg has been a little too revolutionary, but I shall be surprised if the sailplanes of five or ten years hence do not bear some resemblance to the present machine.

C. H. LATIMER NEEDHAM.

"SAILPLANE" PHOTOGRAPHIC COMPETITION.

The competition for May was won by M. Robert Liebaert, 6, Quai Albert, Gand, Belgium, for the photograph, "Soaring in Belgium," published on page 124 of No. 11, Vol. 3.

The competition for June was won by Mr. Hastwell, of the Bradford and County Gliding Club, for the photograph published on page 143 of the present issue.

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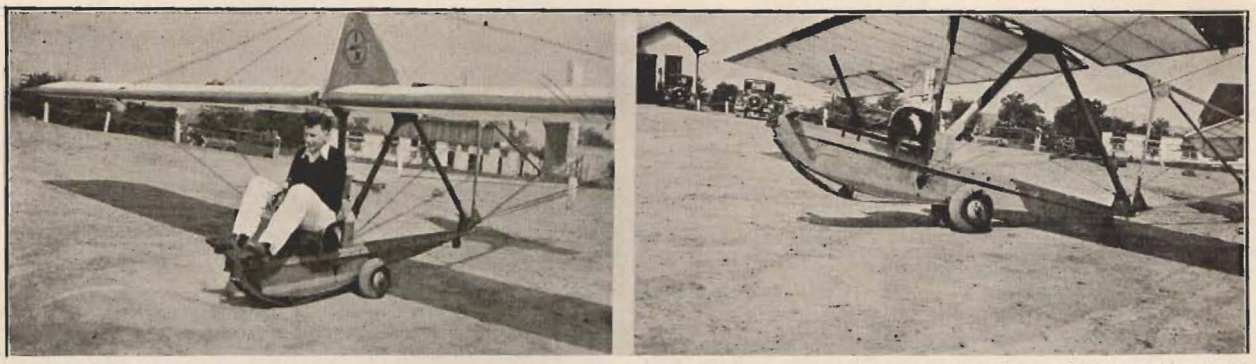
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NEWS FROM OVERSEAS



A primary training glider of the "Zögling" type used by the Haller School of Soaring Flight, Greensburg, Penna. The machine is equipped with two low-pressure air-wheels for auto-towing. Note the small solid rubber tail-wheel.

[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.]

GERMANY.

The second Silesian Soaring Contest began at Grunau in the Riesengebirge on May 15th. It lasted for a week. Fifteen clubs sent in entries, and contingents, numbering in all 187 people, actually arrived from twelve. Of the total of twenty-three machines, nine were high-performance sailplanes. Besides five Grunau Babies there were the Schlesien in Not, the Wiesenbaude, the Krummhübel, and a Poppenhausen.

Although the wind never blew from the west, the most favourable direction, yet weather conditions were good throughout the meeting, and soaring was possible nearly every day. Six machines were often to be seen soaring above the northern and even the eastern slopes which hitherto have not been considered particularly good. One Grunau Baby achieved a record by soaring above the eastern slope for over an hour. This is the first time a machine has stayed up for so long above that particular piece of ground.

By way of a prize, Wolf Hirth promised to lead an expedition, composed of the three winning clubs, to the Rhoen Competitions at the Wasserkuppe and to make this possible there were three prizes each of R.M.300. These were won by the P.S.V. Frankenstein; the Marcho Silesia; and the M.T.V. Grunau.

The competitions were divided into two sections, for beginners and more advanced pilots. In the latter section twenty spot-landings were made within 15 feet of the mark, and sixty-two within 50 feet. The total number of take-offs for both sections was 705, and the total flying time 30 hrs. 4 min. Fourteen "B" and two "C" certificates were gained during the competitions.

CANADA.

At the annual meeting of the Glider Section of the Toronto (Ont.) Flying Club it was announced that 950 shock-cord flights had been made during the past year. The Club's glider has been rebuilt during the winter and is now being used in a large field near Oriole (Ont.).

The Manitoba Gliding Club operates at Lindgren Field, Winnipeg. It has two primary machines, both home-made, and a third is now being built. One of the first two, a Northrop, has made 200 flights since last August. The Club claims that 85 air miles were flown during the last four months of 1931. All flights are made behind a towing car. A 600-ft. rope is used for training purposes, and the length increased to 2,000 feet for demonstration purposes. The rope is ¼-inch manila. The Club record for altitude is 500 feet, achieved by Mr. C. H. Lindgren after whom the gliding field is named.

UNITED STATES.

The third Annual National Soaring Meet begins at Elmira, N.Y., on July 11th, and lasts until the 24th. According to the latest information to hand, a total of twenty-eight pilots, four sailplanes and six utility gliders have been entered. Cups have been given by the Texas Company, the Hon. F. Trubee Davison, the Bendix Aviation Corporation, and Mr. Warren E. Eaton.

For the first time there is to be a meteorological officer on duty throughout the meeting. Arrangements to this end have been made by the Massachusetts Institute of Technology, which, through Professor C. G. A. Rossby, has offered to furnish a complete meteorological service for the whole two weeks. The M.I.T. party of four will be headed by Dr. Karl O. Lange, who has worked with Professor Georgii and has co-operated with Groenhoff in his preparations for record flights.

Arrangements have been made to take observations up to 12,000 feet every morning. This will be done with an aeroplane properly equipped with instruments which has been made available by Mr. Warren Eaton, who is President of the Soaring Society. He will make most of these flights himself. Observations and the compilation of data will begin about 5 a.m.

A novelty is the complete break-away from a cast-iron programme. Flights will be made from designated take-off points as soaring winds occur, and points awarded to entrants for these flights will count towards the various prizes. Chief among the latter will be cups for greatest altitude, greatest distance, and longest duration on any one flight. There will also be a prize for the club which obtains the greatest flying time; for this, only two hours per individual will count on any one day.

A successful flight was made by Mr. Warren Eaton in a Haller Wawk recently, when he climbed to 2,800 feet after being aeroplane-towed to a height of only 500 feet above his airport.

HOLLAND.

The Rotterdam Aero Club recently invited the South-Western German Flying Club to demonstrate aeroplane towing at Waalhaven. The demonstration, for which a Kassel 25 was used, went off extremely well.

FRANCE.

On the evening of May 22nd at Vatteville, M. Beau, in the Gral 6, made a flight of 6½ min. in a wind of very low strength. Appreciable height was gained after the tow-rope had been dropped, but unfortunately no information is available regarding the height to which the machine was towed.

The first trials were made on June 25th of a tailless glider designed by M. Abrial. Test flights with shock-cord launching were made by the designer and Captain Remy. After the trials it was decided to make the control of the ailerons differential and to increase the length of the skid, as the machine had shown a tendency to nose in when landing.

A VISIT TO THE LONDON GLIDING CLUB

By E. C. GORDON ENGLAND (Chairman of Council, British Gliding Association).

I have to confess that, until the other day, I had not been near the London Gliding Club site at Dunstable for many more months than I care to admit. Repeated and pressing invitations to come and see the progress they had made had had to be refused owing to pressure of other calls on my time.

An opportunity presented itself recently to go and spend an afternoon at Totternhoe. The weather did not seem very promising, and I was afraid that perhaps after all I should see little.

On arrival at the site, I was glad to see the PRÜFLING sailing strongly along the crest of the hill; this was a good omen.

A very profitable and exceedingly interesting and inspiring afternoon was spent observing all that had been accomplished. To one who has worked for the past two and a half years, certain of the possibilities in the Gliding Movement, a visit to the London Gliding Club proved to be most encouraging, because that club has accomplished what is well within the bounds of probability for literally hundreds of clubs throughout Great Britain.

It will be argued that the London Gliding Club have exceptional opportunities, but those knowing their history and the record of their difficulties will agree that in principle they have been similar to those of other clubs, and, as for their alleged exceptional opportunities, one strongly suspects that they only exist in the minds of those who wish to find explanations for their own failures or shortcomings.

The secret of the success of the London Gliding Club lies in the fact that those who form the energetic planning and working nucleus have been resourceful enough to find a way out of their problems, and this fact in itself should be an inspiration and encouragement to others forming or running clubs in other parts of the country.

Without in any way wishing to take credit for being a prophet or for having appreciated the essentials that go to make a successful club, the London Club succeeds because it meets the points which we have preached, in and out of season, since the formation of the British Gliding Association.

It has a permanent site. True, it pays rent for this, and a heavy rent, but the members, having realised that this was an essential, have boldly faced the issue and provided the ways and means to meet this demand.

It has proper shed accommodation on the site. True, this all costs a lot of money, but, again, recognising that this is essential, they have found the necessary money to purchase the requisite materials and, by putting their backs into it with real personal hard work and manual labour, have built up their sheds.

They have a resident ground engineer, paid by the club; again, the issue has been faced and not avoided or neglected.

Their fleet of machines is adequate and by its variety offers everything from an elementary training machine to a high-efficiency sailplane, an attractive prospect for any new member joining, as he realises that it rests with him, and with him alone, as to how far he can advance, as regards the practical art of soaring in his own club.

They also have a club-house; again the product of great energy, determination and much hard labour, but it is delightful, cosy and at the same time spacious.

The field organisation is most impressive. Good team work is apparent everywhere, and the ingenious and entirely inexpensive method of recovering machines and returning them to the top of the hill is an object-lesson to anybody.

Nothing seen during a most interesting afternoon at Totternhoe is beyond the means of the average gliding club anywhere in the country, provided—and this is the big proviso—that the same business-like spirit and courageous facing of facts is exhibited as is obvious wherever one looks or turns at the London Gliding Club.

One does hear too often criticism of the London Gliding Club to the effect that too much attention is focussed on them, but surely they have justified their claim to attention, since they have gone ahead steadily and surely, and in a short space of two and a half years have built up an organisation that a well-subsidised civilian light aeroplane club might well envy.

This achievement should be viewed as an inspiration to other clubs and a provoking challenge to them not only to go and do likewise, but to do better, and *it can be done.*

The greatest difficulty that we in the Movement have to face is not the unkindness of fate, the unsympathetic attitude of landlords, the lack of available membership for the clubs, or a denial at the right opportunity, but sincere and humble recognition by those in the Movement that the difficulties and shortcomings are mainly of our creation, because we look for spoon-feeding and Utopian conditions and dream of fancies instead of living in a world of facts.

The essentials for success in any venture are surely courage, vision, determination, facing of facts, and prudent business management from the word "Go"; the rest follows.

One looks forward with unbounded confidence to the time when clubs of the type of the London Gliding Club will be spread all over the country. This will surely come to pass if the lesson be learned.

LONDON GLIDING CLUB.



Interior of Club-house.

A COMPARISON OF THE PERFORMANCES OF A VULTURE AND OF A "TERN" SAILPLANE.

By T. G. NYBORG.

In THE SAILPLANE of May 17th there is a very interesting article by "Kentigern" on the estimation of the performance of a vulture from data supplied by Mr. S. M. Vine of South Africa.

"Kentigern" states that Professor Melville Jones has shown that the dynamic resistance of a streamlined body is negligible compared to the skin friction. I rather disagree with this theory, as I consider that the skin friction and dynamic resistance of a body with elevator and rudder should be alike to make the total resistance a minimum for the body. This, of course, is not always obtained, as there are other considerations which govern the body design, as may be seen from the many different forms of birds' bodies (e.g., compare the body of a pheasant with that of a gull).

The body of a bird of prey we would expect to be fairly well streamlined, but the vulture scarcely comes into this category, and we must look to its mode of living and the conditions under which it has to start its flight, as it is upon those factors that the design of the wings and body mainly depends.

From the data given by Mr. Vine, I would imagine that the vulture has to rise off the ground under restricted conditions and it would be of interest to know if the particular vulture had a good feed shortly before it was shot. I am inclined to think it had.

As a rule, vultures object to heavy weather or very gusty winds, and prefer to get down when such conditions prevail. I was told by a friend that he had once observed a vulture in Chile being tossed about for a considerable time before it succeeded in making shelter, although seagulls were flying about as usual with no indication of difficulty. If I remember rightly, an article appeared in *Flight* some years ago describing how an aeroplane pilot hunted vultures in Africa and their maximum speed was then given as 50-55 m.p.h.

Unfortunately, I am not familiar with the actual shape and dimensions of a vulture's body, but from photographs it appears to be rather short or egg-shaped and not exactly well streamlined. I am, therefore, of the opinion that the dynamic resistance of the body cannot be neglected. In fact, I think that it amounts to more than the frictional resistance due to the body surface which "Kentigern" has taken as 32 sq. ft., whereas I reckon about 5 sq. ft.

With regard to the modern glider, say the TERN, I quite agree that the dynamic resistance may be neglected, as it only amounts to 10 per cent. or even less of the skin friction.

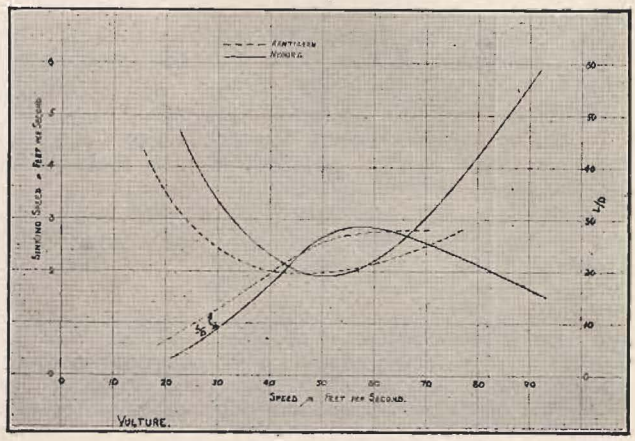
I am sorry I cannot follow "Kentigern's" calculations, as I am conversant neither with the formulæ employed nor with his methods. I see, however, how the different values of K_1 are obtained for the different velocities by the formula given, but I do not understand how this can be applied to this particular wing under different conditions, as the angle of incidence is apparently neglected. To my surprise the result arrived at seems to fit fairly well with my calculation, and I am not prepared to say which is the more accurate, as I have insufficient information of the actual soaring and sinking speeds of birds to afford me the necessary verification of my formulæ. I do not use the results of wind-tunnel tests, as I do not believe in them. At least, I have seen so many contradictory results that I do not think they can be relied upon as soon as the conditions are altered to any extent. On the other hand, I admit that the knowledge of the whole problem of soaring is so vague that one must be very careful in predicting anything for conditions out of the beaten track, and that those who know least of the subject are the first to condemn anything new without being able to give any reason.

In calculating the performance of the vulture from Mr. Vine's dimensions for the span, weight and wing area, I am unable to allow for the slotted wing, as I have never had any information on this subject. I believe, however, that it is only when flying slowly that the bird uses its power to slot its wing tips.

It is a well-known fact that if two square kites of similar overall dimensions are flown in the same wind velocity, the one having a piece cut out of the middle equal to half its area, while the other is whole, the pull in the string will be the same in each case.

This may account for the small wing area given, but I am prepared to say how much the effective area is increased by the slotting, and we shall consider it in discussing the curves as calculated by "Kentigern" and those of my own calculation.

The thickness of the wing arm and the wing curvature has also not been given, and I have calculated the thickness of the wing at the shoulder and assumed the curvature of the top or suction side of the wing is as it should be while the underside is assumed to be flat as it probably will be at the higher speeds. At the lower speeds there may be some camber, and the flying speed should therefore be somewhat slower than my calculations show.



I give herewith a performance calculation and curves of sinking speed and gliding angle for the vulture and for the TERN sailplane. These calculations have been made in accordance with my own theories, and I would point out that not a single "variable" constant (if I may use the expression) has been used. This means that anyone who can use a slide-rule may calculate the performance of any bird or glider using nothing more than the formulæ here employed and the dimensions of the glider, provided that it is of reasonably good aerodynamic design. Naturally, a formula cannot allow for any unnecessary resistance-producing fitting, and this must be found by test.

Comparing the skin friction resistance with the dynamical resistance of the body in the two calculations, we find that the dynamical is about three times the frictional resistance for the vulture's body, while for the TERN sailplane the body frictional resistance is nine times the body dynamical resistance.

It is obvious therefore that, while the dynamical resistance of the TERN body may be neglected, the dynamical resistance of the vulture's body must be taken into account. In the case of the sailplane, I have assumed the streamlining to be only two dimensional, and I would be very grateful if anyone could give me definite information of the actual performance, as my calculation is based on details given in *Flight*, and some of the dimensions were scaled off a small scale drawing.

As all my calculation is in the metric system, I have converted the sinking speed, or work per unit of weight per second, into feet for the vulture. Assuming a man weighing 168 lb. can, for a short time, work at the rate of 1 h.p. or 550 ft./lb. per second, we find that the vulture should do $\frac{550}{168} \times \sqrt[3]{\frac{168}{18{\cdot}6}} = 6.8$ foot/lb. per second per lb. weight. I am unable to say for what period the vulture could maintain this rate of work, but probably it would be only able to do so for a short time and it is unlikely

VULTURE.

$W = 8{\cdot}3$ kg. $S = 2{\cdot}55$ m. $A = 0{\cdot}856$ m².

$\sqrt[6]{W} = 1{\cdot}42$. $k_d = 1{\cdot}13$. $k_a = 3{\cdot}36$.

$f_1 = 1{\cdot}84 \times 2 \times A \times 10^{-4} = 0{\cdot}0302 \times 10^{-2}$.

$f_2 = 1{\cdot}84 \times 0{\cdot}5 \times 10^{-4} = 0{\cdot}0092 = 10^{-2}$.

$f_3 = \pi/4 \times \frac{1{\cdot}3}{10} \times B_D^2 \left(\frac{B_D}{B_L}\right)^{2.5} = \frac{0{\cdot}0316 \times 10^{-2}}{0{\cdot}071 \times 10^{-2}}$

Total $= 0{\cdot}071 \times 10^{-2}$.

$T = 0{,}035$ m. $B_D = 0{\cdot}227$ m. $B_L = 0{\cdot}7$ m.

$b = \frac{A}{S} = 0{\cdot}335$. $b_0 = 0{,}335(1 - e^{-46}) = 0{\cdot}245$. $n = 7{\cdot}6$.

$\tan \alpha_1 = \frac{0{\cdot}035}{2 \times 0{\cdot}335} = 0{\cdot}052$ or $\alpha = 3°$.

$W/S = 3{\cdot}25$ kg./m. $W/A = 9{\cdot}7$ kg./m².

$fw = \frac{2 \times 1{\cdot}3}{10} \times {\cdot}856 \tan^3(\alpha_1 + \alpha_2) = {\cdot}22 \tan^3(\alpha_1 + \alpha_2)$

Surface of Body Head and Tail $= 0{\cdot}5$ m².

$C = \sqrt[3]{\frac{k_S}{K_S + K_A}}$ $V = C \sqrt[6]{W}$.

α_1	α_2	$K_S \times 10^{-3}$.	$K_A \times 10^{-3}$.	$(K_S + K_A) 10^{-3}$	C	V	fw	Σf	$\Sigma f V^2$	$W \sin \alpha_2$.	R	m.kg./sec.	m.kg./m/sec.	L/D	$\beta = \frac{W/A}{10} \frac{1}{V^2} \frac{1}{1{\cdot}3}$	Sinking Speed, ft./sec.	V ft./sec.
$2\frac{1}{2}$	$-\frac{1}{2}$	0·27	−0·125	0·145	19·8	28·2	0·003	0·074	0·59	−0·07	0·52	14·7	1·77	15·9	0·094	5·8	91·5
3	0	0·384	0	0·384	14·3	30·3	0·004	0·075	0·31	0	0·31	6·3	0·76	26·8	0·18	2·5	66
$3\frac{1}{2}$	$\frac{1}{2}$	0·52	0·125	0·645	12	17·1	0·005	0·076	0·22	0·07	0·29	5	0·6	28·5	0·255	1·96	55·7
4	1	0·67	0·25	0·92	10·7	15·2	0·007	0·078	0·18	0·14	0·32	4·9	0·59	26	0·325	1·93	49
$4\frac{1}{2}$	$1\frac{1}{2}$	0·84	1·375	1·22	9·75	13·8	0·011	0·082	0·155	0·28	0·37	5·1	0·61	22·4	0·395	2·0	45
5	2	1·04	0·50	1·54	9	12·8	0·015	0·087	0·144	0·29	0·44	5·6	0·68	18·8	0·46	2·23	41·7
6	3	1·46	0·75	2·21	8	11·4	0·025	0·096	0·126	0·435	0·56	6·4	0·77	14·8	0·58	2·5	37
7	4	1·93	1·0	2·93	7·3	10·4	0·041	0·112	0·122	0·58	0·70	7·3	0·88	11·8	0·7	2·9	33·8
8	5	2·5	1·25	3·75	6·7	9·6	0·060	1·131	0·121	0·72	0·84	8·1	0·98	9·9	0·81	3·2	31
10	7	3·76	1·65	5·41	5·9	8·4	0·12	0·191	0·135	1·01	1·15	9·7	1·17	7·2	1·06	3·85	27·2
12	9	5·2	2·05	7·25	5·4	7·65	0·21	0·281	0·165	1·3	1·5	10·5	1·27	6·5	1·28	4·12	25
15	12	7·7	2·7	10·4	4·75	6·75	0·42	0·491	0·225	1·7	2·9	19·5	2·35	3·5	1·68	7·7	22

"TERN."

$W = 185$ kg. $S = 15{\cdot}25$ m. $A = 19{\cdot}5$ m².

$\sqrt[6]{W} = 2{\cdot}4$. $k_s = 0{\cdot}9$. $k_a =$ em 0·7.

$f_1 = 1{\cdot}84{\cdot}2{\cdot}A \times 10^{-4} = 0{\cdot}0072$.

$f_2 = 1{\cdot}84 \times 26{\cdot}6 \times 10^{-4} = 0{\cdot}0049$.

$f_3 = \frac{\pi \times 1{\cdot}3}{4 \times 10} \times 0{\cdot}75^2 \left(\frac{0{\cdot}75}{7{\cdot}5}\right)^2 = 0{\cdot}00057$.

f_4 = Skid and Head $= \frac{0{\cdot}00033}{0{\cdot}01300}$

or $1{\cdot}3 \times 10^{-2}$.

$T = 0{\cdot}3$ m. $B_D = 0{\cdot}75$ m.. $B_L = 7{\cdot}5$ m.

b max. $= 1{\cdot}87$. $\frac{A}{S} = 1{\cdot}28 = b$ mean. $\therefore b(1 - e^{4b}) = 1{\cdot}27$.

$\tan \alpha = \frac{0{\cdot}3}{1{\cdot}87} \times 3/4 = 0{\cdot}12$ or $\alpha = 7°$.

$\frac{W}{S} = 12{\cdot}5$ kg./m. $\frac{W}{A} = 9{\cdot}5$ kg./m².

$\frac{W}{S} = 12{\cdot}{\cdot}5$ kg./m. $\frac{W}{A} = 9{\cdot}5$ kg./m.²

Body Elevator and Rudder Surface $= 26.6$ m.²

$f_w = \frac{2 \times 1{\cdot}3}{10} A \tan^3(\alpha_1 + \alpha_2) = 5{\cdot}1 \tan(\alpha_1 - \alpha_2)$.

$C = \sqrt[3]{\frac{k_S}{K_S + K_A}}$ $V = C \sqrt[6]{W}$.

α_1	α	K_S 10 ^{3}	K_A 10 ^{3}	$K_S + K_A$ 10^{-3}	C	V	f_w 10 ^{2}	Σf 10 ^{2}	$\Sigma f \times V^2$	$W \sin \alpha$	R	m.kg./sec.	m.kg./kg.	γ	β
6	−1	1·46	−1·435	0·025	33	79	0·6	1·9	11·8	−3·25	114·75	9000	49	1·65	—
$6\frac{1}{2}$	$-\frac{1}{2}$	1·7	−0·725	0·975	9·7	23·2	0·75	2·05	11·0	−1·62	9·38	218	1·18	19·7	0·135
7	0	1·93	0	1·93	7·75	18·6	0·94	2·24	7·7	0	7·7	143	0·78	24	0·21
$7\frac{1}{2}$	$\frac{1}{2}$	2·21	+0·725	2·93	6·75	16·2	1·16	2·46	6·45	1·62	8·07	131	0·71	23	0·275
8	1	2·5	+1·435	3·74	6·1	14·7	1·41	2·71	5·9	3·25	9·15	134	0·73	20·2	0·335
9	2	3·12	2·92	6·04	5·3	12·7	2·00	3·3	5·3	6·5	11·8	150	0·810	15·7	0·45
11	4	4·5	5·75	10·2	4·45	10·7	3·75	5·05	5·8	13	18·8	202	1·1	10	0·63
15	8	7·73	10·7	18·4	3·65	8·8	9·8	11·1	8·6	26	34·6	305	1·65	5·35	0·93
21	14	13·4	16·6	30	3·12	7·5	28·5	29·8	16·8	45	61·8	465	2·5	3	1·3

that it could keep up more than one-third of this output, or, say, 2 ft./lb. per second per lb. for any length of time.

As a man can only maintain a continuous working rate of .5 ft./lb. per second per lb., it will be appreciated that this does not underestimate the vulture's working capabilities.

From the table it will be seen that for the minimum work of 2 ft./lb. per second per lb., the vulture's cruising

speed will be about 33-3-5 m.p.h. when flying under its own power.

Comparing the two calculations, " Kentigern's " and my own, we find that my method gives a higher minimum and a lower maximum speed.

It may be that the more orthodox method is the more accurate at the lower speeds, as I have not allowed for any slotting effect, and for reasons of ease of working I have not considered the second power term of the lift coefficient.

In view of the work required, my method would appear to be the more accurate at the higher speeds, since, as previously mentioned, the maximum speed of the vulture when exerted to its limit is in the neighbourhood of 50 m.p.h., which means a working rate of 3½ ft./lb. per second per lb.

Curiously enough, the two calculations coincide in the value of the maximum L/D.

It seems curious that the optimum gliding angle given by the orthodox method should correspond to the maximum speed of which the bird is capable, and I should like to know more of the method by which this result is obtained.

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NEWS FROM THE CLUBS

BRADFORD AND COUNTY GLIDING CLUB.

Saturday, June 11th, and Sunday, June 12th.

On the Saturday a light east wind was coming up the Reservoir slope, and flights of up to 40 sec., with turns, were carried out on this slope till dusk. REYNARD was used, as DICKSON is having a new wing built as a result of our Whitsuntide crash. On Sunday, the wind was very variable, but of such strength that its direction had always to be taken into account, with the result that during the day five different slopes were used to meet the varying wind direction. Some very good flying was done between the intervals of rushing the machine from one spot to another, and good progress was made. We have a good slope for every wind direction except south, and Sunday was the sort of day that taught us really to appreciate our site.

Saturday, June 18th, and Sunday, June 19th.

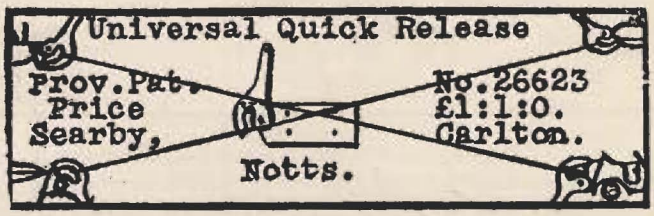
Flying was suspended for this week-end owing to the visit of Sir Alan Cobham for National Aviation Day. The Club was well represented at Yeadon, where it had a machine and an inquiry tent on view in a roped-off enclosure. Great interest was shown, much propaganda was distributed, and new members were enrolled. Mr. Jones, our Hon. Secretary and Chief Instructor, gave a masterly exhortation through the public address unit, which was placed at our disposal for a short time by courtesy of Sir Alan. In spite of our activity in connection with National Aviation Day, repair work on DICKSON and alterations to REYNARD were carried on throughout the week-end.



Air view of the London Gliding Club Hangars and Club-house, taken by F. B. Thomas while soaring in a " Prüfling."

Are you going to be the last to use it?





Saturday, June 25th.

Alterations to REYNARD were completed during the afternoon. The work carried out includes the fitting of a new rudder, repairs to starboard aileron, which has had a nasty kink in it lately, and the entire replacement of the rear fuselage with a new and more rigid structure. At the end of the day the job, which had been done in record time, was given its first coat of varnish and we repaired to the farm for tea and to offer up prayer for a favourable wind on the morrow.

Sunday, June 26th.

Wind W.S.W., 10 m.p.h. Several hardy members who had camped on the flying ground overnight had REYNARD out early and practically ready for flying by the time the main body of members turned up at about 10.30 a.m.

A short test flight showed that the alterations and replacements carried out on the machine had been a great improvement; the machine is altogether more rigid and quicker on controls than before.

After a few flights on the short " A " slope for some of the newer members, flying was carried out on the long west slope till dusk, and this Sunday again proved to be one of the best days we have ever had. Instead of sending our usual horse for retrieving the machine, our " haulage contractors " sent us a tremendous animal which completely dwarfed the machine and insisted on retrieving at a smart trot. In these circumstances the holders of wing-tips, etc., bore up creditably, and the quantity and quality of the flying were both highly satisfactory.

Flights of 1½ min. were the order of the day, and several members succeeded in completing a full beat along the ridge, turning, and landing at a previously appointed spot. Stedman, Tillett and Robertson put up particularly good performances, and Cox and Seager had their first flights down this slope, which was very well managed.

Flying was continued till 9.15 p.m., and all repaired to the farm for ham and eggs, tired but happy.

Work on DICKSON is being carried on each evening, and the new wing is now ready for covering. Slight repairs and replacements are being carried out on other parts of the machine, and when ready old DICKSON will be at least as good as new again.

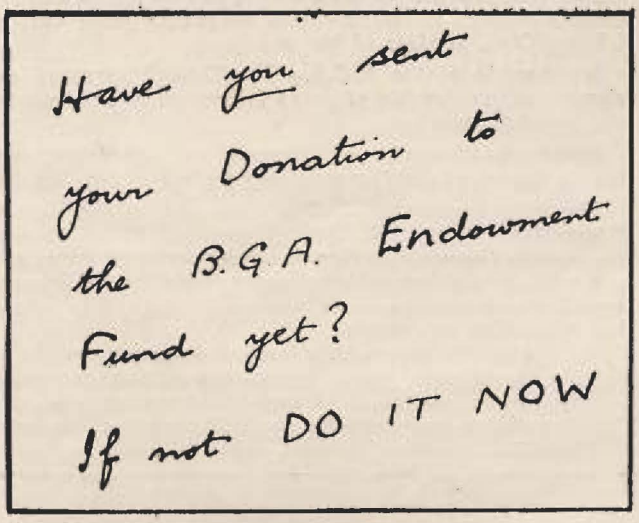
LONDON GLIDING CLUB.

Sunday, June 26th.

Nothing particularly moving has happened during the past month, although the general standard of pilotage has obviously continued to rise.

A soaring flight of ten minutes has come to be looked upon as modest; a twenty-minute flight is healthy; upwards of half an hour, when a queue is waiting to use the machine, is a shade on the greedy side.

Passionless hill-top landings are definitely becoming a normal procedure. A failure to soar a suitable machine in an adequate wind causes leg-pulling. It is a *faux pas* to put a machine down unnecessarily far from the foot of the launching hill. It is increasingly recognised that a flight off the hill is always worth while, however flat the calm; nobody can learn too much about accuracy in landing.





An unusual photograph. Mr. Hastwell, of the Bradford and County Gliding Club, photographs himself during a banked turn by means of a camera attached to the wing-tip. The release was operated by cotton held in the pilot's left hand.

In short, we are emerging from the Certificate Complex.

Winds lately have not been much good. In this summer weather they tend to be patchy and fickle. But HOLS continues to add to her enormous total soaring time. To-day she has floated indefinitely with Hiscox, Collins, Dewsbery, Humphries and Lee, landing on the top when the crowds of spectators left enough clear space. From the air the ridge looks rather like Southsea beach on a bank holiday, with hundreds of cars parked on the road in the background.

The Club PROFESSOR will shortly be out of dock after a complete overhaul. Miss Lippens's PROFESSOR is in perfect condition and waiting for a hearty westerly wind. PRÜFLING is waiting for an overhaul. The R.F.D. has emerged from repairs; the KASSEL 20 is being strengthened so that we can be less conscientious in landing without paying the penalty; ZÖGLING, like the brook, goes on for ever; Hiscox has found an unwanted R.F.D. in the Midlands; and there are rumours of two new privately owned machines.

The POPPENHAUSEN two-seater has to-day been through her first trials after her resuscitation. She looks really smart; acres of shining yellow wings. There is a craving to soar her, solo, in a nice breeze of wind; it is bound to be a perfectly marvellous business, resembling the riding of an inebriated balloon.

At one time it looked as if the general lift in standard of flying would cause a dearth of suitable machines. But the trouble is fading fast, and, when the autumn blows come, you will only have to pay your money (and be a good boy) and then take your choice from a range of machines which would do credit to the Science Museum itself.

Saturday, July 2nd.

To-day a fresh breeze blowing sufficiently squarely up the hill. Starting at 4 p.m., four machines accumulated about five hours' flying time without any effort at that horrid phenomenon, " record-breaking." The wind speed above the hill-top varied from about 15 m.p.h. to about 25 m.p.h. The conditions were fairly lively, the machines heaving about quite pleasantly. It seemed as if the lapse-rate was unusually steep. Was it? Does anybody know?

In the POPPENHAUSEN DOPPELSITZER Buxton first soared solo, and then spent the rest of the day in soaring with a stream of passengers. Until the wind died at nightfall he landed each time at the launching-point, coming in from thoroughly Buxtonian angles. These trips were heaven-sent for all those passengers who are still struggling toward their first solo soaring flight; and, in any case, Buxton, who is entertaining at all times, is at his best as a companion in mid-air.

There was no doubt about her ability to soar with a 24-stone load. She held an average height of about 150 feet above the hill, in spite of the lack of solidity in the lift of the up-current. She behaved kindly, but is naturally rather bus-like on the controls. The aileron control can be alarming at low speeds, and, in any case, the excessive dropping of such a large wing would give an inexperienced pilot one or two nasty moments.

In Miss Lippens's PROFESSOR Symmons made two delightful high trips of about half an hour each. He appeared to rise above the unsteadiness that affected the other machines.

HOLS was not too well suited by the conditions, but the owners soared repeatedly.

The R.F.D. was flown down repeatedly.

KASSEL 20 had a real day out. Dewsbery soared for one and a half hours, including the tea-interval, during which he at times was fighting for his inches of height and at other times was approaching reasonably near to Dunstable Town and to the Zoo. Collins, Grimston and Humphries took about twenty minutes each. All four had no difficulty in making an unemotional landing near the launching-point, thus saving wear and tear of the skid. Finally Buxton was detailed to fly her home to bed, which he did, having soared. After his many flights in the two-seater, the easy controls of the KASSEL gave him much pleasure.

The Gliding Movement grows quite dynamic when one watches three machines, containing four people, playing tag round the edge of the Bowl.

Sunday, July 3rd.

The wind being parallel to the hill, we were kept to a low ridge at the foot. Many people had plenty of flying in the ZÖGLING. Instructors and other grandees flew the two-seater (her full title is rather exhausting) with such club members as felt inclined to occupy the back seat. To occupy either seat is stimulating. Does Hannibal, or Do-X feel like that? Or is the feeling unique? The work of the launching is no slight jest, and is only to be measured by the ultimate consumption of Mrs. Turvey's eggs and bacon. The general public is asked to come in their multitudes and lend a hand. For instance, the Secretary of the B.G.A. might curb his passion for watching Graf Zeppelin [and visiting laboratories.—ED.], so that he can use his intelligence and strength within the Gliding Movement.

THAMES VALLEY GLIDING CLUB.

On Sunday, June 26th, through the kind permission of the Directorate of the Fairey Aviation Company, Ltd., the Club held a very successful flying meeting at the Great West Aerodrome. Members were delighted to welcome some enthusiasts from Portsmouth, two of whom had cycled the whole distance!

The R.F.D. was rigged and ready for flight at about 11.30, and, thanks partly to a really strong launching crew, several very successful flights were made. Just before lunch, however, the control column started to give trouble and it was necessary to suspend flying on the R.F.D. temporarily while the ground engineer disappeared to mend it. In the meantime, Mr. Enser brought out and rigged his machine, the ENSER MK. I, which Mr. Lympany, of the Portsdown Club, demonstrated quite successfully, despite a sudden drop in the wind and a launching crew which was hardly strong enough for this type of machine.

The control column having been replaced on the R.F.D., flying went on until about 8.30 p.m. without further mishap.

The Club's sincere thanks are due to Mr. C. R. Fairey and his co-Directors on the Board of the Fairey Aviation Company, Ltd., for having given it an opportunity of holding a meeting on what is really an almost ideal site.

The Club is indebted to Major Morris Wright, who is presenting a cup for the best performance put up each year.

Mr. Enser recently secured his "A" certificate at Portsdown Hill with a flight of 59 sec. He recently made a flight in the R.F.D. of 69 sec., again from the Portsdown Hill.

OFFICIAL NOTICES

DIARY OF FORTHCOMING EVENTS.

Monday, July 18th, at 6.30 p.m., in the Library of the Royal Aeronautical Society, Albemarle Street, W.1.—Council meeting, British Gliding Association.

EXTRACTS FROM THE PROCEEDINGS OF THE 38th MEETING OF THE COUNCIL OF THE BRITISH GLIDING ASSOCIATION,

Held in the Library of the Royal Aeronautical Society, on Monday, June 20th, 1932, at 6.30 p.m.

Present: E. C. Gordon England (in the chair), Colonel the Master of Sempill (Vice-President), J. R. Ashwell-Cooke, D. E. Culver, H. Ellingham, A. F. Houlberg, S. Humphries, C. H. Latimer Needham, G. R. Paling, F. Pilling, R. G. Robertson, A. N. Stratton, J. M. Symmons, H. Ward, S. Whidborne (Hon. Treasurer), and the Secretary.

Certificates of Airworthiness.—The following resolutions were carried:

(1) "That the regulations to the effect that all machines should possess a certificate of airworthiness be rigidly enforced in every case."

(2) "That, when an application has been made for a certificate of airworthiness, the machines in question shall be inspected by an approved inspector in every case."

Capitation Fees.—The following resolutions were carried:

(1) "That the rules relating to the payment of capitation fees be rigidly enforced."

(2) "That at each Council meeting the Treasurer shall report all clubs who are in default with the payment of capitation fees. That, when possible, an explanation of such default be required of the representative of the club concerned."

Rules.—The following resolution was carried:

"That a copy of the new rules of the Association be sent to all clubs when available, and that the Secretary direct attention to such rules as are considered to be the more important."

Demonstrations.—Mr. Paling reported that the Contest Committee had considered the possibility of organising a demonstration at Hanworth on July 3rd, but that, unfortunately, Hanworth would not be available on that date. A letter had therefore been sent to the London Club to inquire if a demonstration could take place at Dunstable, but no reply had been received. The Master of Sempill expressed his regret that Hanworth could not be used on July 3rd, but said that Hanworth would always be placed at the disposal of the Association when circumstances permitted.

New Member of Council.—The Council approved the election of Mr. C. H. Jackson, of the Imperial College Gliding Club, in place of Mr. Adorjan.

Membership of the B.G.A.—The Council approved the election to membership of seven full members and twenty-six associate members.

Observers.—The Council approved the appointment of Mr. J. Laver, of the Dorset Club, in place of Mr. Wright.

The 1932 Competitions.—The Chairman of the Contest Committee (Mr. G. R. Paling) inquired if, in view of the present financial position of the Association, it was still the wish of the Council that negotiations for holding the 1932 Competitions should be proceeded with. The following resolution was carried:

"That, in view of the present financial position of the Association, there be no competition this year, unless the final result of any demonstration which the Association may organise merits the competition being held."

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.

our upstairs place



HE sat in the club smoking-room talking impressively of his visit to America. New York, he said, was undoubtedly the world's finest city. The shops, for instance, were breath-taking, particularly a new shop for men which he had visited.

At that point a friend who had been listening tolerantly suggested that perhaps he had not seen Austin Reed's shop in Regent Street. Oh, yes! he had bought collars there, and thought it quite a pleasant place. The friend asked if he had seen the whole building? "*The whole building? Why! is there an upstairs place?*"

So they took him to Regent Street in a taxi, presented him to our manager, and said gently, "*This gentleman asks if you have an upstairs place.*" Swaying slightly, the manager decided that the situation called for immediate action, and there and then arranged a Grand Tour.

From the top of the building they showed him the view of the Regent Street Quadrant, and took him through the airy workrooms where the New Tailoring adjustments are made, into the Tudor Gallery with its oak beams. He was shown the Tudor Floor, its magnificent fireplace, the Tropical Department with its red lacquer panelling and its mural paintings of our Overseas Empire. From there they took him to the Ballroom Corner, with its constant artificial lighting—the ideal place to select evening clothes—on to the New Tailoring Floor, and into the Louis XIV salon, the most luxurious place in London for choosing shirt patterns.



They astonished him yet again with the twenty-four chair barber's shop which is under the command of an expert who has travelled thousands of miles to make sure that the equipment is the best in the world.

The effect upon our visitor was most gratifying from a national point of view. In fact, we understand that he now refers to his recent trip to New York as an excursion into a pleasant but old-world atmosphere.

AUSTIN REED
of REGENT STREET

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