March 1, 1932 Vol.3 No. 5

THE SAILPLANE & GLIDER

Official Organ of the
British Gliding Association

6D



FOR SALE

One of the best high-efficiency sailplanes ever turned out of the famous Fiesler factory at Kassel—the 2-seater "KEGEL" S.G.3. with dual control.

The complete unit—machine and trailer—cost £250 and was lately the property of the Scarborough Gliding Club.

The machine has been flown and maintained solely by Herr Magersuppe and is in excellent condition.

Send in your offers at once for this real bargain to

The Secretary
THE BRITISH GLIDING ASSOCIATION,
44a DOVER STREET,
LONDON, W.1.

SOLID ACHIEVEMENT

On August 24th, the 'Tern' set up an official British Distance Record of 8.3 miles, flown by Herr Magersuppe.

On September 27th the 'Tern' set up an official British altitude Record of 780 feet above the starting point, flown by Major H. Petre.

On October 4th the 'Tern' won the Rig and Fly contest at the International Gliding meeting in 3 minutes 36 seconds with a crew of five men. No previous practice had been made for this event.

BUY BRITISH, AND BE SATISFIED

Price £248. ex-Works

AIRSPEED LIMITED, PICCADILLY, YORK.

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.

Editor: F. ENTWISTLE.

Editorial Offices: 44a Dover Street, W.1. *Telephone*: REGENT 6145.

Subscription Rates (Post Free): Annual, 15s. 0d.; Half-Yearly, 7s. 6d.; Quarterly, 3s. 9d.

Vol. 3. No. 5. March 1, 1932. [Published on the 1st and 15th of each month. Price 6d.]

CONTENTS.

Editorial: A Year of Re-adjustment 49
Some Traps: *By One who has Met Them* 50
Club Constructed Machines: *"Segelflieger"* 51
The Design of Motorless Aircraft: *E. H. Lewitt* 52
Lecture on Indoor Models 54
The Borghese-Parizzi Rotor Sailplane: *C. H. Latimer Needham* 54
Correspondence 56
News from the Clubs 57
British Gliding Association: Annual General Meeting 59

A YEAR OF RE-ADJUSTMENT

The Report of the President of the British Gliding Association, which was presented at the Second Annual General Meeting, is deserving of careful study by all members of the Association and Clubs and, indeed, by all who have the interests of the Gliding Movement at heart. It is a careful statement which errs neither on the side of optimism nor of pessimism.

The key-note of the Report is to be found in the third paragraph which sums up in masterly fashion the present position with regard to the Gliding Movement. Colonel Shelmerdine said:—

> "There is no doubt that the somewhat meteoric rise and spread of the Gliding Movement in 1930 was not entirely healthy, and in consequence, this past year has seen the Movement taking stock and consolidating its position. Much that was learned in 1930 has helped us to retrace false steps and to start forward again upon sounder lines."

There can be no question whatever that, in spite of the present economic conditions, the Gliding Movement is in a far healthier position than ever before. There is evidence that the majority of Clubs are now pursuing a cautious but progressive policy, based on the experience of the past, and we fully expect to see fruitful results accrue during the present year. Throughout the period of re-adjustment, the British Gliding Association has pursued a "wise, consistent and frugal" policy which has enabled the Movement as a whole to weather a difficult period and to come through to find itself on a much more stable foundation than existed at its inception. This result is all the more gratifying when we consider that the Movement is not in receipt of a subsidy of any kind. It is true that the Association's satisfactory Balance Sheet which was presented at the Annual General Meeting included donations from public-spirited individuals and organisations, but in the main the results are due to wise administration inside the Movement rather than to assistance from outside.

It is not, perhaps, quite correct to say that re-adjustment is the whole key-note to the past year's activities for one cannot read the Report without realising that it has also been a year of progress. The number of glider pilots' certificates issued and the outstanding performances which are detailed indicate clearly that the Movement has been anything but stagnant. If further evidence were needed it is to be found in the enthusiasm with which certain Clubs have continued active operations throughout the winter months, often with but meagre resources. There is little doubt that when Clubs have got fully over their initial difficulties and have gained more experience the winter activity will become general and there will be the fullest vindication for the statement that gliding is an all-the-year-round sport.

The Report as a whole makes encouraging reading. But it must not be imagined that all difficulties are past. The Financial Statement reproduced on page 60 of the present issue indicates how essential it is for each Club and each individual to continue to take a share in the vital task of keeping the British Gliding Movement going. Wise administration is of little use unless the necessary support is forthcoming and it behoves every one to recognise his own responsibility in regard to the Movement and to do his share in obtaining support for it. The many ways in which this can be done have been indicated repeatedly in these columns and it is for each one to determine how he can best help and then to act. There is no doubt that if each Club faces up to its responsibilities and each individual shoulders his share of the burden the British Gliding Movement will find itself in an impregnable position. Real progress will then begin.

THE 1932 COMPETITION

It is understood that the response to the request for information regarding suitable sites for the 1932 Competition has been very disappointing. It will be recalled that a questionnaire was issued to Secretaries of Gliding Clubs for this purpose and further copies are available, and may be obtained from the Secretary, British Gliding Association, 44a Dover Street, London, W.1, if this paragraph catches the eye of any person who can supply useful information on the subject. If the Summer Meeting is to be a success, it is essential that the fullest information regarding suitable sites should be in the hands of the Contest Committee at the earliest possible moment. It will be of material assistance if those who have received questionnaires will fill them up and return them to the Secretary of the B.G.A. without further delay.

SOME TRAPS

BY ONE WHO HAS MET THEM.

FOR BEGINNERS ONLY.

Elementary consideration of air-flow tends to overlook the drastic retarding effect of the friction of the earth's, or sea's, surface. In fact, only users of lighter-than-air aircraft and of parachutes properly appreciate the comparative calm close to the ground. It would be easy to labour the point by giving examples of balloons and parachutes which have almost miraculously slowed up at the last moment before what threatened to be a rough-and-tumble landing on an open and wind-swept plain.

This phenomenon has a more subtle bearing upon the up-wind landing of a glider.

If the machine has been brought down from a respectable height at a speed not far in excess of stalling-speed, there comes a moment with unexpected suddenness when the air-speed drops and the machine is in danger of a stall. While still at a height the machine may have been almost stationary relative to the ground. On abruptly entering the underlying layer of comparative calm the stick must therefore be eased forward perceptibly.

The moral is that a long up-wind descent should be carried out with some surplus speed, or else very warily; and there should be no deliberate deceleration, as a preliminary to landing, until the machine is safely within the calm belt. This belt, for safety's sake, may be estimated at about 12 to 20 feet in depth, other factors being normal.

But do not forget to decelerate. A really fast landing, even when carried through perfectly, can be extremely hard on the machine. For instance, you may be asking a PRUFLING to run along the ground at as much as 35 m.p.h., with only the flexibility of the skid and of the rubber blocks to take up the shock of passing over a rut or furrow. Visualise your own car, with its pneumatic tyres and springs, trying to do the same!

But if, on the other hand, you visualise the effect of dropping your car vertically on to the ground from the height of one foot, you have some sort of an idea of the result of steadying up your glider excessively. Like married life, landings are always a matter of successful compromise.

Again, diagrams of a flow of air travelling across a plain, and arriving at a steep ridge lying across the course, tend to ignore the fact that the main stream does not necessarily follow the contour of the earth's surface. It would seem that the air selects its own angle of rise, which may or may not be that of the face of the ridge.

There is always a possibility that a pad, or wedge, of air will be trapped under the main flow and jammed between the ridge-face and the flat ground at the foot. There may even be a slight eddy, within that wedge-shaped area, having a downward, and not an upward, component. The relative calmness will be further emphasised by the friction of the earth's surface bounding two sides of the area.

This aerial Sargasso Sea has its uses and its traps.

If you are descending from the soaring area, you may land cross-wind with impunity provided that you finally keep close in to the foot of the hill. This means, for instance, that you may work off some height by advancing up-wind at the far end of your beat, until you are below the level of the ridge-top; then you may wheel round homewards, descending at a fair speed on a course which will take you along the foot just before landing. If obstacles permit, and if you like, you can still turn out up-wind at the last moment and land. But in any case you have given yourself a comparatively easy task, and have paved the way to solving the nightmare problem—a high efficiency machine that refuses to come down.

The beginner's trap in this area lies in the effort to prolong a soaring flight which is already virtually over. You look over your shoulder and see that the ridge-top is already above you. You think that you can recover your height. Actually, you cannot. But you steer in toward the face of the hill, and incidentally into the makings of the worst fright of your life.

You sail into a calm or even into a down-draught—not into an up-draught. The machine sinks fast and seems likely to collide with the hill-side. You slam on full rudder to turn outward and to your now fevered mind nothing appears to happen. You are looking at a ground-level which is cocked up at, say, 30°. You are utterly bewildered thereby. Unless you sit very hard on your safety-valve you will proceed to go through that well-known trick: you will turn out from the hill and then follow down its face in a dive. Exactly why people do it is not quite clear; but it is a recognised phenomenon in German training schools, and the writer has nearly done it himself. It is horrible, and later you are filled with joyful hysterics, so that you wave to people on the ground, when at last the machine is pointing once more towards an honest and horizontal horizon.

So, whatever else you do, treat the face of the hill as a lee-shore on a coast infested with sharks and spiky rocks and gargantuan billows.

Another trap lies just behind and above the sharp front-edge of the ridge.

One visualises the main air-flow shooting up from the plain on its own selected gradient. The lowest-layer of this flow probably all but scrapes the front edge of the ridge; then shoots on upward for a short-distance on the same gradient; then curls slightly down toward the surface of the ground some way behind the ridge.

In consequence there is a nasty patch of air with a sharp upper boundary, imprisoned on the top of the ridge underneath the arch of the main flow. This patch may be turbulent, it may have reverse eddies or it may be calm; the main factor is the speed of the wind. In any case it completely lacks that large upward component which elsewhere has been holding you up.

It is unpleasant when it takes you unawares. You have been soaring comfortable above and in front of the ridge, just holding your height. You allow the machine to fall away down-wind until you are definitely over and behind the ridge-front. Suddenly the bottom falls out of everything and the machine seems to drop like lead. Don't be unduly alarmed. Sit still and keep going, and edge away over the hill-side again as quickly and as gently as you can. Or else land quietly where you are.

In any of the cases given above, the same old moral emerges: only experience teaches. Every one of such lessons gives the normal learner a hearty fright, so do not be ashamed of your own terrors. But, whatever else you do, **learn** your lessons and don't make the same mistake more than twice! Otherwise, it is so bad for club funds. And don't make silly excuses, which may give you a little fictitious comfort, but which deceive nobody.

GLIDING ACCIDENT AT HARROGATE.

We regret to announce that a serious gliding accident occurred to Mr. E. Addyman, of the Aircraft Club, Harrogate, when flying at Saltergate, between Pickering and Whitby on Sunday, Feb. 14.

A high northerly wind, accompanied by violent gusts, was blowing at the time and Mr. Addyman, after taking off and battling with the wind for about 30 seconds, appears to have been lifted off his seat by a gust. His feet slipped from the rudder-bar resulting in a steep dive to earth, after which the machine was blown up the hill and turned over. The glider was completely wrecked and the pilot was found entangled in the wreckage with both legs broken and his right hand practically severed. An important feature of the accident, apart from the unsuitability of the weather conditions for primary gliders, was that the pilot did not appear to have been securely strapped in his seat.

We are glad to hear that Mr. Addyman is progressing favourably. His enthusiasm for gliding is unabated and he has sent a message to all Clubs warning them of the advisability of being firmly strapped in their seats when flying. All will wish him a speedy recovery.

HANGARS For SAILPLANES and GLIDERS

(AS SUPPLIED TO THE LONDON GLIDING CLUB)

In complete sections for easy erection or removal.

Size 50 x 30 x 8ft.: £107 10s.
Any size to order.

G. ELLIS & Co., GAINSBORO ROAD, HACKNEY WICK, LONDON, E.9.

Telephone—AMHERST 1091 (4 lines).

"MALLITE" or "APPCO" WATERPROOF

SPECIAL GLIDER- PLYWOOD

Manufactured by the

AERONAUTICAL & PANEL PLYWOOD Co. Ltd.

218-226, Kingsland Road, London, E.2.

Telephone—BISHOPSGATE 5641.

CLUB CONSTRUCTED MACHINES

By "SEGELFLIEGER."

VII.—British Enterprise: THE "CRESTED WREN."

The "Crested Wren" is a real achievement, as not only was the machine built by an amateur, but it was also designed by the same man and eventually flown by him successfully.

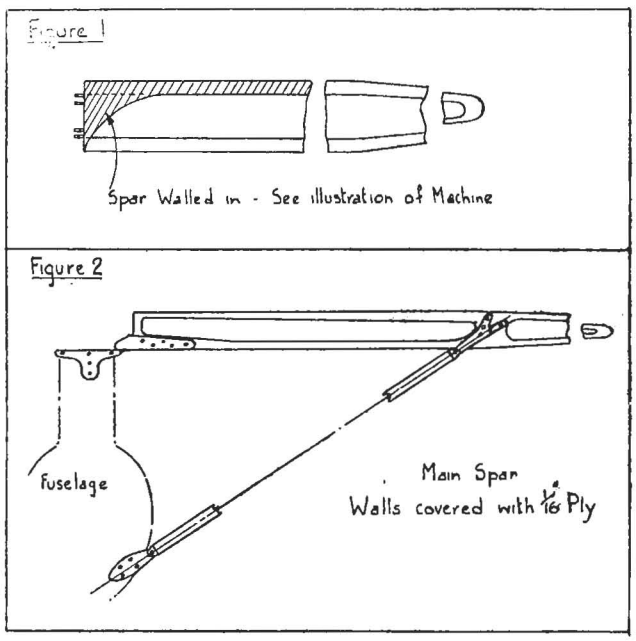
The enterprising enthusiast was Mr. Manuel of the Channel Club, and the machine can be described as an advanced soaring machine of the first class.

Rough dimensions of the machine are as follows:—Span, 40 ft.; Length, 19 ft.; Aspect Ratio, 12; Wing Area, 150 sq. ft.; weight (approx.), 190 lbs.; Flying speed (approx.), 30 m.p.h.; the machine is capable of soaring in a 10 m.p.h. wind off a good site.

The method of construction followed was the Continental method, which has already been discussed earlier in this series of articles.

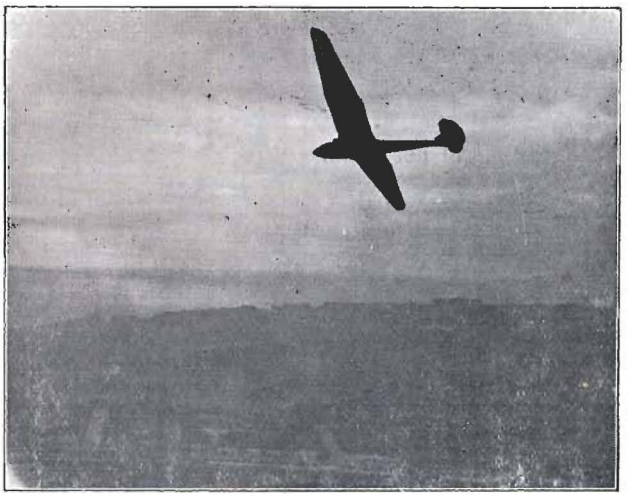
Mr. Manuel, being an amateur, was very wise in following German practice, which had already been proved a success; and his machine cannot, therefore, be regarded as a new experiment; although there are points which he has brought out which are new to British Gliding Construction. The main point is that he swept the wings back; this can be seen clearly in the accompanying illustration of the machine in flight.

The practice of bringing the nose three-ply from the top of the front spar round and right back to the bottom of the same spar was followed, in order to give extra torsional strength to the spar.



As the machine has only one strut, the ply takes the torsion and is transmitted to the root, as shown in the sketch and picture of the machine. (Fig. 1). A rough sketch of the main spar is shown in Fig. 2.

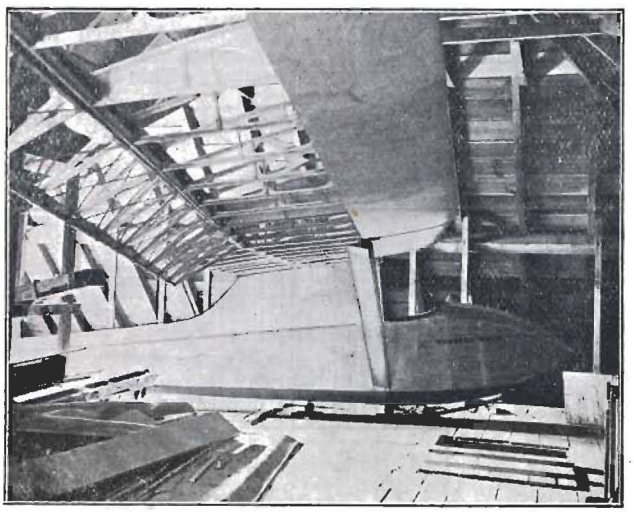
An interesting point in the "Crested Wren" is the novel method of constructing the ribs; this was evolved by Mr. Manuel and will be described more fully in the next article.



The "Crested Wren" flying over the "Valiant Sailor" site at Folkestone.

Mr. Manuel is to be congratulated on his fine achievement. For not only has he designed and produced his own machine, but what is more important, he has succeeded in demonstrating its capabilities to soar. Already, at the time of writing he has flown it on 4 occasions, and has completed over one and a half hours soaring time on it. This kind of work will, in the opinion of the writer, leave a marked result on the Gliding Movement, and, by its fine example, will do more to stimulate others to similar achievements, than mere demonstrations and public exhibitions of the art of soaring.

Such achievements cannot but help the Gliding Movement to go ahead and grow in strength.



The "Crested Wren" in course of construction, showing one wing and strut and the fuselage.

CELLON DOPE

FOR

SAILPLANES and GLIDERS

Cellon Ltd., Upper Ham Road, Kingston-on-Thames.

'Phone No. KINGSTON 6061. Telegrams AJAWB, Phone, Kingston-on-Thames

THE DESIGN OF MOTORLESS AIRCRAFT

By E. H. LEWITT, B.Sc., A.M.I.Mech.E.

(Vice-President of the Imperial College Gliding Club. Member of Technical Committee of the British Gliding Association).

(*Continued from page 43, No. 4, Vol. III*)

METHODS OF LAUNCHING.

The glider will not commence its flight unaided; some form of external power must be supplied in order to get the machine in the air. There are two methods of launching the machine.

1. **Team Launching.**

In this type of launching the machine is pulled by a team of men. A rubber rope, 60 yards long, is connected at its centre to the launching hook of the glider. The two halves of the rope are then pulled by the team, each rope being at about 30° to the line of flight, one on each side of the centre line, forming a V-shape. There may be from 3 to 6 men on each arm of the rope; the machine is held firm at the tail. On the command from the pilot, the team runs forward, stretching the rubber ropes and thus storing up energy in them. When the ropes are fully stretched, the machine which is being held at the tail, is released. The glider then shoots forward with a large acceleration and will rise in the air when its lifting speed is reached. Using up the energy stored in the rubber rope it overtakes the launching team and the rope falls from the hook.

2. **Auto-Launching.**

In this type of launching the machine is towed by a motor-car until the speed is sufficient to cause the glider to lift. Once the machine has left the ground there is a great reduction in the resistance and, consequently, most of the pull of the cable is now available for accelerating the machine. There is now a rapid increase of speed and the machine will over-ride the car. As soon as the towing cable is vertical it will fall away from the hook.

MEASUREMENT OF ACCELERATION DUE TO LAUNCHING.

In order to measure the acceleration of a glider when launched, an instrument was constructed which would record automatically the time taken by the machine in traversing known distances of its flight. This instrument, which was devised and constructed by Mr. J. H. Payne and Mr. Keeble, of the Imperial College Gliding Club, is known as an accelerometer; the glider tested was a R.F.D. Primary machine, and the tests were carried out by members of the Imperial College Gliding Club.

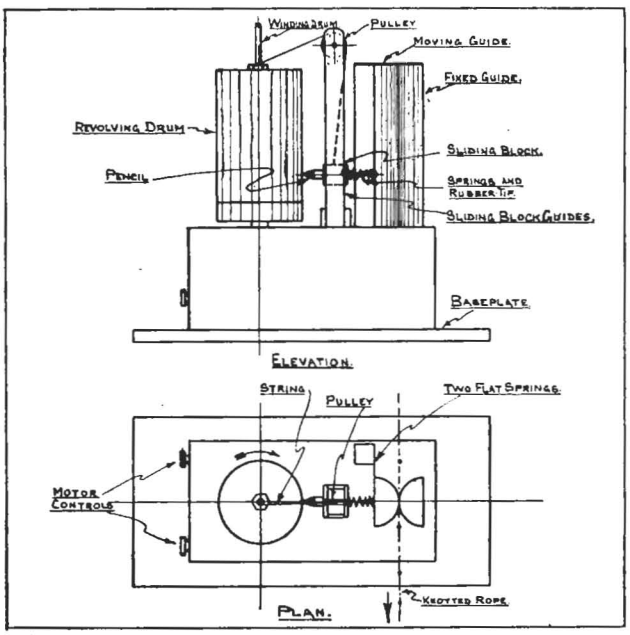


Fig. 4. Accelerometer.

The instrument consists of a revolving drum (Fig. 4) around which is mounted the paper for the automatic record. This drum is revolved by clockwork at a known uniform speed. A pencil is mounted on the vertical spindle, shown in the figure,and is so geared to the revolving drum that it will move slowly up this vertical spindle as the drum rotates. A long cord is fixed to the tail of the glider and a series of knots a known distance apart are made in the cord. The cord passes between the two cylindrical surfaces shown in the figure; as the glider moves forward in its flight the cord will be drawn between these two surfaces. One cylindrical surface is fixed whilst the other is connected to the pencil and is free to slide towards the drum. The passing of a knot between the two cylindrical surfaces will thus push the pencil on to the revolving drum and a pencil mark will be registered on the paper mounted on its surface. After the knot has passed through the cylindrical surfaces, the moving surface will slide back to its original position owing to the action of a spring. Hence, it follows that as each knot is drawn by the glider between the cylindrical surfaces a corresponding mark will be registered by the pencil on the paper forming the drum surface. As the pencil is also being slowly drawn up the vertical spindle, the path of the marks registered will be in the form of a helix on the drum surface. After the flight, the paper is taken off the drum and the time of the passing of the knots can be measured from the marks registered by the pencil.

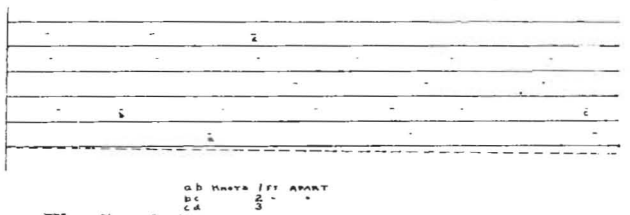


Fig. 5. Automatic Record from Accelerometer.

A view of an automatic record on the drum paper, after being opened out, is shown in Fig. 5. In this test the knotted cord was 100 ft. long; the first six knots were 1 ft. apart, the next six 2 ft. apart and the remainder 6 ft. apart. The drum was rotated at a speed of one revolution per second and the pitch of the helix described by the pencil marks was 7-16 in.

From these results a displacement curve, showing the distance moved from rest by the glider, was plotted on a base representing the time of flight; this curve is shown in Fig. 6. The slope of this displacement curve at any point will give the velocity of the glider at that point. A velocity curve, obtained by plotting the slopes of the displacement curve, is also shown in Fig. 6; the base of this curve representing the time of flight in seconds. By plotting the slope of the velocity curve the acceleration curve may be obtained. This is also shown plotted, on a time base, in Fig. 6.

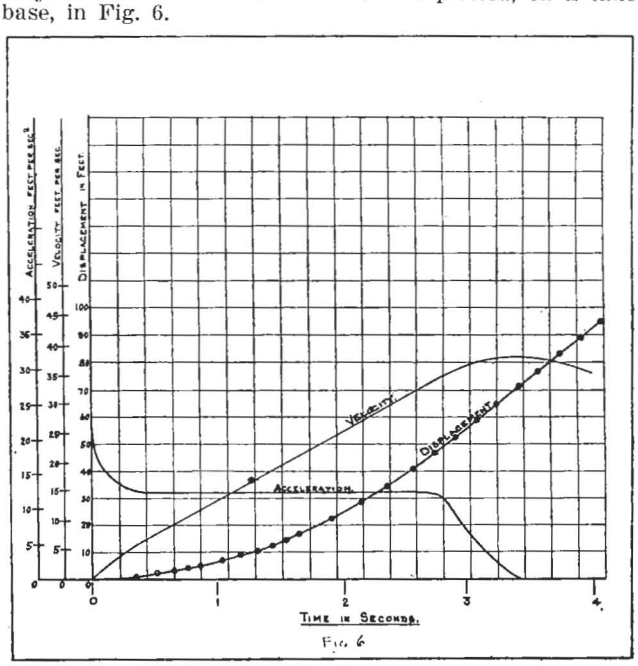


Fig. 6.

The results shown in Fig. 6 were taken during a team launch of a R.F.D. primary machine. The team consis-

The results shown in Fig. 6 were taken during a team launch of a R.F.D. primary machine. The team consisted of three men per rope, making a total of six men; the weight of the machine and pilot was about 320 lbs. It will be noticed from the acceleration curve that the acceleration at the commencement of the flight was 22 ft./sec.^{2}, and rapidly fell to a constant amount of 15 ft./sec.^{2}. This continued for 2¾ secs. The rope appears to have left the launching hook after 3½ secs.

The accelerating force on the hook can now be calculated from the following equation:—

Accelerating force

$$= \text{mass} \times \text{acceleration}$$

$$= \frac{320}{g} \times 22$$

$$= 220 \text{ lbs.}$$

It will also be noticed from the velocity curve of Fig. 6 that the maximum velocity reached during this flight was 38 ft./sec., or 26 mi./hr.; this maximum velocity was reached 3½ secs. after the commencement of the flight.

This experiment was repeated on other flights with the same glider and the acceleration curves obtained in the same manner. From these results it was found that the maximum acceleration reached was 35 ft./sec.^{2}; this was obtained with a launching team of 4 men per rope. The results are shown in Fig. 7. The maximum velocity of the glider, in this case, was 50 ft./sec., or about 35 mi./hr. and the accelerating force on the launching hook works out to 350 lbs. The frictional resistance of the machine on the ground was found by test to be about 60 lbs.; hence, the total pull on the launching hook was about 400 lbs.

(To be continued)

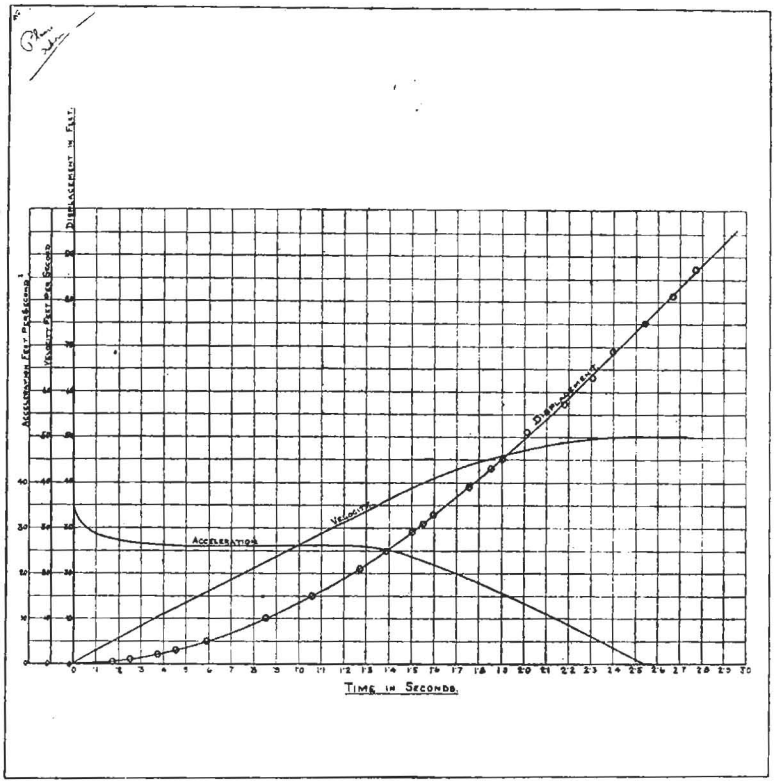


Fig. 7.

F.A.I. CERTIFICATES IN FRANCE

According to "L'Aerophile" the following F.A.I. Gliding certificates have been issued by the "Commission Sportif de l' Aero-Club de France": 83 "A," 15 "B," and 4 "C." These figures include two women "A's" and and one woman "B." Apparently one of the two women "A's" has also the "B" so in fact there are only two women glider pilots.

Gliding in France is supported by the Government so people in this Country have every reason to be pleased with the progress we have made:—253 "A's," 78 "B's," and 31 "C's," and all without putting any load on the tax-payer.—T.J.

A CAR SPECIALLY BUILT FOR AUTO-TOWING.

Warren Eaton, the first private sailplane owner in the U.S.A., who runs a gliding school at Norwich, N.Y., has constructed a car specially for auto-towing purposes. He bought a Ford chassis and fitted to it two seats, one in front, and the other behind and facing towards the rear. In the latter sits the instructor, who not only keeps an eye on his pupil, but can control the throttle, clutch, brakes and gears all from the back seat, leaving the man in front nothing to do but steer the car.

"SAILPLANE" SPECIAL OFFERS.

The "Sailplane" Photographic Competition and the special offer to those introducing new subscribers are still open. Particulars have been given in previous issues.

NEW IDEAS

We receive, from time to time, particulars of new devices used by different Clubs in their operations, and we are always glad to publish particulars for the information of other Clubs. Anyone who has developed a new idea and can supply details suitable for publication need not hesitate to send in particulars owing to their inability to produce finished drawings for reproduction, as The Sailplane has an expert staff of voluntary draughtsmen who can convert rough pencil sketches into the finished product.

BACK NUMBERS WANTED

We are frequently asked for back numbers of The Sailplane from No. 1, Vol. 1 and if there are any readers who have any to spare will they make a present of them to the British Gliding Association. The numbers which are particularly required at the moment are Nos. 3, 4, 23 and 36 of Volume 1.

A proven High Performance Sailplane for all round use

THE GRUNAU "BABY"

PRICE (delivered in London) RM 1600

Completely equipped and carefully packed in heavy case.

Special built-in Towing Hook RM 15 extra

ED. SCHNEIDER, Grunau im Riesengebirge

Germany

LECTURE ON INDOOR MODELS

A joint meeting of the British Gliding Association, the Imperial College Gliding Club and The Model Aircraft Club was held on Thursday, January 28, at the City and Guilds (Engineering) College, when a paper on "Indoor Flying Models" was given by Mr. C. H. Barnes. Prof. F. T. Hill, F.R.Ae.S., M.Inst.Ae.E., was in the Chair.

Mr. Barnes said that it was difficult to classify the subject of indoor models under definite headings, as the art of building and flying them was still in its infancy. The weight of an aeroplane, unfortunately, was only a fraction of that of a railway engine, and model builders were confronted with a serious problem when they tried to build a scale model aeroplane capable of flying under its own power. For small models the only possible source of power was indiarubber, and even then nothing like a scale ratio of power to wing area could be attained. Owing to this heavy power loading, the weight per unit area had to be kept at an absolute minimum, about 2 oz. per square foot being desirable for an indoor model to take off under its own power. Up till about three years ago this had meant that the only models capable of an appreciable performance had been "flying sticks," or at the best, fuselage types of extremely emaciated and fragile design. With the introduction from America of balsa wood, which possessed extreme lightness, the problem of weight had been almost solved, and the model builder was able to attempt scale models having such refinements as dummy radial engines, gunrings, and the like.

Until balsa had been adopted as a material, it had been difficult to build a model with the centre of gravity far enough forward, but now, by using a solid balsa nose, and built up rear fuselage and tail, the position of the c.g. could be made to correspond exactly with that of a full sized machine. However, it could be seen that balsa wood had a very low strength, although its strength/weight ratio was 2½ times that of spruce, and thus balsa models were extremely liable to damage unless flown in calm air. It was obvious that, in still air, a very light model would do itself no harm by collision, since it relied only on its own kinetic energy to break it, and that in the case of a 2 oz. per sq. ft. model would be very small.

The lecturer then discussed the merits of the motor stick and geared types of rubber motor, pointing out the increased efficiency to be got by dividing a large skein into two or three smaller ones geared together. He also emphasised the necessity of lubricating the rubber with a soft soap and glycerine mixture to allow each strand to untwist without sticking to the others. With regard to aerodynamic design, every model built so far was an experiment, and owing to the practical difficulties of construction, it was difficult to conform even to one's own designs on paper. The most popular wing section was one approximating to Clarke Y, but any reasonable section having a flat undersurface and maximum depth at one-third chord gave good results. On very small models, flat single surfaced wings were used, and on some of these it was found that it was better to cover the underside rather than the upper side of the wing. In almost every case, the tailplane and rudder had to be greater than the scale size, and the propeller blade area also had to be increased by about three times. To keep down the turning moment due to propeller re-action, the diameter should not exceed one-third of the span, and it was a good rule to make the tail plane span the same as the propeller diameter. It was not usual to fit separate control surfaces although it was an advantage to be able to adjust the rudder and tail plane incidence, but a very large dihedral angle was required, especially on a slow flying model. For indoor flying, the bank due to the propeller torque was usually just enough to keep the model flying in circles of a convenient size. The only tools necessary for construction in balsa were a safety razor blade and a lot of sandpaper, although a set of cork-borers was also useful, and many refinements were of course possible if a high-speed lathe were available.

HIGH-GRADE APPARATUS FOR GLIDER CONSTRUCTION

Woodwork and light engineering work to clients' requirements. A high standard of accuracy and finish is guaranteed.

Quotations without obligation—no order or enquiry too small. Component parts and instruments.

LEONARD HEYS, Faraday House, Henry Street, BLACKPOOL

THE BORGHESE-PARIZZI ROTOR SAILPLANE

By C. H. LATIMER NEEDHAM

(Chairman of the Technical Committee, British Gliding Association)

Some interesting details have been received relating to a novel type of sailplane that has been designed in Italy, known as the Borghese-Parizzi Cycle-plane. It incorporates the Flettner rotor principle in the main planes and is claimed to be the only solution that "will permit of dynamic flight with the sole aid of man-power."

The general outline of this aerial cycle (see Fig. 1) is

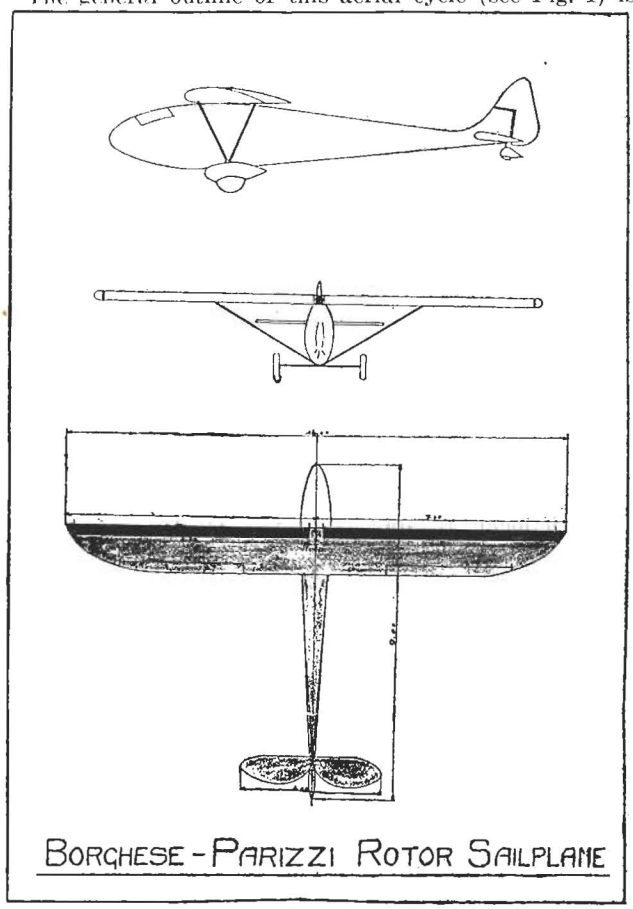


Fig. 1

not dissimilar to the present-day sailplane, except that two long rotatory cylinders are built into the forward part of the wing so as to form the leading edge. By means of pedals and suitable transmission gear, it is claimed that the pilot is able to keep the cylinders in a state of constant rotation, whilst in flight, thus increasing the lift forces and supplying the forward propulsive power necessary for sustained horizontal flight.

The fact that the introduction and development of the wheel has enabled man to travel at a much higher rate over land, than is otherwise possible by his muscular power alone, is put forward as an argument in favour of exploiting its uses for aerial locomotion, but the reference to the semi-rotational, or rowing motion of the wings of birds and insects, in further support of this theory, does not appear so convincing. In the past, attempts have been made to propel aircraft by man-power with the aid of rotational organs, i.e., propellers, but it is pointed out that a constant force of at least 2 h.p. is required for this purpose and as the muscular power than man can produce is but 0.2 h.p., it follows that some radically different principle is essential for success.

The effect of rotating a cylinder in a stream of air

TUITION

LIVE AND LEARN AT PHILLIPS & POWIS SCHOOL OF FLYING, Reading Aerodrome. Comfortable residential accommodation at economical rates. The very highest standard of instruction by late instructors of the R.A.F. Take a 15s. trial lesson at the country's most up-to-date school.

Reading Aerodrome. Sonning 114.

(which is, of course, exactly equivalent to giving combined rotational and translational motion to a cylinder in still air) was first noted by Prof. Magnus, of Berlin University, about 90 years ago.

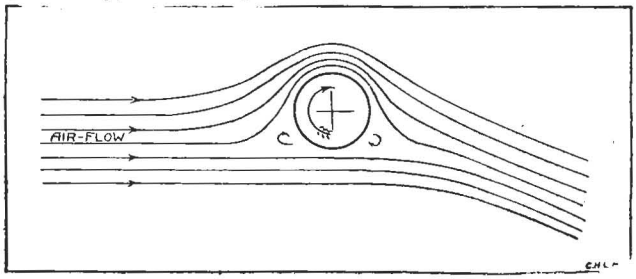


Fig. 2.

By reference to Fig. 2 it will be noticed that rotation has the effect of accelerating the movement of the air on one side (the top in this case) and has a retarding effect on the other (underside), or, in other words, the air-flow is hurried over the top side whilst a building-up process takes place on the lower. This is due to viscosity or friction between the surface of the cylinder and the air, the phenomenon being known as the "Magnus effect." The general deflection of the streamlines caused by the passage of the rotating cylinder and resembling the air-flow over an aerofoil will be noticed.

It is well known that when a mass of air, or fluid, has to pass from a tube of a certain size through one of smaller dimensions (Venturi tube) there must be an increase in velocity, with a decrease in pressure, over the narrow part and, in effect, this is what happens over the top of the rotating cylinder, where the air-flow is accelerated, thus causing a fall in pressure. (This can be thought out by imagining the effect of a small hole being drilled in the side of the narrow portion of the tube. A suction would be set up due to the rapid passage of the air-stream). Similarly, there is an increased pressure on the underside, the net result being that a force is set up which tends to lift the cylinder. (This is made use of in golf by shaping the club face so as to impart a spin to the ball).

The first person to apply this theory to a practical use for purposes of transport was Flettner, who, some years ago, constructed a ship with a vertical rotating cylinder, resembling a huge funnel and was thus able to make use of the wind as a means of propulsion. Some success was achieved at the time which was the cause of considerable discussion taking place concerning the possible application of the principle to aircraft.

It is said that a rotor-plane was built in America about 2 years ago, in which two large cylinders took the place of wings. All went well until, through a sudden stoppage of the motor, the rotors stopped and the machine crashed into the sea with tragic results.

In the present design such a contingency is guarded against by the fact that the rotors form part only of the main planes and, in the event of their stoppage, the machine is able to glide to earth in the normal way.

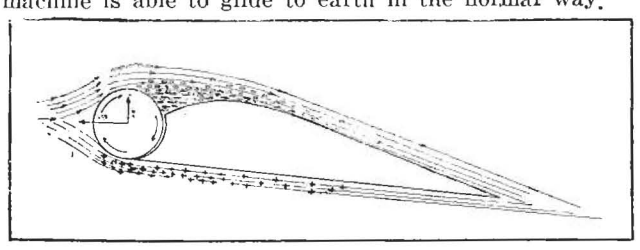


Fig. 3.

Fig. 3 shows the alleged effect of the rotating leading-edge on the air stream which gives rise to the desired qualities, although the flow is likely to conform more to the pattern of Fig. 2 and thus give an increased drag over the forward part of the aerofoil proper instead of the decreased pressure hoped for, whilst the constructional details are made clear in Fig. 4. The wing has a span of 46 ft. with a chord of a little over 4 ft. and an area of 170 sq. ft.

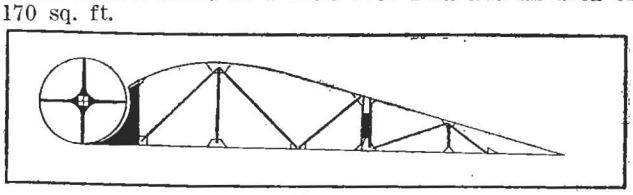


Fig. 4.

There is no doubt that an increase of lift can be obtained by such a design and provided that there is no proportional increase in drag due to the peculiar sectional shape and the added weight, than a finer gliding angle will result.

Furthermore it is claimed that a forward tractive force is obtained by the given arrangement, but for continuous horizontal flight this must equal the total drag of the sailplane, which may be assumed to be in the neighbourhood of 25 lbs. for a speed of 30 m.p.h. and a gliding angle of 1 in 20. In short, then, unless a tractive force on the rotors of 2 h.p. is obtainable by the exertion of 1-5 h.p. at the pedals, the experiment is unlikely to meet with complete success. This is likely to be the deciding factor.

Experiments* so far carried out in this country on rotating cylinders have shown high values of lift to be obtainable, but only at the expense of relatively high drag, with consequent poor values of L/D, and it would seem very doubtful whether the combination of rotor-aerofoil can materially alter these conditions.

* R. & Ms. 1,009, 1,018 and 1,082.

HOME-MADE AIR-SPEED INDICATORS.

The De Havilland Aircraft Co., Ltd., have informed us that the special air-speed indicator fitted to their "Moth" aircraft is covered by a patent which they hold. Details can be obtained from the Specification, the Patent No. being 277914, but it must be pointed out that anyone manufacturing such an instrument would be infringing the Company's patent rights.

We hope to be in a position shortly to publish details of a simple air-speed indicator suitable for manufacture by Clubs.

● BLUE PRINTS ●

Complete Sets of Working Drawings of the **R.F.D.** primary type and the **FALKE** secondary type machines, with schedule of parts are now available.

Prices:—

R.F.D. ... ... £2 2 0 post free
FALKE ... ... £7 10 0 post free

(Special reduction to Members of the B.G.A. or affiliated Clubs)

THE BRITISH GLIDING ASSOCIATION
44a DOVER STREET, LONDON, W.1.

READY SHORTLY

SAILPLANES

THEIR DESIGN, CONSTRUCTION AND PILOTAGE

By

C. H. LATIMER NEEDHAM

M.Sc. (Eng.) F.R.Ae.S.

Demy 8vo., 284 pages, 15s. net; postage 6d.

The author of this volume, Capt. C. H. Latimer Needham, is well qualified to deal with this subject, as he has been one of the pioneers of the movement in this country, and was the first Englishman to qualify for the international soaring pilot's certificate, besides which he has played an important part in the development of the British Gliding Association. The work is fully illustrated with technical diagrams, pictures of the most successful sailplane types, and other photographs, and includes a Foreword by Colonel The Master of Sempill, A.F.C., F.R.Ae.S., the Immediate Past-President of the Royal Aeronautical Society.

Please place your order to-day. Orders may be sent to any Bookseller, the B.G.A. offices or direct to the publishers

CHAPMAN & HALL LTD.

11 Henrietta Street, London, W.C.1



The "Leichtwindsegler."

CORRESPONDENCE

The Harrogate Accident

Sir,—The prompt investigation by the B.G.A. of the unfortunate accident to Mr. Addyman, Harrogate Club, at Saltergate, on Feb. 14, is worthy of appreciation; and is an assurance to all clubs, affiliated and otherwise, that their activities are followed with more thoroughness than is generally realised.

A full report was called for on the day after the crash and statements from witnesses were obtained within a few days.

On Saturday last, Mr. Waplington, Secretary of the B.G.A., and Capt. Latimer Needham, Chairman of the Technical Committee, made the journey from London to Saltergate, on the Pickering-Whitby Road, and spent several hours examining the wrecked machine. Not content with this, these energetic people insisted on a tramp across the moors in the rain, with a biting N.E. wind blowing, in order to view the actual spot where the accident occurred. I still feel the results of climbing slippery hillsides.

It was then decided that a trip should be made to Harrogate, a distance of a mere 50 miles or so, for more interviews. But a protesting "big-end" of an otherwise excellent car made this out of the question.

Believe me, the B.G.A. are on the job when the occasion demands.—F. N. SLINGSBY, York Gliding Group.

Tuition in Power-Flying.

Sir,—Relative to your article "Motorless and Power Flying,'" in THE SAILPLANE for Feb. 15, I would like to take this opportunity of making a special offer to subscribers of THE SAILPLANE. I shall shortly be in a position to provide low-powered and qualified flying tuition in a 20 h.p. Mercedes-Klemm monoplane at a well-known aerodrome near London, for an inclusive charge of £2 per flying hour for a limited number of regular subscribers to THE SAILPLANE. Incidentally, my machine will be available for helping Gliding Clubs in towing at the same rate.

BM/RELP.

Instruction in Auto-towed Gliding.

Sir,—We think that you may be perhaps interested in the following facts regarding instruction in auto-towed gliding, on a two-seater dual control sailplane.

Captain R. L. Yates, of the Portsmouth Gliding Club has just taken delivery from us of a complete set of ready-to-assemble parts for a B.A.C. VII. These he is taking out with him to Palestine where he will construct the machine. Naturally, this gentleman wanted some instruction on the type of machine he would eventually fly, and we arranged this for him at West Malling Aerodrome, near Maidstone, for February the 7th.

Captain Yates arrived with some other members of the Portsmouth Club, and instruction was commenced at about 11.30 a.m., and finished just before three o'clock, with a break for lunch. Several joy-rides were made from three o'clock until four-thirty.

In all, 38 flights were made, each flight ranging in duration from two to three and a half minutes, from a flat aerodrome in what was practically a dead calm. Captain Yates had seven flights only, but the experience gained on these flights, coupled with the elastic launched flights he has made on the Portsmouth Club's machine, enabled him to go solo yesterday. The other members of the Portsmouth Club proved themselves to be very excellent pupils, and if time had permitted, they would all doubtless have gone solo.

This is the commencement of a new scheme we have for instruction in auto-towed gliding. We will be pleased to arrange for instruction on a dual control two-seater B.A.C. VII at the rate of seven flights for £1, or for a less number of flights at the rate of 3s. each for groups of not less than three. There are doubtless a number of would-be "A" certificate people who would get their "A's" easily if they had a good enough site on which to do the thirty seconds. This type of club member is catered for under this new scheme, as with a very small outlay, he is assured of his "A" and may quite easily get his "B."

C. LOWE.
(Secretary, B.A.C. Ltd.)

NEWS FROM THE CLUBS

("News from the Clubs" has always been a feature of THE SAILPLANE *and, we believe, is one that is appreciated by readers. Hitherto, every endeavour has been made to include the "News" as received from Clubs but until it is possible to increase the size of the paper appreciably, the space that can be allotted to this section is necessarily limited. So please, Mr. Secretaries, make your Club News brief and pithy and so save the Editor from a merciless use of the blue pencil.*

Those clubs who do not send their News regularly should note that information is always welcome, and while we appreciate the spirit which prompts those Secretaries who refrain from sending contributions on the ground that they have nothing suitable for reporting we want to see News from more Clubs, but all suitably condensed.—ED.)

DORSET GLIDING CLUB.

The Annual General Meeting was held on Feb. 1, at the Three Choughs Hotel, Yeovil. The Hon. Treasurer's statement shows a satisfactory balance in hand of £19 2s. 5½d.

The following Officers were elected:—President, R. A. Bruce, Esq., O.B.E., was re-elected after having previously signified his willingness to serve another year; Chairman, Mr. N. W. Wright, was re-elected unanimously; Secretary, Mr. A. J. Solomon, Beam Wireless Station, Dorchester, Dorset; Treasurer, Mr. R. L. Rolfe, "Bramcot," Chickerell Weymouth.

The club goes forward into its third year, is operating at the "Dorsetkuppe" complete with Hangar, Clubhouse, DAGLING Primary machine and DORSLING (PRUFLING type) Secondary machine. The subscription has been increased to £2 2s., the Entrance fee remaining at 10s. 6d. The "Kuppe" is about 1½ miles from Maiden Newton towards Yeovil.

An air speed indicator has been fitted to the DAGLING, and although this is not advocated by our German friends, it has been appreciated by ab initio "A" pilots. Many who normally fly comparatively fast, were told by the Team captain to take a glance occasionally at the instrument and hold the stick back to his figure, except for landing; by this method everyone appeared to fly approximately the same duration.

The hangar has been electrically illuminated by a few earnest members, working into the small hours. No need now to put the machines away in the dark. Also repairs, etc., can be done evenings instead of week-ends when we all ought to be gliding.

The last five week-ends have seen Messrs. Wright, Haslam, Langdon Davis, Laver and Solomon flying the DAGLING, all approximately between 30 and 90 second flights.

KENT GLIDING CLUB.

In anticipation of our approaching anniversary on Feb. 23, we have had a very pleasant surprise in the form of a Five Pound Note from an anonymous "Well-Wisher." We hope you will permit us to express our appreciation through the medium of your paper, in the hope that this may catch his (or her) eye.

Such a gift is doubly welcome, coming at a time when the Club, in common with many other Sports Clubs, is badly in need of funds.

We have not recently been prominent in the news, but as a result of steady operation the Club is once more making progress after a difficult year. Many old members were unable or unwilling to renew their subscriptions, and this so hampered the committee's activities that they were obliged to adopt a very cautious policy at first to keep the Club going.

At the start of our second year the previously-damaged B.A.C. II was duly repaired and put into commission—only to be written right off on the first day out. Several weeks elapsed before the Club, being financially unable to replace it, recovered from the blow.

Another shock followed. We discovered that we were due to compete for the Kentish Express Challenge Cup on the Channel Gliding Club's ground, and we had no machine to use. Something had to be done! It was hurriedly decided that our original club-built Primary (B.G. 101—the father of all British club machines) should be converted to take our damaged B.A.C. II wings, which the B.A.C. Ltd. generously undertook to repair for us.

In their limited spare time several members, headed by our noble Ground Engineer, Mr. E. G. Sanguinetti (without whose continual efforts the Club would probably have been non-existent now) set too to design fittings and make the necessary alterations for adapting the machine to struts and new wings; but time went on and Saturday arrived with the machine unfinished and due to fly the following day. However, weary but willing members, working far into the night and again early Sunday morning, completed, rigged and re-wired the machine by midday. It was then transported to Folkestone, where it flew quite creditably in the competition with no previous tests.

Unfortunately, lack of sufficient aileron control (not surprising considering the combination of mechanisms we had fitted!) handicapped us in attempting the necessary turn along the ridge. This was soon remedied on our return and the machine was further strengthened and improved. It is now an extremely efficient Primary and has been doing yeoman service ever since. Long live Columbus!

Some time ago trials were made with car-launching by means of pulley, wire cable and shock-cord, the car and shock-cord being at right angles to the machine. The results were very encouraging; we have now been using this method regularly for some months and are delighted with it, finding it far superior to hand-launching.

We use 100 yards ¾-in. cable attached to the glider by the usual ring and, via the pulley, to shock-cord attached to the car. Normally no crew is used to hold the tail, the inertia of the machine until "unstuck" providing the necessary tension. The car is used in low gear and **quickly** accelerated to just under 10 m.p.h., slowing up after about 75 yards.

The machine takes off more gradually than when launched by hand, gaining speed when once in the air; and very good training hops can be made on the flat. Good flights are obtained in still air or even with a light wind blowing down the hill, although under the latter condition the ground speed is rather high.

We feel our enthusiasm for this method is justified as it has carried us over a difficult period when we were unable to go in for more ambitious schemes.

We now look forward to an interesting year. At our Easter camp we hope to have two primaries in commis-



De Luxe Model No. S.P. 55. Cash price **55/-** C.O.D. or 5/- with order
Super Schneider Rolled Gold (10 years guarantee) Rectangular shape, leather strap, Cash price **85/6** C.O.D. or 10/- with order and 10/- monthly
Leather straps fitted if preferred. All models 5/- extra
Radium Dials

THE SCHNEIDER WATCH

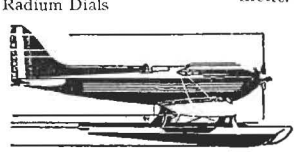
BUILT WITH THE ACCURACY OF AIRCRAFT INSTRUMENTS YOURS FOR 5/- WITH ORDER!

Built with the accuracy of flying instruments on which the Pilot's life often depends—instruments that are Government tested.

This craftsmanship in every Schneider Watch makes them ideal for Airmen and Sporting use—they are shock and vibration proof and impervious to weather.

Super Grade fully Jewelled lever movement incorporating a shock absorber in heavy Chromium hinged case. Patented colourless unbreakable glass. 24 hours dials.

Special Feature. Armoured Chromium broad wrist-band with universal adjustment. Indestructible. Smart appearance.



FT. LIEUT. SCHOFIELD

The Famous Schneider Pilot says: "I am very satisfied with the performance and reliability of the Schneider Watch . . . . . ""I have found that your watch functions accurately under most arduous flying conditions . . "

GUARANTEED for 2 YEARS

COUPON. Post This To-Day

Please forward to me Gent's Wrist Watch De Luxe Model No. S.P.55 at 55/-, for which I enclose P.O. for 5/- and agree to pay balance 5/- monthly or Super Schneider at 85/6 for which I enclose 10/- and agree to pay balance 10/- monthly. Armour or Leather. Radium Dial 5/- extra all models.
Strike out all not required when ordering.

Name .....

Address .....

.....

PLEASE WRITE IN BLOCK LETTERS

ROBERTS & Co., Albion House, 59/61 New Oxford Street London, W.C.1
Dept. S.P.1 *Obtainable from All Good Garages*

sion again, and through the sportsmanship of Mr. G. Bolton, an enthusiastic constructor, the Club has been offered the use of a secondary type machine. We are also looking forward to the first appearance of Mr. T. Weekes' sailplane. This is somewhat reminiscent of a PROFESSOR but has a slightly greater span. If its performance is at all equal to its "lay-out" and workmanship it will be a fine effort indeed. Here's luck to it!

We are holding our second annual dinner at the New Inn Hotel, Maidstone, on Thursday, March 3 at 7.30 for 8 p.m. (morning dress), tickets 4s. We shall be very pleased to welcome members from other Clubs. All applications for tickets should reach the Secretary (Mr. K. B. Green, Lower Tovil Mills, Maidstone) by Tuesday, March 1. Our President, Colonel the Master of Sempill, and other well-known figures in the gliding world have announced their intention of being present.

LONDON GLIDING CLUB.

Sunday, Feb. 14.

A northerly breeze, parallel to the ridge. Increasing slime underfoot.

On Saturday five instructional launches per man were given in ZOGLING, hand-launched, and/or in DAGLING, auto-launched. To-day a larger number of members were given between four and six hand-launches each in ZOGLING or in PRUFLING, the day's total launches being about seventy.

Wiser members carried on with odd jobs on the clubhouse.

Sunday, Feb. 21.

We had the shock of our life to-day. The clubhouse was complete, right down to carpets, bookcase, curtains, tremendous fires, and refreshment. There were even Sunday newspapers. So the club now has a nucleus.

We also soared in a north-westerly wind which fluctuated in strength, never too weak to prevent PROFESSOR from holding ample height, and once sufficient to keep up DAGLING for 11 mins. 56 secs., which certainly made local history, especially since the pilot, Dewsbury, was only trying for a 45 sec. flight toward his "B."

In addition to this astonishing effort, Thomas, Dineen and Collins flew their "A," with 75, 50 and 50 secs., in DAGLING. She was also launched from the flat and from half-way up the hill, and was used yesterday for elementary training, with ZOGLING.

KASSEL 20 was flown by D. F. Dent and Dr. Slater. Buxton soared her and landed downwind at the launching-point; Dr. Hall soared her and landed on the hill-top with more orthodoxy.

HOLS was twice flown by Hiscox, and once by Morland and Manton, Manton squeezing the last inch of height out of her with his usual utter smoothness, and landing on the top.

PRUFLING is overworked. A whole string of pilots flew her, the lift being scarcely enough for her or them. Buxton charged the face of the hill downwind and landed perfectly, like a fly on a wall; some others frankly dived her down, and a "C" pilot horrified everybody, but tickled himself by deliberately holding her down to 28-30 m.p.h. If PRUFLING has any vices they are hard to find; she may twitch at 70 m.p.h., but at the other end of the scale she can turn beautifully to the left with full right rudder and stick! The feeling is delightful, and cannot be described. Is this what ignorant people call a "spin"?

Major Petre, Williams, D. C. Smith, Culver and Scott-Hall were monotonous in PROFESSOR. They simply rose 500 feet and stayed there, on a beat of about 2 miles, for half an hour to one hour at the time. We left Major Petre to it and had lunch, watching his Bruce-and-the-Spiderlike attempts to land on the top in spite of her huge float. Of course he managed it in the end.

We hope that others will follow Mr. Charlie Desoutter's example and will call in their Puss Moths. Or else imitate Mr. Lowe Wylde and his family and come by road. The clubhouse is intended for such people. We cannot always show them three machines soaring at once, as to-day, but will try our hardest.

KASSEL 20 is now fitted with an air-speed indicator. Hedges is doing some real Australian carpentry on the Alvis, converting her into an infinitely needed winch.

MANCHESTER GLIDING CLUB.

The Manchester Gliding Club have for the last ten days had their PRUFLING glider on show at the Models and Marvels Exhibition, in the City Hall, Manchester.

As an exhibit it certainly proved surprisingly attractive, not only among the younger end, but the older and more staid folk were found just as keen in their questions and general interest.

After the opening day it was quickly found necessary to have at least three members constantly in attendance to answer questions and enquiries about our machine, club, and the Gliding Movement generally.

An attractive array of large photographs showing various types of gliders and sailplanes, etc., kindly lent to us by the British Gliding Association certainly helped to stimulate the interest of visitors to the exhibition in engineless flight.

A prominent display was also made of the Movement's journal THE SAILPLANE AND GLIDER, many dozens of which have been sold during the exhibition. May the scattered seeds fall on soft mature ground!

Before the close of the exhibition we shall certainly have about 150 names and addresses of people who are particularly interested in gliding, and who desire to be informed of our next club gliding meeting. This is not counting numerous enthusiasts who have already filled in an application for membership form.

The exhibition of our machine, whether it be considered a "model" or a "marvel," or maybe both—a "Model" of efficiency, and a "Marvel" of the age has certainly brought to us as a club very pleasing and satisfactory results.

The Hon. Secretary of the Club, Mr. F. S. Coleman, 62 Egerton Road, Chorlton-cum-Hardy, Manchester, will be pleased to furnish any particulars, or forward an application form for membership, on request.

STAINES AND DISTRICT GLIDING CLUB

Sunday, Feb. 7.

Little or no wind; visibility bad. However by the time the R.F.D. was rigged the mist had lifted. By dint of using two light cars for launching we managed to get all the lift required and most of our members had very satisfactory hops.

Our newest recruit, having had his ground skids, made the nicest start we have ever seen with a perfectly controlled hop nearly across the field, duration about 10 secs.

The day ended with a fine performance by our skipper who flew right across one field, hopped the hedge and landed in the middle of the next. By unanimous consent it was voted the most successful turn-out so far.

Sunday, Feb. 14.

Plenty of wind at last, but gusty. We took this opportunity to experiment with several methods of launching with varying degrees of success. Mr. F. Enser, our Captain, was very steady as usual, and several other members showed skill under not very easy conditions. Altogether, although nothing very spectacular was achieved, the day's flying was most instructive and has done us all a lot of good.

We are glad to announce that Flight-Lieutenant C. S. Staniland has become a Vice-President of the Club.

THE WESSEX GLIDING CLUB.

Sunday, February 15.

There was no wind at New Passage on Saturday, consequently, Major Sykes did not take out his experimental Glider, but contented himself with giving a lecture on construction to the few members present.

On Sunday, conditions improved, and the machine was taken to the flats, where Major Sykes made three flights of about 150 yards. Then followed our plan of tobogganning a few interested spectators on an excellent mud surface. This system has brought us several new members, who, convinced that they have flown, are anxious to achieve further heights!

Major Sykes' methods of instruction are sound and interesting, particularly his idea of putting the machine on a balancing point, and rocking her in order to test how the occupant reacts on the controls. This, of course, for the very early stagers.

A meeting was held in the evening, at which it was decided to purchase a SCUD sailplane as soon as a few more members are available. We then propose to visit our site at Crook's Peak, where we hope that a few of our very experienced power-pilot members will prove that we have a remarkably fine site. We again take the opportunity of offering any neighbouring club the use of Crook's Peak to enable their members to gain either their "B" or "C" tickets.

BRITISH GLIDING ASSOCIATION

Second Annual General Meeting

The Second Annual General Meeting of the British Gliding Association was held in the Library of the Royal Aeronautical Society on Monday, Feb. 22. Lieutenant-Colonel F. C. Shelmerdine, C.I.E., O.B.E., the President of the Association was in the Chair. The President's Report and Financial Statement are given in full below.

Apart from the adoption of the Report and Balance Sheet, the main business of the Meeting was concerned with the election of Officers and Council for 1932. One outstanding item on the Agenda was a resolution to form the British Gliding Association into a Limited Company under the Industrial and Provident Societies Acts, 1893 to 1928. This resolution was agreed to and the draft new rules for the Association adopted.

The existing Council was re-elected unanimously, Mr. E. C. Gordon England being re-appointed Chairman and Mr. Seymour Whidborne Treasurer for 1932.

After the conclusion of the meeting the new Council met and proceeded to the election of the various Committees.

THE PRESIDENT'S REPORT FOR THE YEAR 1931

At meetings of this kind it is fashionable to preface one's remarks with some reference to, or a review of the difficult times through which the world at large, and this country in particular, is passing. That condition is too often used as a preamble to an apology for failure, or as a mitigating circumstance for a disappointing result. My purpose in mentioning it in the opening of my report is due to neither of these reasons; rather would I say that any lack of growth is due to entirely different circumstances, and these are largely ones which we can influence or control and which have but small reference to economic conditions in the first instance.

This is, in itself, a matter for congratulation and a source of encouragement rather than otherwise, for it means that as we develop and perfect our organisation so we may anticipate increased results from our united efforts. Therefore, we may look forward with confidence to an increasingly progressive and prosperous future.

There is no doubt that the somewhat meteoric rise and spread of the Gliding Movement in 1930 was not entirely healthy, and in consequence, this past year has seen the Movement taking stock and consolidating its position. Much that was learned in 1930 has helped us to retrace false steps and to start forward again upon sounder lines.

Fortunately for the Movement, it may be said with every truth and justification that the wise, consistent, and frugal policy of THE BRITISH GLIDING ASSOCIATION has kept the governing body on an even and progressive keel.

The year 1931 has been marked by a great amount of constructive work on the part of the various Committees. Some of this has borne immediate fruit, but the results of much of it will be seen later. Particular reference must be made to Captain C. H. Latimer Needham and his Technical Committee and to Mr. S. Whidborne and his Finance Committee for their splendid and unsparing service in the cause of the Association. The regular presentation of accounts and the financial statement to the Council remain that model of clarity and compactness to which the Chairman referred in his report last year and are a splendid testimonial to our invaluable Treasurer. While speaking of the Finance Committee I must record our deep sense of loss at the untimely death of the late Mr. T. E. Lander, who was a hard-working member of that Committee.

I cannot express in words the deep sense of gratitude we owe to our Chairman, Mr. Gordon England. I feel that nobody will gainsay my statement that it is to his untiring efforts and unflagging energy that the whole of the British Gliding Movement owes its present progress. It is difficult to single out his special "forte," but if I were to say that propaganda of the Movement probably comes first, I shall not be very far off the mark. Through Mr. England's propaganda many scores of thousands of people, ignorant of what gliding was a year ago, are now acquainted with, and interested in it. At the beginning of his connection with the resuscitation of the Gliding Movement, Mr. England realised that it was almost impossible to attach too much importance to this aspect of the Association's work. He realised, as no doubt did many others, that the future of Gliding depends on the public's appreciation of it. Even in these days, when flying is an every-day affair to the public, a colossal wall of ignorance and scepticism has to be surmounted where motorless flying is concerned.

Members have no doubt encountered some of the difficulties, and appreciate the fact that nothing is more valuable to our Movement in surmounting this obstacle than propaganda. For this very reason, the Council has carried out propaganda by demonstrations, competitions, lectures, and through the Press, and in this connection an important move has been made. The acquisition of THE SAILPLANE AND GLIDER has been a great adventure that has proved most satisfactory. As the official vehicle for news about our Movement. I believe that this step is going to have a great and permanent effect of lasting value for Gliding. During the short period of ownership we have had with regret to accept the resignation of its founder and first Editor, Mr. Thurstan James, who was compelled by the load of work he had to carry in other directions to resign his position as Honorary Editor. By great good fortune, Capt. Entwistle was prevailed upon to accept this honorary post and the magnificent work which he has put into it since he took over needs no comment from me. THE SAILPLANE in its new and improved form is by far the best tribute that can be paid to the efficacy of the ideas and work he has put into its production.

I make a most definite appeal to every Member of the Association to use every effort to obtain new subscribers and advertisers, for our own paper is the best possible means for spreading the gospel throughout the length and breadth of the land. It is a distinction to be able to claim the honour of having the only paper in the World devoted solely to Gliding and Soaring Flight.

I cannot leave the subject the THE SAILPLANE without a reference to the generosity of the Proprietors of "The Aeroplane" for the terms upon which they transferred the property in THE SAILPLANE to this Association; for this we shall ever be grateful.

The Council has throughout the year been well attended by those members who are fortunate enough by reason of location to be able to put in personal appearance, and that its government of the movement has been sound and progressive will, I am sure, be the verdict of the Members of the Association.

The Chairman has asked me to make special mention of the work of our Secretary, Mr. J. L. R. Waplington. He has worked with devotion and untiring energy under circumstances of extreme difficulty and his resourcefulness has proved most valuable upon numerous occasions. His faith in the future of THE BRITISH GLIDING ASSOCIATION and the whole Movement is a splendid inspiration to us all.

You are going to be asked to pass the necessary resolutions to turn the Association into a Limited Company. This is a landmark in the history of THE BRITISH GLIDING ASSOCIATION which marks an entirely new phase of the Movement. It is an important step which we believe is

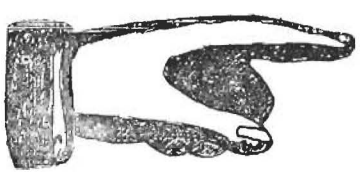
FOR SALE

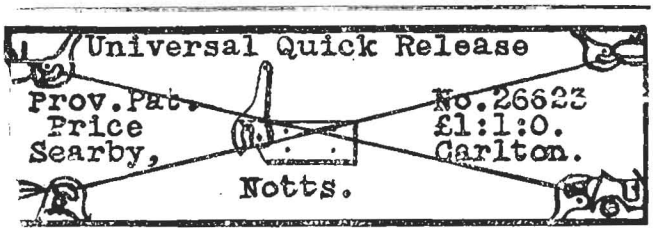
FALKE DRAWINGS; complete; £4 10s.—P.P., 24 Broad Street, Hereford.

PATENTS.

A. P. THURSTON & CO., Patents, Trade Marks and designs.—Bank Chambers, 329, High Holborn, W.C.I. Holborn 2542.

Are you going to be the last to use it





going to have a significant and beneficial effect on the whole Movement. Under this scheme the Association will be able to offer to all its affiliated clubs the great benefit of the protection of limited liability to their members at an inclusive fee of only a very few pounds. My view is that every gliding club in the country will greet this announcement with the greatest enthusiasm, as the lack of the protection to club members has undoubtedly had a most adverse effect upon the support of those who would otherwise have given it and would have proved most useful members. If this great step forward was the only activity that the Association could record for its year's work, it would be sufficient justification for its existence.

During the year those clubs that have found their feet have made splendid progress and I am sure no club will feel aggrieved if the London Gliding Club is singled out for special mention. Briefly, their position is this—the Club possesses a clubhouse 67ft. x 21ft. erected by its members on its flying site; it has two hangars 50ft. x 30ft. and 50ft. x 28ft., in which they have housed no less than 8 machines. 70 "A," 28 "B," and 15 "C" glider pilots' certificates have been obtained in the year. It has a total membership of nearly 200. You will, I feel sure, agree that this is a most encouraging record and reflects the greatest credit upon the Management Committee of the Club.

During the year 139 "A," 59 "B," and 26 "C" glider pilots' certificates have been issued throughout the Movement as a whole. The most outstanding performances have been:—

British altitude—785 ft. above start point, Sept. 27, 1931, sailplane TERN; pilot, Major H. Petre, Ingleby Greenhow, Yorkshire.

British distance—8.3 miles, Aug. 24, 1931, sailplane TERN; pilot Herr Magersuppe, Ingleby Greenhow, Yorkshire.

British distance with passenger—8 miles, Aug. 30, 1931, two-seat KASSEL; pilot, Herr Magersuppe, Stoup Brow, Ravenscar.

British duration—6 hours 10 minutes, Aug. 2, 1931, London Club's PROFESSOR; pilot, F./O. E. L. Mole, Ditchling.

British duration with passenger—28 minutes 31 seconds, Aug. 2, 1931, B.A.C. VII; pilot, F./O. E. L. Mole, Ditchling.

ENGLISH CHANNEL crossed in both directions in one day, June 20, 1931, sailplane WIEN; pilot, Herr Kronfeld.

The double crossing of the Channel in one day by Herr Kronfeld in the "Daily Mail" Competition was a notable performance which in its turn did much to assist the finances of the Association. Here may I say that his flight of over 1 hr. 12 mins., at Hanworth Air Park was an outstanding performance which I feel has not received sufficient recognition, even within the Movement. By this flight he demonstrated beyond all doubt the practicability of soaring at will over perfectly flat country in this country.

The Balsdean Meeting was to a certain extent marred by poor weather conditions but it is most satisfactory to record that it was an outstanding financial success.

We may congratulate ourselves on the fact that the International Commission for the Study of Motorless Flight, of which the Association is a Member, decided to hold its first Annual Conference in this country on Oct. 1 and 2. It has to be admitted that we were somewhat embarrassed by the honour, for having lean resources, we were apprehensive of our ability to do justice to the situation. But thanks to the very generous help of Lady Elibank, Lady Drogheda, The Master of Sempill, National Flying Services, Commander Perrin, and many members of the Council, I think we may justly claim to have provided hospitality unexpectedly complete and agreeable without cost to the Association.

The year has seen the development of the two-seater sailplane for instructional purposes in this Country and it is to be hoped that 1932 will see its adoption by most clubs because it seems clear that it offers the best means of ensuring economical training. Another milestone of progress is the issue by the Association of the first licences to glider pilots to ply for carrying passengers for hire or reward.

Our relations with the Government Departments continue to be of the most cordial character and we are grateful to them for their ready assistance in many ways.

We are still deeply in the debt of the Royal Aeronautical Society for their help and generosity in placing their Library at our disposal for Council Meetings.

The Royal Aero Club continues to take a kindly interest in our activities and this help is more than appreciated.

Membership of the Association has not greatly increased during the last year and it is here where practical steps can be taken to improve the position. To finish on a note of pleasant anticipation, may I say that my sincere hope is that at the next Annual General Meeting I may be able to report considerable progress in this direction. It can be done if we all determine to do our very best.

FINANCIAL STATEMENT

The income for 1931 was £647 1s. 5½d., as against £1,518 17s. 10d. for 1930, which includes Lord Wakefield's gift of £1,000. If donations are excluded, it will be seen that the revenue for 1931 was £343 16s. 4½d., as against £501 16s. 10d. for 1930. This falling of is largely due to the reduction in the volume of subscriptions both of members and clubs. This is no doubt due, in the main, to the general economic depression, although the re-adjustment of the Movement to the lessons of experience has also been a contributory cause.

The amount receivable in respect of Capitation Fees is an estimated figure as many of the affiliated clubs have failed, in spite of frequent and urgent demands, even to send in an acknowledgement or certificate showing the amount due. It has to be reported with regret that a considerable number of clubs is in default in settling this liability.

Until it is generally accepted by those in direction and management of clubs that they must raise sufficient funds, both to provide adequate equipment and to discharge their proper liabilities, the whole Movement will be in jeopardy of breaking down financially.

It has been the aim of the Finance Committee to avoid running the Association into debt, and it is a matter for congratulation that the total of our creditors is so small that any amounts outstanding are adequately covered by cash in hand at the bank and by outstanding debts.

The bank account throughout the year has been in credit for which we have to thank the foresight and untiring energy of our Chairman in obtaining donations from the "Daily Mail," Capt. G. de Havilland and others.

The amount due from the "Daily Express" on the Kronfeld demonstrations, which was shown in last year's balance sheet as £206, was compromised at £52 10s. (less costs); thus, the loss of £164 has been brought into this year's working although it belongs properly to 1930. It will be seen, therefore, that if the Kronfeld demonstrations are excluded, the expenditure for 1931 is £855 7s. 0½d., against £929 14s. 8d. for 1930.

Although the Budget for 1932, which includes one or two items of income of rather a speculative nature, estimates a small profit on the year's working, a budget prepared on the present basis of income would be some £200 below the smallest expenditure for which we can estimate and do any useful work at all, so it behoves all of us to accept a part of the load of obtaining the necessary and vital funds to keep our flag flying and not to leave this task to fall on the shoulders of one or two devoted workers in the cause.

The outstanding event of the year was the decision to make an offer to Aeronautics Ltd., to take over THE SAILPLANE as a going concern. The terms upon which it was acquired were: the goodwill of THE SAILPLANE, blocks and list of subscribers were generously presented to the Association and permission was given for the then Editor (Mr. Thurstan James) to have time from his duties to Aeronautics Ltd. to continue for a period as Honorary Editor. The only liability taken over was the unexpired subscriptions, and a cheque of £98 2s. in respect of these was handed over to the Association by Aeronautics Ltd. It is too early to decide what effect the acquisition of THE SAILPLANE may have on the finances of the Association, but it is gratifying to be able to report that the 12 issues made in 1931 after it was taken over from Aeronautics Ltd. showed, on the average, a profit of just under 4s. per issue. This is after making all reasonable allowances for back debts and overhead charges.

The steps which have been taken by the present Honorary Editor (Capt. Entwistle) to improve the paper, and, as a consequence, the growing interest evinced in it both by clubs and by people outside the Movement lead us to look forward to the future of THE SAILPLANE with confidence.

An appeal is made to all associated with the Movement to obtain subscribers and advertisers for the paper and thus give most practical assistance to the Association in two distinct ways.

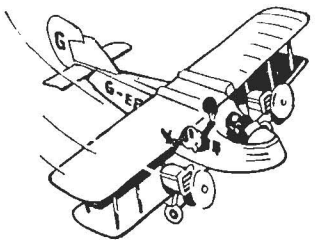
Printed for the BRITISH GLIDING ASSOCIATION by the Broadwater Press Limited, Welwyn Garden City, Herts, and Published by THE BRITISH GLIDING ASSOCIATION, at 44a Dover Street, London W.1. Telephone: REGENT 6145

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, organisation of gliding clubs, construction and repairs, meteorology, etc.; with interesting facts regarding past achievements and pilots and official information regarding Certificates. 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.
Gliding and Soaring By Percival White and Mat White.	Especially adapted for those with no previous knowledge of the subject, this book gives a complete review of Gliding and Soaring flight and is distinctly above the average. 13/- 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 organisations interested in gliding. It includes a diary, Rules and Regulations issued by the Association, a Glossary, and authorative articles on a number of interesting subjects. 1/6 post free.

Obtainable from the British Gliding Association, 44a Dover Street, London, W.1.

The Air Male



We are rather proud of one of our recent efforts towards promoting international understanding. One of our customers had occasion to attend a State function in a foreign capital. He was extremely busy up to the very last moment. As a result he found to his horror when he unpacked his luggage on arrival (the day before the event) that he was one pair of dress trousers short — a shortage which greatly detracts from the dignity of evening regalia.

In spite of unceasing endeavour to replace the missing feature locally, the day drew to a close without his having met with any success. It was apparently impossible to beg, borrow or steal a pair of trousers that would meet the case. All the available pairs were evidently booked for the next evening.

Finally he cabled in despair to our Regent Street shop late that night explaining the situation. We found this S.O.S. awaiting us next morning (the day of the function). Our only hope of being of any service was to catch the air mail.



Telephonic enquiries disclosed that an aeroplane was leaving Croydon in half an hour. A few moments of reference to the facts and figures (which we keep about all our customers), a few moments of selection and the parcel was off. Within an hour it was winging its way across the Channel.

That afternoon on arriving at the foreign aerodrome it was rapturously embraced by the consignee. He duly attended the function — completely and magnificently arrayed.

We are always delighted to be of use in such emergencies. We must, however, remind prospective users of this service of the fundamental importance of being old customers and near an aerodrome.

AUSTIN REED'S
of REGENT STREET

103-113 Regent Street, London, W. 1
Telephone : Regent 6789

AUSTIN REED LTD. LONDON