April 1st, 1932 Vol. 3 No. 7

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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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AN OUTSTANDING YEAR FOR THE GLIDING MOVEMENT

THERE is every indication that 1932 is going to be an outstanding year for the Gliding Movement. Plans are well advanced for the International Competition, which promises to be a conspicuous success and a healthy stimulant to gliding clubs. But, apart from the Competition, gliding is going to play a considerable part in connection with Sir Alan Cobham's National Aviation Day Display.

The National Aviation Day Display, which Sir Alan, with his incomparable organising ability is arranging, has been conceived on bold lines and will be one of the outstanding national events of the year. The object of the campaign is to bring the British public into close contact with practical flying in order that they may realise that the development of aviation is of vital importance to the future of the British nation.

The Display, which will open on April 13th at Luton and will be continued till October, will be conducted in 170 towns in every part of the British Isles, from Land's End to John o' Groats, and from Galway to Great Yarmouth. Twice a day, at a different town every day, a magnificent flying display of over twenty events will be presented. Space will not permit of a detailed programme being given; suffice it to say that the Display will be designed to show flying in all its branches, to illustrate the efficiency and safety attained in the aircraft of to-day and to be both entertaining and instructive. The public will have an opportunity of obtaining a much wider conception of the value of aircraft than many have had previously, and there will also be facilities for actual flights to be carried out.

The interesting aspect of the National Aviation Display from the point of view of those associated with the Gliding Movement will be the part which gliding is going to play in it. Sir Alan Cobham, with his characteristic far-sightedness, has realised for a long time that gliding is an important adjunct to aviation. He has arranged, therefore, to include in the Display an exhibition of advanced gliding. Mr. Lowe-Wylde will accompany Sir Alan and will give demonstrations of power-towed and auto-towed gliding, including passenger carrying, in every programme. But that is not all. Sir Alan has generously thrown open to the British Gliding Association full facilities for taking advantage of the campaign in order to further the cause of the Gliding Movement. A travelling representative of the Association, who will work in close touch with Mr. Lowe-Wylde, will be attached to the Display and will devote his full time to stimulating public interest in the Gliding Movement. He will take with him a folding stall, which will be suitably fitted, and from this he will carry out his work.

Here is a wonderful opportunity for the gliding clubs. It is to the interest of each club to identify itself as closely as possible with the Display when the latter visits its locality. The Association's representative will do all in his power to assist the local club in obtaining new members and in stimulating interest in its activities.

One of the objects of Sir Alan Cobham's campaign will be to secure a million signatures to a Mandate for British Aviation. This Mandate will be placed, at the close of the campaign, before the proper authorities with the object of impressing powerfully upon the Government and municipalities the strength of public opinion in favour of a more progressive policy for civil aviation. One of the clauses of the Mandate will go forward in the name of the British Gliding Association.

The year 1932 promises, thus, as we stated in our opening paragraph, to be a big year for the Gliding Movement. The plans have been well and carefully laid; the British Gliding Association has made all necessary arrangements to take full advantage of the campaign. It now rests with the clubs to do their part. By supporting the National Aviation Day Display and co-operating with Mr. Lowe-Wylde and the Association's representative, each club will not only have an unparalleled opportunity of increasing its membership and stimulating local interest in its activities, but it will be helping to place the British Gliding Movement on a firm and invulnerable foundation.

NEW "SAILPLANE" FEATURES.

Two new features appear in the present edition of THE SAILPLANE. The first is a section devoted to News from Overseas, which is to be contributed regularly by the

Founder and late Editor, Mr. Thurstan James. We are sure that readers will welcome this feature, and that they will be delighted to find that Mr. Thurstan James has been able to spare the time to contribute regularly to the paper to which he devoted himself so zealously during his period of editorship.

The second feature is a " Personality " Column. In this series we propose to give brief biographical notices of people who are prominent in the Gliding Movement. In the present issue we commence with one who, we are sure, will be a popular choice—Mr. E. C. Gordon England, the Chairman of Council of the British Gliding Association, and a pioneer of gliding in this country.

INTERNATIONAL " SILVER C " BADGE.

(Translation from the quarterly Bulletin of the I.C.S.M.F.)

At the recent Congress held in London, it was decided to adopt the " Silver C " special merit award of the R.R.G. as an International Category. It was further agreed that the R.R.G. badge, which is a reduced size " C " badge encircled with a silver ring, and without any distinguishing nationality letter, should be adopted as standard. The conditions to be fulfilled for this qualification are:—

Altitude.—1,000 metres above the starting point in the case of ground launches, or, in the case of towed launches, 1,000 metres above the height of the machine when the cable is slipped.

Distance.—A cross-country flight of fifty kilometres, distance to be measured in a straight line between the starting point and landing point.

Duration.—A flight of not less than five hours' duration.

Applications for this badge should be made direct to the Secretary-General of the I.C.S.M.F., enclosing affidavits for each flight signed by two official observers.

So far this badge has only been granted to six persons, namely, Robert Kronfeld, Woolf Hirth, Gunther Groenhoff, Kurt Starck, Ootto Fuchs and Herman Mayer.

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By

C. H. LATIMER NEEDHAM

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

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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.

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PERSONALITIES IN THE GLIDING MOVEMENT

MR. E. C. GORDON ENGLAND, A.F.R.Ae.S.

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



Mr. E. C. Gordon England was born of British parents in the Argentine Republic, and at the age of ten came home to England to be educated. He was educated at New College, Eastbourne, and Framlingham, Suffolk.

In 1906 he entered the Great Northern Railway Works at Doncaster as engineering apprentice, and at the end of 1908 he left to join Mr. Pemberton Billing, assisting the latter in the aircraft establishment which he was running at Fambridge, Essex. The late Mr. José Weiss was one of the first tenants of the concern, and Mr. England joined him as an assistant.

In 1909 Mr. Gordon England carried out gliding experiments on the Weiss inherently stable tailless monoplane at Amberley Mount, Sussex, and on one occasion he succeeded in remaining for approximately 58 seconds in the air, reaching a height of 100 feet above his starting point. Subsequently he carried out tests on a Weiss power-driven machine. At the beginning of 1910 he taught himself to fly one morning at Brooklands in three hours on the Hanriot monoplane, and holds Pilot Certificate No. 68.

Later in the same year, he joined the Bristol Aeroplane Company as pilot and designer, and in 1912 entered into partnership with Mr. James Radley and produced the Radley-England triple-engined seaplane, the first triple-engined machine to be produced in this country.

During this time, Mr. Gordon England built the Cedric-Lea circular aeroplane for the syndicate running it, and did all the preliminary tests of flying upon it.

From 1913 until 1916 he was a test pilot and aeronautical consulting engineer to several well-known aircraft constructors, including J. S. White & Co., of Cowes, White & Thomson, of Bognor, etc.

In 1916 he became manager of the Aircraft Factories of Messrs. Frederick Sage & Co. During this time he managed factories of over 2,000 employees, producing Short seaplanes, Avro 504Ks., and several experimental aircraft of both land and seaplane of his own design.

In 1919 Mr. Gordon England took up aeronautical consulting work, and at the same time became interested in the motor trade. Taking up motor racing in 1920, he raced successfully on track and road for several years, particularly on the famous Austin Seven. One year he succeeded in securing the title " Champion of France," and has the unique record of having competed in six consecutive international 200-mile races, always winning an award, including three firsts. In 1922 he commenced body building, with a patented light-weight body, largely based on aircraft experience, and built many thousands of these bodies. In this year he took a prominent part in the " Daily Mail " Gliding Competition at Itford Hill. In 1930 Mr. Gordon England gave up the body-building business and joined the Vacuum Oil Company as Manager of their Automotive Lubricants Department. The same year he was elected Chairman of Council of the British Gliding Association.

In 1931 he became a Director of National Flying Services,

NEWS FROM OVERSEAS

[From its inception The Sailplane *has boasted the ubiquity of its sources of news. It has ever avoided the merely parochial, and sought to give its readers, and through them the whole British Gliding Movement, a clear and unbiased view of Gliding throughout the world. The latest outcome of this policy is a decision to devote a portion of the paper each week to "News From Overseas," where under appropriate headings the more important happenings in other countries will be summarised. The Editor will welcome any matter suitable for inclusion herein, which must, however, be* news *as opposed to descriptions of new machines or other technical apparatus. Pertinent matter should be sent to Thurstan James, 24, Norland Square, London, W.11.]*

GERMANY.

The Thirteenth Annual Gliding and Soaring Competitions will be held at the Wasserkuppe from July 17th to 31st.

Herr Gunther Groenhoff, the holder of the world's long-distance gliding record, was received recently by President von Hindenburg, who presented him with the trophy awarded for the best long-distance soaring flight during 1931.

On March 25th, Reuter announced that Herr Groenhoff had been found unconscious from gas-poisoning. His condition was stated to be grave.

SPAIN.

Fourteen pupils of the Motorless Flying Club of the School of Industrial Engineers at Madrid have obtained their "A" licence on the terrain of Maranosa. The record flight is 50 seconds.

UNITED STATES.

The new endurance record established on December 18th, 1931, by Lieut. William A. Cocke, U.S. Air Reserve, was reported in The Sailplane for January 15th, but there was not much information to hand. An official news letter recently received devotes considerable space to the achievement, and quotes the time as being 21 hrs. 34 min., the greatest height attained as 3,400 feet, and the total distance covered as being 600 miles. The flight was made on the north side of Oahu (Hawaii).

From other sources it appears that Lieut. Cocke's machine "Nighthawk" had been built by himself and another officer. It is a high-wing monoplane reminiscent of the Bowlus sailplanes, though the wing is a wire-braced structure. As far as can be judged from photographs, neither the span nor aspect ratio is as great as it usually is in Germany. The performance was put up during an organised contest during which Lieut. W. J. Scott was killed.

[A full description of Lieut. Cocke's flight, written by himself, will appear in the next issue of The Sailplane.]

FRANCE.

In spite of Government assistance motorless flying in France appears to have followed the same lines of development as in England. The numerous clubs that were formed in the first burst of enthusiasm found themselves hampered by lack of proper sites, of material and of experience. In this country similar obstacles are being overcome by the coalescence of the smallest units into stronger groups based on the best obtainable sites.

The official link between the French Movement and the Government is "Avia," a privately organised society which performs a similar function to The British Gliding Association, but whereas the B.G.A. believes in profiting by the experiences of others, "Avia" appears to have concentrated on producing all-French designs, an entirely commendable objective. But, as *Les Ailes*, the French aeronautical fortnightly, says: "In fact, we have no sailplanes worthy of the name, we only have various types of training machines which are notoriously inefficient." One imagines that the French in a year or two have not been able to produce designs equal to those based on the experiences of ten years at the Rhön. On the other hand, M. Abrial (I think) has a Kassel 25 which has been used for towed flights, and in this machine a successful flight from a towed start was made above Paris recently.

Anyway, the Clubs, Groups, or Sections are organised under "Avia." In the North of France there are eight of these, which own in all fourteen training machines of various types. The total membership of flying members or pupils in this district is given as 150, and the total number of launches as 850 up to the beginning of March.

Four of these groups have now combined, and on March 6th a regional gliding centre was inaugurated at Rameceau by M. Massenet, who is a Director of "Avia," and as a delegate to the International Commission of Motorless Flight is well known to readers of The Sailplane.

Rameceau is on the ridge of high ground that runs N.W. and S.E. behind St. Inglevert, where the aerodrome is. A good many people know St. Inglevert as a Customs aerodrome, and the official take-off point and landfall for aircraft crossing the Channel. This ridge is really a plateau some two miles long and 600 feet above sea-level. It is possible to take-off to the west, south-west and north-east, though from the only map available (one is Eastering far away from reference books) the site would appear to suffer from the close proximity of other eminences.

From a practical point of view, the new centre has the advantage of being near the aerodrome, with its sheds and meteorological station, both of which seem available to the new combination which is known as "Nord-Avia." Not far from the site are the crests of Dannes-Camier, where in 1922 and 1923 MM. Henry Farman and Lucien Bossoutrot soared for three and four hours, and, although the absence of good landing grounds makes these crests unsuitable for novices, their suitability for soaring has thus already been demonstrated. In this connection there is interest in the news from Oran (Algeria) that M. Bossoutrot, with M. Rossi, has created a new record for power aircraft by staying in the air for 76 hours 43 minutes, and covering 10,600 kilometres (6,625 miles) in a closed circuit.

The development of a motorless flying centre that has facilities both for auto and aeroplane-towing will be watched with the closest interest in this country, the more so because St. Inglevert is not a difficult place to reach, and one is probably not too optimistic in looking forward to the day when there will be mutual visits between the clubs operating at Rameceau and those along the English coast.

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IN PRAISE OF PRÜFLING



FOR BEGINNERS ONLY.

There is a snake-in-the-grass rumour that PRÜFLING is not a safe machine to fly. Which is absolute rubbish. PRÜFLING is a very amiable little kite, closely allied to the earthly Austin Seven. Both are handy in motion and at rest; both are light, small, controllable, simple, reliable, inexpensive, and, within their unpretentious limits, efficient.

It is possible to break your neck in both, but it is not necessary. Both are cursed by the fact that inexperienced people get hold of them, since both vehicles represent an early stage in a soaring or motoring education.

Here is a list of such PRÜFLING accidents as have come to local knowledge:—

Two crashes were caused by the movable foredeck coming adrift in the air and seriously discommoding the pilot; this trouble is easily cured by a couple of hinges. Two more crashes were caused by headlong dives of panic. Another was caused by a rudder-pedal bursting its way through the ply-wood covering of the nose and thereby locking; the pedal-hinge is said to have been splayed out by hard wear; this could happen with any machine. One was caused by a stall close to the ground, the pilot pulling up too sharply after a dive. In another the pilot flew into a fence.

Local opinion, based on experience, says that a PRÜFLING refuses to spin. If she is stalled at an ample height, she double-jointedly slithers about, sinking fast. This occurs at about 27 m.p.h. A forward touch on the stick puts her nose down, and she comes under control unhesitatingly. She flies beautifully at 33 m.p.h., and can be cornered at 35 m.p.h. with the agility of an Austin Seven.

Local experience covers three deliberate flat-out dives from a height. In each case she recovered as required. In one case, where the hand of the air-speed indicator had gone off the clock, she vibrated, flapped, quivered and rattled, especially in the region of the tail, hit two enormous bumps—which may have been the product of her own distress—and twice twitched her nose downward. But she flattened out perfectly, and the previously inexperienced pilot accidentally made the best landing of his short career.

At excessive speeds it would seem that a violent turbulence is set up round the horizontal surface aft. This possibly originates from poor stream-lining above the cockpit. But there is no need to go in for such speeds. After all, one does not condemn an inexpensive car if the engine bursts through brutal over-revving, nor does one condemn an Austin Seven if it leaps into the ditch after hitting a hole in the road at 55 m.p.h.

It is hard to believe that the Germans have dropped PRÜFLING because of its non-existent vices. It is more likely that they have simply hit upon a more efficient and no more expensive design, as, for example, KASSEL 20, whose sinking speed is definitely less.

At one time the popular story was that PRÜFLING had been usurped by FALKE. Time will tell. FALKE is more difficult to build and repair, having a subtle wing-plan; and, heretical though it may seem, there is more than a suspicion that it is far less spin-proof than PRÜFLING. FALKE at a proper flying speed is so stable that inexperienced pilots are lulled into a false sense of security; in no time they ease her up until she stalls horribly, and then . . . ?

FALKE, KASSEL 20 and PRÜFLING are only a stage in the journey. The end comes in sight with PROFESSOR. In the former one should learn the elementary tricks of the trade up to and including controlled sideslips; in the latter one starts on an honest job of work. In PRÜFLING one learns, with luck, to acquire that daintiness of touch which is absolutely essential in real sailplanes. One learns to fly an accurate course, to make sure turns and smooth landings. One acquires the habit of thinking and acting quietly and precisely in mid-air; passion begins to go out of one's style.

It is said that the *good* Austin Seven driver can drive anything, and on the same principle the *good* PRÜFLING pilot should be able to fly anything. So please do not despise either. They are ALL RIGHT, both of them.

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BOOK REVIEW

GLIDING AND MOTORLESS FLIGHT. By L. Howard-Flanders and C. F. Carr. Second Edition. (Pitmans; 7s. 6d. net.)

Most of the readers of THE SAILPLANE have no doubt seen the first edition of this book, but those who have recently become interested in gliding may not know that Mr. Howard-Flanders, who was the first Secretary of the British Gliding Association, and Mr. Carr wrote the first edition at the end of 1930 to explain the art of gliding to those who were becoming interested. The second edition, which has just been published, has been revised in the light of the experience of last year.

The book begins with an historical retrospect and some excellent photographs of historical machines, and continues with an account of recent achievements, including a list of some German records and a full list of the performances at the B.G.A., 1931, International Meeting at Balsdean as anti-climax. The book then deals with the methods of training evolved by German experience, and includes a chapter on the formation of a club. There is a useful estimate of costs on page 52 which goes far to explain why those clubs which keep their members' subscription at one pound do not usually progress beyond the primary stage.

After this, the choice and care of gliders and their erection, elementary instruction by both catapult and motor methods, and advanced flying are explained, and the final chapter deals with construction and repairs. Appendices follow on specimen rules for a club, list of affiliated clubs (in which the old address of the London Gliding Club is given), conditions for the award of certificates, prizes to be won, and hints on the design of gliders.

The duration flight by E. L. Mole, mentioned on page 31, was in the London Club Professor and not in the B.A.C.VIII as stated; and the map of Balsdean on page 32 may be incomprehensible to the uninitiated. Would it not have been better to have given several maps of grounds from which interesting flights have been done, rather than this map and the imaginary one on page 91? A map illustrating the Himmeldankberg flight, for instance, would illuminate the account on page 26. Also I do not find any account of the latest intermediate types such as the Falke, E.S.G. 31 and Kassel 20.

The rate-of-climb indicator, now considered an essential instrument for high-performance machines, is not mentioned on page 42; and the effect of the lapse rate is so important that an explanation for beginners might have been included in the meteorological section.

These criticisms hardly affect the value of the book to beginners, who will find it a thorough, practical and well-informed introduction to gliding. It is a guide to the organisation and running of a club, and the advice given, which originally seemed bold, has been confirmed by experience; it also indicates that a knowledge of air flow and meteorology is essential (as a knowledge of wind and tide is to the yachtsman) to the pilot who hopes to make interesting flights.

K.

CORRESPONDENCE

Auto-towing and Soaring.

SIR,—The following may be of interest to your readers. During the visit of Mr. Ledure, a representative of the Belgian Royal Aero Club, to Maidstone, to obtain instruction in auto-towing on one of our dual-control sailplanes, Mr. Lowe-Wylde made a test flight, solo, on Thursday morning last. The instruction was carried out at West Malling Aerodrome, and Mr. Lowe-Wylde was towed to a height of about 350 feet. As he was climbing, a black cloud appeared over the aerodrome, and at the end of the climb the machine was directly underneath this. On releasing the cable, the machine rose a further 100 feet, due to the influence of the up-currents caused by this cloud, and the pilot was able to soar for a period of approximately four and a half minutes. This is a definite step in the right direction, as it shows that soaring on a flat aerodrome, using auto-towing as the initial means of gaining height, is by no means as fallacious as it would appear. Further experiments are being carried out, and any further items of interest will be communicated to you.

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

Design of Motorless Aircraft: Simple Cantilever Suspension.

SIR,—There is one point in Mr. Lewitt's article on Design which rather puzzles me. On comparing the characteristics of R.A.F. 31 section as given by Mr. Lewitt with those (of the same section) given in R. & M. No. 928, I noticed that the values of K_L and K_D in the latter are approximately half what they are in the former. The L/D curve is practically the same in each case. I would be very grateful if you would explain this, as such things are rather confusing to a beginner.

W. E. HICK.

SIR,—With reference to my article in the last issue of your paper, Mr. Hick has asked for information regarding the characteristics of R.A.F. 31 section aerofoil. The diagram given was taken from the U.S. publication "12th Annual Report of National Advisory Committee for Aeronautics." It seems that in their formula for Lift and Drag they use the term $\rho/2$; the effect of this is to halve the values for K_L and K_D given in the diagram.

E. H. LEWITT.

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THE IDEAL SITE FOR SOARING COMPETITIONS

By C. H. LATIMER NEEDHAM, M.Sc., F.R.Ae.S.

(*Chairman of the Technical Committee, British Gliding Association.*)

The question of sites has probably been associated with more difficulties than any other aspect of the gliding flight movement. Clubs have searched for many miles in all directions, often finding at length some satisfactory hill, only to learn that permission for its use is unobtainable, or that a line of high-tension electric cables is to be thrown across the most desired section. (The network of electric cables that is springing up with mushroom growth all over the country is becoming a serious menace to the movement, and, essential though they may be for the well-being of the population, they are bound to have an adverse effect on the development of soaring and sailing.) Or, again, a site that was at first considered to be eminently suitable is later found to lack favourable soaring conditions through the greater part of the year, and so once again the club commences its search.

However, each club will eventually solve its own difficulty in this direction by finding the best hill within a radius of, say, thirty miles, or, alternatively, it must cease to exist, and, in the majority of cases, the selected site will possess good training slopes and will afford, as well, a certain amount of soaring, but only in few cases are extended sailing flights likely to be possible from the club site.

The need, then, is to locate one or more bigger-scale sites where clubs can meet, say, each summer, for the specific purpose of practising distance flights, and where good soaring conditions are more the rule than the exception. Such a site is now being sought by the B.G.A. for the international competitions to be held this year.

There are several factors that determine the value of any site for soaring and sailing, the chief of which are shown in Table I.

Table I.

(a) Height of crest above surrounding country ...	25
(b) Position of ridge relative to winds	25
(c) Length of ridge	20
(d) Nature of surrounding country for distance flights	10
(e) Gradient of slope (average)	6
(f) Unobstructed passage for wind	4
(g) Nature of surface	4
(h) Constant height along ridge	3
(i) Evenness of slope	3
Total	100

Below are given some notes to explain the conditions tabulated, after which an attempt is made to compare a number of English sites by analysing the desired qualities as set out.

Height of Hill.

This is one of the most important factors, since the height to which up-currents extend is, roughly, proportional to the height of the hill. The minimum height for the formation of up-currents suitable for soaring is roughly 100 ft., although, of course, this depends also on the angle of slope and the nature of the surrounding country. A 200-ft. hill provides very satisfactory conditions, but, for high performance and cloud flying, altitudes of one, or even two, thousand feet are desirable.

Cumulus clouds are seldom seen less than one thousand feet above the earth and, although their influence can be noticeably felt for some hundred feet below, the occasions on which cloud flights can be carried out from hills of under 1,000 feet are not likely to be very many.

At the same time, there are certain disadvantages associated with great altitudes which tend to increase with height. Owing to the falling off of the air's density in the higher regions, winds of greater velocity are necessary for soaring, although this is compensated for to a large extent by the bigger intensity of winds generally associated with great heights. Weather conditions are often inferior in the higher regions owing to cloud (not cumulus), high gusty winds, snow, etc., and the difficulty of returning machines to the hill-top is generally more difficult, unless there is a good road for transport.

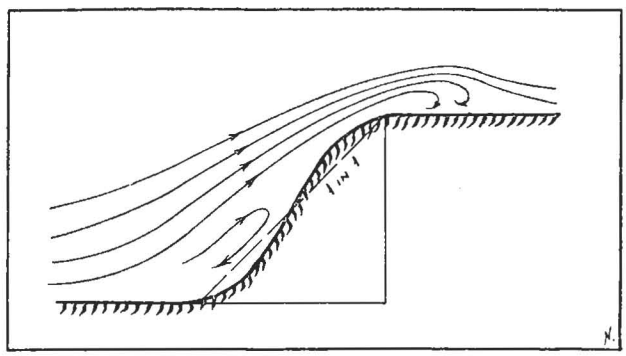


Fig. 2.—Air-flow over hill with 1 in 1 gradient.

Position of Hill relative to Winds.

The ridge should for preference face the prevailing wind. It is very useful if slopes are available for all wind directions, but such configurations are very hard to find, apart from which such a site could not possess all the other desirable qualities mentioned. In England the most common wind directions are S.W. and W., with a fair proportion from N.W. and S. Easterly winds are not very prevalent, except in spring (March-May), when winds from E. or N.E. occur, on the average, on one day in every four.

The best site, then, from this point of view, would appear to be a ridge forming a spear-head facing W. [see Fig. 1 (a)], with the two arms forming an angle of roughly 90°, and each being from one to ten miles in length. Sailing

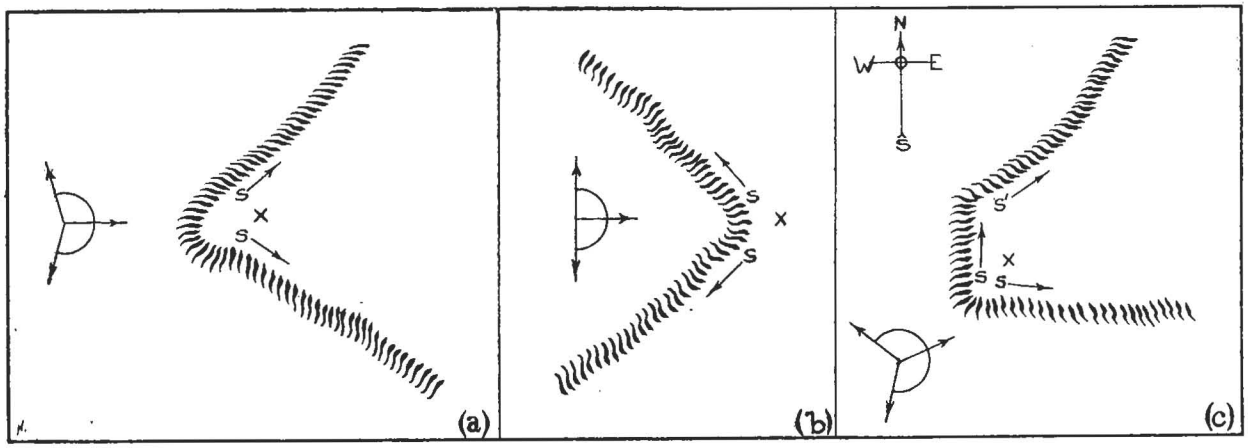


Fig. 1.—Hill Configurations suitable for Sailing Flight in winds of greatest frequency.

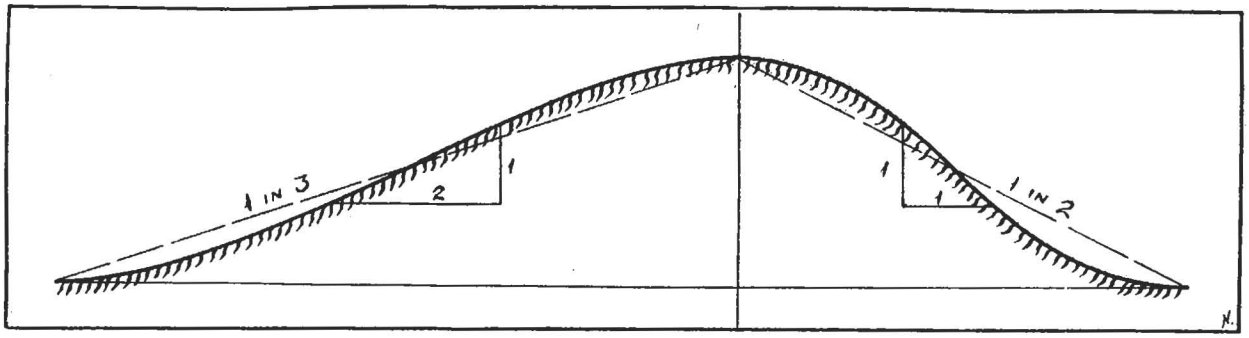


Fig. 3.—Hills with average gradients of 1 in 3 and 1 in 2.

flights would be possible in all winds from N.N.E. through W. to S.S.E., an inclusive angle of 225°. A hill shaped as shown at (b) would allow soaring over a range of at least 180°. In both cases the headquarters would be set up at the point marked "X," which would be convenient for starting flights from points "S."

Another good configuration is shown at (c). The range of available wind direction is even larger than in either of the previous shapes, the angle being from N.N.E. through W. to E.S.E., or 270°. Headquarters should be at "X," which would entail a short journey to point S^1 for northerly winds. The western slope should be from a half to one mile in length, and there would be extremely few days when soaring could not be carried out, provided, of course, that sufficient wind were present.

The next best conditions are obtainable with a long straight ridge facing S.W., W., or N.W., and in each case flying is possible through a range of roughly 130°.

Length of Range of Hills.

Soaring flight can be accomplished along the face of a hill having a length of about a quarter of a mile, or even less under good conditions, but the limits of flight are very confined besides which great heights cannot be attained, owing largely to the "spilling" effect of the wind, that is the tendency to flow round the sides of the hill instead of over the top.

This end-effect is not of such great importance with a ridge extending a mile or more in length, but the best hill is one that continues, more or less unbroken, for at least ten miles, as sailing flights can then be made over the entire length and this gives the best introduction to really long cross-country flights.

The height of the range should, for preference, remain fairly constant along the length, although occasional gaps of one or two miles provide very instructive practice in flying from one hill to another, besides teaching the effects of winds of varying velocity and direction.

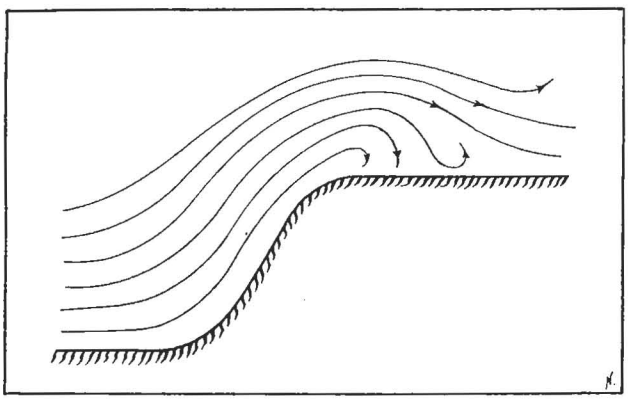


Fig. 4.—Air-flow over hill of Fig. 2 during gust.

Surrounding Country.

The next consideration concerns the nature of the country surrounding the site. Of foremost importance there should be an unobstructed passage for the wind for at least five or ten miles from the hill-face. Ground that slopes gently away is best.

There should be other hills, situated not too far from the selected site, for the prolongation of sailing flights and whither occasional excursions may be made for the purpose of gaining experience under different conditions. As most long-distance flights to date have been made "with" the wind, the country behind the hill should be suitable for this purpose.

Gradient.

The best *average* gradient appears to be in the neighbourhood of 1 in 3, and should not exceed 1 in 2, since with steeper slopes the wind-flow no longer conforms to the shape of the hill, but takes the line of least resistance and thus forms its own gradient. The result is that eddies are formed which may be a danger to soaring craft, and the gradient of the wind path does not increase to the extent that might be expected (see Fig. 2).

Fig. 3 shows the sections of two hills having average slopes of 1 in 3 and 1 in 2, from which it will be noticed that the gradients over the steeper portions increase to about 1 in 1½ and 1 in 1 respectively. The gentle curve-in at the base of the hill and well-rounded top are important for smooth flow, in the same way that the rotor blades of turbines have to be well designed in this respect.

Good soaring conditions are, however, often present with very steep hills or cliffs, but the danger of eddies, as previously mentioned, must not be overlooked. These dangers are most pronounced with high, gusty winds, and the regions to be avoided are the cliff-face and top. Fig. 4 shows the air-flow over the hill of Fig. 2 during a gust.

Nature of Surface.

The slope of the hill should be uniform throughout, not merely the average gradient, so as to provide even air-flow. Irregular surfaces cause local eddies and retard the wind velocity near the ground.

The best surface growth is grass, or low heather. Gorse is quite satisfactory, provided that sufficient open spaces are available for launching and landing, while the thermal currents associated with gorse when subjected to the sun's heat are of advantage to soaring flight.

Clumps of trees and woods do not severely affect the air-flow, but a few odd trees here and there render the site difficult and often dangerous to operate on. Grassland at the foot of the hill is, of course, best for landing purposes, but ploughland, ripe corn, stubble and other forms of

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growth giving rise to heat currents, due to reflection from the sun, assist the upward trend to the air, which is a feature of importance on warm days with little wind.

The ideal site may never be found, but any one possessing a fair proportion of the qualities enumerated above will provide very satisfactory conditions for sailing flight and competition work. There are still other considerations, such as proximity to populated areas, accessibility by rail and road, and the possibility of erecting enclosures for obtaining gate money, but it is doubtful whether these factors should be allowed to come before performance.

The third column of Table I has been added in an attempt to analyse the respective merits of the various sites. It is not intended to be rigidly correct, and, in fact, it will quickly be realised that a site might be completely unworkable on account of very adverse conditions under almost any one of the headings given, although nevertheless it could gain a large portion of the points awarded under the other headings. For example, an otherwise wonderful site might be completely spoilt by the presence of a larger hill immediately to windward.

Table II shows the analysis of five well-known sites that either are being, or have been, used for gliding, the points having been awarded according to the standard as set out in Table I. The sixth site, Crossfell, is suggested as being a potential " Wasserkuppe," and is included for the sake of comparison.

Table II.

	Dunstable.	Scarborough.	Itford.	S. Downs.	Ingelby.	Crossfell.
(a) ...	4	8	10	12	18	25
(b) ...	15	6	10	10	17	15
(c) ...	8	20	12	20	12	20
(d) ...	2	4	4	4	6	10
(e) ...	6	4	5	5	6	6
(f) ...	4	3	4	4	4	5
(g) ...	4	4	4	4	4	—
(h) ...	3	3	3	2	3	3
(i) ...	3	3	3	2	3	3
Totals	49	55	55	63	73	87

The points have been given on the following bases: *Height,* 1 mark for the first 100 feet, increasing by 3 for each additional 100 feet up to 400, then 2 per 100 up to 800 feet, and 1 point thereafter up to 2,500 feet. *Length of range,* 2 points per mile. *Direction,* 25 points for a site facing N.W. and S.W., 15 points for S.W., N.W., or W., and 6 points for N. It is not intended that the proportion of marks is strictly accurate; in fact, it might be difficult to decide on a schedule that would be agreed to by everybody, nor is it claimed that the allotment of points for each site is without fault, but it is suggested that the results do give a basis for comparison.

No account has been taken of the ease of access to the hill-tops, since unless some sort of a road or reasonably good access is available, the site is not worthy of further consideration.

Dealing lastly with one or two possible sites, that have not yet received attention so far as the writer is aware, the most promising appears to be the Crossfell Range in Cumberland, which runs from Appleby to Carlisle and faces S.W. It is true that it is sheltered from the winds to some extent by the hills in the Lake District, but there is a distance of some miles intervening, and it might be mentioned that Wasserkuppe is practically surrounded by other hills. The nature of the surface along the range is not well known to the writer, nor whether the top is easily accessible, but both a railway and main road pass quite close to the foot. The Mendip Hills might be well worth investigating, although they are not on so large a scale as Crossfell.

The Caledonian Canal offers very bright possibilities for sailplanes fitted up for landing on, and taking off from, water. Flights might extend for the entire fifty-mile length of the canal from Inverness to Fort William and might even be extended to Oban and Kintyre, a distance of 150 miles, or even across to Ireland!

It is realised that in endeavouring, for the first time, to draw up a schedule of values so that sites can be examined on a comparative basis, much of a controversial nature must be involved, but it is felt that this can but have a stimulating effect on the gliding movement.

THE IDEAL GLIDING CLUB

By A POWER PILOT.

I cannot claim any specialised knowledge of Gliding. I have, alas, still to qualify for my " C " licence, and my maximum period in the air during any one flight is only about two and a half minutes. None the less, excluding altogether certain disastrous schoolboy experiments of pre-war days, I have seen quite a lot of the Gliding movement during the past few years, and have come to certain rather definite conclusions on the subject of Gliding Clubs as the result of my observations.

To start with, I feel sure that the Gliding Clubs could obtain far more members from amongst power pilots, past and present, if they went about it in the right way. In hard times like the present any man who wants to enjoy flying at a minimum cost is naturally attracted by the possibilities of gliding, wherever a Gliding Club exists which can give him what he asks for.

I do not, of course, ignore the possibility that the Clubs would rather be without power pilots altogether. In some cases they are undoubtedly a nuisance, just as in some cases young pilots of the R.A.F. are a nuisance to the Light Aeroplane Clubs which they join. The accident statistics show that power pilots are responsible for most of the serious accidents on gliders and, of course, it is only natural that where you get an existing power pilot who thinks he knows all about it and wants to show off, or an ex-power pilot who never was any good in an aeroplane, but imagines he will be quite safe in a glider, accidents of a serious nature must inevitably occur.

I hope, however, that this objection applies only to a comparatively small proportion of power pilots. I know that in my own case I had only two thoughts in my mind when I was first shot off in a glider. One was to avoid stalling at all costs; the other was to pick my landing point at the earliest possible moment. No thought of soaring ever entered my head, and it is probable that during my first half-dozen glides my speed never fell below 40 m.p.h. on the straight and 45 m.p.h. during turns! Naturally I didn't soar, but, on the other hand, I didn't break anything!

I date my first advance in gliding—not much to date, you may say!—from my first flight in a glider fitted with an air speed indicator. A man who can attend every week-end at a large Gliding Club, where he will probably get two or three flights during the week-end, has a good chance of learning to soar his machine by sense of feel alone within a reasonable period. The man who can only get occasional flights at long intervals is at a serious disadvantage, however. He comes to the machine fresh each time, and if he is of a cautious disposition (as he ought to be), he will always glide it several miles an hour faster than what he feels to be the safe minimum and will thus miss many opportunities of soaring.

My first point, therefore, is that all intermediate and advanced gliders should be fitted with accurate air speed indicators for Club use.

The next point is that I have seen far too many Clubs started with only one machine of the Zögling, or primary, type. Every Club needs a machine of this type and every pupil, whether a qualified pilot or not, ought to demonstrate his ability upon it before he is allowed to fly anything more advanced. It can hardly be suggested, however, that " Zögling " is flying, and a qualified pilot who has had one experience on a machine of this type, and sees no immediate prospect of going on to anything better, can hardly be blamed if he loses interest in gliding.

The second point, accordingly, is that no Club can hope to succeed unless it possesses something more advanced than the primary type, to which its members may aspire. No Club, in fact, ought even to commence operations unless and until it can see its way clear to acquire a secondary type as soon as its members are ready for one.

Gliding and soaring sites present a very vexed problem. Having attended more than one fiasco in the way of Gliding Meetings, I feel tempted to say that no Club ought to commence operations without having the use of a site from which glides of a reasonable length can be accomplished in any wind direction. As, however, such sites are scarce, this would mean cutting down the number of

Gliding Clubs to a ridiculously low figure, and I would therefore suggest a compromise in this connection. Every Club ought to possess a site from which soaring is possible in at least one wind direction, preferably that of the prevailing wind. In addition to this, it ought to possess the use of a large field, as close to the soaring site as possible, in which towed gliding practice can take place.

The advantages of such a combination are enormous, and I feel convinced that any Gliding Club which could offer these two alternatives to its members would prove tremendously popular. Even with the best of soaring sites there are far too many week-ends when weather conditions make soaring impossible. Under these conditions an immense amount of time and energy is wasted (even with windlasses and motor power) in getting machines up to the top of the hill merely to see them sink gently, but inevitably, to the bottom again. A few consecutive week-ends of this type are enough to try the loyalty and enthusiasm of all but the very keenest supporters. Where auto-towing is available as an alternative, however, there need never be a wasted week-end. Members who have to travel long distances to the Club, as is frequently the case, can be certain that they will get a glide of some kind and that their visit will not be wasted. Even " C " licence members will not despise the opportunity of being cast adrift at 500 feet, with the enchanting possibility of being able to make contact with an upward current under some friendly cloud.

I am aware that even auto-towing sites are not the simplest things in the world to find, and I have seen enough of auto-towing on aerodromes to have considerable doubts as to its wisdom. Nevertheless, auto-towing sites are far more common than first-class soaring sites, and if a Club has enough keenness and ability to acquire the latter it will probably not fail over the former.

So much for my three main points; there are one or two other matters which deserve consideration. I would not personally start a Gliding Club unless I could see enough money in hand at the start to acquire a reasonable fleet of aircraft, to build a hangar, and to pay the rent of the site and the wages of at least one ground engineer for the first year. This may be putting it rather high, and I do not say that a Club starting with less has no hope of success. All the same, it is essential that at a very early stage of its career it should possess at least two primary machines, at least two secondary machines, a hangar capable of accommodating them in a dismantled condition and the services of a competent ground engineer. Where auto-towing is also practised, a B.A.C. two-seater could be substituted for one of the primary machines, and a B.A.C. single-seater for one of the secondary machines. The one primary would be used mainly for first launches from the top of the hill, and the secondary type for soaring practice from the top of the hill.

I am not yet convinced that a really advanced type such as the Professor is essential for Club purposes. It is awkward to handle on the ground, and repairs are apt to be unduly expensive. Generally speaking, I should say that groups of the more advanced members of the Club can probably be relied upon to buy their own sailplanes in the course of time, when, if the Club has been wise enough to provide hangar accommodation for them, it will reap the benefit by way of garage fees and repairs. From the point of view of promoting inter-club rivalry in soaring competitions, it is undoubtedly very nice to have a real sailplane in the Club fleet, but it is a luxury which most Clubs will be wise to dispense with until they are on a thoroughly sound basis.

Another luxury which should be aimed at as early as possible is a Clubhouse. As already mentioned, members of Gliding Clubs frequently have to travel considerable distances for their sport. The winter season is one of the best times for gliding, but not the best time for standing about waiting to glide. Unless, therefore, a Club is fortunate enough to have an accommodating farmhouse or inn right on the spot, which is prepared to extend the necessary facilities, it will be wise to build at least a shelter of some kind in which members may eat their frugal meals and shelter from the stormy blast. A very useful addition would be a shack of some sort, fitted up with bunks against the walls, in which enthusiasts could spend the Saturday night. More ambitious Clubhouse arrangements may be deferred until the bank balance justifies them.

I have not touched at all upon the important question of the gliding instructors or " Captains." They are, of course, one of the most vital elements in the Club, but, as few Clubs can afford to pay several hundred pounds a year for a qualified flying instructor, the best most of them can hope to do is to appoint their most cautious, experienced and reliable members as voluntary instructors, and to have a roster which is strictly adhered to and which ensures that an instructor shall always be available to take charge whenever gliding is in progress.

To sum up my requirements, the Club should have:—

1. Alternative sites for soaring and auto-towing.
2. At least two auto-towing types and at least two hand-launched types, of which one should be a secondary.
3. A qualified ground engineer.
4. Hangar accommodation.
5. A sufficient number of reliable voluntary instructors to ensure that one is available whenever required.
6. Some sort of accommodation for members on the site.
7. Last, but not least, accurate air speed indicators in all its secondary or advanced types.

I am quite ready to be told that I know nothing about it, and that my suggestions are completely impracticable. Nevertheless, " what man can imagine man can accomplish," and one of these days I still hope to find my ideal Gliding Club in existence!



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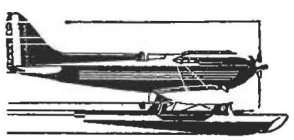
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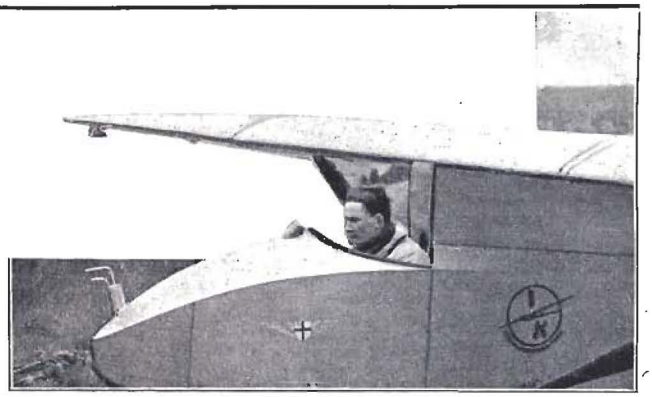
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NEWS FROM THE CLUBS



D. C. Smith taking off at Dunstable in the London Club's " Professor."

THE BORDER GLIDING CLUB.

Gliding ceased last year rather prematurely on account of the crack-up of our landing gear, which was not strong enough to withstand the series of shocks to which it was subjected.

Unfortunately, we have no proper repair staff who have time to give to the work, and, as members are very scattered, it is not easy to gather them together from over the countryside. The repair could not therefore be carried out, as it happened, for some months, as it had to be done by one member, who was very busy otherwise during the autumn.

In carrying out these repairs considerable strengthening was effected, and it is hoped that this will last better than the original structure.

Operations are recommencing on Saturday, March 26th, at a new ground, as our old one is not available owing to the lambing season being on. This new ground is about three miles north of Hawick on the main road to Edinburgh. It has a southern aspect, but, as it has not yet been tried out, we cannot say yet whether it will be entirely suitable for auto-towing, which is our method of operating.

The Club has received the very welcome gift of a 21-h.p. car to use for towing, and, as it is of American make, it is suitable for rough ground.

CENTRAL SCOTLAND AIR YACHTING CLUB.

March 16th, 1932.

With fully six hundred man-hours to our credit in the Club's workshops at Old Bridge, Stirling, we find ourselves at the end of the first part of our construction programme by having, this evening, completely finished the new wing for our DICKSON Primary. Two hundred hours were spent in equipping the workshop, which, we believe, compares favourably with that of any other club. The floor space of over three hundred square feet provides, in addition to room for work benches, ample space for erecting two machines. Electric lighting has been installed, and three stoves are used for heating the quarters. The construction of a trailer will be commenced next week, and by the middle of April we hope to recommence flight practice. What we believe to be improvements in the wing construction of our machine will be reported at a later date. Realising that the more machines a club can possess the more likely it is to meet with success, we intend to continue the construction programme throughout the summer as well as during the winter months. Whether a second Primary or a more advanced type of machine is to be constructed next has not yet been definitely decided, but both are already on the programme and a decision on the matter will probably be made at our next meeting.

Two of our members have been making a careful tour of the district in search of a soaring site. What appears to be a very suitable and accessible one has been located to the east of Alloa, and we believe we shall be made quite welcome. The site is nine hundred feet above sea-level, and the terrain varies from gradual slopes to heights of four hundred feet on a ridge extending for about four or five miles, and suitable for winds from all directions. Thus we find ourselves overtaking what has proved to be our greatest obstacle. There are many excellent soaring sites within a radius of ten miles from us, but unfortunately they are either inaccessible or the necessary permission is not granted us to use them. However, we are fortunate in having members who are endowed with the " determined to win " spirit. Success must therefore ultimately crown our efforts.

DORSET GLIDING CLUB.

Saturday, February 27th.

Wind N.E., 10 m.p.h. Dagling was flown by Messrs. Wright, Haslam, Davis, Laver, Rolfe and Solomon, all doing qualifying flights for " B " certificates. Mr. Langdon was at the wheel of our Super-Juggernaut, which was used for both auto-launching *and* retrieving.

Sunday, February 28th.

Wind now due east, 12 m.p.h. An attempt was made in a field adjoining our site at Maiden-Newton to launch into wind and fly over a party hedge, the pilot endeavouring to land on our site. Side-drift carried him cross-wind and Mr. Haslam successfully landed without damage. After a further attempt we were obliged to abandon for the day while intact. This was the first time we realised the utter hopelessness of our site when a due east wind prevails.

Saturday, March 5th.

Wind west, 14 m.p.h. Messrs. Haslam, Wright and Solomon were able to take off outside the hangar, having three consecutive flights each of approximately 50 to 90 seconds' duration.

Sunday, March 6th.

Wind N.W., 16 m.p.h. Mr. Haslam flew the Dagling, making a fine " S " with a flight of 51 seconds, carrying with him a Pathescope camera, which film we have since seen developed by our Chairman. All appears to go well till he is about to land, when things are really moving. The Dagling was being retrieved by car when a gust caught one wing; through the man on that wing being on rapidly sloping ground, he was obliged to release his hold on the wing temporarily, the wind turning Dagling over on its nose. Our Secretary dashed away and ordered materials for this repair, which were supplied cut and delivered by Wednesday, so with the aid of the electricity installed, all hands are concentrating on the two new wings. One was only damaged at the strut roots, but, on closer examination, the honorary ground engineer advised us that it would be cheaper and make a better job to replace both wings. So news of Dagling will be replaced in these columns by further tests of Dorsling, our Prüfling-type Secondary.

FURNESS GLIDING CLUB.

Sunday, March 13th.

After two weeks of indoor activity, due to the Club's two machines being *hors-de-combat,* favourable weather attended the resumption of flying, the wind being suited to our west site. The " A " members in turn practised using rudder, the flights averaging about 35 seconds, whilst our junior member, D. Todd, was given one or two short hops.

After lunch, the flights were resumed, but this time the machine was launched from the extreme height of the site, and the members, after making a turn out to starboard, " crabbed " across the site and then turned into wind to settle down some distance short of the more precipitous part of the site. Recovery work was thus reduced considerably and at the same time valuable practice obtained. During the afternoon B. Winder overshot the prescribed landing spot, and was obliged to go over the edge of the site down

into the valley below. This, however, he accomplished in good style, the flight being a creditable " B," duration 2 1-5 minutes. A similar flight—out of bounds—secured for Mr. F. Pilling his " B " certificate at Christmas-time. Unfortunately in this instance, the necessary qualifying " 45's " had not previously been recorded.

Sunday, March 20th.

Wind again suited to our west site, and a full day's programme was carried out, some twenty flights being made, varying in duration up to 50 seconds. Exceptionally fine flights were made by Messrs. Foster and Stevens ("B" certificate holders), and in all cases marked progress was shown.

The day finished with the machine in good trim, and we now look forward to a successful week-end at Easter, when it is hoped to introduce mechanical recovery and launching.

Members of other gliding clubs will be made welcome at our site at Moorside, Askam. A good opportunity awaits all potential soarers.

GLASGOW GLIDING CLUB, LTD.

The Glasgow Gliding Club, Ltd., held its Annual General Meeting in the smoke-room of Messrs. Rowan's, Ltd., Buchanan Street, Glasgow, on Monday, February 29th, 1932.

The President of the Glasgow Club, the Hon. Alan R. Boyle, set the members a striking example by travelling all the way from Surrey to be present at the meeting.

In his presidential address, Mr. Boyle stated that much constructive work had been accomplished by the Committee, and, while the fruits of their labours were already in evidence, the real results of the wise policy pursued by the Committee during 1931 would be manifest in the spring of this year.

The Club has been very unfortunate owing to the inability to obtain a permanent site for training purposes. In all, seven different sites were used, and during many weeks we were entirely without ground of any description. Happily this state of affairs is now ended, and within a few short weeks the Glasgow Gliding Club will establish itself at its new Headquarters, two or three miles west of Paisley. The proprietor has kindly granted the Club permission to erect hangar accommodation, and the members are eager to make a start.

It is very encouraging to learn that, although more than 500 successful launches were made during the past year, there has not been a single accident involving damage to the person of any member.

In the Club's possession there are now two gliders fully equipped, while another machine is approaching completion in our workshops. The construction of this glider has been carried through by our own members, under the superintendance of our ground engineer, Mr. Brazier.

Two of our members are also building intermediate sailplanes for their private use, and it is confidently expected to see those machines in the air before the spring has gone.

The construction section has proved a valuable asset to the Club, and it is now fully competent to deal with all repairs, including major crashes. A great saving is thus possible from this source.

During the past year three members gained their " A " certificate, Messrs. Cameron, Anderson and Lloyd, and many others were ready, but deprived of their attempt owing to the Club receiving its " notice to quit." Several flights were made from a height of 1,000 feet up, and one member, Mr. Cameron, covered a distance of about two and a half miles.

The Lyon's Gliding Demonstration at Campsie Glen is perhaps the greatest gliding achievement in Scotland during the year, and will certainly remain in the minds of our Club members for many a day. This demonstration was organised throughout by the Glasgow Club, and I think Mr. Woolf, of Messrs. Lyon's, Ltd., will substantiate our claim that this was the most successful demonstration on his tour. Several open competitions were carried through, and we are proud of the fact that all prizes were won by members of our own Club, including the Scottish Gliding Cup, which was presented by the Hon. Alan R. Boyle, President of the Glasgow Club, for annual competition among the clubs of Scotland.

A fair survey of the past year must give members considerable thought for congratulation, and one can say with truth and justification that the Glasgow Gliding Club may well look forward, with every confidence, to an increasingly prosperous and progressive future.

Note.—The Glasgow Gliding Club, Ltd., are still open to consider a few more applicants for membership. Forms of application may be had from the Secretary, Arthur Y. Paton, 188, Glencroft Road, King's Park, Glasgow, C.4.

The annual subscription is £2 10s.; entrance fee, 10s. 6d.

LONDON GLIDING CLUB.

March 13th.

We erected the new third hangar in sunshine, warmth and a flat calm. The end is floored off for a workshop. A fence is to enclose the entire viliage.

March 20th.

A light breeze blew warmly up the hill, occasionally dropping to a calm. The only casualty to-day and yesterday was a smashed ZÖGLING wing, the result of a villainous ground-hop. A newly acquired DIXON Primary, with home-made air-wheels and some sort of fairway behind the pilot, filled the temporary gap and beginners' training was not interrupted. Beginners are so abnormally bright nowadays that they are making the older members feel nervous about their fading laurels.

The Hedgling winch worked perfectly again, and machines poured off the hill. Yesterday in DAGLING Bowen and Laurie flew their " A " with 40 and 45 seconds, Thomas did 65 seconds for his first " 45," and Collins obtained his " B " with 2 minutes. The soaring Dewsbery made a start in PRÜFLING, the uncertificated Grimstone demonstrated, by special request, a spot-landing via a mammoth side-slip, and other pilots toured about unemotionally.

HOLS was flown repeatedly by the owners.

To-day DAGLING did more big things. First " 45's " were flown by Laurie (65 seconds), Bowen (63 seconds), and Breakwell (67 seconds); second " 45's " by MacClement (70 seconds), Thomas (74 seconds), and A. L. Slater (50 seconds); " B's " were completed by Miss Churchill on a rather novel course (65 seconds), Thomas (another 74 seconds), and A. L. Slater (78 seconds). In addition, Collins backed his " B " flight of yesterday with further flights equally pleasant.

PRÜFLING was launched ten times, coming to no harm. She responded to several patches of gentle lift, and at her

FOR SALE.

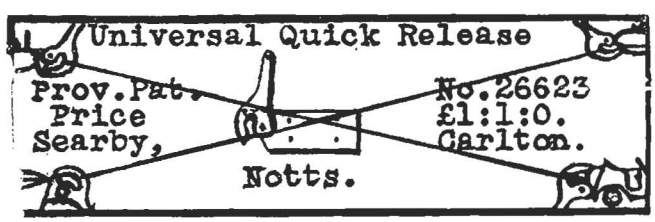
GLIDING, Dagling type, on covered-in trailer. Spare centre section and two launching ropes (one new). What offers? Hon. Secretary, Driffield and District Gliding Club, York Road Corner, Driffield.

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best reached almost to the Bowl and back. We were glad to see Bradbrooke try his hand with her.

The HOLS owners again took the air repeatedly; also Symmons, who was as smooth and as stately as usual. A man's character seems to be as easily read from his flying style as from his phrenological bumps.

PROFESSOR brought happiness into the lives of Buxton, Culver, Scott Hall, D. C. Smith and Morland, but failed to hold her height after the first about-turn, though Culver returned to the foot of the launching-hill after a vertical inspection of the Club-house.

DIXON did her elementary work, and a few ground-hops were given in the other machines. Beginners are now progressing so rapidly that we have some room for new members, who would do well to write promptly to the Secretary, 35, Milk Street, E.C.2.

To-day's hill-top launches totalled 36. A priceless day out, devoid of heroics and of every other source of evil and misery. We like the five-year-old who thought that certificates are obtained, not by flying, but by buying the "bird-badges in the little beer shop in the Club-house."

PORTSMOUTH AND SOUTHSEA GLIDING CLUB.

Sunday, March 13th.

Several members had a surprise to-day when they found an old Austin 20 waiting to give them some really satisfactory auto-elastic launching. This had been purchased on behalf of the Club by one of the members, and it has a very good turn of speed. One member was launched in a flat field used by us and continued flying for 53 seconds, landing the other side of the race-course among some race-horses. This is the longest time made in this field by any member of the Club, but the fact that impressed us was that, although the wind was easterly, and hill-flying was not possible, after a good day's flying the average time of the members was well over 30 seconds, so that any of them could have qualified for his "A."

Sunday, March 20th.

The wind to-day was south-westerly, and seems to be moving round to the most favourable direction for our site. Although the wind was not of sufficient velocity for soaring, hill flights were the order of the day, and it was decided to have a spot-landing competition, for which two Irish Sweepstake tickets were put up as prizes. Some very good flights were made by Messrs. Allen, Cooper, Lympany and Yelf, but R. Robinson landed nearest the spot—about sixteen yards from the machine. After the excitement it was found that someone had blundered, as the tickets had already been overlooked in the last "Draw." The spot was 250 yards away and about 200 feet below, and to get down members either had to fly fast and dive or make a detour to lose height. The spot was on the hill side of a hedge, so that the practice was in the nature of forced landings.

PRESTON AND DISTRICT GLIDER CLUB.

It is some little time since notes from us appeared in these columns, but that does not mean that we have been inactive. Changes in organisation and training methods have been made, showing vast improvement, and extensive constructional work carried out both on machines and gear.

Through the generosity of a member, we now possess a B.A.C.V Intermediary, equipped for auto-towing, together with an extra set of complete taper wing parts which, when constructed, will give us a sailplane of no mean performance. The modification of our streamlined and nacelled R.F.D. machine is nearly completed, which will give us another soaring intermediary and, of course, we are still flying the R.F.D. Primary, which has just been completely overhauled.

Our training is now carried out at Middleton, near Morecambe, where we have at our disposal six or seven miles of good sand for auto-towing. A 28-h.p. Buick provides the motive power, both for launching and retrieving, and, having embarked on this very efficient system of preliminary training, we shall never go back to the shock-cord method for other than occasional practice launches to keep members in touch and, of course, on our soaring site at Beacon Fell.

Previous to Sunday, March 13th, we had done no flying since December 6th, 1931, and fortunately we had a good day for operations. The tide was low, leaving a large area of hard, dry sand, the wind 10 m.p.h. from W. and N.W. After the B.A.C. had been tested, all members who were qualified took turns in flying it, and it was obvious that the period of training inactivity of three months had made little or no difference at all.

R. E. Sharples, in three consecutive flights of 52, 66 and 72 seconds respectively, took his "B" certificate. A. Whitehead, whose only flying experience has been obtained on the R.F.D. Primary, after two preliminary glides to get the feel of the machine, carried out flights of 55, 57 and 81 seconds, for which he was awarded his "B" certificate too. Other members flew the machine with considerable judgment according to their individual abilities.

We now have seven "A" certificates and four "B" certificates, and are only awaiting the day of suitable weather conditions to permit of the "B" pilots flying for their "C" tickets.

By kind invitation of the Harrogate Club, Easter will see us with at least two machines at Rosedale, North-East Yorkshire, and if the weather is kind we anticipate spending four glorious days with fellow gliding enthusiasts.

OFFICIAL NOTICES

DIARY OF FORTHCOMING EVENTS.

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

B.G.A. TECHNICAL RECOMMENDATIONS. No. 3.

Serious accidents have occurred recently where flight has been attempted in high winds with elementary training machines.

Owing to the poor control qualities of machines of the ZÖGLING type, it is strongly recommended that they should not be used for flight in winds with velocities of over 25 m.p.h., or in gusty winds where the maximum reaches this amount.

The need for being securely strapped to the seat is again emphasised. This is of extreme importance.

(Sd.) C. H. LATIMER NEEDHAM,
March 17th, 1932. Chairman, Technical Committee.

SOUTHDOWN GLIDING CLUB, LTD.

At a General Meeting of the two Clubs—Southdown Sky-sailing and Southern Counties' Soaring—held on March 20th, it was resolved to found a new gliding club under the above title.

The flying grounds of the new Club are those of the two old ones, and its equipment comprises that used by both the former Clubs, together with some new equipment being acquired for the purpose of carrying out an attractive programme of work for the coming year. This will include a carefully graded course of instruction for beginners, and a well-organised programme of auto-tow, dual-instruction and high-performance work.

The Chairman of the new Club is Mr. R. F. Dagnall, whose very practical interest in the work of the movement is too well known to call for further comment, and the Club is fortunate indeed in securing his valuable help in that capacity. The Vice-Chairman is Dr. V. Hackworth, the Deputy-Chairman of the late Skysailing Club, who is also one of the Hon. Medical Officers to the Club. The management of the affairs of the Club is in the hands of a capable Committee of officers and members, all of whom are experienced in gliding matters.

Over the Easter week-end the new Club will operate at Balsdean on Friday and Saturday, all day, weather permitting; and also on Sunday and Monday at sites to be arranged on the former days.

A grand ball is to be given by the new Club at the Grand Hotel, Brighton, on Saturday, April 16th next, and several distinguished guests are expected. Tickets, to include supper, are 4s. each. Reception at 8.15 p.m.

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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.
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 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, 44a, Dover Street, London, W.1.

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