

SAILPLANE

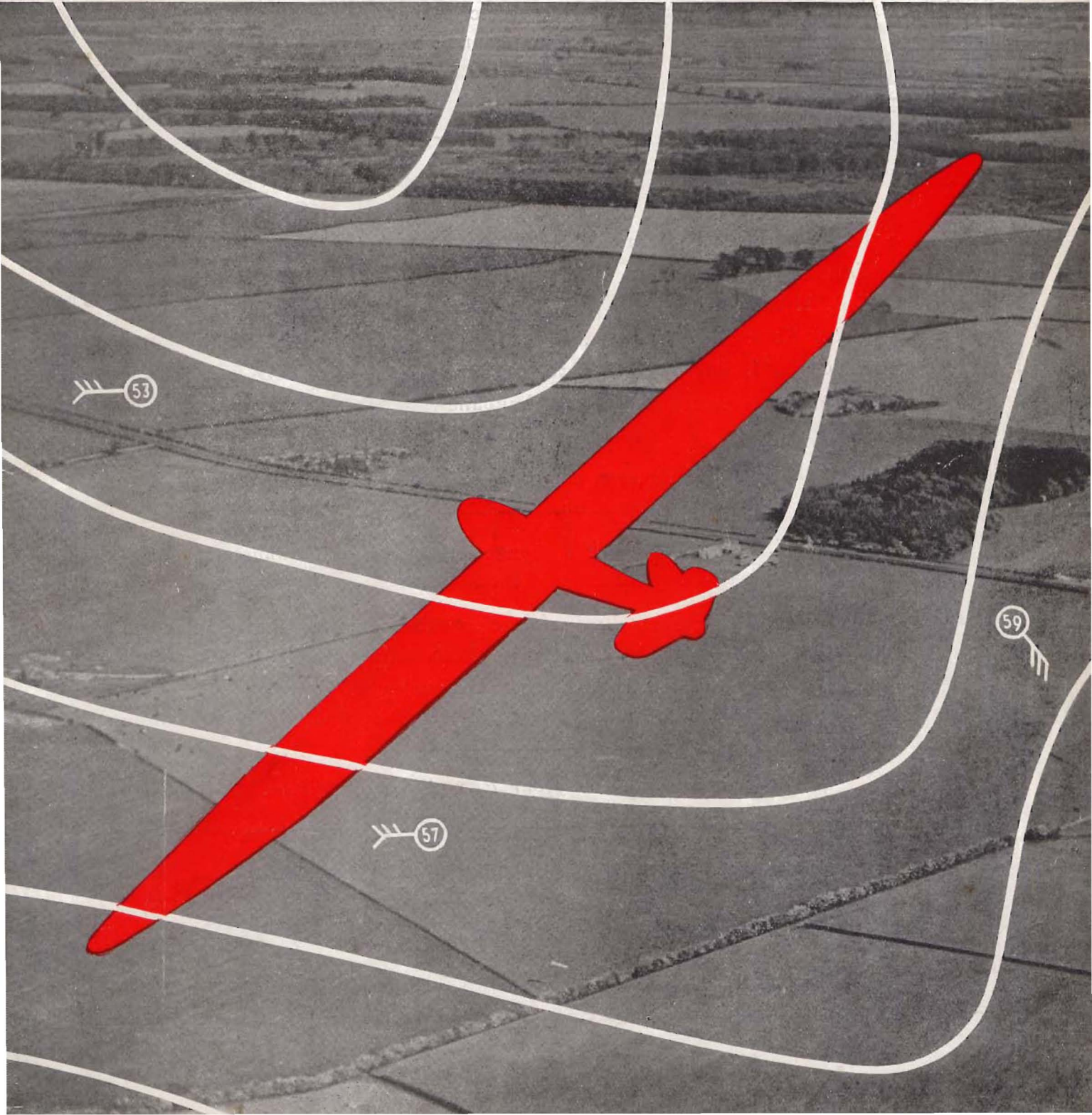
MARCH
1938
Vol. 9 No. 3

AND GLIDER

Published Monthly
PRICE - - 1/-
Editorial Offices:
13, Victoria St., S.W.1

Official Organ of the British Gliding Association

EDITED BY ALAN E. SLATER



SLINGSBY SAILPLANES

SLINGSBY SAILPLANES are now used in South Africa, Rhodesia, India, Canada, Channel Isles, and Great Britain.

Construction and tests supervised by experienced pilots with expert knowledge of club requirements.

OWING TO CONSIDERABLE INCREASE in cost of all materials, C. of A. fees, etc., we have been reluctantly compelled to revise the prices of all our products.

PRIMARY Trainer	....	....	....	....	....	£57 15s.
KIRBY KADET Secondary	....	....	....	....	....	£93 10s.
FALCON I Intermediate	....	....	....	....	....	£145 0s.
G.B. II Sailplane	....	....	....	....	....	£137 10s.
KIRBY KITE Sailplane	....	....	....	....	....	£159 10s.
FALCON III, Side-by-Side, Two-seater Sailplane	....	....	....	....	....	£220 0s.
KING KITE, High Performance Sailplane	....	....	....	....	....	£250 0s.

FREE ADVICE on Club formation, choice of sites, training methods and equipment.

AGENTS for Slater-Cobb Variometer and Collins Variometer.

AERO PLYWOOD—Specially manufactured with damp resisting cement film, and to give maximum torsional strength. Both surfaces sanded to a high finish.

1.0 mm. and 1.5 mm. thicknesses, 4½d per sq. ft.

2.0 mm. thickness, 5d. per sq. ft. Carriage forward. Write for samples.

Write for particulars of our Easy Payment System.

SLINGSBY SAILPLANES

Office and Works: KIRBYMOORSIDE, YORKS.

Telegrams: Sailplanes, Kirbymoorside.

Telephone: 205.

THE SAILPLANE *and* GLIDER

Official Organ of The British Gliding Association

Editorial Offices: 13, VICTORIA STREET, LONDON, S.W.1 Telephone: ABBey 2615-6-7

Vol. 9 No. 3

MARCH, 1938

Published Monthly—Price 1/-

New Knowledge for Power Pilots

IN motor-assisted aviation circles an epoch-making discovery has been made. It is to the effect that vertical currents may cause accidents to power-driven aircraft. No longer will aeroplane pilots plunge to their doom in down-currents with the words of a famous aviation editor ringing in their ears—words to the effect that real flying men (i.e. those who can't keep up without the help of mechanical power) can ignore these currents that gliding people make such a fuss about, and leave it to their engines to deal with such inoffensive trifles. (This, or something like it, was said in order to justify the thesis that soaring experience is of no practical use to a power pilot.)

What has happened now is that an Air Ministry *Notice to Airmen* (No. 19 of 1938) has been published informing them that vertical air currents can get them into trouble, and that they ought to do something about it.

They are first told that rough weather may impose considerably increased stresses on aircraft structure, not only by means of large-scale atmospheric disturbances, but by the violent control movements used to counteract their effect.

Next, pilots are informed that: "Below and in certain types of clouds, air currents with large vertical velocities exist," and that "these dangerous conditions are usually indicated by one or more of the following features:—

"(1) Usually squally winds at ground level.

"(2) Wind direction between north and west.

"(3) Clouds of a cumulus type, often building up during the day to considerable heights.

"(4) Rapid decrease of temperature with height above the ground."

It reads just like a text-book on soaring flight—except for that word "dangerous," which, in such a book, would have to be changed to "favourable."

We are not, of course, saying anything against the author of the pamphlet, who has rendered a most useful, if somewhat belated, service to power aviation by writing it. But we cannot help being amused by the diagrams he has included on the third page, showing the air flow over steep hills, with a reverse eddy at the foot of the windward slope and sundry other eddies and down-currents over the lee side. Almost exactly similar diagrams were published in *THE SAILPLANE AND GLIDER* on September 26th, 1930: Vol 1, No. 4, page 28. (We do not publish such things nowadays, any more than we give drawings

explaining which way to move the control stick when the left wing goes down.) They were probably copied from an earlier publication by Stamer and Lippisch, written for schoolboys about to take up gliding. But the first time such a diagram appeared in print, so far as we know, was when Dr. Georgii brought out the first edition of his *Der Segelflug und seine Kraftquellen im Luftmeer*.

That was in 1923. It is now 1938.

Gliding Courses Abroad

ON another page we give a list of gliding instruction courses in England. They are being run by the largest, and therefore most experienced, gliding clubs, and we believe it to be a fact (as distinct from a political opinion) that they are at least as good as any similar courses held elsewhere. There was, for instance, the remarkable achievement last year by the Yorkshire Gliding Club, which obtained "C" soaring certificates within a fortnight for four pupils who had never flown before.

There are, however, readers who ask us for information about joining gliding schools abroad during their holidays, and these have a choice of three countries—Germany, Austria and Poland.

For courses in Poland the address to write to is: Aeroklub Lwowski, Lwow, Dabrowskiego Nr. 2, Poland. However, it might be as well for those who are thinking of going there to get in touch with each other first, for convenience of travelling arrangements, etc. If they will write to Mr. Barry Bucknell, 61, King Henry's Road, London, N.W.3, he will consent to act as a "clearing house" for the purpose.

For the Austrian courses, which are at Salzburg, the agents in England are the Anglo-Continental Express Co., Ltd., 177, Regent Street, London, W.1, who will make all arrangements. The courses for this year have already begun.

For German gliding courses all applications must be made in the first place to: Aero Club von Deutschland Berlin, S.W.11, Prinz-Albrecht-Strasse 5, Germany. Foreigners are taken at the Grunau school in Silesia (which caters for all stages of instruction), the Aero-towing school at Darmstadt, and the "University of Soaring Flight" at the Hornberg, near Stuttgart, which is for advanced pilots.

From Here and There

Gliding Subsidy.—The Air Estimates for 1938, just issued, provide for £40,000 in grants to light aeroplane clubs and £5,000 for gliding.

* * *

Gliding Theology.—"Into the placid paddock of the ponies at Whipsnade a glider came settling down and out of the machine stepped a modern goddess. . . ."—*Children's Newspaper*.

* * *

Change of Publisher.—The *Sportsman's Library*, which includes C. H. Latimer-Needham's book on "Gliding and Soaring," has been acquired by Messrs. Adam & Charles Black (Soho Square, London, W.).

* * *

False Alarm.—"World's Gliding Record" was the headline in many newspapers on February 18th. But on reading further, one learned that somebody at Warsaw had got up to 15,354 feet with the assistance of a 16 h.p. engine.

* * *

This Gliding.—Office Boy: "Please sir, could I have the day off on Thursday, my grandmother—" Boss: "Going to be buried, I suppose?" Office Boy: "No, sir, she hopes to pass her Glider Test."—From *Pearson's Magazine*.

* * *

Hanna Flies Indoors.—Fräulein Hanna Reitsch, the famous soaring pilot, flew a Focke helicopter on February 14th inside the Deutschland Halle at Berlin (which is slightly larger than the main hall at Olympia) up as high as the roof. Will she come and show us how to soar a sailplane on an artificial thermal inside the Albert Hall?

* * *

Portsmouth Hill.—A Tree Beacon for airmen is to be planted by the Men of the Trees on Portsmouth Hill, which is sometimes used as a soaring site by the Portsmouth Gliding Club. As it will contain 6,000 trees and have an area of 3 acres, it should help to determine the release of thermals from the hill, and will act as a signpost of another kind for soaring pilots.

* * *

Cloud Book.—G. A. Clarke's "Clouds," published by Messrs. Constable at 21s. in 1920, has now been reduced to 10s. 6d. as a "remainder." With the exception of the large and expensive "International Atlas of Clouds," this may still be regarded as the standard English text-book on the subject. It includes 70 fine cloud photographs, some drawings and much explanatory matter.

* * *

Aero-towed Boy.—What a loose towing cable can do was demonstrated on February 4th near Prague, when a boy of 6 years suddenly found himself wafted off the ground up to 60 ft. and deposited in a tall chestnut tree. A 200-foot cable, which had been used for towing an aerial target and was lying on the ground, became entangled at one end with the undercarriage of an aeroplane about to take off, and at the other end with the boy's legs.

"Conquest of the Air."—The film with this title, which was started by Alexander Korda in 1935 and then put aside until recently, has now been completed and, it is reported, will soon be shown in London. According to an article in *World Film News*, "The experiments of Lilienthal are shown with much photographic beauty"; these, presumably, are the scenes which were shot on Dunstable Downs with a replica of Lilienthal's original glider.

* * *

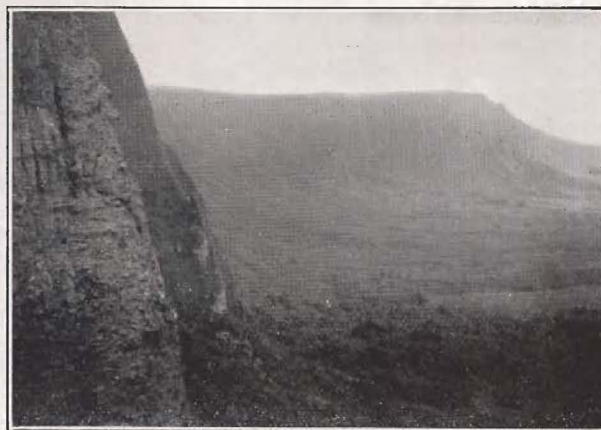
Theft from Gliding Club.—At Hove County Bench on February 28th, a man was charged with feloniously breaking and entering the pavilion of the Southdown Gliding Club, and stealing a sum of 2s. 8d. and 12 bars of Cadbury's chocolate. Mr. H. J. Dunning, official repairer to the club, identified some marked coins which he had placed in the till, and stated that the accused had been employed by the club in the early part of last year as a cleaner.

* * *

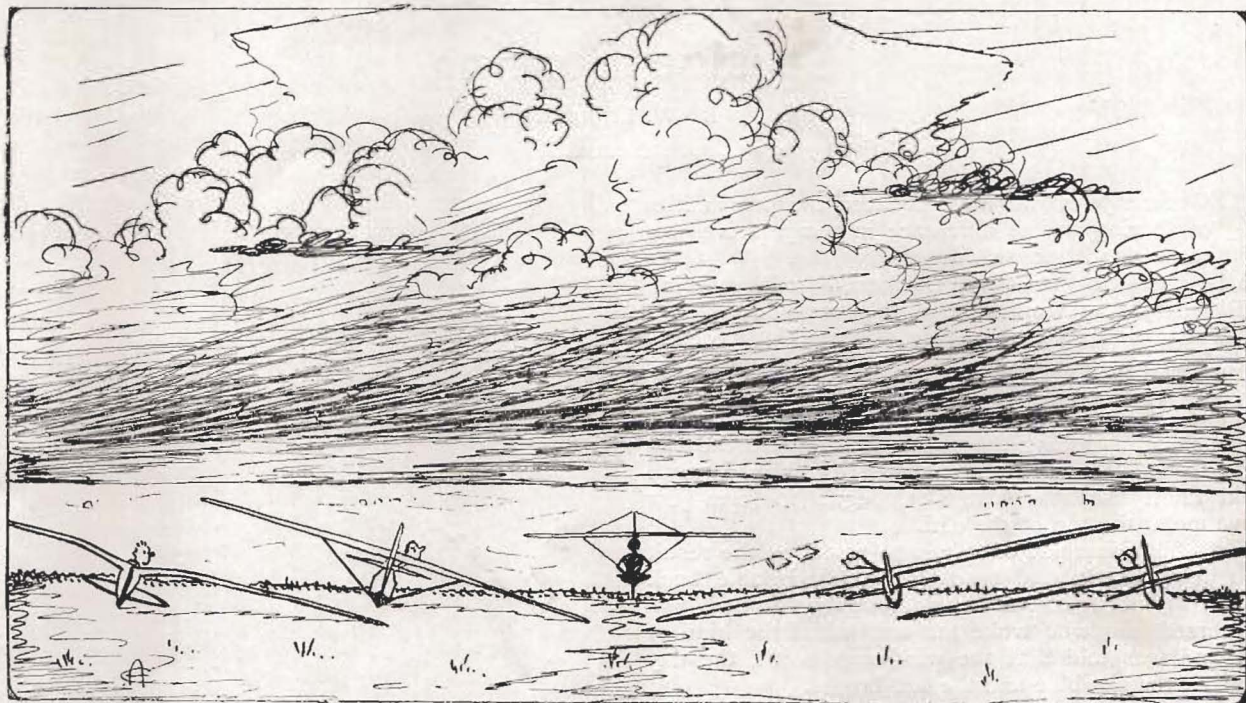
Religion versus Gliding.—On February 19th the Coleraine Rural District Council decided to prohibit the Ulster Gliding Club from operating at Downhill Strand during July and August, "in the interests of the safety of persons using the strand." According to press reports, the Rev. S. Kennedy, minister of Magiligan Presbyterian Church, in a letter requesting the Council to take this action, "stated that his experience was that gliding was a week-end occupation, and consequently was a flagrant breach of the sanctity of the Sabbath."

* * *

Miss Heron-Maxwell.—It is announced in *The Times* that Miss Naomi Heron-Maxwell was married on March 2nd, quietly, to Mr. Cecil Allen, of Straits Settlements. Miss Heron-Maxwell became known for her parachute jumps and gliding demonstrations at Air Displays; then she obtained the "Silver C" certificate at the aero-towing school at Darmstadt in 1936; translated Wolf Hirth's text-book on soaring in 1937; and for the last six months has acted as instructor to the Cambridge University Gliding Club and has been touring the country giving lectures on gliding to schools.



Mr. H. L. Richardson, on his way to China, took this photo of the site of a former world's soaring duration record of 21 hours 36 minutes, set up by Lieut. W. A. Cocks at Oahu Island, Hawaii, in 1931. The cliffs shown rise vertically 2,000 feet into the clouds, with more mountain above.



"YOU GO FIRST," or HOW WE LOVE A COLD FRONT ...!

(Drawing by Ann C. Edmonds.)

Trailers and the Law

FROM A CORRESPONDENT

TRAILERS used for the housing and conveyance of gliders and sailplanes are, fortunately for us, very lightly dealt with by the Rules and Regulations Governing Road Traffic and Vehicles.

This is no doubt partly due to the scarcity, which fact, combined with the novelty, has blinded the eyes of many a policeman to obvious breaches of the law. In order to keep out of trouble individually and so that we, as a body, do not invite the attention of the "Powers" who spend their time making things difficult, we ought to be conversant with the Regulations as they apply to us as towers of trailers.

Here are most of them, but if anyone would like further details on any point, the writer will be only too pleased to do his best:

(a) Providing the towing vehicle is a private car of not more than seven seats (excluding driver) and the trailer has only two wheels (if two wheels have their points of road contact 18ins. or less apart they count as one—this means that four wheels can be used if the axles are very close together) and if all tyres are pneumatic, then the maximum legal speed is 30 m.p.h.

If you think of having a four-wheel trailer (one wheel on each corner) then your legal speed would be reduced to 20 m.p.h.

(b) Providing the unladen weight of the trailer is less than one ton the brakes, which are compulsory, "may be operated automatically by the overrun." As from October, 1938, the unladen weight must be "plainly marked upon some conspicuous place on the near side" of the trailer.

(c) Providing the load is indivisible the trailer may be over 22ft. long (excluding the drawbar). In any case the maximum width is 7ft. 6ins. overall.

(d) Wings must be fitted unless the wheels are housed inside the body work.

(e) Suitable and sufficient springs must be fitted between each wheel and the frame.

(f) Providing the towing vehicle is a private car no "T" plate, speed plate, or any other writing is required except the registration number of the towing car and, after October 1st, 1938, the weight of the trailer.

(g) Third Party Insurance whilst towing will usually be covered without any additional premium if your company is a good one, but you should ask their permission and get it in writing to be on the safe side. The trailer itself and of course the sailplane can be covered whilst in transit by the company who do the flying insurance.

A word of warning. Before generously offering to drive somebody else's car on the public road with or without trailer, make sure that *you* are covered either by the owner's policy or your own if you have a car. Don't on any account "chance it"—it can be a very expensive trip if you happen to be unlucky.

(h) The mirror which the towing vehicle has to carry must be fitted "to assist the driver to become aware of traffic to the rear"—this does *not* say it must be outside the car, although it is usually desirable to fit the mirror as far out as possible.

If you contemplate using a van to tow with because you can so easily carry spare gear and use it to sleep in—consider these snags first:—

1. Your legal speed limit will be 20 m.p.h.
2. You will come under the Road and Rail Traffic Act and will require a "C" licence for the van, and you will have to fill up an "hours of work" form on each trip.
3. You will have to pay £10 *per annum* tax for trailer.
4. The trailer will have to be fitted with a "T" plate.

Seaside Soaring

By W. LIDDELL

FOR some years we have debated the possibilities of soaring in the difference in temperatures between land and sea.

After a week of 'flu, I was awakened on the morning of February 13th from a beautiful dream in which I was watching sailplanes soaring above cliffs, evidently in California, with blue skies and warm sun. One of the machines landed in a very small strip between cliff and sea and I climbed down a steep path to see the machine. Finding the pilot safe I started the stiff climb to the top when a light mist, through which I could faintly see the blue sky, began to form just above me at the top of the cliff.

Was this a forecast of things to come, or the result of a temperature and reading every available back number of *THE SAILPLANE* during the days in bed?

I cursed him who woke me and asked the kind of day, and was told that the wind was north, the day cold, but the sky blue and the sun bright.

This was too much after such a dream, and two hours later the *KIRBY KITE* was on the road to Magilligan, and at 2.50 p.m. was in the air.

The wind was strong, about 20 m.p.h., and the cliffs gave lift to about 1,600 feet. With the exception of inland and over the hills of Inishowen Head the sky was cloudless and the sandhills were bright in the slanting rays of the sun.

After some 15 minutes little black clouds began to form at about 2,800 feet, and under each was a distinct lift followed by a down-puff at their tail end, but the clouds were too small and the wind at that height too strong and circling carried the *KITE* too far behind the cliffs for comfort.

The theory then became apparent that the junction between the warm and cold air was further out to sea where these little clouds suddenly appeared from nowhere. Heading the machine out to sea we finally came to a definite lift area of 2 feet per second, and as the difference in temperature would be more pronounced over that part of the shore where the sun was shining, we headed toward Magilligan point.

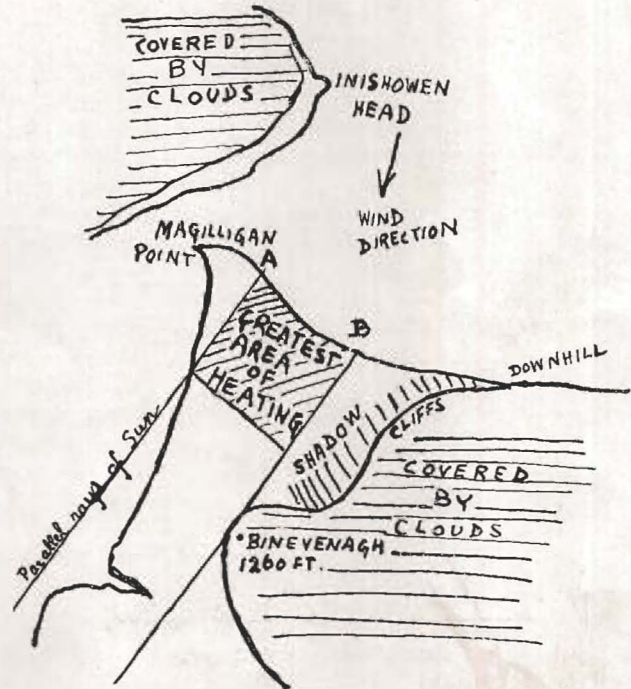
Going up through one of the clouds the lift increased to 5 feet per second, and, once above it, the *KITE* continued to rise at 2 feet per second.

Now we were away from the influence of the cliffs and keeping directly above the shore line, it was as easy to soar as it had been above the cliffs and the air was completely smooth.

At 2,000 feet the temperature inside the cockpit cover was 42° F., and when the ceiling was reached at 3,850 feet the temperature inside was down to nearly 32°.

The best soaring and maximum lift was between the points A and B on the accompanying diagram.

At this time, however, the sun went down behind a cloud horizon and immediately the little balls in the variometer changed places. Mr. Slater came up and Mr. Cobb went down (I am deeply indebted to them both) and the machine began to sink. It was very reminiscent of the "Queer Soaring" day at Dunstable just over a year ago. The same cold wind, the bright



sun, and the variometer, as though an electric current had been turned off, suddenly registered "Fall" the very second the sun disappeared behind, on that occasion, the mist horizon.

To revert to Magilligan: it was peculiar that as the sun went lower the clouds began to form over those parts of the land which would be thrown into shadow by the hills. As this happened I worked my way further toward Magilligan point, as clouds were forming along the coast toward Downhill and I had no desire to plough down through them and find myself above the mountains of Eire. The cockpit temperature was now practically at freezing, and having heard dreadful things about ice on wings, and knowing that I had my height for "Silver C," also that my doctor thought I was still in bed and because I was a little lonely at 1,000 feet above the clouds, I decided to call it a day.

On returning to the cliffs I perceived the towing car and trailer setting off and perceived that Stuart Henry, who in the meantime had been launched in the *KADER* had, without a variometer, gone "around the corner," and the wind, being east of north, had given him no chance of getting back, so he had a tricky landing in a strong down-draught.

This meant landing and waiting or spending another hour in the air, so I decided on the latter.

From this flight the conclusions are that the conditions would prevail more probably in winter on sunny days owing to the marked contrast in temperature along any sea shore when the wind is blowing inland. The area of lift could probably be reached from an auto or winch launch providing the height was sufficient to fly far enough over the sea to reach the initial lift.

[**Weather Notes.**—The day of Mr. Liddell's flight being a Sunday, there are no upper air observations on record from the British Isles. The nearest meteorological station listed in the Air Ministry's Daily Weather Report is Malin Head, on the coast, 25 miles N.W. of Magilligan. Observations there at 13 hours G.M.T. were: wind N., 13-18 m.p.h.; temperature, 45° F.; humidity 92%. Observations at 18 hours: wind, N., 13-18 m.p.h.; temperature, 45° F.; humidity, 85%. State of ground, dry. Sea, rough. An anticyclone was centred 350 miles west of Magilligan.

Actual temperature of the sea is not given, but the average temperature for February is marked on the weather map; this is about 48° F. off the north coast of Ireland. The lowest layers of air were therefore a few degrees colder than the sea over which they had come. During the afternoon the land would, no doubt, become much warmer than the sea. One cause of an up-current along a coast, not caused by instability, should be borne in mind: when air passes from sea to land, it gets slowed up by friction; air following behind is therefore forced to climb up over it.—ED.]

Aerobatics in Egypt

[Squadron Leader E. L. Mole, who formerly held the British gliding duration record, and is now with the Royal Air Force in Egypt, described in THE SAILPLANE last June how he had performed 67 consecutive loops in a "Wolf" sailplane after an aero-tow to 8,000 feet over the Cairo aerodrome. Writing now from Abu Sueir, he describes how he has now successfully performed a complete "double bunt," and also gives some particulars of soaring conditions in Egypt. He sends regards to his old friends in the gliding world.—ED.]

IT might be of interest to you to know that, at a R.A.F. flying display at this aerodrome, I succeeded in carrying out a complete double bunt (outside loop) in a sailplane. The machine was an M22 of Hungarian design and manufacture, and owned by the Egyptian Gliding School. It was lent to me by the School for this display, and was towed by a R.A.F. "Avro Tutor."

Normally, at flying displays in this country, I carry out the usual series of loops, stalled turns, a spin, and other simple manœuvres in a sailplane. I flew this new M22 for the first time a week ago (February 10th), and was so impressed by its rigidity and strength, and by the superb way in which it handled whilst upside-down, that I was tempted to bunt it (i.e., first half of a forward loop). This manœuvre succeeded easily, and the machine came out upside-down at a speed of 120 kilometres (75 miles) per hour. To achieve the double bunt I made several further experimental bunts, increasing the speed each time, and at the third attempt I was just able to stagger over the second half of the outside loop, having reached a speed of 160 km. (100 miles) per hour whilst upside-down at the bottom. The intermediate attempts left me in a curious position with the sailplane poised vertically in the air with no air speed, and an uneasy feeling as to what would happen next! However, application of full rudder caused the machine to stalled-turn off, before the tail-slide took place.

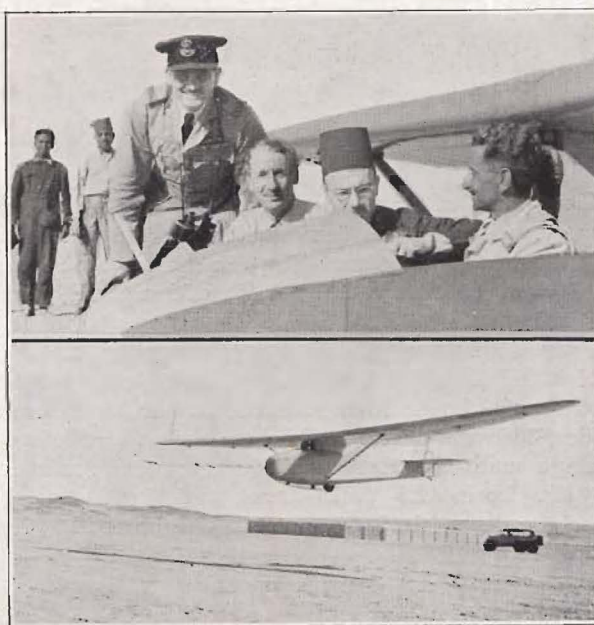
The flying display here yesterday (February 16th) was attended by the Air Vice-Marshal commanding the R.A.F. in Egypt, and by many R.A.F. flying instructors and pilots. My double bunt in the M22 caused a great surprise, especially as there is no aircraft in the R.A.F. capable of doing this manœuvre, and the few English pilots who have done this have

used aircraft with engines specially adapted for inverted flying.

In conclusion, I must say that this country should be the future headquarters of the gliding world. On suitable days thermals simply abound. Whilst flying the M22 in practice, I found unlimited lift between $\frac{1}{2}$ and 2 metres a second; indeed, there seemed no difficulty whatever in maintaining height, and it was necessary to use the flaps to get down. Perhaps it was an exceptional day, but I must admit that I was most impressed.

The Egyptian Gliding School have found a superb range of hills in the desert accessible by road and rail from Cairo. The range is about three miles long, 1,000 feet high, and with unlimited perfect landing ground at the bottom. It consists of a black rocky mass rising suddenly out of the level sand, and facing the everlasting north wind. The school are now building a hangar there, and hope to develop the site. Who knows that this may not be a future Wasserkuppe, and the scene of international competitions?

E. L. MOLE.



Mr. E. L. Mole in a "Wolf" sailplane in which he has previously given demonstrations in Egypt.

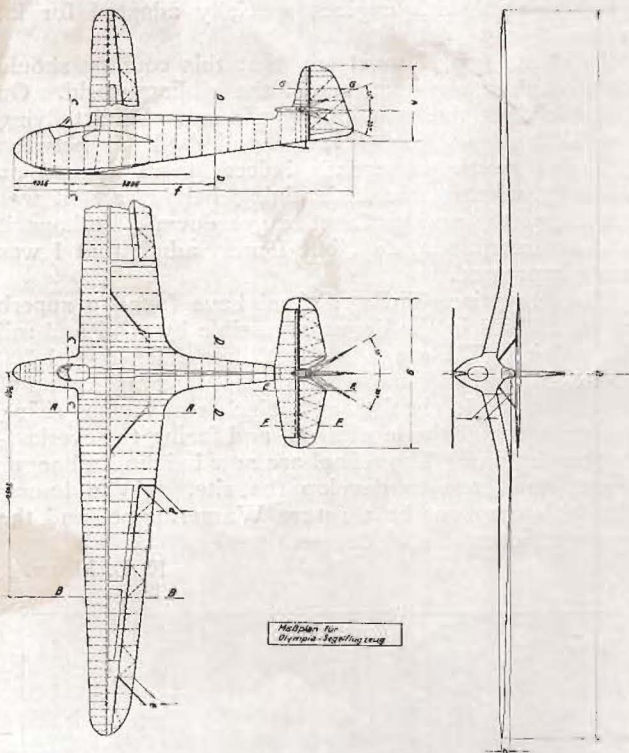
Olympic Soaring

An effort is to be made to include soaring flight in the next Olympic Games, which, so far as is known, will be held at Tokyo in 1940.

A scheme has already been drawn up and circulated to the various countries. It is intended to divide the soaring contest into two parts: ordinary soaring and sailplane aerobatics.

The soaring competition will last four days, and a goal flight will be set each day. On the 1st and 3rd days competitors will have to try to reach the goal with the greatest speed, and on the 2nd and 4th days to achieve the greatest altitude on the way.

The aerobatic competitions will also last 4 days.



A sailplane of standard dimensions, to which each country will build, has been suggested, and a plan of it is illustrated herewith. The dimensions are: span (a), 13.6 m. (44.6 ft.); dihedral (b), 250 mm.; dihedral (c), 155 mm.; aileron (d), 280 mm.; aileron (e), 280 mm. Fuselage (f), 6.55 m.; tail span (g), 2.8 m.; rudder height (h), 1.48 m. Control movements: elevator, 20° up or down; aileron, 32° up, 13° down; rudder, 30° right or left. Weights: each wing, 70 kg.; fuselage with instruments, 66 kg.; tail surfaces, 8.8 kg. horizontal (with struts), 4 kg. vertical; parachute, etc., 10.5 kg.; total weight, 228.9 kg. (482.6 lbs.).

An International Model Glider Contest is to be held at Berne from May 21st to 23rd, in connection with the "Istus" meeting.

Permanent Aero-Towing Facilities at Heston

Messrs. Airworks, Ltd., are fitting towing gear to one of their school "Avro Cadets," and so permanent towing facilities will be "on tap" at Heston to private owners and selected pilots from about April 1st.

So long as the flying school remains at Heston, there will have to be rather severe limits to this facility, as on no account must the normal traffic of the airport be affected. It is proposed, therefore, that at first tows will be available for "Silver C" pilots with 50 hours' gliding experience or "C" pilots with 100 hours' experience. In the general way there will not be any sailplanes available for hire at Heston.

The charge will be 12s. 6d. per tow, and this includes third party cover for the sailplane whilst on tow. Thus no special extra cover will be required, though in cases where a machine is only covered for flying from the home club site an extension may be necessary, to cover the sailplane during its subsequent flight after the release.

Pilots arriving at Heston must report to the Chief Instructor of the school, who will be in control of the towing. It is hoped that use will be made of this service for cross-country flying in particular; if a landing back at the airport is contemplated it is essential that the control-tower authorities be consulted.

It will be remembered that last year members of the British Wasserkuppe team did three weeks' practice-flying from Heston during June, and found thermal conditions prevailing nearly every day. It is not optimistic, therefore, to prophesy a major development from this modest beginning.

If any further particulars are required they may be obtained from P. A. Wills, 3, Chapel Street, Milton Street, E.C.2.

Captain Phillips

We regret very much to record the death of Captain Percival Phillips, managing director and chief pilot of Air Publicity, Ltd., who is well known to many readers through the large amount of aero-towing of sailplanes which he has done at the London Gliding Club and elsewhere. His handling of his "Avro 504" was masterly, and no one but he was capable of towing up sailplanes from the club ground at Dunstable with safety in all weathers. He was to have done most of the towing at the forthcoming Leicester meeting, but his place will now be taken by Mrs. Crossley.

Captain Phillips had landed at Gamlingay, Cambridgeshire, on February 13th, to call on friends. After taking off and turning down-wind, he hit a tree with his wing-tips and crashed at great speed with the wind behind him. Although the machine caught alight, he was extricated before the fire reached him, but died later in Bedford Hospital. His dog, who usually accompanied him, scrambled out almost unhurt.

Winch-Launches into Thermals

By TADEUSZ WASILYEW

[We are indebted to the Polish aviation journal, "Skrzydlatą Polską," for sending us a German translation of the following article, which appeared in the issue of that journal for February, 1938; also for the article which follows it.—ED.]

IT is three years all but a few months since an attempt was made in these columns to demonstrate the theoretical practicability of this method of launching for thermal soaring flights. At the same time it was pointed out that by this means a very considerable reduction in the cost of high-performance flying can be achieved, in that the costly aerodrome facilities, expensive aeroplane and highly-paid power pilot are done away with.* In the meantime the country which has attained undoubted successes in this field, i.e., Germany, had preferred to neglect this method. One should not, however, imagine that any failures were responsible. No; it is much more the favourable situation of the *m. a. g.* gliding movement which decided the matter. In the first place, there are in Germany great numbers of gliding schools. Then, secondly, motorless flying enjoys almost unlimited support from the authorities, so that, wherever it is worth while, aeroplane-towing facilities are provided. That is, of course, much more convenient than winch towing. If it is also, perhaps, more expensive, that is no great matter. As one Frenchman declared after a visit to Germany: "There is nothing too costly—yes, even too luxurious—for Goering's pilots!" Similar conditions are found in general in other countries where gliding is subsidised by the State. But in those where the glider pilots are left to their own resources, the necessary researches and experiments hardly come into question.

At present it is not to be wondered at that no researches in this field have taken place in recent times, and that such launches as have been successful are simply attributable to chance. During the past three years only exceptionally seldom has anything more promising been observed.

We have noted some welcome exceptions among the English last year.

The flights which interest us in this connection were carried out in a few gliding clubs only. They were very modest performances, but their significance depends upon the ends for which these flights provided the means. An example is provided by the pilot Lingford, who cast off at a height of 240 metres and flew for half an hour (maximum height 420 metres); K. Turner, from a height of 200 metres, succeeded in reaching over 700 metres, whereby he remained in the air for $\frac{3}{4}$ hour. True, it is not much. But the Cambridge University Gliding Club, on whose site this happened, could now lay claim to a "gliding subsidy." It was a complete surprise when a "Drone" light aeroplane, with its motor throttled down, climbed from 180 metres up to 900 metres, somewhat in the manner of thermal soaring (without variometer!).

And now as to the above-mentioned ends.

In the organ of the British Gliding Association, the monthly journal THE SAILPLANE AND GLIDER, we find

a very fitting emphasis on the theme that the use of winch launches for thermal flying is conditioned by the accumulation of such knowledge as is described in English as "local knowledge." It may be recalled here that fully equivalent investigations were emphatically declared, in the article of 1935 already mentioned, as a preliminary condition for the successful utilisation of this method of launching.

In further paragraphs from the English journal we recognise the hand of Dr. A. Slater, whose predilection for periodicity-investigations of thermic vertical currents is generally known. The conclusion of Dr. Slater is to the effect that detailed research should be undertaken.

One should not over-estimate the working capacity of the English glider pilots. They always have much to do in overcoming the indifference of their fellow-countrymen, and not least . . . the authorities, and it would be no light task to provide the necessary means for that type of specific research.

That is, however, in the first place an English concern.



The Polish Gliding Movement, as is evident from the accompanying articles, lays great stress on meteorological research and the result was seen in the fine performances put up by the Polish team at last year's International Soaring Competitions. This photograph, taken during the Competitions, shows Mr. Murray in the British "Falcon III" and (below) Mr. Baranowski in the Polish "Orlik," circling in the same thermal current under a cumulus cloud. On this occasion (July 16th) Baranowski soared from the Wasserkuppe to the outskirts of Berlin, a distance of 188 miles.

For us the matter can attain actuality, in that our winch-towing car †, which was stationed at the gliding school of Milosna last year for trials, will shortly be available for general use. Also, in a few days, a manual for the use of the winch will be published; it is the work of Mr. J. Rozanski, who was entrusted with carrying out the above-mentioned trials. Soon, therefore, there will exist the requisite conditions which will enable us to approach nearer to this matter.

It concerns us to put our conjectures to the test of practice. Thousands of soaring pilots will be coming along in the next few years!

Stationary thermic "up-current sources" (in certain weather conditions) have already been known for some time. This remains in association with the nature of the local ground surface (it is determined by the temperature of the layer of air near the ground), and with the distribution of irregularities in the earth's surface, which disturb the wind flow and thereby contribute to the so-called turbulent release of vertical air-streams. One may well hope that favourable spots of the kind described do not exist in too small quantity, and that they can be discovered by means of suitable research work.

Here one must emphasise one peculiarity. With aero-towed launches from an aerodrome, casting-off heights of under 200 metres are exceptional. During distance flights, however, when a so-called "crisis" is encountered, much smaller heights above ground are allowed in practice—such is our impression, at least, of cross-country flights carried out in our own country. May one not conclude from this that the aerodromes, as being quite fortuitously a "thermal" region, can provide no immovable support in this connection, and that even the momentary "surface" inspection of the terrain by the glider pilot has as its result a not unimportant reduction of the minimum height above ground (sufficient for connecting with thermals)? We must further bear in mind that it is unusual for the pilot to wait long for the up-current. If he finds no lift, then he seeks further afield. If it should be possible, perhaps, to find out a simple procedure by means of which to recognise the eventual pulsation of the thermic activity, then our chances would be increased. One could then be launched, not merely at the most suitable spot, but also at the most favourable moment. At present that is naturally no more than a "*pium desiderium*."

Dr. Slater wrote in THE SAILPLANE AND GLIDER that if the matter was left to itself, then the pilots flying in a particular place would discover these phenomena for themselves, but . . . it would take them a dozen years! Perhaps even this estimate should be considered too optimistic if the flying site is unfavourably situated for thermals. Research is indispensable.

Therein exists hardly a risk worth mentioning. In order to find a terrain for investigation, the observations already made by our glider pilots and their advisers, the meteorologists, should suffice. The expenses of the "establishment" would consist of a car journey, the assembly of the launching winch, and the erection of a tent for the housing of the sailplanes. "Exploitation costs" would be confined to a couple of litres of ordinary petrol for the towing.

(NOTE.—It is further proposed that a special competition be instituted for the furtherance of the question expressed in the title.)

* Compare the author's article "Szybowska na rowninie" ("Soaring sites in flat country") in the May issue of *Skrzydłata Polska*, 1935.

† Note: The first trials with winch-launching took place in the town of Brzesc. Then followed Warsaw with a winch-towing car more suitable for the purpose, which this discussion refers to. The gliding school of Milosna lies in the neighbourhood of Warsaw; it uses small hills. (This note was not in the original article.)

Soaring Sites in Flat Country

By TADEUSZ WASILYEW

[This is the substance of the article from the May, 1935, issue of "*Skrzydłata Polska*," referred to in a footnote to the preceding article. We are again indebted to the Editor of that journal for a German translation.—ED.]

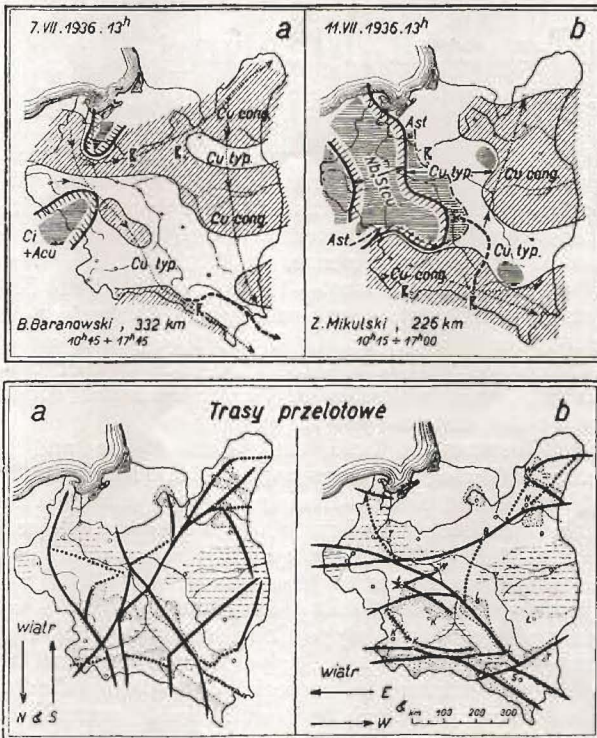
IF, anywhere in flat country, high-performance sailplanes are launched by aeroplane-towing (there are no motor winches yet in Poland at present, and the use of ordinary auto-towing is not being extended), then it is only the aerodromes in the larger towns which come into question. Considered from the standpoint of a soaring pilot, however, that alone is not sufficient. For the sailplane pilot demands more complicated requirements at his starting place than the power pilot. For this reason it would appear well-advised for us to direct our thoughts towards a special *soaring* site for flat country.

On the ground of safety alone it would appear very important in many cases. The rate of climb in aero-towed flight is somewhat small. If the aerodrome is none too long or wide, and is at the same time surrounded by town buildings and such like, then a start in bumpy weather can be quite dangerous.

This circumstance is important, but need not decide the matter on principle.

What decides the issue is the question of thermals. With ordinary thermic activity caused by radiation, the distribution of the up-current areas is closely connected with the surface of the earth; firstly, through the above-mentioned temperature differences in the layers of air near the ground, and secondly, through the *Auslösevergänge* [the way in which the release of thermals from the ground goes on], which depends upon the condition of the earth's surface and upon its other properties.

Here and there such "stationary" up-current areas are known. The author, for instance, once observed how, above a quarry which was surrounded by luxuriant vegetation, white shreds of cumulus formed at regular intervals of time. It appears quite possible, therefore, to make such a selection of launching places in flat country that the pilot is certain to make connection with a thermal at the earliest moment. As a result of this, aero-towed starts, which are expensive and only available in few places, would lose their present exclusive position for advanced soaring pilots.



These maps are reproduced from the March, 1937, issue of "Skrzydlatą Polską," referred to in a footnote on this page. The upper two maps show the distribution of cloud types (typical cumulus, congested cumulus, alto-cumulus, alto-stratus and cirrus, and the sign with an arrow which means thunderstorms) over Poland on two days during the 1936 National Contest when the cross-country flights indicated were being made. Conditions were anti-cyclonic, with very light winds. The lower two maps show recommended routes for cross-country flights across Poland; map "a" for north or south winds, and map "b" for east or west winds; they are of unusual interest, being compiled as a result of pioneer research work into the distribution of cloud currents over the country.

Since then a number of similar "flat soaring sites" have been discovered, so it would appear useful to investigate their surroundings further for "thermal" knowledge, in order finally to attack the problem of defining the probable best course for a cross-country flight.*

For the elucidation of this question it is proposed to institute appropriate researches.

The above article from the year 1935 must be considered in conjunction with another from the year 1934. The earlier one was entitled "Some Observations on Thermal Currents," and was published by the same author in the June, 1934, issue of *Skrzydlatą Polską*; the leading theme was that the underground water conditions are the deciding factor, and that one can, by comparison of flying experiences with these underground water conditions, compile a useful "thermal map."

* As is known, the last requirement has been fulfilled by the Research Institute for Soaring Flight in Lwow (the maps with cross-country routes for the Polish State were published in the March, 1937, issue of *Skrzydlatą Polską*). The first map of stationary thermal up-currents was completed by the same Institute in the summer of 1936—see *Skrzydlatą Polską*, July, 1936.

Easter Meetings

Easter Sunday is on April 17th.

The Cambridge Club's meeting in Wiltshire, from April 4th to 19th, is based on Huish. Private owners will be welcome. Several hill sites are available, and aero-towing will be provided at Huish.

The Midland Club's Camp for advanced pilots is from April 15th to 24th. It is chiefly intended for those who wish to qualify for the "Silver C" or to do distance or altitude flights.

The aero-towing meeting at Leicester from April 15th to 19th, organised by the London Club and the Derbyshire and Lancashire Club, will be open also to parties from any other clubs so long as they bring their own sailplanes. The London Club is bringing its RHÖNBUSSARD, complete with parachute, barograph and retrieving trailer, and also one of its GRUNAUS. Towing will be to 2,000 ft. by "Avro 504 K" and "Avro Cadet." Pilots will be able to choose their own time of starting. Competent instructors will be in charge. Particulars of flying charges, accommodation, etc., are obtainable from the respective clubs. Machines must be in proper condition for aero-towed flights.

A full list of fixtures for 1938 was given in our last issue on page 28.

The National Meeting this year is from July 9th to 17th, at Dunstable.

Instruction Courses

The following instruction courses have been arranged. Full particulars are obtainable from these addresses:—

For the London Club courses: The Secretary, London Gliding Club, Dunstable, Beds.

For the Yorkshire Club courses: H. T. Blakeston, Camp Secretary, Spellowgate, Driffield, Yorks.

For the Derbyshire and Lancashire Club courses: Hon. Training Course Secretary, Brookside, Combs, Chapel-en-le-Frith, Derbyshire.

For the Midland Club camp: R. B. Durose, 1, Newhall Street, Birmingham, 3.

April 8th to 17th, London Gliding Club.

April 15th to 24th, Midland Gliding Club (for advanced pilots; see above).

May 6th to 15th, London Gliding Club.

June 3rd to 12th, London Gliding Club.

June 6th to 19th, Derbyshire and Lancashire Gliding Club.

June 25th to July 8th, Derbyshire and Lancashire Gliding Club.

July 24th to August 1st, Yorkshire Gliding Club (for advanced pilots; aero-towing instruction provided).

July 29th to August 12th, London Gliding Club.

August 7th to 20th, Yorkshire Gliding Club.

September 9th to 18th, London Gliding Club.

Particulars of foreign gliding courses are given on another page.

The B.G.A. Annual General Meeting

THE seventh Annual General Meeting of the British Gliding Association, Ltd., was held at the Royal Aero Club, London, on February 25th, 1938, at 6 p.m. Lord Sempill, president of the association, was in the chair.

The Income and Expenditure Account and Balance Sheet for the year ended December 31st, 1937, were read by the secretary, Commander H. E. Perrin, and were passed round for inspection and adopted by the meeting. The secretary then read his report, which is published below.

Secretary's Report

There was no General Meeting in 1937 and for this I accept the responsibility. However, all the necessary documents were filed with the Registrar of Friendly Societies, and he was informed that no General Meeting had been held in 1937.

I have been endeavouring to produce a scheme for the re-organisation of the Association but, unfortunately, my proposals proved more difficult to carry out under the laws of the Friendly Societies Act than I had anticipated. You will later on be asked to pass a Resolution authorising me to proceed with the re-organisation of the Association on the lines of the General Council of Light Aeroplane Clubs.

Certificates of Airworthiness.—During the year 1937 the Association issued 29 new Certificates of Airworthiness and the renewals during that period numbered 13.

Although the Technical Committee has not actually functioned during this period, it should, however, be stated that every Certificate of Airworthiness granted and renewed was examined and passed by the Chairman of the Technical Committee, Mr. W. O. Manning. I think the thanks of the Association are due to Mr. Manning for his voluntary services in this respect.

Gliding Certificates.—During the past year Gliding Certificates have been issued as follows: "A," 244; "B," 197; "C," 133. Total 574.

The total Gliding Certificates issued to 31st December, 1937, were as following: "A," 873; "B," 549; "C," 367.

"Silver C" Certificates.—The number of "Silver C" certificates gained during 1937 were 20. The total number of British pilots now holding "Silver C's" is 30.

Subsidy.—During the first year of the subsidy the total amount distributed was £4,816 6s. 3d., leaving a balance of £183 13s. 9d. returnable to the Treasury.

The amount distributed the second year was £4,994 4s. 4d., leaving a balance of £5 15s. 8d. returnable to the Treasury.

The third year has not yet been completed, but the amount so far distributed is £3,926 1s. 7d. The claims still pending will more than absorb the balance of £1,073 18s. 5d.

Wasserkuppe Competitions.—As you are aware, a team was sent out to the International Competitions at the Wasserkuppe, Germany. The expenses were heavy, but participation at the meeting was made pos-

sible by a generous donation of £500 from Viscount Wakefield, and £50 from the *Daily Dispatch*. The cost to the Association was £145 2s. 7d. The British competitors taking part were also put to a considerable amount of personal expense.

National Competitions.—These were held at Great Hucklow and were organised by the Derbyshire and Lancashire Gliding Club. The Meeting was an unqualified success and showed the great advance which has been made in the Gliding Movement in this country during the past few years.

Full reports of both the Wasserkuppe and the National Gliding Meetings appeared in *THE SAILPLANE*.

New Gliding Sites.—During the past year the Association has been called upon to give expert advice on certain Gliding Sites, and qualified representatives of the B.G.A. were sent to Jersey and Cornwall.

Development of Gliding in Great Britain.—As a result of the Wasserkuppe Competitions, a report was prepared by the Wasserkuppe Committee, and this report was referred to a special Committee called the "Development Committee," which held several Meetings during the past two months and drew up its recommendations. These recommendations have been considered by the Council and certain of them have been adopted. These include the appointment of a new Technical Committee consisting of a Chairman, a pilot, a constructor, and a ground engineer.

The duties of the Technical Committee will be clearly defined and will include the drawing up of all technical rules and regulations of the B.G.A. They will also be responsible for the inspection and issue of Certificates of Airworthiness and will be empowered to engage and pay for the services of such technical representatives as may be considered necessary.

Another recommendation approved by the Council is that all club ground engineers shall in future be required to possess a certificate of Competency which will be issued by the Air Registration Board.

Cloud and thermal soaring will be encouraged. It is proposed to allot the sum of £100 *per annum* from the subsidy to assist clubs to obtain aero-towing facilities. The limit for any one club is fixed at £20, and the grants will be paid on the basis of 50% of the actual cost.

Other recommendations adopted by the Council deal with meteorological assistance to clubs.

Certain other recommendations such as assistance in the design and manufacture of British-built prototypes of high-efficiency sailplanes and the purchase of foreign-built high-efficiency sailplanes for experimental and research purposes were deferred on account of lack of funds.

The Council has also considered a memorandum submitted by the Federation of British Gliding Clubs calling for certain amendments to the subsidy conditions in order to remedy the position with regard to the smaller Clubs, who find themselves unable to fulfil all the existing conditions.

Certain of these proposals have been adopted by the Council and it is their intention to make representations to the Air Ministry with a view to the conditions being

so modified as to meet, as far as possible, the objections raised by the smaller Clubs.

The proposed modifications to the conditions will include the relaxation of the term of five years called for in the security of tenure of the gliding site. It is proposed to recommend leases of one year for ground sites for temporary sectional buildings. Also that grants, to a limited amount, should be available to meet the immediate needs of Clubs irrespective of the Certificates obtained. Such grants will, of course, be based on the ability of the Club to bear at least 30% of the total cost.

A memorandum is now being prepared for submission to the Air Ministry asking for an increase in the subsidy for the next two years in order to further assist the Gliding Movement.

In the course of his reading of the Report, Mr. Perrin drew attention to the kindness of Mr. G. A. Little in making journeys to Cornwall and Jersey to inspect soaring sites on behalf of the Association.

Lord Sempill expressed the gratitude of the Association to the Royal Aero Club for providing accommodation for the office work and meetings, and to Mr. Perrin for the large amount of excellent work he had put in as the Association's Secretary.

Two members were nominated to fill the two vacancies for representatives of the individual members: Captain C. H. Latimer-Needham and Miss R. H. Sinclair. The Association's auditor, Mr. Claud A. Bloor, Chartered Accountant, was re-elected.

The following Resolution was then proposed by Major Alan Goodfellow, seconded by Captain C. H. Latimer-Needham, and adopted by the meeting:—

"That it is the view of the Members that the British Gliding Association should be reconstructed on the lines of the General Council of Light Aeroplane Clubs and that it be left to the Secretary in consultation with the Council to take whatever steps may be necessary for this purpose."

The meeting concluded with a vote of thanks to the Chairman, proposed by Professor D. Brunt.

To Unsubsidised Clubs

The secretary of the British Gliding Association has addressed the following letter to all unsubsidised British gliding clubs:—

DEAR SIR,

We are now considering the question of the possible revision of the conditions under which financial assistance is given to clubs by way of subsidy in view of the experience gained during three years' working of the present scheme.

In order that we may know the exact position of clubs at present not in receipt of subsidy, we would be glad if you would forward us the following information relating to your club:—

1. Are you operating?
2. Situation of gliding site.
3. Type of gliding site.
4. Length of lease, if any.

5. Number and type of gliders operated, and if serviceable.

6. Number of members (flying). (NOTE.—Flying membership should include those receiving instruction.)

7. Are your gliders housed on the gliding site? If not, where?

8. Personnel: Have you an instructor? Have you a ground engineer?

9. In the event of financial assistance being forthcoming, state amount of your immediate requirements and how would it be expended, i.e., hangar, primary gliders, secondary gliders, etc.

10. What has prevented you in the past from applying for subsidy?

It is essential that this information should reach us with the least possible delay.

Yours faithfully,

HAROLD E. PERRIN,
Secretary.

15th February, 1938.

Correspondence

Choughs over the Alps

SIR,

Since arriving here I have been greatly amused watching the gliding activities of a prevalent brand of raven-like bird called, according to a zoologist of our party, a chough. These do a great deal of slope-soaring among the lesser peaks, sailing along with their tip feathers well separated, giving the same "fingered" multi-slotted effect as a rook when gliding or soaring.

Owing to the ground being entirely covered with snow, I had not expected they would have much opportunity of thermal flying. But yesterday, when lunching on the Mannlichen, a peak two or three thousand feet above here, and with a pretty sheer drop, I saw a group of seven or eight of them circling over a pine wood, on a steep slope directly exposed to the sun immediately above this village, called the Steinwald. They rose rapidly, and in five minutes or so were about 1,000 feet above where I sat; after which they departed about their business.

The day, at my height (7,000 feet) was clear, and the sun hot; although the valleys at a lower level, below the Steinwald, were obscured by haze, and (lower down towards Interlaken) by cloud. The night had been very cold. Nevertheless I was surprised that the pine trees should send up thermals, as their branches were thickly piled with unmelted snow; though the general appearance of the wood from above was blackish.

The birds were turning approximately six-second circles; although, from their distribution, the thermal at my height appeared to have a diameter of 300 or 400 yards. The wind was west, blowing directly on to the sheer slope at my height; although the valleys below formed a funnel that would send the surface wind up from below the clouds to the Steinwald.

R. PHILIP COOPER.
Wengen, February 17th, 1938.

Training to "Silver C" Standard

SIR,

Your leading article, and Mr. Bergel's letter, on the "Silver C" Standard will, I think, be read with especial interest at the present time. Everyone wishes to get down to a solution of this problem, and if it is to be done we must first, I think, assess and examine the facts as they exist, and then be quite sure we do not misunderstand each other's interpretation of them.

Mr. Bergel states his case with splendid enthusiasm, but no one has yet suggested to my knowledge, and I certainly did not in my letter of January, that the "Silver C" standard must not be the objective of every ambitious soaring pilot, provided it can be carried out without loss or detriment to his colleagues and his club.

Everyone will agree that, where circumstances permit, pilots should be encouraged to fly as far afield as their skill and pocket warrants. I do not, however, agree that it is "awe or apprehension" which has prevented most people from leaving their home sites, but rather the sure knowledge that to do so, on a much used club machine with a list of members waiting to fly it, would be both inconsiderate and selfish. I suggest, therefore, that the only difference of opinion that exists is whether existing conditions at the clubs are ripe for this extension of facilities, or whether, if prematurely imposed, they would cripple the main operations of the clubs, and endanger their financial stability. As far as this country is concerned, the London Club appears to be the only organisation which has reached that happy stage of development and "C" Pilot Membership, when these excursions can be freely indulged in, without penalising the less skilful and the club, and here Mr. Bergel must count himself fortunate.

Mr. Bergel asks some pertinent questions, which I think should be frankly answered. "Why on earth," he says, "should the 'C' certificate be considered the limit of club training?"

The answer, I suggest, is that it should not be, but that each club must first have a sufficiency of "C" pilots to run and finance the place decently, and this essential factor is, I again submit, only fulfilled at present in the London Club, which was first in the field, ably managed, and therefore rightly benefited by concentrated Subsidy in the early years. But, having said this, I do not want to imply that we ought to make a god of the "Silver C," for under certain conditions it is relatively simple to attain; as Philip Wills so ably put it, during the competitions this year: "Shrieking virgins were whistled, impotently struggling, in secondaries up to cloud-base and deposited a short while later dazed but in one piece at the sea side." I feel we should frankly admit to ourselves that club flying at present has its limitations, until we can either (a) reach flying memberships approaching London, or (b) aspire to the heights of pilotage attained by Mr. Fox, whose recent performance in my view is right ahead of any normal cross-country

flight, and is, I venture to suggest, the outstanding British flight of the year.

Mr. Bergel's reference to the light aeroplane clubs is, I think, beside the point, for as far as I know there is no other use for the light aeroplane than cross-country flying, from which expeditions they hope to speedily return, unaided.

"What is needed for a cross-country flight?" is the next question Mr. Bergel asks. I submit the answer to this is, either

(a) Several, for preference five or six, machines from the GRUNAU type upwards, with requisite trailers and towing cars, and a substantial turn-up of "C" pilots to carry on at home, or

(b) (If these are not available) "the rest of the club" present, prepared and content to not fly at all that day, when conditions are excellent, and unselfish enough to give their time in getting the few lucky ones away, and fetching them back again. The loss to the club in flying money and retrieving costs, and possible crashery, must also be reckoned with, and here again I submit that there are not enough yet in the movement to stand it.

One point more. I note with dismay that friend Hugh takes off on his cross-country flights without a compass, and from this must follow that he considers his destination uncertain! I think all will agree that those charged with the responsibility of running the clubs would be failing in their duties if they attempted to guide the destinies of their club without prolonged and careful study of their "financial compass"—the bank balance.

C. ESPIN HARDWICK.

Strange Happenings at Cambridge

SIR,

A most remarkable phenomenon was observed (perhaps I should say overheard) at Caxton on Saturday. While telephoning from the winch to the launching point I was surprised more than somewhat to hear ethereal strains of music coming from the receiver. They gradually increased in volume until I identified them as Harry Ray and his Tigeragamuffins, but could hardly hear the other man speaking. Thinking he had on a radio at his end, I told him in no uncertain terms to turn it off. (The answer was not very polite, but I understood him to say that he had no radio, and to inquire about my soberness.)

To obtain corroboration, I told Michael Thomas, the winch driver; when the launch was finished he listened—and heard not a thing. More rude words were said.

Despite many attempts I was quite unable to tune in our broadcasting sailplane again until several launches later; this time it was a piano playing jazz, and I held the receiver to Thomas's ear at once. He heard the same as I did—until the CAMBRIDGE released the cable and it suddenly stopped.

My reputation for soberness and veracity was vindicated—but we still have not found the solution.

CHARLES J. WINGFIELD.

The Reigate Site

SIR,

We were very interested to read in your issue of last month the report of soaring carried out by Mr. Hiscox on the North Downs at Colley Hill, particularly as we and a few friends have had an eye on this site for some years.

We have, in the past, made several applications without success to the local authorities for permission to carry out hilltop launching there, and in order to overcome this opposition we decided in 1937 to fly our PRÜFLING machine by winching up way back of the hill. For this purpose we parked our caravan near, and this enabled us to be on the spot early in the mornings (business ties prevented us from operating later in the day).

Unfortunately the wind strength during our stay was not great; even so, several beats of the cup were made, and taking into consideration the indifferent machine and poor conditions the lift was found to be very good.

The machine was eventually landed on the top quite easily and dismantled.

The result of our efforts was a determination to get better flying there, and with this object in view the construction of a more powerful winch was commenced recently to launch the more efficient machine we have decided to acquire. We also intended to approach a farmer below with regard to emergency landings.

However, the news of the interest taken by our own club in this range of hills rather simplifies matters for us, especially if permission to use Colley Hill (which is Trust land) has been obtained from the authorities concerned.

In the event of a branch base of the London Gliding Club being formed there, we assure those interested of the active support of ourselves and many friends to this movement that will bring real soaring to the south, and we wish the scheme every success.

We shall welcome news of any further developments.

L. E. HATCHER.
J. F. COPELAND.

Gliding Certificates

The following gliding certificates, for which qualifying flights were made on the dates shown, were granted by the Royal Aero Club on February 23rd:—

"A" Certificates

No.	Name	Club	Date
874	G. M. Hick	Norfolk and Norwich...	2.1.38
875	W. W. Blake	Cambridge Univ.	20.11.37
876	G. Watts	Yorkshire	10.10.37
877	W. B. Ellis	Newcastle	22.1.38
878	E. A. Edmonds	Southdown	23.1.38
879	E. H. W. Seldon	London	10.12.37
880	R. W. we	Cambridge Univ.	17.11.37
881	A. H. W. MacBean	Cambridge Univ.	7.12.37
882	D. E. S. Charles...	Cambridge Univ.	27.1.38
883	R. T. Cole	Cambridge Univ.	15.11.37
884	H. Kirby	Cambridge Univ.	3.2.38

"B" Certificates

No.	Name	Club	Date
876	G. Watts	Yorkshire	10.10.37
877	W. B. Ellis	Newcastle	23.1.38
867	J. C. D. Langley	Derby and Lanes.	23.1.38
858	G. W. Pirie	Cambridge Univ.	22.1.38
642	C. H. Naylor	London	14.11.37
820	R. H. J. Brown...	Cambridge Univ.	8.12.37
881	A. H. W. MacBean	Cambridge Univ.	27.1.38
841	E. Lavington	London	30.1.38
658	W. R. Welch	Newcastle	26.12.37
874	G. M. Hick	Norfolk and Norwich...	6.2.38
883	R. T. Cole	Cambridge Univ.	23.1.38

"C" Certificates

No.	Name	Club	Date
718	N. P. Anson	London	5.12.37
736	J. C. Lowson	London	30.1.38
144	G. Konried	London	30.1.38

The list of total certificates for the last three years, given in the February issue (p. 39), contained an error: the Southdown Club's figures for 1935 should include 1 "B" and 3 "C" certificates, making the club's total for that year 5. The total for Britain in 1935 was correctly given as 231.

This month's list contains several more certificates for which flights were made in 1937, so we give again

a table of totals for the various clubs for 1937, brought up to date and corrected. Our figures differ slightly from those given in the B.G.A. secretary's report; he, however, gives the certificates issued during the year, rather than the flights made.

We have also, as a matter of interest, added up from our own lists the number of "C" certificates earned in each of the eight years since the British gliding movement started. The figures are:—

1930	...	5	1934	...	23
1931	...	26	1935	...	44
1932	...	29	1936	...	76
1933	...	19	1937	...	128

These figures add up to 350. Worthy of remark is the slump half-way through the period; also the fact that the number of "C" certificates after the first two years is about the same as the number of "Silver C's" at the present day. What form would a controversy have taken five years ago on the subject of "Club Training to 'C' Standard"?

Totals for 1937

Club	"A"	"B"	"C"	Total
London (with Imperial College)	82	72	43	197
Yorkshire (with Ryedale)	26	26	28	80
Derbyshire and Lancashire	26	21	19	66
Newcastle	27	24	6	57
Midland	11	9	12	32
Cambridge University	17	10	1	28
Ulster	6	7	9	22
Southdown	9	5	6	20
Furness	2	3	2	7
Channel	1	1	2	4
Kent	2	1	-	3
Essex	-	1	-	1
Cotswold	1	-	-	1
Test flights abroad	11	-	-	11
TOTALS	221	180	128	529

News from the Clubs

Oxford University and City Gliding Club

This club was officially formed at a meeting held on February 24th. The Hon. Secretary is Miss M. S. Thring, 13, Polstead Road, Oxford. The proposed entrance fee is 1 guinea, and annual subscription £2 12s. 6d.

Lord Wakefield has made a generous donation of £100 to help the club to get started. Guarantees for a bank overdraft of up to £700 will also be required; this should be completely paid off by the end of the third year at the latest.

At a meeting organised by Captain Rattray on February 10th to arouse interest in the proposed club, Miss Heron-Maxwell gave a lecture illustrated by films, and Mr. Greig showed his collection of slides; the meeting was also addressed by Robert Kronfeld, Professor Brunt, Miss Amy Johnson, Mr. Turner from the Cambridge Club, Mrs. Joan Price, Mr. Fox, and Dr. Watson, meteorological officer at Abingdon aerodrome.

Furness Gliding Club

December.—During the greater part of the month our site was snow-bound. Snow shoes were much in evidence and toboggans were sent whistling on their way after receiving an extra kick from the elastic rope; high accelerations were attained and ski-jumping was indulged in. Good cooking on the hangar stove helped to satisfy ravenous appetites.

During most of the month there was too much north in the wind. Sunday, December 12th, was soarable, but the snow was deep and soft, making it impossible to manhandle sailplanes.

The historical event of the year happened on Christmas Eve, when Frank Charles arrived with an appropriate present in the form of a brand new FALCON III two-seater sailplane direct from Messrs. Slingsby's. The task of transportation in such atrocious weather was a feat which few people would have undertaken, yet Charles, assisted by a gallant few, carried out the job without serious mishap. He has since mastered the art of landing her on this alleged very difficult site of ours. Much ingenuity has been displayed in designing runways and trolleys for handling the machine in and out of the hangar. Roller skates play an important part in this scheme by which two people, in addition to pilot and passenger, can put the big FALCON into the air.

Monday, January 17th.—Charles flew KIRBY KITE to Roose; arriving with 1,000 feet to spare, for a time he played hide and seek with his neighbours before landing on the near-by football pitch.

January 6th, 21st, and 27th.—Instruction flights were given to Messrs. Foster and Holme, whilst Smith and Redshaw went up to share the controls with our Bow Instructor. The landing of this machine on our site needs careful consideration, and to date all has been done by one person who is valiantly instilling into others the whys and wherefores.

Sunday, January 30th.—The gale seemed to be blowing itself out and at 3 p.m. the two-seater was wheeled out. The hail squalls seemed to have disappeared, so Charles took off with Redshaw as co-pilot. Wind velocity about 28 m.p.h. She climbed like a rocket to 1,000 feet above take-off and then the poor suckers had their eyes opened. Over the top of Blackcombe poured a solid wall of cloud, hail and snow, which might be called a No. 1 cold front.

They do tell us that they went into conference and, having no means available of long-distance retrieving, decided to ride it out, keeping as low as possible and as far from the hills as practicable. It was a physical impossibility. The following is best described by the pilots:

"We flew with 50 on the A.S.I. and still she climbed and made no progress away from the breast. Then the moisture arrived with very restricted visibility and extremely bumpy conditions. She spun and dived with the clock showing 70 m.p.h. many times. Both watched the wing tips flap, and thanked, in anticipation, Mr. Slingsby for his good gluing. Each piloted in turn, whilst the other endeavoured to see something solid to use as a datum. Finally the "front" swept by and we straightened our ties and decided to land before the next treat came. On the second attempt she sat down nicely in a cross-wind position in what was anticipated would be partly sheltered from the high wind, which we had found up aloft to be between 45-50 m.p.h.



Above: Miss Peggy Thring, secretary of the new Oxford Club, about to have her first flight in the "H-17" sailplane in which she has a quarter share. Below: how the other end of the machine was anchored.

Naturally all were dubious about the practicability of safe landing in this rising wind, yet all seemed well. As she came to rest the wind took absolute control and inverted the machine, which came to rest on the rudder and top surface of the wings. We hung from our straps with a "bat's-eye" view of Millom and Blackcombe before us and waited for help."

The only damage was the crushing of the top half of the rudder and the breaking of the pitot tubes, all of which have now been repaired.

For future information, can anybody tell us the velocity at which this type of machine begins to disintegrate?

February.—Some time has been spent in putting a new tail unit on the primary machine and it almost seems to be too good to put in the hands of the novice. A spot of repair work on the KADER has now put it also in good flying trim.

After a tour of the second-hand shops in London, Redshaw has turned up with an altimeter for use with the KADER, which the cynics say will be useful for telling how far he is below the take off. However, he still has to his credit over 1,000 feet above the hangar with this same machine last season.

Weather conditions have been against good flying times, but the Sundays of the 13th and 20th saw some primary training with 25 flights in all.

Sunday, February 27th.—A club "hot pot" had been arranged for the evening. It looked as though it would be preceded by a good day of soaring, but by 2.30 the clouds came down on to the hill and the rain started. However, Charles managed a good flight in the KITE and Kingsmill an instructional flight in the two-seater.

Up in the clouds the club held its first "hot pot" film show and social evening, a wonderful success. Over thirty attended and, having cleaned the tables and emptied the bottles, saw movies of the earlier activities of the club projected on the screen by Vernon Foster. Some of the antics caused much laughter but generally impressed those who turn up their nose at the primary as being incapable of making a good long hop.

Perhaps some will now take up the chisel and initiate themselves by doing a spot of repair work on the HOLS.

Derbyshire and Lancashire Gliding Club

February.—Having now planned our coming season's activities we are looking forward to an extremely busy time, and it is anticipated that club flying will make even greater strides in quantity and quality than it has done in the past year.

All the usual facilities will be available to members and visitors at Easter, although we are also participating in the aero-towing meeting at Leicester. At Whitsun we entertain the Midland Club, followed by two training camps, one at the beginning and one at the end of June. On August Bank Holiday we hope to pay a visit to the Mynd for a return competition, and shall wind up the season with an open meeting at the end of August. So, all things considered, it has the makings of an interesting year, and what is more, sufficient voluntary assistance has already been guaranteed to ensure success to all our projects.

A "Tramp Supper" held at the camp premises on Saturday, February 26th, proved a great success, and is the forerunner of other and similar parties. Guests were required to behave in a manner suited to their attire, and such games as cock-fighting and tight-rope walking were indulged in.

Congratulations to Hiller on his engagement. We hope it will not interfere with his flying—such things have been known.

To turn to our flying activities, these have been hampered by another squally and generally unpleasant month, but even so a greater amount of flying has been done than during a similar period last year.

The one bright spot of the month was undoubtedly the two cross-country flights made by Robertson and Davies on February 27th, and, whilst open to correction, we do not remember any previous cross-country flights at this time of the year in this country.

Observations made during the winter seem to indicate that cloud streets can be expected almost whenever there is a strong wind or gale and the sky is not overcast, but very often they break up as soon as they reach flat country, and not until the summer are there the isolated cumulus clouds forming over the plains to act as a substitute. That being so, it appears that out-and-return flights would offer a better proposition in winter than distance flights.

Saturday, February 5th.—Wind 25 m.p.h., S.W., and gusty. KAMER attempted to soar, but was forced to the bottom, and finished up in a rather unpleasant position 15 yards from the farmhouse. Meanwhile ground-hopping was proceeding with two-a-side launches half-strength, which were quite sufficient to get 13-stoners up to 15 ft.

Sunday, February 6th.—Wind 8 m.p.h., N.N.E., drizzle. Training all day. Meanwhile the trailer painting squad were grimly getting down to it.

February 12th and 13th.—On Saturday, wind 60 m.p.h., and on Sunday 30 m.p.h., N., with snowstorms. To compensate for this the "Down-wind Turn" argument was invoked, and soon heated everyone up very nicely.

Saturday, February 19th.—Wind 20 m.p.h., N.E. A few hardy ones turned up and got in some circuits. It was bitterly cold.

Sunday, February 20th.—Wind 12 m.p.h., E. Training all day. Woollas obtained his "B."

Two Cross-country Flights.

Sunday, February 27th.—Wind 30 m.p.h., W.—a soaring wind at last. Davies in his KITE was the first to get off, and was followed by Robertson in the RHÖNBUSSARD. The wind was at least 40 m.p.h. on the brow of the hill, and the lift was terrific; with an ordinary hand launch 600 ft. was gained in the first minute. An inviting cloud street was passing overhead at the time of Robertson's launch, and in less than 10 minutes from taking off he had connected and was saying goodbye to Camphill, to be followed half a mile behind by Davies, who had discovered a new thermal which was just forming a cloud. Both circled up to 2,600 ft., by which time they were over Froggatt Edge, and almost at cloud base, but Nature was feeling very perverse, and within a very few minutes all the streets vanished, leaving them 10 miles from the nearest cloud, except for the rapidly dissolving remnants behind them. Davies struck off rather to the north, making for Coal Aston aerodrome, which he reached comfortably and without any further signs of lift—distance 12 miles. Robertson maintained an easterly course and made for Whittington

Colliery in the hope of finding a thermal. He reached it with 1,000 ft., and sure enough there was a thermal, which soon began to form a cloud over him. He worked his way up to 2,200 ft. before the cloud disappeared. He then commenced a long glide over the industrial area surrounding Chesterfield, finding minute thermals here and there of which he could make nothing, and finally landed in a large meadow near Worksop—23 miles, 43 minutes after his take-off.

Meanwhile at Camphill the taper-wing KADET, FALCON I, G.B., and FALCON III were enjoying the first decent soaring of the year. Smith in the last-named reached 2,600 ft., and was only prevented from following the others on a cross-country by the knowledge that there was no trailer available large enough to retrieve him.

Summary of Flying during February.—Bungy launches, 122; winch launches, 59; flying time, 7 hrs. 26 mins.

Certificates: 1 "B."

Annual General Meeting.

This was held at the Marquis of Granby Hotel, Bamford, on Saturday, February 5th, 1938. The following are extracts from the chairman's report:—

The year has been one of considerable development, and advancement of the facilities for gliding and soaring, and the practical results obtained may be considered as comparable with the amount of energy and enthusiasm put into their work by the committee and members.

During the year the membership was considerably increased, and by the end of December, 1937, 110 flying members were on the roll, and other grades made up a total of 150.

The second winch which, thanks to Mr. Slater and his assistants, materialised during the year, definitely proved the oft-expressed theory that thermals could be reached without the assistance of hill lift.

The latest work to be carried out is the construction of a workshop and stores, and shed for retrieving cars—all very necessary.

Our fleet of machines now comprises three open Primaries, three Nacelle Primaries, one KADET, one FALCON I, one B.A.C. two-seater, one FALCON III, and in addition eight privately-owned sailplanes operate on the site, whilst we shall shortly acquire two further sailplanes for club use.

The bold step taken by the committee when it engaged John Noble as permanent instructor and ground engineer has been thoroughly justified, not only because of the excellent work carried out by him, but because it had become quite obvious that it was no longer possible for a volunteer ground staff to keep pace with renewals and repairs, nor was it in the interests of safety that it be expected of them.

In 1937 training was first offered to members each evening, and, when Mr. Noble arrived, any day in the week with the exception of Monday, and although the response to evening flying was satisfactory, it was felt that the day-time facilities were not fully realised by those who could spend a few hours away from their vocations on week-days. These facilities will again be offered this year.

A point that emerges very significantly from our records is that the weather during the last year was very unkind to us, because in spite of our increased activities the actual number of days on which soaring was possible was only 56—a decrease of two on the previous year. We do not include the long succession of soaring days during the month of August, when, of course, we were compelled to be inactive by the terms of our lease.

A total of 71 certificates were gained during the year, this showing a considerable increase over 1936. Soaring time was increased by 186 hours to 319 hours. Bungy launches at 1,749 showed a decrease of 187 as against 1936, but winch launches were considerably increased by 865 to 1,852.

The instructors are to be congratulated on their attention to the necessity of producing a better class of pilot, even though it means a longer stay with the bungy squad to most pupils.

The financial position is considered satisfactory in view of the heavy capital expenditure, which will not recur, and it is proper to assume that, following a period of consolidation during the coming year, the club will assume a state of financial stability combined with the best results.

Expressions of appreciation were made of the valuable work done by Mr. Alan Goodfellow, of whom we see far too little at Camphill, Mr. A. L. Slater, Mr. E. Swale, John Noble, and Harold Walton for always providing us with something to fly, and Mr. and Mrs. Walker, whose hospitality has earned for themselves a reputation among gliding folk.

The chairman, Mr. B. A. G. Meads, presided.

London Gliding Club

The first outward sign that this year's National Competitions will be held on the site has now appeared, in the shape of a fence round the club ground—or, rather, the beginnings of one. Its purpose is more to keep the public out than to make them pay to come in, which would be a hopeless task in view of the fact that most of the top of the Downs doesn't belong to the club at all. Some other way will have to be found of depriving them of their money, but, from what we hear, the problem is not going to defeat the Finance Sub-committee.

Flying time for February was 62½ hours. Visitors during the month have been Keeble from the Midland Club and his fellow-professional Noble from Derbyshire, Slingsby a few times, Kronfeld several times, and some of the organisers of the new Oxford Club. Hervey, our resident instructor, took two weeks' holiday (one can't imagine him being spared any later in the year), appointing Withall as his *locum tenens*; and Walker, our Steward, bicycling full-tilt down our approach road, hit an unlighted car in the dark (or so he was told when he came to), and, though happily recovering, is not yet able to lift the two-seater unaided.

Week ending February 6th.—On Wednesday a light W.N.W. wind could barely keep up a FALCON and GRUNAU, and on Saturday, with the wind in the S.S.W., nobody could soar but Nicholson in RHÖNSPERBER.

Sunday was a day of descents, with minor excitements. An open primary, coming off the top, did a perfect text-book spin down to the bottom, narrowly missing all the machines parked there; the cable broke as Hiseox was being winch-launched; a GRUNAU landed the wrong side of the hedge; the FALCON III's wheels rebounded up through the fuselage, and a FALCON I followed the contours in a high-speed whizz down the hill. There was slight primary damage also on the 9th and the 19th.

Saturday, February 12th.—A north-westerly gale, into which three rather hectic winch launches were made—especially that of Rattray in CAMBRIDGE II. Finding he was being pulled through the air too fast, he cast off at only about 70 feet and climbed the rest of the way to hill-lift by means of three horrifying zooms up a sort of invisible step-ladder, with gusts for steps. Even Kronfeld got a thrill watching him.

Sunday, February 13th.—Wind between N.W. and N.N.W., and nearly as strong as yesterday. No primaries or even secondaries were allowed out, and no launching off the hill-top. There were 23 winch launches, 14½ hours' soaring, and at times 7 or 8 machines up together. Saffery got 950 feet on a winch launch alone. Some pilots reached about 1,300 feet during flight, but height changes were rapid and unexpected, as the wind was nearly along the hill.

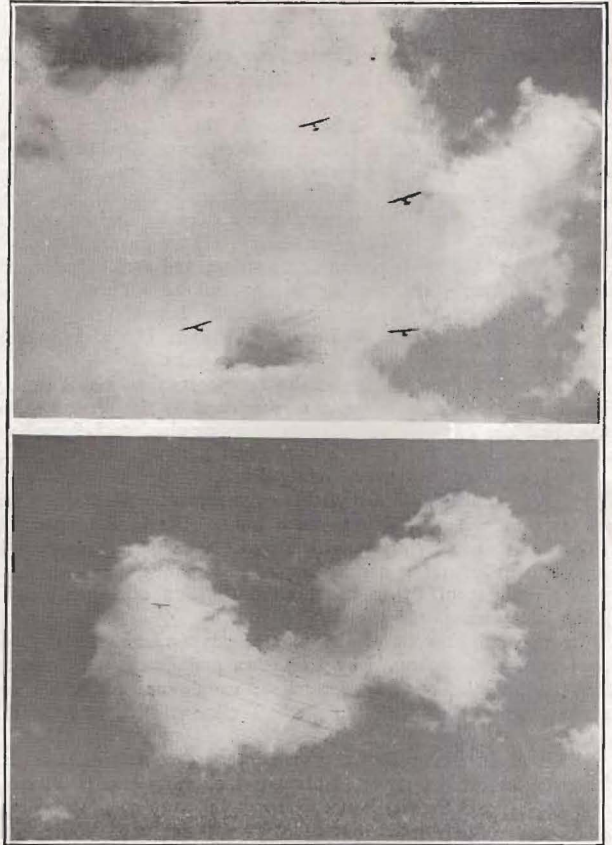
Cumulus clouds were fairly large, considering how the wind tore them up, and there were occasional "streets." One pilot held his height for a mile up-wind under one of these. Some three circles, which could be done without getting into trouble, as the wind drifted them along the hill rather than behind it. Strong localised lift was reported, up to 15 ft. per second, under every piece of cloud.

As often happens with any north in the wind, there was some under-shooting. Benemann undershot by half a length and landed a GRUNAU in the hedge, and Wills in the club BUSSARD undershot by one field. Ann Edmonds in another GRUNAU undershot by one mile; while making her first turn she was carried by the wind round the promontory between here and Whipsnade and into the down-current in its lee. Here the wind had a horizontal component of 35 m.p.h. and a vertical one of minus 10 m.p.h., and the GRUNAU sank vertically and rapidly into the pony paddock, just within the Zoo grounds. So it has happened at last, after seven years of listening to stock jokes about liens' dens and things. Miss Edmonds kept herself warm by running to and fro between the wing (which the wind was trying to lift over) and the tail (which the Shetland ponies were trying to eat and the goats to strip of its fabric) until Captain W. P. B. Beal, Superintendent of the Zoo, gallantly came to the rescue.

Sunday, February 27th.—Pretty strong west wind, veering at mid-day and then backing and dropping slightly on the approach of a new depression. Over 41 hours' flying.

A few people had, in view of yesterday's south wind, arranged to spend to-day at the Reigate site, but returned here post-haste on seeing how the wind had tricked them.

Two new machines performed for the first time: Ann Edmonds' own GRUNAU, which has been built by the Brooklands College of Aeronautical Engineering; and an H-17, built by Zander & Scott to the combined order of Rattray, Saffery, Miss Thring and Miss Johnson. Dr. Edmunds and Peter Davis had their first flights



Soaring over Dunstable Downs. The upper picture shows four sailplanes soaring in cloud lift on February 13th, and the lower one a "Kirby Kite" (left) and R. S. Rattray in his new "H-17" on February 27th. Both were days of strong wind and thermals, but with a difference. On the 13th lift was found under every cloud, and there were occasional "streets"; on the 27th there was often a down-current directly below each scrap of cloud, and thermals were difficult to keep in by circling. Were the thermals upright on the 13th and sloping on the 27th?

in Fox's RHÖNADLER, which they are considering taking a share in. Dr. Edmunds flew off with the winch cable, which had got wound round his hook; a KIRBY KITE pilot approached and shouted to him, while people below made various signs; he soared around for five minutes to have a good think, then pulled off a skilful landing without catching the wire in any cars or cables.

There were thermals and some scrappy clouds, but pilots said they often got a down-current as a cloud went over though the thermals could only be found when there were clouds about. There was a lot of lift up-wind from the site, extending at times half-way to Ivinghoe Beacon, as found by Humphries and Pasold in RHÖNBUSSARDS. The latter got up to 2,000 ft. in the course of his flight of 5 hrs. 19 mins.; Fox got 2,500 ft. in the RHÖNADLER. The H-17 performed well. Saffery took it to 900 ft., and Rattray circled it in a narrow thermal, with lift up to an amount "off the clock," to 1,400 ft., and would have gone higher but for his rapid drift down-wind.

Summary of Flying.

Week ending:	Days of Flying	Ground-hops	Timed Flights	Flying Time hrs. mins.
February 6th ...	3	104	80	6 23
February 13th ...	3	28	26	14 45
February 20th ...	2	130	—	— —
February 27th ...	2	73	63	41 24

Total since January 1st: 913 launches; 190 hrs. 11 mins. flying time.

Certificate Flights.

February 6th.—Yates, "A."

February 27th.—Pasold, part "Silver C" (duration).

Midland Gliding Club

Tuesday, September 28th.—Two members came out to fly in the nice westerly breeze blowing and took out the *FALCON*. After an hour's easy flying the first man was waved in by his anxious friend; the next seven minutes were—well, interesting. The first attempt to land was an approach 100 yards behind the hill and 200 feet up, the attempt to get the machine to earth whistled the 'plane over the edge at 50 feet, the second was a repeat of the first, on the third attempt, same height and position, but a series of hideous stalls known as sideslips, right over the hangar doors, and a good "planting" dive succeeded in getting the machine skimming the earth at about 40-45 m.p.h. The 'plane floated swiftly to the edge and hit the only other object besides the hangar and a house on the hill (area 15 miles by 5 miles)—in other words the poor inoffensive tractor got it in the neck, and so did *FALCON*.

Sunday, October 3rd.—The wind was light and soarable, but died and went northerly very suddenly in the afternoon; everybody got back home except for Keeble in the *KITE*, who, having watched the top of the hill rise above him, saved his bacon by diving at the hillside and clinging to it like a fly on the far side of the gully.

October 10th.—Wind southerly, so winching was resorted to. Gerry Edwards found a weak thermal and sustained himself in the air for 24 minutes, gradually drifting towards the south end of the hill as he rose to 1,500 feet. Others were not so lucky or skilled.

October 14th.—Mr. Hardwick came up and flew the County Surveyor in the two-seater. So great an impression was made on the august roadman that the Portway is now being made up into a real road.

October 16th.—A dull overcast day, but with a good wind. Durose did his five hours' flight in *KADER III* on its first flight after overhaul.

October 17th.—A very light westerly breeze with warm sunshine gave some rather hectic flights in the *KITE* and white G.B. along the brow of the hill; the latter machine suffered rather as a result of a down-wind landing over rough ground. Meanwhile most of the members spat on their hands and finished off

the telephone trench. We were pleased to welcome the designer of our hangar as a non-flying member.

October 24th.—A grand day; blue sky and small cumulus with a fresh breeze in the morning gradually decreasing until 3.30 p.m., when it died and went round south.

We had the pleasure of the company of Miss Johnson, Miss Thring, and Rattray, and of signing on Miss Johnson as a country member. She flew the *KITE*, but found, like most strangers, how deceptive the size of the Mynd is, causing her to land over the Portway. Miss Thring flew a *KADER* very well, whilst Rattray went up in the James-Davies *KITE*.

Later, Davies in taking off his *KITE* had it held back by the struts, with the result that one of the holders got bowled over by the tailplane in its hurry to keep up with the wings. A safe flight was made, but later inspection revealed not only a damaged leading edge to the tailplane, but also the front holding-down bolt of the tailplane was fractured clean through by the weld. In future, therefore, no holding back by struts except on the two-seater.

Wilnot qualified for his "C."

October 30th.—Tracherous light south-west wind. Durose went off in the *FALCON*, but wandered too far to the south where the hill faces W.N.W.; he struggled to the far end, not daring to turn, and deposited the machine on top, about three miles away. The retrieving party got back just before dark.

November.—The weather was most unkind this month, but one quite good day on the 14th helped us on our way. We had the pleasure of a visit from Mole (Him of the n loops). He viewed the site from the two-seater in company with Edwards.

Nowadays, for qualifying for various machines, one must announce one's intention of making a spot-landing before attempting it. One member omitted to do so before the take off, and suddenly frightful shrieks and yells from the air made it known that he was doing a spot landing. A veil must, however, be drawn over the mileage separating the machine and the spot.

December 5th.—Fresh westerly wind and bitterly cold, the Mynd being well carpeted with snow. A lot of flying was got in despite the cold; Hubert Wynne, secure in his glass house, was much envied.

December 12th.—More snow and icy roads made us late starting, but flying was good and less chilly than on the 5th. 1,000 feet seemed about the limit, but even then one was above small layers of mist that went drifting down-wind.

Spot landings were rendered very difficult with the snow about.

December 19th.—Doc. Slater paid us a visit, but as always we had an east wind for him. If he tries hard enough he's bound to reach the Mynd one day when there's a west wind there that we can't hide when we see him coming.

Thursday, January 6th.—James and Davies came over from Chester, rigged and flew their *KITE*. The wind, however, was decreasing and Davies, in a desperate attempt to gain height, burned his boats by going to the north end; nothing uplifting was present and his discomfiture was completed by a descent to the field at the bottom.

Norman Price, who went up just after James, just made the top of the hill for a landing.

January 9th.—Wind strong in the morning, but gradually decreasing during the day; the strength, however, was such that we were able to launch all machines except the two-seater just by pulling them forward by hand, the machine just rising out of reach as it got to the edge—very easy and most economical. About 4 p.m., however, the wind suddenly backed to S.S.W. and, despite warnings and obvious symptoms of change, misfortune stalked abroad. In about five minutes a *KADER* rammed its nose into the hill, the *PROFESSOR* went to the bottom near Myndtown, whilst poor old *FALCON*, despite arriving at the largest field for miles, suffered from pilot trouble and, in an attempt to pass between two trees by the Buzzbrook, found the carriage way a bit narrow—so now she wants a pair of new wings.

January 15th.—Howling gales, 60-80 m.p.h.; difficulty in standing upright on the hill-top. The lead on the roof started to come unput, but prompt application of Woolworth cramps stopped the rot. In the valley half a tree fell on the telephone line and members therefore dialled impotently in distant towns. On the hill birds found flying impossible and were compelled to walk, sulking behind the hangar and garden fence.

January 26th.—Price brought Rowe and an assistant up and had his first two flights in the *KITE*.

January 30th.—Another good day at last; two-seater with ease to 1,500 feet, and coming in to land one time well back from the edge in the right place for a nice down-draught for landing



For the first time in seven years a landing in Whipsnade Zoo grounds has been made by a London Club member (seen in foreground in upper picture). The lower photo shows two Shetland ponies who had tried to eat the "Grunau's" tail, still looking hungrily at it after it after it had been removed from their enclosure.

purposes, found itself rising and holding height. Does one spin down on such occasions?

Hannay, in the White G.B., got blown back over the hill about $1\frac{1}{2}$ miles south and was compelled to land, as he could not reach the front of the hill again. A KADET bringing news of his landing came to the hangar at 200 feet to shout to us, but on diving to make headway did nothing but sink swiftly to earth. It was then grounded for a while until the wind moderated.

Throwing over the edge now seems the normal practice; catapult manufacturers will go out of business if these strong winds continue.

Summary.

	Hrs.	Mins.		Hrs.	Mins.
Sept. 28	0	50	Nov. 20	0	49
Oct. 3	6	43	" 21	—	—
" 10	0	34	" 24	0	3
" 14	1	0	Dec. 5	17	42
" 16	13	59	" 12	6	26
" 17	0	50	Jan. 6	1	3
" 24	16	14	" 9	14	04
" 30	0	4	" 26	0	39
Nov. 14	4	3	" 30	17	50

Newcastle Gliding Club

Saturday, January 1st.—Wind was too high for primary training and in the wrong direction for a really high launch; so the NACELLED DAGLING was circuted.

Sunday, January 2nd.—Work in the hangar until the high northerly wind dropped and allowed of primary training. It has occurred to some of the members that if we could get permission to use occasionally the land just south of the aerodrome, the north winds, which are at present a cause of much grief, would become one of our greatest assets.

Monday, January 3rd.—The very few who were able to turn out left their mark in the shape of a new primary fuselage, a workable retrieving car, and more linoleum on the club-house floor.

Saturday, January 8th.—Hick, Allen, Lucas, and Massey took the GRUNAU BABY and the new winch to explore more soaring ridges at Chillingham.

Sunday, January 9th.—The expected weather did not materialise, but the soaring expedition was very fortunate in obtaining the use of Lord Tankerville's hangar, and so were able to return minus soaring, but with the knowledge that the equipment was ready on the spot for another attempt.

Saturday, January 15th.—Another non-flying day, but it was not difficult to keep busy in view of that night's party. This party had been suggested as a result of the immensely successful supper on the occasion of Wills's visit, but it appears that the presence of a "lion" is required to make all the members turn out. The presentation to Alec Bell brought home to those present, particularly the new-comers, just how much the club owes this hard-working ground engineer. It is almost unbelievable that the entire work of repair and maintenance of machines has fallen to him, single handed, for seven years. The extent of his service can be gauged by the fact that in those seven years' regular attendance, he, a skilled power pilot, has obtained less than 20 minutes' flying.

Sunday, January 16th.—Three tentative flights in a strong wind in the NACELLED DAGLING.

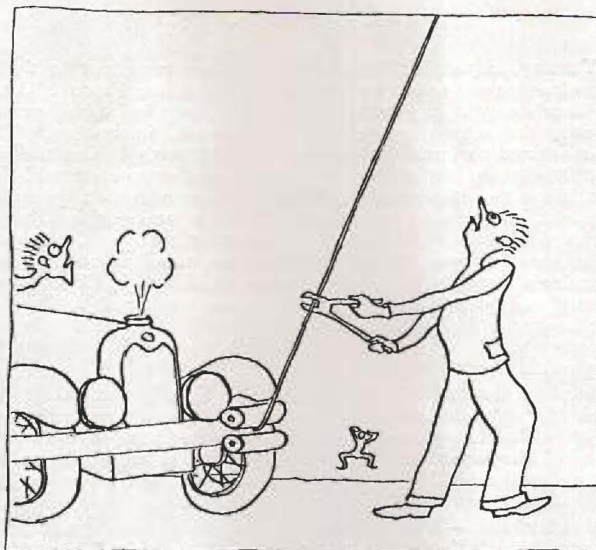
We were very pleased to welcome Mr. Baxter-Ellis as a visitor to the club. Following the lead of his father, who pioneered motoring in the north-east, Mr. Baxter-Ellis was one of the foremost aviation pioneers here.

Saturday, January 22nd.—Wind in a poor direction, but fairly strong, so we got the NACELLED DAGLING high enough to get Mr. Baxter-Ellis his "A." We also succeeded in demonstrating to two new-comers what happens when they light-heartedly leave wing-tips during a high wind.

Sunday, January 23rd.—An ideal day. In the morning a flat calm permitted some very satisfactory primary training. In the afternoon the wind freshened from the west, giving the best possible conditions for the NACELLED DAGLING, in which Baxter-Ellis took his "B."

Saturday, January 29th.—A gale prevented any flying, so we spent the day exploring the Chillingham Hills.

Sunday, January 30th.—The gale had abated sufficiently to use the NACELLED DAGLING. We were pleased to receive a visit from Jack Boss, one of our most hard-working members until last year, when his work took him away from Newcastle.



[Drawing by J. S. Sproule.]

Cambridge University Gliding Club

Lent Term.—Flying began on January 13th and continued on an average of about four days a week with two winches operating at week-ends. The CAMBRIDGE I returned home to Caxton after complete overhaul and is now painted in blue and white. This machine was flown for a few hours at Dunstable early in January, and caused some mystification there owing to her crew describing her as the new CAMBRIDGE III.

From February 10th to 15th primary training was held up by strong winds, but the sailplanes were able to fly on most of these days, and on February 13th Simpson celebrated his birthday by taking the KITE and barograph up to 1,200 feet on a winch climb. On this day 16 circuits were made in the intervals between snow-storms, and at least ten of these were from launches to over 1,000 feet. Late in the day, when the clouds were down to about 600 feet, Jones in the CAMBRIDGE I was winched up out of sight from the ground and eventually reappeared still the right way up at the same point where he had vanished about a minute previously.

On February 28th the first aero-tows of the season were made at Cambridge aerodrome, when the KITE was towed by the club's "Moth," piloted in turn by Gardiner and Slazenger. The wind was rather too strong for instruction in aero-towing (it was actually about 45 m.p.h. at 2,000 feet), so only Simpson, John Pringle and MacClement had tows. On the last flight conditions were so rough that both the weak links broke simultaneously, and the cable fell all over the surrounding countryside. We suggest that it might be advisable to have a slightly stronger link at the aeroplane end to avoid losing the cable in case of breakage.

Arrangements have been completed for the camp in the Easter vacation, and four sites will be available for hill-soaring in different wind directions. They are:—Draycot Hill (S.E. to S.W.), Huish Hill (S.W. to W.), White Sheet Hill (W. to N.), and Inkpen Beacon (N. to N.E.). Aero-towing will take place at the "base-camp" at Huish. The members felt that ten days would not be long enough, so the dates have been altered to April 4th-19th.

Summary of Flying, January 13th-February 28th.—Flying took place on 29 days, and 468 launches were made, the only mishaps being a cracked bulkhead in the TOTTERNOE and one broken rib in a DAGLING's tailplane.

Certificates:—4 "A's," 6 "B's."

Yorkshire Gliding Club

February 5th.—Lingford arrived by aeroplane in the early afternoon, having flown from somewhere near Bristol. He brought K. W. Turner along with him—needless to say, a very welcome visitor. The wind was southerly, about 20 m.p.h., and the afternoon was devoted to training Hancock and Gibson—the latter securing his "A" certificate, thereby drawing level with the former.

February 6th.—Light north-easterly winds. Hancock and Gibson, now racing for the "B," practised turns. Others did practice circuits.

February 8th.—S.W. wind, 15 m.p.h. Joe Fisher made a good flight of 45 minutes, which resulted in an official "pass-out" for him to fly GRUNAU. So next day he came again, and flew the GRUNAU for an hour, reached 1,100 feet and made a perfect landing.

February 11th.—S.W. wind, rather light. Billy Sharpe and Fisher put in 2 hours' soaring.

February 13th.—N.N.W. wind, gusty, from 20 to 30 m.p.h. increasing with snow squalls. Shaw made two short flights, but conditions were uncomfortable.

February 19th.—N.E. wind—15 m.p.h. Hancock and Gibson arrived, got out the nacelled DAGLING, and resumed battle. Both of them qualified for the "B" certificate! Round two—a draw! Next day Hinchliffe was passed to fly KADET.

February 23rd.—Hancock and Gibson returned to the fray and did some practice circuits in nacelled DAGLING. Both were given permission to attempt their "C's" in favourable conditions. Honours even again! Whilst on the subject, it is gratifying to see another pair of *ab initio* pupils brought up to "C" standard in a few months. Given willing and enthusiastic pupils our training methods seem to "bring home the bacon"!

February 26th.—Gusty S.E. wind, 15 to 20 m.p.h. J. C. Neilan soared the KIRBY KITE over the White Horse for 30 minutes. Low cloud and big bumps!

February 27th.—Somewhat variable S.W. wind, 20 to 30 miles per hour. Fisher was first away in the GRUNAU; he gained height in strong hill-lift and soon connected with useful thermals and was able to exceed 2,000 feet. Hastwell and Neilan soared the KITE and reported hill-lift to 800-900 feet with plenty of thermal activity. A. O. Pick in his GRUNAU broke his own height record with 2,600 feet, and Hartness reached 1,000 feet in a 30-minute flight in KADET. The FALCON III (S) attained 2,200 feet in a 2 hours' flight with Norman Sharpe and Hastwell. Dene-Drummond soared the KITE for 30 minutes and reached 1,700 feet. Slingsby had another flight in the extended-wing KADET; he seemed to get very high but did not make any report. Later, O'Grady, from Newcastle, soared the same machine for about an hour, at Slingsby's invitation. Some of the members from our Sunderland group came along with Mr. Maw, and were given dual instruction in the FALCON III by Stedman and Heath. Other flights brought the total for the day to more than 13 hours, a very pleasant ending to a month of weather which could be described as—let us say, unkind.

ELLIS'S HANGAR

(No AT)—As supplied to Gliding Clubs for the housing of Sailplanes, Gliders & small Airplanes. Carr. paid within 100 miles of works. Easy terms arranged.

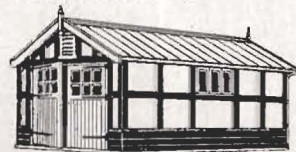
£116/0/0



SPECIFICATION 50 ft. long, 30 ft. wide, 8 ft. to eaves, 15 ft. 6 in. to ridge. In complete sections for easy erection. Walls 3/4 in. T. & G. Stormlock weatherboards on 3 in. x 2 in. framing. Iron-bound roof principals 7 in. x 3 in. on 5 in. loose stads. Iron tie rods and brackets 10 ft. apart. Purlins 4 in. x 2 in. covered 3/4 in. T. & G. matching one-ply bitumen roofing felt, finished barge boards. Three windows each side 21 oz. glass. One end fitted with single hinged doors and light removable shutters. Two 5 in. x 4 in. raking struts as wind braces.

The 'RAINHAM'

Strong framing with 1 in. weather-boards to string course. Upper portion of asbestos sheets with broad wood overlays. Roof frames of principals and purlins with covering of Italian Pattern Galvanised Iron. Half glass doors strongly framed and braced. Despatched in sections, all nuts and bolts supplied.



12' x 8' x 6'	... ..	£13 11 6	16' x 9' x 7'	... ..	£19 9 9
14' x 8' x 6'	... ..	£15 3 3	20' x 10' x 7'	... ..	£24 10 9

Available on Easy Terms. Carriage paid in England and Wales.



ARMY TYPE HUT

Built in complete sections on strong framing covered T.C. and moulded weather-boards. Suitable as store shed, canteen, etc.

16' x 12' x 7'	... ..	£14 3 0
24' x 12' x 7'	... ..	£18 18 0
32' x 12' x 7'	... ..	£23 16 0

Carriage paid within 50 miles.

Send for FREE CATALOGUE

G. ELLIS & CO. Coombe Wharf, Gainsborough Road, Eastway, London, E.9

H-17

THE IDEAL MACHINE FOR THE CLUB OR PRIVATE OWNER.

Sole British Agent for sale of drawings

Price £6 : 5 : 0

B. H. T. OLVER,
195, Sandwell Road,
Birmingham, 21.

FOR SALE ——— PARTLY CONSTRUCTED

B.A.C. DRONE or GLIDER

Wings, elevators, rudder, tail planes ready for covering. Fuselage half made. Together with blue prints and spare plywood and spruce. ——— WHAT OFFERS?

ARMITAGE, HIGHLANDS, WINSCOMBE, SOMERSET.

"SCUD I" ELEVATOR WANTED

Or damaged machine for sale; also Cobb-Slater Variometer; 60 yards heavy Turner Catapult with chain and swivel, used once; and 60 yards best 2 in. Yacht Manilla Rope, breaking strain 45 cwt.

E. R. WILSON, "Bryn Teg," Abersoch, Caernarvonshire.

ZANDER & SCOTT

Light Aircraft

DUNSTABLE, BEDS.

HIGH PERFORMANCE SAILPLANES
SECONDARY MACHINES
PRIMARY GLIDERS
TRAILERS—ACCESSORIES—HANGARS

We have the sole building rights in Britain for "H-17"

Kits of parts for home construction.

Machines overhauled for C. of A.

Instruments supplied by us fitted free of charge at our works. Machines built to customer's requirements.

AIRCRAFT WELDING A SPECIALITY

Cheaper Re-issue

CLOUDS

A Descriptive Illustrated Guide Book to the Observation and Classification of Clouds

BY G. A. CLARKE

The classification and nomenclature used in the International Cloud Atlas has been followed throughout the present book. This, with the forty plates illustrating nearly 80 cloud types, makes the book invaluable to the observer in his efforts at recognition and classification

10/6 net

Constable & Co., Ltd.

10, Orange Street
London, W.C.2

**national
gliding records...
at Camphill
speak for themselves**

- ★ 43 cross-country flights
- ★ 1486 miles and
- ★ 292 hours flown
- ★ 18 legs towards Silver "C's"
all in 8 days.

owner pilots

are always welcome at Camphill and fully catered for from a social as well as a flying point of view . . . a permanent ground staff . . . winch launches to over 1,200 feet . . . and some of the finest gliding country . . . comfortable accommodation in club-house . . . 14 days' full club membership 10/6 . . . Come and visit us . . . Write to Hon. Training Course Secretary

Derbyshire & Lancashire Gliding Club

Brookside, Combs
Chapel-en-le-Frith, via Stockport

For Sale

"HJORDIS"

The outstanding British high efficiency sailplane. Holds the British distance record and goal-flight record; placed first in the 1937 British competitions; holds most of the British Gliding Trophies and Awards.

It has done over 850 miles of cross-country flying (on purpose); has been dived to 125 m.p.h. in cloud (by accident); is extremely strong (by gum); won the Distance Trophy both 1936 and 1937 (by Wakefield); is in first class condition (by Slingsby); and is for sale by

P. A. Wills, 3, Chapel Street
Milton Street, E.C.2

at the low price of

£110

with trailer, without instruments,
'broken' stick fitted.

DART AIRCRAFT LTD.

29, High Street (North End)
Albion Street
DUNSTABLE, Beds.

Phone: DUNSTABLE 429

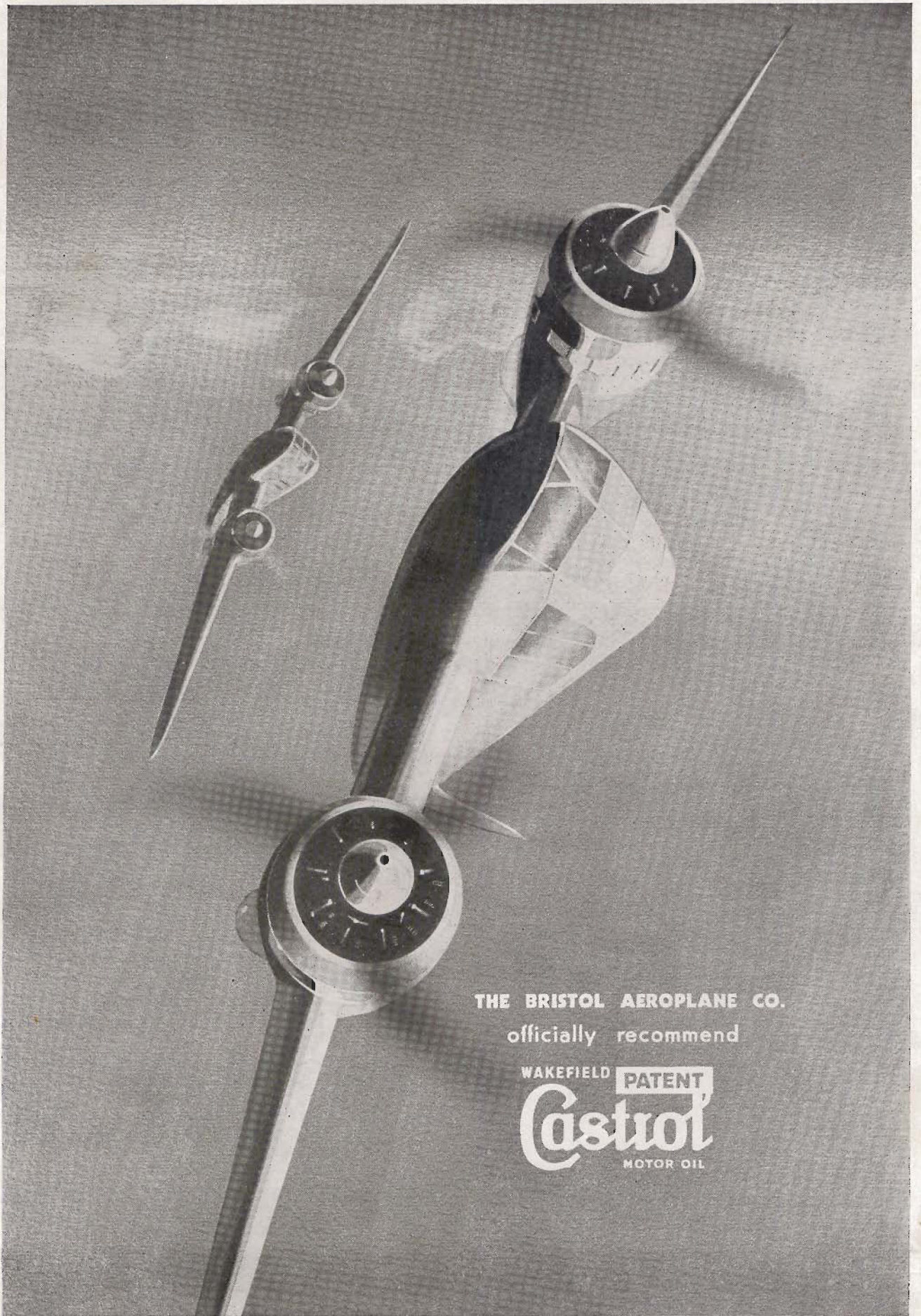
REORGANISED AND EXTENDED

Construction and Repair of Powerplanes and Sailplanes to A.I.D. Standards.

AEROPLANES and SAILPLANES to OWN DESIGNS.

Reconstruction and Reconditioning of HISTORICAL AIRCRAFT.

SUB-CONTRACT and EXPERIMENTAL WORK relating to Aircraft.



THE BRISTOL AEROPLANE CO.
officially recommend

WAKEFIELD PATENT
Castrol
MOTOR OIL

PIONEERS 10 YEARS AGO

Right from the earliest days of Civil Aviation, Manufacturers, Operators and Owners of Aircraft realised the necessity of Insurance protection.

In 1924 this organization was formed to specialise solely in AVIATION INSURANCE and to meet the vital demand for adequate and reliable Insurance cover of British needs the world over.

Valuable pioneer work was carried out, and now it is recognised that the security of sound insurance has contributed a very great deal to achieve the stability that the British Aircraft Industry now enjoys.

The British Aviation Insurance Co., Ltd., after over 10 years of successful operation, can justly proclaim

RECOGNISED LEADERSHIP TO-DAY

Over 90% of the leading British Aircraft Manufacturing and Air Line operating Companies entrust their Insurance business to the Company.

In ever increasing numbers, private owners and those hiring Aircraft are realising the advantages of the sound Policies and technical appreciation of their needs.

Experience counts—the pioneer work of yesterday has been the foundation on which has been built the unrivalled leadership achieved by the Company in the Aviation World to-day.

THE BRITISH AVIATION INSURANCE CO., LTD.

3-4, LIME STREET, LONDON, E.C.3.

Telegrams :
Aviacoy, Lime, London.

Telephone :
MANsion House 0444 (5 lines).

Underwriter and Principal Surveyor :
CAPT. A. G. LAMPLUGH, F.R.Ae.S., M.I.Ae.E., F.R.G.S.

CREATED WREN
WILLOW WREN
YELLOW WREN
RED WREN
BLUE WREN
GOLDEN WREN
IMPROVED WREN
or **DUNSTABLE KESTREL**

BEST BRITISH SAILPLANE, £130
DRAWINGS, £4 10s. FULL MATERIALS, £27 10s.

THE DUNSTABLE SAILPLANE CO.
(Luton Aircraft Ltd.)
Phoenix Works, Gerrards Cross, Bucks.
Telephone - 2545

←S^AN₅M←

ALTIGRAPH PORTABLE MODEL



SHORT & MASON, LONDON

Specially introduced to meet the requirements of civil aviation, aero and gliding clubs, etc. Details of flight, such as time and duration, permanently recorded on chart. Invaluable for test flights.

Also Altimeters, Airspeed Indicators, Compasses, and all instruments necessary for aviation

SHORT & MASON LTD.

THE INSTRUMENT HOUSE

ANEROID WORKS, WALTHAMSTOW, E.17

Telephone—LARKSWOOD 2644 (3 lines)

“MALLITE” AND “APPCO”

GLIDER
PLYWOOD

RECOGNISED THROUGHOUT THE
WORLD AS BEING

THE BEST OBTAINABLE

Manufactured by the

AERONAUTICAL & PANEL PLYWOOD CO., LTD.

218-226, KINGSLAND ROAD, LONDON, E.2.

TELEPHONE

BISHOPSGATE 5641