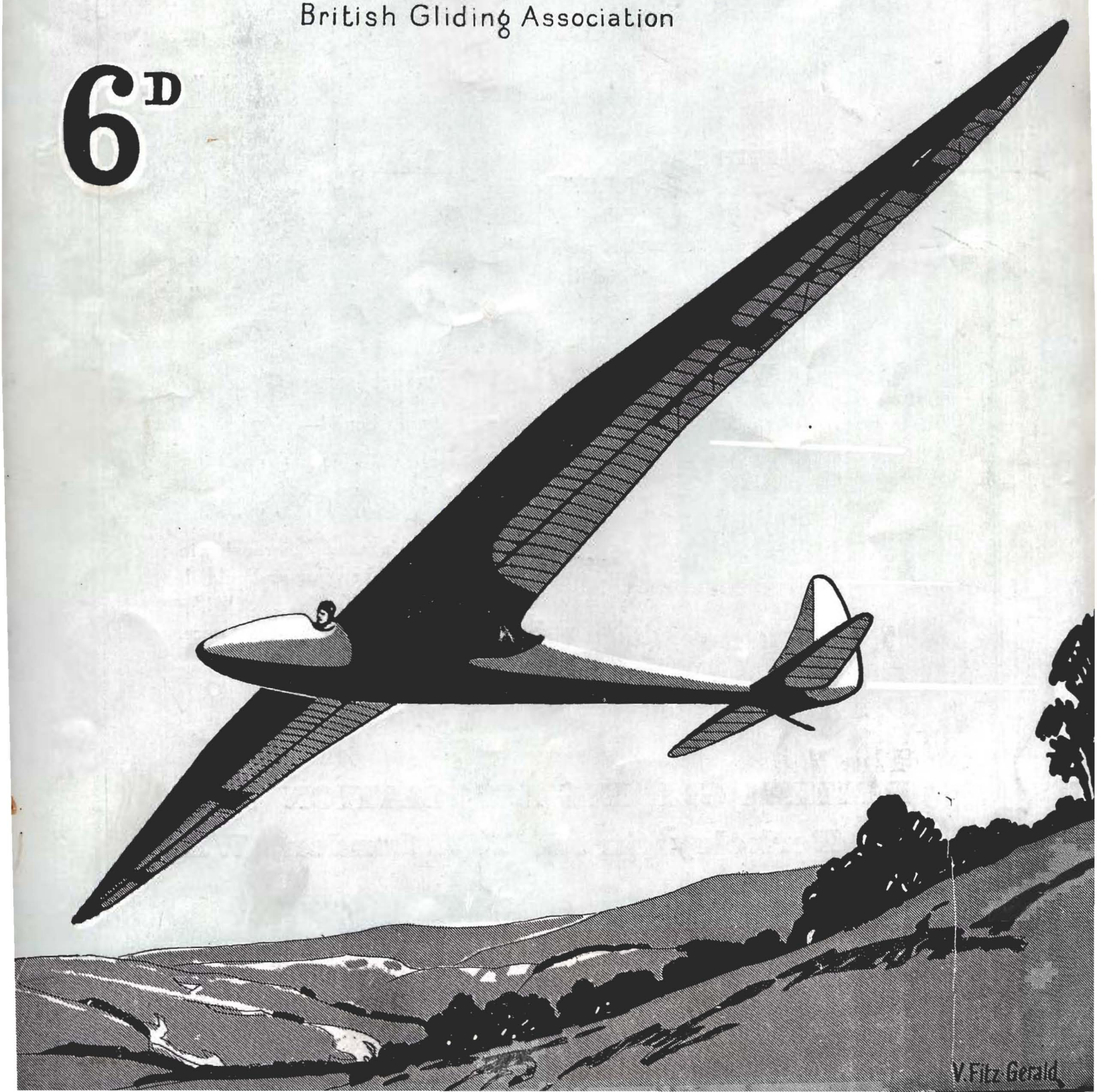
July 14th 1933. Vol. 4, No. 13.

THE SAILPLANE & GLIDER

Official Organ of the
British Gliding Association

6D



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THE SAILPLANE & GLIDER

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

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

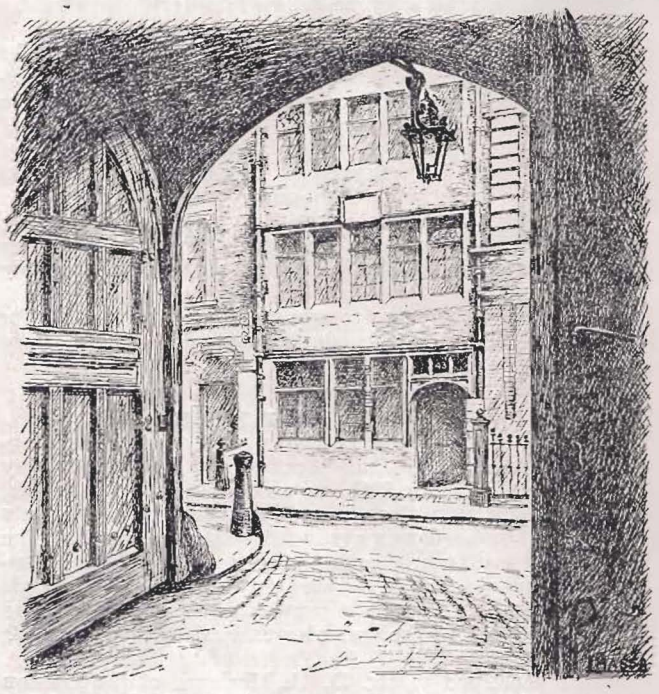
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The Offices of the SAILPLANE *viewed from the historic XVIIth Century gateway of Lincoln's Inn.*

CONTENTS

	PAGE
Editorial Comments	145
The Huish Meeting	148
Progress at Last: *L. T. Moore*	150
Tail-skid Towing: *Wolf Hirth*	151
A Glider Pilot's Letters to his Son: IV.	152
Waiting for the Wind: *A. F. McG.*	152
Correspondence	153
News from the Clubs	154

Thermal Soaring.

What is the most important news of the moment? It is not the news of who has gone where to watch other people soar. Nor of how many *other* people somebody has persuaded to take up gliding. It is the news that soaring in pure thermal currents, apart from hills, apart from clouds, has at last been accomplished by one of our pilots. After all these years, someone has taken the plunge.

We have at times likened the regions into which sailplanes penetrate to a world which is waiting to be explored. It may be argued that it has already been explored—by aeroplanes. But no; that is not the same world. "Worlds" of different kinds can co-exist, both in time and in space, and their juxtaposition can be very odd, as Aldous Huxley once discovered when he found the premises of *The Feathered World* and *The Catholic World* occupying adjoining premises off the Strand, and was so intrigued by the coincidence that he sat down and wrote a whole essay about it.

Our "World."

The "world" of the soaring pilot is an elusive world; it may be here to-day and gone to-morrow. One day there may be a stiff breeze blowing up your ridge of Downs, and a belt of lift half a mile wide, with sailplanes wandering up and down it all day. Next day there may be a dead calm; you stand on the ground and look up, trying to imagine that you really were up there the day before, floating about, kept up by some invisible agency that has now mysteriously disappeared. It is not unlike the sensation of walking about at low tide along the sea's edge, and looking up at the space where, only six hours before, you were sailing about in a heavy wooden boat, exploring at will a region that is now occupied by unsubstantial air.

The soaring regions are even more fickle than tidal waters in their distribution, but that only makes them all the more worth getting into. Such regions can be roughly divided into what we may call (somewhat inaccurately) the Lowlands and the Highlands. The "Lowlands" are the hill-soaring regions with which many of us are now (more or less) familiar. The "Highlands" are up in the clouds. Their regions of lift are often wide, and generously distributed over the landscape. And they stretch fingers down to the regions below. These fingers

are the so-called thermal currents. They are ready to help those who will hang on to them. Others seem to regard them more in the light of a "clutching hand" that bodes no good to its victims. They should rather be thought of as "beckoning" fingers, if you like that word. (We don't.)

OMISSIONS IN LAST ISSUE.

Our promised account of recent long-distance soaring flights in Germany has had to be held over, as it really needs to be accompanied by a map, and we have done enough map-drawing this week.

Two illustrations in our last issue were insufficiently described. The group of four pictures on page 135 showed the activities of the Dorset Gliding Club. Readers probably guessed the club's identity. The picture on the final page (p. 144) showed the Ulster Club's KASSEL 20 soaring at 750 ft. over Macgilligan Cliffs, during the flight in a "sea breeze" described in the accompanying text.

The diagram of the "Moazagotl" (p. 135) was reproduced from *Flugsport*.

CHEAP TICKETS TO PEWSEY.

The Great Western Railway Co. is issuing cheap day tickets to Pewsey, at about the single fare for the double journey, during the B.G.A. meeting (i.e. up to July 16th, inclusive), from any station within 80 miles.

From Pewsey Station to the Huish site is 3½ miles; to Pewsey Hill site, 1¼ miles. Enquiries as to the particular site in use may be made at the Station.

ALLITERATIVE AVIATION.

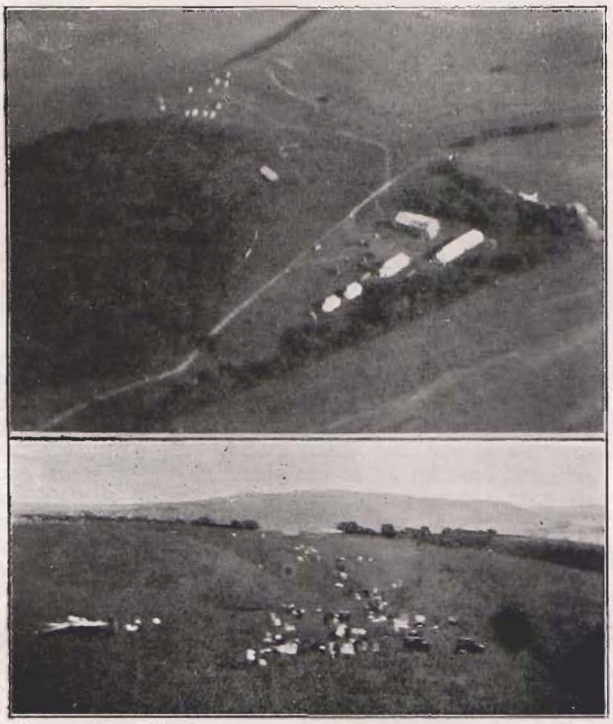
"Getting to grips with gravity is a glorious game, particularly when one begins in the glider way."

And later—

"So we were left swinging in space with Pewsey Vale a peaceful panorama far below and the proud range of prominences. . . ."

(From a local journalists's write-up of the Huish Meeting.)

PHOTOGRAPHED FROM A GLIDER.



Above: the B.G.A. Camp at Huish as seen from the "B.A.C. VII" just after casting off the launching cable at 600 feet. Below: the landing ground as it looks on approach.

THE "SAILPLANE" COMPETITION.

Entrants for this Competition are asked to send an article of not less than 250 words, accompanied by one or more illustrations, which can be either drawings or photographs. The subject matter must be related to motorless flight. No part of the entry may have been published elsewhere.

Competitors should state that they are entering for the Competition, and give name, address, and gliding club (if any). These will not be published if so desired.

The best entry received during any one month will entitle the winner to receive THE SAILPLANE free for six months. In addition, the sender of any entry published, whether a winner or not, will receive two extra copies of the issue in which it is published.

The Editor's decision is final.

The Competition for July was won by Mr. A. T. C. Isaac, for the article on "One-Man Gliding," which appeared in the issue of June 9th, page 124.

IS THERE A CATCH IN IT?

When about to make a forced landing, the aviator must bear in mind that the wind may have changed since he took off. In the absence of cloud shadows, drifting smoke, etc., it may be difficult to decide whether it has nor not.

In these circumstances, an Indian aviation journal asks "whether it is possible, in the absence of all other indications, to get the wind direction from kites (meaning the birds). . . . It may be possible, by judging the speed at which the aeroplane passes a kite soaring above or below, to get a very fair idea; that is, when they pass slowly they are soaring into wind, and when they pass more rapidly they are soaring down-wind before turning up-wind to gain height. This is a theory formed after actually watching kites in the air and observing them from the ground."

Our readers may like to amuse themselves looking for possible fallacies in the above argument; if any, how many, and what?

BIRD AND INSECT FLIGHT.

A paper on this subject, by Antoine and Claude Magnan, was read at the Paris Academy of Sciences on May 8th. *Nature*, of June 24th, summarises it as follows: "A hot wire apparatus for the study of the air movements produced by the flapping wing of a bird or insect. The number of beats per second varied from 17 for the Japanese nightingale to 128 for the bumble-bee. The records appear to prove that the current of air is continuous and not interrupted at the end of each beat of the wings, at least in insects."

We are obliged to Mr. D. M. Morland, of the London Gliding Club and the Bee Department of Rothamsted Experimental Station, for sending us a reprint of an article on "Bee Aeronautics," which appeared recently in *The Bee World*, Vol. XIV., No. 5, 1933. The author is a lady member of the Kingston and Thames Valley Gliding Club, a bee expert, and has had previous experience of aeronautical work. The article is of great interest, and we hope to induce Capt. C. H. Latimer-Needham to review it in our columns.

It is rather surprising to learn that a bee uses up quite a large proportion of its cargo of nectar as fuel for its flight. In two hours' flying, it will consume roughly its own weight of honey, which is about as much as it can carry, in order to provide energy for flying. Nature, however, has found that she can increase the efficiency of her flying machines by increasing their size. Insects buzz continuously; the smaller birds flap their wings most of the time; the larger birds flap seldom. Man, following Nature's principles, has designed the sailplane, which does not need to flap its wings at all. Other men, with the same amount of wing-area to play with, can concoct nothing better than the power-driven aeroplane, which, to judge by the quantities of fuel it eats up, is not much more efficient than the bee, which is but the tiniest fraction of its size.



J. Laver soaring the "Dorsling" for 4 hrs. 11 mins. soaring it.

NEW GERMAN DURATION RECORD.

A new duration record for Germany, though not for the world, was set up on June 23rd, by E. Lorenz, who soared for 16 hours 30 mins. on an ALEXANDER type sailplane at Rossitten, in East Prussia. He thus beat by a small margin the previous German record of 16 hours 13 mins. set up by Oberlt. Hentschel on July 28th last year, at the Dörnberg, near Cassel.

The flight began at 3 a.m. A rather intense depression, with its centre over Hamburg, remained stationary during the day, and the wind in East Prussia was E.S.E., of force about 3, veering to south at the end of the day. The Rossitten ridge runs due north and south.

Herr Lorenz is an instructor at the Rossitten Gliding School. Under his instruction the Editor obtained his "A" certificate on May 14th, 1930, thus becoming, as far as is known, the first British *ab initio* to get a gliding certificate.

Congratulations to Herr Lorenz on his flight. He joined the Rossitten School at its first beginning, when they used primitive PEGASUS type gliders and tried to launch them with a washing-line. He lost his heart to the place then, and has remained faithful to it ever since; in fact, he can scarcely ever be persuaded to leave it, even for a day or two in Königsberg.

But one day he will make cloud contact, and then——

A BLIND FLYING ADVENTURE.

In our issue of May 12th we mentioned that Hanna Reitsch, a girl pupil at the Grunau gliding school in Silesia, had climbed through a cloud, flying blind, and thereby gained nearly 3,000 feet of altitude above the point of casting-off from the towing aeroplane.

We hear from Wolf Hirth, whose pupil she was, that she has now bettered this performance, and flown blind for nearly a whole hour within the clouds, in a sailplane of type GRUNAU BABY II.

Details of the flight are given by *Flugsport*. The pilot started at 3.30 p.m. on May 28th and was towed up to about 1,800 feet. After casting off, she lost about half that height, but then found an area of lift and began to rise. The rate of climb became faster, until, after three-quarters of an hour's flying, the machine entered a cumulus cloud at about 5,200 feet. Hanna Reitsch flew for nearly an hour within this cloud, and reached considerable heights, but there were many anxious moments.

The machine was fitted with blind-flying instruments, and, using these, the pilot flew round in circles, as she had been taught at the Grunau school. After a quarter of an hour of this, she could circle no longer. Later, the blind-flying equipment gave out, but she continued her flying without it for a further quarter of an hour, and then "fell out" of the cloud and saw the Riesengebirge mountain range below. She landed on its crest, near the Wiesenbaude, the home of a well-known glider pilot, and proceeded to the telephone, asked Wolf Hirth to send a starting rope, and awaited its arrival. It came by aeroplane, and was dropped from the skies. Twelve stalwart men were collected, the glider was launched into the slope up-current, and Hanna Reitsch soared and glided back to within half-a-mile of the Hirschberg aerodrome.

The intermediate landing place was 2,000 feet higher than the final one. This final flight started half an hour after sunset and ended in the gathering darkness.

A MEETING NEAR MOSCOW.

According to *Les Ailes*, a large gliding meeting was fixed for the end of June at Kalouga, near Moscow. It is the first meeting of its kind to be held in the district, and 15 gliders and about 100 pilots are expected to turn up, including members of numerous clubs and of the Moscow "Ossoaviachim."

SOARING OVER PARIS.

On July 5th, Georges Bouvier, flying a sailplane of type 41—P, was towed from Chartres aerodrome to Paris by a HANRIOT 14 aeroplane belonging to the Aéro-Club du Sud-Ouest. He released from the towing cable at 6,000 feet over Paris and landed half an hour later at Le Bourget aerodrome.

As the rate of descent works out at over 3 ft. per second, he could have done little or no soaring. But permission to make the flight had to be obtained beforehand, and the day had been previously fixed, so Bouvier could not pick his weather.

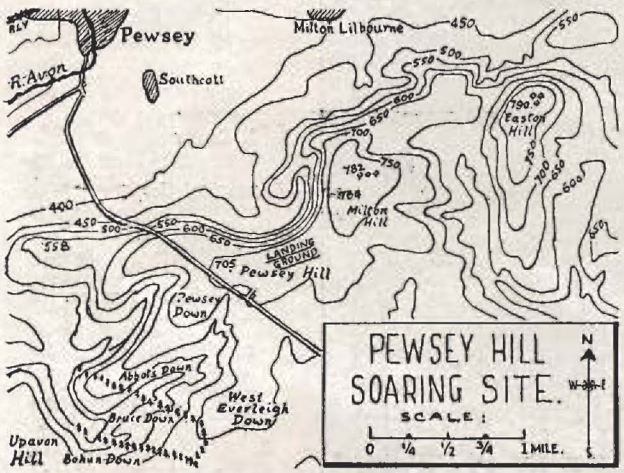
The weather report from Paris at 6 p.m. on that day was: Wind N.E., force 2 (about 5 m.p.h.); temperature 82 deg. Fahr.; sky cloudless.

It is stated in the press that he is the first man to glide over Paris, but readers of THE SAILPLANE will remember a similar glider flight over Paris by Georges Abrial last year. Abrial was aero-towed from Etampes aerodrome, cast off at over 4,000 ft., and was stated to have soared, landing afterwards at Villacoublay. (See THE SAILPLANE, February 15th, 1932, page 41.)

PRIVATE FLYING.

The Secretary of State for Air has appointed an independent committee to consider the regulations governing private flying, and the desirability of any relaxation in the present control exercised by the Air Ministry. Mr. E. C. Gordon England is on the committee, but not specifically as representative of the British Gliding Association.

THE HUISH MEETING



The 1933 British Gliding Association Open Gliding and Soaring Meeting, to give it its full title, began officially on Thursday, June 15th. Whereupon the usual low-pressure system began to approach from Iceland, and threw out a "secondary" just to keep things going pending its arrival. Not until Sunday did it show us its bright side, breaking up into separate showers and leaving sufficient fine intervals between to allow things to get going.

So on Sunday, June 18th, the wind being W.N.W., the TERN, DORSLING, and the Southdown B.A.C. VII. were taken over to Pewsey Hill. Their activities have already been briefly reported. Flying began at 2.16, when G. E. Collins, the B.G.A. Instructor, started to instruct. Three soaring flights were made with pupils of 39, 19 and 13 minutes' duration respectively. One of them might have been longer but for the fact that rough air can induce similar symptoms to a rough sea. The instructor, however, occupied the front seat. There is much to be said for such a position on a rough day.

The field of operations was of large size, but entirely surrounded by barbed wire. This made the landings worth watching. One machine, apparently in danger of overshooting, gave everybody a few thrilling moments as it just managed to stagger over the barbed wire back into the up-current. At first the machines were manhandled over the wire and launched from the brink of the hill. Later, Mr. Collins preferred to be launched out of the field, and it was quite exciting to watch the launching teams rushing full-tilt at the fence and then pulling up short just in time to avoid impalement on its spikes.

The B.A.C. was unable to get up so high as the TERN, but was nevertheless able to soar along a beat of about a mile. The best lift was found over the projecting knob at the northern end of the semi-circular cup of Pewsey Hill; any height lost after the launch, as it sometimes was, could always be regained here.

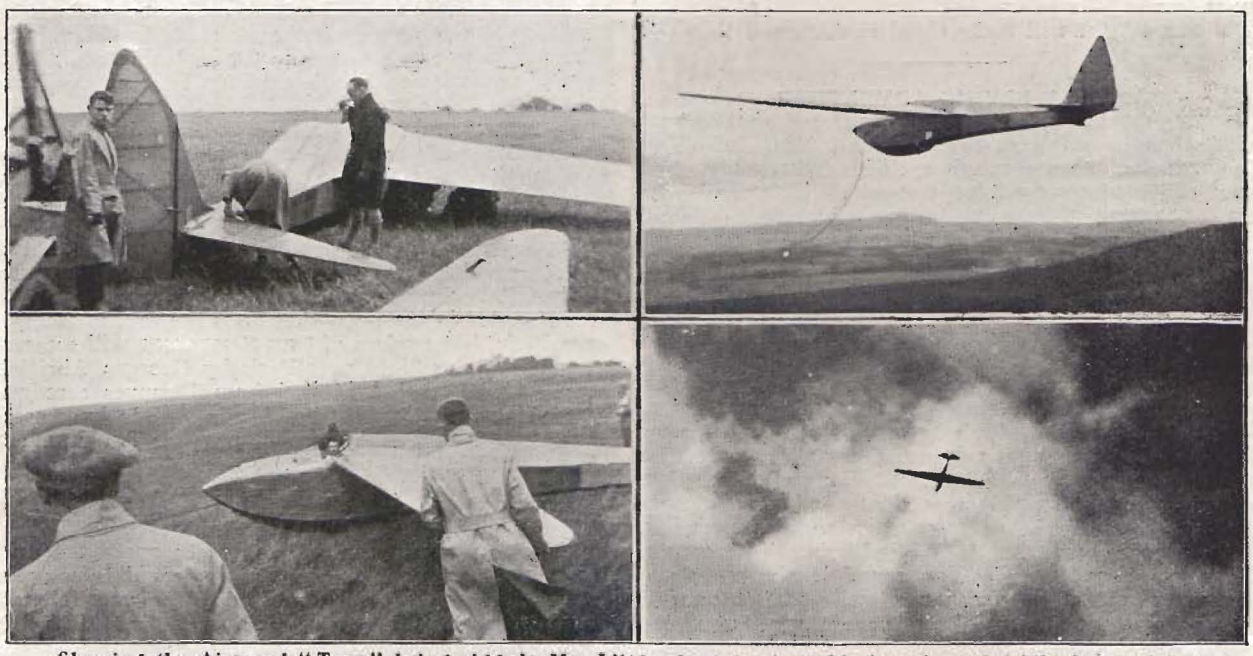
The TERN was flown by two of its part-owners, A. Little and A. H. Reffell, for 45 and 51 minutes respectively. It spent a good part of its time to the east of the aforesaid projecting knob, seeming to find the best lift there. Its ceiling appeared to keep fairly constant, in spite of the evident unstable condition of the air, shown by a sky-full of cumulo-nimbus clouds. It certainly performs very well, and it is a pity it does not soar oftener; we would particularly like to see it in company with other well-known machines whose exploits are so often recorded in these pages.

By the time the Dorset Club's DORSLING had been got ready, the B.A.C. had damaged its undercarriage in a landing and been put out of action, and the TERN had landed finally for dismantling.

Then the DORSLING went up, and the rainstorms became more frequent than ever. Most people either retired into their own cars or cadged a seat in somebody else's. Mr. Laver, the DORSLING'S pilot, looked down on an apparently deserted countryside, and was probably too far up to notice rows and rows of eyes staring from all the car windows.

There had been quite a respectable gathering. Farming folk had come in their numbers from the country round, and appeared to look on it all as an honour to their native Wiltshire. The Master of Semphill, who never makes more than one approach per landing had miraculously put his PUSS MOTH down intact into a field full of cars, gliders and onlookers. But it was getting late, and Mr. Laver's previous longest of 22 minutes was evidently no guide to the probable duration of his present flight. So the audience faded gradually away between the rain storms.

THE "TERN" AT PEWSEY HILL.



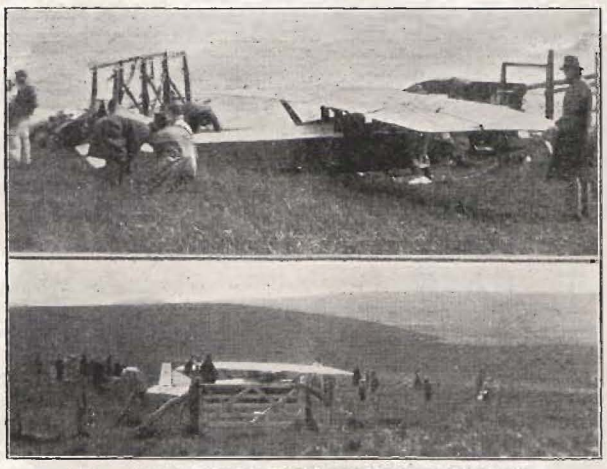
Showing the Airspeed "Tern" being rigged; Mr. Little about to start; his launch, and (right-lower picture) Mr. Reffell at Pewsey Hill.

THE SOUTHDOWN'S "B.A.C. VII." AT PEWSEY.



Top centre: being launched over the barbed wire. Botto m centre: soaring in a storm. Right and left: soaring in company with the "Tern."

We sheltered for some time behind a haystack among a number of local farm hands, and were interested to learn that one or two of them had been present at the gliding trials which took place here in 1923. On that occasion one of the Itford machines of the previous year was being flown in an attempt to soar it, but conditions had been gusty, and the pilot had been thrown out of his seat while in the air. It was, in fact, the first gliding fatality since that of the pioneer Percy Pilcher in the nineteenth century. It was some satisfaction to know that Pewsey Hill had been conquered at last; in fact, the successful soaring flights of this day might well be regarded as a tribute to the earlier pilot's memory.



The Dorset Club's "Dorsling" at Pewsey. Above: being rigged. Below: about to start on its four-hour flight.

Just after 9 p.m. Mr. Laver landed at last, cold and stiff. It transpired that he had had two separate attacks of air-sickness during the flight. After vigorous massage treatment he was able to move his limbs once more, and, by the time the sodden DORSLING and its team had got back to Huish he was alive again.

The following week-end was too wet to be of any use. The weather was similar to that at the Hendon Display.

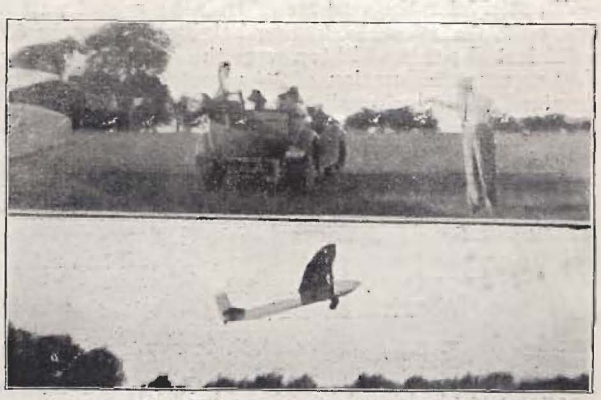
During the next week the auto-towing instruction got well under way. Two machines were available, both of B.A.C. VII. type; one belonging to the Southdown Club, the other built by Mr. Isaacs in his garage near Rugby.

Mr. G. E. Collins, who instructed, had a good many days' strenuous work. But he was rewarded at the end of the week by repeatedly finding himself in a thermal current after casting off. The usual duration of a flight after an auto-tow was found to be about two minutes, more or less. Then, to everyone's astonishment, flights of 3 mins. 10 secs. and 4 mins. were made, the circling technique being used so as to keep within the up-current which was responsible for the unexpected lift.

Mr. Moore has described these and the later and more sensational flights in thermal currents. We saw some of the more modest ones on Sunday, July 2nd. Whenever the variometer showed lift, Mr. Collins began circling at once, and this seemed to happen on at least half the flights. He believed that lift was more frequently to be found when a cloud was passing over, and occasionally shaped his course according to the lie of the clouds. The longest flights on this day were 4m. 20s., 5m. 30s., 5m. 5s., two of 3½ mins., and finally an amazing one of 6 mins. 20 secs. In this last, as in the others, the towing cable was cast off at about 600 ft. Circling was resorted to at once, the time of two of the circles being 23 secs. and 20 secs., which is about equal to minimum rate at which Hirth turns in thermal currents. We photographed the B.A.C. passing overhead, but, owing to the mistake of using a colour filter when the glider was silhoutted against blue sky, causing both to appear dark, the result will not bear reproduction. But measurement of the film indicates a height of 39 times the length of the fuselage, whatever that may be.

The TERN also had some auto-towed launches. Most of its flights lasted between 1½ and 2½ minutes, but Mr. Raffell put up one flight of 5 mins. 30 secs., during which he circled in thermal currents. This flight is specially creditable since the machine is not fitted with a variometer.

AUTO-LAUNCHING AT HUISH.



Above: The Master of Sempill driving the cable-retrieving car, and the B.G.A. Secretary apparently telling someone off. Below: the "B.A.C. VII." climbing on the cable.

AT THE Y.M.C.A. CENTRE AT HUISH.



Left to right: Mr. L. T. Moore, the Waplington family, Mrs. Buck, Mr. Young, Capt. Needham, Mrs. and Mr. S. Whidborne, Mr. E. R. Ellingham (North Kent). Right: shaving time behind the kitchen.

Other machines at the meeting included the R.F.D. sailplane, which had an auto-towed start on the Saturday and flew for 4 mins. 23 secs.; the Preston Club's nacelled DAGLING, which three of its members brought 230 miles by road, and the Enser sailplane, which had two auto-launches with bungy, but without satisfactory results. The DORSLING had an auto-tow or two, until it flew away with the cable and had to make a hurried landing on the wrong side of the hedge.

Other machines expected later are Mr. Hiscox's HOL'S DER TEUFEL from the London Club, and Mr. Hardwick's new FALKE, built at the Slingsby works; also the Kent and possibly the North Kent Clubs' machines.

Miss Delphine Reynolds arrived towards the end of the second week in her REDWING, and took some auto-towing instruction. She also put in much useful work driving sundry cars.

The Master of Semphill turned up once more on Sunday the 2nd, parked his PUSS MOTH, took off his coat, and put in a hard day's work looking after the auto-towing. As a result, everything went like clockwork.

Mr. Grice, of the London Gliding Club, is in charge of the Camp.

We are grateful to Mr. C. T. Cuss, Chairman of the Wiltshire Club, for getting the public to buy quantities of THE SAILPLANE. How he did it, we do not know, for we tried to do the same next day and failed lamentably.

Gratitude must also be expressed to the staff of two at the Y.M.C.A. centre, who bore up cheerfully through everything.

For one brief hour on Saturday the 1st, the Y.M.C.A. place became a cinema, when Mr. D. M. Morland produced a film of soaring albatrosses and the necessary apparatus for its showing. The film was taken during the recent "Discovery" expedition, by the brother of M. V. Laurie, formerly a member of the London Gliding Club and now at Mangalore. The film showed unmistakably the bird's method of using the different velocities of the wind at different heights above the sea. It would rise rapidly against the wind, then turn about in an almost *vertical* "bank" and shoot down again to sea level with the wind behind it. The steepness of the "bank" was particularly remarkable.

The latest news from Huish is that the TERN and DORSLING have been soaring in the recent south-west winds. But the air can accommodate many more machines, and everyone should go who can.

PROGRESS AT LAST

By L. T. MOORE.

Recent performances at the Huish Gliding Camp mark the greatest advance in the art of soaring flight in Great Britain since the Itford meeting of 1922.

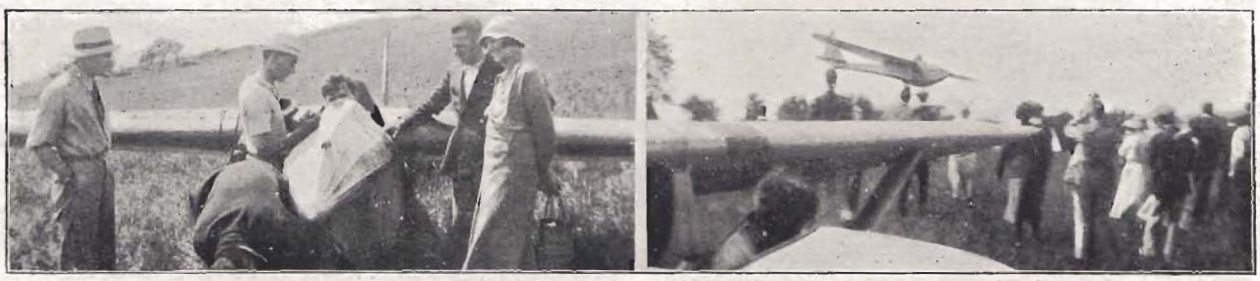
A persistent northerly breeze on the southern slope offered no hope of performance slope-wind soaring. Activities had necessarily to be diverted to auto-towing along a hill-top course of about a mile in length running E.—W., solely for the purpose of training school pupils.

Using a 1,000-foot cable, towing heights of between 600 and 700 feet above the hill-top were the order of the day, giving an average duration of 2½ minutes. Flights were maintained with clockwork regularity, landing with car and cable in position. The skill with which the instructor, Mr. Collins, landed at the starting point was noteworthy.

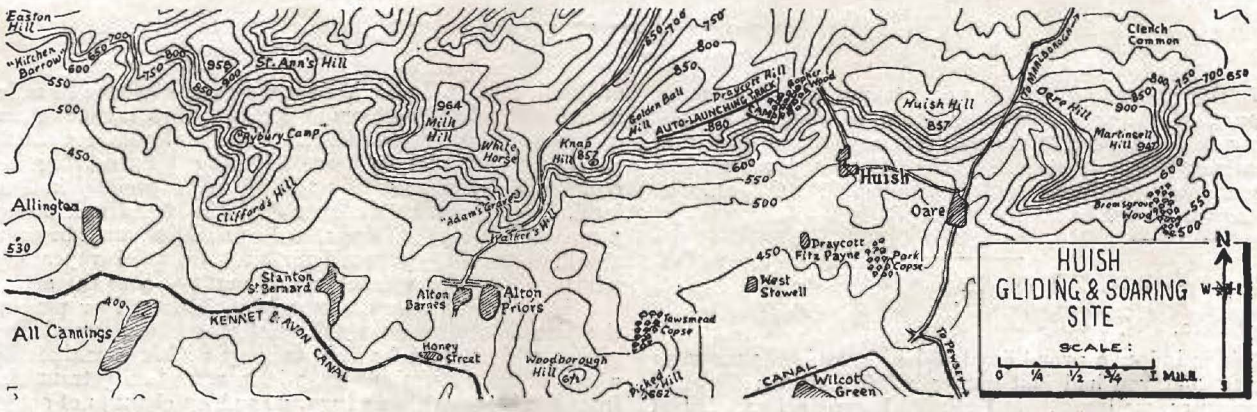
After fitting a variometer designed and kindly lent by Mr. Dent, it soon became apparent that strong thermal currents were in existence.

From a perusal of our flying logbook (which will be published later) it will be observed how flights became gradually extended, by the method of continuous circling, in the course of instructing pupils.

The first thermal flights of note were made on Saturday, July 1st, about mid-day. Sunday produced under identical conditions slightly more improved thermal flights, climbs of about 100 feet being made after release.



The "Tern" at Huish. Left: A. H. Reffel preparing for an auto-launch. Right: A. Little about to land.



The first outstanding flight was made on Monday, July 3rd, starting at 1.21 p.m., when Mr. Collins, accompanied by his wife, casting off at 600 feet, proceeded to climb rapidly in a series of right-hand circles, each of about 20 to 30 seconds, to a height of 950 feet above the hill-top (1,800 feet above sea-level). Realising that conditions were good for performance flying, the pilot decided to set off down-wind on a cross-country flight. Although this entailed flying for some considerable time over the leeward face of the ridge, very little height was lost, and after a few minutes of straight flying another thermal

THERMAL SOARING.



The "Tern," piloted by A. H. Reffell, circling in a thermal current.

current was found and exploited with about three or four turns.

With further height, another down-wind run gave contact with a third and more powerful thermal current, in which the sailplane regained all lost height. Being well away from any slope-wind influence, all reliance was placed on finding further "thermals." However, after a vain search, height was rapidly lost, and a good landing made in a small field near All Cannings, Devizes.

From the initial upwind search and climbing, this constituted a pure thermal flight of about six miles in a cloudless sky and against the opposition of down-trending slope-winds.

On Tuesday afternoon, July 4th, Collins again climbed on a tow to 600 feet on a solo test flight. Without hesitation he again circled in powerful thermal currents in a cross-wind north-westerly direction, attaining a height of 2,150 feet above the hill-top, and returning to the starting-point after a flight of about half an hour.

A sudden switch of winds on Tuesday evening (10—15 m.p.h.) could not keep up the B.A.C. VII., nor could a stronger wind (15—20 m.p.h.) on the following day. The great rate of ascent of thermal currents of the previous days can well be appreciated.

These history-making flights have given Huishites a scorn of slope-wind soaring. At any rate, the high value of auto-towed starts, the joy of sharing soaring flight in a two-seater, the efficacy of this method of imparting instruction, and the saving of man-power are indisputable assets which we at Huish have appreciated.

TAIL-SKID TOWING

By Wolf Hirth.

[*It is generally believed that the only safe way of towing a glider behind an aeroplane is to fit the latter with a complicated structure for lifting the towing cable clear of its tail. In the following article, which has been translated from "Flugsport," Wolf Hirth shows that this is unnecessary.*]

Even to-day one meets with sceptical looks when the talk is of towing by the tail-skid.

As was once the case with auto-towing, so also here one overhears the knowing assertion: "What nonsense!"—It is so much easier to give vent to a prejudice than to do a little intensive thinking!

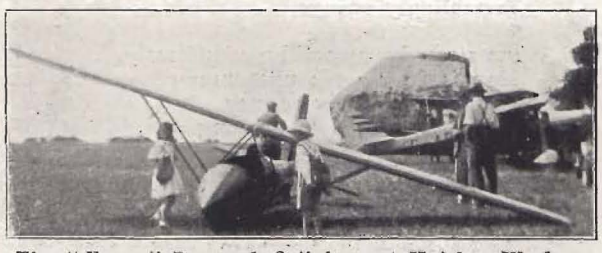
The chief advantage of the tail-skid towing method is that any kind of added structure is superfluous, so that the aeroplane can be used in turn for cross-country flying, towing, aerobatics and so on, without alteration of any sort. In addition, both weight and wind resistance are reduced. A more substantial advantage, however, is the shortening of the take-off. While, by the old method, the tail was pulled downwards by the tow-rope, the latter now actually pulls it up by the tail-skid, and, in fact, is already doing so when the engine is opened out.

There is a possibility of interference with the action of the rudder or elevator, but it depends on their design; there is no danger of it with the Klemm.

It is only unpleasant when the towed machine climbs very much higher than the aeroplane. The pulled-up tail must then be forced down by pulling hard (on the control-stick). But even this situation is never dangerous.

Up to the present my small L-25 short-wing Klemm (60 h.p. Hirth motor) has towed a sailplane into the air 105 times. Among these flights were many by beginners, some of whom had only just got their "B" gliding certificate, several cross-country flights (some with a passenger), several up to a height of 1,000 metres and more. I always carry a towing cable with me, so that on many another aerodrome towing can be done without previous arrangement, and often with a startlingly short length of take-off. There can be no further doubt that towing by the tail-skid has proved itself!

It is to be hoped that on all aerodromes there will now shortly be towing machines, by means of which, in the summer, towing can be accomplished cheaply and contact be made, for soaring, with thermal currents and clouds.



The "Enser" Research Sailplane at Huish. We have tactfully photographed only children in the foreground.

A GLIDER PILOT'S LETTERS TO HIS SON

[In this series of letters, the first two of which appeared in our last issue, the reader is asked to imagine himself living in the year 1960, by which time many of our more promising young pilots will be the fathers of families. The letters, then, are addressed by an elderly "C" pilot to his son who has taken up gliding.]

IV.

Dear Otto,

This is indeed a proud day! When I received your wire saying that you had just got your "C" with a flight of 28 minutes, well . . . I admit, I wept a few tears of pride and joy and my mind went back to that day when I had my first experience of soaring flight, 25 years ago. Little did I think that 25 years later, to a day, my own son would become a soaring pilot.

You have now arrived at the goal for which you have been striving, but remember that this is really only the beginning. You have, so to speak, crossed the threshold of the palace, within which you will have many and varied experiences, some glorious and exhilarating, some terrifying, and some, alas! humiliating.

Now you must take every chance you can to get into the air, for you have much to learn. You have just, and only just, learnt to fly. No doubt, even within your short experience of life, you have met the type of man who periodically asks himself the question: "What is the meaning of life? Where is it all leading to?" I often think that some people have the same attitude about soaring. They have done a few hours, and seeing nothing but a prospect of flying backwards and forwards along a ridge for the rest of their lives, begin to wonder if it is really worth while going on with it.

But when I was your age I had ambitions. I dreamt of the day when I should do a distance flight of 30 miles or get up to 3,000 feet under a cloud, thus becoming one of the company of the elect. Such performances would not count for much in these days, but then soaring was comparatively young and undeveloped, especially in England. Besides, even a distance flight of 30 miles is a stepping-stone to bigger things, and so now you must begin to think of training yourself for such feats. I repeat my advice, then: Fly; whenever you can, get into the air.

Gliding is an occupation which, like golf or playing the piano, requires constant practice, and the experienced glider pilot should be able to play on his machine like a master upon a violin—not a jerk, not a faulty transition from straight flight to a turn, no sudden changes of speed. The note of the wind on his machine should be as steady as the hum of a dynamo; in his turns, he should see his wing-tips sweep steadily across the horizon like the beam of a lighthouse. This is what the ambitious glider-pilot should aim at, for it is this kind of flying alone that he will be able to spin out into a long cross-country flight.

Hot air! you will say. The windy musings of an antiquated pilot with a poetic turn of mind!

No, I will reply, stern reality! Every inch of height in high-performance soaring is worth its length in gold (perhaps I should say "notes" in these hard times). It is only by this kind of flying that the greatest heights can be gained, and, when gained, kept. So if you are dissatisfied with your site because it is not high enough, try and regard it as a practice ground on which you will attain that perfection of glider-control that one day will carry you across five counties to a new record.

And when the reporters come up at the end of the flight and say: "And to what do you attribute your success as a gliding pilot?" do not forget to reply: "To hours and hours of hard practice, my man, and nothing else."

FATHER.

WAITING FOR THE WIND

On sunlit crest my sailplane lies
But her white wings are spread;
Needs but the lazy wind to rise
And she will lift her head

And sweep in swift, elliptic curve
To the straining cable's height,
Cast free, and strive by turn and swerve
To hold herself in flight,

Till suddenly with easy grace
She'll sail invisible streams
That lift her through resistless space—
Ah, never Arabian dreams

Of Magic Carpet, Seven League Boots,
Or Genie's wand have caught
The immortal beauty that transmutes
Those moments, tensely sought,

When the wind's silken fingers slip
Beneath the shining wings,
When to a touch the fine frail ship
Tremblingly swings,

When strongly, smoothly, soundlessly,
Man is from earth upswung
And floats in lonely ecstasy
The ghost-grey clouds among . . .

In living grace my sailplane lies
With her white wings outspread;
Needs but the lazy wind to rise
And she will lift her head.

A. F. McG.

SOARING IN SILESIA.



Soaring over the North Slope at Grunau Gliding School. In the background, part of the West Slope, which stretches for five miles. (*Photo by Wolf Hirth.*)

CORRESPONDENCE

SOARING IN THE PENNINES.

Sir,

There is to be a visit of exploration to the Northern Pennines in July. Sailplanes are to be taken.

I should be glad to hear from any soaring enthusiast who would like to join the party.

ERIK T. W. ADDYMAN,
Hon Secretary, The Aircraft Club, Harrogate.
The White House, Starbeck, Harrogate.

"ESTIMATED" HEIGHTS AT HUISH.

Sir,—You simply *mustn't*. We used to think that we could "estimate" heights at Dunstable. Spectators held their right arm stretched toward the sky and measured heights in terms of "fingers," "hill heights" and "machine spans." Colossal figures were obtained.

The lid was finally put on these "estimations" when a new machine was credited with a height of 1,500 ft., and much publicity given to an inexcusable exaggeration.

There are now at least three reliable aneroids in use at Dunstable; all three give an accurate measurement of the height of the hill itself, and all three are thoroughly pessimistic in mid-air, dividing the "estimates" of spectators by two and even three.

Please don't "estimate." Although "estimating" provides some romance in an otherwise hard-boiled world, you *must* treat this basic measurement of soaring efficiency with exactitude, or, alternately, fall back on such delightful words as "dizzy," "incredible," "breath-taking," "stupendous," *et alia*.

There can be no middle course of "estimation." So please don't. It sets my teeth on edge.

TWENTY HOURS.

[The height estimations referred to were visual estimates made by officials of the B.G.A., and we do not think they were far wrong. We calculated the height of the TERN twice during the flight estimated at 700 ft., and obtained results of 630 and 650 ft. The method of *calculation* (not estimation) was that of holding a ruler at arm's length. The degree of accuracy of this method depends upon to what extent certain conditions are observed.—ED.]

AIRSHIPS AND AIR CURRENTS.

(Vol. IV., No. 11, Page 128.)

Sir,—As one who was in daily contact with those people responsible for the design of that good ship R.100 during her construction at Howden, East Yorkshire, I take the liberty of forwarding to you a few *facts* which may be of interest.

The ship was built by The Airship Guarantee Co., Ltd., a subsidiary company of Messrs. Vickers, Ltd; Managing Director, Sir Denistoun Burney.

The gentleman responsible for her design was Barnes Neville Wallis, a designer of previous British rigid airships, who at the present time is designing heavier-than-air craft for the Vickers Aviation Dept., at Weybridge

Mr. Wallis' chief mathematician was no other than N. S. Norway, who needs no introduction to regular readers of THE SAILPLANE. Mr. Norway, along with Mr. Tiltman (late of the De Haviland Co.) founded Airspeed, Ltd., the firm which produced the TERN Sailplane.

It will be noted that Mr. Norway's initials are N. S., and the writer can think of no other reason for claims put forward by "Neville Shute" in the article appearing in "Blackwood's Magazine." "Neville Shute" looks and sounds distinctly foreign to me and must surely be a pen name only.

The R.100 was undoubtedly the strongest ship for her weight that has ever been built. That she made a double crossing of the Atlantic in really good time and successfully rode through the storms and terrific gusts, speaks for itself.

It seems to me a pathetic state of affairs, that a good ship should be smashed up with a steam roller, just to satisfy the gloating Daily Press and consequent public opinion. Yet such is typical aeronautical history.

Then let our own paper, THE SAILPLANE, give credit to the designer and his staff who, in the face of great difficulty and much self sacrifice, produced a ship which was a revolution in structural design.

I do firmly believe that some Airship Navigators have in the past endeavoured to utilize Air Currents associated with line squalls and cold fronts. This has been done often I fear with disastrous results, due primarily to the tremendous size of the aircraft, their relatively bad manœuvreability and inability to pass quickly from gust to gust.

That great master, Kronfeld, in his book, warns sailplane pilots to keep away from thunderstorms. His advice should be noted by the navigators of airships.

These pioneers are blazing a trail of safety in the air for future generations, providing we correctly interpret the lessons their exploits teach us.

W. BUTTERFIELD.

[We stated that "Neville Shute" was Chief Mathematician on the designing staff because he said as much in his article, and it was quite evidently a first-hand account and not a write-up by somebody else. We think, therefore, that Mr. Butterfield's guess as to the writer's identity must be correct, in which case our only inaccuracy was to leave out the inverted commas before his name.—ED.]

CLOUD SOARING FLIGHTS BY MODELS.

Sir,

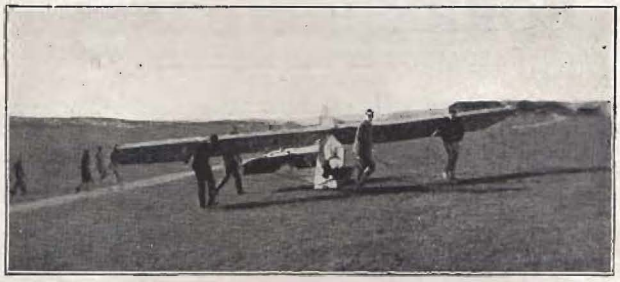
The occasional automatic soaring of model gliders, as in the cases described on pages 125 and 126 of your issue of June 9th, might easily turn out to be one of the most fascinating and developable phenomena in aviation. It does not appear that the soaring is supposed to need explaining by anything more than that the glider happens to keep in a rising current of air, but the possibility of other dynamic effects aiding the soaring may sometimes need considering. For example, a glider coming upon a fresh gust generally swings round to head into that gust, so that it tends to encounter each new gust as a head gust rather than experience it as a rear gust, especially if the swing of the gusts and of the glider suitably match each other. That may bias a suitable glider in favour of experiencing more head gust than rear gust, so that for several minutes it may have the equivalent of being in a continuous average head gust. That, in turn, may be considered the equivalent of being continuously buoyed up better than in the ordinary glide in calm air, sometimes so well as materially to help the glider to soar to higher and higher levels above the landscape.

And then there is another kind of aid to soaring which can sometimes take effect. An ordinary glider in a head gust rises and in a rear gust descends, as if to keep its air-speed or headway from fluctuation. But it generally undulates with a slight pause or delay, so that it tends to traverse the head gusts at a somewhat lower level than the rear gusts. Therefore it tends to meet the increments of head wind constituting the head gusts at somewhat greater headways than the decrements of head wind constituting the similar rear gusts. But when it is in the head gusts it is *gathering* kinetic flying energy, $WxV^2/64$, relative to the air, at rates proportional to its greater headways V, and when it is in the rear gusts it is *losing* kinetic energy, $WxV^2/64$, at rates proportional to its *lesser* headways V. Evidently, then, it collects more kinetic energy in the head gusts than it surrenders in the rear gusts, and as the gathering surplus expresses itself as a tendency to gain headway as surely as if there were a small propeller drive, the glider tends to soar compared with the ordinary still-air glide. It is unlikely there is much of this kind of soaring, seeing it depends on a differential effect, but every little helps.

Finally, regarding the "idle" propeller equipments so often on these uniquely soaring models, these may not always be assumed to be just dead resistances. Their head resistances can depend not only on headway or its square, but on things like the *rate of change* of headway. It is then conceivable that by producing curious diving and rearing reactions in the gusts they might aid the model's soaring about as much as they encumber it.

S. L. WALKDEN.

NEWS FROM THE CLUBS.



The London Club's original "Dagling." Mr. Buxton, who has just made a test flight, is at the nose.

FURNESS GLIDING CLUB.

Summer Camp.

In connection with the above camp, we now give further particulars and map.

The camp will be held from July 29th to August 12th. The headquarters will be at "Fenwick," shown on the map. Accommodation is very limited at the farm, but tents can be pitched in the immediate vicinity. Will those requiring further information please write the Secretary, 106, Greengate Street, Barrow-in-Furness.

The region enclosed by the square in centre of map is that usually used, as it is easily accessible by the road shown. The Club's permission is much more extensive, however, and extends south. Practically the whole of the summit ridge of Black Combe is suitable for landings, and consists of grass. It is entirely devoid of trees and stone walls.



A WORD OF EXPLANATION.

In our issue of June 9th, at the head of the Club News section, we published a photograph of the Ulster Club's REYNARD glider being rescued from a descent in the sea. It is only fair to point out that the photograph was taken over a year ago, and the Ulster Club would not like it to be thought that such an event is typical of their present standard of flying.

We understand that they are now trying to find out which of their number sent us the photo. We will not give him away.

LONDON GLIDING CLUB.

Saturday, June 17th.—Wind W.S.W., approximating 20—25 m.p.h., conditions unstable, heavy rainstorms threatening The nett effect was an erratic but not vicious commotion, but there seemed to be little positive cloud-lift; the CRESTED WREN's height ranged from 200 to 360 feet during 1 hour 24 mins., and in the course of nine passenger flights the POPPENHAUSEN met nothing that she could not master. All the same, a pilot who met a gas-filled penny balloon in mid-air noted that it was swaying about like a drunken sailor as it shot over the ridge on its way to Poland or points East

The PRÜFLING handed a "C" to two power-plane pilots, one of whom really must be persuaded or implored to fly a little faster out of consideration for our elderly nerves. It is a strain to watch the machine labouring along with her tail down, taking not a scrap of notice of her flapping controls. Richardson put in a more masterly hour, made up of two flights, and was given full marks for the orderly way in which he worked his way down to the ground in a blinding rain-storm. Those who have not been caught in the rain will scarcely believe how strong is the temptation to go into a screaming and panic-stricken dive—*anything* to get out of it!

A MOTH tried her hand at soaring, and gave quite a fair imitation, though she looked rather like one of those fat cockchafers that stagger about in a stalled position on a summer evening.

The WILLOW WREN was soared twice for half an hour, but was not given a fair chance, her pilots being in far too much of a scorching hurry. The CRESTED WREN was in the air with her all the time and flew permanently higher *at about 10 m.p.h. less air-speed.* It was not until next day that the WILLOW WREN was given her head, and then she completely turned the tables on her ancient sister.

Sunday, June 18th.—A wild day, with rain continuous until the afternoon, whereafter occasional stiff squalls. Speed about 20—25 m.p.h. again, but yesterday's amiable commotion was increased to a somewhat shattering up-

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roar by the more oblique direction of the wind up the hill.

The vertical currents were immense, the downs as well as the ups. The lazy man's way of landing was the locating of a hearty down-draught, while maintaining plenty of air-speed. The PRÜFLING overdid it. Having sunk from the top of the hill to the bottom in the lee of the bastion, she was then caught in the burble behind the hangar-ridge and thrown heartily at the ground, upon which she impinged without excessive damage. It was not altogether necessary to carry the descent to such extremes, but another machine which twice landed through the burble behaved in precisely the same way, and only emerged intact owing to her high initial air-speed. After all, it is fairly obvious that if you suddenly fly out of a violent head-wind into a calm, or, worse still, into a reverse current, the ground is going to come up at you and hit you a considerable swipe *unless you have a nice turn of speed before you go into said calm, or reverse current* (see film from Ulster Club, lately published in THE SAILPLANE).

The WILLOW WREN was magnificent. Dewsbery took her straight up to an unmeasured but incredible height, and put her through her paces properly for 2½ hours. The CRESTED WREN flew three times, but was completely outclassed, except for one fleeting half-minute when the machines were within 100 feet of each other.

Several factors have to be taken into account. The new machine was definitely being flown superbly; the conditions were so emotioning that the normal pilot was not too keen to look for the biggest up-currents; the normal pilot also tended to fly too fast in order to dodge the continual risk of stalling after the gusts; the WILLOW WREN, which is beautifully made and has a glassy finish, was in perfect condition, while the veteran CRESTED WREN is overdue for an overhaul, her fabric being slack and other less important points needing attention.

But, allowing for all these things, the WILLOW WREN, properly flown, is a first-class machine and definitely more efficient than her sister. (All the same, the CRESTED WREN is a very great-souled old girl and remains our own true love.)

(That's enough from you.—ED.)

MacClement later took the WILLOW WREN up to a handsome height, and was still there when we left. His German lessons in thermal soaring, aeroplane-towing and winch-launching, not to mention his aeroplane-pilotage, have certainly made him a real bird-man or Monarch-of-the-air

The PROFESSOR also flew. Huh! says he, being Empire-minded. She reached a level which was about a quarter of the way up to the WILLOW WREN. Huh! says he again, nastily.

The old original R.F.D. ground-hopped.

Saturday, June 24th, the day of the R.A.F. Display, was made horrible by rain. Next day the gentle wind blew down the hill, limiting flying to a minor debauch of auto-launching. During the following week members came out on Wednesday and on Friday, but the fickle breeze would not allow any soaring.

On **Saturday, July 1st**, it continued fickle, but on the whole blew up the hill. The WILLOW WREN gave Nicholson his second 45-second flight for his "B" with a brilliant 17-minute flight. She was flown by several others, and occasionally soared, the conditions being thoroughly unreliable and anti-cyclonic. Mole was so pleased with her in the air that he has joined the group and intends to use her in a duration flight.

The CRESTED WREN flitted about as usual. She has done over 40 hours since last September, and therefore knows her way round.

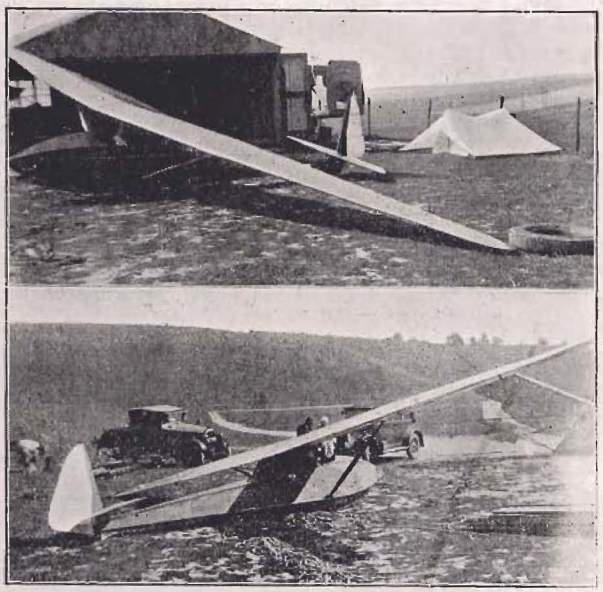
The HOL'S DER TEUFEL soared several times without excitement. Her new red wings are a good job.

The PRÜFLING and WALKER-DOVE (late R.F.D.) flew a lot.

Sunday was a glorious day with a northerly breeze. Until evening there was continuous auto-launching of the PRÜFLING, WALKER-DOVE and R.F.D.I. After tea the KASSEL 20, beautifully repaired at the Wren Works, joined in. The CRESTED WREN went down to the works for a fortnight's overhaul. The internal condition of the wings was found to be excellent. She has been flown in every week-end soaring-wind for nine months.

In the evening the WALKER-DOVE was taken up the hill in virtually a dead calm, whence she was flown until 10 p.m. by many people who wanted an "A" or a "45" or a bit of fun. This machine is very nice to fly, with that taut, handy feeling of a well-rigged new R.F.D. The nacelle is chaste without being flashy; so is the colour scheme. She looks rather like an efficient young secretarial woman.

While on such points, we had a gorgeous swim on Sunday afternoon in the approved reservoir to which thousands come in cars. Our handsome R.A.F. element, copper-coloured all over, brought us great distinction. There was also a congenial sausage-and-bacon party on Saturday night, ending 1 a.m. We left Dunstable early on Monday morning, the lemonade being finished and the machines put away. This gliding business is really rather nice in all its phases, which range from a picnic-rampant to death-or-glory. The drawback is the reaction on Monday, when one labours in the City distracted by a mental picture of Dunstable and district.



The "Willow Wren" at Dunstable.

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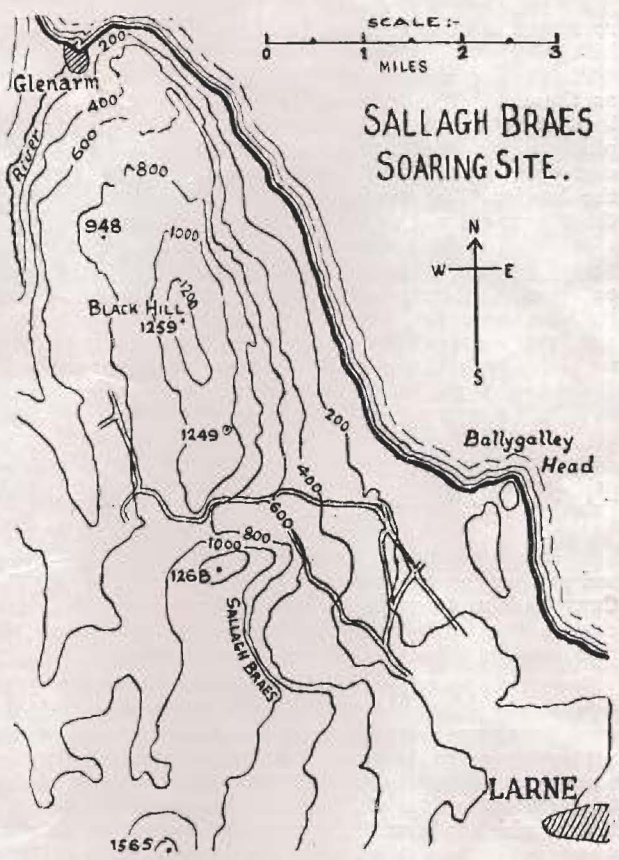
Sunday, June 4th.—Wind S., force 4—5. Flying from the northern limb of Sallagh Braes requires about an hour's preliminary groundwork in hauling the machine to the top; but in this, as usual, we were ably assisted by some of the willing Co. Antrim countryfolk. It is truly delightful to be able to take a machine almost anywhere and to be sure of being welcome to use of ground and of getting ready help if necessary. Those who have not travelled (surely a fitting word) in the wilder parts of these islands do not perhaps appreciate what hospitality is there afforded. One can sympathise with those who, in the more developed parts of Britain, find difficulty in obtaining the use of land which is, in part, their birthright.

On this day the direction of the wind was such that flying over the short stretch of suitable ground, no great height was obtained, but the three pilots present all soared up to about 250 feet and landed at the start on rather difficult ground. Finally a field was selected some two miles away at Ballygally, as a landing for the last flight. Wynne flew down, losing about 500 feet *en route* and arriving over the sea at an altitude of 900 feet; then losing height over the water, he landed as arranged, close to Ballygally Castle.

Saturday, June 10th.—Wind N.W.-W.N.W., force 4—5. At Magilligan Strand. The KASSEL was auto-towed as usual to about 500 feet and soon gained 1,300 feet over Hell's Hole. The three miles to Binevanagh was a gift with this wind, and, once abreast of its lofty crags, the aneroid showed a climb of 600 feet in about three minutes. In spite of the quick climb conditions were extremely steady, which is our usual experience with coastal sites when the wind is from seawards. On this flight a maximum height of 1,850 feet was reached in one beat over Binevanagh; there appeared to be rain clouds coming over at a low altitude over Donegal, so the pilot was disposed to shed his height in a hurry, returning to the sands at an average speed of 70 km./hr. Unfortunately, the rain arrived as expected a few minutes after landing, increasing to a downpour which made further flying impossible. We think this must have been an effort on the part of the weather to upset the machinations of the omnipotent Professor Filippo Eredia, who is now in Londonderry trying to organise the weather for the Italian flying boat squadrons on their flight to Chicago.

Sunday, June 11th.—Wind northerly; variable; force 2. This day the weather cleared up completely, but the wind was weak. Mackie, Baster and Metcalfe all soared, the latter successfully complying with an injunction to remain aloft while the rest of the squad retired to the local pub for lunch. The atmosphere was unusually clear after yesterday's rain, and even if the breeze was feeble, it was pleasant to beat up and down the strand in the sunshine, with a perfect view of Islay and the Paps of Jura, about 70 miles away, and to watch the gannets diving from great heights far out to sea.

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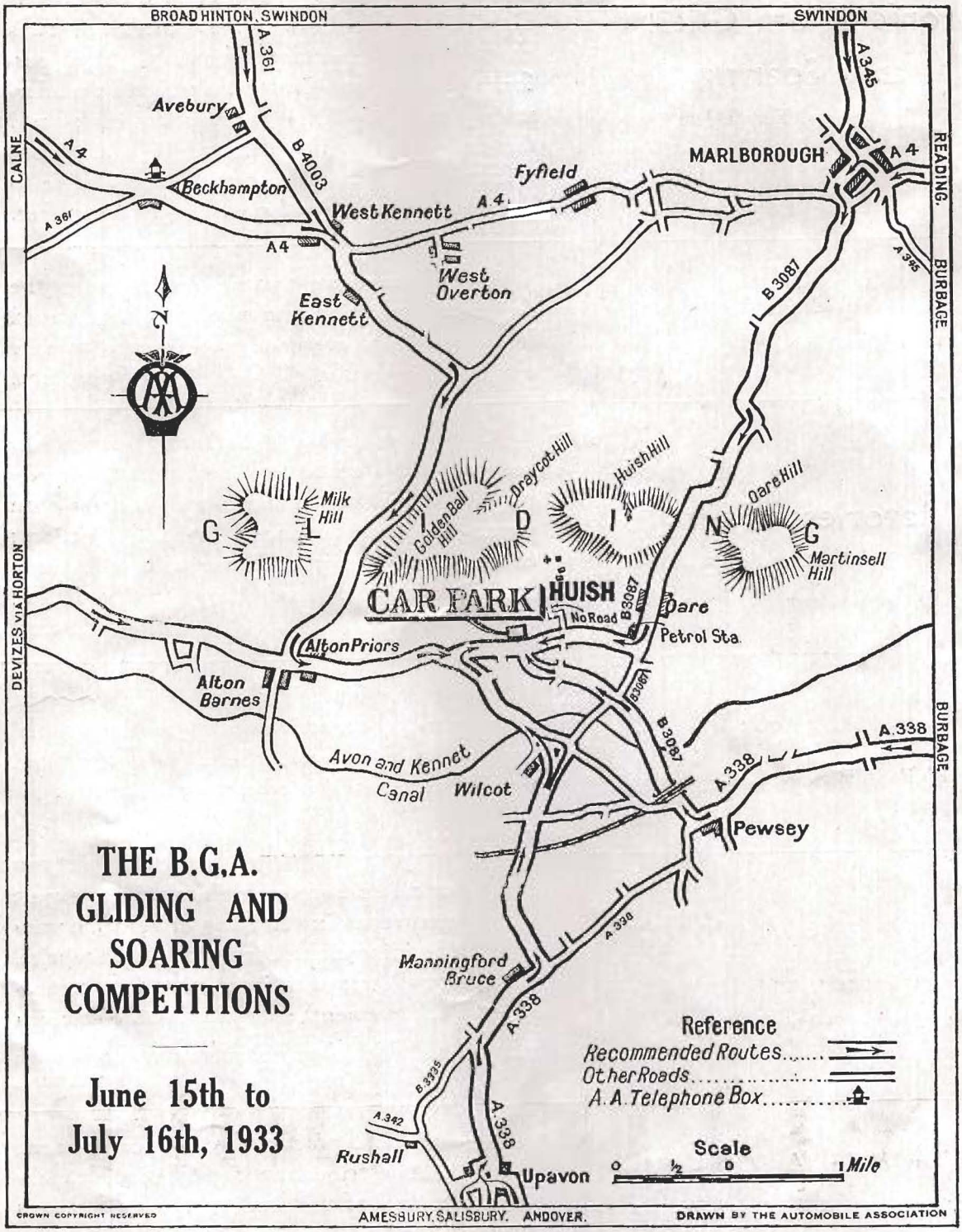
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