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SEPTEMBER
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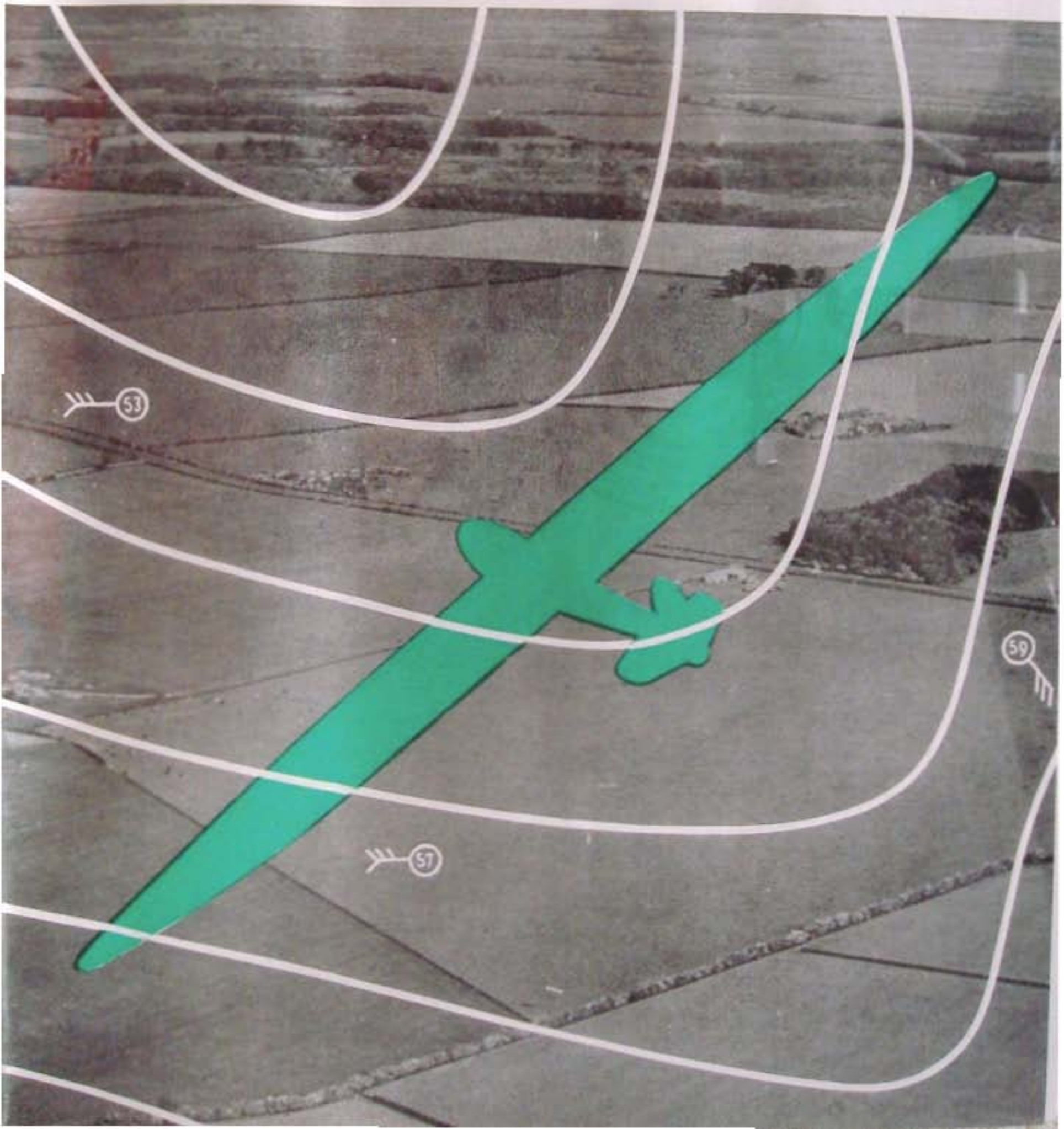


THE SAILPLANE *and* GLIDER

Official Organ of The British Gliding Association

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

Vol. 7 No. 9 SEPTEMBER, 1936 Published Monthly

National Gliding Competitions, 1936

AFTER two consecutive years at Sutton Bank (three, including the 1932 week-end meeting), this year's competitions of the British Gliding Association are being held on the new site, or sites, of the Derbyshire and Lancashire Gliding Club.

There are many who feel rather sad at the change in some ways. This feeling was put by the pilot who said that perhaps it was as well that this year there was to be a change, because the last two years at Sutton Bank had been so perfect that it was hardly possible for a third to come up to scratch, and it would be a great shame to spoil the record. The Derbyshire and Lancashire Club have a high standard to compete with.

When a comparison of the two sites is made it can be said in general that the possibilities of the Derbyshire sites are greater, and the difficulties are greater too. The choice of these sites for this year is in some degree evidence of the confidence in the increasing skill of British pilots.

When the competitions were first held at Sutton Bank moans were heard in several quarters regarding the difficulties, and even the danger, of that site. Now it is generally regarded with respect, but also with affection, as easy and safe. Familiarity does not, in the case of gliding sites, breed contempt, but it does produce confidence, and with this comes safety.

The various sites of the Derbyshire and Lancashire Club are as yet pretty new to the gliding community in general, and no doubt they will this year be treated with respect. And when we say "sites," we indicate the great and unique advantage gained by the change of venue. Within a small radius the Derby Club have secured sites suitable for soaring in every possible wind direction.

There will not be many readers of this journal still ignorant of the importance of wind direction for soaring flight, but as this issue is to be sold as a programme at the meeting, we must here repeat that soaring flight —i.e. continuous flight without loss of height—is in a motorless aircraft only possible in a wind which is blowing *up* the hill from which the machine is launched. When there is no wind, or when the wind is blowing down the hill, only descending flight is possible.

Our readers will without exception have sufficient knowledge of the weather of this country to know that whenever a particular kind of weather is really needed, the chances against getting it are many hundreds to one. Consequently if it is possible for the wind to blow in the wrong direction during a gliding meeting it is pretty sure to do it. By picking on the Derbyshire site we have practically defeated this; for it is difficult to imagine a dead calm lasting for eight days.

In winds from north-west to south-east flying will be done from the club ground at Bradwell Edge. In winds from north-east to east, providing conditions are otherwise fair, flying will commence from the site at Mam Tor. In north winds launches are made from a site overlooking Castleton.

The club house, hangars, machines and general equipment are, of course, stationed at Bradwell Edge, and since the prevailing winds in this country are theoretically south-west, the chances are that most of the flying will take place from there.

Another feature of interest is the possibilities offered for long distance flying. It is common to hear, amongst detractors of British gliding, uncomplimentary references to our performances compared with the Germans. We would not for one moment suggest that the Germans are not in most ways definitely Top Nation at gliding. They have had many more years' experience than we have, and, we might add, many millions of marks in government aid. But the limitations set to performance in this country are greater than that. To the uninitiated it may come as a surprise to learn that most long-distance flights made in this country are brought to a close, not by any exhaustion of the skill of the pilot or the efficiency of the machine, but simply by the fact that this island is not large enough.

The German record is at the time of writing 313 miles, though by the time this appears it may have been further improved at the German annual competitions at the Wasserkuppe. But in England it is difficult to find a gliding site from which a flight of over 300 miles in a straight line *down wind* can be made.

However, from the Derbyshire sites it is possible in many wind directions to exceed the present British record of 105 miles, and given a good unstable day the chances of this happening should be good.

Indications are that there will be an unusually interesting range of machines competing: in fact both in quantity and quality these competitions should exceed any previous ones. This is, of course, only an index of the rapid expansion that is taking place in the gliding movement. Again we can point out that, whilst the number of privately owned aeroplanes is barely holding its own, gliders are all the time increasing. More and more people are discovering that soaring flight is the sporting side of aviation.

1936 Gliding Competitions, Bradwell Edge

AUGUST 29th to SEPTEMBER 6th

Classes

AT this year's National Gliding Competitions organised by the British Gliding Association, competing machines will be divided, as last year, into two classes:—

CLASS I.—Single-seater machines of unlimited span.

CLASS II.—Machines of span up to 47 feet, and all machines carrying more than one person.

Prizes and Awards

Distance.—The Wakefield Trophy to the British pilot who holds the British distance record obtained between September 1st, 1935, and September 6th, 1936.

CLASS I.—£5 5s. for the longest distance flight during the Competitions. £2 2s. for the second longest.

CLASS II.—£4 4s. for the longest distance flight during the Competitions.

Height.—The De Haviland Cup to the British pilot who holds the British height record obtained between September 1st, 1935, and September 6th, 1936.

CLASS I.—£5 5s. for the greatest height attained during the Competitions. £2 2s. for the second best.

CLASS II.—£4 4s. for the greatest height attained during the Competitions.

Duration.—The Volk Cup to the British pilot holding the British duration record obtained between September 1st, 1935, and September 6th, 1936.

£4 in addition to the pilot (if any) who beats the existing record by the biggest margin during the Meeting.

Out and Return.—The Manio Cup and £2 2s. for the best Out and Return flight. £2 2s. for the best by a Class II. machine.

Goal Flight.—£100 is offered by the Manchester *Daily Dispatch* for the first flight to Blackpool; or, failing that, to within a radius of 20 miles from Blackpool.

Constructor's Prize.—£25 is offered by the *Daily Dispatch* for the best flight made by an owner-constructor in his machine.

Full details of the last two prizes can be obtained direct from the *Daily Dispatch*, "Glider Competition," Withy Grove, Manchester, 4. (Particulars were also published in THE SAILPLANE AND GLIDER for November and December last year, pages 179 and 196 respectively.)

Notes

1.—The competitions will be held in accordance with the Rules and Regulations of the B.G.A.

2.—All competing pilots must hold a competitor's licence; all machines must have a current C. of A., and must be covered against third party risks to a minimum of **£2,000.** (Note that a special cover for competition flying is necessary, and that the minimum cover has been increased to £2,000 in view of the possibility of the new Air Navigation Bill coming into force before the date of the competitions.)

3.—Class II. machines can enter for both classes if desired. In the event of insufficient machines being entered in either class to make the division into two classes desirable, the Association reserve the right to hold the Competitions on the basis of one class only, and to adjust the prizes accordingly.

4.—No distance flight of less than 20 miles or height of less than 2,500 feet will qualify for a prize. No flight shall win more than one cash prize.

5.—It is hoped to award, in addition to the above, daily prizes, details of which will be announced each morning.

6.—Competitors are required to bring their own barographs, which must have been calibrated by some competent authority during the current year.

7.—After a cross-country flight, pilots must immediately telephone their whereabouts to TIDESWELL 46. This number is marked on all competitors' licences. Failure to comply with this rule will involve automatic disqualification from further flying in the competitions.

Eyam Edge, the easterly continuation of Bradwell Edge: a photograph which shows clearly how "hill-soaring" is done. The wind is blowing from right to left, and is deflected upwards by the hill, thus providing an up-current in which the two sailplanes ("Golden Wren" and "Rhönbussard") are soaring.

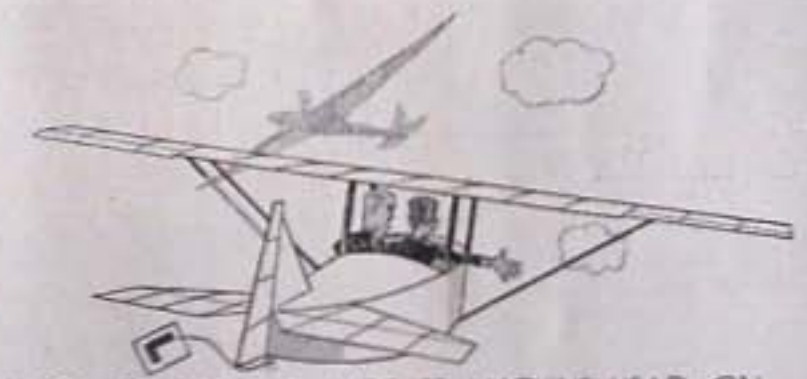
List of Machines

Note.—The following list is subject to revision.

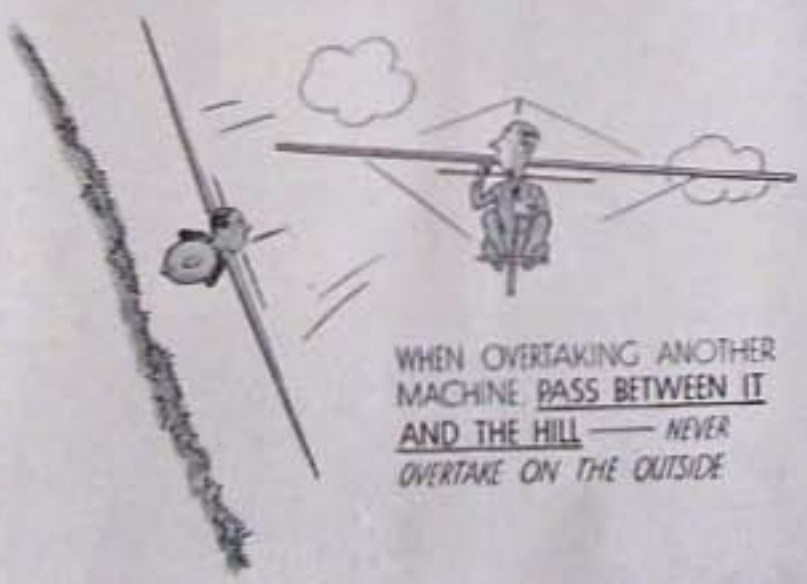
No.	*Type.*	*Pilots.*	*Class.*
1.	Hjordis	P. A. Wills ...	I.
2.	Rhönsperber ...	J. P. Dewsbery	I.
		C. Nicholson	
3.	Rhönadler ...	B. E. A. Vigers	I.
		R. G. Robertson	
4.	Rhönbussard ...	R. P. Cooper	I.
5.	Tern	G. A. Little...	I.
6.	Kirby Kite ...	W. Liddell ...	II.
7.	Kirby Kite ...	D. G. Hiscox	II.
8.	Kirby Kite ...	J. S. Fox ...	II.
		J. C. Dent	
		T. G. Armstrong	
9.	Kirby Kite ...	F. N. Slingsby	II.
10.	Kirby Kite ...	—— ...	II.
11.	Grunau Baby II....	G. B. Baker	II.
12.	Grunau Baby II....	W. Liddell ...	II.
13.	Grunau Baby II....	W. E. Filmer	II.
14.	Falcon I.	—— ...	II.
15.	Scud II.	L. H. Barker	II.
16.	Scud II.	—— ...	II.
17.	Golden Wren ...	A. L. Slater...	II.
		G. O. Smith	
18.	White Wren ...	D. M. Morland	II.
		H. L. Richardson	II.
19.	Crested Wren ...	E. Thomas ...	II.
20.	H 17	B. H. T. Oliver	II.
		M. F. Barnes	
21.	Pegasus	H. J. Penrose	II.
22.	Falcon III. ...	F. N. Slingsby	II.
23.	Falcon III. ...	—— ...	II.
24.	Cambridge II. ...	R. S. Rattray	II.
		E. J. Furlong	
25.	Cambridge I. ...	R. C. G. Slazenger...	II.
26.	B.A.C. VII. ...	—— ...	II.

Illustrations and descriptions of all sailplane types taking part in the Competitions are given on the next four pages.

The "Rule of the Road" for Gliders



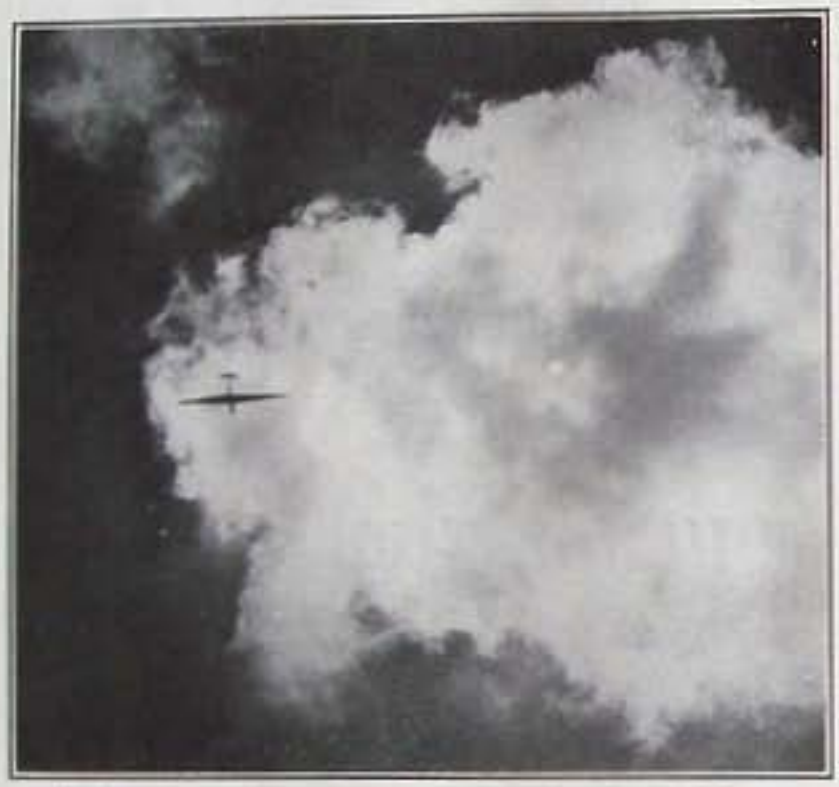
WHEN APPROACHING ANOTHER MACHINE HEAD-ON
KEEP TO THE RIGHT



WHEN OVERTAKING ANOTHER MACHINE PASS BETWEEN IT AND THE HILL —— *NEVER OVERTAKE ON THE OUTSIDE*

Reproduced from illustrations hanging on the walls of the London Gliding Club.

"Hjordis."



A "Rhönadler" silhouetted against a cumulus cloud in Germany.

"Hjordis."

This machine holds the British Distance Record of 104 miles, set up by Mr. P. A. Wills on July 5th this year. It has been flown a great deal by him and by Flight-Lieut. G. M. Buxton, its designer, in various parts of the country, and is fully equipped for blind flying in clouds. Its span is 51 feet, and the wing loading 4 lbs. per square foot. The constructors are Slingsby Sailplanes.

"Rhönadler," "Rhönbussard" and "Rhönsperber."

These machines, of German design and construction, are designed by Hans Jakobs, a clever young German sailplane designer who has the reputation of never producing a failure. They were designed in that order.

The RHÖNADLER (span 57 feet) is the one used by the late G. E. Collins in numerous cross-country flights.

The RHÖNBUSSARD (span 47 feet) was originally brought to England in tow of an aeroplane, flown by Miss Joan Meakin (Mrs. Price), who afterwards gave demonstrations on it for Sir Alan Cobham's Air Display.

The RHÖNSPERBER (span 54 feet 4 inches) is specially designed for fast cross-country flying. A special feature is the pair of "lift spoilers"—metal plates on the upper surface of the wings, which can be raised into the air stream for the purpose of destroying the fineness of the machine's gliding angle and so making it easier to land in confined spaces. The RHÖNADLER has also had "spoilers" fitted by its new owner.

"Rhönsperber."

"Rhönbussard."

Left to right: "Rhönadler," "Rhönbussard," "Rhönsperber."

"Scud II."

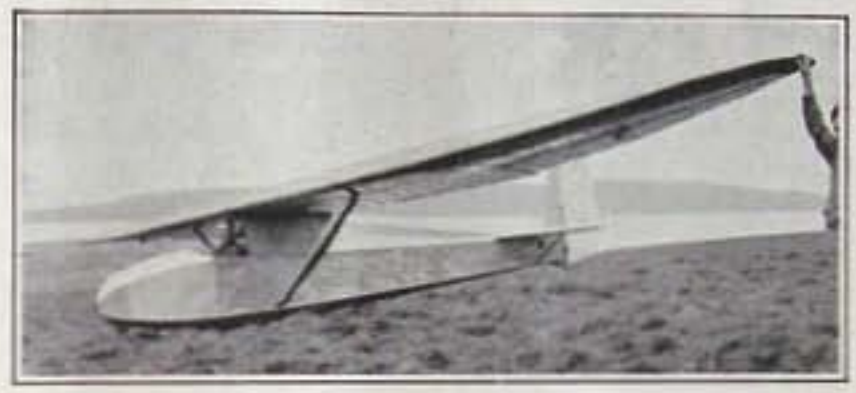
Designed by Mr. L. E. Baynes and produced by Abbott-Baynes Sailplanes, of Farnham, Surrey, this machine holds the British Height Record. G. M. Buxton, flying a SCUD II. in the National Competitions two years ago, climbed 8,323 feet by going inside a thunderstorm cloud.

The span is 40 feet, and the design shows much originality.

"Scud II."

"Grunau Baby II."

This German design, very popular in that country, is manufactured in England by Slingsby Sailplanes. Wolf Hirth, one of the world's most expert soaring pilots, had a large share in its design. Its span is 44½ feet.



"Grunau Baby II."

"Kirby Kite."

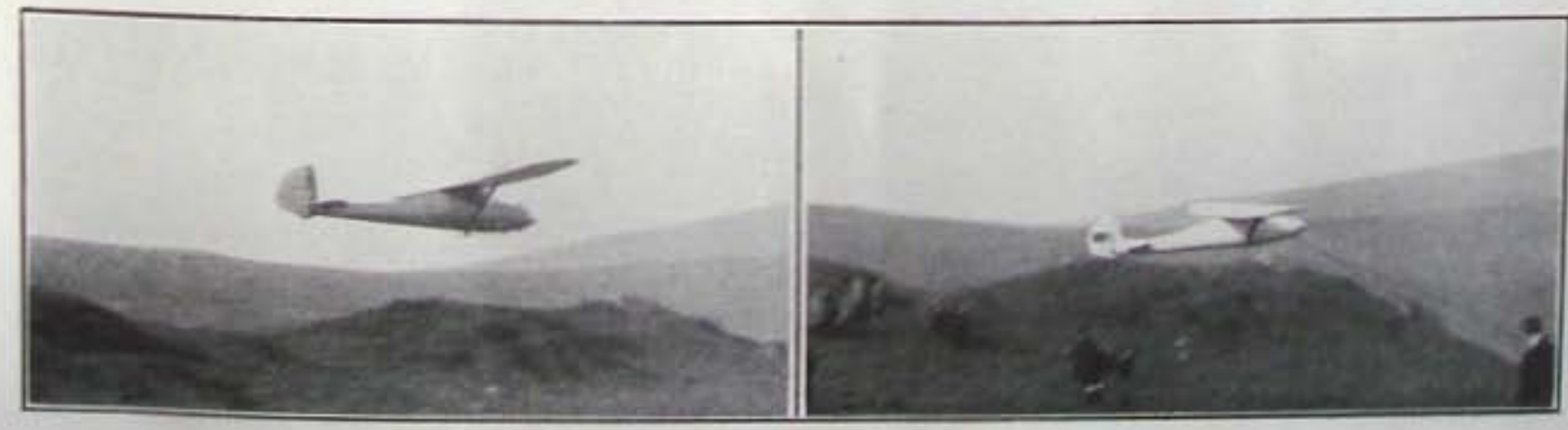
Designed by F. N. Slingsby and produced by Slingsby Sailplanes, this machine can be looked upon as a refined GRUNAU BABY. The chief differences are: the oval-section fuselage, the slightly larger span (57 feet) and the "gull wings," a feature which it shares in common with the RHÖNSPERBER. Wings of this shape have the advantage that not only do they make the machine look like a bird, but they make for lateral stability, especially in turns.

"Kirby Kite."

"Cambridge."

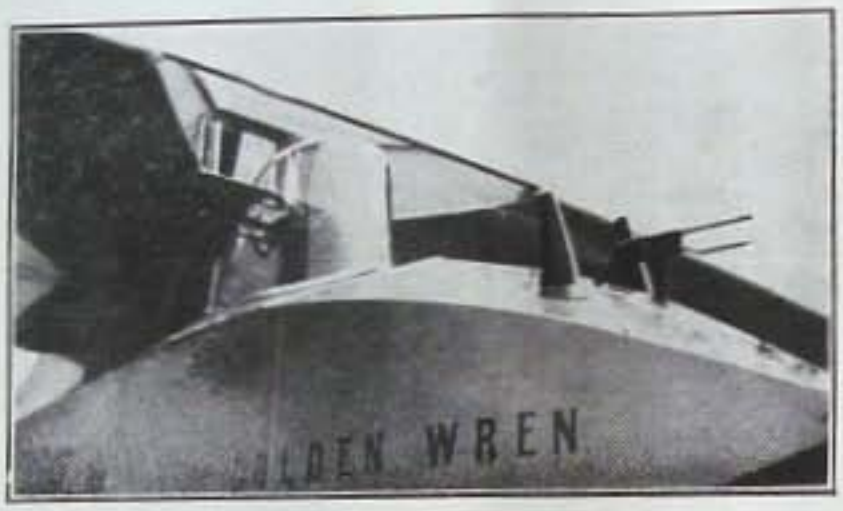
This is also a new design, based on the GRUNAU BABY as regards the wing. The span is 47 feet 4 inches. The designers and manufacturers are Dart Aircraft, Ltd., of 29, High Street North, Dunstable.

The CAMBRIDGE I. was the first one produced, and the CAMBRIDGE II. (painted white) embodies certain improvements. Both machines gave a good account of themselves at the Easter Meeting held on this site earlier in the year.



Left: "Cambridge I." Right: "Cambridge II."

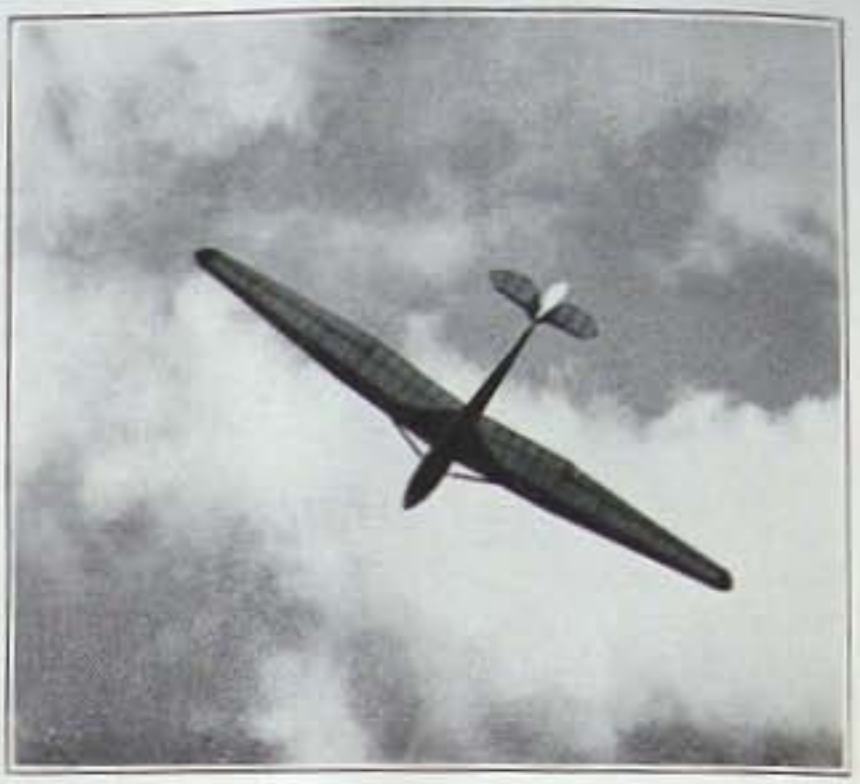
"Willow Wren."



A "Wren" with a view: the "Golden Wren" has the centre section cut away so that the pilot can observe the clouds. A sheet of transparent celluloid preserves the wing shape.

"H 17."

"Pegasus." Note the small sections into which it can be dismantled



"Crested Wren."

"Wren."

The WREN type is the design of Corporal W. L. Manuel, formerly of the Royal Air Force. The WRENS can be distinguished by their colours, the GOLDEN WREN being unpainted. The latter was built in Derbyshire by its pilots, and has made several cross-country flights from this site, the longest being one of 75 miles by A. L. Slater on April 19th this year. The WHITE WREN was built by its pilots at Harpenden, and last Easter it made a flight of 33 miles from Mam Tor in a storm. The CRESTED WREN (painted red) was the first to be built. The BLUE WREN (pilots: G. L. Bell and A. E. Slater) may possibly turn up also.

The span is 40 feet. An improved WREN called the KESTREL is marketed by the Dunstable Sailplane Co., Luton Aerodrome, Beds.

"H 17."

This interesting design is by Ullrich Hütter, of Salzburg; his object was to produce a machine of light weight and small span suitable for soaring in the strong turbulent winds of Alpine regions. The span is 31 feet 10 inches, and weight 143 lbs.; wing loading 3.44 lbs. per square foot.

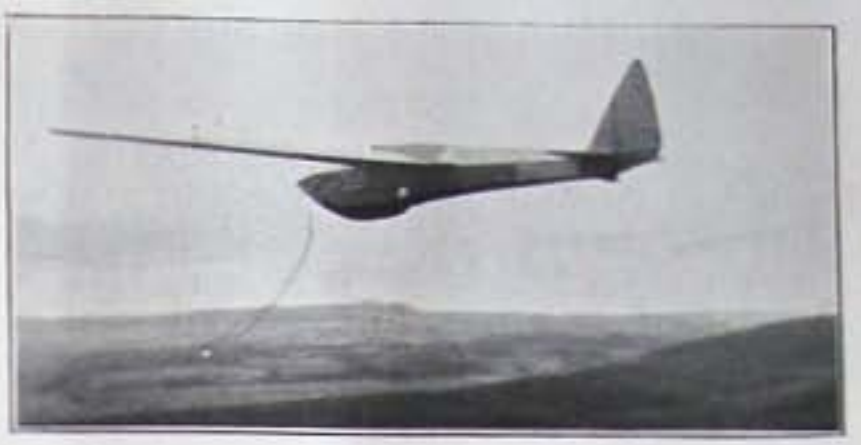
The example entered for the meeting has been built by its two pilots near Birmingham, and has only just been completed.

"Pegasus."

This is another example of a small light-weight sailplane, having a span of 34 feet and a weight of 133 lbs. The designer and builder is H. J. Penrose, who is test pilot at the Westland Aircraft Works at Yeovil. It took him two years to construct, and its dimensions and portability have been influenced by the fact that it was built in his own house.

"Tern."

This machine was built in 1931 by Messrs. Airspeed, Ltd., and was designed by Mr. N. S. Norway. The span is 50 feet.



"Tern."

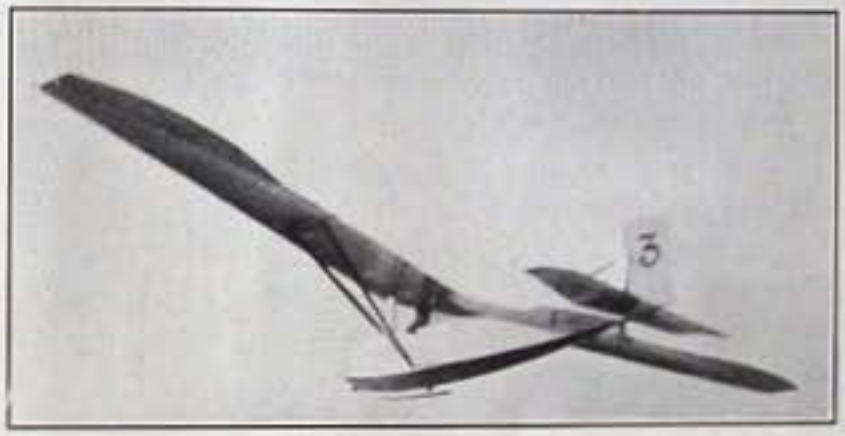
"B.A.C. VII."

This is a two-seater sailplane, and several are in use for dual control instruction. The designer was the late C. H. Lowe-Wylde, who afterwards added an engine to the design and thus produced the "Drone" ultra-light aeroplane, an improved version of which is now making a name for itself.

"B.A.C. VII."

"Falcon I."

The FALKE, as it is called in its country of origin, was produced in Germany by Dr. Lippisch as a training machine for pupils who had just learnt to soar. The British version, FALCON I., is produced by Slingsby Sailplanes, of Kirbymoorside, Yorks. It has a span of 41 feet 4 inches.

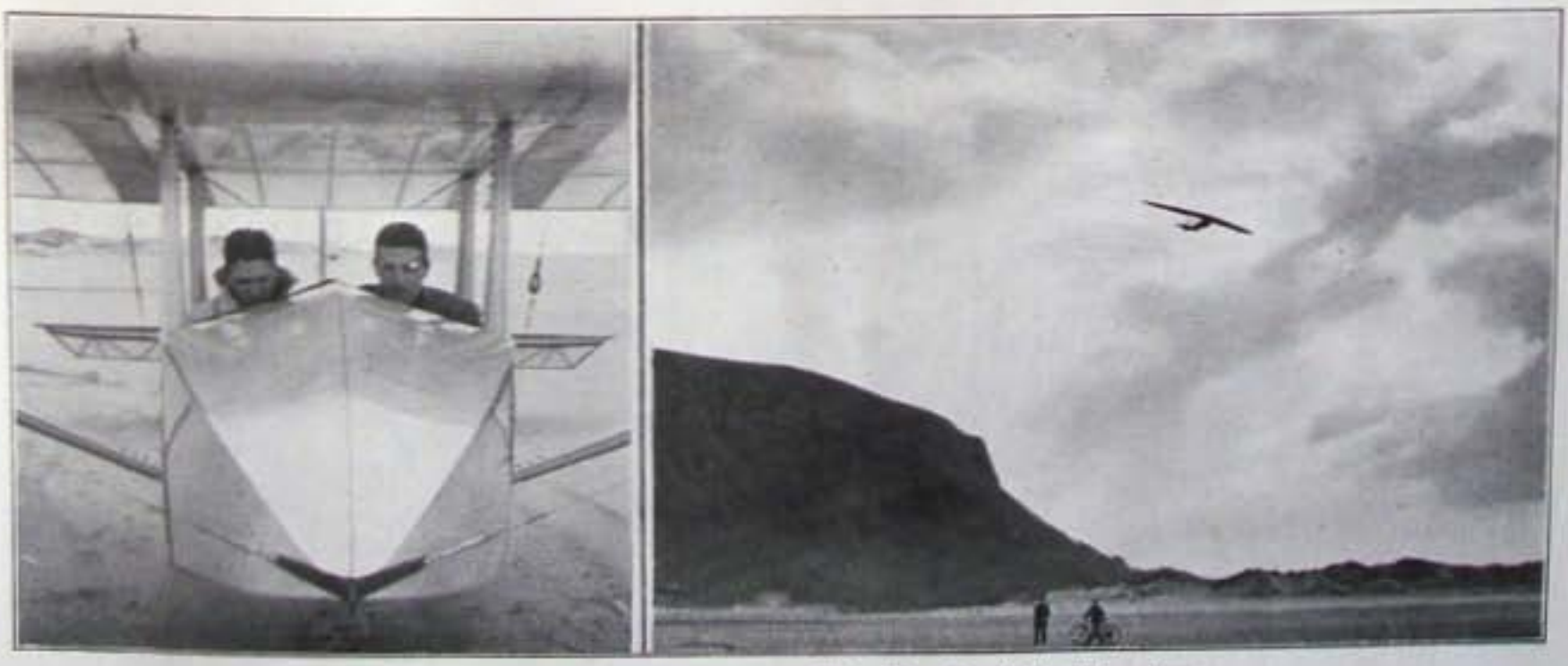


"Falcon I."

"Falcon III."

This is really an enlarged version of the FALCON I., built large enough to carry two people, who sit side by side—an unusual arrangement in sailplanes. It is produced by Slingsby Sailplanes, and several of the type are now in use in various clubs. It has been found to have an unexpectedly good performance.

The span is 57 feet 10 inches. It is fitted with dual control, and has proved particularly useful for giving prospective "C" pilots a taste of soaring before they are sent off to try it on a single-seater machine.



A "Falcon III" belonging to the Ulster Club. Note the side-by-side seating.

Methods of Soaring

Slope Soaring.—The wind, blowing against a hill side, is forced upwards in order to rise over the hill, and the pilot flies by keeping over the windward slopes of the hill. This is the simplest method of soaring, and most of the flying seen at Sutton Bank will be of this variety.

Thermal Soaring.—The sun heats some patches of ground more than others. The air in contact with these warmer patches will periodically break away, since hot air rises, and will go on rising to a height which depends on the atmospheric conditions. Such a body of air is called a thermal current or "thermal," and a sailplane or a bird keeps within it by going round and round in circles. Thermals, once they have broken loose, drift away with the wind, so that cross-country flights made by this means are usually down-wind; it is only when crossing from one thermal to another that a pilot can make headway in other directions too.

Cloud Soaring.—The air in a thermal is comparatively moist, and if it rises to a certain level (usually about 4,000 feet) it may form a cumulus cloud. The cloud then shows the pilot where the thermal is.

Cloud Streets.—A strong wind will interfere with the formation of thermals; nevertheless the lower layers may get so warmed up by the ground that they want to change places with the upper layers. This may result in the formation of alternate strips of rising and descending air, the strips being parallel to the wind, so that the clouds, if any, will form in long lines known as "cloud streets." A sailplane pilot, keeping in the rising air under a cloud street, can fly straight ahead instead of circling, and so can progress up-wind as well as down-wind.

Thunderstorm Flight.—When a change of wind brings a mass of colder air to replace warmer air, the cold air undercuts the warm and forces it to rise. Sometimes large masses of cloud will then form in the rising air and a thunderstorm will result. The boundary between the two masses of air is called a "front," and by keeping near this "front" a sailplane may travel with it across country.

Gliding Records

Duration

World's Record.—38 hours 40 minutes, by Lissitvine (Russia), in the Crimea, October 2nd, 1935.

British Record.—13 hours 7 minutes, by J. C. Neilan in PROFESSOR, Sutton Bank, Yorkshire, July 16th, 1935.

Distance

World's Record.—313 miles, by Rudolf Oeltzschner, in CONDOR, from Wasserkuppe, Germany, to Brno, Czecho-Slovakia, July 29th, 1935.

British Record.—104 miles, by P. A. Wills, in HJORDIS, Dunstable Downs, Beds., to Pakefield, near Lowestoft, July 5th, 1936.

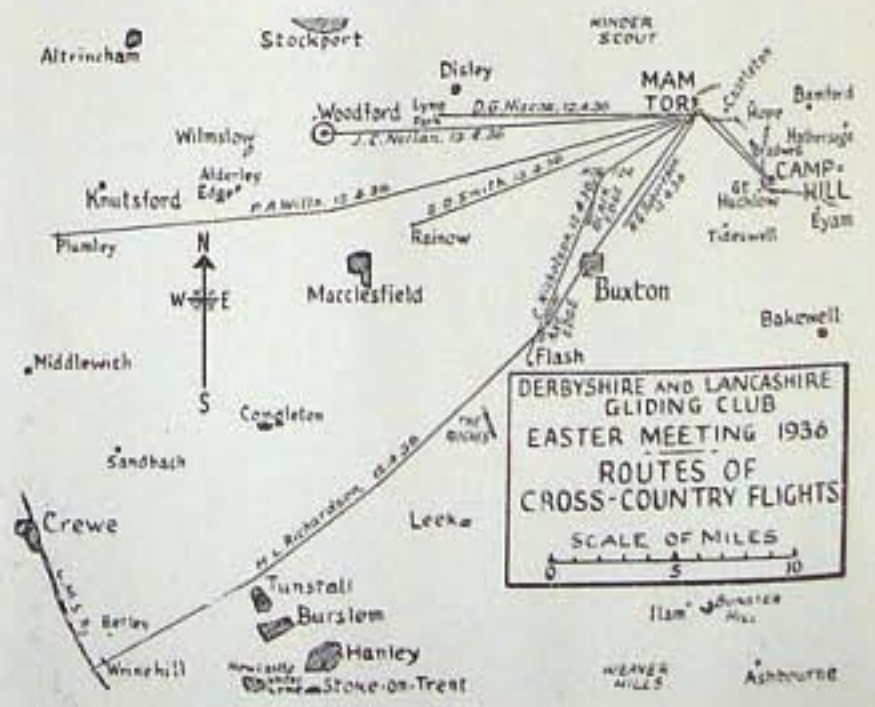
Altitude

World's Record.—14,190 feet, by Heinrich Dittmar (Germany) in CONDOR, Dio de Janeiro, Brazil, February 17th, 1934.

British Record.—8,323 feet, by G. M. Buxton in SCUD II., Sutton Bank, September 4th, 1934.

Note.—The next issue of THE SAILPLANE AND GLIDER, to be published early in October, will include a full account of the National Competitions.

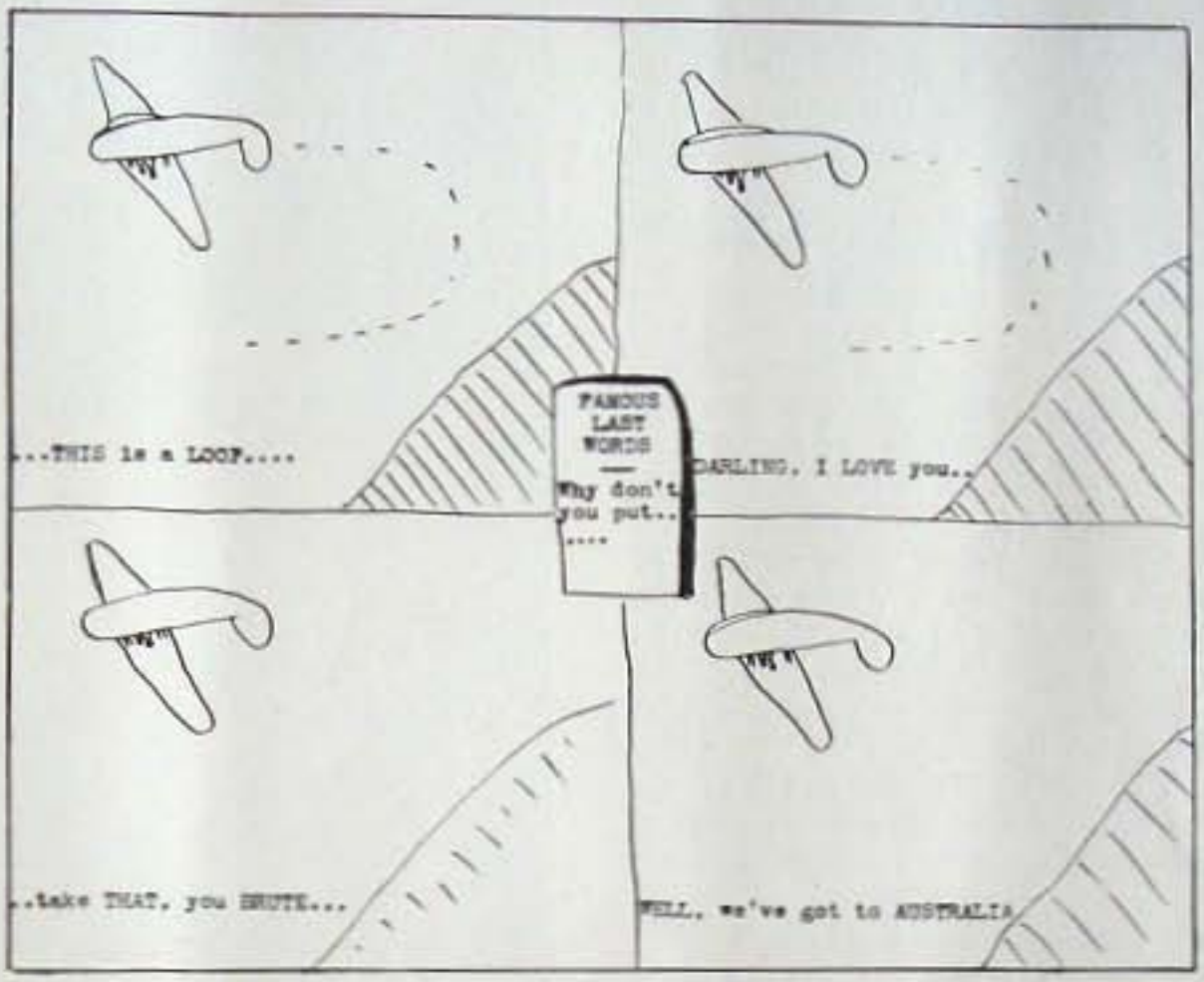
The Derbyshire and Lancashire Club's site.



Flights made from the site last Easter.

"Corunus" turns Artist

(With apologies to Fougasse, Botticelli, etc.)



That Side-by-Side Two-Seater.

Snooze from the Clubs

Little Diddlingham Gliding Club

On **April 1st** another unofficial world's record was set up by the club. Crashington-Bore wrote-off the club Primary against the third wurzel from the left in the second row in Farmer Giles's thirty-acre field, this vegetable having been never previously thus molested.

Credit for this unprecedented feat must in all fairness be shared with Messrs. Wingsby Wailplanes, the constructors of the magnificent machine so successfully mangold.

Problem

The membership of the Gas and Gaiters Gliding Club has grown by leaps and bounds, the increase over last year being no less than 100%. Last Sunday the weather was perfect, and we had a turn-out of no less than 75% of members, every one of whom had a flight. Unfortunately, Fuddle, who was launched third, mistook the relative functions of rudder and elevators, and our only machine was seriously damaged, thus holding up further club activities for some time.

What was the membership last year of the Gas and Gaiters Gliding Club?

The Pilot's Plaint: A Poem?

As I was walking o'er the lea
A fair young maiden said to me:
"Oh, please sir, please sir, marry me?"
"My dear young lady," I replied,
"You honour me, but I would Glide."

Some five long years have duly fled
Since that young damosel thus pled;
I wish now I had not thus said.
For when I do a cross-countrie
There's *no-one* now who'll come for me.

An Anglo-German Gliding Camp

A CAMP in which a combined party of English and Germans learned gliding was held during July in Germany. The Anglo-German Circle, which organised it, has already held a number of Anglo-German "work" camps, both in Germany and in England, but this is the first time a gliding camp has been tried.

The English members of the camp were recruited from several sources and numbered about 17, though not all could stay the full time. Many had had no previous connection with gliding, and of these some had been boy scouts, some came primarily to practise their German and only secondarily to fly, while others had attended previous Anglo-German camps and found pulling gliders about greatly preferable to the spade work (literally) which they had to do in former years.

Several members of British gliding clubs also joined the camp. There were about half a dozen from the Imperial College Gliding Club, and a member of the Ulster Gliding Club who brought with him two young lads from his own district. Of these two, one was only 15 and nearly made his "A," while the other distinguished himself by completing his "B" at the seventeenth launch from the beginning of instruction (including slides)—in fact, Herr Magersuppe said it was the best "B" he had ever seen.

Carli Magersuppe is well known in England, having given soaring demonstrations for the *Daily Express* in 1930, and spent some time in that and the following year as instructor to a gliding club at Scarborough. He was evidently chosen partly for his ability to speak English. The same ability was made a qualification for the ordinary camp members who came from all parts of Germany. Their average age was 17 or 18, rather less than that of the English members.

Two gliding men who went to the camp from this country have sent the accounts of their experiences which follow; the first describes chiefly the primary instruction camp at Siegen, and the second the visit to Darmstadt to get some aeroplane-towing instruction for the more advanced members, and the hospitable time their German hosts gave them before they finally came home.

The living quarters and hangar at the Eiserner Hardt Gliding School, near Siegen.

Above: Herr Henning drives the retrieving winch. Below: The penalty of a tree-top landing is to be photographed beside the machine.

I.

The majority of the English contingent arrived before the camp was ready and were the guests of the "Hitler Youth."

The camp, situated on Eiserner Hardt, was the gift of Herr Waldrich, who owns local factories where are made "machines that make machines, that make machines, that make . . .," etc., etc.

The hill was approximately 250 feet higher than the landing field, and had a nice slope equal to the gliding angle of a GRUNAU 9 primary, and more than equal to some of us.

For the first few days retrieving was done by man or boy power; when the electric winch was installed, nobody worked.

The number of "A" and "B" certificates obtained is not known, but most everyone came away with some distinction, if only a tree-top landing.

The final flight for "A" was usually a straight charge down the hill, whereupon the company at the top shouted a prolonged "A-A-A-A," and returned to their former positions.

The "B" necessitated five separate S-bend flights of over a minute. To the right over bush and the corner of a wood, a nice left turn across the de-wooded portion, and the second turn either to the right toward the landing ground or cornfield, or sometimes the left turn was continued and we groaned, raised our weary bodies and went for the axes.

Instructors: Magersuppe and Henning. Their good humour and merriment were the life and soul of the party, and as instructors they can have no equal. Magersuppe is also a fine swimmer and water polo player and accomplished musician, while Henning can loop even without the aid of a pair of wings.

These two made a few attempts to soar on the gradual slope, and Henning set the "home to roost" fashion which on more than one occasion called to our mind that old song "Down in the Forest"—or was it "Three Craws"?

Aufstehn 6.30 a.m. P.T. and bed-making to follow, and then *ein Lied* and breakfast.

On bad weather days we visited factories and had the pleasure of a trip to Cologne and a visit to the I. G. Farben chemical plant. With 12,000 employees and a town of 40,000 to support it, it is a most imposing sight.

The camp hostel was excellent. We slept in tiers in well-aired rooms, most of which had an excellent view of the surrounding country. The walls of the "lobby" were decorated by Padok (who was later to be one of our instructors at Darmstadt), and were scenes of what often happens to gliders.

Round the fire, in the evenings, we sang or had discussions, and heard some expressions of opinion on each other's countries.

The credit of the camp goes to Jochen Benemann, the camp leader, whose quiet commands, "Put the plates together," were without fuss and greatly appreciated. Long may he reign!

His assistant, Edwin Rieckmann, 6ft. 2in., with a mule's kick in his right arm (we did not all wear leather pants) kept the fun going to the end. His car is not, however, fast enough for sleepyheads to catch trains.

Some went in relays to Darmstadt, where, when we arrived, we found a member of the Cambridge Club had stolen the show and the hearts of most of the ladies, so our activities were confined to winch-towing at 70 m.p.h. and a few aero tows.

The trick in aero towing is to keep the head of the aeroplane pilot in line with the top of the rudder, rather like sighting a rifle; and if you could do that, you were taken to 1,000 metres. If not, you were signalled off at various altitudes. The flight over the aerodrome included an approach along the new *Auto-Bahn*, and a grand sight it was.

It would be impossible to describe here everything that we saw. The arrival of the "Hindenburg" at Frankfurt, the English lady having tea there in her all but bathing costume, the trip to the Wasserkuppe, where we saw a pilot emerge unhurt from an 80% crash in a FALKE, to the Wartburg, to the Harz mountains, and finally to Berlin and the Olympic Games.

And to think that we thought Germany to be a hostile country!

Next year we will go back again.

II.

After striking camp at Siegen the whole party travelled by coach to Darmstadt aerodrome, visiting the famous university town of Marburg on the way. At Darmstadt an extremely interesting visit to the D.F.S. (German Research Institute for Soaring Flight, where research is done on motorless flying and on glider construction) was arranged during the hours when camp members were not allowed to fly. Of particular interest was the apparatus for studying the flow of air round wing sections, struts, or any desired objects, and also the methods for investigating cloud formation.

At Darmstadt: Herr Padok points the way for an aero-tow.

The German team of sailplane pilots for the Olympic Games was seen practising, and a large number of new machines was on view. The most interesting of these were the new RHÖNSPERBER, which has been dived at 400 kms. per hour and flattened out without breaking; the SEEADLER, an amphibian machine; the two-seater SPERBER, which is equipped for night-flying and for carrying wireless; the WINDSPIEL, which has a total laden weight of only 120 lbs.; and the CONDOR II., which was flown by Dittmar.

After three days had been spent at Darmstadt, the party went by coach to the Wasserkuppe. Unfortunately no soaring was possible during the two days spent there, but a very spectacular crash was seen. Pre-"B" certificate pilots were being given seven-a-side launches in a FALCON, and one unfortunate pilot did three complete turns of a spin from a height of about 75 feet before discovering that this was not the best way to bring a machine down.

From the Wasserkuppe the party proceeded to Goslar, and on the way partook of a particularly excellent lunch as the guests of the German Colonial School, at Wikenhausen. They were officially welcomed at Goslar by the local Hitler Youth, and the night was spent at a number of private houses. Next day, after passing through Wernigerode (where lunch was taken as guests of the Mayor and Corporation), the party reached Berlin.

On the following day the fine new club house of the German Aero Club was visited at Rengsdorf aerodrome, and the machines which had come from all parts of the world for the Olympic Games were inspected. The party visited the Bücker aeroplane works, and then proceeded to the Tempelhof aerodrome to see an air display. Outstanding events in this display were the start of a balloon race, formation flying by eight gliders, and an excellent display of aerobatics by some of Germany's most skilled pilots.

The climax to a very enjoyable and memorable camp came with a visit to the Olympic Stadium, where the opening pageant to the games was witnessed.

In paying a tribute to the generosity and hospitality of our German friends, the hard work of Benemann and Rieckmann in organising and running the camp must not be forgotten. Thanks are also due to Magersuppe and Henning as instructors, "entertainers," and friends.

A Soaring Expedition to Wiltshire

[To combine a summer holiday with the experience of soaring over strange territory was the idea of a party of members of the London Gliding Club who took their sailplanes into Wiltshire early in August. Two members of the expedition give an account of their experiences below. It should be clearly understood that permission must be obtained before any flying can be done from the sites described in this article.—Ed.]

COMING home from a holiday in the west, Sylvan Fox saw fine soaring hills in Wiltshire. Thus *venit, vidit,* and then *vicit* the hearts of the local landowners and notabilities, with the result that an assorted collection of sailflyers had an extraordinarily pleasant Bank Holiday, pottering about the place *à la gliding.*

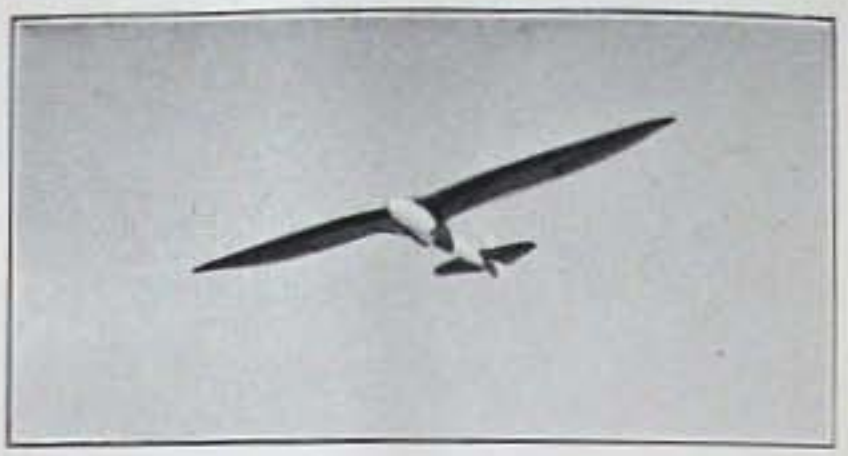
Fox and the writer arrived on the evening of **Friday, July 31st,** at Alvediston, with the grey Kirby Kite; so to Mr. Hoole's fine old place, about which our Woolworth's pen bubbles with incoherent exuberance. Therefore, briefly, we say that it was, at the invitation of Mr. Hoole, the headquarters of the camp; and that the general pleasantness and excellence of its wine-cellar is only equalled by that of its owner.

On **Saturday,** Baker and Hiscox arrived with Grunau Baby and brown Kirby Kite respectively. Baker did *not* get caught exceeding the speed limit; but he did have the pleasure of being passed innocuously by a foiled police car. The party went to the Win Green site, and there flew in a moderate cross-wind (W.S.W.) which later freshened. No sun; hill-flying. Hiscox tried to fly up-wind to the presumably better west face by Melbury Abbas, but was let down on the Ox Drove (on top) and soon surrounded by a herd of the nominal owners. Fox flew a mile or two down-wind along the ridge, then flew out to land at Ferne Gymkhana. Finding unexpectedly no height loss, he tried instead to make the west end of White Sheet Hill, but just failed; and so landed by the Marquis of Clydesdale's place, flying over the Gymkhana. The lodge porter provided tea. Delightful people in Wiltshire.

Summary:—
Fox, Armstrong, and Humphries flew grey Kite.
Baker flew Grunau Baby.
Hiscox flew brown Kite.
Seven flights: total time 3 hours 25 minutes.

On **Sunday,** with three trailers and four cars, we visited the site N. of Devizes (Oliver's Castle). Site and wind direction were good enough, but the wind strength made it inadvisable to fly anything larger than a tea-tray. Nobody had a tea-tray, so we sat down and had lunch.

Which reminds us of Tom, the cook.



The "Grey Kirby Kite," one of whose owners, J. S. Fox, organised the expedition described herewith.

Fox, not content with finding us the country, permission to fly in it, and the Hooles' as a centre, produced also a brother, the aforementioned cook. When a pilot landed away at meal times, up would come Tom, before the trailer arrived, with the appropriate meal.

We brought the three trailers and four cars home, and during tea, at Warminster, argued about thermal bubbles until the discussion produced some of its own.

Monday.—The depression moved east to the North Sea, leaving us in a system of straight isobars and mild polar air, which persisted till Wednesday. Flying at west end of White Sheet Hill; strong westerly wind. Starting viciously with showers, the weather improved enough to permit thermal hunting. Humphries reported (besides turbulence) improvement of hill lift concurrent with sunshine. Dent (3 o'clock) flew up-wind at about 800 feet under a cloud street, then went down-wind along the ridge; he waited at each bulge until the trailer, following below, had come up; then bolted on to the next bulge. He also amused himself with the view of the Isle of Wight (from about 1,200 feet), and with reading an exhortation to "Drink More Milk," executed in huge letters on the Downs by some aesthetic farmer. Conditions rough; stalled once with tail *up*. Dent landed on Forant Down. Hiscox accompanied him, but landed near Wilton—10 miles. He was there dismantled by five nieces (not his own), and then came back to Forant, where flying was continued.

Summary:—
Hiscox, Humphries, and Keeble flew brown Kite.
Baker and Humphries flew Grunau Baby.
Armstrong, Fox and Dent flew grey Kite.
Thirteen flights: 7 hours 5 minutes flying time.

Tuesday.—Less vicious than yesterday. W.N.W. wind; sun and early cloud development. The car hose, and breakfast by Tom, to make men of us.

Armstrong and Hiscox, starting from Middle Down, and hill-flying quite low, landed at Forant Down. The sky had clouded up but cleared later, to give a better ceiling for flying from Forant. Hiscox had another fly and went home. Baker went home yesterday. The wind has thus gone rather out of the Old School Windsock (provided of course by Fox), so we take a

swig at Tom's thermos and launch grey KITE plus Fox. Under a sparsely cumulated sky he got 900 feet and walked out to Sutton Mandeville; amused himself map reading in a quiet bit; then got 1,000 feet, becoming a maximum of 1,200 under a street of isolated clouds. Landed near Downton—10 miles.

Summary:—
Armstrong, Fox, and Humphries flew grey KITE.
Hiscox and Humphries flew brown KITE.
Seven flights: 9 hours 10 minutes.

Wednesday.—Moderate W.N.W. wind. Fox again flew to Downton. For the sake of variety he didn't land in the same field as yesterday, but in the one next to it. Started at mid-day with hill height 200-400 feet. Flew between 800 and 2,000 feet, and at the end got 100 feet over a cornfield. This also happened yesterday at the same place.

In both cases up-currents soon gave out. The low starting height, the down-currents of the whole hill system, and the onset of the New Forest probably all helped.

We collected him, returned, and met some pleasant people—potential helpers. So we took their children as hostages in our cars, and they followed. We arrived at our launching place, so it began to rain. The hostages were then plied with chocolate and returned to owners. We lay in the grass and rain and theorised about the latter. Tom having gone, what was left of us had dinner in Shaftesbury and admired a carved sideboard—a local curio.

Thursday.—Wind S.W., strong. Continuous showers. Ten-tenths of low cloud at 500 feet. Lousy.

We went to White Sheet Hill, N. of Mere. (Yes, another White Sheet Hill.) Fox flew 20 minutes at minus 50 to plus 50 feet and landed below. Amusing to watch cloud wisps forming from trees in the distance, as if they were on fire. Also amusing to extricate the trailer from the muddy landing field.

Friday.—Keeble produced a miniature tornado vortex over a saucepan of maggotty mushrooms. Light to moderate N.E. wind. Sun, warm.

Using the home-ridge, mostly White Sheet, Fox hill-flew 1 hour 12 minutes. Maximum height 400 feet, usually 100 feet. Humphries and Dent had bad conditions and went down.

Tom came back and we just hogged ourselves.

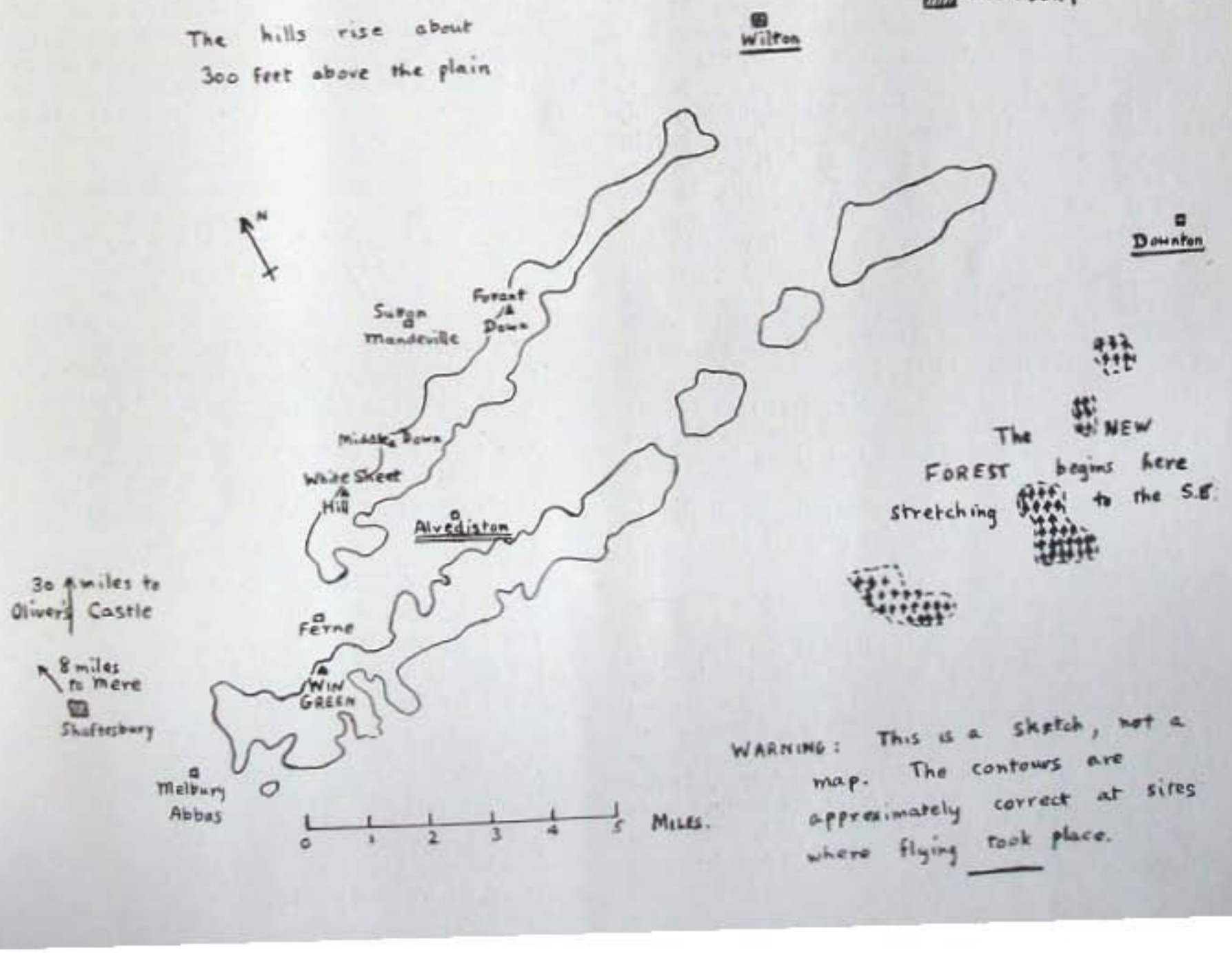
Saturday was spent site-seeing, as an excuse for lying in the grass watching clouds and arguing.

Sunday, August 9th.—Ditto, but we had brought the trailer (to Kimmeridge), and it was less peaceful. Eventually just bathed.

In six flying days, 23 hours' flying. On no day were we ground-bound by wind direction.

No breakages.

GEOFFREY BELL.



A panoramic view of Smedmore Hill, Kimmeridge, sometimes used by the Dorset Gliding Club, and visited by the expedition described in this article. The "Kirby Kite's" trailer is on the left, while in the centre Mr. Fox is whistling for the wind with the editorial tin-whistle; but without success, as it was not of an approved meteorological pattern. So the party bathed instead.

Notes on Shaftesbury and District

(1) Beautifully formed hills for soaring, but the best face north with a little west in them. These have superb landing fields at the bottom, and a number of good landing areas at the top.

(2) The main ridge is well fed by reasonable roads up the north face and easier roads up the southern slopes. A Roman road, fairly rough, but sound, runs as a spine along the top.

(3) Purely because the north face is away from the sun until the afternoon, ridge-soaring heights are comparatively meagre. A wind of a strength that would have lifted a machine to several hundred feet at Dunstable was only sufficient to keep the same type of machine comfortably afloat above the north-facing hill.

(4) Thermal currents could often be felt, but in the absence of ample ridge-soaring height it was extremely difficult to climb up to a comfortable height in them. The machine would twitch vigorously as the thin columns were met, but as a general rule it was impossible to circle inside them. Behind the hill, over sun-heated ground, they were large and vigorous, making short cross-country flights simple. But it would seem that the air as a whole tended to arch over the whole system of hills, only to descend as soon as the flat ground of the New Forest was reached. Both cross-country flights down-wind ended *at the same farm* on the south-eastern fringe of the hills.

(5) Some pretty up-wind flights of ten to twenty minutes were made, in "streets" of steady lift. But the ceiling was only about 500 feet above launching-level, and circling gave no extra height.

(6) The countryside in the Shaftesbury district is ideal for pilots who are flying for pleasure rather than for glory. But it is necessary to behave oneself with careful modesty, as the inhabitants, though extremely kind, could easily be upset.

(7) The south-facing ridge, south of the Purbecks, looks practically ideal, and scenically is beautiful. Mr. Penrose, of Westland's, at Yeovil, should be consulted before going, especially as the attiude of the landowners is varied. Bathing is good.

(8) Westerly slopes are not very satisfactory in the whole of this area. Either they are the narrow butt-ends of ridges, or else they are difficult of access. One promising and large hill is smothered in gorse bushes and grass-covered tussocks.

(9) On the map the Mendips appear ideal. Actually they are possibly too huge, and certainly bristle with stone walls. The hills up the face are terrific and rough, with the exception of Cheddar Gorge itself, which is a long and roundabout route. It is hard to find an abrupt edge from which to launch. The obvious method of using the gigantic up-currents would be by aero-tow, or by winch-launch from the top. These huge hills are undoubtedly bathed in relatively dead air, with the "live" air riding overhead, and nothing but a high launch would bring the machine into the active "lift."

(10) One is left with the general impression that the Shaftesbury area is good for northerly winds, and the ridge south of the Purbecks for southerly winds. Pilots visiting this district can find amusement, but not big results, in westerly winds. During periods of easterly winds it would be best to go to the pictures.

DIE-HARD.

Ah .... What?

By ONE WHO KNOWS.

THE man who backed the trailer on
the newly finished aileron;
What do we call him?

The man who called his four-legged Thing
from just across the tapering wing;
What do we call him?

The man who, showing how to slip,
Put off until next week your flip;
What do you call him?

The man who to great heights aspires
but merely busts the landing wires;
What do we call him?

The member of the "gentle" sex
Who hurtles towards our manly necks;
What do we call her?

The "Little Engine" kind of bloke,
And he who has to prod and poke;
What do we call them?

From Here and There

Nature's Multiplanes.—Commentary in a news film: "Thirty thousand pigeons were released, filling the air with the flutter of a million wings."

* * *

To Glide from the Stratosphere.—*Flight* reports that Mr. Richard C. DuPont, the American sailplane pilot, hopes one day to have his sailplane lifted by a balloon to a height of 60,000 or 70,000 feet, whence he may glide to either coast, a distance of 1,500 miles. It is also said that he is to study glider construction in Germany.

* * *

A Midland Camp.—The Midland Gliding Club has arranged a camp at Long Mynd, Church Stretton, for September 12th to 20th inclusive, at a special inclusive fee of £6 6s., including all meals and flying fees. Visitors may bring their own sailplanes by arrangement with the secretary in advance. Applications to Lt.-Cdr. R. A. B. Williams, Asterton, Salop.

* * *

Sailplane Weights.—Writing in *The Observer* on the subject of the chalk downs of Ivinghoe Beacon and Whipsnade, "B.T." states that "the chalk finds its way into the very bones of the animals bred on it; and the partridges native to the chalk have been proved to be heavier than birds bred in less happier districts." This may explain why, if recent correspondence in this journal is to be believed, sailplanes of identical type weigh more at Dunstable Downs than they do at Kirbymoorside. Or it may not.

* * *

Riding the Thermals.—*The Times* Aeronautical Correspondent, who took part in a mock bombing raid on July 30th, describes thus the first part of the flight, between Abingdon and Newhaven: "We flew low among all the heat currents of a thundery day and the convectional currents of a beam wind of about 25 miles an hour. Our formation rose and fell on the air billows like toy ships on a swell, and the occupants of a flank machine could watch the wave pass under the squadron from front to rear as vividly as though the rolling air had been visible."

* * *

What Offers?—John Grierson, describing the Isle of Wight Air Ferry in *Flight*, writes: "There is a wooded hill 250 feet high within two miles of Southampton Aerodrome, flying on the direct course from Ryde, and which produces the most violent bump at 1,000 ft., even in 10 m.p.h. winds. Since we cannot go to the expense of carrying out prolonged test flights in order to discover the exact details of wind speeds, directions and heights at which this very sudden bump occurs, we have to fall back on the simple expedient of flying round it. But there does seem to be ample scope for some of our glider enthusiasts to do a very useful and interesting job of work, in making tests over such vicinities. They might even prove their value to the materialists who keep on asking the question: 'What is the use of gliding?' "

Olympic Games Fatality.—At a gliding competition held at Staaken Aerodrome, Berlin, on August 3rd, Herr Ignaz Stiefsohn, leader of the Austrian team, lost his life in a crash while performing aerobatics. One report says it was "owing to a defect in the wings."

* * *

South Australia Centenary.—In connection with the Centenary Celebrations this year the Model Aeroplane Association of Australia is holding a four days' Flying Pageant, and on November 22nd, at the Parafield Aerodrome, the programme is to be: "All day flying of gas and compressed air models, and, if time permits, of sailplanes and gliders."

* * *

To Visit South Africa.—Mr. P. A. Wills, who holds the British distance record for soaring flight, is leaving England for South Africa towards the end of September, and hopes to get some experience of soaring in that country during his visit. Major Shaw, of Welburn, Kirbymoorside, has very sportingly offered to send a KIRBY KITE from Slingsby Sailplanes out there with him; this will avoid risking the HJORDIS.

* * *

A British "Bird Man."—Clem Sohn, who "glided" down from 10,000 feet with wings attached to his limbs, has returned to America; but he has now a British rival. On August 16th Harry Ward jumped from an aeroplane 9,000 feet above Haydock, Lancs., with similar wings, one of which broke and put him into a spinning dive. He managed to discard the other wing, opened his parachute, and landed safely. (One way of getting out of a spin.)

* * *

The Duke of Grafton.—A motor-racing accident at the Limerick International Grand Prix has resulted in the death of the Duke of Grafton, well known as a member of the London Gliding Club and as one of the founders of the Cambridge University Gliding Club, in the running of which he took an active part. Although only 22 years of age, he had led a very full life, having a wide variety of interests, among which was a special genius for mechanical things. His loss will be regretted by all gliding men who came in contact with him.

* * *

Harnessing the Rocks.—Soaring pilots on the lookout for thermal currents are aware that they rise from rocky ground in preference to vegetation, in the daytime; whereas the reverse happens in the cool of the evening. The same properties of rocks are utilised by the Japanese in cultivating strawberries, according to a paper read at the International Congress of Refrigeration held in June. On a sunny slope exposed to sea breezes the rocks are arranged with pockets of earth between, in which the roots are planted. At night the rocks cool and condense water vapour which trickles down the rocks and is absorbed by the earth. By day the rocks warm up rapidly and afford a source of heat to the strawberry plant.

Correspondence

Gliders and Game

SIR,

As a keen bird lover I have been much interested in the correspondence in your columns on the subject of gliders and game birds. In this connection a recent experience at Camphill may be of interest to you.

A mother grouse had built her nest right on our landing ground. It was discovered and stakes were put into position to mark it and to warn pilots landing in the vicinity. Although at first a little nervous, the mother bird soon came to realise that pilots taught by the Derbyshire and Lancashire Club could be relied upon to miss her nest every time.

Owing to the exceptionally dry summer the mother and chicks suffered badly from lack of water, and several of our members used to supply them with a pannikin to relieve their thirst. On one occasion one member supplied a pannikin of beer. Great indignation was expressed by the mother bird, who refused to allow the chicks to touch it. Nevertheless it was noticed later that the beer had disappeared.

From this time a close friendship sprang up between the members and the mother bird, and recently, when it was decided to close down flying activities during August, the mother was seen to be greatly upset. Her chicks were just about old enough to fly, and by repeated peckings at the launching elastic, and at the winch, she indicated that the assistance of the club instructors was desired.

Starting with short launches on model aeroplane elastic, we soon passed on to winch launches, and I am glad to say that now all the little ones have obtained their "C" licences.

For the benefit of other clubs who may have similar experiences it should be noted that the flying speed of a young grouse is considerably inferior to that of the average sailplane. Allowance for this should be made, otherwise structural failure may result.

Our only difficulty is in connection with payment of the launching fees. The only form of payment which the mother is able to offer is in the shape of eggs. To accept these would cut off the further supply of *ab initio* pupils, and the whole thing seems to be going round in a somewhat vicious circle.

AGAG,

Bradwell Edge.

Thermals: A Theory

SIR,

Often I have noticed, in the dusty streets of London on a hot summer day, a whirl of dust and bits of paper start up on the ground and climb some feet into the air. This, I believe, is likely to be the visible start of a thermal. Similar things may be seen in the country, particularly over dusty ground.

The one important point here is that there is definitely a whirling motion concerned. So this is my theory—that the rising columns of air that we call "thermals" are not merely rising, but also rotating on a vertical axis—just like a very miniature edition of a cyclone.

What backing is there to this theory? Firstly, there is the whirling motion sometimes made visible by dust and litter as described above. Secondly, there is the belief that I have, in fact, detected a rotary motion in a horizontal plane in newly-forming cumulus cloud—though this is very hard to distinguish from the rotation in a vertical plane which is known to exist. Thirdly, is the feeling that you could hardly expect a mass of air that has suddenly started to move upwards at a considerable speed to proceed in a steady, straight-line way. It seems somehow natural—when you think of bath water running out of the plug hole in a gurgling eddy—that a rising column of air should rotate.

But has this theory any practical importance at all? I believe it has, because I think that if it can be established that thermals do revolve, then I am sure that the technique of circling in a thermal will have to be complicated by endeavouring always to circle *against* the rotation of the thermal—up-wind, if that makes it easier to understand. This would seem advisable for two reasons:—

(1) The time taken to complete a circle will obviously be shorter if the machine is circling in the same direction as the rotation of the thermal. In other words, the rotational speed will be higher. This can only mean that a greater degree of bank is needed to counteract centrifugal force. This again means that the aero-dynamic efficiency of the machine will be lower. In other words, you will be wasting a certain, if small, amount of lift by circling "down-wind" in a thermal.

(2) I am one of those who are beginning to believe that there *is* an absolute difference between the performance of a machine up-wind and the performance of the same machine down-wind. Whatever the phrase "dynamic lift" means, and whatever the causes of it are, I am pretty sure from my own experience that in certain circumstances one can obtain lift merely by flying up-wind—at any rate near the ground. It is possible that these "certain circumstances" may prevail inside a thermal. Which again points to the suggestion that better lift may be obtain by circling "up-wind," against the direction of rotation of the thermal.

Three things, therefore, need to be established:—

(*a*) Does a thermal always rotate, and, if not, do some thermals rotate?

(*b*) If so, do they always rotate in the same direction?

(*c*) If so, in which direction? If not, is there any way of discovering the direction of rotation of any particular thermal?

I suggest that anyone sufficiently interested to have read this far might be sufficiently interested to help with experiments on the following lines:—

(1) Careful observation of newly-forming cumulus clouds, to see whether there is a horizontal rotation.

(2) Lynx-eyed observation of little "whirlpools" starting on dusty ground, to see whether they all whirl in the same direction.

(3) Critical interest in the performance of a machine in right and left hand circles, to see whether any difference can be noticed or—as is more probable—felt. (I think the study of the noise made by the machine in

this case might be very valuable. Sometimes a machine flying up-wind at a given speed is curiously noisier than when it is going down-wind.)

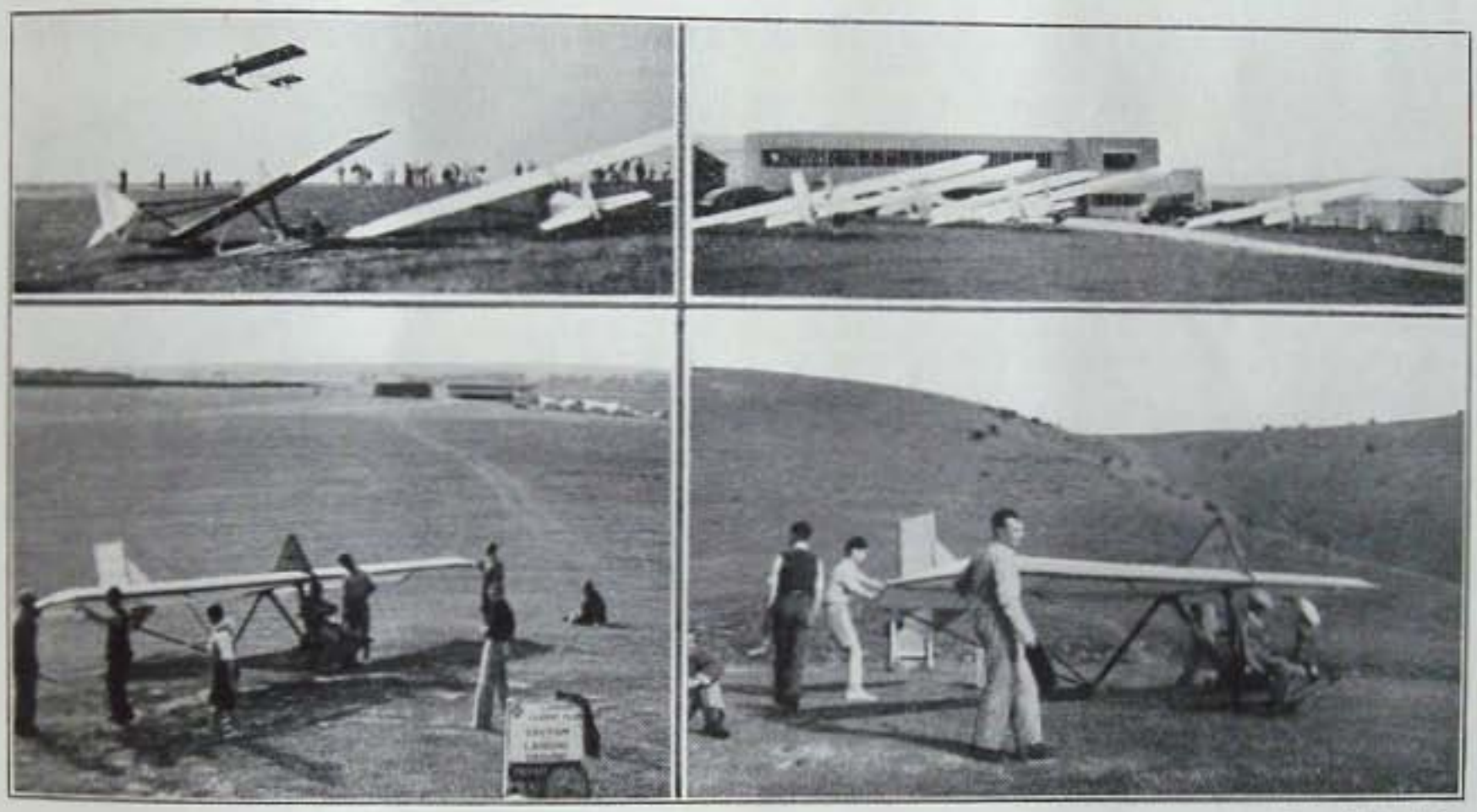
And there is another test just possible for a super-pilot with a first-class turn and bank indicator and a stop-watch (Mr. Wills—forward, please). If a machine is held *accurately* at the same bank and the same rate of turn in a thermal, first in a right-hand circle and then in a left-hand circle, will the stop-watch indicate the same time taken to perform one complete circle? It should—if there is no rotary movement in the thermal. But I fear that few machines have the controls, and very few pilots the skill, necessary for the extremely accurate flying called for in this test.

All discussion and argument about, contributions to and abuse of this theory will be welcomed by me—if not, perhaps by the Editor.

H. C. Bergel.

[This letter will be commented upon in our next issue.—Ed.]

The Dunstable Camp



Scenes at the instruction camp organised by the London Gliding Club. Top left: a pupil starting off the hill top for a certificate flight. Top right: the clubhouse, some of the training machines, and one end of the double row of tents. Mr. Hervey, the chief instructor, is seen holding a wing tip in the right lower picture.

"Sailplane" Photographs.

As last year, the London Gliding Club held an instruction camp during the first two weeks of August. It was a pronounced success, for which the credit must go to the club's professional instructor, Mr. H. E. Hervey, who was helped by others of the club instructors who generously lent their services. Of the camp members, all with one exception gained at least one gliding certificate, and many gained two.

The numbers taking part were not so great as last year, probably because of the greater opportunities for instruction now available at provincial clubs, one of which, the Yorkshire Gliding Club, was also holding a very successful instruction camp at the same time. (A report will appear in our next issue.)

The total number of launches was about 1,360, and the certificates gained were 19 "A," 12 "B," and one "C." A list of those who qualified is given in the adjoining column.

Name.	*Date (August).* "A."	"B."	"C."
Hutton	5th	5th	—
Bouverie	5th	5th	—
Murfin	8th	11th	—
Read	8th	13th	—
Black	8th	—	—
Franklin	8th	—	—
Lamplough	9th	11th	—
Aitken	9th	13th	—
Bryant	9th	13th	—
Bloomer	9th	—	—
Abbott	9th	—	—
H. Meakin	9th	13th	—
Booth	11th	13th	—
Miss Thring...	—	12th	—
Miss Goldney	—	—	12th
Tait	12th	16th	—
J. Meakin	12th	13th	—
Quinn	13th	—	—
Benson	13th	—	—
Bell	15th	—	—
Read	15th	—	—

Gliding Instruction in Holland

By J. HUGENHOLTZ

[The writer of the following article was recently a temporary member of the London Gliding Club, where his accounts of methods used in his own gliding club in Holland so interested the members that he has written it all down for the benefit of a larger audience. He shows how Dutch gliding enthusiasts are mastering the difficulties of trying to glide and soar in a country which has no hills.]

THE gliding club at Eindhoven, in the south of Holland, was one of the first clubs to use the method of launching by car instead of the elastic rope launch which, in a country without hills, has many disadvantages. Up to the present the club has made over 3,500 car launches in about 20 months. The longest of these flights lasted 5 minutes 35 seconds, and the maximum height obtained is about 1,000 feet. During the period only on four occasions has a glider been damaged.

The car used for towing up the planes is an 80 h.p. Packard tourer, dating from 1924, which weighs about 2,400 kg. Experience has shown that it is very important to use a heavy, sturdy car. A heavy car takes more power to accelerate, and therefore is less economical; but it has the advantage that, during the gear changing (the car starts normally), the loss of speed is practically *nil* owing to the large mass of the car, and the glider is towed up without shocks, thus preventing the cable from dropping out of the open hook of the glider's quick release. It also prevents overstraining of the cable, which shortens its life considerably and causes a tendency to curl even in the softest non-curling steel cable.

For the same reason the back part of the car body should not be removed without restoring the load on the rear axle. Otherwise there may arise a tendency towards swinging of the towing cable and jolting of the plane in the air, due to bouncing and skidding of the car, which is out of balance.

The car should be sturdy to withstand repeated driving over rather rough country at 30 to 40 miles an hour.

The Eindhoven Gliding Club has two flying grounds. One, the municipal aerodrome, which has a diagonal of 3,000 feet, is in good condition and permits of driving with a maximum speed of about 50 miles an hour. The other is the top of a dyke alongside a canal, which is not in such good condition as the aerodrome, but still enables the Packard to be driven at about 30 miles an hour over a distance of about a mile.

This dyke is only used for exceptionally high launches with 2,400 feet of cable. The method is still in a very experimental stage. Up till now, with an E.S.G. primary glider, a height of 1,100 feet has been obtained. With a longer cable it may be possible, under favourable conditions, to climb to 1,400 feet.

The E.S.G. has a triangular frame; it is a Grunau design (GRUNAU 9), very popular in Germany. It is very easy to fly—so easy that there are people who call this property a disadvantage. It is practically impossible to stall or spin it. The wing span is about 30 feet, the weight 125 kg. (276 lbs.); the construction is very sturdy, and, when it is used for training beginners, shock absorbers in the landing wires prevent damage to the wings in heavy landings. For more experienced pilots the glider is faired and equipped with a simple home-made speed indicator.

There are three E.S.G. (GRUNAU 9) gliders in the club, all built by the members; each is equipped with a quick release, and has its skid covered with iron sheeting 1-16th inch thick. The sinking speed of these gliders is about 4 to 5 feet a second, and the lowest flying speed about 25 miles an hour.

For the last three months the club has had an old MAYER training plane with a wing span of 49 feet and sinking speed of 2 to 3 feet a second, and a stalling speed of about 23 miles an hour. Originally designed for hill soaring, it is slow on the turn and therefore not very efficient for thermal soaring.

The cables used for towing are soft non-curling steel strand cables of about 4 mm. diameter, in lengths of 75, 300, 450, 900 and 2,400 feet, the first being used for beginners and only the last for launching from the dyke.

The Method of Instruction

Instruction is carried out in accordance with the following programme:—

At first the beginner learns to handle the ailerons and rudder, so the glider is towed along the ground at just under the minimum flying speed, so that it cannot take off, but will nevertheless answer to the ailerons and rudder. The pupil has to keep the wing horizontal and follow the car. The 75-foot cable is used, attached by a quick release to the back of the car, where the instructor, who sits in the back seat, can release it in an emergency.

For the first tows the car is driven straight into wind. When the pupil can handle the ailerons pretty well, starts are made with the wind from the side, and the pupil has to counteract the tendency of the plane to turn into wind and keep it behind the car, which at the same time makes slight turns. Thus the instructor can see immediately whether the pupil operates the rudder in the correct way.

Usually after three to six tows the pupil does this satisfactorily, after which he has to learn the most dangerous of controls—the elevator. So the speed is increased up to flying speed and the pupil has to make small hops, not exceeding a height of three to five feet. At this stage the car launching method has the advantage that the instructor can see all the pilot's movements, as he is only 75 feet away, and can use the quick release to prevent things going wrong.

However, it sometimes happens that a pupil, knowing a bit of theory and anxious to make a good first flight, will wait till flying speed is attained and then, against instructions, suddenly hoist the glider up to 40 feet, the limit which the 75-foot cable will allow. In

The three types of machine used by the Eindhoven Gliding Club. Below on the left: an E.S.G., or "Grunau 9" primary. (The group in the picture put in 390 flights during a week's camp.) Above: a faired-in version of the same machine; photographed in twilight while looking for thermal lift over a wood adjoining the aerodrome, at half past nine in the evening. On the right: the old "Mayer" sailplane.

this case releasing the cable might cause an accident, so it is better to decrease the speed of the car slowly, and then, even if the control stick is pulled right back, the plane sinks quite slowly; when it is down to a few feet above the ground, speed may be increased a bit to give a good landing. This is, of course, only possible with a non-stalling glider.

If all goes well, the height of the hops is gradually increased, and landing and releasing the cable is taught. The next step is to use a longer cable, and usually after 25 to 30 launches the pupil is ready to try for his "A." This involves three flights of 20 seconds and one of 30 seconds, with a landing in a specified portion of the ground to show he can fly straight.

After this the pupil practises turns in calm weather, and usually after about 90 starts is ready for his "B," for which five flights of 60 seconds each must be made, with well-banked right and left turns and a spot landing made at minimum flying speed. The 900-foot cable is used at this stage, and the height reached is about 400 feet.

After his "B" licence the pupil is transferred to the faired-in E.S.G., and has to get enough experience to be able to make side slips and spot landings perfectly, and to get used to flying in fairly rough weather. At this stage he may try to circle in thermals, and his only obligation is to land near the starting place.

The next steps are: a launch from the dyke up to 1,000 feet, and flying the MAYER sailplane.

Connection with Thermals

Up to the present time launches from the dyke have all been made with the E.S.G. glider, under rather unfavourable conditions, and though a considerable height has been attained, no exceptional results have followed. Theoretically, thermal connection should be possible at this height, and conditions for thermals are favourable in the neighbourhood of the flying ground, where there are corn and hay fields, woods, meadows, and water.

Thermals have been found as follows:—

(1) After a rainy night, at about 11 o'clock in the morning, with the sun shining brightly, above cornfields and mown hayfields. In this thermal a flight of 5 minutes 35 seconds was made with the MAYER, after a launch with 1,200 feet of cable to a maximum height of about 550 feet. Several times during this flight the variometer registered six feet per second climb.

(2) After a hot day, above a wood, from 8 to 10 o'clock in the evening, when with an E.S.G. after a launch with the 1,200-foot cable a flight of 4 minutes 33 seconds was made.

The greatest difficulty is to get enough practice in turning and circling to keep in the thermals, and here especially the Dutch glider pilot feels the disadvantage of having no hills over which he can make prolonged soaring flights. Of course, it is possible to get such experience by aeroplane towing, but this is too expensive for the average Dutch gliding enthusiast, who has little money to spare for gliding. Moreover, there has been no Government subsidy so far.

At the Eindhoven Club, for instance, which is not one of the cheapest, the entrance fee is 5 guilders, yearly subscription 17 guilders, and for every launch 12 cents is charged. At the moment there are about 45 members. As not more than one glider may be flown at the same time, everything is done to increase the number of launches, and 10 or 12 an hour are possible with good organisation.

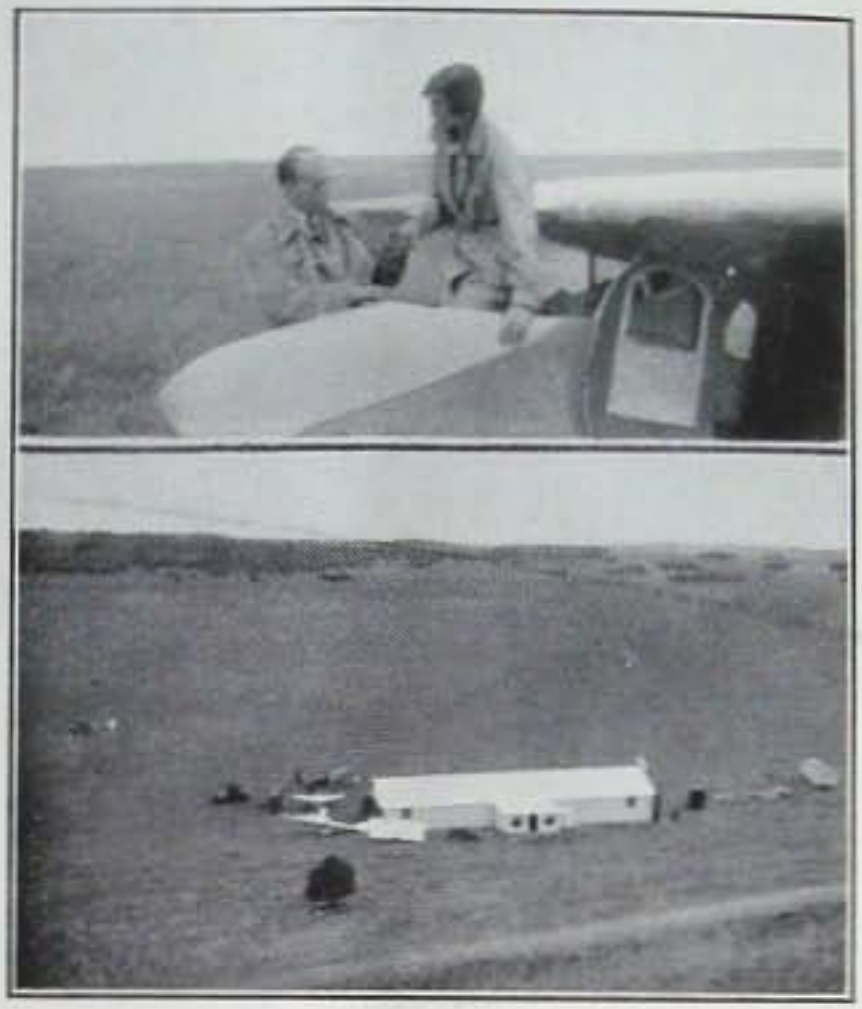
During elementary training the car tows back the glider and cable to the starting place at about 12 miles an hour, with someone on a bicycle holding the wing tip. More skilled pilots land at the starting place, and only the cable has to be returned by the car. All is ready for the next launch as soon as possible, without loss of time, for the members try to get as many turns as they can, hoping that one day they may be able to make thermal flights from car launches. To be able to do this, and at moderate cost, is the ideal of the Dutch gliding enthusiast and the best way to make the sport popular.

A Southdown Ceremony

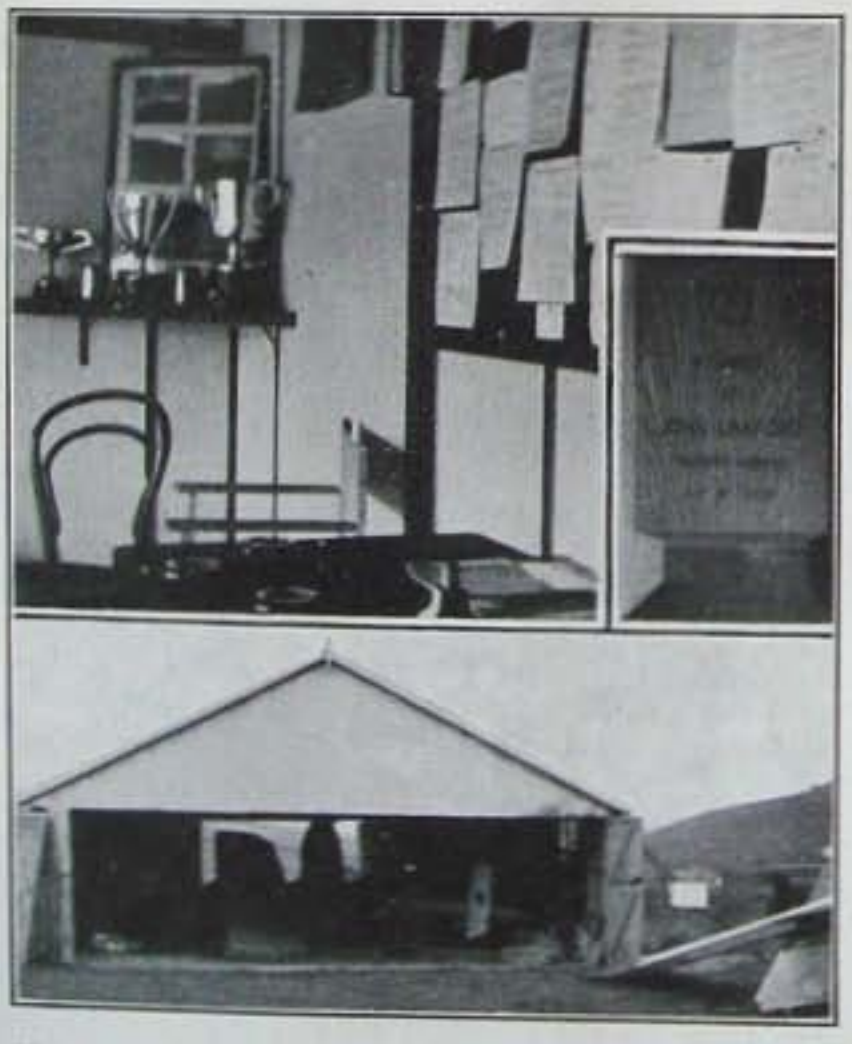
THE South Downs are, as far as this country is concerned, the birthplace of soaring flight. In the summer of 1922 the Germans were able to keep up in motorless flight for two and three hours, and the *Daily Mail* was thereby stimulated to organise a British meeting in the autumn of the same year. This was held on the Downs near Lewes, and at it soaring flight was seen for the first time in England—in fact, a new world's record for soaring duration was set up.

Gliding history on the South Downs can go further back than this, however, for in 1909 Mr. Gordon England (who was to become chairman of the British Gliding Association 21 years later) was launched off the Downs near Amberley in a tailless glider made by the late José Weiss; he is said to have risen 100 feet in the slope lift and kept the air for nearly a minute.

These early days were recalled by Mr. Gordon England in a speech made at the opening ceremony for the new buildings erected by the Southdown Gliding Club, which took place on Saturday, August 1st. The formal opening was performed by the Mayor of Brighton, Councillor E. Denne, J.P., who referred to the present club's origin in the Southdown Skysailing Club of 1930, whose secretary, Mr. York Bramble, holds the same office in the present club, an amalgamation of this and some other clubs which have existed on the South Downs in past years.



Robert Kronfeld hands the Mayoress of Brighton (Mrs. E. Denne) into his "Austria III" two-seater; the machine was launched with his own mobile winch, and kept the air for three minutes. Below: is a view of the Southdown Club's new hangar and clubhouse, and a portion of the training grounds surrounding it.



Above: a corner of the clubroom of the Southdown Gliding Club, showing notice board and a row of cups. Inset: the Lawford memorial plaque (executed by a club member, Mr. Rubick), which was unveiled by the Mayoress. Below: a view right through the hangar, which opens at both ends.

"Sailplane" Photographs.

Torrential rain at mid-day tended to discourage the crowds who might have otherwise turned up; it also prevented us from arriving until the weather had cleared sufficiently for the flying programme to begin. There was then a light northerly wind, insufficient for soaring on the northerly slopes; however, the club's two-seater was given repeated auto-towed launches for the rest of the day.

Another machine to fly was Robert Kronfeld's AUSTRIA III., which was brought along with its portable winch, he himself arriving in a "Drone" from Hanworth. This AUSTRIA is a two-seater cabin machine; it is *not* the largest sailplane in the world. (The Press were confusing it with the defunct AUSTRIA I.) He had as passenger the charming Mayoress of Brighton, who had never been in the air before; her flight was one of the chief events of the day. (The passenger's seat is in front for purposes of Press photography, but behind in actual flight, being situated directly under the wing.)

Power-driven flight was perfocmed by the "Drone" and by a "Moth" which came over, but Captain Latimer-Needham's "Luton Buzzard," which everyone looked forward to seeing, was unable to appear. A "Flying Flea," built by Mr. Dunning, a club member, was also on view.

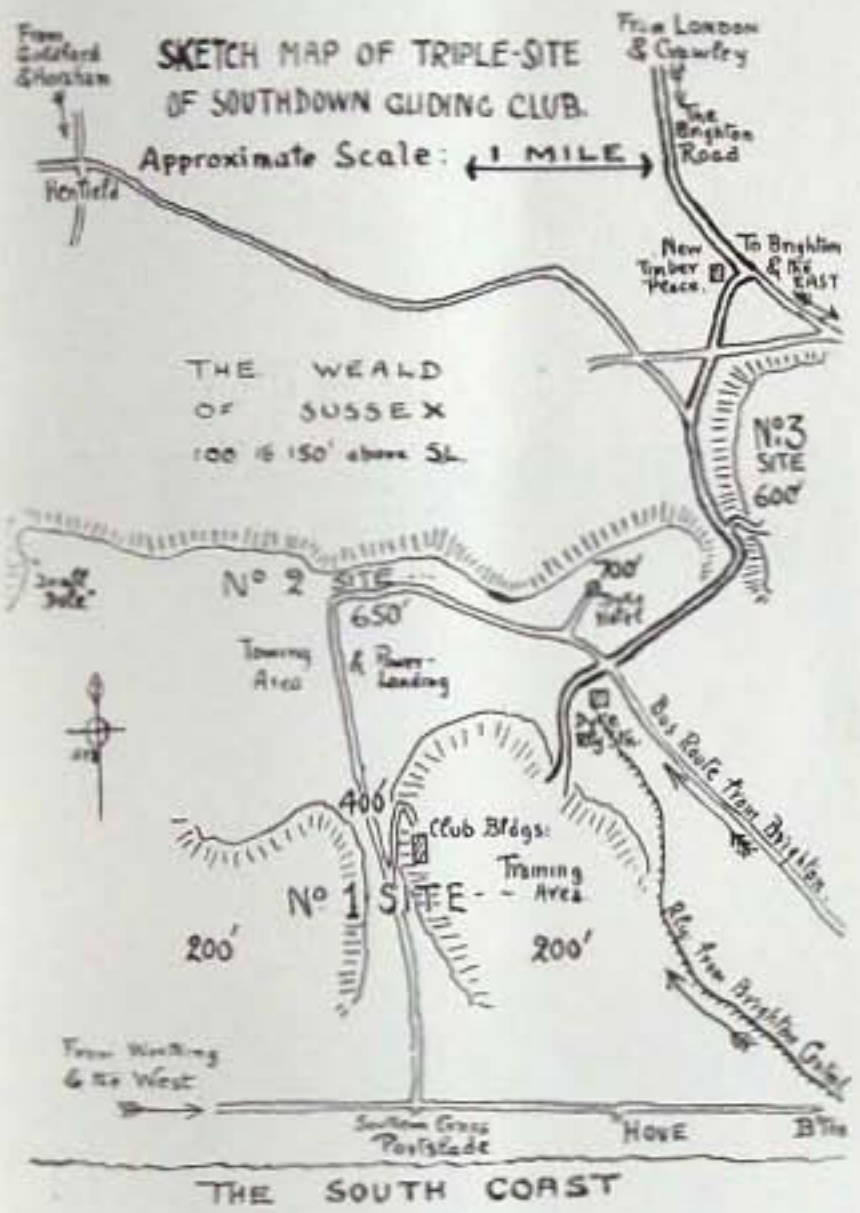
The newly completed hangar is ingeniously designed to include a workshop without loss of hangarage space.

How is this done? By having it to open at both ends (it is 100 ft. × 30 ft.), and flooring over the central part for working in. Thus the wings of gliders in the hangar can overhang the "workshop" without interfering with the work, and owing to the hangar width, a whole primary wing can be attended to at once in the floored part.

Attached to this building, at the centre of one of its long sides, is a very neat and cosy little club-house room, complete with well-equipped bar and a shut-off portion for use as an office. It leads directly into the workshop section. This club room should encourage the recruitment of new members.

An electric lighting set is being installed.

The club machines are: An open and a closed DAGLING, the DAGNALL sailplane, and a B.A.C. two-



seater. Two privately-owned machines are also kept there: a GRUNAU BABY built by Mr. Dunning, and a PRÜFLING by Messrs. Hatcher and Jameson, both tastefully got up in blue and cream (we refer to the machines). Mr. Filmer has a German-built GRUNAU which lives in its own trailer, while Mr. Little, another member, keeps a TERN, we believe, at Weybridge.

The South Downs, as is well known, form ideal training slopes for gliding, and the club has now a five years' lease covering all the land used for instruction, including gentle slopes in several different directions; the lease also covers the auto-launching track, along which the two-seater is towed up with a 1,000 foot cable, and a launching ground for the chief soaring slope.

All along the South Downs the best soaring slopes face north. While it must be admitted that north is not the prevailing wind, the club is no worse off in this respect than the famous gliding school at Rossitten on the Baltic, where the prevailing winds are west and the soaring slopes face east, but nevertheless a large number of "C" pilots are turned out annually.

The club membership, which is given as 37, includes an active nucleus of keen die-hards whom it was a pleasure to meet. The new buildings, which have been erected partly with aid from the government subsidy, should now enable the club to make the most of its opportunities, and everyone will look forward to seeing great strides made in the quantity and quality of its flying.

The flying meeting had been arranged to continue for the next two days, and although the weather did its best to prevent it, more flying was done. We hear that on August 2nd Mr. Filmer, in his GRUNAU, managed to cross from the north slope ("No. 2 site") to the west slope ("No. 3 site"), which is about two miles away, and, although short (about three-quarters of a mile), enables some soaring to be done in west winds. From here the pilot got up to about 1,500 ft. under a cloud street which behaved in rather a peculiar manner. The "street" is reported to have run east-west across the sky, and to have moved slowly southwards in what seemed to be a west wind. Mr. Filmer sailed up and down the street, with and against the wind, for nearly two hours.

He thereby won the Lawford Challenge Cup for altitude, the Leany Challenge Cup for distance, and the Yorke Cup for duration; while a spot-landing award went to W. Clifford.

E. S. Griffis

[*As the result of a crash in his own sailplane near Askam-in-Furness on August 12th, Mr. E. S. Griffis, of Sale, was fatally injured. A defective wing is reported to have been the cause of the accident, but the official enquiry has not yet been completed.*—ED.]

GRIFFIS was a man of stout heart and irrepressible cheerfulness. He was one of the pupils who made the 1935 camp at Dunstable a complete success. This he did unconsciously. By day we of the ground-hopping squads cheered him as he swept over us in open primaries with every wire humming and his bald head glittering. In return he never failed to give us what he called the Royal Salute. By night he radiated good humour in every party, surviving to the end with his invitations to everybody to join him in what he called a "binder," whence came his nick-name, sometimes lengthened to "Lord Binder of Sale."

In Sale he may be remembered for his public services, but among his camp friends he will live as a tower of optimism and courage.

The list of British pilots killed in gliders is short, but it contains too many gallant men, and "Binder" is one of them.

DIE-HARD.

News from the Clubs

List of British Gliding Clubs and their Secretaries

England.

ACCRINGTON AND DISTRICT.—67, Eagle Road, Accrington.

BILLINGHAM.—J. Tunstall, 3, Prospect Place, Norton.

CAMBRIDGE UNIVERSITY.—K. W. Turner, Trinity College, Cambridge. (Flying Ground: Caxton Gibbett.)

CHANNEL.—F. G. Whitnall, 16, High Street, Cheriton, Folkestone.

CORNWALL.—J. W. Graham, Red House, Tywardreath.

CROYDON.—A. Lindsey, 20, High View Avenue, Wallington.

DERBYSHIRE AND LANCASHIRE.—R. E. Garner, "Highfield," West Avenue, Shelton Lock, Derby. (Flying Centre: Camphill Farm, Great Hucklow.)

DEVON.—S. G. Tolman, Journal Office, Exmouth.

DORSET.—J. Laver, 9, Commercial Road, Weymouth. Flying Centre: Maiden Newton. Soaring Site: Kimmeridge, Isle of Purbeck.)

EAGLE.—H. J. Turner, 109, Colmore Row, Birmingham.

EAST LANCASHIRE.—J. Crosby, 116, High Audley Street, Blackburn.

ESSEX.—W. Webster, 113, Coombes Road, Dagenham.

FURNESS.—B. Winder, 16, Powerful Street, Walney, Barrow-in-Furness. (Flying Centre: Ireleth, Askam-in-Furness.)

HARROGATE.—E. T. W. Addyman, The White House, Starbeck, Harrogate.

HULL.—R. Kay, 16, Walliker Street, Hull. (Flying Ground: Hedon Aerodrome.)

IMPERIAL COLLEGE.—L. S. Holt, Imperial College of Science, South Kensington, S.W.7. (Flying Ground: Dunstable Downs.)

JERSEY.—K. J. Carter, The Terrace, Grosvenor Street, St. Helier. (Flying Ground: St. Ouen's Bay.)

KENT.—Miss R. H. Sinclair, Lady Place, Sutton Courtenay, Berks. (Flying Ground: Lenham, near Maidstone, Kent.)

LEICESTERSHIRE.—D. J. Williams, 17, Tennis Court Drive, Humberstone, Leicester.

LONDON.—H. O. Davies, 13, Victoria Street, London, S.W.1. (Flying Ground: Dunstable Downs, Beds.)

MIDLAND.—F. L. Felton, 131, Edmund Street, Birmingham. (Flying Centre: Long Mynd, Church Stretton, Salop. Additional Training Grounds at Handsworth, Northfields and Hereford.)

NEWCASTLE.—A. P. Miller, 25, Holme Avenue, Walkerville, Newcastle-on-Tyne. (Flying Centre: Moat Law, near Matfen.)

NORFOLK.—27, St. Stephen's Street, Norwich.

NOTTINGHAM.—R. V. Sowerbutts, 426, Woodborough Road, Nottingham.

PORTSMOUTH AND SOUTHSEA.—V. R. Yelf, 14, Middle Street, Southsea.

PRESTON AND DISTRICT.—L. E. Falla, "Lenlor," Lawrence Road, Penwortham, Preston.

ROCHDALE.—J. McLoughlin, 7, Clovelly Street, Murland, Rochdale.

RYEDALE.—F. Slingsby, Kirbymoorside, Yorks.

SHROPSHIRE.—G. B. Muir, "Ireland," Halford, Craven Arms, Salop.

SOUTHDOWNS.—A. York Bramble, 7A, First Avenue, Hove, 3, Sussex. (Flying Centre: Devil's Dyke, Brighton.)

TEES-SIDE.—H. P. Dean, 11, Redwing Lane, Norton-on-Tees, Co. Durham.

WORKINGTON AND WEST CUMBERLAND.—C. D. Muntz, "Woodland," Ellerbeck Lane, Workington, Cumberland.

WHITLEY BRIDGE AND DISTRICT.—T. E. Armes, "Darrendale," Snaith, Yorkshire.

YORKSHIRE.—A. Cox, "Overdale," Boston Avenue, Kirkstall, Leeds; and H. T. Blakeston, Aspen House, Driffield, Yorks. (Flying Ground: Sutton Bank, near Thirsk, Yorks.)

Scotland.

ELGIN.—D. M. McRae, Park House, South Street, Elgin.

INVERNESS.—F. Oliver, 13, Leys Drive, Inverness.

PERTH.—R. Mackelvie, View Cottage, Union Road, Scone, Perthshire.

SCOTTISH GLIDING UNION.—J. W. Gardner, Journal Office, Alloa.

Wales.

PWLLHELI.—E. R. Wilson, "Bryn Tawel," Pwllheli, Carnarvonshire.

Northern Ireland.

ULSTER.—N. P. Metcalfe, c/o Uister Spinning Co., Ltd., Belfast. (Flying Centre: Magilligan Strand, Co. Londonderry.)

London Gliding Club

A "Kirby Kite" soaring over the picnic parties on Dunstable Downs, the London Gliding Club's site. Owing to the August Instruction Camp (described on another page) it has not been possible yet to compile a record of the ordinary club flying, which has been carried on as usual during the camp.

"Sailplane" Photograph.

Derbyshire and Lancashire Gliding Club

Saturday, July 25th.—Wind anywhere between west and south, 15 to 20 m.p.h. Dickson was first launched in his own new NACELLE from the west slope, but the real wind direction had been misjudged and he went to the bottom. The machine was retrieved, and Dickson was again launched, this time from the south slope, to take his "C" with 25 minutes. Garner then flew the club NACELLE, but the wind was already going west again, and he was forced to the bottom. Unfortunately a large thorn bush had grown just where he wanted to land. An errant kite, a thorny tree . . .

Later, when the wind had definitely made up its mind to be west, Smith and Robertson flew the GOLDEN WREN, while Davies got the KADET up to some 800 ft.

Day's flying time, approximately 3 hours.

Sunday, July 26th.—Wind west, 20 m.p.h. The GOLDEN WREN was flown by all its owners, while circuits and training proceeded with the winch. The wind would not quite hold the NACELLE, so the wise ones came in after two beats. The others went to the bottom. Dickson should be numbered amongst the latter, except that he flew into the hillside part way down, mildly damaging his machine. Miss Arland, who had been patiently waiting all the week for her "B," had the last flight of the day, and went to the bottom for it. Curiously enough, a retrieving crew was found even at this late hour.

Day's flying time, approximately 2½ hours.

Yorkshire Gliding Club

July 19th.—Wind S.W., 20 m.p.h. Low cloud at about 600 feet interfered with flying throughout the afternoon. Burnett, of the London Club, paid us a visit and joined as a temporary member. After a flight in FALCON III. with Sharpe, he took FALCON I. up twice during the afternoon for a total time of about four hours, frequently having to side-slip out into the bowl to get out of cloud. Lingford flew GRUNAU in and out of the cloud, and Pick (A. O.) also had a flight in her.

During the afternoon we had the novel sight of three FALCON III.'s in the air together, piloted by Slingsby (his own), Holdsworth (Sharpe's), and Stedman (the Ulster Club's). FALCON I., with Burnett in command, was also up at the same time. Woolcock and Wordsworth flew FALCON I. briefly, and at the end of the day Fisher (W. T.) took HOLS up into the bumps for 45 minutes. The various FALCON III.'s flew on seven occasions.

July 21st.—Wind S.W., 5 m.p.h. Fisher (W. T.) having now qualified for FALCON I. had his first taste of her in three circuits.

July 25th.—Burnett was up bright and early in GRUNAU in an attempt on a five-hour flight. Unfortunately his watch literally let him down, and he came in after 4 hours 42 minutes under the mistaken impression, fostered by the aforesaid watch, that he had done the necessary time, so he has the whole wearisome business to go through again.

Fisher (W. T.) soared FALCON I. for the first time and stayed up for an hour, Lingford following him in the same machine for two hours.

Holdsworth tested the club's new KADET in a flight of 20 minutes. Sharpe flew his FALCON III. twice, and Stedman piloted CITY OF LEEDS a similar number of times. GRUNAU was flown by Hastwell and A. O. Pick, and the latter, Wordsworth and Woolcock had flights in FALCON I.

Locke qualified for his "B" on HOLS and later obtained his "C" with a steady flight of eight minutes.

Three Five-hour Flights.

July 26th.—Wind S.W., variable. Stedman, flying solo in CITY OF LEEDS, Hastwell in GRUNAU, and Wordsworth in FALCON I. proceeded to do a five-hour formation flight in turbulent conditions. All three were launched within 15 minutes of each other at about 8.30 a.m., and they all came down shortly after their respective five-hour periods were up, Hastwell insisting on doing two totally unnecessary beats after the others had come in.

FALCON III. was flown on four occasions by Heath, Sharpe, Holdsworth, and Stedman for half-hour dual instruction flights.

FALCON I. and GRUNAU were flown throughout the day by various pilots.

		Launch		Landing
GRUNAU BABY				
Hastwell	... ...	8.33 a.m.	...	1.52 p.m.
Burnett	... ...	2.24 p.m.	...	3.29
Lingford	... ...	3.43	...	5. 0
Bailey ...	... ...	5.13	...	6.35
Burnett ...	... ...	7. 5	...	8. 3
FALCON I.				
Wordsworth	... ...	8.38 a.m.	...	1.46 p.m.
Woolcock	... ...	2.15 p.m.	...	2.30
Fisher, W. T.	... ...	2.42	...	3.48
Locke ...	... ...	4. 6	...	4.45
Cox ...	... ...	5.32	...	6.47
Fisher, W. T.	... ...	7.25	...	8.17

During tea time Watson flew HOLS for 11 minutes. Bruce, Turnbull, and Tuck hopped on HOLS and DAGLING.

July 30th.—Miss Leathart had her first hops in HOLS. Watt and Fisher (W. T.) circuited GRUNAU and FALCON I. respectively.

July 31st.—Wind S.W., 10 m.p.h. Lingford flew GRUNAU for an hour and a half, and Fisher (W. T.) had 45 minutes in FALCON I.

For the first time in the history of the club the flying time for one month exceeds 100 hours, the actual club time in the air for July being 115 hours 57 minutes.

Ulster Gliding Club

June 13th.—A feeble N.N.E. wind resulted in no soaring being possible, but a useful day was spent in dual training in FALCON III. Some *ab initios* can now take off, fly, and land without help, which is decidedly encouraging. Thirteen flights, each of about four minutes, were got in.

A Remarkable Thermal Flight.

June 20th.—An interesting day with wind from S.E. blowing from the cliffs, and hot sun, the effect of which, on the bare sand, gave the pilot at times furiously to think! Cauldrons of turbulent air would be met with at about 100 feet, which, of course, is about the limit one would care to circle the two-seater with the landing ground some 100 yards distant. The difference in temperature could be felt as one entered these areas, and the machine was thrown about violently. On one occasion, at about 250 feet, a gentle one took the machine in hand and at 1,200 feet the occupants found themselves about a mile out to sea (with the machine's shadow far below reflected on the waves), whereat discretion was thought the better part of valour, and a fond farewell bid to the thermal, which was getting a bit weak anyway.

Arguments and theory prompt the following queries:—

Does the comparatively cool air over the sea cause an invisible slope which acts similarly to a more concrete slope of solid ground and which enables one to use a thermal on it as one would on a normal site?

Does the bubble theory *always* hold good for thermals, or is there also a condition in which one has a mass of air on the ground heated by the usual method, but not yet free to float off?

A down-current of cool air (let us suppose) comes along and impinges upon this mass of warm air which immediately attempts to escape through this cold funnel, presumably at its centre or coldest spot. Do we now have a sort of inverted funnel or tun dish with the warmed air rushing upwards through the cold spout which is also spreading out and over the mass of warmed air and actually squeezing it out and up like a sponge, until equilibrium is established, whereupon the thermal, as we know it, ceases?

Does not this explain the down-current surrounding most thermals, and the cause of the spiral motion?

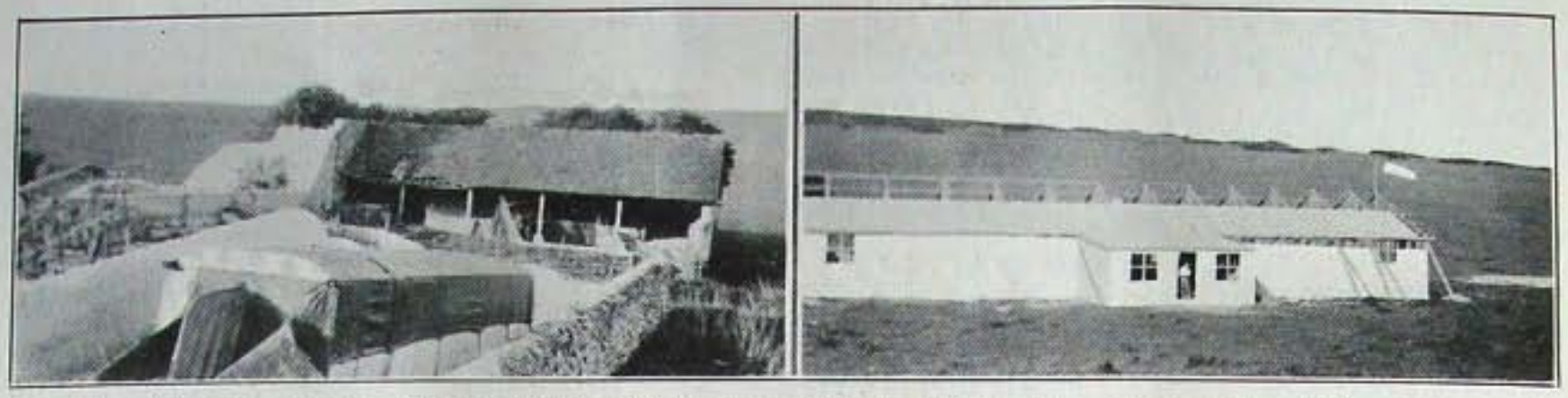
Does the down-current expand or contract as it comes down: does it get weaker or stronger, or to put it in another way, "did the egg come before the bird?"

It was a pity a car got in the way and bent the wing tip of the two-seater on the last flight, but these things occasionally happen.

Flying time, 45 minutes.

July 26th.—A spell of the poorest weather for soaring we have had for years has prevented flying for the past few weeks, but to-day we were glad to have Nicholson (who is on a visit to Ireland) with us and have him try our site at Magilligan in the GRUNAU. The two-seater also flew and Liddell did an hour in the GRUNAU. Nothing much in the way of thermals was experienced, but a few were run into and Binevenagh was visited twice. A pleasant day. Flying time, 4½ hours.

Southdown Gliding Club



The Old and the New: Showing where the Southdown Gliding Club used to stow their machines, and where they will do so in future. The new hangar and clubhouse is now finished and had its official opening on August 1st, as described on another page.

Midland Gliding Club

August 1st to August 4th.—From the point of view of soaring, conditions over the whole week-end were excellent. Members began to arrive at mid-day on Saturday and found only a light wind blowing over the ridge. With the idea of "trying it on the dog first," Olver was heaved over the edge in FALCON I., and descended to the bottom after only one beat.

While the FALCON was being retrieved the breeze freshened to nearly 30 m.p.h. and continued to blow at that strength for the whole period until the Tuesday evening.

As there were over 40 hours of flying, we can only mention those flights which are of special interest.

Everell gave us our first thrill when he had the misfortune to catch a wing tip when landing and performed a ground loop. KADET II. was the victim, and her fuselage will certainly require considerable attention. Her wings, we are glad to record, are almost intact.

Hardwick and Williams took off in FALCON III. for the last flight of the week-end, and when flying due west in order to lose height preparatory to landing, found that they could not get away from the uplift and were remorselessly sucked into a cloud at 2,000 feet. It was, fortunately, not turbulent, and they eventually found themselves below cloud level again after approximately 10 minutes of blind flying. At this point they were some miles east of the ridge and 1,400 feet above. They succeeded in getting back on to the ridge and landed a few hundred yards from the club ground after a flight lasting 1 hour 45 minutes.

FALCON III. was kept busy giving instruction, piloted by Wynne, Testar, Meeke, Davies, and later Olver, who was co-opted to assist.

After taking dual instruction in FALCON III., Sheffield and Johnson were sent off for their first solo flights and performed very creditably, but we are not quite sure whether these were "B" or "C" flights.

The writer of these notes has not the official record before him, but believes that the club now has 30 "C" pilots, apart from those who have carried out soaring flights for their "B" tickets, but have not yet taken their "C" certificates.

A report of Dugdale's accident at Hereford appeared in last month's SAILPLANE, but we understand that further investigation into the cause of the crash has revealed no explanation. Dugdale himself has little recollection of the whole episode, and examination of the wreckage of the SCUD I. did not reveal any fault, so that this will remain one of those happenings which must for ever remain wrapped in mystery.

August 8th and 9th.—In spite of lovely weather, there was insufficient breeze to allow any soaring and nothing could be done but potter round the craft and discuss the previous week-end's flying. Barnes arrived with a variometer made from an old A.S.I., as described in a recent number of THE SAILPLANE, and we were very delighted to find that the instrument proved to be exceedingly sensitive when tried in a car, but of course lack of flying prevented a test in the air. The instrument is intended for the H17, which is expected at the Mynd the week-end after next.

Furness Gliding Club

Monday, July 20th.—Wind N.W., 15 m.p.h. Four enthusiasts journeyed to Ireleth for the express purpose of trying the new KIRBY KADET. Stevens flew it twice and pronounced controls good and conditions stable. Cyril Redshaw, who has not had a soaring flight for two years or more, took up the KADET and coasted about in grand style. All landings were smartly made on the hill top near the hangar, and we packed up after an hour's soaring, feeling very pleased with the evening's work.

The following week-end had been set apart for the opening ceremony of our hangar by the chairman of the club, Captain John Fisher.

Saturday, July 25th.—Wind south, 12 m.p.h., threatening rain. Mr. and Mrs. Slingsby arrived with a FALCON III. in tow, and this was the signal for a regular downpour. We were not dismayed, and promptly started to rig this fine ship of the air, which, as events proved, was to provide us with such a treat on the morrow.

Messrs. Slingsby, Smith, Todd, and Stevens worked like trojans to get the stage set for a great day.

Sunday, July 26th.—At 8.30 a.m. the day looked miserable enough; sky overcast with sharp showers of rain, just bad enough to frighten away the faint-hearted, but not Mr. and Mrs. Slingsby, who arrived promptly, equipped for every emergency. By 11 a.m. the wind had freshened from the S.W. and continued to blow steadily until dusk.

A few appropriate words spoken by Captain Fisher and then machines were got into the air as fast as was humanly possible. Mr. Slingsby, with our chairman as pupil, was first away in FALCON III., to prove once again a site which he had made famous as a soaring rendezvous in 1932. Stevens was next away in the new KIRBY KADET, followed by Charles in the KIRBY KITE. Meanwhile the FALCON III. (I prefer to call her the "Kirby Kondor") was astounding everybody by her performance; first by the way she climbed away from a "bungy" launch and then (presumably by skilful handling) she was soon soaring sedately 600 to 700 feet above the hill top, with Captain Fisher having the thrill of a lifetime. After 35 minutes we watched with interest the approach for a landing, but Slingsby could not coax this old bird to settle down at the approved spot. Time and again she would come down almost to earth and then zoom back to 200 or 300 feet above the hill. Finally, Slingsby tried an experiment which proved a success and landed her safely on the flat field behind the hangar. A fine bit of pilotage which he repeated many times during the day.

Meanwhile Stevens had landed the KADET on the site, and Beauchamp had flown her to the golf course, while Charles in his KITE was nibbling at the clouds.

From now on the two-seater was kept busy, eight pupils having an average of 30 minutes each. On one occasion this remarkable machine carried a live load of 29 stones (406 lbs.) on a flight of twenty minutes. She was often as high as the KITE, though the latter in the hands of her owner claimed the maximum altitude for the day.

Many of us recall G. M. Buxton's prize-winning effort during the 1932 competitions, when in the FALCON I. he rounded the

Dunnerholme Rock. Now in 1936 we saw her big sister, a two-seater, in the hands of her designer, perform the feat with ease.

Charles also did it several times during the day, proving conclusively that we are progressing in design and technique.

Four pilots and eight pupils with three machines put in seven hours soaring during ahe day, and we are grateful to all who helped to make the day a success.

Wednesday, July 29th.—Wind W.N.W., slight. A great day for thermals, yet 7.30 p.m. was too late; both Charles and Stevens in the KIRBY KITE hunted in vain for half an hour, but could only just manage a landing on top.

August Bank Holiday was a holiday indeed, and the line squalls chased each other across country at tremendous speeds.

Newcastle Gliding Club

Saturday, July 25th.—Hick and Coates took the trailer to Harrogate to bring Addyman's ZEPHYR, which he had agreed to loan to Hick for a month. All three worked until 3 a.m. on Sunday to put some finishing touches to the nacelle, which someone's heavy feet had necessitated. Mr. and Mrs. Addyman's hospitality made what would otherwise have been a tedious and unenviable task, into a week-end holiday.

Sunday, July 26th.—Owing to heavy winds, no flying was possible at Moat Law until 7 p.m. Addyman, Hick, and Coates arrived at 6.30 p.m. with the ZEPHYR after a gruelling six-hour journey in a heavy cross wind. Flights were made by Addyman and Hick in the ZEPHYR, and we were all impressed with this machine's performance.

Friday July 31st.—Hick and Coates took the trailer to Moat Law to collect the ZEPHYR, and Addyman, who had been living in the club room for a day or two, and take them to Tosson, in the Simonside Hills. They arrived at Moat Law at 7.30 p.m., but no sign of Addyman. He had left a note in the window to say that he had "Just gone for a walk to Chollerford," and that he would be back after tea. We wouldn't have been much more surprised if he had said he was walking to Sutton Bank. Allan turned up and helped to load up. Addyman arrived about 10 p.m.

At 12.30 a.m., Saturday, we finally arrived at Rothbury and Great Tosson, and stayed the night. Early in the morning ZEPHYR was taken to the top of the Green Hill, below Tosson, and Coates left for "toil" in the city, after having slept in every conceivable position in his car.

Hick was launched in the ZEPHYR, and being unable to obtain any lift made a glide to the bottom, lasting about three minutes. No more flights were made under these conditions as it was no easy task retrieving the machine.

Sunday, August 2nd, and Monday, August 3rd.—A 90 m.p.h. wind was blowing over the top of the hill almost all these two days, so there was nothing to do but hang about.

Tuesday, August 4th.—Hick soared the MERLIN at Rothbury (Tosson) for over an hour, and was driven down by rain. On this same day Professor S. C. O'Grady, our new chief instructor, gained his "A," "B," and "C" certificates after only half-an-hour's dual at the instructional camp at Sutton Bank.

Saturday, August 7th.—Alex. Bell, our engineer, worked like a trojan to-day getting the open CRAMCRAFT (P1) ready for Sunday. Mr. and Mrs. Miller continued with the restoration of the tea room.

Late at night Miller and Coates were compelled to go to Rothbury to collect the launching cable, and after feeling their way about the hill, shouting "Excelsior," or the like, they discovered Hick in a tent and later found Addyman sleeping under the wing of the ZEPHYR, about half a mile away. They eventually arrived home after 4 a.m. on the Sunday morning. While half the club are sleeping they do not know what the other half are doing.

Sunday, August 8th.—O'Grady arrived at Moat Law fresh from his triumphs at Sutton Bank. The whole day was spent in primary instruction, and it is doubtful if more progress has ever been made on a single day. Hogarth had his first slides, after which he was launched off the primary slope to make a most hair-raising flight of 11 seconds. We prayed for him when he pulled the stick right back and then shoved it forward, and we heaved sighs of relief when he finally laid CRAMCRAFT down quite safely, without even leaving a skid print.

Wood, Taylor, and Cummings had quite a number of flights and are making good progress.

Burningham handled CRAMCRAFT very nicely, proving himself another candidate for a certificate.

Rain put an end to flying at 4.30 p.m. After tea the hat was handed round for a winch cable and £5 10s. was raised.

Sunday, August 16th.—For some unknown reason there was a very poor turn out, and even the secretary pulled on the launching cable.

Hogarth continued to make good progress, and shows promise of being a fine pilot. Allan made some good flights and helped to increase the flying fees.

Great improvements are being made in the catering side of this gliding business, and we have to express our gratitude in no small measure to Mrs. Miller. We even had our meals off a linen tea-cloth this day. In addition we found the bar stocked with potato crisps and nuts and raisins.

Norfolk Gliding Club

July.—This month shows considerable improvement in the position of the club. We have finally decided to lease the proposed site at Mundesley and now have our own launching and retrieving car.

Meanwhile the overhaul of our primary continues. The controls have been rebushed and worn parts replaced. The machine rejoices in a new skid complete with metal sheath.

Sunday, August 2nd.—An amazing thing happened to-day! A few enthusiastic spirits gave the finishing touches to our new skid this morning and then in the afternoon took the machine out to Skeyton, our old site, where, lo and behold, we flew again! This after three months' inactivity. Four members put in twelve flights in a good westerly wind, and two of these struck what was presumably a thermal from the adjoining cornfield, but were too surprised to do anything about it. The proceedings were otherwise uneventful, except for some rather heavy landings, due perhaps to our lack of practice lately.

Other Gliding Clubs

Croydon.—The club is reported to have started activities on July 19th with a rebuilt DAGNALL primary, when six members made 23 hops. The site is eight miles from Croydon. A secondary machine is expected later.

Wearside Gliding Syndicate. This is the name given themselves by six enthusiasts who have built a glider at a cost of £20 at a garage in Sunderland. One is a policeman who has "experimented with models for several years," another a former power pilot, another a flying member of the Newcastle Gliding Club. They have each had a trial flight in the machine (span 35 ft.) in a field at New Seaham. They drew out of a hat to decide who should go first.

Harrogate Aircraft Club.—Mr. E. T. W. Addyman, the hon. secretary, after an expedition to the Rothbury Hills, is reported to have concluded that the hills near Simonside and Tosson, in the Rothbury area, form probably the best group of soaring and gliding sites in England. Several glides and a soaring flight of 69 minutes were made. On Wreighill Beacon, above Hepple, were found almost perfect training slopes for gliding instruction without difficulty or danger in any wind direction.

Preston and District Gliding Club.—As reported in our July issue, the club is to work with light aeroplanes as well as gliders. Arising out of this, an action was heard at Preston County Court on August 4th before Judge R. Peel. The club secretary, on behalf of himself and all the members, sued Aero Engines, Ltd., of Kingswood, Bristol, claiming £100 for breach of contract, and breach of warranty. The engine was exhibited in court, according to the *Preston Guardian*.

Mr. Lambert, for the plaintiffs, said it was complained that the engine, bought as a new one, proved not to be new, but one that had been reconditioned and was unsafe for use; and that the company took an unreasonable time to replace a defective crankshaft.

Mr. Backhouse, for the defendants, said their case was that there was no contract between the parties at all; also that the crankshaft was not defective.

Judge Peel found on the question of fact that, apart from the crankshaft, the engine was reasonably fit for the purpose for which it was supplied. He reserved judgment on some points of law on which there had been a long legal discussion after the evidence had been heard.

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