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THE SAILPLANE *and* GLIDER

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The International Competitions

THE rules for the international competitions at the Wasserkuppe, Germany, from July 4th to 18th, have just arrived.

Each national Aero Club can enter up to five sailplanes, and for each sailplane two pilots can be entered. With each machine entered, a car driver and at least one assistant (rigger) must be provided. The German Aero Club will provide an assistant acquainted with the locality for each sailplane entered. Trailers, and cars to pull them, must be provided by the national teams. Launching ropes with teams, and aeroplanes with towing pilots, will be provided by the organisers.

Teams taking part in the competitions must arrive at the Wasserkuppe by noon on July 2nd.

Each sailplane must be provided with a barograph registering up to 5,000 metres, with a run of at least six hours. There must be a parachute for each sailplane. Two-seated sailplanes may be entered.

A technical assistance service will be provided for any necessary repairs to machines. Damaged machines must be repaired to the satisfaction of the competition authorities before they can fly again.

Certain regulations as to insurance must be observed. Each pilot must be insured up to a minimum 1,000 RM. for fatal accident, 5,000 RM. for non-fatal, and 1,000 RM. for illness expenses. Sailplanes must be insured against claims for damage in Germany and neighbouring countries up to 100,000 RM.

The President of the German Aero Club is chairman of the prize commission. This body will decide the allocation of points in accordance with the results communicated by the competition management. Its decisions will be made known on the concluding day of the competition.

Prizes will be money prizes and otherwise. Money prizes are:—

(*a*) For the first five in the totals of points awarded: RM. 2,500, 2,000, 1,500, 1,000 and 500 respectively;

(*b*) For the longest distance flight (minimum 200 km.): RM. 1,000;

(*c*) For the greatest height, which must be at least 2,000 metres above the start: RM. 1,000;

(*d*) For the greatest total flying time, including a flight of at least 6 hours: RM. 1,000.

Other prizes are six in number, and in addition the competition management can offer prizes in kind as Daily Prizes.

Points are awarded according to certain formulæ. The order of winners of the competition is given by the total number of points which have been earned on the same sailplane (*auf dem gleichen Segelflugzeug*) during the competition. Pilots without the "Silver C" certificate receive an additional 10 per cent. on the points they have earned.

For distance, the points are reckoned according to the formula: number of points = (km.−M)F. The distance is measured in a straight line; M is the minimum distance allowed for the day, and F the "day factor," which is calculated from the mean of the five best distance flights on the particular day. For instance, if the mean of the best five is between 30 and 75 km., the minimum distance is 30 km. and the "day factor" 2.5. If the mean best is over 220 km., the minimum is 50 km. and the "day factor" 1.0.

For height flights, no points are awarded for under 500 m. Beyond that, points are awarded on a sliding scale: for each 25 m. from 500 to 1,000 m., 0.5 point is awarded; for each 25 m. from 1,000 to 1,500 m., 1 point; from 1,500 to 2,000, 1.5 points; 2,000 to 2,500, 2 points; 2,500 to 3,000, 2.5 points; above 3,000, 4 points.

Similarly for duration flights a pilot earns nothing till he has been in the air 2½ hours, then he begins to accumulate points at a gradually increasing rate, e.g., after 8½ hours he is adding 4 points to his total every 5 minutes.

For out-and-return flights a regular course has been set: Wasserkuppe-Kreuzberg-Dammersfeld-Wasserkuppe, with landing on the aerodrome. This course is about 35 km. (22 miles), but counts as a 100 km. flight each time it is done. Longer out-and-return flights may be set.

Those taking part in the competition will be given free board and accommodation. A free allowance of petrol and oil will be at each team's disposal.

Finally, "the Aero Club of Germany is prepared to arrange accommodation for members of the national Aero Clubs and their associated gliding organisations who wish to attend the meeting as spectators."

From Here and There

Queer Soaring.—Once again the continuation of the article "Queer Soaring" has had to be held over—this time for lack of space.

* * *

Gliding Film.—The film "Plane Sailing," which explains soaring flight to the public and includes "shots" of many well-known gliding men, has already been booked for showing at a number of cinemas (see adjoining column). The full version runs for 16 minutes; "London Pavilion" version 12 minutes.

* * *

International Trophy for Sailplanes.—Prince Bibesco, president of the *Féderation Aéronautique Internationale*, has offered a trophy, to be known as the "Coupe Bibesco," for a sailplane "touring" flight to Bucharest. A committee has been set up, including a representative from this country, to draw up the rules to govern this contest.

* * *

Glide over Pyramids.—On March 31st or thereabouts, the Hungarian pilot and explorer, Count Almasy, was, according to the *Daily Sketch*, towed off in a glider from Almaza aerodrome (Cairo) by an R.A.F. 'plane, was released over the centre of Cairo, glided over the Nile and over the Pyramids and landed near them. The distance, according to the map, is eight or nine miles

* * *

Bird Photography.—An expedition to study and photograph the crowned hawk-eagle of South Africa is to be made, under the auspices of the National Geographic Society of the United States, by Captain C. W. R. Knight, the English ornithologist and bird photographer. Captain Knight became well known about 13 years ago for his film showing his tame eagle, which included some remarkable slow-motion pictures of flapping flight.

* * *

A Bakelite Glider.—Professor Fritz Huth, a pioneer German aircraft designer, who, according to a Press report, claims to have built the first all-metal aeroplane, has now had a glider built of bakelite. The Professor claims that this material is as strong as any metal used in aircraft construction, and much cheaper. He hopes soon to build a bakelite passenger aeroplane, and adds that the material "may be used with safety for bombers"—though whose safety is not specified.

* * *

Assistance for South Africa.—Sir Abe Bailey recently gave £10,000 for the advancement of civil aviation in South Africa. Two thousand pounds of this sum is now to be devoted to the gliding movement. There is no doubt that this is partly due to the enterprise of Messrs. Slingsby Sailplanes in sending a KIRBY KITE to the Union last autumn. Adding this sum to their own Government subsidy, the South African gliding movement is this year receiving assistance on a handsome scale, and should be able to make substantial headway from now on.

Where to See "Plane Sailing"

At present showing London Pavilion, Piccadilly Circus.

April	11	7 days	Theatre Royal, Portsmouth.
,,	12	3 ,,	Gaumont, Princes Park, Liverpool.
,,	19	6 ,,	Gaumont Palace, Chester.
,,	19	6 ,,	Classic, Belfast.
,,	19	6 ,,	Picture House, Glasgow.
,,	22	3 ,,	Super, Birkenhead.
,,	26	3 ,,	Rivoli, Aigburth.
,,	26	6 ,,	B.B. Cinerama, Glasgow.
May	2	7 ,,	Majestic, Rochester.
,,	10	3 ,,	Alhambra, Darlington.
,,	17	6 ,,	Corona, Liverpool.
,,	17	6 ,,	Casino, Liverpool.
,,	17	6 ,,	Palladium, Southport.
,,	17	6 ,,	Plaza, Liverpool.
,,	17	6 ,,	Gaumont Palace, Egremont.
,,	31	3 ,,	Gaumont Palace, Anfield, Liverpool.
,,	31	3 ,,	Empress, Liverpool.

Mr. Fox's flight from Dunstable to Hertford, described on the opposite page, was remarkable for being carried out entirely under a sheet of strato-cumulus. Here is the actual cloud, photographed shortly after the start of the flight, the pilot at the time being a mile or two away on the photographer's left. The view is from Dunstable Downs south-west towards Ivinghoe Beacon. Beyond the strato-cumulus sheet is a line of cumulus moving parallel to the wind.

After the landing at Little Amwell, the dismantled "Kite" was seen by a passer-by who informed the police that the wreckage of a crashed aeroplane was "lying all over the road." And the police were directed to the spot by a labourer who said he had just seen the ambulance (i.e. the "Kite's" trailer) rushing to the scene of action.

Dunstable to Althorne

[*Mr. D. G. Hiscox, who describes a cross-country flight of 57 miles made by him in his "Kirby Kite" sailplane on Good Friday, is chairman of the London Gliding Club.*]

THERE was a delightful steady breeze, square on the hill, of 12 to 18 m.p.h., and it was soon obvious that there was "bags" of lift—certainly from 11 o'clock onwards.

The Bastion seemed to be the best spot. After circling in one patch of lift and then losing it at 2,000 feet, when still on the club side of Watling Street, the KITE got me back with 1,000 feet in hand. Another thermal was soon encountered, apparently off the north side of the Bastion. This was lost at about 2,500 feet when *beyond* the main road (Watling Street) and it seemed impossible to get back.

Disappointed with the height, I made off S.E. to the lee side of Markyate, especially hoping for lift, as a big cloud seemed to be there. There was nothing doing, so I continued on to Redbourne, again to the lee side, losing height all the way, and arrived with only 1,200 feet or so. Luckily, there the variometer showed plus 18 inches. Circling, I must have made ill use of it and picked up only 500 feet. That, however, was enough to put Hatfield aerodrome within range. It was easily recognised by the radio masts to the west of it. I approached, deliberately going over the eastern outskirts of St. Albans, which yielded a spot more lift in which I made three or four largish circles. Losing that, I went to the down-wind side of the aerodrome, sinking all the way. Arriving there, I found obvious activity and circled gingerly every now and again, fearing to get too far behind the buildings as I expected to have to land. Just when all seemed lost and there was only 400 to 500 feet left, I ran into beautiful lift, the variometer showing two metres a second climb. I hugged it with tight circles (so they seemed to me); eventually the altimeter showed just over 3,000 feet, when I lost it.

Keeping a more or less south-easterly course, I formed the policy of getting over the lee side of villages, woods, and factories, upon which the sun was shining. I do not remember once being disappointed, and flitted on with ease at altitudes of 2,500 to 3,000 feet; at that height I passed North Weald aerodrome.

Just as I could see the estuaries of water ahead, with the sea beyond, I also noticed a "front" approaching from the left with its leading clouds below me. I was perfectly situated to use it. The variometer showed plus three feet a second, so I pushed to a little over 50 m.p.h., which cancelled out the lift. I found myself shivering and wondered whether it was cold, fear, or excitement. Anyway, I was glad when I could slow up and see I was only losing a foot a second, and pushed off down a single-track railway with a road to its left and water and marshes to the right; presuming, of course, that even a single-track railway line must go places.

With still about 800 feet I saw a delightful field—i.e., long into wind, low hedge over which to approach, near a road, beside a railway station and with smoke from a cottage chimney giving accurate surface wind direction. Actually I must have gone nearly a mile past it, but, seeing trees around other fields ahead, came back and landed "on the spot." It was Althorne station, 57 miles from Dunstable.

The snow from the cold front fell as the stationmaster and I "parked" the dismantled KITE under cover on the station platform.

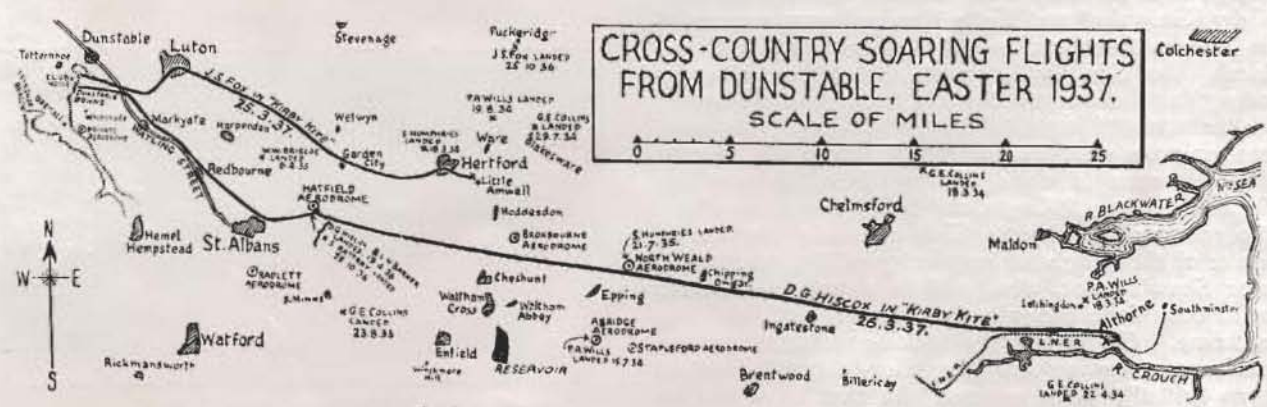
DUDLEY HISCOX.

Dunstable to Hertford

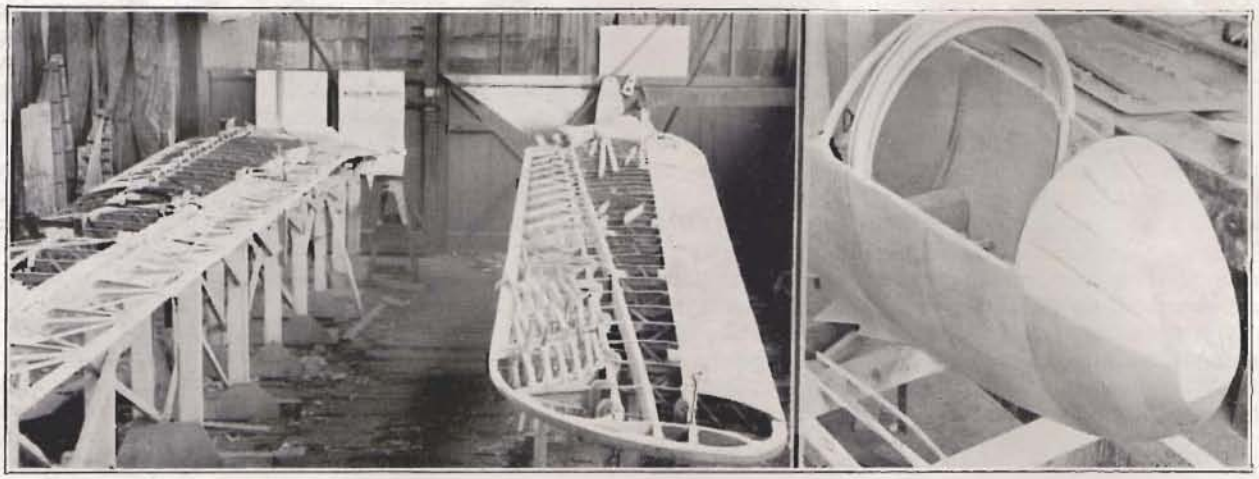
The first cross-country flight of the year was made by J. S. Fox, of the London Gliding Club, on Thursday, March 25th—the day before the flight described above. In this case also the machine was a privately-owned KIRBY KITE.

Hill lift was weak; so at first was the thermal in which he got away at 2.15 p.m., but it gained in strength as, by persistent circling, he went up in it to 2,400 ft. The pilot then turned north to fly over the middle of Luton, getting some thermal lift there to 2,200 ft., increasing to 3,500 ft. as he passed near Hatfield aerodrome, from which an aeroplane came up to have a look at him. From here he worked round to Hertford, and landed at Little Amwell on the Hertford-Hoddesdon road, 22 miles from the starting-point.

In the morning, when the wind was more northerly, Mr. Fox had intended to try and reach his home at Rickmansworth. Instead, he made Hertford his goal.



Easter in Yorkshire



The wings and nose of the first "Hjordis II" now under construction at Kirbymoorside. It is to be called the "King Kite."

EASTER is the time when members of the London Gliding Club, after being confined to their home site all the winter, begin to get that restless feeling, hitch up their trailers, and go north in search of adventure. So while Ivanoff, Fox, Burnett, Vigers and the RHÖNADLER went to Shropshire, Rattray and Davis with the CAMBRIDGE and SCUD to Derbyshire, and Nicholson, Dewsbery and Bell took the RHÖNSPERBER for a circular tour via Yorkshire and Derbyshire, I got a lift with Wills and the HJORDIS to the Yorkshire Club's meeting.

On the way, near Newark at about noon, we ran into the "front" which later caught up with Hiscox during his flight into Essex. A second and a third "front" followed, and as we sped along parallel to the last one, we could see how its northern end tailed off into a "street" of plain cumulus.

Leaving the HJORDIS at the Black Swan in Helmsley, we dashed off to Kirbymoorside to see the HJORDIS II. under construction at Slingsby's works. On Sunday another visit was paid, in company with some of the Wasserkuppe team, who stroked the HJORDIS II. with great affection and couldn't bear to tear themselves away from it.

There was a lively discussion as to what the new machine is to be called when it has a name of its own. "Kirby Kittiwake" and Kirby Koodoo" were suggested (the latter with an eye to business prospects in South Africa). But Slingsby has now settled the matter by sending THE SAILPLANE a General Arrangement drawing with the name "King Kite" in indelible ink. However, three examples of it are being built; there will have to be some means of distinguishing them, so why not call the other two "King Cole" and "King Kong"?

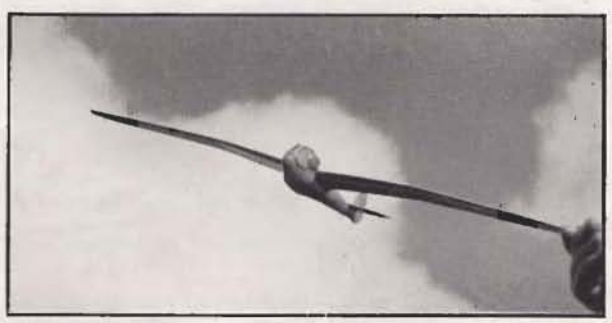
To round off a visit to Kirbymoorside one should partake of the delightful hospitality of Mr. McMurdo, Major Shaw's pilot, who, with a sister's assistance, runs a cosy little bungalow on the edge of Welburn aerodrome. He is greatly looking forward to the experience of towing sailplane pilots about behind an "Avro Cadet"; Wills assured him that he would be bored stiff, which he denied. Anyhow, no one could do it better, for McMurdo has an exhaustive knowledge of all the "bumps" in the neighbourhood.

Then to Sutton Bank—the first visit after an absence of nearly two years. It was a pleasure to see how everything was flourishing. The new hangar gives an air of solidity to the whole establishment, the clubhouse is a most homely place, and it was a delight to spend two nights in a dormitory full of all the people one reads about in THE SAILPLANE.

As to the club's flying, the pilots certainly know their air currents. The commentator in the film "Plane Sailing," preparing his audience for a crash, explains how the air swirls over the edge of Sutton Bank like breakers on a beach. It was a thrill to see how Hastwell, who had got below the top and looked like having to land at the bottom, suddenly caught one of these "breakers" and allowed it to lift him over the edge and, so to speak, deposit him high and dry on the shore.

Flying conditions were none too good, and the outstanding flight of the meeting was by Neilan, who, taking up the HJORDIS for the first time in his life, climbed with it to 1,500 feet. So we departed, leaving it in his charge for doing greater things.

A.E.S.



A beautifully finished scale model of the "King Kite," made by Mr. J. M. Noble, of the London Gliding Club.

Kirbymoorside Products

INDIA, Canada, South Africa, Rhodesia, the Channel Islands and Northern Ireland—to all these places go the products of the Kirbymoorside factory of Slingsby Sailplanes, not counting Great Britain itself, where nearly every club has ordered something which keeps the firm well supplied with orders, be it for a modest primary or an ambitious HJORDIS II.

Mention of the HJORDIS II. reminds us that this machine is very much in the news at the moment, owing to the approaching international contest in Germany, where it will have to show its paces in competition with the finest products of other countries.

The machine has now been given a real name: "KING KITE"; and the time has come to publish details and a plan. It bears much the same relation to the original HJORDIS I, as the German FAFNIR II. to the famous FAFNIR I.; that is, the high wing has been replaced by a "middle wing" sprouting from the sides of the fuselage. Another difference is that wing is of "gull" type, slightly arched. It is also fitted with plain (not split) flaps. But the most striking novelty is the adoption of a double convex wing section, hitherto almost unknown in a sailplane.

The wing section chosen is N.A.C.A. 23021 at the root, changing to N.A.C.A. 4412 at the tip. This range of American wing sections, only recently investigated and made available, is of great interest. At first glance a wing rib of the KING KITE looks exactly the same upside down as the right way up; only when one rib, reversed, is laid on another is it noticed that there is a difference in curvature between the upper and lower border, though the difference is practically confined to the front part of the section—the "nose." In fact, it may be said that an otherwise symmetrical section has had its nose tweaked, or pulled slightly downward. If the mid-line of the section is drawn, it will be seen that the camber is all near the front, as in the wing of many birds; and just as most large birds have such a stable wing that hardly any tail is needed for longitudinal control, so in the KING KITE the centre of pressure of the wing has hardly any travel at all.

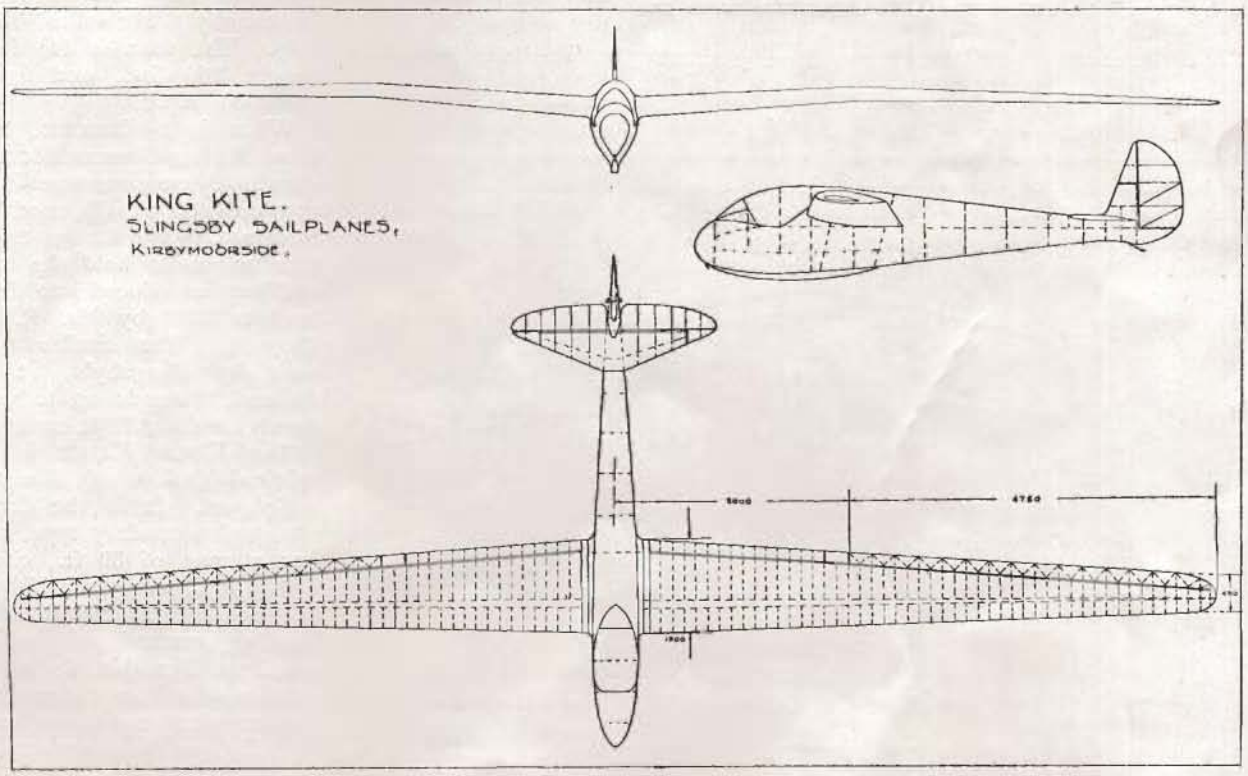
The angle of incidence is reduced at the wing tip; this can be well seen in the photograph on the opposite page. The wing is also tapered, the taper ratio being 2.5; while the aspect ratio is 18.5, and the span of the wing 51 feet, as in the original HJORDIS.

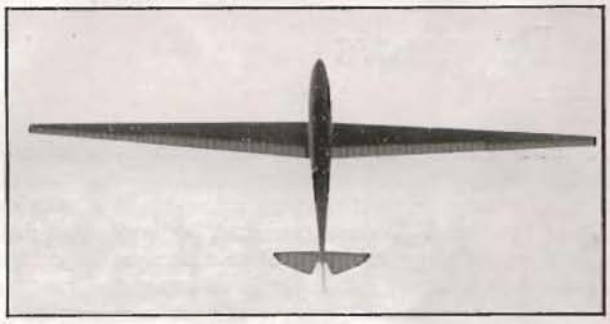
The fuselage has an "inverted drop section." The cockpit is totally enclosed.

With a wing area of 140 square feet and a weight, unladen, of 380 lbs., the fully loaded machine has a wing loading of 4 lbs. per square foot, approximately.

Three machines of the type are now on the stocks; when we visited the factory at Easter, the three fuselages were well on the way to completion, while one pair of wings was nearly finished except for the covering, and another pair of main spars had been built. So it looks as if the first KING KITE will be in the air well before Whitsun.

The designer of the KING KITE is Mr. G. M. Buxton, who, by the way, will in future be known as Wing-Commander Buxton. The details of the design were worked out by members of the staff of Slingsby Sail-





The "Hjordis" high performance sailplane, built at the Kirbymoorside works, first flew at the 1935 B.G.A. Competitions. Span 51 ft.: wing loading 4 lbs. per square foot. General arrangement drawings were published in our issue of March, 1936.
The machine is here seen from directly below, piloted by G. M. Buxton, its designer, at Sutton Bank this Easter.
The "Hjordis" holds the British distance record of 104 miles, set up by P. A. Wills last July.

planes—chiefly, we understand, Mr. Peter Shaw and Mr. Slingsby himself.

The firm of Slingsby Sailplanes has been built up from a very modest beginning in the form of a BRITISH FALCON sailplane constructed by Mr. F. N. Slingsby at Scarborough, and flown by him in 1932. At the B.G.A. Competitions that year, held at the Furness Club's site, Mr. Buxton flew it 13 miles to the north end of Coniston Lake, putting up what was then a British distance record. The machine was a copy of the well-known German FALKE, with slight modifications. Further modifications were introduced into the FALCON II., specially built for Mr. C. E. Hardwick in the days before he founded the Midland Gliding Club; the machine had lengthened and more rounded wing-tips.

The next stage in the development of the FALCON, also brought about with Mr. Hardwick's support, was to increase its size so that it could carry two people side by side. This was a radical departure from the usual tandem seating arrangement in two-seater sailplanes, but it has proved a striking success, the machine showing a quite unexpectedly good performance. The span is 58 feet, wing area 286 sq. feet, weight 500 lbs., flying speed 34 m.p.h. For comparison, the single-seater FALCON I. has a span of 42 feet, weight 265 lbs., and flying speed 30 m.p.h.

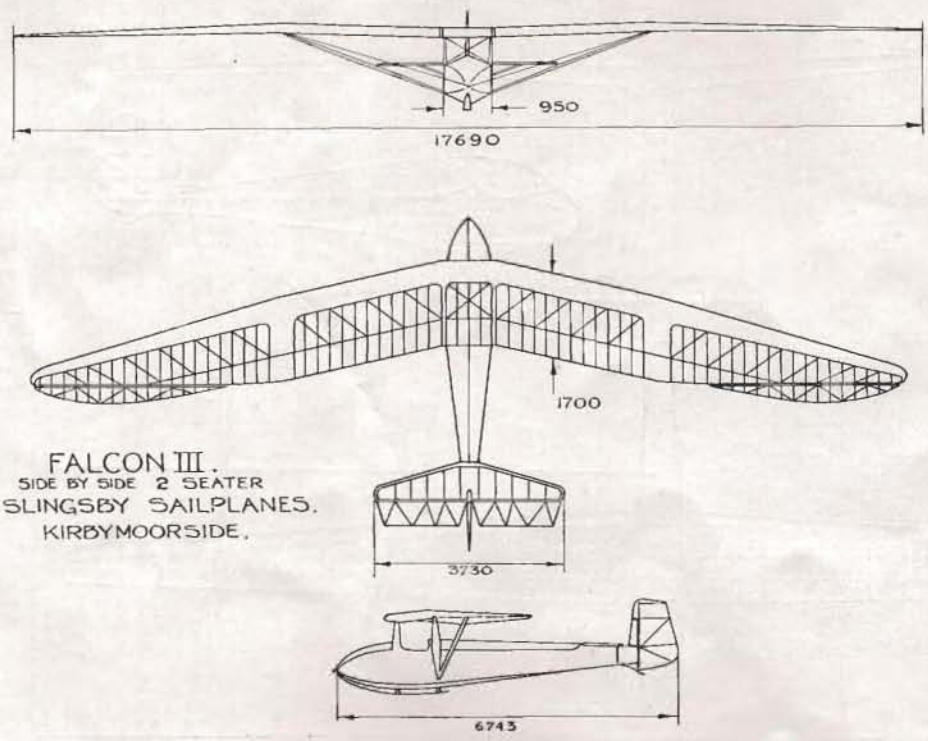
Two-seater FALCONS are now to be found at all the chief soaring sites in the British Isles. The first one appeared in the spring of 1935, but by this time Mr. Slingsby had moved from Scarborough to Kirbymoorside, owing to Major J. E. D. Shaw, who lives near, becoming interested in the firm and offering it accommodation. A further move has since been made to the present works close by the railway station, while Major Shaw's private aerodrome at Welburn, only a mile away, forms a convenient testing ground on which the firm's products can be given short flights.

Wing root fittings of "Hjordis."

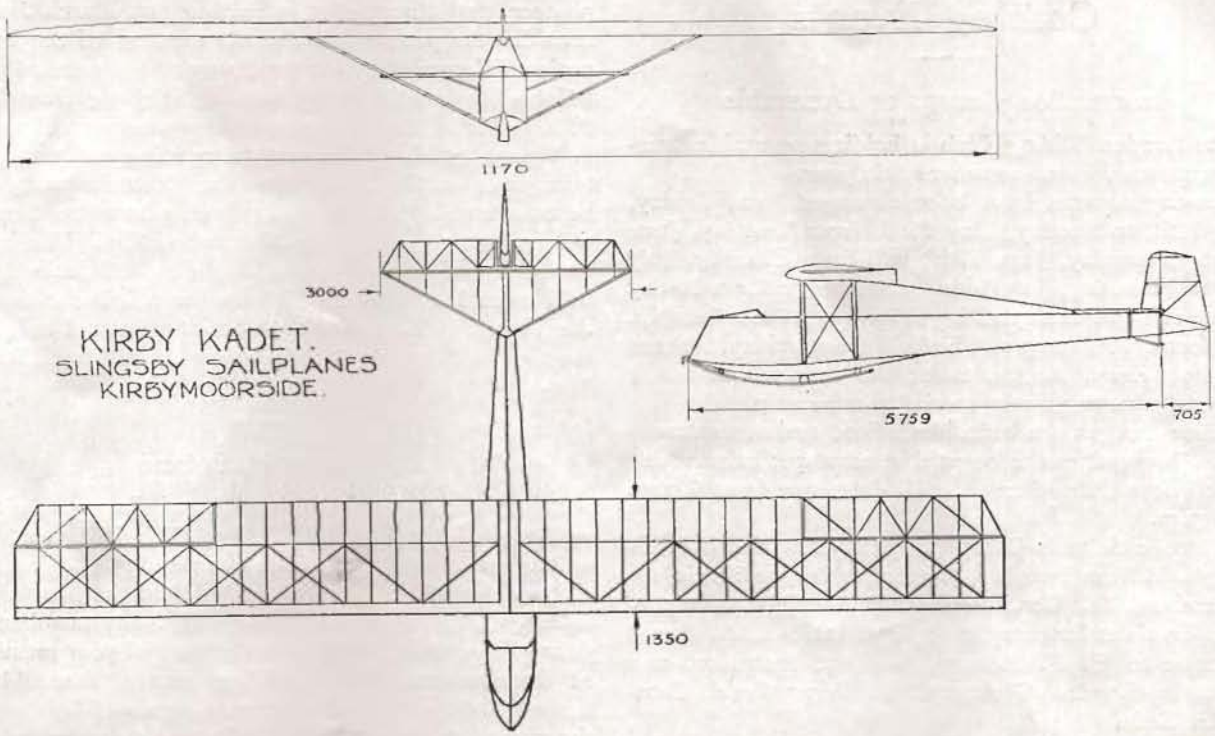
The GRUNAU BABY has for long been the most popular type of "soaring practice" machine in Germany. A similar machine is turned out at Kirbymoorside, and in one of this type Mr. J. S. Sproule, the firm's test pilot, flew from Sutton Bank to the Yorkshire coast at Hunmanby, 37 miles, last July. The span is 44½ feet, weight 260 lbs., and flying speed 30 m.p.h.

What is a DAGLING, and why? It is a German ZÖGLING elementary training type (ZÖGLING means "pupil"), modified in America by fitting metal tube booms to hold the tail, and first introduced into England in 1930 by Mr. R. F. Dagnall. The similar type built by Slingsby's, it is claimed, "stands up to very rough handling." It needs to.

The KIRBY KADET is an original design of Slingsby Sailplanes. It is the firm's standard secondary type, and has a span of 39 ft., chord 4 ft. 6 ins., wing area 170 sq. ft., and weight 260 lbs. A popular method of buying machines like this, for those who have neither the cash to buy one whole nor the patience to build one in its entirety, is

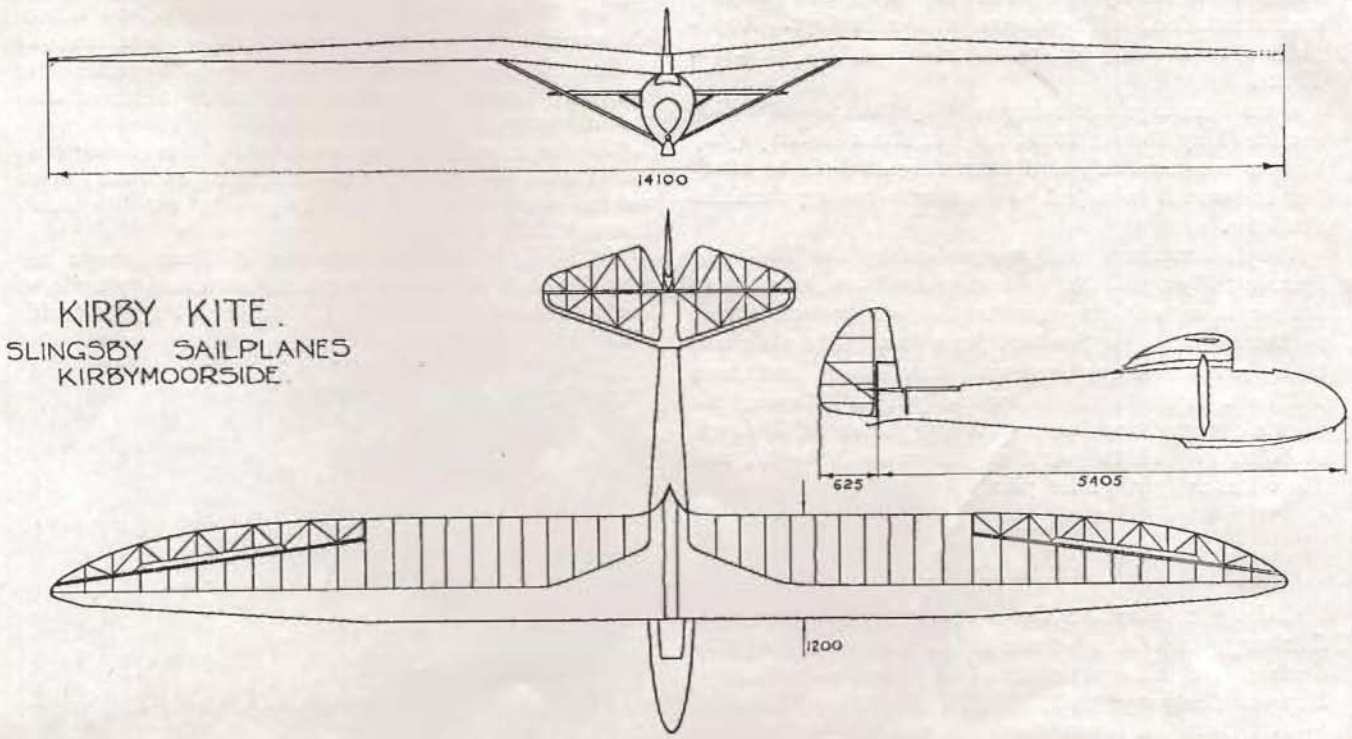


FALCON III.
SIDE BY SIDE 2 SEATER
SLINGSBY SAILPLANES.
KIRBYMOORSIDE.



to get the complete set of parts. The machine then grows so fast that you can see it take shape under your very eyes. At least, so overseas gliding men have found.

The span is 47 ft., wing area 157 sq. ft., weight 260 lbs., and flying speed 32 m.p.h. Fitted with differential aileron action, and detachable cockpit cover. The first KITE appeared at the 1935 Sutton Bank



The KIRBY KITE, apart from the wing being developed from the GRUNAU, but with a "gull" bend and more tapered tips, is another original Slingsby design.

Competitions, and made the longest flight of the meeting. Ever since then KIRBY KITES have been continually in the news.

Coming Events

Instruction Camps at Dunstable

The London Gliding Club is holding several instruction courses for non-members this year.

Ten-day courses have been arranged from Friday, May 14th, to Sunday, May 23rd; from Tuesday, June 8th, to Thursday, June 17th; and from Tuesday, July 6th, to Thursday, July 15th. The charge for a 10-day course is 8 guineas, plus 1 guinea special membership.

A fortnight's camp will be held from Friday, August 6th, to Friday, August 20th; the charge will be 11 guineas, plus 1 guinea special membership.

These charges are inclusive of food and accommodation. Two guineas to be paid in advance; balance one week before date of camp. All dates run from 6 p.m. to 6 p.m.

A Public Schools Camp (age 16 years and over) is being held from Tuesday, September 7th, to Thursday, September 16th. Conditions as for other 10-day camps.

Applications for entry to the Dunstable camps should be made to H. E. Hervey, Resident Instructor and Manager, London Gliding Club, Tring Road, Dunstable, Beds.

In Yorkshire

The Yorkshire Gliding Club's training camp is to be held at Sutton Bank, near Thirsk, from Sunday, August 1st, to Saturday, August 14th, inclusive. The inclusive fee for flying instruction, meals and camping accommodation, is 12 guineas for the 14 days. Applications to H. T. Blakeston, Spellowgate, Driffield, Yorks.

Open Meetings are being held by the club at Whitsuntide (May 15th to 18th), August Bank Holiday (July 31st to August 2nd), and from August 14th to 22nd. For the last it is hoped to have aero-towing facilities available.

The International Rally organised by the York and Leeming Flying Clubs, to take place from June 4th to 6th inclusive, will, as stated last month, include a visit to Sutton Bank on Sunday, June 6th. The visit will be by private car and saloon motor coach, and there will be a picnic luncheon for the guests. Among the guests expected are Oscar Ursinus (Father of Gliding), Rudolph (?) Hirth (aero engine manufacturer), and Thea Rasch (girl glider pilot).

At Salzburg

Gliding courses at the Gaisberg gliding school, Salzburg, Austria, continue till Christmas. Full particulars are obtainable from the Anglo-Continental Express Company, Ltd., 177, Regent Street, London, W.1. Both elementary and advanced gliding and soaring courses are held.

We are indebted to the company for the following news:—The President of the Austrian Aero Club, Count Kinsky, together with Herr Stamer, the gliding pioneer, and others, met in Salzburg on March 21st to consider the programme for the meeting of the International Commission for the Study of Motorless Flight ("Istus") which is to be held in Salzburg from May 24th to 31st. The delegates to this meeting will arrive in Vienna on May 24th, and the opening ceremony will take place on the 25th. On May 26th the party will be transferred to Salzburg by bus, where the meeting will be continued from the 27th to the 31st. The international competition for model gliders will probably be held from May 23rd to 25th in the neighbourhood of the Vienna Gliding Camp. The international sailplane meeting will be held in Salzburg from May 27th to 31st.

A Course in Poland

Count Czarkowski-Golejewski, of Lwow, Poland, who visited the London Gliding Club last year, has written as follows to the club chairman:—

"In reference to conversations I had the pleasure of holding last year at Dunstable with many members of your gliding club, and also to the stay of your members at Bezmiechova, Polish gliding centre, I would be anxious to know whether something could be done in the way of organising in Poland a towing and aerobatic course for British gliding pilots.

"My Aero Club, that is the 'Aeroklub Lwowski,' would certainly organise in the summer, at my suggestion, a towing and aerobatic course at Lwow. Important facilities could be given if 10 to 15 pilots would inscribe for this course.

"On the other hand, I need not tell you how happy we would be, my friends and myself, to see English gliding pilots train in Poland, specially after the charming impression left by your three members who trained last year at Bezmiechova.

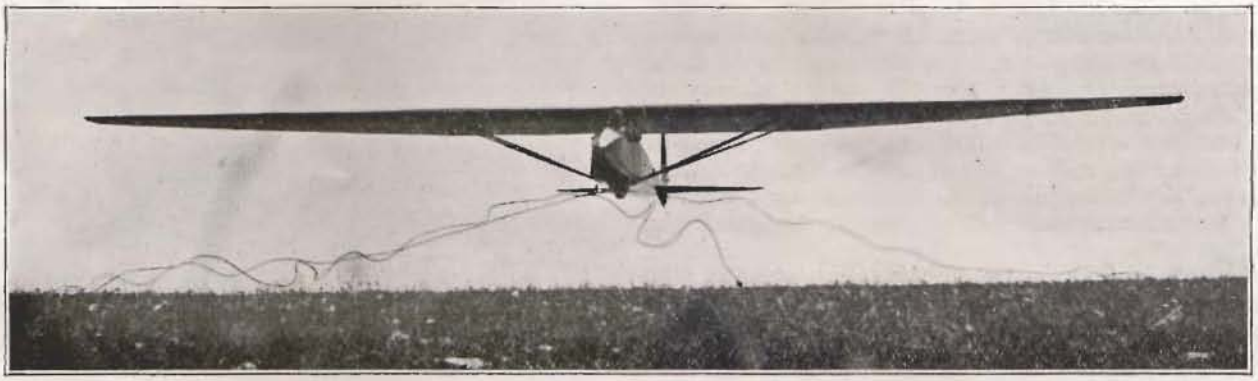
"If you yourself or other members of the gliding club were interested in my proposition, please let me know, and all details will be sent to you by the 'Aeroklub Lwowski.' "

Mr. E. E. H. Collins, who went to Bezmiechova last year, has asked all club members interested to write to him at 104, Melbourne Way, Bush Hill Park, Enfield, Middlesex.

The clubhouse at Bezmiechova, Poland.
(Photo sent by Barry Bucknell.

American "Silver C" Flights

(Continued from Vol. 8, No. 3, Page 57)



The "Haller Hawk" sailplane, designed on the lines of the "Professor" type.
(Photo by John McClure Patterson, Dayton, Ohio.

FLIGHTS by three of America's "Silver C" pilots, Richard du Pont, Lewin Barringer, and Henry Wightman, were described in the last issue of THE SAILPLANE. Before giving accounts of flights by two other "Silver C's," Emerson Mehlhose and Chester Decker, we should mention an interesting out-and-return flight, of 18½ miles each way, by R. du Pont on July 4th last year, during the National Competitions at Elmira.

The flight is fully described in *Soaring* for January. It appears that the whole flight was made on thermals, except for slope lift at the start. The type of machine was a WOLF, or GÖPPINGEN I. For the outward flight, which was in a direction N. by W., against the wind, three separate thermals were used, in each of which the pilot drifted back about two miles while going up in it. This meant that in between the thermals he had to do a fast glide into wind, not only to make up leeway, but to ensure that he should pick up the next thermal well to windward of the last.

He found the first thermal by watching other machines; it took him at six, and later 10 feet per second up to 4,000 feet. The next thermal was found when he was right down to 400 feet; it was narrow, but by banking desperately he managed to keep in it and rose at 14 feet per second to 4,000 feet, when a cloud formed 1,000 feet above him. But just as he got up to this cloud it disintegrated. Then, with his turning-point (Watkins Glen, at the south end of Seneca Lake) in sight, he caught a small cloud in the act of enlarging into a "bubble," reached it 2,000 feet below its base, and got lift at 12 to 14 feet per second up to 5,000 feet. The turning point was reached with 3,000 feet to spare, after 2¾ hours in the air. The journey back down-wind to the starting point, in the course of which a few thermals were used, took only half an hour.

Emerson Mehlhose.

Mr, Mehlhose first distinguished himself when he made a soaring flight of 67 miles as long ago as September 20th, 1933. This was done in the course of an expedition to explore the possibilities of the now famous Blue Ridge site in Virginia. The flight was from Rock Fish Gap, near Waynesboro, to Browntown, near Front Royal. Describing the flight in the Soaring Society's *Bulletin*, the pilot says:

"A south-west wind was blowing with a velocity of about 30 m.p.h. at an angle of 45 degrees from the ridge. The sky was clear with good thermals. The ridge varies between about 2,000 and 3,900 feet in height, with many finger-like projections running out into the valley and with several large gaps. The HALLER HAWK got off with a run of less than six feet. At an altitude of about 30 feet a sudden gust increased the wind speed to about 45 m.p.h. The sailplane shot upward and, as I felt the shock cord pulling the nose down, I nosed the ship over. At that moment I heard a sharp crackling sound, so I shot away from the ridge to have altitude for a jump, if it developed that something had happened to the plane. Finding the plane apparently intact, I circled back toward the ridge and gained 3,000 feet without difficulty.

"After crossing the first gap—about three miles wide—I found the air extremely rough, apparently because of the diagonal washing of the wind over the fingers of the ridge. I saw the wing-tips whip up and down many times. The gap cover on the bottom of one aileron ripped off and lopped in the wind until it came off. At one time, when spiralling at about 2,000 feet, the ship started to spiral downward rapidly. I was inclined to think it was a spin, but operating the controls to recover from a spin did no good. The spiralling stopped after I had lost about 1,000 feet. I believe now this spiralling was caused by the way the wind washed off the point where the finger joined the main ridge.

"In landing it was necessary for me to ground-loop, as the field was small and full of rocks. No doubt the complete buckling of the rear spar was a product of the abuse it suffered in the too-violent take-off plus this landing. It was the roughest flight I have ever experienced."

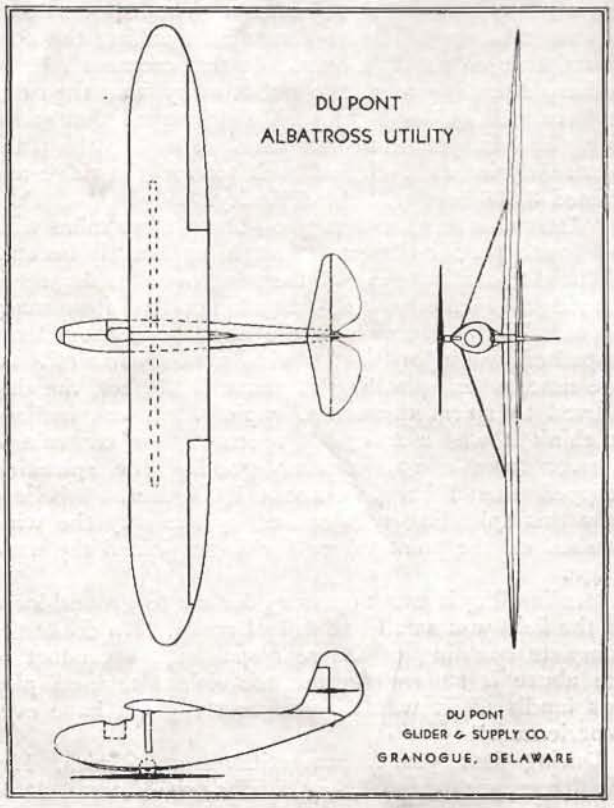
During last year's competitions at Elmira, Mr. Mehlhose was again flying a HALLER HAWK. It is interesting to compare the two flights about to be described, which were made on June 23rd and 29th,

respectively, with those made by Chester Decker on the same two days, accounts of which will follow.

On June 23rd the pilot flew 17 miles to Watkins Glen by using a cloud street. That is as far as it took him, whereas Mr. Decker, who used an adjoining "street," went 70 miles.

Mr. Mehlhose started at 2.45 p.m. with an aeroplane tow to 2,000 feet, and, according to the *Bulletin*, "encountered a strong thermal in the vicinity of American Airlines Airport (Elmira) and climbed at about 15 feet per second to 4,000 feet. He discovered he was under the darkest spot of a cloud mass, toward the sun side of the cloud. At 4,000 feet he levelled off and started north under a cloud street. This took him to the southern tip of Seneca Lake at constant altitude, his rate of climb indicator remaining steadily at 0 throughout this part of the flight. At the tip of Seneca Lake he ran into strong down-draughts and lost altitude at about 15 feet per second. He noticed a longer street to the west (this was the street that Chester Decker was following). He attempted to glide to the longer street, but was unable to reach it. Since there were no up-currents in his flight path he began looking for a landing place and chose a field south of Watkins Glen. He landed at 3.45 p.m.

"The pilot reports that it is impossible to make the jump from one cloud street to another. He said in a similar situation again he would glide straight ahead when the lift failed and secure the greatest possible distance. He estimates he could have glided another 15 miles from his altitude if he had continued in the direction originally taken. Believes he could have gone much further if he had taken off earlier. Also states



This secondary type machine is the one on which Henry Wightman made the flight of 135 miles described in our last issue.

he would pick the longest street available, instead of merely using the nearest, as he did in the above flight."

The flight on June 29th took Mr. Mehlhose 79 miles in a south-easterly direction, and in the course of it he exceeded the American altitude record. The *Bulletin* describes it thus:

"Started 11.50 a.m. Climbed to 2,000 feet on slope currents. Caught thermal that lifted him to 4,000 feet, but it gave out. Kept finding light thermals, however, sufficient to enable him to get to Binghamton. Had 2,500 feet altitude here and thought it would be necessary to land. What he called a "stray" thermal arrived and he gained to 6,000 feet. The force of the currents was such that he considered best policy to allow ship to be drawn up into cloud rather than attempt to dive out. Force of about 15 feet per second. Set ship on level keel before going into cloud and waited. Came out on side of cloud at about 7,000 feet. Current very strong, air very turbulent. Lift was on the sunny side of the cloud. Top of cloud appeared to be at least 800 feet higher than point where he left it. No cloud "street." Scattered cumulus clouds. Flew in south-easterly direction at 27 to 35 m.p.h., hopping from cloud to cloud. Got down to about 200 feet and could see only trees in distance. Tried to soar along ridge on course. All lift began to get weaker because of the hour, and a landing was made at 4.0 p.m.

"Carried no map, no blind-flying instruments, no compass. Noticed that over East Ridge" (which faces west) "the wind was blowing into the ridge at surface, but at altitude was blowing more northerly." (Compare this with the statement above that lift was on the sunny side of a cloud.) "High wind made it hard to find thermals, and stay in them. Difficult to make good spirals. Faster plane would have aided in taking advantage of up-currents. There were many clouds when landing was made, but they were weak."

Chester J. Decker.

This pilot flew the ALBATROSS I. sailplane at last year's National Competitions, during which he made three distinguished long-distance flights.

On June 23rd he was aero-towed off the American Airlines Airport and cut loose at about 3,000 feet above the neighbouring ridge at Harris Hill at 3.16 p.m. He gained 500 feet at once in thermal lift and flew out over Chemung valley, then towards Corning, over which he circled up to 6,000 feet (above take-off level), the maximum height reached during the flight. Then, according to the *Bulletin*, the pilot "drifted N.W. to-

wards the lake region and reached the region of a long cloud street at about 5,000 feet. Pilot followed this cloud street in a north-westerly direction. This street was to the west of the shorter one followed about the same time by Emerson Mehlhose. The cloud street was made up of broken clouds which were quite close together. At high altitude flew along the middle of the street. At lower altitudes found best lift to windward of the clouds. Pilot flew between Seneca and Keuka lakes, where the up-current seemed to be quite constant. For between 30 and 40 miles the variometer showed few rises and descents and the altitude averaged about 5,500 feet.

"Pilot's course took him over the City of Canandaigua at the northern end of Canandaigua Lake. Between Corning and the latter city, pilot spiralled three times for altitude, each period of spiralling occupying about 10 minutes. Whenever he reached the lower fringes of a cloud base he dove to keep from being sucked up into the cloud. The clouds seemed to end at a west-east line just to the north of Canandaigua." (This is where the hilly country ends and gives way to the plain bordering Lake Ontario.) "Pilot realised he would have practically no lift from there on, so glided at about 60 m.p.h. in order to secure the greatest distance possible from that altitude—about 5,500 feet. In the next 20 miles pilot encountered lift at 2,000 feet along a railroad track. This lift lasted for three or four miles. Pilot could see Lake Ontario and Rochester in the distance. Landed on a wheat farm at Honeoye Falls, N.Y., at 5.30 p.m. Distance, about 70 miles.

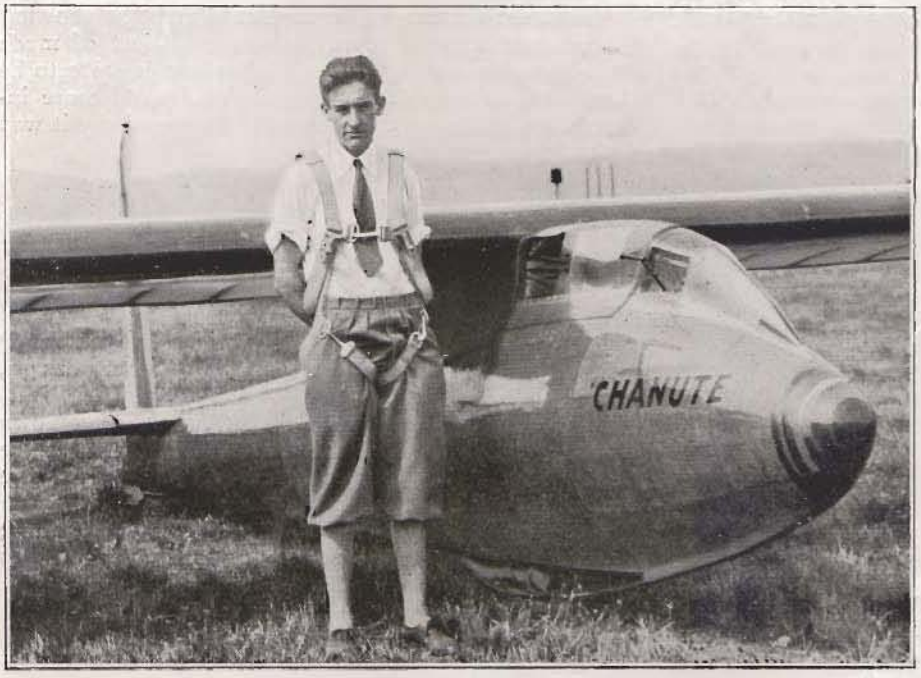
On June 29th, Mr. Decker flew from Harris Hill, Elmira, to Scranton Airport, a distance of 73 miles. The account given by him to the *Bulletin* reads:

"Took off by automobile tow at 1.4 p.m. Used slope currents up to 1,200-1,500 feet. Thermals to 5,100 feet. Wind bent thermals so that they were hard to find and stay in. Attempted to get the benefit of small, active clouds. After reaching 5,100 feet, drifted over city and lost thermal. Received boost over East Ridge. Followed Susquehanna River valley. At one time down to around 900 feet and a landing seemed imminent. Several times lift came to his rescue when least expected! Conformation of hills produced unusual up-draught and he gained to about 4,500 feet. Recognised Scranton Airport from 5,000 feet. Not having map, decided he would land at airport. With map believes he could have gone another 15 miles. At the time he landed, at 4.6 p.m., he could not depend on the thermals."

On the last day of the meeting, July 5th, Mr. Decker made the longest flight of the competitions, securing thereby the Bendix award, the famous Evans Trophy, and the title of American Soaring Champion. He describes the flight in detail in *Soaring* for February.

The flight began at 11 a.m., in a gusty N.N.W. wind of 15 to 18 m.p.h. Conditions were difficult at first, and the pilot describes how he got down low over a grain field in the Chemung valley, trying to get lift out of a weak thermal and watching the waving grain to see which way the wind was blowing. He managed to get back into the slope lift and rise to 2,000 feet. Then, 10 miles S.E. of Elmira, a thermal "hit the ship with such force that the wings bowed fearfully," and carried him up at five metres a second to 5,000 feet, where he found that in the meantime the sky had become full of good clouds. "The clouds were lined up like conveniently located service stations and we jumped from one to another for 30 miles, diving continuously to prevent being drawn up into them. This was cloud-hopping at its best, and a thrill I'll never forget if I live to be a hundred."

The flight proceeded none too easily, as thermals were rather scarce. The pilot passed over Scranton (where his previous flight had terminated) at 2,500 feet and found a good one to the west of it. He was thus able to cross the Pocono Mountain region, with its forests and lakes, and this led him via Palmerton to Bethlehem, where the great steel mills are situated. Here he picked up his last thermal, which, he says, was no doubt formed by the heat from the great smelting furnaces. The landing was made at an airport at Ottsville, a little further on, after 5 hours 40 minutes in the air. The distance from Elmira was 147 miles. He was flown back to Elmira by aeroplane, just in time to take part in the closing banquet.



Jack O'Meara, first American "Silver C" pilot, with the sailplane on which he set up an American distance record of 70 miles in 1932. It is a rebuilt German machine of "Darmstadt" type.

[Photo by John McClure Patterson, Dayton, Ohio.

Natural and Artificial Clouds

A LECTURE with this title was delivered before the Royal Meteorological Society on March 17th by Professor D. Brunt, Professor of Meteorology in the University of London and chairman of the British Gliding Association. Several gliding men were present as visitors, and the subject of gliding received considerable mention during the lecture.

The lecture dealt with the behaviour of unstable layers of air; that is, air layers in which the bottom of the layer is heated, or the top cooled, to such an extent that vertical currents are produced. These currents tend to arrange themselves in a pattern, and the pattern may be rendered visible in the real atmosphere by clouds, or, in a shallow chamber containing air made unstable artificially, by blowing smoke into it. By studying what conditions produce what patterns in the smoke, light is thrown on the formation of real clouds.

Previous work on this subject has already been reported in THE SAILPLANE. The vertical currents may arrange themselves in polygon-shaped "cells" with the up-current in the middle and down-currents at the border; cloud sheets divided up in this way are often seen. With a small increase of wind speed with height throughout the layer, cells in the form of rolls of cloud, transverse to the wind, should be produced; while with a greater increase of wind with height, rolls parallel to the wind—the so-called "cloud streets"—are formed.

The particular interest of Professor Brunt's lecture was that he went further than this, and showed that under certain conditions "cells" of this kind do not appear.

If the difference in temperature between top and bottom of the air layer is less than a certain value, no up-currents may form at all. The precise amount of this critical temperature difference depends on the thickness of the layer of air, and the lecturer gave a formula worked out by Lord Rayleigh to apply to the problem. It appears from this formula that, the shallower the layer, the bigger the temperature difference between its top and bottom may be, without any vertical currents being induced. Professor Brunt, in his artificial cloud chamber, had produced a temperature difference of 11 degrees Centigrade in a layer of air only 10 mm. deep, without any up-currents appearing.

Under certain conditions, in shallow layers with not enough instability to produce the familiar "polygonal" cells, a curious formation appears which Professor Brunt described as "columnar." The appearance resembled nothing so much as the convolutions on the surface of a brain.

In a layer of polygonal cells, a very slight shear between the top and bottom plates of the air chamber produces distortion of the polygons. In a layer of "columnar" cells subjected to the same shear, the "rolls" of cloud are of limited length and become spindle-shaped, and Professor Brunt showed on the screen a photo of spindle-shaped clouds in the sky, with their long axes parallel to the wind, which he believed to have been formed in a similar way.

Many "still" cloud photographs were shown, both natural and artificial, and these were followed by something which kept the whole audience enthralled—fast motion pictures of both artificial and natural cloud "cell" formations. Several series of fast motion pictures were shown of a belt of high alto-cumulus moving across the sky, with the cloud cells slowly changing in size or distribution as we watched them. This was the most beautiful film of all.

Finally some gliding pictures were shown. They included photos of several sailplanes soaring in the same up-current, and some illustrations from THE SAILPLANE, including reproductions of barograph charts of cross-country soaring flights.

The lecturer admitted that his attitude to Wolf Hirth's "bubble" theory of thermal currents had undergone modification; whereas formerly he did not believe in it, he had now come to the conclusion that it was applicable in certain cases.

This lecture was of the greatest interest as showing the present state of research into a subject of much importance to soaring pilots. But there is more to be done, for, said Professor Brunt: "We need more information before we can look at a cloud and say it was formed in such and such a way."

Correspondence

Just What is Wanted

SIR,

There are many good sailplanes, but till now their price has been sickening, enough to support a working man and his wife for at least two years.

I have just heard a figure that reduces the formula to one year.

Our sole surviving patron saint, Saint Kirby of Moorside (see advt.), says that he thinks he could produce a batch of four GOLDEN WRENS—definite orders—*for £120 each*, with C. of A. and A.S.I., provided that there should be no snag in licence, design, and royalty.

RED, WHITE, BLUE, and GOLDEN WRENS have flown across country, have earned four "Silver C's" and the Cellon Prize. They are not from a foreign design. The best of the lot is the GOLDEN WREN.

And just exactly what this rather static Gliding Movement wants is the speedy infusion of a dozen cheap and handy everyman's machines. *Quickly.*

RESURGAM (in one of them).

P.S. Usual disclaimer, on oath if need be.

Flying—Pure and Applied

[*The following was inspired by the letter from Mr. A. H. Curtis, published in our last issue under the heading: "A Piece of his Mind."*—Ed.]

Sir,

I always enjoy a good scrap, and not least the argument between aeroplane and sailplane pilots, which looks like going on until men grow membranous wings of their own. May I pour a little paraffin on the flames?

I have a feeling that the trouble began when a power pilot first remarked: "But gliding is no *use*!" With that to provoke an inferiority complex, who can wonder if pointless claims are sometimes made for gliding? But it seems to me that much of the argument is wide of the mark, for soaring and power flying have entirely different aims. The one is *pure flying*, flying for the sake of doing something that men have wanted to do since the days of myth and legend; the other is *applied flying*, flying to get somewhere in a hurry (leaving out questions of National Defence). Soaring is a sport in which certain limitations are voluntarily accepted (absence of engines; dependence on the weather) for the sake of an intangible something that I can only call a spiritual value. It is comparable with mountaineering in that way, whereas power flying is like walking to work.

Granted that gliding may teach us much about the design and handling of aircraft, and about air-currents and meteorology; but what I really like about it is that lovely feeling of swinging on a spout of rising air several hundred feet above the White Lion, or circling and watching things get closer together down below in the most uncanny fashion, until you realise there is a curtain of haze between you and the earth, and you can see as far as from a mountain-top. Not to mention hitching on to a cloud and going off across country. And combined with these the knowledge that you are doing, without the aid and the noise of an engine, what no men before this generation have ever done: flying for the fun of it. If that is not "real flying," it is as near as we are likely to get.

Actually, of course, there is no cleavage between power pilots and sailplane pilots. We all know excellent power pilots who have become super-excellent sailplane pilots, presumably because they liked it. And we know impatient would-be sailplane pilots who have become power pilots; if later they return to sailplanes, good! If not, who cares? I have looked down on aeroplanes from the air before now, without envy.

H. L. Richardson.

A Disclaimer

Sir,

The Newcastle Club has received a good deal of notice lately in the local Press and a few paragraphs in the national papers. Among other surprising things we learn that a Dagling is a sailplane of the latest type and that an hour's soaring flight is equal to the performance of the "finest German aces." We are naturally anxious to disclaim responsibility for the imaginations of the journals concerned and shall be very much obliged if you can squeeze this note into the issue of The Sailplane which is now going to press or failing that into the earliest possible issue.

A. Burningham.
Notes Secretary, Newcastle Gliding Club.
March 1st.

Sir,

I wish to complain about the sarcastic paragraph published in the last issue of The Sailplane regarding this club and the *Morning Post*. After receiving a disclaimer from our Mr. Burningham, your action should either have been to publish it, or take out the paragraph you had printed. It cannot be said that our disclaimer arrived too late, because it must have been sent to you about the same time as the *Morning Post* was published. None of our people takes the *Morning Post* and therefore we have not seen it.

We approached the local papers and complained to them. Their absurd answer was "Any publicity is better than none."

I may add that in yesterday's *Daily Mail* there is a stupid paragraph about this club, and our members will be looking for it again in The Sailplane, which they purchase to help the Movement, and which it was understood was published for the same purpose. We would like to receive your reason for not publishing the disclaimer, and also your reason for copying something out of the Press which you must certainly have known to be mainly incorrect.

Alfred P. Miller.
Hon. Secretary, Newcastle Gliding Club.
April 1st.

[The paragraph complained of consisted of information given by the *Morning Post's* Newcastle correspondent, with no editorial comment whatever, sarcastic or otherwise. It contained news of a proposed meeting to arrange a merger of four gliding clubs in the North-East, and if the information was "mainly incorrect," how is it that the contrary is admitted by Mr. Burningham in this month's "News from the Clubs"?

The proposed scheme for a common soaring site for the north-eastern clubs is of the greatest interest, and particulars should have been sent to The Sailplane direct. But if clubs withhold important news, we are reduced to getting it from the newspapers in the form in which it there appears; if this causes annoyance to the clubs concerned, they have only themselves to blame.

As to Mr. Burningham's letter:

(1) No paragraphs of the kind described had been received from our press-cutting agency, so we decided the letter could wait for another month, as suggested by him.

(2) We can see no reason to interpret Mr. Burningham's letter as a request to suppress all news of the proposed conference of north-eastern clubs. Nor do we agree that this journal can best help the gliding movement by refraining from publishing gliding news.

We hope the proposed soaring centre will be established. Our readers will wish the scheme all success, and would like to hear more about it.—Ed.]

Gliding Certificates

The following gliding certificates, for which qualifying flights were made on the dates given, were granted by the Royal Aero Club on March 24th:—

"A" Certificates

No.	*Name.*	*Club.*	*Date.*
644	Miss E. Fox Strangways...	London... ...	14.2.37
645	E. M. Lewis	London... ...	13.2.37
646	A. P. Pringle	Cambridge Univ.	10.1.37
647	J. T. Mason...	Midland ...	20.2.37
648	I. B. Hugenholtz	London... ...	5.7.36
649	R. A. Jackson	Imperial Coll.	26.4.36
650	A. C. J. Burningham ...	Newcastle ...	14.3.37
651	I. Pasold	London... ...	...Czechosl.
652	P. Cochran Carr	Newcastle ...	14.3.37
653	H. H. S. Brown	Newcastle ...	14.3.37
654	S. Hobson	Derby and Lancs.	...Germany
655	D. Hobson	Derby and Lancs.	29.7.36
656	J. Everall	Midland ...	19.12.36
657	Miss E. V. Archer ...	London... ...	22.9.35
658	W. R. Welch	Newcastle ...	20.3.37

"B" Certificates

No.	*Name.*	*Club.*	*Date.*
646	A. P. Pringle	Cambridge Univ.	17.1.37
649	R. A. Jackson	Imperial Coll.	17.5.36
654	S. Hobson	Derby and Lancs.	13.9.36
657	Miss E. V. Archer ...	London... ...	31.5.36
635	E. A. J. Koch	London... ...	13.3.37
625	W. M. Taylor	Newcastle ...	21.3.37
621	K. L. Wood	Newcastle ...	20.5.37

"C" Certificates

No.	*Name.*	*Club.*	*Date.*
638	M. H. Maufe	London... ...	21.2.37
637	P. M. H. Thomas... ...	London... ...	10.2.37
649	R. A. Jackson	Imperial Coll.	18.10.36
548	F. T. Gardiner	London... ...	10.2.37
651	I. Pasold	London... ...	21.2.37

Mr. Stanley Hobson, whose German "A" certificate has now been registered in England, obtained it in June, 1930, at Rossitten, and is believed to be the second British *ab initio* to obtain a gliding certificate (the Editor of THE SAILPLANE being the first). Mr. Hobson's home-built GRUNAU BABY, which was flown during last year's National Competitions on Bradwell Edge, aroused much admiration for its fine workmanship. His brother Dennis, who helped him to build it, was also at Rossitten in 1930, but not long enough to get his "A," and has had to wait six years for a gliding club to start operating near his home.

In the North

Gliding on the Films.—Recently Pathé Pictorial No. 31 was included in the programme at one of our local cinemas (at Dumbarton), and imagine our surprise when we were treated to quite a nice little exhibition by the Penrose PEGASUS, which was rigged and auto-launched by a rope passing round a pulley, the car moving at an angle to the line of launch. The machine then soared low along the ridge and was finally shown against a background of beautifully clouded sky. Incidentally, the commentator was not in his usual sarcastic form.—DONALD CAMPBELL.

The Perfect Variometer

ENCLOSED with this issue of THE SAILPLANE is a pamphlet describing a new type of variometer which approaches nearer perfection than anything yet marketed.

There may be some readers, new to gliding, who do not know what a variometer is. It is an instrument for telling a sailplane pilot whether, and how fast, he is going up or down. If he takes with him an air-containing vessel with a small opening, air will rush out of it as he goes up, as the barometric pressure of the atmosphere outside it is reduced. When he comes down, the contrary happens. Changes of temperature in the vessel would have similar results, so to avoid this a vacuum flask is used.

In the common types of variometer the main opening to the flask is covered with a diaphragm, while a small leak is provided for the air to go in or out of the flask. The smaller the leak, the more the diaphragm will bulge for a given rate of change of height of the sailplane, but the longer it will take to assume the correct bulge; and it is the amount of the bulge which is registered by an indicator on the dial of the variometer. This is why these variometers have such a long lag in registering the correct amount of rise or fall. A larger leak reduces the lag, but reduces also the sensitivity of the instrument. So one advantage can only be got at the expense of the other.

The Cobb-Slater variometer (Mr. R. B. Cobb is the manufacturer, and the co-inventor, Mr. A. L. Slater, is the well-known pilot-builder of the GOLDEN WREN sailplane) is completely free from this disadvantage. The principle on which it works is ridiculously simple. A little coloured ball (called a piston) moves in a vertical glass tube which is of slightly larger diameter at the top than at the bottom, where it is only just wide enough to hold the ball. Air passing up the tube has to lift the ball before it can get past. The faster the rush of air, the more the little ball is lifted. One tube, containing a green ball, is for air rushing out of the vacuum flask (showing ascent of the sailplane), the other, with a red ball, for air rushing into the flask (as when the sailplane descends). What could be simpler?

Other features are explained in the pamphlet.

The instrument has already been used with success on cross-country soaring flights; e.g., the flight of G. O. Smith in the GOLDEN WREN from Derbyshire to Ruabon in Wales last September 28th (58 miles), and that of J. S. Fox from Dunstable to Hertford (23 miles) on March 25th this year.

The following machines are already fitted with the Cobb-Slater variometer:—

GOLDEN WREN (privately owned by a group of Derbyshire and Lancashire Club members); GRUNAU BABY II. (ditto); KIRBY KITE (ditto); FALCON III. two-seater (Derbyshire and Lancashire Club); Grey KIRBY KITE (group of London Club members); G. B. Baker's GRUNAU BABY II. (London Club); CAMBRIDGE II. (R. S. Rattray and E. J. Furlong); E. Thomas's CONDOR; one of the London Club's GRUNAU BABIES.

In addition, Mr. Slingsby has ordered three for the HJORDIS II. machines now being built for the international competitions in July.

News from the Clubs

Derbyshire and Lancashire Gliding Club

Easter Meeting.

It would seem that at Easter meetings gliding pilots have to rise superior to something more than the law of gravity. Last year's Easter meeting was held in a succession of blizzards, and this year's followed suit, with the difference that the north and east winds were not even strong enough to give really good soaring conditions. The only comfort we can take to our old (and frozen) bones is that at least we provided some sort of soaring when other sites could provide none.

Good Friday opened with a heavy snowstorm and a north-west wind, but the sun came out in the afternoon and provided quite good soaring conditions off the West Slope.

Peter Davis soared the SCUD II. with ease and grace, and later in the evening there was something more than hill lift, as the club KADET repeatedly reached about 750 feet even with 15-stone Gordon Thompson in the cockpit. Encouraged by these signs two pupils were launched for their "C" licences in the NACELLE DAGLING. Upton showed a not unnatural tendency to avoid the turbulent conditions and to get too far out, which nearly sent him to the bottom during the first five minutes, but he realised his mistake and got back in time to do a nice flight of 11 minutes under conditions which were favourable but a little disconcerting to a beginner. Hobson started shakily, using his elevator as a vibrating air brake, but settled down to a steady beat about 50 feet above the hill top. We gave him one extra beat for luck and then a stentorian hail, whereupon he turned down-wind with great promptitude and landed rapidly but successfully.

Saturday was a blank day except for training. The wind had gone to N.N.W. and Peter Davis tried to soar the SCUD, but succeeded only in making a very prolonged descent into the valley. After this we concentrated on winch launches and succeeded in getting a couple of "B.'s"

By **Sunday** the wind had gone round to due north. While the tyros concentrated on winch launches and training at Camphill, a party went off to the Peveril slope above Castleton to see if any soaring could be accomplished. Peter Davis on the SCUD II. was first off and struggled desperately for ten minutes in a fitful wind before finding thermals which took him up to about 500 feet. He stayed up, exploring the site thoroughly, just over an hour, until he was caught by a lull and forced down into the valley. Almost immediately the wind freshened again and something resembling a minor cold front came into view. Smith on the GOLDEN WREN and Rattray on the CAMBRIDGE II. were both launched into this and toyed with the snow flakes for some time, until another lull sent Rattray down into the valley. "Jerry" seemed to find lift in the GOLDEN WREN where none existed, and after "shooting up" the launching party several times, brought off a brilliant landing on top after a flight of 32 minutes. This ended Sunday's soaring.

On **Monday** the wind had gone round due east, but was not strong enough to enable the redoubtable soaring propensities of the Mam Tor site to be used. In consequence, a spot landing competition, limited to "C" licence pilots, was organised, the entry being strengthened by several disappointed pilots from Sutton Bank.

Altogether 22 "C" licence pilots took part, some on the club NACELLE DAGLING and some on their own machines. The standard was very high, more than 50 per cent. of the competitors finishing up within 25 yards of the mark. Smith and Slater on the GRUNAU BABY seemed to find thermals which we can only attribute to the primus stove in Basil Meads's caravan, and had considerable difficulty in getting rid of their height after casting off from the winch. The other competitors were for the most part content with an orthodox circuit followed by S bends and side-slips, which were more or less orthodox according to their degree of skill! For a long time the competition looked like being a tie between Basil Meads and Cyril Kaye, both of whom were only 5½ yards from the mark, but in the closing stages of the competition Fred Coleman, flying his home-built GRUNAU BABY, got within five yards and walked off with the tankard.

The visitor's tankard was won by Kit Nicholson with a distance of eight yards. He, Dewsbery, and Bell arrived during the competition from Sutton Bank, paid a bob apiece, and walked off with a silver tankard, which we hope compensated them for their long journey.

Camphill Farm, the headquarters of the Derbyshire and Lancashire Gliding Club.

The prize for aggregate duration went to Peter Davis on the SCUD II. with a total of 1 hour 47 minutes. This in itself shows how unfavourable conditions were, but it takes more than adverse weather conditions to damp the enthusiasm of the Derbyshire and Lancashire Gliding Club, and we are hoping that on the law of averages we shall have perfect conditions for the National Gliding Contests.

Midland Gliding Club

Easter Week-end.—An informal camp was held, primarily for club members, and a successful experiment was carried out whereby members were boarded out in various pubs in the vicinity of the club ground instead of living on the club premises as previously.

Vigers, also a member of the London Club, and his RHÖNADLER, were with us, and he brought with him three others from Dunstable—Fox, Ivanoff, and Burnett. Apparently the visitors gained a favourable impression of our site, as both Fox and Ivanoff signed membership application forms before they left.

Soaring conditions were good during the earlier part of Friday, but deteriorated later in the day when several snowstorms passed over. The worst of these lasted for about 20 minutes, during which Davies in the PROFESSOR and Edwards (Gerry) flying FALCON III. were in the air. They were flying blind for the greater part of the time and once passed uncomfortably close. Davies rose to 2,800 feet and eventually emerged into clear air over strange country. He was finally forced down into a small field and the PROFESSOR suffered some damage to her tail.

Since PROFESSOR will have to go into hospital, we hear that there is a movement afoot among a small syndicate to make the club an offer for the machine with the object of using the wing tips to fit to a monocoque fuselage with a short gull centre-section. We have seen the rough sketch of the arrangement and it certainly looks very attractive. The heart of the idea is to have the ailerons extending along the whole of the trailing edge, and to be adjustable to give a fast or slow flying section.

To proceed: Thwaite was caught in a vicious down draught towards the south end of the Mynd and was unfortunate enough to catch a wing-tip when attempting a down-wind landing. The offending wing will need attention.

No further soaring was possible on the other days of the week-end, but the newly acquired Austin tractor *cum* winch was successfully tested out. This solves the problem of pulling heavy trailers to the hill top from the valley. Failing a "V8" it has previously been necessary to hitch two or more cars together to perform this feat.

The winch attachment, which is independent of the road wheels, spent its time hauling H.17 and FALCON I. into the air. The winch drum was later dismantled for alterations to make the outfit suitable for dealing with heavier machines, including the two-seater.

To close the proceedings, the H.17 syndicate drew lots as to who should fly down-wind to the valley below to test the effect of several refinements recently carried out. Olver won the toss, and made the landing field in a four-minute glide.

Yorkshire Gliding Club

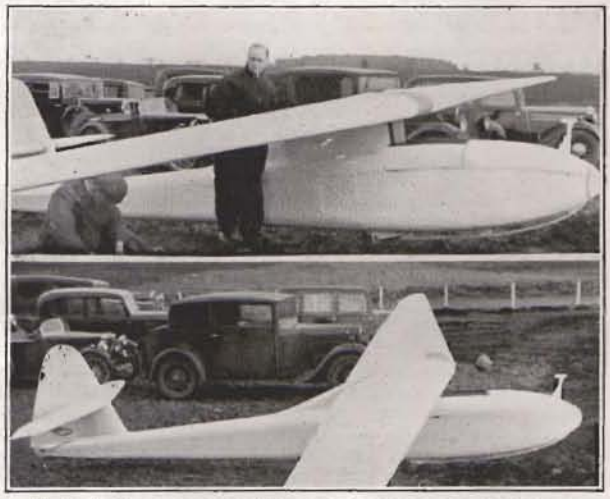
Sunday, February 28th.—Sutton Bank and district was again snowbound. Watson and Verity, who had business to finish at the club house before the steward and stewardess move into their quarters, ventured out, but had to leave the car on the bank and make the rest of the journey on foot—rather a wet process.

Sunday, March 7th.—Wind east, 20-25 m.p.h. The steward has now settled in, but the first impression of Sutton Bank cannot have been too encouraging, the weather not being on its best behaviour.

Flying Officer Verdon Roe and Pilot Officer Curry, from Dishforth Aerodrome, were welcomed to the club and both qualified for "A" certificates. They also made their first 45's. Wordsworth circuited the KADET for demonstration purposes.

Sunday, March 14th.—Various members turned up, but only to gaze with disgust at the weather. The new winch car, a 1924 Rolls Royce, has now been delivered. I understand that on Saturday, during its transportation, motorists could neither get up nor down the bank, owing to the Rolls being broadside on the 1 in 4 gradient. Everyone, for their own sakes, helped to push, and a casualty nearly occurred when a large stone, which was being used as a brake at the rear of the car, was flung about four feet into the air.

Saturday, March 20th.—Wind variable. The snow is disappearing. Verdon Roe and Curry turned up and did circuits, both qualifying for their "B" certificates. Thus two "A's" and two "B's" have been obtained in two weeks.



Mr. L. H. Barker and his "Scud III" at Sutton Bank for the Easter Meeting.

Newcastle Gliding Club

February 21st.—Brisk training with the DAGLING on the winch and the CRAMCRAFT auto-towed. When the wind speed dropped to zero the occupant of the latter machine appeared to be under the impression that colouring the air blue would assist matters, but his best efforts failed to give the towing car the help required.

February 28th.—The proposed conference on soaring sites had to be abandoned as snow on the Pennines prevented the Penrith and Workington representatives from reaching Newcastle.

The weather at Cramlington prevented more than nine launches being made.

March 6th and 7th.—The nacelled DAGLING arrived from Kirbymoorside. With the evenings growing lighter we have now been able to restart training on Wednesday and Saturday afternoons in addition to Sunday work. Fifty-three launches with Wood and Taylor getting their turns in excellent style.

March 14th.—Bitterly cold north wind and large patches of flood water about. This apparently prevented Burningham from running the CRAMCRAFT about behind the towing car in his normal fashion, for he took the DAGLING up on the winch for his "A" certificate. He was followed by Peter Cochrane-Carr and Dr. Brown who secured "A's" with flights of 32 seconds and 37 seconds respectively.

March 20th.—The flying field was in much better condition than last week, and with the wind in the N.E. we were able to make the longest run on the field and get good use of that extra 500 feet of winch cable. Ken Wood made a really excellent flight of 70 seconds for his "B" in the nacelled DAGLING, while Welch made his "A" flight in his usual steady manner.

March 21st.—Smart took both "A" and "B" certificates in one afternoon, the first member to do this on our own ground. Dr. Brown and Bill Taylor also made "B" flights, the latter with his first flight of the day. As a reward he was promptly sent back to drive the winch without further opportunity for flying.

Certificates taken this week-end: Two "A's" and four "B's."

Lady members abandoned gliding in favour of joy-rides in the MOTH, which was brought over from Woolsington by Mackay.

As Burningham seems determined to ignore all the warnings and good advice which have been offered him he was presented with a clock from the club and a key from Mr. Coates.

London Gliding Club

Monday, March 15th.—There being an excellent wind, three people turned up to soar. K. G. Wilkinson distinguished himself by going out some five miles up-wind to the west, passing Ivinghoe Beacon on his left, and getting back again to the club ground.

We did not see the flying, but noticed that cloud streets began to form at 11 a.m. and had become well developed half an hour later. There should, according to theory, have been much "shear" in the lowest mile of atmosphere, but the nearest met. station (Upper Heyford, 32 miles to the N.W.) gave a 22 m.p.h. wind at the surface, increasing in the first 1,000 feet, but remaining almost unchanged at 30 m.p.h. from 1,000 to 4,000 feet. The wind direction was due west from 0 to 1,000 feet, and from there to 4,000 it veered through 20 degrees. So the shear was in a west-east direction for the first thousand feet. But above that, where the clouds were, the shear was north-south; yet the cloud streets ran due west to east. All quite contrary to theory.

Wilkinson must have flown along a street of lift at least 15 miles long, measured through the air. Was he making for the Long Mynd?

Saturday, March 20th.—A S.S.E. wind and a bright sun set people wondering whether the performance of January 10th would be repeated, but conditions weren't quite the same; the wind was light, and there was much cumulus about, with a large anvil somewhere towards Cambridge; but it was noticed that a large area of sky, stretching for five miles north of Whipsnade, was free from cloud most of the afternoon. Many winch launches were done, but nobody found any lift like nine weeks ago, except that Dent thought he caught just a suspicion of it.

More Aero-towing.

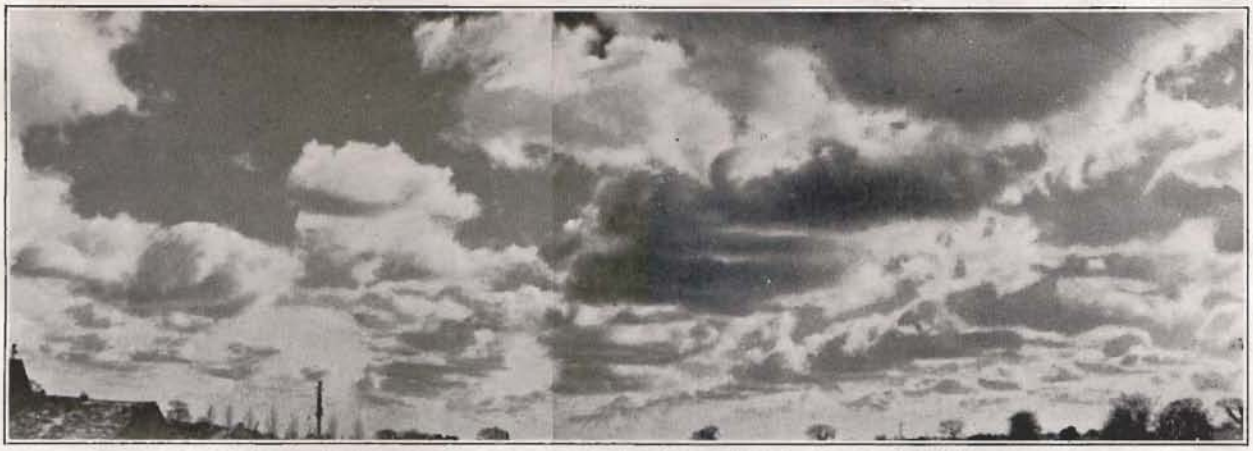
Sunday, March 21st.—The club again held an aeroplane-towing day, following on the success of that held last autumn. This time the private aerodrome of Mr. Alan Butler, of De Havilland's, was used by kind permission of the owner. The aerodrome is on the hill-top beyond Dagnall, a little further on than the furthest point attainable by hill-soaring from the club ground. Captain Phillips, who aero-towed Mrs. Price all the time she was in Cobham's display, came over from Heston to do the towing. The morning began with clouds down on the hill-top; when the cloud base had lifted a few dozen feet, Captain Phillips suddenly appeared out of the mist in his "Avro," much to everyone's astonishment and admiration, for he had only the vaguest idea where the place was.

Last time 25 flights were made in about five hours. This time 21 flights were made in 2 hours 50 minutes. The difference was principally due to the fact that two towing cables were used; when the aeroplane landed after dropping a cable, no time was wasted gathering it in, because the other cable was already fixed to the next machine due off, and the aeroplane simply hitched up at once and took off again.

On the way down from the first two tows, Captain Phillips delighted the crowd with some aerobatics, but hadn't reckoned with the effect on the cable, which thereupon became a whip—so much so that a short piece of it whipped right off at the "weak link." His passenger described vividly how portions of cable could be seen (or heard) whizzing through the air all round him in close proximity to the plane.

Everyone was grateful to the pilot for his hard day's work, and the spectators for his wizard hedge-hopping landings.

The pilots flew even better than last time, and nobody's emotions were stirred, except when one visiting pilot tried to land like the



Cloud streets at 11.45 a.m. on March 15th, looking due east from Whipsnade. They are actually parallel, but appear to be moving towards a point on the horizon, owing to perspective effect. On this day a pilot soared from the London Club's ground, near by, for five miles up-wind across almost flat country.

aeroplane, scraped his wing-tip through some bushes, and nearly sat down on the road. Most pilots were towed up to the cloud base at 1,500 to 1,800 feet, unhitched inside it, and were left to find their way out into clear air—an excellent introduction to blind-flying. Some of them looped—or tried to.

The cable was 300 feet long, of 20-ton strength, with a weak link designed to break with a 10-ton pull. It did break once during a tow.

The following were aero-towed, their flying time being given in minutes:—

Rainey (5½), Wilkinson (6½), Dent (6), Greig (7), Dewsbery (6, 8½, 9), Stephenson (10½), Ellis (5), Burnett (7½), Baker (5½), Passold (8¾), Murray (9¾, 12), Fox (10), Robertson (10½), Armstrong (10½), Ruffle (10). Simpson, Richardson, and Robertson were then towed back to the club ground, over which they unhitched, and managed to get slight lift over the N.W. slope as the previously northerly wind had backed a bit.

Baker tried out for the first time a two-way wireless communication between his GRUNAU BABY and the ground. It was an unqualified success. We all listened-in as he described his flight; it was most queer to see him sailing overhead and hear his voice coming from inside a car on the road. His wife, asked by the ground operator to speak a few words to her flying spouse, informed him that it was so difficult to think of anything to say. However, if the apparatus comes to be used for teaching pupils, the instructor will be at no loss to find words to express his feelings.

Meanwhile, at the club ground, A. L. Slater's new launching winch had arrived and was being tried out. Fitted up at his garage in Matlock, it is the last word in efficiency, and has been doing good work ever since.

A FALCON III. pilot on this day forgot to drop his wheels at the launch. The usual ground signs were made, whereupon he demonstrated that there *is* a height from which they cannot be dropped without breaking.

Easter Activities.

Thursday, March 25th.—Fox was trundled into the air—that is, three people made four attempts to get him off in a light west wind—and just managed to hold his height at about 100 feet for over an hour, getting an occasional weak thermal. One of these at least carried him slowly up to 3,000 feet, and he was next heard of near Hertford. The flight is described elsewhere. Nobody else flew this day, or even tried to.

Friday, March 26th.—Hiscox, the club chairman, made a magnificent flight which threatened to end at Hatfield, but actually ended 57 miles away near the Essex coast. This is also described in a separate article. Only twice has this distance from Dunstable been exceeded, when G. E. Collins in 1934, and Wills in 1936, reached the Norfolk coast. But there wasn't enough south in the wind to make Norfolk to-day. No doubt this will come later, as our chairman was last seen examining the club's railway poster map of East Anglia, drawing a line from Dunstable to Norwich and producing it to meet the sea. Anyhow, 57 miles is enough to be getting on with.

Several other people soared, but nobody else tried to leave the site.

Instruction Camps.—A list of these is given elsewhere, with conditions of entry for non-members. The following conditions apply to members of the club who wish to join one of these camps:—

(1) Regular club members pay ordinary flying dues daily.

(2) Those wanting accommodation must book *one calendar month in advance*, and deposit 21s. for a 10 days' camp, or 30s. for the fortnight's camp in August.

(3) Messing costs 50s. for 10 days, 70s. for 14 days, payable on assembly.

Machines.—The club has now definitely decided to get a HJORDIS II., thanks to those who have subscribed specially to make this possible. It will be one of those now on the stocks for use in the Wasserkuppe competitions.

The KIRBY KITE, belonging formerly to Fox, Dent, and Armstrong, has undergone partial change of ownership; Fox has given up his share, and Dent is about to do so, their places being taken by Stephenson and Greig.

A new KIRBY KITE has been acquired for the exclusive use of the Imperial College section of the club.

On March 13th the TOTTERNHOE was blown over on the ground, and the nacelled DAGLING was stalled into the hill.

Summary of Flying.

Date.	Ground-hops.	Winch launches.	Hilltop launches.	Flying Time. h.	m.	s.
Mar. 6, Saturday ...	24	—	—	—	—	—
,, 13, Saturday ...	—	—	28	15	37	0
,, 15, Monday ...	6	—	3	4	41	0
,, 17, Wednesday	23	—	—	—	—	—
,, 20, Saturday ...	29	28	—	—	56	40
,, 21, Sunday ...	43	13	—	—	45	0
,, ,, ,,	Aero-towed launches		21	3	30	0
,, 24, Wednesday	—	—	8	5	48	55
,, 25, Thursday	—	—	1	3	0	0
,, 26, Friday ...	—	11	8	15	59	44
,, 27, Saturday ...	43	12	27	8	2	13
,, 28, Sunday ...	34	31	34	2	12	11

Certificate Flights.

March 13th.—Koch, "B"; Kendall, "C."
March 24th.—Kearney, "B."
March 26th.—Beazley, "A"; Hiscox, part "Silver C" (distance).
March 27th.—White, "A"; Robinson, "A"; Rutherford, "B."
March 28th.—Matthews, "B."

Totals.

Week ending	*Launches*	*Flying Time*	*Certificates*
March 7th	24	—	-
March 14th	28	15 hrs. 37 mins.	2
March 21st	166	9 hrs. 53 mins.	-
March 28th	209	36 hrs. 3 mins.	7

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