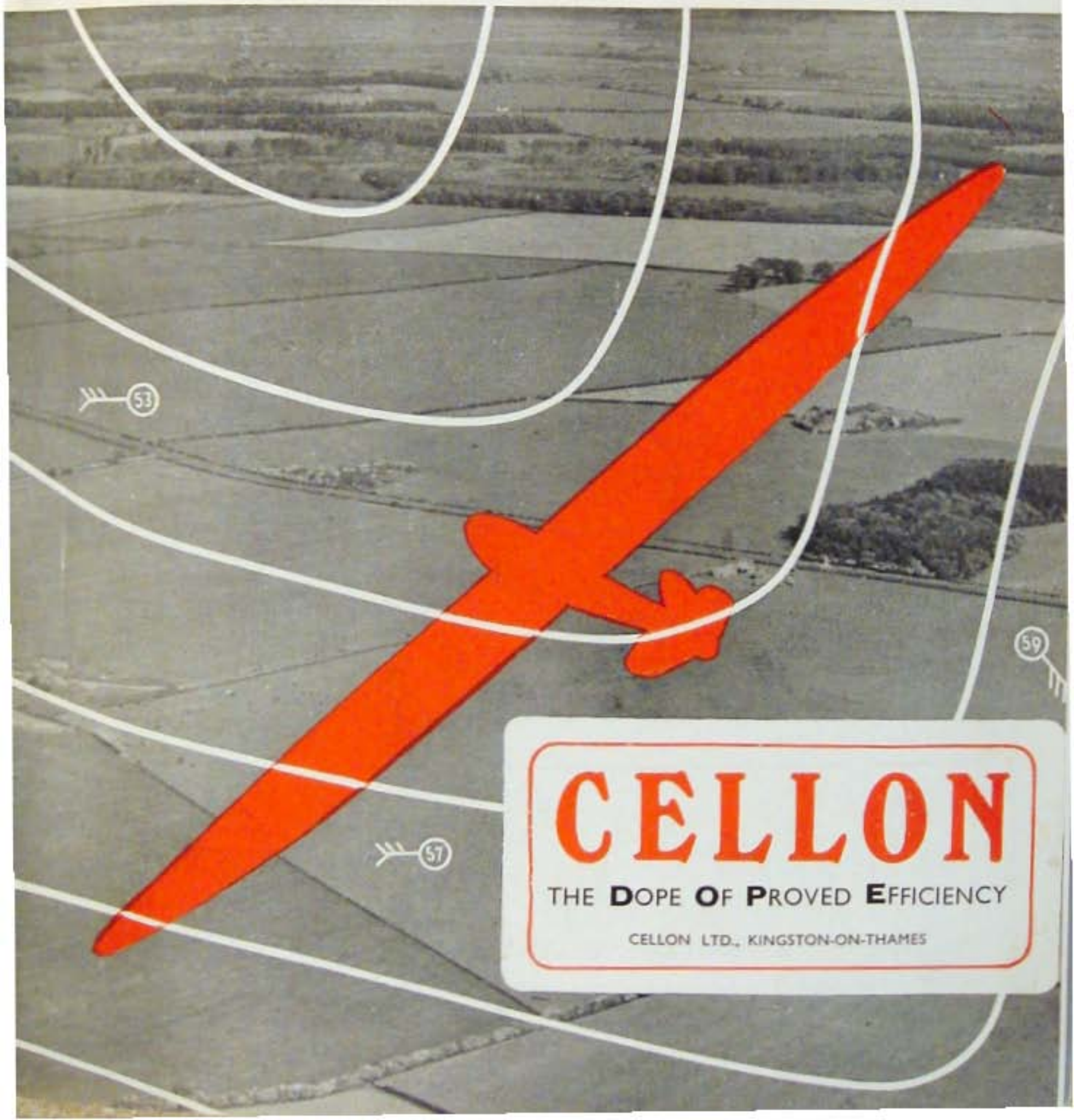
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THE SAILPLANE *and* GLIDER

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The Tenth Year

THE 1939 National Gliding Contest, at which this issue of THE SAILPLANE AND GLIDER is being sold as a programme, is the tenth of the series of annual contests held since the revival of gliding in Britain at the beginning of 1930.

The various prizes and trophies offered for competition this year are listed on the accompanying sheet, so there is no need to repeat them here. Many of them are decided on points, and it may be of interest to explain how points are earned, as this will enable visitors to understand what the pilots are really up to (or out for).

Duration.—Long duration flights are a test of endurance rather than skill, though skill may enter into the matter very much in certain conditions of weather and wind.

A pilot earns no points during the first two hours of the flight. After that period one mark is earned every six minutes until he has been up for five hours, after which he earns one mark every four minutes.

Duration flights are mostly done in the lift produced by the wind blowing up a hill.

Altitude.—Points for altitude begin to be earned when the pilot has already reached 1,500 ft. From this height up to 4,000 ft. a mark is given for every 100 ft. gained above the preliminary 1,500. From 4,000 to 6,000 ft. the rate is one mark per 40 ft., and above an altitude of 6,000 ft. a mark is gained for every 20 ft.

The wind blowing up a hill will not normally carry a sailplane to more than three times the height of the hill; to get higher, other types of up-current must be used. The most frequently used is the "thermal convection current" caused by air rising from ground heated by the sun. These currents are called "thermals" for short. As they are invisible, pilots find them with the help of an instrument called a variometer, which indicates whether the sailplane is rising or falling. But although they cannot be seen, the nature of the ground below gives the skilled pilot an indication of where they are likely to be found. Also, if a cumulus cloud forms at the top of a thermal, as often happens, this gives a clue to its whereabouts.

There are other means of gaining altitude. One is the "evening thermal" which, it happens, is found at its best in England at the site of the Derbyshire and Lancashire Gliding Club. When the hillsides cool off in the evening by radiating their heat out into a clear sky, the cold air in contact with the slopes runs down by gravity into the valley and pushes up the warm air which has collected there during the day.

Another type of lift is that produced by a stationary wave of air formed in the lee of a mountain in certain conditions. A new British altitude record, achieved by this method, is described on page 135.

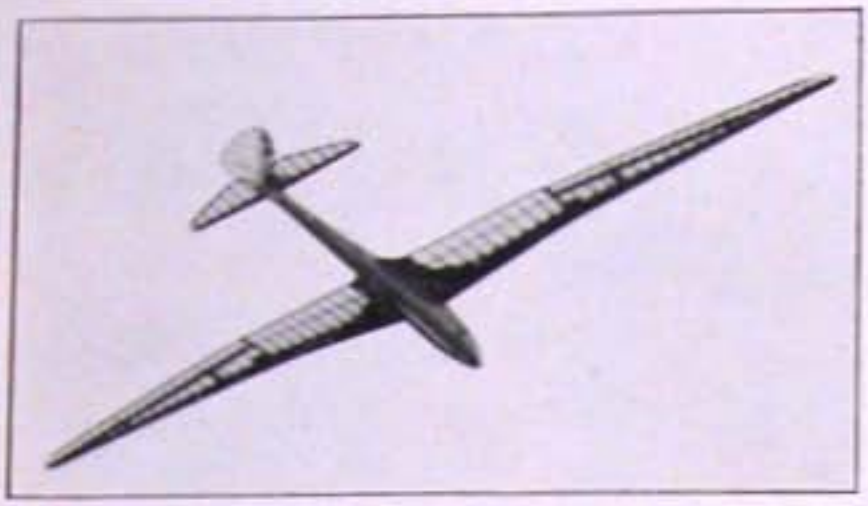
When clouds form, for whatever reason, heat is liberated, and this furnishes another source of energy for up-currents. Thus in certain states of the atmosphere a thermal current may start up something very much bigger than itself, in the form of a shower or even a thunderstorm. The latest British altitude record was done by flying in such a cloud.

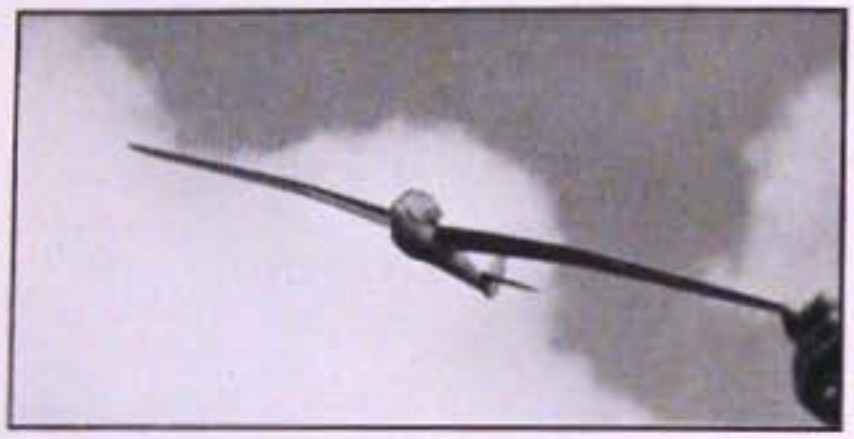
Distance.—Marks for distance flights depend on how easy, or difficult, the weather conditions are on the particular day, and this in turn is decided according to longest flight made that day. If the longest flight is under 50 miles, marks are earned at the rate of three and a half points per mile after the first 15 miles, which earn nothing. If the best flight is over 50, points begin to be earned after 20 miles, and then at the rate of two points per mile.

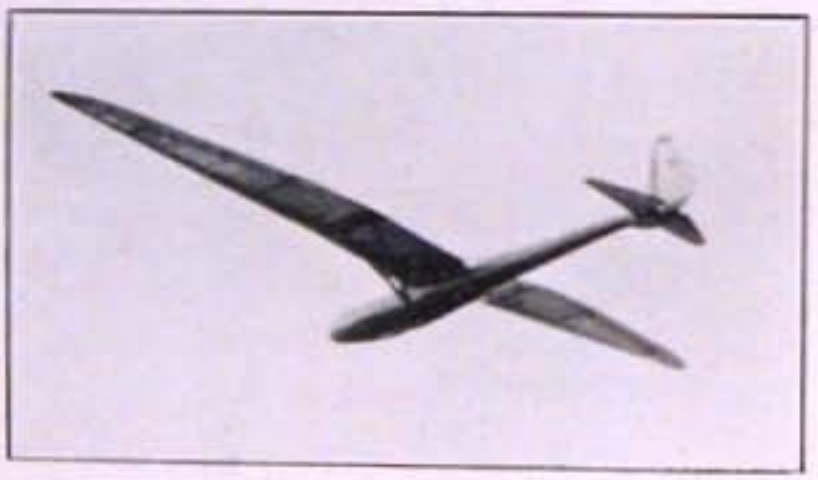
Distance flights are mostly made with the help of thermal currents and their associated cloud lift. Sometimes, especially in strong winds, the lift is in the form of long belts parallel to the wind, and the associated belts of cloud are called "cloud streets."

Another type of lift used for distance flights is the "cold front," caused by a mass of cold air lifting up the warm air in front of it as it proceeds across country. It is characterised by a long bank of thundery cloud, stretched transversely to the wind direction.

Although one can get farthest by travelling in the same direction as the wind, flights in other directions are now being made, and the added skill needed for this is to be rewarded this year by a special system of marking, which is explained on page 134.











The Competing Sailplanes

TWENTY-NINE sailplanes have been entered for the 1939 National Contests at the time this page goes to press. As there are usually last-minute changes in the list of pilots, their names are not published here, but will be found in a special inset.

These sailplanes are of 13 different types, and, in order to help visitors at the meeting to recognise them, a photo of each type is given here. The machines are best distinguished by the shape of the wing and its manner of attachment to the fuselage. However, it is of little interest to observe the different types of wing without knowing the reasons for the differences.

A wing of large span gives a machine a better gliding angle, and consequently a smaller rate of sink, than a smaller wing; but the smaller wing allows the machine to be turned more easily in the air, and also makes for ease of handling and transport on the ground.

A gull-shaped bend in the wing is believed to make for lateral stability, and this is specially useful in turning circles when flying blind in clouds. Others believe that a slight dihedral angle in the wings, such as the VIKING has, is just as good for ensuring stability.

Tapered wings with well-rounded tips make for a smooth air flow (disturbances in air flow spoil the machine's gliding angle). But the precise amount of taper and its distribution over the wing is mostly determined by the internal construction of the wing.

The curvature of the surface of the wing, or "wing section," which can only be observed at close quarters, is a most important feature. It determines the range of speeds over which the sailplane can be flown efficiently—that is, without a disproportionate increase in its rate of sink. In general, the greater the concavity on the under side of the wing, the slower the speed.

Struts between wing and fuselage increase the air resistance, but this is largely offset because they enable a thinner wing to be built.

Wings which sprout from the side of the fuselage are slightly more efficient than wings placed on top, but require greater care in design, especially in order to get a smooth air flow past the wing root.

The types will now be described in the order in which they are depicted in the adjoining column.

PETREL.—A new design by Slingsby Sailplanes, of Kirbymoorside, produced at the end of last year. Span, 56 ft. 11 ins. Believed to have a remarkable performance.

KING KITE.—Produced by Slingsby Sailplanes in 1937 for the International Competitions in Germany. The cockpit cover has been modified since the photo was taken.

CONDOR.—Designed and built in Germany. The first CONDOR, produced in 1932, once held the world's height record.

CAMBRIDGE.—Produced early in 1936 by Dart Aircraft, of Dunstable. Has seen a lot of good service with the Cambridge Club.

KESTREL.—Designed by Luton Aircraft, of Gerrards Cross. This particular one was built by its pilot, Mr. Godson.

KIRBY GULL.—At present the most popular British sailplane in the high-performance category. Produced in April, 1938, by Slingsby Sailplanes. The blue one is the machine in which G. H. Stephenson made the first soaring flight across the English Channel on April 22nd this year. He started from Dunstable and landed near Boulogne.

RHÖNSPERBER.—A German type designed by Hans Jacobs, of Darmstadt. Efficient, with a good speed range, though the minimum speed is somewhat fast. That at the meeting is the only one of its type in England. It held the British distance record in April last year with a flight of 120 miles, but only kept it for a day. Won last year's National Contests.

MINIMOA.—There are two at the meeting. That flown by P. A. Wills has the British distance record (209 miles) and altitude record (14,200 ft.). In the other Mrs. Naomi Allen recently set up a British women's distance record (91 miles). Produced in Germany and designed by Wolf Hirth, one of the world's leading sailplane pilots, it is not only very efficient but also very comfortable to fly.

VIKING.—A high-performance type produced by Scott Light Aircraft, of Dunstable, at the end of last year. The first one to be built was taken out to South America and, though entered at this meeting, may not appear. Two others have been entered, however.

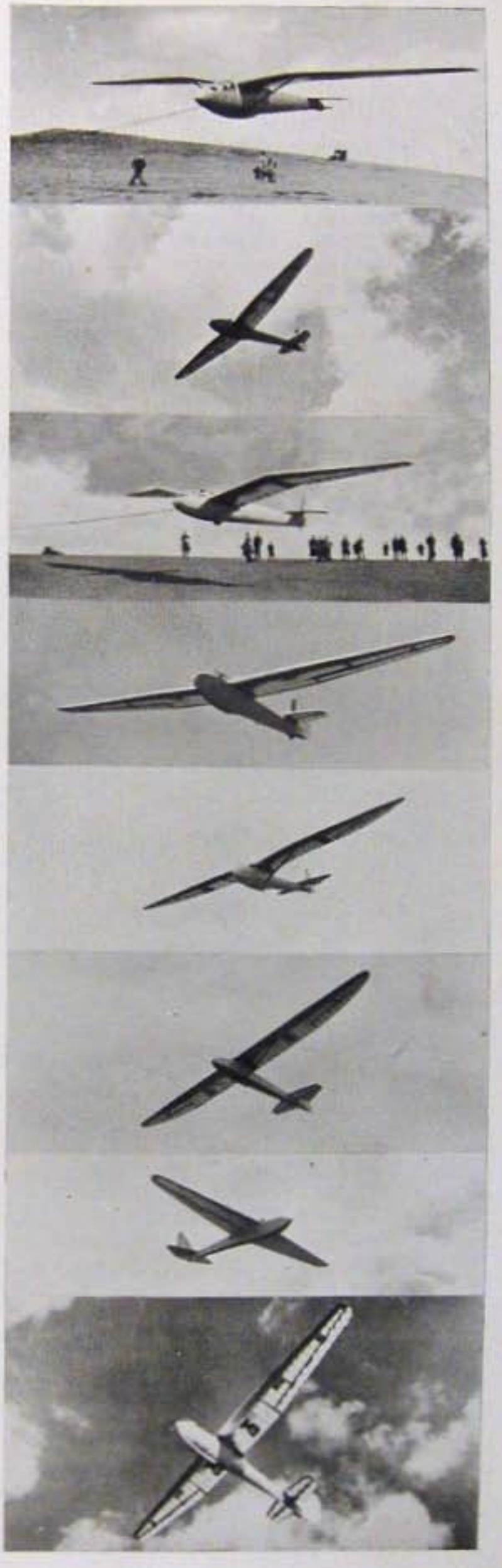
KIRBY KITE.—Produced about four years ago by Slingsby Sailplanes, this is a most popular machine, and there are six at the meeting. Has done more cross-country flying in England than any other type. It is a good example of an "intermediate" machine.

"Intermediate" sailplanes, in distinction to "high performance" ones, are, in general, cheaper, of smaller span, with slightly inferior performance, and have a smaller range of speed but a lower minimum flying speed, and are easier to fly and especially to land. For pilots they serve as an introduction to high-performance types. Examples are: KIRBY KITE, CAMBRIDGE, GRUNAU BABY and KESTREL. They are allowed a bonus of 10% on marks earned during the Competitions.

GRUNAU BABY.—First produced in Germany early in 1932, is probably the most widely used sailplane in the world. Now built also in England.

TERN.—The oldest sailplane at the meeting, built by Messrs. Airspeed at their former works at York in 1931, and designed by N. S. Norway, designer of many successful commercial aeroplanes. Since it was first built this TERN has had a cockpit cover and wing flaps added.

RHÖNBUSSARD.—Another design by Hans Jacobs, produced in 1934. There are three at the meeting. The white one, owned by members of the Derbyshire and Lancashire Gliding Club, was brought to England early in 1934 in tow of an aeroplane and flown throughout that year by Mrs. Joan Price at Sir Alan Cobham's Air Display. Mrs. Price now flies the unpainted one. The lemon-yellow RHÖNBUSSARD holds the British out-and-return record of 68 miles, set up by Squadron-Leader W. B. Murray last April (Leicester to Birmingham and back).



The Marking of Goal Flights

By G. O. Smith

THE Contest Committee of the British Gliding Association has decided this year particularly to encourage cross-wind goal flights, in order to stimulate even further advances in the technique of cross-country flying, in a way which is thought particularly applicable to this country, where down-wind flights are so often terminated by the coast.

The object of the present article is to explain the method by which such flights are to be encouraged at this year's National Competitions, so that pilots may have an opportunity to examine and understand the advantages accruing to cross-wind goal flights before the actual date of the competitions.

In considering the whole question, we start with two basic suppositions, namely :—

1. That to fly in any given direction becomes increasingly difficult as the angle between wind direction and flight direction increases.

2. That to fly in any given direction other than straight down-wind becomes increasingly difficult as the wind strength increases.

Working from these two suppositions, the following formula has been evolved which, together with the several supplementary rules also set out below, will be used at this year's National Competitions at Camphill :—

$$\text{Total marks for successful goal flight} = a + \frac{a,\ b,\ c}{2500}$$

where a = marks obtained by distance alone,
b = wind strength in m.p.h.,
and c = the angle in degrees between wind direction and direction of flight.

The supplementary rules relating to goal flights are :—

1. The strength and direction of the wind will be taken from the 9 a.m. Air Ministry report given by Barton Aerodrome, at 2,000 ft. altitude.

2. All goal flights must be declared by 10.30 a.m.

3. Not more than 150% shall be added to the distance marks for any one goal flight.

4. In the event of the Barton report giving no wind, or wind of variable direction, the formula shall not apply, but a fixed bonus of 20% will be added to the distance marks for a successful goal flight.

5. "Out and return" goal flights will be considered as two separate flights, with the turning point and Camphill as the respective goals.

A few words of explanation will, perhaps, not be out of place here, particularly to point out the reasons for some of the supplementary rules. It will be seen immediately from the formula that the bonus takes the form of a percentage increase on the distance marking for the flight, the system of distance marking being the same as used last year.

Next, we see that a flight directly down-wind earns no bonus (angle $c = o$). It is considered that there is no particular merit in a goal flight directly down-wind and it is for a competitor to choose whether, as a matter of convenience, to land at a particular point, such as an aerodrome, or to gain more marks by continuing down-wind as far as possible.

The reason flights must be declared by 10.30 a.m. (irrespective of the time of take-off) is to prevent an unfair advantage being taken of any subsequent change in the wind direction or strength.

By 10.30 a.m. all competitors will have had an opportunity to study the weather forecast, and to draw their own conclusions therefrom. If a competitor considers that the wind is likely to veer and increase in strength later in the day, then it is up to him to declare his flight accordingly, and such action, should it favour him in the day's marking, must be accounted as skill, and not luck.

The maximum of 150% for any one flight is in the nature of a safeguard, to prevent the competitions being won outright by some freak flight. An examination of the formula will show that such a contingency, however, is extremely unlikely.

Finally, an example to demonstrate the working of the formula :—

Declared wind direction = 135°.

Declared wind strength = 20 m.p.h.

Pilot X. declares an aerodrome 60 miles distant, in a direction of 130°, and gets there.

Pilot Y. declares another aerodrome, also 60 miles distant, but in a direction of 200°, and gets there.

Pilot Z. declares as Y., and fails to get there, although he lands 60 miles away.

$$\text{X.'s marks} = 80 + \frac{80 \times 20 \times 5}{2500} = 80 + 3.5 = 83.5.$$

$$\text{Y.'s marks} = 80 + \frac{80 \times 20 \times 65}{2500} = 80 + 41.6 = 121.6$$

Z.'s marks = 80.

Instruction Courses

Several gliding clubs hold instruction courses open to non-members, as follows :—

Derbyshire and Lancashire Gliding Club : August 26th to September 9th. Particulars from A. G. Shepard, 55, Moorgate, Rotherham.

London Gliding Club : August 4th to 18th, September 8th to 17th. Particulars from the Manager, London Gliding Club, Dunstable, Beds.

Yorkshire Gliding Club : August 13th to 26th, September 3rd to 16th. Particulars from G. A. Hinchcliffe, Netherfield, Mill Lane, Bardsey, nr. Leeds.

Midland Gliding Club : August 5th to 13th, August 19th to 27th. Particulars from R. H. Thwaite, 39, Silhill Road, Solihull, nr. Birmingham.

Surrey Gliding Club : July 15th to 30th. Particulars from the Secretary, Buckland, Betchworth, Surrey.

Scottish Gliding Union : July 15th to 29th, July 29th to August 12th. Particulars from R. Rogerson, 20, Blythswood Street, Glasgow. Private owners welcome.

11,000 Feet in the Helm Wind

By N. McCLEAN

(Reproduced by permission from "The Newcastle Journal")

THE Helm Wind was blowing strongly down Hartside at mid-day on Thursday. The famous black bar of lenticular cloud was lying at about 8,000 ft. along the ridge with its satellite, the lower bar of cumulus cloud, denoting the turning point of the Helm Wave, at 3,000 ft.

I was launched in the Newcastle Gliding Club's GRUNAU BABY sailplane at 12.40 p.m. from the foot of the Hartside Ridge. The wind was blowing from north-east at about 25 m.p.h., and after casting off the winch cable at 600 ft. I immediately struck lift at 10 ft. per second over the big field from which we were operating.

For a few moments it was pleasant flying. But at 1,000 ft. conditions became really rough. At times the aircraft was momentarily out of control, powerful gusts throwing the machine on to its wing tips. The feeling that the parachute was strapped securely to my back was a comfort!

Like an Express

Suddenly, however, the turmoil died away, and then began the most remarkable period of the flight. I was apparently in smooth air, but the instruments in front of me were performing evolutions which for a time were difficult to believe.

My variometer, which denotes the rate of the aircraft's ascent and which reads up to a lift of 20 ft. per second, was off the scale. The altimeter needle was moving upwards almost with the speed of the second hand of a watch. It became obvious that I was rising like an express lift, at a rate which could scarcely have been far short of 40 ft. per second.

The slopes of Cross Fell slid away rapidly below me; the bar of lower cumulus cloud went by. I remained over the original launching point, rising all the time in this smooth wave of air, wondering what was going to happen next.

At 9,000 ft. the lift suddenly petered out. I should have been level with the lenticular cloud, which had been lying farther out over the valley, but which had now disappeared in the extremely dry air conditions.

Between 9,000 and 9,500 ft. it was a struggle. But then suddenly the lift returned, and once again the green ball of the variometer shot off the top of the scale.

This continued to 11,100 ft., at which height I cruised gently round for about 20 minutes.

At Freezing Point

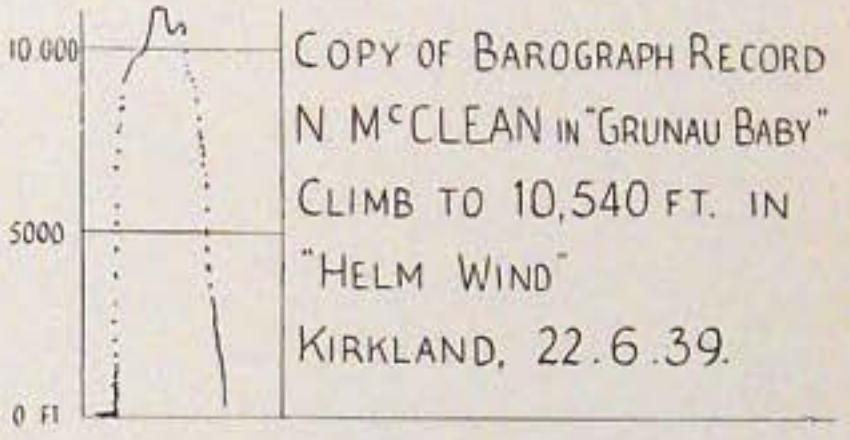
Through openings in the clouds I could see the coast of North Wales in the south, the hills of Scotland in the north, and far away in the east through yet another gap, the gleam of the North Sea.

It was extremely cold, and later I discovered that the ink on the barograph needle had frozen. Had I not been carrying a second barograph, which continued to function, there would have been no official record of the flight.

My next problem was how to get down again through the Helm Wave. I tried diving the machine at a steep angle, but with little success. There were moments during successive dives when the instruments actually continued to register a rise. I tried a spin, but failed to hold the machine in this position. Lastly I tried a series of steep side-slips, which at last proved effective. By moving east over the tops of the Pennines I got out of the main lift at 8,000 ft. and managed to come in low over their crests.

Once here it was plain sailing, for a violent down-draught carried me rapidly down the slopes of the hills to make a landing close to the point of the original take-off.

I had been up for two hours, and in the meantime the wind velocity had increased to over 40 m.p.h. The most anxious moments were perhaps those immediately after landing, for it required a strong crew to hold the machine down until it could be got into the shelter of a wall.



EDITORIAL NOTE.—Mr. McClean and the Newcastle Club are to be congratulated on this new record, more especially as it was no mere piece of luck, but the result of much previous scientific work, in which several club members, and specially Mr. Gordon Manley, co-operated. We have been promised a more detailed and technical account for the next issue.

The stationary air wave is evidently similar to that found in the lee of the Giant Mountains in Silesia, during foehn winds, which has been responsible for most of the more recent world's altitude records. Last February we received a prophetic letter from Dr. Joachim Küttner, a meteorologist, who himself set up one of these records, in which he wrote:—

"I am convinced that, with the Helm cloud at Cross Fell in winter, you can reach 3,000 metres. . . These specially favourable conditions are found at the Giant Mountains through the combination of two wave systems. You will not find it *so* good at Cross Fell, since the air temperature distribution in N.E. winds is not the same. Nevertheless you will be astonished that you can far outclimb the 'helm bar,' and that, above a very turbulent layer, absolutely smooth air follows higher up."

[STOP PRESS.—Mr. Wills has just regained the British altitude record with a climb to 14,200 ft. in a cumulo-nimbus cloud at Dunstable.]

Cross-Country Flying



BELOW is a list of all cross-country flights made in England during the past month. They are entered on the adjoining map, which also includes two flights by Frank Charles in the Furness district, omitted from the map published last month. The 23 flights listed happen to add up to exactly 900 miles.

During the Whitsun holiday the first cross-country flights were made from the Oxford Gliding Club's new headquarters at Aston Rowant in the Chilterns. There were so many that they form a majority of those listed.

Although all were made by visiting pilots, the club members, who only started a year ago and have not yet reached cross-country stage, at any rate know now what is in store for them.

There were two out-and-return flights by Squadron-Leader W. B. Murray (who holds the British out-and-return record). In one he flew round a triangular course, via Sherbourne St. John and Bramley, from Odiham, where he had cast off after an aero-tow from Farnborough. The flight took 1 hr. 15 mins., and the greatest height was 3,800 ft.; the wind was 20 m.p.h. from north. On his other out-and-return flight he went from the London Club to the Oxford Club, and just failed to get back by two miles.

Duncan Swale, aged 15, has done his first cross-country flight. His mode of start, by the way, should be "winch into thermal," since he caught one right away, and there was very little wind.

List of Cross-Country Flights

Date	*Starting Place*	*Pilot*	*Sailplane*	*Mode of Start*	*Landing and Mileage*
May 27	Odiham, R.A.F.	W. B. Murray ...	Rhönbussard	Aero-tow	Odiham, via Bramley, etc. 21
,, 27	Aston Rowant (Oxford Club) ...	D. G. O. Hiscox	Gull ...	Slope lift	Reading 15
,, 28	,, ,, ,, ,, ...	D. G. O. Hiscox	Gull ...	Slope lift	Southampton aerodrome ... 51
,, 28	,, ,, ,, ,, ...	P. A. Wills ...	Minimoa ...	Slope lift	Eastleigh, Hants. 50
,, 28	,, ,, ,, ,, ...	C. Nicholsen ...	Rhönsperber	Slope lift	Overton, Hants. 52
,, 28	,, ,, ,, ,, ...	W. B. Murray ...	Rhönbussard	Slope lift	Odiham, R.A.F. 38
,, 28	,, ,, ,, ,, ...	D. F. Greig ...	Gull ...	Slope lift	Kingsclere, Hants. 42
,, 28	Welburn (Yorkshire Club) ...	R. C. Pick ...	Gull ...	Aero-tow	Eastoft, Lincs. 54
,, 28	Devil's Dyke (Southdown Club)...	W. E. Filmer ...	Viking ...	Slope lift	Petersfield (Goal) 12
,, 28	Bradwell Edge (Derby & L. Club)	D. Swale ...	Rhönbussard	Slope lift	Buxton-Ashbourne Road ... 37
,, 29	Aston Rowant (Oxford Club) ...	D. G. O. Hiscox	Gull ...	Slope lift	Hamble aerodrome 76
,, 29	Devil's Dyke (Southdown Club)...	S. G. Stevens ...	Kirby Kite...	Slope lift	Near Amberley, Sussex ... 56
June 4	Aston Rowant (Oxford Club) ...	C. Nicholsen ...	Rhönsperber	Winch into thermal	Weston-super-Mare 50
,, 4	,, ,, ,, ,, ...	P. A. Wills ...	Minimoa ...	Winch into thermal	Near Devizes, Wilts. ... 45
,, 9	,, ,, ,, ,, ...	D. F. Greig ...	Gull ...	Winch into thermal	Yatesbury aerodrome ... 22
,, 10	,, ,, ,, ,, ...	G. H. Stephenson	Gull ...	Slope lift	Dunstable (London Club) ... 83
,, 11	,, ,, ,, ,, ...	P. A. Wills ...	Minimoa ...	Slope lift	Hothfield, near Ashford ... 53
,, 11	,, ,, ,, ,, ...	A. W. Higson ...	Kirby Kite...	Slope lift	Cookham, Berks. 43
,, 11	Dunstable (London Club)... ...	W. B. Murray ...	Rhönbussard	Slope lift	Dagnall, via Aston Rowant 35
,, 11	,, ,, ,, ...	D. G. O. Hiscox	Gull ...	Slope lift	Chigwell aerodrome 32
,, 11	,, ,, ,, ...	D. F. Greig ...	Gull ...	Slope lift	North Weald aerodrome ... 72
,, 17	Cambridge aerodrome	L. H. Barker ...	Scud III ...	Aero-tow	Heppisburgh, Norfolk ... 97
,, 25	Aston Rowant (Oxford Club) ...	P. A. Wills ...	Minimoa ...	Slope lift	Heston Airport ... ...

Mr. Barker could have gone a lot further than 72 miles but for the sea, for he arrived there with "bags" of height to spare.

There follow accounts of the first cross-country in a VIKING, and of interesting flights by Mr. Nicholson and Mr. Wills. We also have detailed accounts, with barograph records, of flights by Mr. Hiscox and Mr. Greig, but unfortunately there is not space for them this month.

Devil's Dyke to Petersfield

A Goal Flight in a "Viking"

May 28th, 1939. Wind N.E. to N.N.E., moderate. Cloud ten-tenths till 11 a.m., then rapidly breaking up. At 12.30 few scattered clouds at about 3,000 ft.

I have for a long time been planning to fly along the South Downs to Petersfield, and have frequently examined the two main gaps in the hills at Steyning and Bury. It is not easy to judge the soaring qualities of a hill seen across a three-mile gap, so that a knowledge of what point to aim for may be vital.

I was launched in the VIKING at 12.20 and found small bursts of thermal lift going up to 800 ft. According to club tradition 1,000 ft. are necessary for the Steyning gap. However, I looked for, and found, a bit of lift on the extreme corner of the hill. By circling in this till I was only just maintaining height, the drift took me well out over the valley.

12.45.—Put the ailerons up and pushed the VIKING up to 45 m.p.h., making for Steyning hill. Arrived 300 ft. above the top.

12.50.—Arrived over Chanctonbury and did a few beats.

1.5 p.m.—Worked a convenient thermal up to 1,100 ft. and then crossed the Arun to Bury hill with 250 ft. to spare.

At this point the Downs make a large Z bend, jutting about two miles out to the north. I shot into the bottom corner of the Z almost down-wind and got below the hill top. Trees all round me. Worked up over the bowl to 200 ft. and then pushed out along the hills to the north. There was evidently less east in the wind than I thought, so that after doing half a mile I began to lose height. With the obstinacy of a road hog doing a nasty bit of cutting-in, I drove hard to get round the N.E. corner against the wind. Skimmed the last ridge 20 ft. over the trees and 200 ft. below the top. By unpleasantly close observation of tree-tops, found the wind was blowing slap up the north face, so got up over the ridge again fairly easily.

1.30 p.m.—Worked a surplus of altitude over a large house in a park. Went on again and crossed a small gap at Cocking. No need to bother with thermals after this. Did a couple of turns and an odd circle now and again to keep about 500 ft.

After some poor hills, arrived at Petersfield-Portsmouth main road at 1.55 level with the hill top. Did five minutes slope soaring over the last big hill while selecting a landing ground.

2.5 p.m.—Landed cunningly hidden from the main road to avoid excessive crowds. Distance, 34 miles.

W. E. FILMER.

Oxford to Weston-super-Mare

88 Miles: June 4th, 1939

THE wind was slightly off the hill at the Oxford Club site. I had a poorish winch launch to about 600 ft. at approximately 1.35, and turned right-handed into a thermal of 3 ft. per sec. average. After a good deal of messing about I topped 3,000 over Benson R.A.F. 'drome (the first of six aerodromes I was over during the afternoon).

Incidentally, the whole flight was carried out in full sunshine, the only suspicion of cloud being thin wisps of stratus at very long intervals. Under the circumstances one's whole attention was concentrated on the ground, so I wandered about a good deal in order to pass over Didcot Junction, Wantage, Swindon, and intermediate villages. I also made for anything that looked as if it might produce turbulence, such as clumps of trees—and mostly it worked.

I followed the railway from Swindon to Filton and arrived at about 3,300 ft. At this height there was a definite haze so that, over the aerodrome, I couldn't see either Bristol or the Channel. I turned south for Bristol Aerodrome and lost a good deal of height down to a bit under 2,000, and kept being lured by abortive bits of lift further over the town. I finally found a good one and, looking down the wing, saw the Clifton Suspension Bridge for the first time.

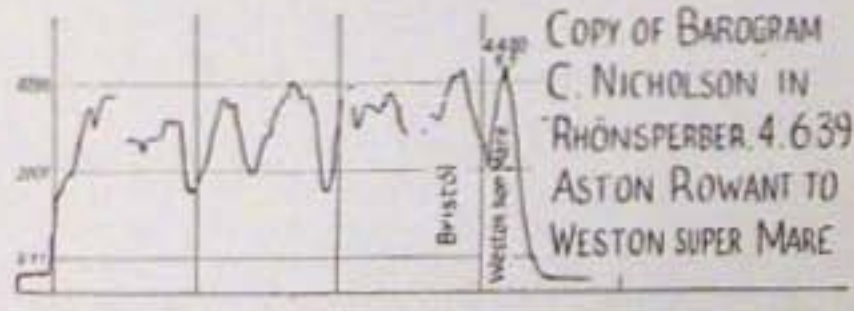
It was good going to Clevedon. I calculated that I'd reach Weston Airport with 500 ft. to spare, but crossing the higher land to the north of the airport I caught a beauty which took me up to 4,400 at about 15 ft. a second in no time. A newly arrived Canadian pilot attached to Straight Airways followed me up in a power 'plane. He'd never seen a sailplane before and was really staggered.

After a good deal of heart-burning I decided to land—principally because my wife has other things to do besides trailing the SPERBER. However, the first thing she asked when she arrived, after miles of congested road with the sun in her eyes, was how high was I when I arrived, and what the —— did I mean by landing from 4,000!

I convinced myself, especially in the last thermal, which was dead smooth, that I could detect the breakers round it caused by hitting the inversion. It was certainly calm in the thermal and pretty rough round it. I landed at 4.50, which gives an average of about 27 m.p.h. over 88 miles—yet one seldom flies the SPERBER at less than 42 m.p.h. and there was plenty of wind.

Certainly the most entertaining fly I've had to date, and the first time I've ever caught a thermal off the winch.

C. NICHOLSON.



Nervous Character in Search of a Cloud

By P. A. WILLS

THIS flight was of an unusual sort in that the distance covered, 83 miles, was more or less by accident. The conditions were such that I hoped for an altitude record, and spent the whole time chasing after likely-looking clouds, ending up at 8,000 ft. over Sevenoaks, whence a long straight descent took me to Hothfield.

I think flying would benefit greatly if we approached each flight in an orderly way. Each flight should be considered beforehand as a case, and start with a sort of diagnosis of conditions. The fact that one's diagnosis is seldom absolutely correct and often quite wrong does not affect the value of this method. Even if you do prove wrong, you have learnt something, whilst on the rare occasions you are right surprising results are obtained.

Diagnosis

A long spell of warm dry north-easters had broken overnight with the passage of a cold front moving down from the N.W. and producing heavy rain. When we woke up blue sky and large cumulus were forming in a N.W. wind, and by 9.30 the cumulus were developing to about 8,000 ft. Secondary cold fronts were reported by the Air Ministry as likely to pass over during the day, travelling slowly at 10–15 m.p.h.

The MIXIMOA had been left at Aston Rowant a few days before, as this site is in my opinion one of the most interesting soaring sites I have come across. Its contours allow of soaring in a great number of wind directions, and the main soaring slope, over 4½ miles long, is in some stretches covered with trees and in others with grass, has numerous bowls and indentations, a factory chimney giving a plentiful supply of smoke at the foot, and numerous houses with smoking chimneys along the top. These give one useful notice as to the whereabouts and structure of passing thermals.

A quarter of an hour before we reached Aston Rowant, about 10.30 a.m., a secondary front did pass, a few drops of rain fell, and the sky behind it was quite overcast and featureless. I diagnosed this as a nearly occluded secondary front, and expected it to clear and improve later. Consequently we rigged and launched in apparently hopeless conditions, but about 12.15 the sky began to clear. Owing to the slow rate of travel of the fronts and the large area of stable air which had just gone over, a long-distance flight seemed out of the picture, but height attempts might be instructive, so I determined if I got going simply to chase the most hopeful-looking clouds and give my retrieving team as little trouble as possible. I was not conspicuously successful in either aim, but learnt a lot.

Flight

After three-quarters of an hour at the northern end of the slope conditions began to improve and a front came into sight to the north. Its southernmost end passed over the valley to the north of me, and I made a great effort to get far enough north to couple up. At the crucial moment I left the northernmost corner of the slope and flew towards it over the valley, and was much relieved to strike lift at 6 ft. per sec. It was rather like a race for a train ending in a successful jump at the last carriage as it moves out.

Cloud base was reached at 3,000 ft., and I took stock of the position. Over Wendover to the north was clearly the most active part—too active, I soon decided. Heavy rain or hail was falling there and the under side of the front looked black as night. I wanted a loaf, not a whole bakery.

I flew to the trailing edge of the cloud, and saw behind a large area of clear blue stable sky, beyond which large and quite friendly-looking cumulus were sailing about. I turned round and flew down-wind and peered out from under the leading fringe at the sky that way—it was still flat and grey.

The alternatives were clearly either to stay where I was, travel along slowly with this front with departure both up- and down-wind impossible, or to return to the hill and wait there for the arrival of the unstable conditions to come.

I quickly decided on the latter course and turned for home. It was a bit of a shock to find how far away I had drifted by now, as I was nearly over High Wycombe, but after a long and anxious up-wind descent I scraped in by 300 ft.

Then followed a half-hour struggle in smooth and failing lift, which is well shown on the barograph chart. However, time was clearly on my side and one can do wonders in such circumstances. Then the cumulus arrived and without the smallest difficult I coupled up and was inside one at 3,500 ft. Emerging from this I looked round and saw yet another front far to the north, and the clouds there seemed to go extremely high. To get there meant a long semi-circular trek via High Wycombe, Amersham and Tring, since the clouds on the way seemed to be arranged in that formation. So off I went, was let down almost at once by a couple of apparently active cumuli, struggled up over High Wycombe, was nearly sunk short of Amersham, got lift over the High Street, and was up and away towards Chesham and scanning the front, which was now about five miles beyond.

What I could see was not very hopeful; on the whole it seemed to be dying, but all around me now were tangled masses of cumuli, some of which went very high. I made for one of these over Rickmansworth, and the lesson began. The next 2¼ hours were spent almost entirely above cloud base.

The lift inside the clouds was nowhere very great; 3 to 6 ft. was common, 9 to 10 ft. per sec. good. I soon found out one unexpected fact: that the easiest way into a big cloud is from underneath. Approaching from below, the most active part is fairly readily guessed as the darkest portion, and usually a concave area in the otherwise flat base is visible, often with a ragged edge. Several times, however, I came out half-way up for a breather, and having rested my Eustachian tubes charged back at the cloud. But the trouble was that, from close by, the general shape of the cloud was indefinable. It billowed up in all directions, obscuring more than half the sky. One would charge at it and break through to find one had only

attacked a small promontory and was out on the other side. I tried getting a good way away from the cloud and then turning and having a look—it was still too big and shapeless.

With one specimen I got peeved and tried to track it down methodically. I steered into it on a S.E. course; without finding lift I came out on the south side. I then went back on a N.E. course, once more came out, turned again S.E. and so tacked along the length of the cloud for some time, without doing much good.

My initial climb from the base had taken me to 6,000 ft. My subsequent efforts finally gained another 400 ft. in nearly 20 mins. flying. Yet the cloud itself seemed to go at least 3,000 ft. higher.

One of the noticeable features of these clouds was that strong *lift* was nearly always to be found in a narrow band at the extreme edge. From general principles this is exactly the reverse of what one would expect, and the structure of these cumuli becomes more of a mystery to me than ever. Flying along blind, the air would suddenly get rough, up and down gusts of 3 ft. per sec. either way would hit one, then there would be a short period of lift of up to 10 ft. per sec., then one would be out in clear air, still rising at 0–6 ft. per sec., and on circling back into the cloud the whole thing would be repeated. I tried circling for some time half in and half out of a cloud, but it was very rough and not very successful on balance.

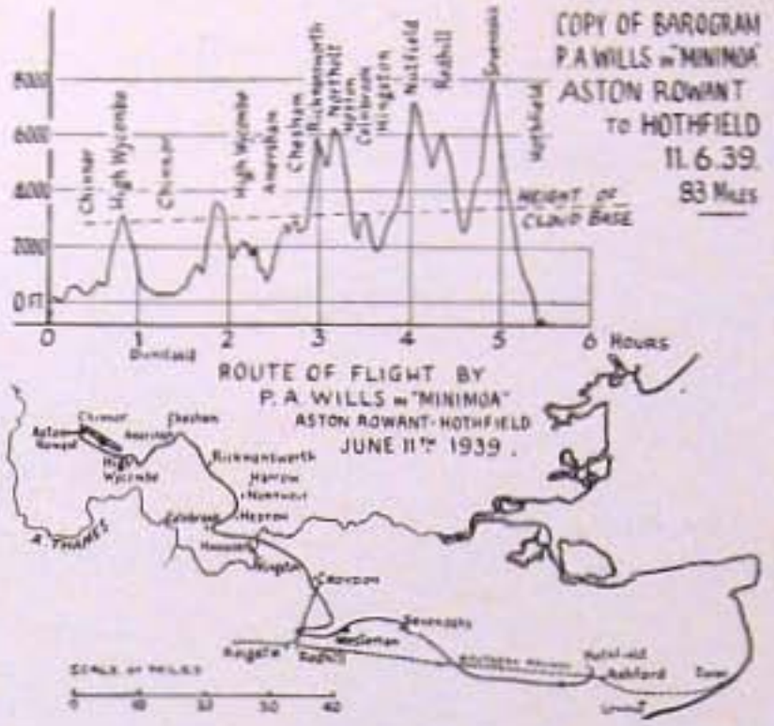
In some of the larger clouds I experienced considerable vertigo, and after I had found the undesirability of leaving the cloud for a rest I tried various other methods. Singing to oneself is good, a shake of the head may help, so may swallowing. An acid drop may improve matters. An ignorant and unsympathetic angel passing by might well have imagined one was over-ripe for the loony bin—that is, going on the assumption that angels don't have to cope with Eustachian tubes.

In spite of all this song and revelry I found the speed creeping up inexorably owing to the fact that if I reduced it I got a very strong feeling that Mini was sitting on her tail in a violent climb. Suddenly I had a bright idea. I said in a loud voice the following poem (?):—

Mini
Moa
Is *always*
RIGHT!

and took my hand almost off the stick. I was surprised to find how hard I had been unconsciously pressing it forward. Freed of my asinine interference, Mini comfortably settled back to her usual 38–40 m.p.h. gait, and I kept the turn needle on the required mark with the rudder. My startled senses soon got used to the idea of progressing in what felt like a constant-speed loop—which, ignoring the position of the ground, is much what a banked circle is.

Beyond the Thames the front caught me up quite unexpectedly. I climbed into what I could have sworn was merely a small cumulus, but which went on for an unexpected length of time. I emerged at 7,200 ft. over the hills by Nutfield, and thought I might fly back and land at Reigate. But when I got there I was still over 6,000 ft. and the wall of the front stretched E. and W. along the line of the hills as far as I could see.



Such chances do not often occur, so with a pang for my unfortunate retrievers I turned east.

Occasional explorations inside the cloud produced little result—it was clear that it was almost defunct. But over Sevenoaks a piece seemed to have broken off and got ahead of the main mass, and in this I reached the greatest height of the day—8,000 ft.

Over 6,000 ft. there had been mild ice formation on the cockpit cover, etc., and two permanent lumps had clamped themselves on my feet at an early stage, so that by now, after 5½ hours in the air, I was in acute discomfort. However, I had always wanted to find out one thing: how far one can reasonably expect to get from a good height obtained in cloud, in a steady descent in stable air.

The answer on paper is most misleading. All sorts of unknowns must enter in: the down-current to be expected in front of the cloud, the fact that an exact course cannot be steered, the height wasted on making an approach, etc.

The actual answer was that from 8,000 ft. I covered 30 miles. The wind perhaps on balance gave me 5 m.p.h. The actual course flown was perhaps 35 miles. About 600 ft. went on the approach. But it works out at only 1 in 20, which was a lesson to me; on paper and with the help from the wind it is nearer 1 in 30. Channel flyers, please note.

Correspondence

How to Fasten Your Belt

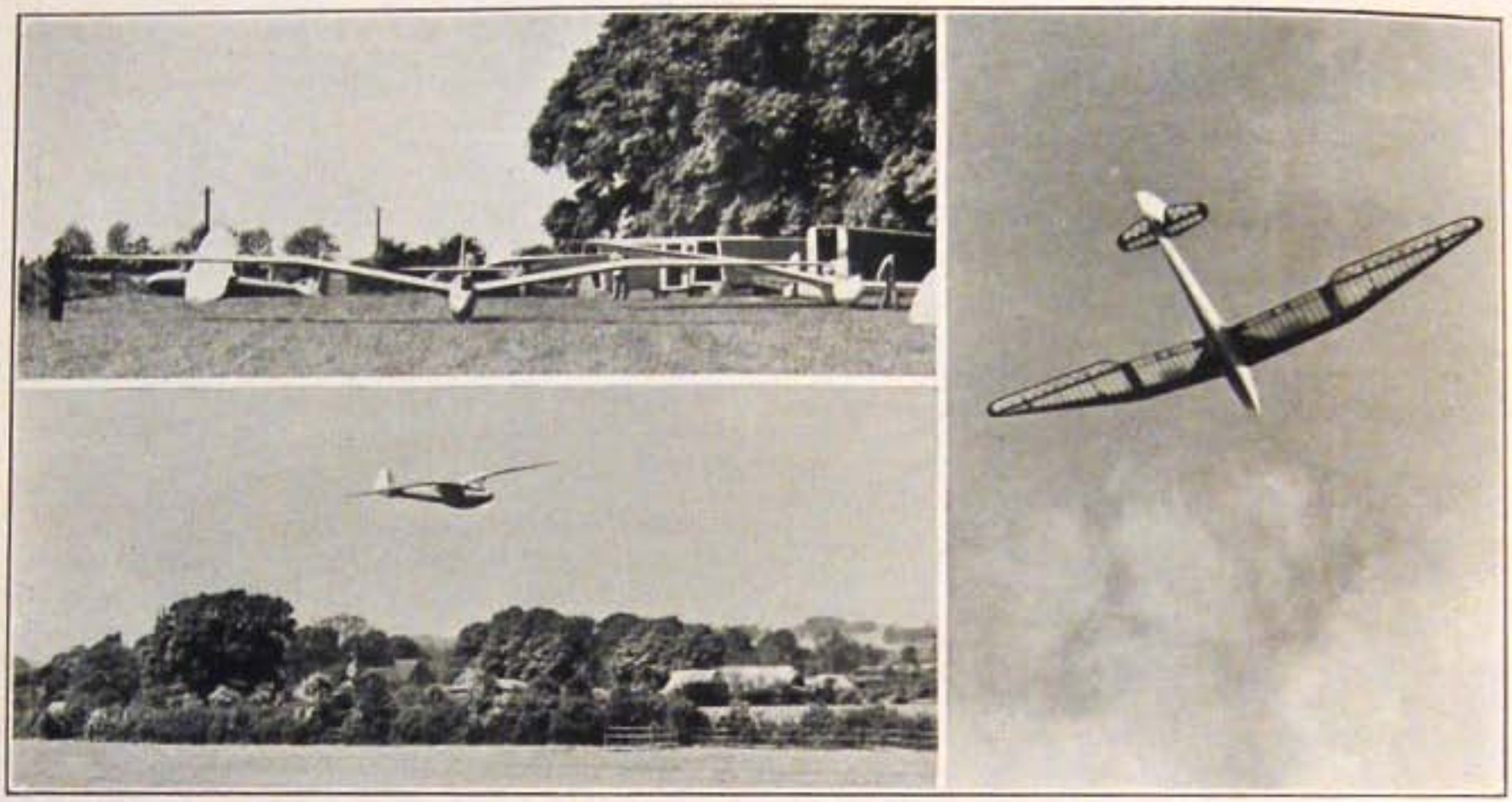
Sir,

I find that so few gliding folk know the correct way to fasten a safety belt that a note on it in The Sailplane would not be out of place. It was shown to me by an R.A.F. officer. One of the top straps should be placed over the pin first, followed by the two bottom ones and then the remaining top one—i.e., one top, two bottom, one top, or vice versa. The strain then comes on the main pin and not on the fixing pin (which is often not strong enough to stand it).

W. P. Waid.

A New Gliding and Soaring Site

By ROBERT KRONFELD, A.F.R.Ae.S., Chief Instructor, Oxford University and City Gliding Club



Top left: Whit Sunday at the Oxford Gliding Club. Philip Wills is about to start in his "Minimoa," while in the background, from left to right, are the Club "Kirby Kite," the "Blue Gull," and the "Rhönsperber." Bottom left: Dudley Hiscox in his "Gull" approaching the ground over Lewknor village. The club's ground stretches the whole distance from Lewknor Halt to Aston Rowant Station alongside the Great Western Railway. Right: Mr. Wills is launched by the new "System Kronfeld" winch.

[Photos by D. F. Greig.

IN summer, 1937, I flew in one of my "Drones" from Heston to Witney Aerodrome, near Oxford, and marked about half-way there a spot on my map which I considered suitable for soaring. From the air its advantages were easy to see. A visit by road disclosed important further details which are deciding ones for the development of gliding and soaring.

A gliding site should be easily accessible from the main centres of population; it should be suitable for beginners' and advanced instruction, and enable soaring flights to be carried out with as many wind directions as possible. It is an advantage if the hill is not too high to enable machines to be winched off to the soaring height from the bottom. This not only does away with the retrieving from the bottom, which costs time and money, but also allows the use of comparatively inexpensive buildings for hangars, as there is much less snow and storm risk than on buildings on high soaring sites. The latest development of soaring flights asks for the suitability of the soil for the production of "thermals," and a good position of the hill as hopping-off place for distance flights. It is an extra advantage if the field at the bottom can be used for aero-towing. All these conditions are fulfilled in a nearly ideal way at the soaring site which I discovered near Aston Rowant, Oxfordshire, and which is used now by the Oxford University and City Gliding Club.

The instruction field is situated at the bottom of the western slopes of the Chiltern Hills where the main London—Oxford road descends in a serpentine from the hills to the Oxford plain, after having passed through High Wycombe and Stokenchurch. The distance from London is 39 miles, from High Wycombe 9 miles, and from Oxford 15 miles. This road forms its northern boundary, and the western boundary is the road from Princes Risborough to Watlington and Reading, the distance to this latter town being 19 miles.

CONNECTIONS.—Bus and train connections are excellent. The bus from Victoria Station stops at the gliding field, "penny buses" run to and from Oxford and all other towns within easy reach. The Aston Rowant and Lewknor Stations, on the G.W.R., are within two and one minute walking distance. Parties can be collected by car by special arrangement from the field. Undergraduates can reach the site that way in a 20-minute run, and busy Londoners in exactly one hour from Paddington or Marylebone by train and car via High Wycombe or Princes Risborough.

THE INSTRUCTION FIELD.—The main field is a flat piece of ground which is licensed as an aeroplane landing ground. Its size is 1,800 by 1,600 ft. A fence, which separated us from a small narrow field which extends in the S.W. direction, was first attacked not without success by our fighter DAGLING pilots and afterwards removed furiously early one morning by a still more successful ground team. This narrow field allows us now to lay out 3,500 ft. of cable for starts for flying on the N.E. and S.W. soaring slopes. The dimensions

and surface of the field allow the use of the best of all instruction methods, the winch method. We can easily reach 1,000 ft. in height on the cable, and this has been used successfully on several occasions to catch thermals, and is used regularly to reach the hill up-wind on every slope. Aero-towing should be easy and safe.

THE SOARING SLOPES.—The main ridge of the Chiltern Hills faces N.W. The steep and uninterrupted part of it extends from Bledlow, near Princes Risborough, to our gliding field. That part of the N.W. slope, which is soarable even for TUTORS or FALCONS, is 4 miles long. Following the ridge further S.W. we find several short spurs extending, first, in north-westerly and, later, westerly direction from the main ridge. Any machine of the same or better performance than a GRUNAU BABY can use that part of the main slope under suitable conditions, and therefore use a beat from Bledlow Cross to Watlington Park, a total distance of 8 miles.

The biggest and steepest spur is Beacon Hill, near Aston Rowant. Beacon Hill has near enough the form of a pentagon pointing N.W. We therefore find two main and two secondary slopes. The easiest slope is the N.E. one. The beat with due N.E. wind is 3,500 ft.; with N. wind the bowl fills with up-current and the beat becomes 4,500 ft.

Nearly equally good is the S.W. slope where the beat is 3,400 ft. At first we did not think it possible to get "C's" on the short W. and N.W. beat of the actual spur. But some "C's" obtained with good height above the hill on the 1,200 ft. long W. beat and the equally long N.W. beat showed us that these slopes, both overlooking the landing field, are better than we thought. All "C's"—16 since our first experimental expedition to this site in June, 1938—were obtained on one or other of these slopes in wind directions from N.E. to S.S.W. The difference in height between the launching and landing field and the highest point of the spur is 400 ft.

THE OXFORDSHIRE HIGH PERFORMANCE RIDGE.—As an instruction and "C" licence site the site of the Oxford University and City Gliding Club is one of the most universal ones I can think of as a hopping-off place for performance flights, and as a duration site it is certainly among the very best I have seen.

Meteorology gives the explanation for this special virtue of our site. Our longest slope faces N.W. North-west winds are found on the back side of depressions with either squalls and later cumulus clouds, both specially suitable for distance and height flights. It is significant that my first investigation of the N.W. slope with the TUTOR, which was immediately followed by flights by my pupils, took place on the same day that Stephenson made his history-making flight across the Channel. (By the way, until we can cross the Atlantic in a glider it might be better to plan really long cross-country flights with N.W. wind, because a landing in France is less wet than one in other wind directions and covering the same distance.)

Especially suitable for the formation of thermals is the sudden change from the lower Oxfordshire plain, with rather humid soil, to the dry and chalky ground on the hill side. The rails of the Great Western Railway on the bottom of the hill seem to give the first impulse for the birth and growth of thermals. The well-heated trees, on the otherwise dry slope, give the necessary humidity for the creation and maintenance of clouds. The woods on the slopes give fine thermals in the evening.

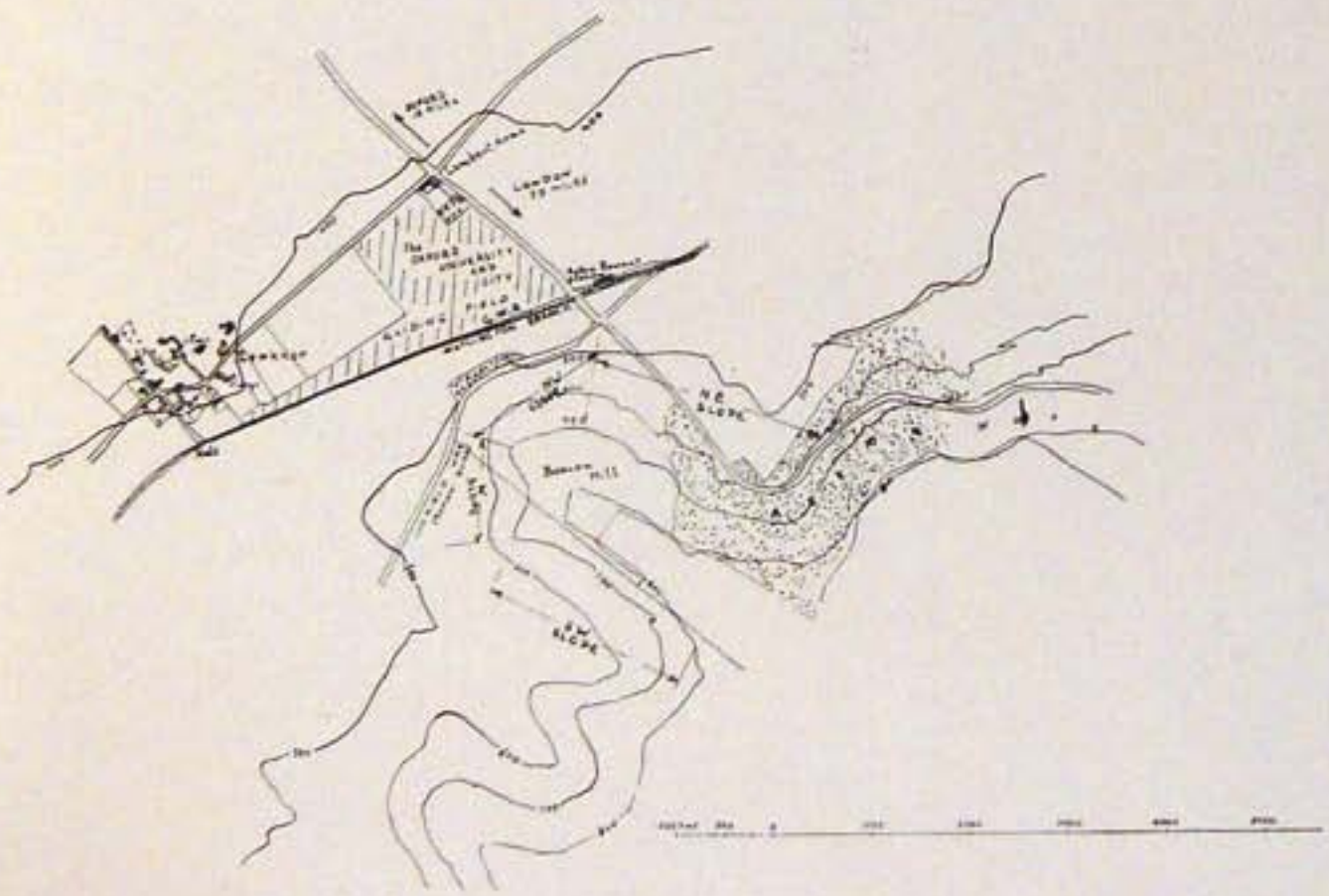
With slight E. or S.E. wind we find the western slopes so well heated by the afternoon sun that lee-side thermals can be caught off the winch, as has been shown in masterly fashion by Wills, Greig and Nicholson.

Nothing is better proof of the advantages of our site for distance flights than the chart and list of flights carried out since Whitsun on our site.

In the N.W. corner of the flying field lies the Lambert Arms Hotel, an excellent roadhouse, which was originally a coaching inn. Here the coachman had his last drink before climbing up the steep hill which is now used for soaring. The hotel offers all club facilities.

For the time being there is one Ellis hangar, but another one and a small office will shortly be erected.

Every private owner who wants to try out our various slopes is very welcome.



Map of the Oxford University and City Gliding Club's site near Aston Rowant, showing how Beacon Hill juts out from the main range of the Chilterns and provides soaring slopes for wind directions half-way round the compass.

[Drawing by R. Kronfeld.

Gliding Certificates

GLIDING certificates granted nationally are: "A" certificate for a straight glide of 30 seconds; "B" for a glide of one minute with right and left turn, and "C" for a soaring flight of five minutes without loss of height. International certificates are the "Silver C," given for flights of five hours' duration, 1,000 metres altitude, and 50 kilometres distance; and the "Gold C," for an altitude flight of 3,000 metres (9,843 ft.) and a distance flight of 300 km. (186.4 miles).

Up to the end of March there were 1,132 holders of the "Silver C"; of these Germany had 823, Poland 159, Great Britain 50, France 32, Switzerland 19, U.S.A. 17, Hungary 11, Jugoslavia 4, Finland 3, Holland 3, Czecho-Slovakia 3, Africa 3, and Brazil, Sweden, Rumania, Egypt and Lithuania, one each.

"Gold C."—Up to March 11th, 1939, holders of the "Gold C" were:—

1. Heinri Dittmar, Darmstadt.
2. Hermann Zitter, Darmstadt.
3. Philip Wills, London.
4. Eric Nessler, Paris.
5. Heinz Peters, Wasserkuppe.
6. Rudolf Opitz, Darmstadt.
7. Wolfgang Späte, Darmstadt.
8. Karl Schieferstein, Darmstadt.
9. Heinrich Huth, Hamburg-Fuhlsbüttel.
10. Arno Kuhnhold, Laucha.
11. Peter van Husen, Grunau.
12. Kurt Schmidt, Munich.
13. Otto Bräutigam, Gr.-Rückerswalde.
14. Franz Pomper, Königsberg.
15. Rudolf Steinert, Poppitz.
16. Günther Lemm, Berlin.
17. Ernst-Günther Haase, Dortmund.
18. Gerhard Sauerbier, Breslau.
19. Oblt. Flakowski, Merseburg.
20. Heinz Schubert, Darmstadt.
21. Werner Fick, Perleberg.
22. Gotthold Peter, Berlin.
23. Karl Treuter, Jena.
24. Hermann Winter, Johannesburg.
25. Eugen Wagner, Breslau.

The following gliding certificates, for which qualifying flights were made on the dates shown, were granted by the Royal Aero Club on May 31st ("C" indicates an Air Defence Cadet):—

"A" Certificates

No.	*Name.*	*Club.*	*Date.*
1256	W. V. Warry	Bristol	19.3.39
1257	M. C. Hay	Oxford	8.4.39
1258	P. de K. Dykes	Cambridge	25.3.39
1259	P. W. Brooks	Imp. Coll. (London)	8.4.39
1260	A. W. Vivian	Oxford	9.3.39
1261	P. Pritchard	Midland	6.6.37
1262	J. C. Melvill	Cambridge	3.5.39
1263	M. Lloyd	Cambridge	2.5.39
1264	F. Wright	Midland	23.4.39
1265	R. G. Robertson	Newcastle	23.4.39
1266	H. E. M. Hammick	Cambridge	3.5.39
1267	C. Annear	Surrey	3.5.39
1268	W. C. Gowlland	Southdown	8.4.39
1269	J. D. Grice	Newcastle	6.5.39
1270	B. P. W. Clapin	Cambridge	10.11.38
1271	E. N. Baker	Derby and Lancs.	13.5.39
1272	E. D. Carter	Oxford	14.9.38
1273	R. C. Pickering	London	7.5.39
1274	J. R. Cooper	London	7.5.39
1275	A. N. Moore	London	7.5.39
1276	F. R. J. Spearman	London	14.5.39
1277	T. O. Evans	London	9.5.39
1278	H. Miles	London	France
1279	O. V. Ottley	London	10.5.39
1280	M. Hards	Southdown	6.5.39
1281	W. A. Raby	Furness	12.3.39
1282	M. Q. Sharp	Cambridge	9.5.39
1283	B. Clinton (C)	London	6.5.39
1284	J. A. Rashton (C)	London	6.5.39
1285	G. R. Stones (C)	London	6.5.39
1286	L. R. Revell (C)	London	4.5.39
1287	J. Scanes (C)	London	4.5.39
1288	R. G. Lawrence (C)	London	6.5.39
1289	G. E. Carter (C)	London	6.5.39
1290	F. R. Kindell (C)	London	3.5.39
1291	D. J. Frost (C)	London	6.5.39
1292	P. G. D. Worrall (C)	London	4.5.39
1293	C. J. Travell (C)	London	6.5.39
1294	V. I. L. Burnett	London	28.4.37
1295	M. H. A. Woollcombe	Cambridge	18.5.39
1296	P. N. King	Newcastle	21.5.39
1297	T. D. M. Roberts	London	21.5.39
1298	R. A. A. Walker	London	8.4.39
1299	R. Batie	London	7.5.39
1300	R. Hall	Derby and Lancs	13.5.39
1301	V. C. Morris	Surrey	21.5.39
1302	V. J. Morris	Surrey	21.5.39
1303	G. G. Smith	Derby and Lancs.	28.5.39

"B" Certificates

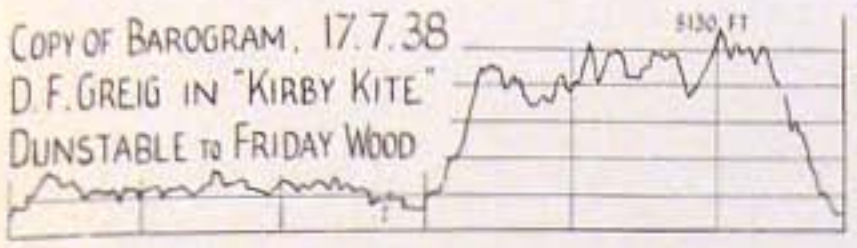
No.	*Name.*	*Club.*	*Date.*
1258	P. de K. Dykes	Cambridge	25.3.39
1259	P. W. Brooks	Imp. Coll. (London)	14.4.39
1237	Ruth C. Walder	Oxford	14.4.39
984	A. A. Fletcher	London	16.4.39
1236	F. C. J. Butler	London	18.4.39
1217	J. A. Lyon	Cambridge	8.5.39
1278	H. Miles	London	10.4.39
1275	A. N. Moore	London	8.5.39
1272	E. D. Carter	Oxford	23.9.38
1270	B. P. W. Clapin	Cambridge	8.5.39
1268	W. C. Gowlland	Southdown	6.5.39
1263	M. Lloyd	Cambridge	2.5.39
1262	J. C. Melvill	Cambridge	10.5.39
1281	W. A. Raby	Furness	6.5.39
1202	A. Harris	Derby and Lancs.	10.4.39
1215	R. V. Selnyi	Cambridge	3.5.39
1297	T. D. M. Roberts	London	27.5.39
1298	R. A. A. Walker	London	14.5.39
1299	R. Batie	London	8.5.39
464	F. Hoffman	London	21.5.39
1274	J. R. Cooper	London	21.5.39
1273	R. C. Pickering	London	21.5.39
1296	P. N. King	Newcastle	29.5.39
1267	C. Annear	Surrey	24.5.39
1246	W. A. Mitchell	Surrey	20.5.39

"C" Certificates

No.	*Name*	*Club.*	*Date.*
984	A. A. Fletcher	London	17.4.39
914	J. E. H. Moos	Imp. Coll. (London)	23.4.39
1142	E. F. Exon	Oxford	23.4.39
1258	P. de K. Dykes	Cambridge	9.4.39
1259	P. W. Brooks	Imp. Coll. (London)	15.4.39
966	G. C. Varley	Cambridge	9.4.39
1020	J. S. Brough	Derby and Lancs.	10.5.39
1169	A. Archangelsky	Oxford	16.4.39
1066	E. G. Adams	London	23.4.39
1196	V. H. Adams	London	23.4.39
1243	K. Wild	Midland	14.5.39
1157	Jessie Gent	Derby and Lancs.	14.5.39
1299	R. Batie	London	28.5.39
887	A. H. Yates	Imp. Coll. (London)	14.4.39
1268	W. C. Gowlland	Southdown	23.5.39
1263	M. Lloyd	Cambridge	21.5.39
1155	J. B. Wagstaff	Derby and Lancs.	14.5.39

The 1938 Contests

WE are still unable to find room for an account of the cross-country flying on the last day of the 1938 National Contests. In the adjoining column, however, is a description of a flight by Mr. Greig in the grey KIRBY KITE, which is of special interest as it gained him the altitude prize for the meeting. This is his barograph record:—



The question arises as to whether it is worth while to collect full details of each pilot's cross-country flights during a competition for the purpose of comparing them all and learning why it was that so many pilots achieved such very different results under the same weather conditions—results not by any means always proportional to their skill.

There are, as is shown by the attempt made for last year's Contests, three difficulties in the way of arriving at and distributing worth-while knowledge.

One is the inadequacy of the data; another is the time to go through and get a comprehensive mental grasp of all the information; and the third is to find space to publish it all.

As to the data, it would seem that little can be learned about what pilots should have done to make the most use of a particular cloud, for instance, unless the cloud has been continuously observed from the ground from its formation until its breaking-up. Last year seven pilots went up together under one particular cloud; their subsequent achievements were extraordinarily varied, yet it is practically impossible from reading their accounts of the flights to form an opinion on the exact reasons for the variation.

Nevertheless, the comparison of the accounts sent in last year has proved extraordinarily interesting, and if pilots in this year's contests would again write down as fully as they feel inclined any details of their flights which bear on the technique of soaring across country, I will see if better use can be made of them this year. One idea that occurs to me is to hand over the accounts of a group of flights which were all made at about the same time, or over the same route, to one of the most skilled pilots in the group, if he is willing to make a comparative study of the accounts and put on paper any lessons he thinks can be thereby learned. By dividing up the work in this way, the risk of mental indigestion would be greatly diminished and results would certainly appear more rapidly.

A.E.S.

Gliding Broadcast.—On the evening of July 10th, from the North Regional station, Terence Horsley will present a short programme on flying, but on gliding in particular.

Dunstable to Friday Wood

I WAS launched on the winch at 1.45, scraped along to the Bowl, back to the power wires, and at once started to circle in steady but poor lift within one minute of casting off the wire and continued to circle in lift which seldom reached 5 ft. per second, reaching cloud base two or three miles east of Luton at 3,700 ft. in about half an hour.

I then entered my first cloud, and a very friendly one it was. I doubt if any of the cloud were as much as 2,000 ft. deep. Switching on the electric turn indicator I continued to circle in lift of about 5 to 10 ft. per second, and noticed that the surface of the ground disappeared, but not the roads, hedges, etc., and these remained just visible for 4 to 5 circles; after which I tried to continue to circle, but only too soon everything began to go *zing*, etc. (please ask Humph how to spell it). So I then remembered the blind flying rules, i.e., correct turn first with rudder, then pitch (speed), and last of all bank—but as I can never understand a bubble I let this look after itself—and within a minute or so charged out of the side of the cloud at about 5,000 ft.

At once I noticed that the clouds were arranged in the form of an exact street dead up and down-wind, but with a space of half a mile or so between each. Putting the speed up a little, I flew due east to the next cloud, reaching same just below base, and repeated the same performance for 2¾ hours. I enjoyed myself immensely; my main impression was that of complete and absolute safety and comfort, also it was noticeable how uninteresting East Anglia is to fly over, say, as compared with Wiltshire; the whole place is just green fields with a little town from time to time.

Our arrangements for the Competitions included the privilege of many expensive maps, all of which I managed to leave behind, and I flew entirely on cloud shadows, these being the most perfect down-wind indicator, the direction as recorded by our 15s. compass being due east.

After about two hours I saw with some joy an estuary to the south, then later another to the north, and after flying over a town (Colchester) I flew over the water between an island (Mersea Island) off the end of the mainland, but could see no form of bridge over to the island over which a trailer could be taken, so turning inland I at once saw an R.A.F. aerodrome (Friday Wood) about a mile, perhaps, from the water.

From Colchester I had made no attempt to circle at all but found it difficult to lose height, and flew round the aerodrome three times losing no height at about 1,500 ft.; so I then did my first loop, and the least said about it the better, as I got into a position in which the KITE seemed to be hung up on a hook just like a coat on a peg, after which my Leica fell over the back of my head and was saved only by the greatest luck.

However, I was so pleased to have saved the camera that I took a few pictures of the country around and the aerodrome (doubtless a crime) before landing at 4.30 exactly, the only rough part of the whole flight being the approach over high trees, big tents, and a flight of Hawker "Hectors."

D. F. GREIG.

The Gliding Subsidy

THE Government Subsidy to Gliding was offered in 1934, the amount being £5,000 a year for five years; grants began in 1935. The subsidy has now been extended for a further period, and in addition the Government subsidises the Air Defence Cadets' instruction camps, this additional amount being £4,900 for the present year. The subsidy is administered by the British Gliding Association subject to the control of five trustees.

Subsidy Committee Memorandum

The Memorandum prepared by the Subsidy Committee of the British Gliding Association was considered by the Council of the B.G.A. on February 24th, 1939, and approved in the form given below. It should be read in conjunction with previous regulations on Subsidy, which it amplifies and alters in places but does not supersede. The approved text is as follows:—

(a) At the commencement of each Financial Year the Subsidy Committee shall meet and decide the general plan of expenditure for the year. At this meeting definite sums shall be set aside for the financing of the B.G.A., new Clubs, and any scheme which may have been recommended by the Council, and the remainder shall be apportioned in advance to the Clubs already in receipt of subsidy.

(b) Payment of subsidy shall be made as before as a proportion of the cost of equipment, but the total sum claimable by a Club in any one year shall be limited to its apportioned sum. Payment shall be made on the basis of a maximum of 70% on all items passed.

(c) In normal circumstances, the apportioning shall be on the basis of points for certificates gained by the Club in the previous year.

This scheme shall come into operation on 1st April, 1939.

(d) New Clubs and Clubs which have not previously received subsidy shall be given special consideration.

(e) A date shall be fixed two months before the end of the Financial Year as the last date for claiming subsidy. Any sums unclaimed on that date shall be re-apportioned on the basis of certificate points for the previous year, and Clubs shall be notified of the sums available for redistribution. Claims for this money shall be made on the same basis as before.

(f) The allocation of points for working out the 1939–40 subsidy apportions would be one mark for an "A" certificate, two marks for a "B," and four marks for a "C." In addition marks would be awarded for "Silver C's," as follows:—

DISTANCE.	
To the Club providing the aircraft	1 point
To the Club providing the facilities for the start ...	1 point
HEIGHT.	
To the Club providing the aircraft	1 point
To the Club providing the facilities for the start ...	1 point
DURATION.	
To the Club providing the aircraft	1 point
To the Club providing the facilities for the start ...	1 point
Total	6 points

Flights in private machines shall not earn points for the aircraft.

The following table gives the amount of subsidy grants, to the nearest £, to each gliding club during the last four financial years ending March 31st, 1939, i.e., since the subsidy started. D. & L. stands for the Derbyshire and Lancashire Gliding Club.

After it a table is given showing the amount of subsidy claimable during the present financial year, which is worked out according to points earned for gliding certificates in accordance with the memorandum given above.

Subsidy Grants

	35/36	36/37	37/38	38/39	Total 35/39
BRISTOL	—	—	—	183	183
CAMBRIDGE ...	—	30	455	60	545
CHANNEL	110	3	28	92	233
D. & L.	86	830	1,048	558	2,522
FURNESS	149	61	186	113	509
LONDON	3,029	517	1,314	858	5,718
MIDLAND	715	793	359	679	2,546
NEWCASTLE ...	—	240	252	417	909
NORFOLK	—	—	—	283	283
OXFORD	—	—	—	461	461
SCOTTISH	—	—	—	39	39
SOUTHDOWNS ...	—	394	98	66	558
SURREY	—	—	—	129	129
ULSTER	—	100	234	172	506
YORKSHIRE ...	427	1,626	622	484	3,159
Clubs	4,516	4,594	4,596	4,594	18,300
B.G.A.	300	400	403	406	1,509
Not expended ...	184	6	1	—	191
Total	£5,000	£5,000	£5,000	£5,000	£20,000

Subsidy Allocations for 1939-40

Subsidy Allocation, as below	£4,000
New Clubs	500
B.G.A.	500
	£5,000

Gliding Club	*1938 Points*	*Subsidy claimable to nearest shilling* £ s.
BRISTOL*	— ...	— —
CAMBRIDGE	135 ...	406 18
CHANNEL	7 ...	21 2
DERBYSHIRE AND LANCASHIRE ...	145 ...	437 2
FURNESS	11 ...	33 3
LONDON	437 ...	1,317 5
MIDLAND	132 ...	397 18
NEWCASTLE	32 ...	96 9
NORFOLK AND NORWICH ..	35 ...	105 10
OXFORD	114 ...	343 13
SCOTTISH*	11 ...	33 3
SOUTHDOWN	23 ...	69 6
SURREY*	3 ...	9 1
ULSTER	32 ...	96 9
YORKSHIRE	210 ...	633 1
	1,327	£4,000 0

* *New Clubs.*

(1) The Council has set apart £500 for assisting new Clubs.

(2) The Council has decided that new Clubs are those which are now in existence but have not yet received £200 subsidy.

(3) The following Clubs come under this heading and are entitled to claim as under, apart from any sum earned under Certificate points above:—

	Already received £	*Additional amount claimable* £	£
BRISTOL	183 ...	17	
SCOTTISH	39 ...	161	
SURREY	129 ...	71	
			249
Balance available			251
			£500

News from the Clubs

We give below a list of all British gliding clubs which are believed to be active, with the names and addresses of their secretaries. Further particulars of the principal clubs will be found in our advertising columns on pages 153 and 154.

For information as to the running of a gliding club, apply to The British Gliding Association, 119, Piccadilly, London, W.1. (Tel.: Grosvenor 1246-7-8.)

Clubs Affiliated to the British Gliding Association

CAMBRIDGE UNIVERSITY.—P. G. Walker. Club rooms at 1, Benet Street, Cambridge.

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

DERBYSHIRE AND LANCASHIRE.—C. Kaye, 63, Clarkhouse Road, Sheffield. (Tel.: 62463.)

DORSET.—L. A. Lansdown, The Portman Arms Hotel, East Chinnock, Yeovil, Somerset. (Tel.: West Coker 01 Y4.)

ESSEX.—Miss Doris Wilson, 30, Breamore Court, Goodmayes Lane, Goodmayes, Essex.

FURNESS.—J. S. Redshaw, 18, Fairfield Lane, Barrow-in-Furness, Lancs. (Tel.: 803.)

KENT.—Miss R. H. Sinclair, Lenhurst, Harrietsham, Kent. (Tel.: 378.)

LONDON.—Tring Road, Dunstable, Beds. (Tel.: Dunstable 419.) London Secretary: A. Sweet, 11, Bow Churchyard, E.C.4. (Tel.: City 5997.) Resident Manager: Capt. H. E. Hervey, London Gliding Club, Dunstable.

MIDLAND.—F. L. Felton, 1, Newhall Street, Birmingham, 3. (Tel.: Central 8181.)

OXFORD UNIVERSITY AND CITY.—Miss B. M. Nicklin, 532, Banbury Road, Oxford.

NEWCASTLE.—A. P. Miller, 25, Holme Avenue, Walkerville, Newcastle-on-Tyne, 6. (Tel.: Wallsend 63320.)

NORFOLK AND NORWICH AERO CLUB.— Gliding Section: J. F. Taunton, Municipal Aerodrome, Norwich.

SCOTTISH GLIDING UNION.—R. B. Rogerson, 20, Blythswood Street, Glasgow, C.2.

SOUTHDOWN.—S. G. Stevens, Southerlea, Meadow Close, Hove, 4.

SURREY.—A. D. Jones, 25, Rose Hill, Dorking.

YORKSHIRE.—L. A. Alderson, 32, Wensley Green, Chapel Allerton, Leeds, 7. Assistant Secretary: J. W. Hinchcliffe, Netherfield, Mill Lane, Bardsey, Collingham Bridge. (Tel.: Collingham Bridge 201.) Branch Clubs: Co. DURHAM (Sunderland) and WEST RIDING (Holmfirth).

Clubs Associated with the B.G.A.

DEVON.—S. G. Tolman, 31, Victoria Road, Exmouth.

TEES-SIDE.—T. Anderson, 49, Wellesley Road, Middlesbrough, Yorks.

Other Clubs

England.

ALSAGER AND DISTRICT.—H. N. W. Goss, 36, Crewe Road, Alsager, Cheshire.

BEACON HILL (Essex).—G. J. Harris, Sandhill Road, Eastwood Rise, Southend-on-Sea.

BRISTOL.—K. M. Turner, Hambrook House, Hambrook, Bristol. (Tel.: Frenchay 65.)

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

COTSWOLD.—J. D. Pether, Culver's Close, Burford, Oxon.

CROYDON.—N. V. Marshall, Hollydene, West Hill, Epsom.

EAST GRINSTEAD.—C. J. Smith, "Tolskity," Sackville Lane, East Grinstead.

HULL.—W. E. Walker, 198, Alliance Avenue, Newington, Hull.

IMPERIAL COLLEGE.—Club Sec., Imperial College of Science, South Kensington, S.W.7.

PORTSMOUTH AND SOUTH HANTS.—R. G. H. Parnell, 128, New Road, Portsmouth.

ROCHDALE.—A. Claypole, 17, Agnes Street, Castleton, Rochdale.

STANDARD TELEPHONES AND CABLES, LTD.—A. Evison, Gliding Section, Athletic and Social Club, North Woolwich.

Scotland.

DUMBARTONSHIRE.—J. V. Campbell, Kirklea, Cardross Road, Dumbarton.

INVERNESS.—A. D. Mackintosh, Bunchrew House, Bunchrew, Inverness-shire.

Northern Ireland.

ULSTER.—N. P. Metcalfe, c/o Ulster Spinning Co., Ltd., Belfast.

Derbyshire and Lancashire Gliding Club

June.—Preparations for the National Competitions and the first batch of A.D. Cadets are keeping the club busy, and we are looking forward again to seeing all the old faces, and many new ones, at the Competitions, the results of which, we trust, will be bigger and better than ever.

Two more evening thermals have been sampled, and the results analysed, and we are gradually obtaining some working data. Could we provide but one for the Competitions, our many friends from other clubs would cease to wonder why we make so much of this phenomenon.

The missing of a cold front was a mistake by those who were flying, but due to high ground around us, recognising one is not an easy matter, except to those of considerable experience, none of whom happened to be flying at the time.

It is with some disappointment that we notice that evening flying has not received such support as in former years. Instructors are on duty every evening but Monday, and it is up to the members to support them.

Week-nights, May 23rd to 26th.—On Tuesday the inversion which usually precedes an evening thermal took place, and accompanied by a N.W. wind conditions looked very promising. The first launch at 6.45 p.m. was the KESTREL, and hill lift promptly took it up to 800 ft., whilst the launching crew returned to collect further machines from the hangar. The next into the air was Shepard in the BUSSARD, some half hour later, the wind by this time having veered N.N.W., and no hill lift of any consequence was noticeable. He struck off towards the Cement Works to seek and find lift, which had by now taken the KESTREL up to near the 2,000 ft. mark. The wind now being due north, it was with some amusement that the two pilots in the air watched the efforts of those below to reach them. All their efforts were of no avail until A. Davies, in his KITE, having summed up the situation with the cunning of an old hand, burnt his boats by flying right out into the valley, and was soon on speaking terms with the other two.

Two evenings' training and one more of soaring completed quite a successful week.

Saturday, May 27th.—Wind N.W., 5-10 m.p.h. Soaring in thermal conditions by the whole fleet, including MIXTROS, who was flown by P. Brown and G. O. Smith. These two, we understand, are flying MIXT in the National Competitions. Good luck to them.

Sunday, May 28th.—Wind N.E., 15 m.p.h. A good training day, and by afternoon, when thermals became apparent, pilots managed to make good use of them. D. Swale, in the BUSSARD, caught the first, and after working up to nearly 3,000 ft. landed an hour later near the Buxton-Ashbourne Road, 12 miles away. Alan Davies, in a KITE, played around the district for 1 hr. 25 mins., at varying heights, whilst F. Coleman, in his G.B., stayed up for 45 mins. Two "A's" were recorded, G.

Smith (14 year old son of G. O. Smith) and Howard, the times being 32 and 40 secs.; also two-seater rides for the Whit multitude, and we were glad to welcome a group of enthusiasts from Norwich with an H-17.

May 29th to June 2nd.—A week's training camp for members resulted in ideal weather for the job, the wind prevailing being light N. and E., and a noticeable improvement in the trainees who attended was apparent by the week-end.

Saturday, June 3rd.—Wind N.E., 10-15 m.p.h. More training, and three good "A's" for Buckle, Booker, and Hick, and a "B" for Howard, these being the result of the forementioned training week.

Sunday, June 4th.—Wind E., 5 m.p.h. Training and circuits for a number of the A.D. Cadets, the first batch of whom had arrived yesterday.

June 5th to 9th.—Training the first three days, but another evening thermal on Friday gave those present an opportunity to do their stuff. The GULL, KITE, and BUSSARD, with the Verity brothers and Swale as pilots; got away in time to catch the lift, and all reached the 3,000 mark without much difficulty. This thermal soon rises above the height of a winch launch, and all other attempts to connect failed, and two machines only just scraped home again.

This thermal was again forming in layers, and considerable roughness was noticed whilst breaking through from one to the next.

Saturday, June 10th.—Wind W., 15 m.p.h. Soaring for all machines until evening, when rain and low cloud put an end to flying for the day.

Burnett is back again with us, and celebrated his arrival by half an hour in the GULL.

Sunday, June 11th.—Wind N.W., 25 m.p.h. The early morning conditions were promising and the air was soon occupied by numerous sailplanes circling hard in order to find something that would make a cross-country possible, but although the lift was strong at times, it disappeared just as quickly as it arrived, and no one got away. This continued until mid-afternoon, when the wind veered N.E., and machines flying low had to come in; the others higher up were rapidly elevated towards the cloud which was becoming darker and thicker. Those in the air failed to recognise a cold front, whilst those on the ground were unable to do anything about it, the result being that three machines flew out to Tideswell to avoid what would have been the best opportunity for cross-country flying they have ever had; whilst B. Thomas, who was doing his five hours, flew right into the middle of the front at 2,000 ft., and spent a hair-raising 10 minutes in cloud without any blind flying equipment. No one was more surprised than he to find himself in clear air, the right way up and at nearly 5,000 ft. some five miles away. He came back, but failed to complete his five hours as the wind remained N.E.

Saturday and Sunday, June 17th and 18th.—Training on Saturday and soaring on Sunday between the heavy showers which always herald the arrival of Doc. Slater in this part of the world, and although training continued, little flying could be done until evening, when a mild evening thermal provided Harris with an opportunity to take his "C," and others to do a little soaring in NACELLED DAGLING, G.B., and FALCON.

Monday, June 19th.—Wind N.W., 30 m.p.h. More soaring in a rough wind.

Summary of Flying, May 23rd to June 18th.—Bungy launches, 348; Winch launches, 544; Flying time, 83 hrs. 29 mins.

Certificates: 5 "A," 1 "B," 1 "C."

Oxford University and City Gliding Club

Since the last club news was written, we have had a very busy time entertaining all our visitors, who turned up in force to try out the possibilities of the Chiltern Ridge Gliding Site. It all started on Whit Saturday, when Wills, Hiscox, Nicholson and Dent, Stephenson and Greig arrived, complete with machines.

May 27th.—Hiscox promptly made the first cross-country flight from this site by flying to Reading and landing at the aerodrome just in front of the clubhouse. The rest were content to try out the three-mile-long ridge as far as Chinnor, which was easily soarable in the strong N.W. wind.

May 28th.—Murray, with his BUSSARD, Briggs with his KITE, and Copeland and Hatcher with the CAMBRIDGE, had by now arrived, and at one time all seven machines were in the air at the same time on the northern side of the spur, the wind having veered a little to the north. Gradually one machine after another climbed and disappeared until only the CAMBRIDGE and the club KITE were left above the hill.



Above: the Oxford Club's hangar, which was removed from the old site at Farmoor early in May, is seen at its new home at Aston Rowant, while P. A. Wills in "Minimoa" is coming in over its roof. Below: removing a fence to enlarge the landing ground. Mrs. Fitz-Randolph, who was viciously attacked by this same fence while flying a "Nacelle," is taking her revenge on it with a mallet.

[Photos from R. Kronfeld.

May 29th.—Once again all seven machines were rigged after having been retrieved from their flights of the previous day. To-day, although the wind was still in the N.N.E. and hill lift was good, there was a marked absence of clouds, and Hiscox was the only one who managed to catch sufficient thermals to enable him to reach Hamble. He said afterwards that he could have landed at Southampton Airport, but thought he had better not as he had landed there the day before and they might think he was making a habit of it.

On Monday evening the machines departed one by one and everyone was very sorry that the holiday was over, but all agreed that it had been a great success.

During this time club activity had been going on as usual and it continued steadily throughout the week. On Saturday the new KITE, flown by Curtis, of "Drone" fame, decided it was really a bird after all and went to roost in a tree on the top of the hill. Everyone hurried up the hill, wondering what condition the pilot would be found in, only to see him climbing nimbly down the tree none the worse for his tree-top landing.

During the time that the KITE was being cut out of the tree, Fox was exploring the countryside in a north-westerly direction in his ADLER.

June 4th.—The wind still apparently being north-easterly, our Whitsun visitors returned once more to try their luck. By the time the machines were rigged, however, the wind had shifted slightly and now blew just off the hill. To catch a thermal was the only hope, and one machine after another, including the CAMEL which Sproule had brought, was launched and flew round hopefully.

The MINIMOA was the first to find a thermal, Wills releasing right in the middle of it and departing immediately for Deciers. Nicholson repeated the performance and finished up at Weston-super-Mare, a distance of about 90 miles.

June 8th.—Wills reappeared again on Thursday, but didn't succeed in getting away.

June 9th.—Greig brought the GULL along, with Arnold in attendance to retrieve him, if necessary, and promptly departed to Bath without any lunch.

June 10th.—On Saturday Stephenson brought the now familiar GULL and decided that, as the wind had turned round to the S.W., he might as well see how Dunstable was getting on and flew there

SLINGSBY SAILPLANES

A large number of machines competing in the National Gliding Contests at Camphill this month were built by Slingsby Sailplanes, Kirbymoorside.

The following are worthy of note:—

THE "PETREL"

The latest development in high performance sailplane design, with a large speed range, low sinking speed and remarkable gliding angle. Two machines of this type will be competing with German sailplanes of the same class. These two machines are the first of a batch of eight now on order for various parts of the Empire.

THE "GULL"

A medium span high performance sailplane capable of very high speed. A machine of this type, the "Blue Gull," was the first sailplane to soar from England to France.

THE "KIRBY KITE"

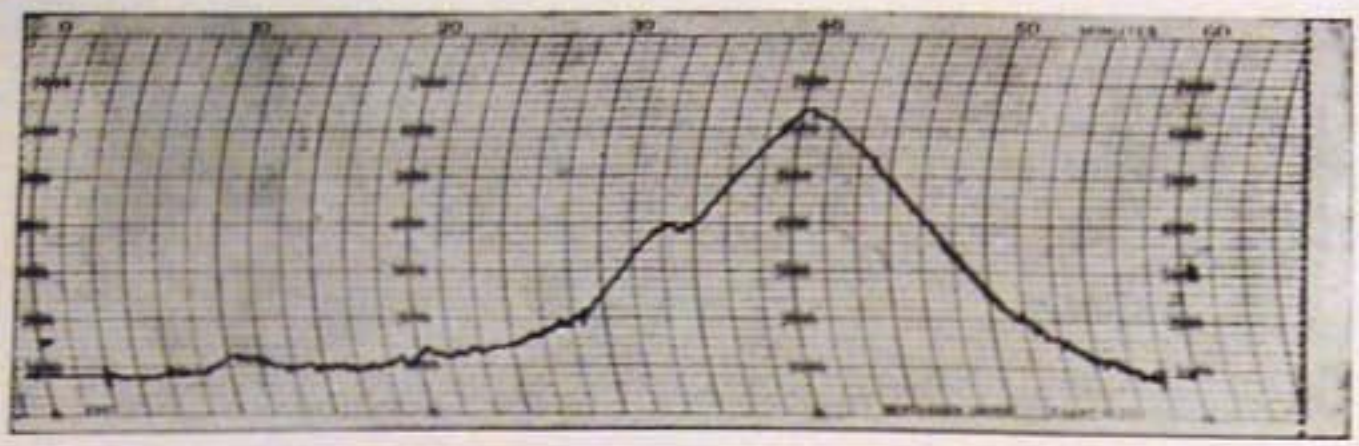
The most popular type of medium size sailplane. More "Kirby Kites" have been sold in this country than any other type. The "Kirby Kite" has many thousands of miles cross country flying to its credit.

"GRUNAU BABY II"

A club type of training sailplane used in large numbers. A machine of this type owned by the Newcastle Club, and built by Slingsby Sailplanes (sole manufacturers for Great Britain) climbed to over 11,000 feet at Hartside in June.

A new type now nearing completion is the "Gull II" high performance two seater cabin sailplane. This machine will be the last word in sailplane construction and is fitted with landing wheel, flaps, lift spoilers and night flying instruments and equipment.

SLINGSBY SAILPLANES, Kirbymoorside, Yorks.



The barograph record of Frank Charles's climb to 5,500 ft. in his "Petrel" on April 27th. The start was from the Furness Club's ground at Ireleth, above Askam-in-Furness. Mr. Charles thereby becomes the club's first "Silver C" pilot.

to see. Slingsby and Hinchcliffe arrived from Dunstable in the evening and stayed over Sunday.

June 11th.—The wind had worked round again to the N.W. and there was some good clouds. After some hill-soaring on the long ridge Wills got away and, reaching 8,800 ft. on the way, finished up just north of Ashford in Kent, about 85 miles away.

Higson, in the KITE, which he, Lavington, and Pears had brought over, did a short cross-country to Cookham, and Lavington had great difficulty in locating him.

Nicholson and Dewsbery turned up with the SPEEDER, but didn't wander very far away.

During the afternoon Kaeppli landed in the club TUTOR on the top of the hill and had to be winched off. Whereupon he promptly stayed up long enough to get his "C" certificate. Other certificates gained recently are: Whigham, Scott, and Hurst, "A's"; Flt.-Lt. Fraser and Torrie, "B's"; and Samuel, "C."

Furness Gliding Club

The secretary has been too busy flying his KITE, or rather the club KITE, to write the news, hence it falls upon a groundsman to do the dirty work.

Ever since this year began with the introduction of PETREL there has been constant competition at the Furness site. There is no doubt that the latest Slingsby product is a masterpiece. How Charles sits it down on our site only himself knows; to the observer it appears to do its stuff like a giant bird. On certain days when there is an obvious ceiling, the GRUNAU and KITE can keep it company, but when "getting places" they are left far behind.

The winch has proved a great asset, and some of the younger members find it good fun. The days of "donkey-work," we hope, are gone for ever.

Skirrow, Raby, Gatehouse, Mrs. Charles and Miss Watson are showing steady improvement in their flying. Smith is busy with C.A.G. training; while the FALCON III has been having a quiet time of late.

All club records are, of course, held by Charles. Duration, 5 hrs. 20 mins.; distance, 37 miles; height, 5,510 ft. above take-off; with a total of over 250 miles of cross-country flying to his credit.

March 26th.—A cold front flight, by Charles, in a north-east wind from Cartmel Fell to Rampside, distance 18 miles, which included crossing Ulverston Channel. Max. height, 3,200 ft. This flight was remarkable in that for the first 40 minutes PETREL barely maintained height above the launching point, while the 18 miles were covered in about half that time.

April 18th.—Charles and Stevens had excellent conditions. Both were able to cross the Duddon Estuary, and reached well over 3,000 ft. Unfortunately, on this mid-week day, there was no ground organisation, or we might have had two further cross-country flights to record.

April 18th-20th.—Charles put in about two hours' soaring each day.

April 24th.—This was a magnificent day. Charles left the site about 3.35 p.m., when the best of the thermals had passed. Nevertheless, he managed a nice cross-country of 22 miles. During the evening, Stevens and Redshaw had two hours' soaring at Ireleth.

April 27th.—On this day Charles achieved 5,510 ft. above take-off, and thus becomes our first "Silver C" pilot—a distinction richly deserved, for no man could have tried harder for this goal.

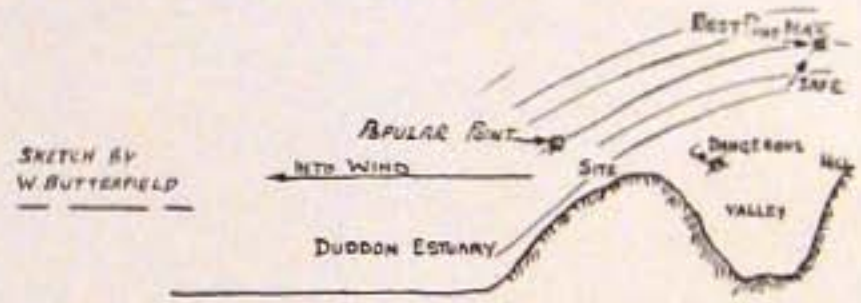
Meanwhile there has been flying each week-end, no matter what the wind direction. Raby, having qualified for his "A" and "B," is impatiently awaiting a favourable day for a "C" in the KADET.

Air Defence Cadet Corps.—Not to be outdone, we have formed our own squadron, and, given reasonable support, we intend to give the best of the boys some flying training this summer.

"Petrel" Climbs 5,500 Ft.

We have received from Mr. W. Butterfield some particulars of the climb to 5,500 ft. above take-off which Frank Charles achieved on April 27th. Mr. Butterfield writes:—

I have always insisted that the best lift would be found well back behind the hill: see sketch below.



Our "C" pilots all like to gambol out into wind where the wide belt of lift is so easy to work in; they can easily cross to Millom and get back with plenty of good height.

Charles, on this day, noticed a large cumulus cloud which was stationary. He found the strata or thermal which caused it, and by a tremendous number of tight circles went up, at 8 ft. per second at times, until he was 6,400 above sea level, from which height I firmly believe he could glide across Morecambe Bay. However, being thrilled with his height and keen to complete his "Silver C" qualifications he came home just as quickly, and shortly afterwards the cloud began to dissipate. It was not a true lenticular, but more like a stationary cumulus. He was never entirely enveloped, but looked very small indeed.

The altigraph has been checked and calibrated and his height above point of bunjy launch is 5,500 ft. according to Messrs. Short & Mason.

Standard Telephones & Cables, Ltd.

Whitsun.—The holiday period had rather depleted our ranks, but quite a number of members had decided to spend the holiday at the club ground at Romney Street (Shoreham, Kent). Our chief instructor, E. J. Furlong, flew the machine, and his efforts increased the enthusiasm among members for "hopping." The machine proved almost viceless in its behaviour, and at least one member was spared "taking his (or her) breakfast off the mantelpiece" by the anti-stall property of a Clark Y wing section.

On **June 3rd** an east wind caused eddies in the valley and provided pupils with experience of cross-wind flying. The same on Sunday, when Furlong released 150 ft. above the valley.

Fearon has concluded his training at the Long Mynd camp with an "A" licence and all our members offer congratulations.

The DICKSON has now been launched 330 times and has proved itself well able to deal with any rough handling.

Although D. G. Hiscox passed over at 2,000 ft. on May 21st, on his way from Reigate to Gravesend, it is remarkable that not a single member observed him.

Yorkshire Gliding Club

Whitsuntide Course.—This opened as per programme on May 28th, and was attended by fourteen members, about half of them had gliding certificates already, and of the rest five "A's" and five "B's" were obtained. The wind remained in the east, north-east, and south-east during the whole of the week, and in consequence no "C" certificates! However, the training went on with dogged persistence, each day brought a cloudless sky and blazing sunshine, the winch was moved from here to there and back again, but not a trace of wind came from the required directions. At the end of the week G. B. S. Errington and N. P. Anson made flights (the former, one of two hours) in pure thermal from winch launches to about 400 ft. in the KITE. One or two of the heftier members drifted cheerily though the side of the NACELLE and a PRIMARY wing was bust in two by being landed thereon from six feet; the GRUNAU suffered a cracked keel, and that summed up the damage—little enough for a non-soaring week of morning-to-dusk continuous winch descents, and of course, primary training.

It was during this week that the accident happened at Welburn. It is not the purpose of these notes to comment upon it except to say that the loss of Pick and McMurdo is a personal loss to each one of us. Both were extremely popular in this club and elsewhere, and it is good to look back upon many happy hours spent in their company. May we thank all senders of messages of sympathy whom we have not already thanked personally.

Angus Pick's family have decided to present his GRUNAU and trailer to the club. In the circumstances, such a gift is more than generous and will be accepted with sincere gratitude.

[The accident referred to above, which we report with great regret, occurred on May 30th, when the GULL was being aero-towed off Welburn Aerodrome. The sailplane rose high above the aeroplane, pulled up its tail and thus caused it to dive, while the unusual strain on the sailplane caused its right wing to break. As a result, Mr. A. O. Pick, the sailplane pilot, lost his life, and Mr. M. S. McMurdo, who flew the aeroplane, died shortly afterwards in York Hospital. Some observations by Mr. G. B. S. Errington, who witnessed the accident and examined the wreckage, will be published next month.—ED.]



In Angus O. Pick the Yorkshire Club has lost one of its most active pilots. In nine months of last year alone he completed 142 hours of soaring. The photograph shows Mr. Pick in his own "Grunau Baby" in which he set up the former British duration record of 13 hours 27 minutes on July 31st last year. He was a poultry farmer, of Leeming Bar.



Mr. M. S. McMurdo, whose death is reported on this page, will be remembered by a large circle of friends in British gliding, especially by those who have had launches behind the aeroplane which he flew. He was Major J. E. D. Shaw's private pilot at Welburn aerodome, where he did much aero-towing; he also towed at many gliding meetings elsewhere, including the international contest in Germany two years ago.

(Photo by F. J. Box.

Air Defence Cadet Camps.—These began on June 1st, and, in a whole fortnight of perfect training weather, trained at Welburn each and every day from morning until night under the patient and skilful tuition of J. H. Saffery and his assistants. Breakages, which under the circumstances were reasonable, were repaired on the spot, the Cadets assisting, and thereby gaining valuable constructional experience which should stand them in good stead. Their officers qualified for certificates in grand style and did invaluable work on the instructional side and in demonstration of actual flight.

Most of the Cadets had soaring flights in the two-seater, and it is no exaggeration to say that all the soaring wind that has blown in the month of June so far has barely sufficed for this purpose; in fact, several of the boys did not get such flights, and were naturally enough disappointed. In this endeavour, due to the sudden cessation of a sketchy sort of S.W. wind, the two-seater, flown by Wordsworth, had to seek sanctuary at "the bottom"—and that means much hard work, a big trailer, and a *very* powerful car! This was on the Wednesday of week-ending the 10th. At the end of the Cadet Course, 18 out of 20 had shown themselves capable of controlled flights of an *average* of forty seconds duration; two had given up, the first because he didn't like it, and the second because he was injured, having fallen and damaged his knee whilst being chased by a bull! (Instructor vouches for this.)

The second course is now in progress, but has not been favoured by good weather, and a good many days that would have been devoted to flying have been necessarily used for lectures, repairs, and construction work.

The week ending the 17th and Sunday following produced no flying at all at Sutton Bank, due to adverse weather conditions. Sunday, the 25th, was a north wind day, but a good deal of training was done.

The outstanding performance of the month was R. C. Pick's flight from Welburn across the Humber to Eastoft, Lincs., in the GULL. We understand that this completes his "Silver C." A team is to be sent to the National Competitions at Great Hucklow this year with a KITE, and will consist of R. H. Shaw, R. C. Pick, L. H. Barker, J. L. Wordsworth, and M. H. Maufe.

Last month's notes were mainly a growl about the weather, and from a soaring point of view these notes might well be an encore. The prevailing wind simply has *not* prevailed this year, but perhaps better things are in store in the future. Who knows? There is a strong suspicion that these east winds have a decidedly adverse effect upon the international situation. At any rate, the weather has a lot to answer for.

In conclusion, we are reminded of a little incident. One of our instructors was asked a number of questionsby a sincerely interested bystander who finally observed:

"I suppose, when you turn down-wind, your controls are all reversed then?"

West Riding Branch.

We have a very good month's training to report. F. Lawton, E. Sandford, H. Bailey, and A. Finlayson all obtained their "A's" with really good flights. H. Bailey obtained his "B" last week with three super flights. Finlayson also did two flights of 49 secs. towards his "B."

We now have an excellent hangar and clubhouse and are hoping for great doings later on, as our site is about 600 yards from a large pipe works, and it has 25 hot-air kilns and chimneys which we think should send off some thermals.

We have just taken delivery of our Slingsby NACELLE DAGLING, and Brooke's H-17 will be completed very soon. We hope to take a batch of members up to our parent club at Sutton Bank soon and collect a few "C's."

Durham County Branch.

There has been some good flying put in during May and June. We obtained a KIRBY KADET to add to our fleet, and this has been flown for the first time at Whitburn by one of our "C" members. We are glad to report that the Adjutant at Usworth Aerodrome (No. 607 Bomber Squadron) has joined the club and is a very keen member.

Unfortunately our primary trainer has been out of commission part of the time (heavy landings!), but we hope to press on with training very soon when we get it repaired.

Southdown Gliding Club

Saturday, May 27th.—Bungee launching the TWO-SEATER in a S.S.W. wind till 3.30, and hill-soaring the GRUNAU BABY up to 900 ft. from the Devil's Dyke in a north wind, from 4 p.m. onwards.

Sunday, May 28th.—N.N.E. wind, 12 m.p.h. Scattered clouds. Stafford and Gowland both got their "C's" by 10.30 in the TWO-SEATER. Spence then tried for his five hours, but after two-and-a-half hours a broad white line was noticed in a cornfield at the foot of the hill. Huggett, Payne, and Grantham enjoyed a bit of high flying in the GRUNAU. Huggett prefers right-hand turns in thermals, and to-day reached the cloud base at 3,000 ft., but did not venture in. To lose height, Payne gave a fine exhibition of stalled turns before coming in to land.

Stevens reached 3,000 ft. in his KIRBY KITE and cross-countried to Shoreham Airport. Whilst circling, in preparation to landing, he was continually being passed by C. A. G.'s in power planes. He refrained from circling in a thermal off the hangars, and side-slipped smartly to the leeward edge of the 'drome, landing a few yards from the fence, amidst loud cheering from those on top of the club roof.

Huggett was launched at 6 p.m. into a north breeze to take the TWO-SEATER back to the hangar. After five beats he began to ascend. The wind had changed to south, to the surprise of all, and was freshening. He quickly rose to 1,000 ft., without any circling, and then landed by the hangar in a south wind of 15 m.p.h.

As recorded elsewhere, Filmer made a goal flight to Petersfield.

Monday, May 29th.—Wind N.N.E. No clouds. After 10 minutes of hill-scraping, Stafford landed the TWO-SEATER on the launching site, scattering many and knocking down a motor bike to the detriment of a wing tip. Grantham circled the GRUNAU at between 4 and 5 circles to the minute with the stick hard back. The variometer showed a steady rise of 2 ft. per sec. for the 15 circles or so, much to his surprise. Filmer was up for two of the five hours towards his "Silver C," and just managed to land on top in a backing wind.

Stevens vanished out of sight for the second time this week-end, with 1,300 ft. showing on his altimeter. It was reported during the afternoon that a yellow glider had been seen at 10,000 ft. from a pilot on a height test from Shoreham. Hopes ran very high. He circled over Chanctonbury for 20 minutes, to the great interest of the holiday crowds, before continuing north-westwards and gradually losing height. He found a thermal up to 1,400 ft. over a few houses, but just failed to get round Bury Hill. He landed at 2 p.m. after a distance of 16 miles.

Saturday, June 3rd.—Hill-soaring the GRUNAU from the hangar slope.

Sunday, June 4th.—Wind N.E., 20 m.p.h. Few clouds. Stevens was launched at 11 a.m. from the Dyke, in the hopes of doing a cross-country. He only got a mile along the slope, before returning, and just managed to land on top. Filmer soared for 5 hours 10 minutes from the hangar slope, and often had a bird's eye view of Brighton from 1,000 ft. The GRUNAU was up for half-hour periods from 11 a.m. till 8 p.m. The thermals, coming off the opposite hill, were often of 8 ft. per sec. and in intervals of 20 minutes. During the afternoon the decrease in temperature after coming out of a thermal was very noticeable on one's face.

Sunday, June 11th.—Light W.N.W. wind. Hill-soaring off the Dyke slope. The GRUNAU carried a barograph in hopes of flying high. Huggett hoped most—2¼ hours total time—and was rewarded with 2,000 ft. showing on the scale. Hatcher and Copeland were welcome visitors to the north site with their CAMBRIDGE II.

Saturday, June 18th.—Hill-soaring from Erringham. This was our first visit to the site this year.

Sunday, June 19th.—Woodhater returned after a long absence and put in two 45-second flights for his "B." In the afternoon Cox and Gowland arrived from Dunstable, with SCUD II and trailer. It was soon rigged, but only to be looked at and dusted before being put away.

Our veteran member, designer, and builder, Mr. Dunning, continues to glide at speed occasionally down the valley, only a foot above the grass. We hope he will yet find time to qualify for his "A," "B," and "C," for the benefit of the club.

London Gliding Club

A detailed account of the past month's activities will have to wait for next month's SAILPLANE, but the statistics below show that the club has been carrying on with the good work as usual. Outstanding events have been Stephenson's arrival from the Oxford Club by sailplane on June 10th, and Murray's flight to the Oxford Club and back (all but two miles) the next day.

Summary of Flying.

Week ending:	*Days of Flying*	*Ground-hops*	*Timed Flights*	*Flying Time hrs.*	*mins.*
May 28	7	587	154	18	16
June 4	2	172	21	1	3
,, 11	7	762	195	54	43
,, 18	6	246	44	5	4
,, 25	5	1,028	49	17	23

Totals since January 1st: 8,840 launches, 536 hrs. 3 mins. flying time.

Certificate Flights.

May 22nd.—Curtis,* "A"; Billington,* "A"; Bates,* "A."

May 24th.—Breman,* "A"; Rogers,* "A"; Allison,* "A"; Moss, Sergt.,* "A"; Keeble,* "A"; Banks,* "A"; Baker,* "A"; Beal,* "A"; Keeble,* "B."

May 26th.—Bonds,* "A"; Cares,* "A"; Moss, E. A.,* "A"; Jones,* "A".

May 27th.—Whitehead,* "A"; Martindale,* "A"; Roberts, "B"; Bates,* "B"; Veal,* "B"; Batie, "C."

June 7th.—Welch, "A"; Foster, "A"; Davies, "A"; Bowen, "A"; Laud, "A."

June 8th.—Studholme, "A."

June 9th.—Gee, "A"; Batchelor, "A"; Davis, "B."

June 10th.—Foster, "B"; Laud, "B"; Welch, "B"; Studholme, "B"; Bowen, "B"; Welch, "C"; Laud, "C."

June 11th.—Bournvialle, "A"; Harvey, "A"; Micklethwaite, "A"; Gee, "B"; Lee, "C"; Studholme, "C"; Cramer, "C"; Lauder, "C."

June 19th.—Wilbur, part "Silver C" (duration).

June 25th.—Buckley, "A."

* Air Defence Cadet.

Surrey Gliding Club

Sunday, May 14th.—E. J. Furlong had four winch launches from Hatcher's new one-man trailer-winch. He failed to release the first two times, and the cable hit all sorts of interesting things. C. Annear achieved the first two legs of his "B."

The following Wednesday, circuits and hops, and CAMBRIDGE II flew. On Friday hoppers included all the Morrises.

Saturday, May 20th.—Mitchell finished his "B" in the open PRIMARY with a flight off the winch of 73 seconds. Higson, Lavington, and Joan Price soared KITE and BUSSARD, although the wind was very easterly. Others achieved short soaring flights on TUTOR.

Ann Douglas (Ann Edmonds) took her G.B. to Manston R.A.F. Station for Empire Air Day and did aerobatic descents from 700 ft. auto-tows behind a "Delage."

Sunday, May 21st.—Large quantities of hoppery were brought to a sudden end towards evening when the PRIMARY skid at last gave up the ghost. This was the original skid on the original



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TAILPIECE—One of our members was tackled by an acquaintance who had read in a newspaper of a cross-country flight of forty miles. Like this :—

"Did you say he was launched by catapult . . . ?"

"Yes."

". . . and he went forty miles?"

"Yes."

"Gosh! What a catapult!"

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PRIMARY, which has given us such excellent and care-free service since we started.

On the other PRIMARY, Savidge got his "A" with 30½ seconds, and V. and V. J. Morris and Fox got theirs. Fox also did one leg of his "B." Others circuited, but the wind was too far north of west to be soarable. Hiscox, however, persisted in circling in nothing over the farm and eventually was rewarded and disappeared for Gravesend. (See last month's SAILPLANE, p. 114.)

Wednesday, May 24th.—The day started badly by the first flight ending in a straight stall, and the pilot, G. Soutar, being taken to hospital for severe bruising. Annear finished off his "B" with a circuit of 2¼ minutes on TUTOR, and Fox his with 1 min. 55 secs. Charles Wingfield flew GRACIAS. Fox has given the club a very excellent field telephone, which is worked by one set being attached to the winch and plugging the other into the end of the winch cable just before a launch.

Thursday was not successful, with three launches and a bent primary wing. On Friday slides and hops and the first leg of his "B" for V. C. Morris.

Saturday, May 27th.—Colonel Murray and V. C. Morris both got their "B's" by circuiting the NACELLE. Mitchell finished this off by spinning it in. The NACELLE was then seen to be on fire, due to the sun being focussed on to a helmet on the seat, *via* the aluminium seat back. Having had nothing but one or two minor breakages for nearly six months, we get four good ones in almost four days!

KITE and TUTOR continuously circuited in spite of the wind continuously being north-east.

From May 27th until June 7th a north-east wind was too gusty for training and unsoarable. On June 7th circuits and hops recommenced on TUTOR.

Saturday, June 10th.—At last a soarable day. Colonel Murray managed a text-book "C" on TUTOR with 16 minutes, and John Neilan took the same machine to 1,400 ft. The CAMBRIDGE and Filmer's VIKING both took advantage of the conditions and were soaring continuously.

A thermal was seen to leave the hayfield next door, when the long grass over the whole field started up a clockwise motion which lasted almost three minutes.

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Prospective "C" Pilots should remember that 14 ab initio "C" flights were done on one week-end in 1936, the greatest number ever in that time in England, with no breakages; and 51 more "C's" have been recorded since. We have converted a larger proportion of "A's" to "C's" than *any* Club in the British Isles; ask anyone who has flown there and get first-hand confirmation!

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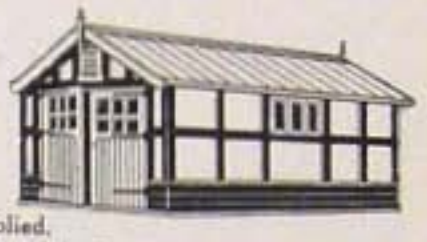


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Scottish Gliding Union
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