

SAILPLANING

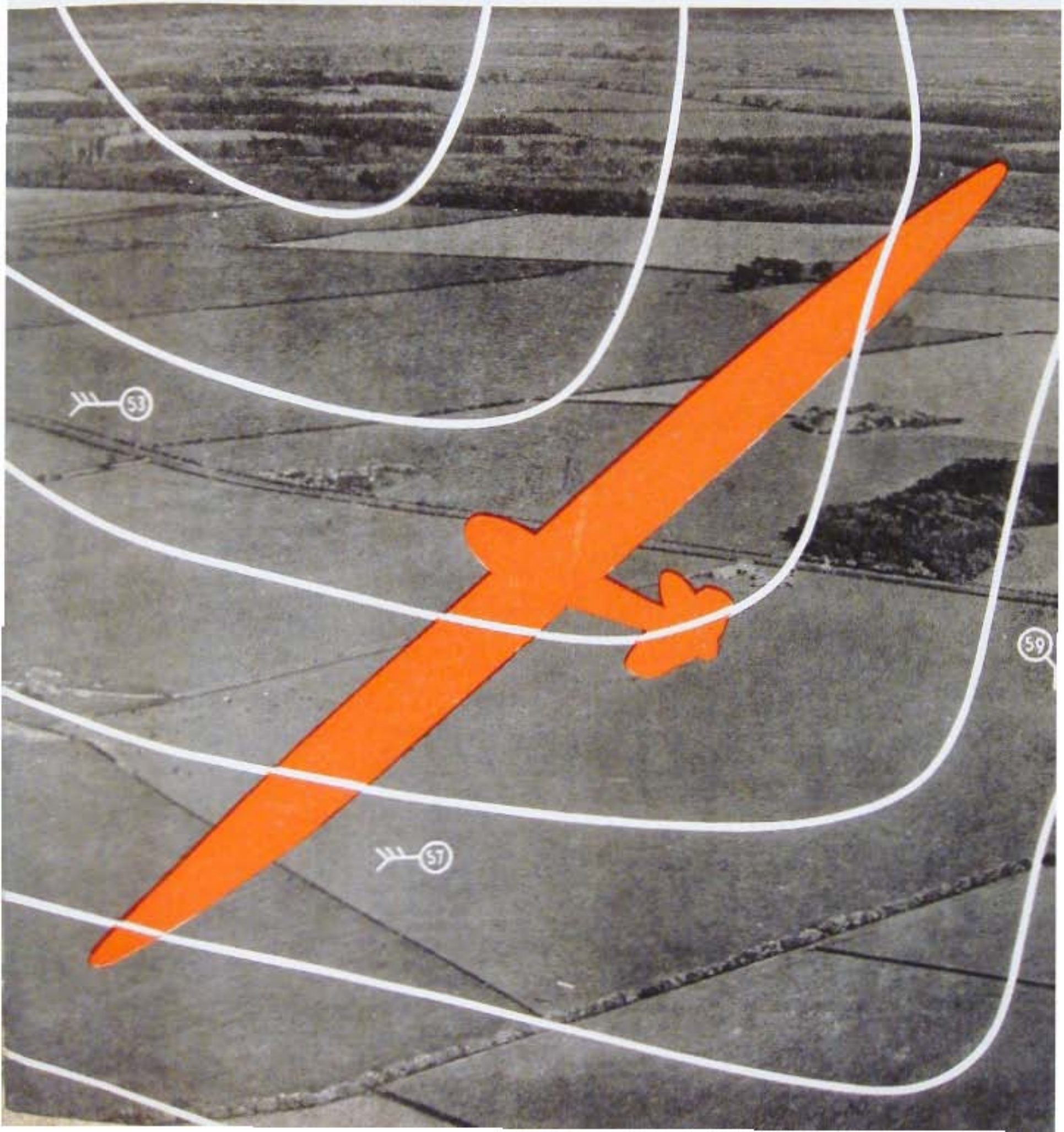
J U L Y
1938
Vol. 9 No. 7

AND GLIDER

Published Monthly
PRICE . . .
Editorial Office
13, Victoria St., S.

Official Organ of the British Gliding Association

EDITED BY ALAN E. SLATER



SLINGSBY SAILPLANES

Introduce
The Latest All British Sailplane—

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Price **£188** ex works
Instruments extra



Span 50 ft.; weight empty 318 lbs.; gliding angle at 37 m.p.h. 1 in 23.

DESIGNED by F. N. SLINGSBY to meet the demand for a medium price Sailplane with a useful performance, low landing speed, good speed range, and suitable for light or strong wind conditions; easy to assemble; safe for all normal aerobatics and cloud flying.

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THE SAILPLANE *and* GLIDER

Official Organ of The British Gliding Association

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

Vol. 9 No. 7

JULY, 1938

Published Monthly—Price 1/-

1938 National Gliding Contests

DUNSTABLE, JULY 9th to 17th

PRIZES

BEST Distance during the year: Lord Wakefield Challenge Trophy.

Best Height during the year: de Havilland Challenge Cup.

Best Duration during the year: Volk Challenge Trophy.

Best Goal Flight during the Contests: Manio Challenge Cup.

Best Club Team during the Contests: L. du Garde Peach Challenge Trophy. Awarded to the club whose team gains the greatest aggregate of marks. The glider must be the bona-fide property of the club, and the team shall consist of three nominated pilots who must be full flying members of the entrant club. No club may enter more than one team.

Inter-club Class Contest.

A Trophy and a prize of value not less than 10 guineas. This Contest is restricted to gliders of the KIRBY KITE and GRUNAU BABY Types which are the bona-fide property of the entrant club. Teams shall consist of not more than five nominated pilots who must all be full flying members of the entrant club. The rules for this Contest, which will be of a specialised nature, will be announced later.

Open Contest.

First Prize: Not less than 10 guineas to the Entrant.
Second Prize: Not less than 5 guineas to the Entrant.
This Contest is open to any glider to be flown by one or more nominated pilots, not exceeding five per glider. The aggregate points secured by each glider will decide the contest. To avoid congestion, Duration marks will be awarded only to club entries, and will not count towards the winning of the Open Contest.

Best Distance, Best Height, Best Duration During the Contest.

Prizes of 5 guineas each to the Entrant of the glider recording respectively the best Distance, best Height, and greatest Aggregate Duration.

Daily Prizes.

Will be announced during the course of the Contest.

Dunstable to Long Mynd.

A prize of £50, subject to its not having already been won prior to the Contests. Offered by C. Espin Hardwick, Esq.

Air League Prize.

A prize of 10 guineas, presented by the Air League of the British Empire, to be competed for under conditions which will be announced later.

Carpmael Prize.

A prize of 10 guineas, presented by A. Carpmael, Esq., to be competed for under conditions which will be announced later.

EXTRACTS FROM REGULATIONS

Practice flights may be made on Saturday, July 9th. There will be a special prize for the greatest Aggregate Duration achieved by any competing glider between 10 a.m. and 7 p.m. on that date. No marks can be earned on this date towards the Contests.

Competing gliders will be divided into two classes:—

(a) With a span of 47 feet and over;

(b) With a span of less than 47 feet.

There will be no separate prizes for each class, but gliders in Class (b) will receive a bonus of 10 per cent. on the marks earned each day.

Aero-towed launches will be provided on days approved by the Organisers. The pilot of the towed glider must release at a height of not more than 2,000 feet, and must not remain on tow at that height for more than 5 minutes. All releases must be made within a circle of half a mile radius from the Club House and upwind from it.

The Organisers reserve the right to announce GOAL FLIGHTS or OUT-AND-BACK FLIGHTS on any particular day or days. When such flights are announced the method of marking for distance will be in accordance with the nature of the flight, and will be announced in advance.

METHOD OF MARKING

A. DISTANCE.

Distance will be measured in a straight line. All Distance flights will be taken as commencing from the L.G.C. Club House. Marks will be awarded on three scales:—

- (1) When the best flight of the day is less than 50 miles, no marks will be awarded for any flights of under 15 miles. For flights above 15 miles marks will be awarded at the rate of 3.5 marks for each mile in excess of the minimum, calculated to the nearest mile.
- (2) When the best flight of the day is over 50 miles, no marks will be awarded for flights of less than 20 miles. For flights exceeding 20 miles marks will be awarded at the rate of 2 marks for each mile in excess of the minimum, calculated to the nearest mile.
- (3) Goal flights may be declared by competitors to pre-declared recognised aerodromes at any time prior to commencing their flight, and their successful attainment will earn a bonus of 33½ per cent. on the Distance marks earned for the flight.

B. HEIGHT.

No marks will be awarded for Heights of less than 1,500 feet above the starting point. For Heights exceeding this the marks will be as follows:—

- (1) Above 1,500 feet but below 4,000 feet above the starting point: 1 mark per 100 feet between these heights.
- (2) Exceeding 4,000 feet but below 6,000 feet above the starting point: 1 mark per 40 feet between these heights.
- (3) Exceeding 6,000 feet above the starting point: 1 mark per 20 feet above this height.

C. DURATION.

No marks will be awarded for any individual flight of less than two hours' Duration. For flights exceeding two hours the marks will be:—

- (1) Over two hours and less than five hours: at the rate of 1 mark for every 6 minutes of flight in excess of 2 hours, calculated to the nearest 6 minutes.
- (2) Over five hours: at the rate of 1 mark for every 4 minutes of flight in excess of this period, calculated to the nearest 4 minutes.
- (3) Duration flights must be carried out within a radius of five miles of the start, which shall be taken as the L.G.C. Club House.

Aero-towed launches will not be permitted for Duration flights.

NOTE.—To avoid congestion, Duration marks will be awarded only to club entries, and will not count towards the winning of the Open Contest.

D. HEIGHT AND DISTANCE. DURATION.

- (1) On Distance, Goal, or Out-and-back flights points may be scored concurrently for Height and Distance but not for Duration.
- (2) On a Duration flight points may be scored for Duration only.

LIST OF ENTRIES

(Subject to alterations)

CAMBRIDGE I ...	G. W. Pirie, G. Kidd (Cambridge Club).
CAMBRIDGE II ...	E. J. Furlong.*
CONDOR ...	G. O. Smith,* E. Thomas, A. L. Slater.
GRUNAU BABY ...	G. Shepard, G. O. Thompson, E. Swale (Derbyshire and Lancashire Club).
GRUNAU BABY ...	Miss A. Edmonds,* R. H. Staw, J. Saffery.
GRUNAU BABY ...	J. S. Sproule, N. W. Burnett (London Club).
GRUNAU BABY ...	H. C. Bergel, A. Ivanoff (London Club).
GRUNAU BABY ...	G. M. Thompson,* S. D. Dickson, R. F. James, J. Kendall, J. Phillipps.
GRUNAU BABY ...	K. W. Turner (Bristol Club).
GULL ...	A. Davies, L. R. Robertson, G. O. Smith (Derbyshire and Lancashire Club).
GULL ...	Miss A. Johnson.*
GULL ...	W. W. Liddell.*
GULL ...	J. V. Rushton, G. Edwards, Capt. Davis (Midland Club).
H-17 ...	F. T. Gardiner,* J. T. M. Parker.
KIRBY KITE ...	P. Brown,* F. C. H. Allen, Mrs. F. C. H. Allen.
KIRBY KITE ...	J. W. S. Pringle, P. M. Thomas, J. T. M. Parker (Cambridge Club).
KIRBY KITE ...	D. F. Greig,* J. C. Dent, G. H. Stephenson.
KIRBY KITE ...	W. E. Crease, K. G. Wilkinson, A. B. Wilkinson (Imperial College Club).
KIRBY KITE ...	F. J. Davies, R. F. James, B. T. Oliver, J. V. Rushton, G. Edwards (Midland Club).
KIRBY KITE ...	S. C. O'Grady, R. M. Smart, W. E. Hick (Newcastle Club).
KIRBY KITE ...	J. E. Simpson.*
KING KITE ...	P. M. Watt, J. C. Neilan.
MINIMOA ...	P. A. Wills.*
RHÖNADLER ...	J. S. Fox,* P. B. N. Davis.
RHÖNBUSSARD ...	R. P. Cooper,* G. B. Baker, Mrs. J. Price.
RHÖNBUSSARD ...	S. Humphries,* L. C. Withall.
RHÖNBUSSARD ...	R. Pasold,* I. Pasold.
RHÖNBUSSARD ...	E. Swale,* G. Shepard, L. R. Robertson.
RHÖNSPERBER ...	R. P. Cooper,* C. Nicholson, J. P. Dewshery.
TERN... ...	G. A. Little,* A. H. Reffell.

THE AUGUST ISSUE

of

THE SAILPLANE & GLIDER

will include a full account of the

NATIONAL GLIDING CONTESTS

giving a full list of Prizes and Awards, and details of the technique by which the various long distance and altitude flights were accomplished.

Order from your newsagent, or direct from

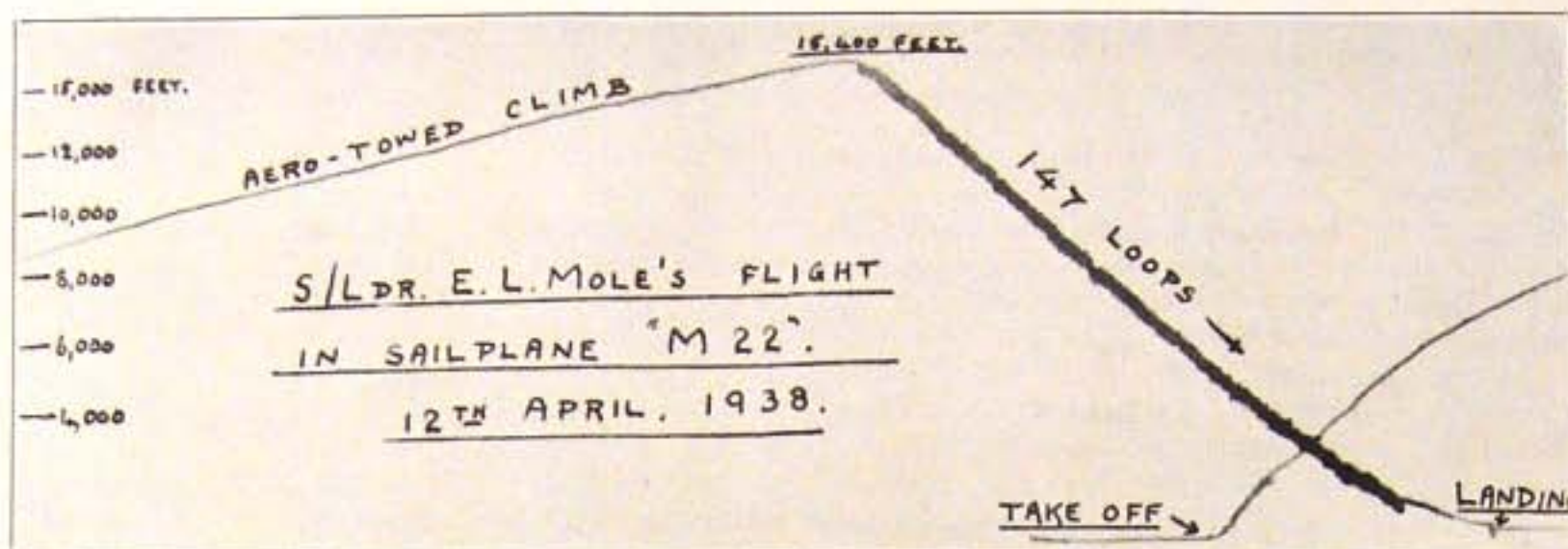
H. O. DAVIES, 13, Victoria Street, LONDON, S.W.1

Price 1s. post free

FOREIGN NEWS.—Details of the American and French gliding distance records will be given, and other foreign news held over from this issue.

EVENING THERMAL.—On certain evenings, cold air flows down the hills surrounding the Derbyshire and Lancashire Gliding Club and pushes up warm air out of the valleys. On June 14th two pilots were lifted over 5,000 feet in this "evening thermal." They will describe their experiences, the club secretary will give scientific observations on the phenomenon, and there will be an account of research work in Poland into similar happenings there.

One Hundred and Forty-seven Loops



A photo of the barograph record of Squadron-Leader E. L. Mole's aeroplane-towed flight to 15,400 feet followed by 147 loops—a world's record for sailplanes. The recording paper has been unwrapped from a cylinder, so the tracing goes off at the right-hand edge and reappears on the left. It will be seen that each loop had a vertical diameter of about 500 feet. The Short & Mason barograph was spring-loaded to increase the height range to double its normal value.

SQUADRON-LEADER E. L. MOLE, at present with the Royal Air Force at Abu Sueir, Egypt, has already described in *THE SAILPLANE* how he performed 67 consecutive loops in a WOLF last year, and, more recently, performed a "double bunt" in a Hungarian sailplane of M-22 type. Finding that the 67 loops were not a world's record, which, as far as we know, was previously held by Wolf Hirth in Germany with 125 loops, Mr. Mole set out to beat this figure, and on April 12th this year succeeded in doing so.

In a letter to Commander H. E. Perrin, Secretary of the British Gliding Association, Mr. Mole gives the following description of how he did it:—

"For this flight I was towed up to 15,400 feet by a R.A.F. "Audax" aeroplane, and after release I made 147 consecutive loops. . . ."

"There is no doubt that giddiness whilst looping is accentuated by high altitude, and I found that after a while I was unable to read all the instruments. Later I was unable to find the aerodrome and landed two miles away in the desert. On stepping out of the glider I fell straight over backwards.

"The M-22 is a beautiful machine, designed and built by students at Budapest technical school. It has a gliding angle of 1 in 24, and a sinking speed of approximately 3 feet per second. It is rather fast, but very manoeuvrable, and fully stressed for aerobatics. It has a device to lower both ailerons as flaps for slow landings, and also to raise them for high speed cruising. With flaps right up it cruises at 110 kilometres per hour with a sinking speed of $2\frac{1}{2}$ metres per second.

"I am in the fortunate position of having this machine on loan from the Egyptian Gliding School, and also having the use of a R.A.F. aeroplane to tow me whenever I require it! I find thermal soaring possible nearly every day, except during 'khamseen' weather (south wind), when the air is quiet, hot, and sinking. The thermals are narrow and fierce, from 1 to $3\frac{1}{2}$ metres per second. My highest climb to date was from 200 to 5,000 feet in one thermal.

"Unfortunately cross-country flying is not possible owing to the difficulty of finding the glider in the desert

and of retrieving it. I am, however, trying to arrange permission for one cross-country flight down the Nile from Cairo with R.A.F. co-operation. The prevailing wind being north should be a great help towards distance.

"With luck, I shall be home on leave late in July, and am hoping to join the Yorkshire Club's advanced course with a view to getting the distance leg towards a "Silver C." It will be very interesting to see the development made by the gliding movement in the last few years since I have been abroad. Wishing your movement every success. . . ."

According to the statement by three official witnesses, who counted the loops while flying in other aircraft, the flight commenced at 12.05 hours, and the sailplane cast off from the towing aeroplane at 12.57 hours at a height of 15,400 feet. The pilot commenced looping at once, and finally landed at 13.25 hours. The weather conditions were hot, clear sky, and no wind.

The official witnesses were: Group Captain G. S. M. Insall, V.C., M.C., Officer Commanding R.A.F. Station, Abu-Sueir; Flight Lieut. J. W. B. Judge, R.A.F. Station, Abu-Sueir, pilot of the towing aeroplane; and Flight Lieut. H. P. Broad, R.A.F. Station, Abu-Sueir.



Squadron-Leader Mole in the Hungarian sailplane "M-22" in which he made 147 consecutive loops in Egypt. He flew with an open cockpit, as in the photo.

A Climb in a Cloud

How the British Height Record was raised to 10,080 feet

By P. A. WILLS

(Reproduced by permission from "The Times")

[On Sunday, June 5th, Mr. Philip Wills, flying his sailplane "Minimoo," set up a new British height record during a flight which began and ended at Dunstable Downs, the headquarters of the London Gliding Club. The previous record was set up by G. M. Buxton on September 4th, 1934, at Sutton Bank, Yorkshire, when he climbed to 8,323 feet in the "Scud II" sailplane illustrated on page 161. Photos of the "Minimoo" appear on page 165.]

HIGH flying in sailplanes is perhaps the final development of the art of motorless flight, and requires a training and technique additional to all that the pilot has learnt before in achieving, first, duration, then thermal and distance flying. This is because above a certain height most climbs must be made flying blind in unstable clouds, and it is unfortunate that blind-flying training, which is done in aeroplanes, as well as the special instruments and parachute necessary to reduce the hazards inseparable from the rough conditions likely to be encountered, are expensive. This is the reason why so few high flights have hitherto been made in this country.

The main difficulty of flying blind is that the pilot is subject to attacks of extreme vertigo, brought on either by very rough conditions or, in the case of sailplane pilots, by the need to fly blind in constant circles in order to remain within the areas of rising air which are found inside the right kinds of clouds. The uninitiated may easily get a very exact idea of this difficulty by trying the old parlour joke with a walking stick. Plant this on the floor, clasp the hands on the crook, then bend down and put your forehead on your hands, so that you are gazing at the floor. In this position shuffle five or six times round the stick, keeping its point stationary on the floor. Now stand upright, drop the stick, and walk in a straight line across the room. The sensations you feel while doing this are precisely those experienced by the blind-flying pilot after doing a spin, or a number of circles, in his machine.

Like an Octopus

The pilot, however, is faced with the relatively more intricate task of controlling his machine in three dimensions, while his judgment is over-shadowed by the rather nerve-racking possibilities which can arise from failure. A specially strong machine is desirable; the strength factors of the MINIMOO are much greater than those of a fighting aeroplane. To assist him the pilot has certain instruments, and he must learn to obey these while his senses are peremptorily telling him to do the very reverse; and fortunately, after a few lessons under a hood in a two-seater aeroplane, one does in fact learn to divorce one's actions from one's instincts, though this partial immunity is temporary and has to be renewed regularly every year, or more often if necessary. But there is a great deal to be learnt about the internal gust-structure of unstable

clouds, so that flying to great heights is still something of an adventure.

On Sunday (June 5th) I took off from the site of the London Gliding Club on Dunstable Downs at 3 p.m. The conditions were good, but not extremely so, and I had no idea of going for a height record. At about 4.30, however, I struck a strong upcurrent, and, in company with a friend in another machine, circled rapidly up to near the base of a small cloud over Luton, at about 4,500 ft. From here I could see a rather large storm-cloud building up over Leighton Buzzard, some eight miles to the west, so flew towards this. As I got nearer it became clear that there was a very active current of air ascending into it. The base looked quite flat, as is the case with nearly all active cumulus clouds, except that along the far edge there seemed to be a darker slate-grey area, denoting a greater depth of cloud-vapour above, bordered by a hanging ragged fringe which could be seen to form constantly and to be constantly ascending into the cloud above. As I

WHY "MINIMOO"?

Many years ago, according to tradition, a ploughman who lived at the foot of the Giant Mountains in Silesia was in the habit of looking up at the sky as he worked. His name was Gottlieb Motz, which, according to the custom and dialect of the country, was transformed by his friends into "Moazagotl." This sky-gazing ploughman noticed that, when the south wind blew over the mountains, a cloud would form in their lee and remain stationary, instead of moving along with the wind like other clouds. And now, whenever that cloud appears, it is known locally as "Das Moazagotl." On March 3rd, 1933, Wolf Hirth, the German sailplane pilot, succeeded in soaring under this cloud, for it marked the position of a stationary wave of air. At that time he was building himself a new sailplane, of 66 feet span, so he named the machine "Moazagotl." Two years later, deciding that its span was too great, he brought out a smaller version. This was a "miniature Moazagotl," so he called it "Minimoo" for short.

approached this my rate-of-climb indicator showed increasing lift, until it moved up to a climb of 10 ft. a second. I put the machine into a circle and spiralled rapidly upwards. At this point the rapid upcurrent of air had lifted the seemingly flat ceiling of cloud somewhat, so that I spiralled up into a kind of diving bell, the walls formed of blue-grey cloud, with below a reducing circle of sunlit green fields. The base of this bell sank slowly down. We approached the ceiling, and everything vanished. The time when I went into the cloud was 5.10 p.m., the height about 4,900 ft.

Entering a big cloud in a sailplane is a very different experience from doing the same thing in an aeroplane, for in the powered craft the general noise and vibration overshadow the subtler flavours of flight. I had the feeling that we had been silently absorbed by a large and immensely powerful octopus. The rush of air over the wings and body of the machine took on a different key and became smoother and quieter. One felt as though entrapped in an envelope of sticky



Mr. P. A. Wills settles down in the cockpit of his "Minimoa" sailplane before putting on the transparent lid.

power. The hue of the surrounding vapour, a bluish black, was octopus-like too. This, of course, was due to the great thickness of the cloud at this point, for I subsequently discovered it was more than a mile high. It is only the shallower clouds or the fringes of the big ones which assume the friendly hues of white or light grey.

Ten Thousand Feet

The rate of climb now gradually increased to 15 ft. a second, the only sound being the comforting buzz of the little electric motor of my turn indicator. For a while the air rose smoothly and swiftly, then we struck a rough area, and the machine started to lurch. Simultaneously I began to feel marked vertigo, my head started to swim, and my senses to convey impressions quite different from those recorded by my instruments. Before going into the cloud I had noticed that the edge nearest to my point of entry lay to the north, so I now straightened the machine from its right-hand circles (which operation gave me the most violent, but false, impression of doing a steep left-hand climbing turn), and held her rather grimly on a northerly compass course, which about five minutes later brought us out of the towering wall of dazzling cloud into the sunlight at 7,500 ft. I flew around, losing height, for a few minutes until the vertigo had subsided, then headed back into the cloud. My intention was to fly straight through it and out the other side, but after first negotiating a very violent down-current, which shot me down at nearly 20 ft. a second, I struck a smooth patch of air rising nearly as fast, so again put my machine into a circle and climbed very fast indeed.

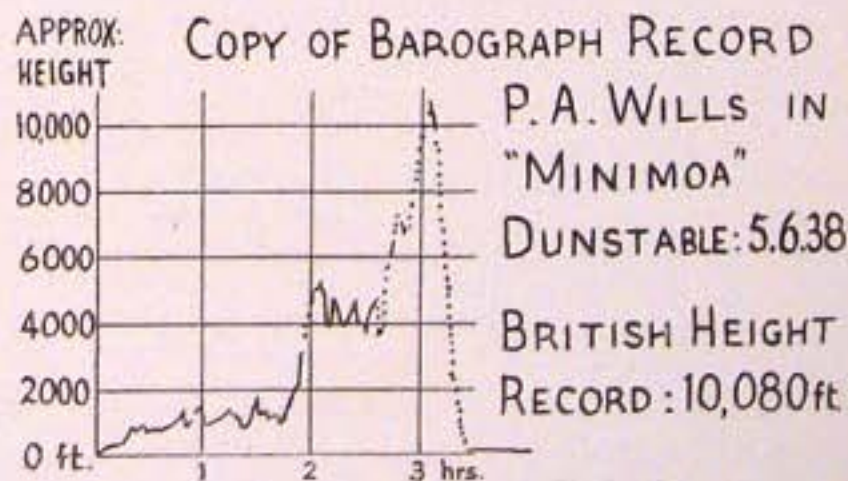
Now ice started to form on all protuberances, on the front of the cockpit cover and the leading edge of the

wings. However, I did not meet any rain or hail, which is usual in such clouds, and I knew that MINIMOAS had emerged successfully from much more severe conditions after cloud flights in Germany, and was not worried. But the nervous strain is considerable for the amateur, and it was with some relief that I saw the needle of my altimeter at last top 10,000 ft., which was the height I had set myself to reach. I straightened up again and steered a southerly course. The surrounding cloud gradually lightened, then a gap appeared ahead. With joy I anticipated seeing the earth again, and the long quiet glide down and back to tea at the clubhouse. But I was disappointed. I came out of my cloud to find far beneath me apparently stretching in all directions the bulging tops of an unbroken sea of cumulus. Behind me, a mountain of white rising out of the white plain beneath, my storm-cloud towered yet another 1,500 ft. up into the blue sky. It was a sight to dazzle the gods, but to me it was a pain in the neck. I wanted tea, not ambrosia.

It was 5.45. I had been 35 minutes inside the cloud. As I slowly descended towards the cloudsheets beneath I searched for a gap through which I might descend without having to do further blind flying with the possibility of encountering more unwanted lift inside the clouds beneath, and at length I did in fact find a small gap through which I could see, an incredible distance below, a vista of green and brown fields and a road. I circled steeply down through this, occasionally penetrating the surrounding clouds, and emerged a short while later just to the north of Luton, my cloud having drifted about eight miles while I was inside it.

I set the nose of the MINIMOAS back west for Dunstable and had a good look round. Along the leading edge of the wings, 58 ft. in span, ran a three-quarter-inch ribbon of jagged ice-crystals. Similar crystals had formed on the front of my transparent cockpit cover and on various protuberances on the outside of the machine. In absolute silence we planed down to 4,000 ft., when a sharp crack made me jump in my seat. I looked anxiously round. Then a spark of watery light flew by, and a lump of ice, melted from the nose, flew back and hit the wing with a crack like splintering wood. Next similar sounds started from the tail, and it was quite a relief when, at about 2,000 ft., the last white fragments had gone and all was again quiet.

The landing was at 6.15, and the height recorded on my barographs, subject to official correction, was rather over 10,000 ft.



The barograph pen makes a dot on the recording paper every 30 seconds; consequently, the faster the vertical motion of the sailplane, the further apart are the dots, and the rate of ascent or descent can be easily calculated from the record.

Alice in Bunjyland

AS Alice came over the hilltop she heard a mild and mournful voice singing the following song:

*'Twas mornig, and the sliding coves
Did gyre and gimble on the ground.
Reversed were all the rudderfeet
And loud the landingsound.*

Just over the edge was a glider which appeared to have landed rather heavily on the hillside. In the cockpit sat the Kite Knight, singing:

*Beware the bunjybang, my son,
The landingbiff, the turningstall,
Beware the terrordive, and shun
The yankup most of all.*

Seeing Alice, he stopped abruptly.

"Have you crashed?" asked Alice politely.

"Not at all," said the Kite Knight, offended; "I am practising down-wind up-hill landings."

"That sounds very difficult," said Alice.

"It isn't difficult," said the Kite Knight indignantly; "it's impossible. But," he added hopefully, "I shall try up-wind down-hill landings to-morrow. . . . Excuse me for not getting out, but the machine might fly away."

"It doesn't look as if it would fly again for a bit," ventured Alice.

"True," he said gloomily, disentangling a piano wire from his whiskers; then, brightening up: "but I've had crashes, compared with which this would be a mere bump. Why, the last days of the camp I learned at were like the last days of Pompeii. . . . How big would you say the biggest part of a sailplane was?" he asked suddenly.

"I suppose about twenty-five feet long . . ." began Alice.

"When I've crashed them," interrupted the Kite Knight, "you can take them away in matchboxes."

"It must take a lot of matchboxes," said Alice thoughtfully.

"It does. Ever such a lot. But we don't usually bother to take my crashery away. We get spades and dig it in."

Alice was toying with the two little tubes on the nose. "Be careful," he warned her. "Those are to work the air-speed indicator."

"I don't see any air-speed indicator," said Alice.

"There isn't one," said the Kite Knight; "this is a secondary machine, and we aren't allowed them."

"I should have thought it would be very useful to know how fast you were going," said Alice, "especially when you are learning."

"It would be useful," he agreed, sadly, "it would be very useful."

"But I suppose you always know when you are flying too fast," said Alice, comfortingly, "because you get down so quickly."

"Yes, but how do you suppose we know when we are flying too slow?"



"Because you get down so slowly," said Alice promptly.

"That's what I thought," said the Kite Knight miserably, "but I found that if you fly too slow you get down faster than ever."

"That doesn't make sense," objected Alice.

"I didn't say it made sense," retorted the Kite Knight; "nothing connected with this business makes sense. For instance, which is the rudder and which is the elevator?"

Alice pointed them out.

"And if I were doing a 75-degree banked turn, which would be which?"

"An elevator must always be an elevator . . ." began Alice, but was rudely interrupted: "That shows how much you know. And I suppose you think you go up if you pull the stick back?"

"I'm quite sure you do," said Alice indignantly.

"Not if you were flying upside down," he retorted.

"You wouldn't be likely to be doing that," argued Alice.

"Wouldn't I, though? You haven't watched me fly. But even flying the right way up," he went on, "you don't always go up if you pull the stick back. Not beyond a Certain Point . . ." a far-away reminiscent look came into his eyes . . . "I found that out when I was on DAGLINGS."

"I suppose you start on those because they are easier to fly than sailplanes?" ventured Alice.

"They are much harder to fly than sailplanes," said the Kite Knight in hurt tones; "we start on the hard ones and end on the easy ones."

"That seems a very silly idea," said Alice.

"It is a very silly idea," he agreed.

The wind by this time was howling furiously, and Alice had to sit on a wing tip.

"Call this a wind?" muttered the Kite Knight, "why, I've seen winds, compared with which this would be Force One on the Beaufort Scale. Do you know, I once flew east at forty miles an hour, and landed an hour later twenty miles to the west?"

"Where I come from," said Alice, "if we travel at forty for an hour we arrive forty miles away."

"We might have to fly at a hundred miles an hour to do that," said the Kite Knight grandly; "why, we sometimes have to fly at sixty just in order to stay in the same place."

"Aren't you afraid that the wings might come off?" asked Alice.

"They *do* come off," he answered gloomily.

"That must make it very difficult to get down safely," said Alice.

"You mean it makes it very difficult to stay up safely," he corrected her, "and now do you mind staying on the wing whilst I get a retrieving car?"

"I don't think you can drive a car up this hill," Alice called after him as he disappeared down the slope.

"Nor do I," he shouted back, "but I often try." And as he hurried down, the following song was wafted back on the wind:

*But I was thinking of a plan
(Since WRENS are painted green
And always fly so near the hill
That they can not be seen)
Involving Klaxons, coloured lights
And poles marked off with various heights.
My scheme to slot the DAGLING wing
Would end for good and all
This bandying with the burbling point
And flirting with the stall.
One might do well to raise K_L
By fitting flaps to the nacelle.*

He was now at the foot of the hill, but his last words came back faintly:

*My wingtip wheels, my triplane KITE,
My bumpers for KADETS,
My scheme for landing in the night
In floodlit safety-nets,
My floats for FALCONS lost at sea,
Are all a great necessity. . . .*

ANON.

Marooned in a Hedge

HAVING flown the RHÖNADLER from Inkpen, Wilts., to the Sussex Downs near Ditchling Beacon, I found the thermals getting weaker, and any possibility of hill soaring gone, as the breeze was lessening, so looked round for a suitable landing place.

After a while I saw a beauty. It was obviously grassland, the field was a large one, and its greatest length lay in the direction of the slight breeze that was blowing. In addition, it had a lane on two sides of it, it was not far from a village, and on the approach side there was a delightfully low hedge. I chuckled with glee, lost height with one or two turns, side-slipped over the hedge, and flattened out with about two feet to spare and a long field in front of me.

As I flew slowly over the grass, I began to wonder why some pilots think that the end of a cross-country flight is often a bit of a nightmare—I could see it was really quite easy. And then I noticed we had not yet touched down, but were still sailing along quite peacefully about twelve inches above the ground, and had reached the centre of the field.

This seemed a little strange, until I noticed that the ground had a gentle and continuous slope downwards—about equal to my gliding angle! Moreover, the part of the field in front of me was lower than the surrounding land by about four feet, and was bounded by a high, bushy hedge, so that we were flying into dead air.

As the grass was already swishing against the skid, I knew that there was not more than about six inches between us and the ground, so I put the stick right forward, and felt the skid gently touch down. The slope continued, however, and so did the RHÖNADLER, sometimes caressing the soil with the most maidenlike of touches, and rising leisurely to one or two inches above it, while still floating onwards.

By this time we were about thirty yards from the hedge, and it was obvious that if I tried to turn it would probably wipe off the skid and crumple up a wing in the hedge; on the other hand it only needed a very small resistance to bring the machine to rest. So I hastily scanned the hedge in front, and found it well made, even, and bushy, and it seemed that to use it as a cushion would do less damage than any other manoeuvre.

Straightening the course slightly, so as to approach the hedge at right angles, we were soon in its gentle embrace, without any ominous sounds of crashery. I heaved a sigh of relief as I thought of my partners, and prepared to get out. There was a minor difficulty, however. I had forgotten that the cockpit projected about a yard in front of the wings, and to this extent was buried in a thick bush of thorns. Whichever way I looked, I could see nothing but twigs, spikes, and leaves, and any effort to lift the cockpit cover would have resulted in severely tearing the celluloid.

There seemed nothing to do but wait. The machine was on an even keel, and firmly fixed, and although I was very comfortable, I could not help feeling extremely foolish.

That bit of Sussex seemed very quiet, very sheltered, and very lonely.

I began to wonder which line of conduct would be in the best gliding tradition, to tear the cockpit to pieces and get out, or be found when they cut the hay in September with the machine intact and my emaciated hand still clutching the stick.

After what seemed like a couple of hours, though actually about seven minutes, I heard footsteps, and a frightened voice inquiring from the other side of the hedge, "Are you hurt?" I explained that the absence of any sign of life was simply due to the fact that I

was studying my map! I then discussed with the voice the best way of lifting the machine back a yard, and asked him to get about six other men if possible.

Later, after a long silence, I heard a number of other voices, and directed them what to do. Two of them went into the next field and made a hole in the hedge opposite the nose of the machine, and for the first time after landing I saw a fellow creature.

I tried to look as dignified as I could, and with a sickly smile continued to direct operations, giving orders to unseen helpers at the tail, while the two men at the front lifted and pushed alternately.

Inch by inch we receded, much like a kitten who has

jammed its head into a large milk jug, until finally the nose was free. I lifted the cover, and emerged with all the *sang-froid* I could muster, as if to say: "This is how the best sailplane pilots always land," but feeling in the depths of ignominy!

And when at any future time I may think my halo is growing rapidly, I will remember the salutary effect of the remark of the first of my rescuers, who, peering through the opposite side of the hedge and seeing me sitting quietly in the middle of it, like a broody thrush surrounded by thorns, said: "If you don't mind my saying so, you *do* look funny in there sir!"

H. TUDOR EDMUNDS.

Cross-Country Flights in June

CROSS-COUNTRY soaring flights of over 10 miles, made in England during June, are listed on the opposite page. There are 28 of them, with a total mileage of 1,149. If flights of over 5 miles are included, the total comes to about 1,270 miles. They are all entered on the accompanying map, which should be referred to when the descriptions of the more important ones, which appear on succeeding pages, are being read.

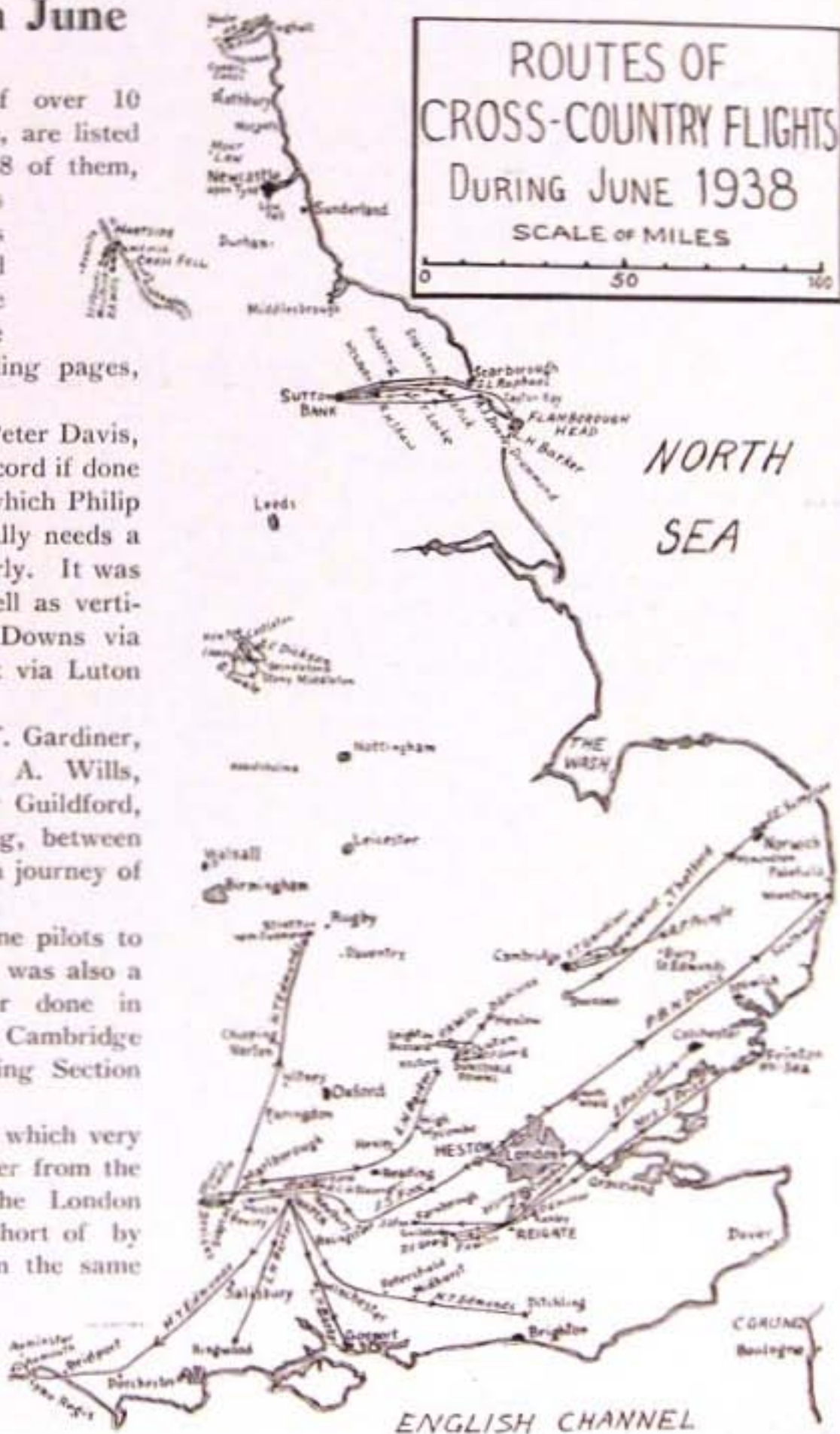
The list includes a flight of 110 miles by Peter Davis, which would have been a British distance record if done two months earlier; also the flight during which Philip Wills set up a new height record—this really needs a three-dimensional diagram to show it properly. It was an out-and-return flight (horizontally as well as vertically), Mr. Wills going from Dunstable Downs via Luton to Leighton Buzzard and then back via Luton to Dunstable.

Other out-and-return flights were by F. T. Gardiner, between Cambridge and Newmarket; P. A. Wills, between Reigate and Merrow Down, near Guildford, along a line of hills; and by D. F. Greig, between Reigate and Croydon aerodrome, the return journey of 9 miles being made against a strong wind.

There have been many flights by sailplane pilots to a previously announced goal. The longest was also a club-to-club flight—only the second ever done in England; Mr. Simpson set out from the Cambridge University Gliding Club to visit the Gliding Section of the Norfolk and Norwich Aero Club.

Another attempt at a club-to-club flight, which very nearly succeeded, was that by L. H. Barker from the Cambridge Club's Wiltshire camp to the London Gliding Club at Dunstable, which he fell short of by $5\frac{1}{2}$ miles. H. T. Edmunds, starting from the same camp, similarly came within 4 miles of the Southdown Gliding Club's site, but he wasn't really aiming for it as he did not know its whereabouts.

An attempted goal flight by J. S. Fox from Heston to the Cambridge Club's



Cross-Country Flights in June

Date	Starting Place	Pilot	Sailplane	Mode of Start	Landing and Mileage
3rd, Fri.	Cambridge Airport ...	A. P. Pringle ...	CAMBRIDGE I	Aero-tow ...	Honington aerodrome ... 23
4th, Sat.	Reigate (London Club) ...	J. S. Fox ...	RHÖNADLER...	Slope lift...	Farnborough aerodrome ... 23
"	" " " " ...	P. A. Wills ...	MINIMOIA ...	Slope lift...	Reigate via Guildford ... 28
"	" " " " ...	D. F. Greig ...	KIRBY KITE	Slope lift...	Morrow Down, Guildford ... 14
5th, Sun.	" " " " ...	Mrs. J. Price ...	RHÖNADLER...	Slope lift...	Frinton-on-Sea ... 76
"	" " " " ...	I. Pasold ...	RHÖNADLER...	Slope lift...	Colchester ... 65
"	" " " " ...	D. F. Greig ...	KIRBY KITE	Slope lift...	Reigate via Croydon ... 18
"	Duxford (Cambridge Club) ...	J. E. Simpson...	KIRBY KITE	Aero-tow...	Norwich aerodrome ... 65
"	Sutton Bank (Yorkshire Club) ...	L. H. Barker ...	SCUD III ...	Slope lift...	Flamborough Head ... 47
"	" " " " ...	A. J. Dene-Drummond	KIRBY KITE	Slope lift...	Cayton Bay ... 36
"	Dunstable (London Club) ...	P. A. Wills ...	MINIMOIA ...	Slope lift...	Dunstable via Leighton Buzzard 30
9th, Th.	Heston Airport ...	P. B. N. Davis ...	RHÖNADLER...	Aero-tow...	Wrentham, Suffolk ... 110
"	Sutton Bank (Yorkshire Club) ...	G. L. Raphael...	KIRBY KITE	Slope lift...	Scarborough ... 33
"	" " " " ...	R. H. Shaw ...	FALCON III...	Slope lift...	Welburn aerodrome ... 11
"	Cambridge Airport ...	F. T. Gardiner ...	KIRBY KITE	Aero-tow...	Cambridge via Newmarket ... 28
11th, Sat.	Heston Airport ...	J. S. Fox ...	RHÖNADLER...	Aero-tow...	Pewsey, Wilts. ... 60
13th, Mon.	Inkpen (Cambridge Club) ...	H. T. Edmunds ...	RHÖNADLER...	Slope lift...	Axmouth, Devon ... 82
"	" " " " ...	L. H. Barker ...	SCUD III ...	Slope lift...	Ringwood, Hants. ... 38
14th, Tu.	Bradwell Edge (D. & L. Club) ...	S. D. Dickson...	GRUNAU BABY	Slope lift...	Brad. Edge via Mam Tor, etc. 13
"	" " " " ...	G. Swale ...	KIRBY KITE	Slope lift...	Brad. Edge via Castleton, etc. 15
15th, Wed.	Inkpen (Cambridge Club) ...	H. T. Edmunds ...	RHÖNADLER...	Slope lift...	Ditchling, Sussex ... 68
"	" " " " ...	L. H. Barker ...	SCUD III ...	Slope lift...	Gosport aerodrome ... 41
17th, Fri.	Huish (Cambridge Club) ...	H. T. Edmunds ...	RHÖNADLER...	Aero-tow...	Stretton-on-Dunmore ... 70
"	" " " " ...	L. H. Barker ...	SCUD III ...	Aero-tow...	Pitstone, nr. Tring ... 60
19th, Sun.	Sutton Bank (Yorkshire Club) ...	A. O. Pick ...	GRUNAU BABY	Slope lift...	Snainton ... 25
"	" " " " ...	C. T. Locke ...	KIRBY KITE	Slope lift...	Pickering ... 18
26th, Sun.	Devizes (Cambridge Club) ...	R. C. G. Slazenger ...	KIRBY KITE	Slope lift...	Newbury ... 35
"	Dunstable (London Club) ...	D. G. Hiscox ...	GULL ...	Slope lift...	Henlow aerodrome ... 15

camp, which he missed by $3\frac{1}{2}$ miles, was remarkable for being done against the wind. It is described later.

Another goal flight was that by G. L. Raphael from Sutton Bank to Scarborough. There was also, from the same place, one of 11 miles by R. H. Shaw which was noteworthy as having been decided on the day before; also as being a business trip for delivery of a sailplane, for the FALCON III was wanted for instructing R.A.F. officers at Welburn aerodrome, and was flown there for the purpose on the required date.

The spindle-shaped object on the map, between Oliver's Castle, near Devizes, and Draycot Farm, near Huish, shows where seven or eight goal flights, each of 9 miles, were made on various dates for the purpose of getting the Cambridge Club's machines back to camp in the evening after a day out. One of these flights was by Mr. Gardiner in his H-17.

There were two other goal flights of 9 miles, when Mr. Wills and Mr. Cooper, visiting the Newcastle Club at Chillingham, were asked out to tea by friends at Tughall on the coast, accepted the invitation, and turned up as promised, by sailplane.

The two flights in Derbyshire on the 14th, when pilots wandered around the countryside and returned to the site, were made in the famous "evening thermal" when it attained the unusual height of over 5,000 feet.

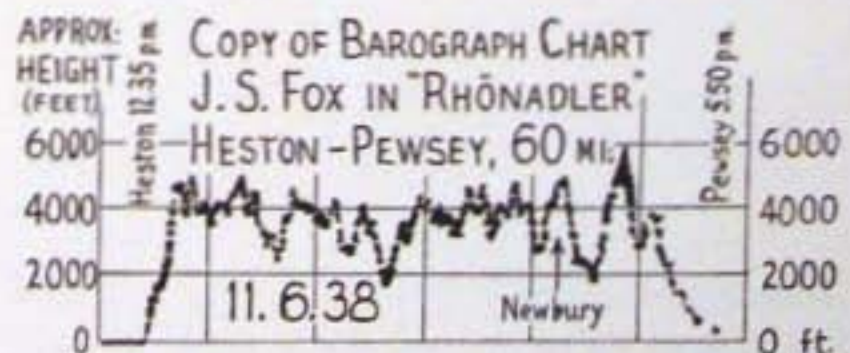
It is becoming more and more difficult nowadays for us to keep in touch with all the cross-country flying that is being done. The map which we publish monthly has to be drawn some time before we go to press, and to have flights entered on this map club secretaries should inform us of all cross-country flights by the 1st of each month, and *not* wait until they have finished writing up the club news. We should also be obliged if those who do cross-country flights from Heston would inform us next day on a postcard of what they have done—at least giving the place of landing and approximate distance.

60 Miles Against the Wind

THE first soaring flight of any considerable distance against the wind, in England, was made by J. S. Fox on June 11th in his RHÖNADLER.

His actual direction, on the average, was just south of west, and the wind, according to the Air Ministry, was at first N.N.W. at lower levels and N. at 6,500 feet, changing later to N.W. at lower levels and W. by N. at 6,000 feet; its speed varied between 6 and 16 m.p.h.

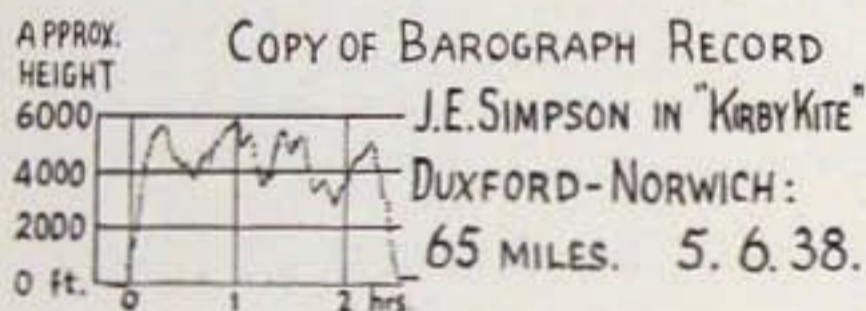
Mr. Fox was launched by aero-tow at 12.35 p.m. (Summer Time), and started off along what he took to be the main railway line to Reading. But the wind was more northerly than he thought, and when the railway led him to what he expected to be Newbury, it turned out to be Basingstoke. He remedied this by going due north for the next hour, and then followed the Bath Road to Newbury, the sky meanwhile getting completely overcast high up. During five minutes of playing about there, the town sent nothing up, so Mr. Fox went on. He found his last good thermal and, making cloud base again at 4,000 feet, carried on inside the cloud to 6,000 feet. From this height he glided on west, against the wind, to a landing in a large field near Wootton Rivers. The Cambridge Club's "Moth" then flew over and towed him the remaining $3\frac{1}{2}$ miles to his destination.



65 Miles from Club to Club

AT 2 p.m. on June 5th I started off in my KITE, having said that I was going to Norwich to have tea with the Norfolk Gliding Club.

I was towed by Beauchamp in the club "Moth" to a height of 1,300 feet, where I released in a strong thermal which took me to cloud-base in 17 minutes, at 5,700 feet. For the next hour I flew mostly between 4,000 and 5,000 feet, and at one time was tempted along a cloud street which took me several miles to the south of my course, right down to Bury St. Edmunds. I flew ten miles across wind from there to Thetford, when I knew that Norwich was almost directly downwind. Conditions were now not quite so good, and the sky to the S.E. was almost completely overcast; however, Norwich was in view, 25 miles ahead, as a kind of reddish smudge, and I was leaning forward on my straps trying to make the KITE go a little faster.



Things went on fairly happily, although the clouds were getting very thin and broken up, until I got down to 2,500 feet over Wymondham, only 10 miles short of Norwich. Having been mostly above 4,000 feet for nearly two hours, I felt very uncomfortable as low as this, and had already noticed a suitable field when I found a thermal at 6 ins. per second, which took a very long time to have an effect.

After half-an-hour's circling in this thermal I was back again at 5,000 feet, and flew right over the centre of the city, arriving at the aerodrome at over 3,000 feet. There was terrific thermal activity on the downwind side of the city, and I was able to do one complete circle at 20 feet per second; however, there was also stuff going down, and I found a good down-current which took me to the ground in about six minutes.

I landed on the aerodrome just as the KESTREL was being towed out from the hangar, at 4.35 p.m., 2 hours 35 minutes after the start, and was very well looked after by the members of the Gliding Club.

J. E. SIMPSON.



Mr. L. H. Barker with his "Scud III," in which he made the flights described in the adjoining column.

[This is the second club-to-club flight to be done in England. The first was on April 3rd this year, when S. C. O'Grady flew the Newcastle Gliding Club's KIRBY KITE from Rothbury, one of the Newcastle Club's sites, to Sutton Bank, headquarters of the Yorkshire Gliding Club, a distance of 77 miles.—Ed.]

60 Miles in the "Scud III"

WE arrived at Huish on the Sunday evening, and on the next day the SCUD III went 38 miles to Ringwood. On Wednesday it went 41 miles to Gosport on Solent. These two flights were in north winds starting from Inkpen Beacon.

On Friday (June 17th) the wind was 0-5 m.p.h., W.S.W., and things looked better, for in northerly winds one has to travel considerably cross-wind to get any distance from Wiltshire. I was launched at about lunch time by aero-tow, casting off too soon at 1,500 ft. because I thought it unnecessary to go higher. The small cloud under which I had released proved to be without lift, and I searched around until down to about 400 ft. I then thought that a swim at Marlborough was indicated, for the day was hot.

At that moment I struck a good thermal over the small wood by the farm. Endless circling finally got me to the cloud base at about 4,600, about two miles on the way to Marlborough, drift being very small. Marlborough was passed on the N.W. side, more lift being found on the far edge of the town. I then set off for Hungerford, the next town in the line of drift. I did not know then that it was Hungerford, as visibility high up was very poor, and lower down I watched the instruments rather than the map.

I was aware at this point that I was further east than I had planned, but the sky towards the west was quite clear, and I thought that progress in that direction would lead to the straight glide that ends so many flights. From Hungerford I went on to Reading, getting lift over every town *en route*, although Reading itself was rather late in delivering the goods. Here I recognised my position and immediately altered my course in a northerly direction, as I wanted to allow for the possible passing north of The Wash. Thermals were to be found every few miles, my greatest height being 5,200 ft., just into the clouds. One very strong thermal was found over the bend in the river between Henley and Maidenhead, an area that I was hurrying over to avoid the downdraught which should have been there.

High Wycombe produced the required lift, but visibility deteriorated soon afterwards, and when slightly below cloud base at about 5,000 ft. it suddenly dawned on me that the ground had nearly vanished. With London fog in mind I turned further north and came down at 55 m.p.h. to 2,000. Finding visibility very bad I decided to land while the going was good, touching down at Pitstone, a few miles from Dunstable, which I could have made just as easily had I known my position.

The actual flying time from Marlborough was about two and a half hours, and as the drift was negligible I thought it a promising flight.

L. H. BARKER.

Heston—Wrentham

110 MILES: JUNE 9th, 1938

THIS was a week-day, and I had started out for work as usual. But one or two really perfect clouds caught my eye, and that was too much. I became overwhelmed by that "caged skylark" feeling which must be the experience of so many gliders on days such as this, who, less fortunate than myself on this occasion, are unable to snatch a day off. The result was that I turned my back on my work, fetched the ADLER from a neighbouring garage, and took it to Heston.

It would perhaps be difficult to imagine more depressing circumstances for an aero-tow; all morning there had been perfect clouds, and then just before 1.30, when I took off, everything flattened out and the sky became completely overcast. It was not possible to wait as the aero-tow had to be sandwiched in between the arrival and departure of two air liners. So off we went droning drearily up to 2,500 ft., with not a flicker, not a suspicion of lift the whole way. At this height, reluctant to waste any more time, I pulled off, and after searching around in the vain hope of finding the slightest instability, I swung the nose round to return crestfallen to the aerodrome. The sink was a steady 2-3 ft. per second, which, of course, was far worse than a good hearty 10 ft. per second, as the slow fall was the surest sign of lazy air.

By my luck changed, for there, on the boundary of the aerodrome was a little patch of sunlight. I reached this with still some height in hand, and finding the expected though slowly rising air, determinedly put my head in the "office" and climbed slowly but unsurely to 2,000 ft. At this height the sun disappeared and the lift faded away, so I had more opportunity of admiring the view, which consisted of a sea of houses in nearly all directions, as I was rapidly drifting over London. But though this was not a very happy position, there was the encouraging thought that the sun and shadow would have much more effect over roofs than over green fields, so I left Ealing and made for another patch of sunlight, the only one visible, near Wormwood Scrubs, which is, incidentally, a perfect landing place. This returned me to 2,000 ft., so I carried on in the same direction, passing over Hampstead Heath. Once the altimeter was down to 800 ft., but there are plenty of open spaces on the north side of London, so there was nothing to be unduly worried about. Finally, over Tottenham I met the first good thermal, and we rose in wide easy circles to the cloud base at 5,500 ft. There can be no doubt that London, on any reasonable day, provides excep-



Mr. P. B. N. Davis, who describes how he flew 110 miles from Heston to the East Coast in the "Rhönadler," is here seen with his former machine "Scud II," in which he did several cross-country flights, including a climb in a thunderstorm cloud.

tionally active conditions, and I was lucky to be there on the first part of this flight when the weather was most unfavourable.

Over North Weald aerodrome the sky again flattened out, becoming completely clouded over, and a long glide ensued. But the sun reappeared in time, and with rather a struggle we slowly wriggled our way up from 1,200 ft. It was noticeable that the sun did not have nearly so much effect now that we were in the country, although there were a number of ploughed fields sun-tanned to the shade most conducive to thermic activity. In chasing the sunlight patches considerable advantage was obtained from the fact that they were moving across the ground and therefore left a trail of gently rising air behind them by which each could be approached. Thus it was often possible to fly in a straight line for quite a time without losing height.

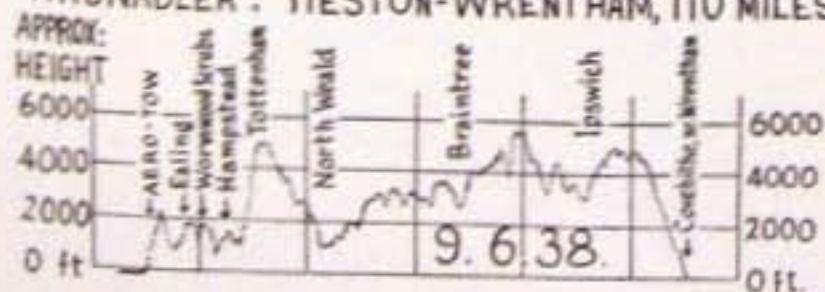
Conditions gradually improved, and from now on everything was straightforward cloud-hopping. In one cloud the ADLER was swept up to 6,300 ft., but I found myself unable to fly blind doing steep circles. The process of flying straight through the cloud and turning at the edges lost as much height as was gained in the middle, so after trying this I left the cloud and flew on, feeling rather ashamed of myself. Far away below I could see the very field near Halstead where I landed after my first cross-country, but I could not go and land there again with this amount of height in hand.

Soon Ipswich aerodrome was in sight, which I had mentioned to Morton, my unsparing trailer driver, as a possible goal, but conditions were still so good that the ADLER insisted on going on, and I had to give way. The last thermals finally died out when we were at 5,500 ft., and there followed a long and dream-like glide parallel with the coast and out to sea.

I finally landed at 6.35 in a barley field immediately adjoining the beach. After the activities of the morning, which had mostly consisted in negotiating traffic blocks between London and Heston, it was the most soothing contrast to be in this lonely place with the calm sea lapping on the shore.

P. B. N. DAVIS.

COPY OF BAROGRAPH RECORD: P.B.N. DAVIS IN "RHÖNADLER": HESTON-WRENTHAM, 110 MILES



South Wind at Reigate



Scenes at the opening meeting of the London Gliding Club's branch site at the foot of the Buckland Hills, near Reigate. Top left, sailplanes waiting to be winched into a south-west wind from the foot of the hill. Bottom left, side-slipping in to a landing, which required a nice judgment. Right, Mr. Koch is launched in the club "Grunau," while the "Grey Kite" soars overhead.

IF you can get the use of a soaring site that everyone has been after in vain for years, induce your family to move house so that you can live there, get the Empire's largest gliding organisation to sponsor it, run a three-day meeting without a hitch, and meanwhile entertain guests in an unfurnished house, and get your share of the flying—if you can get away with all this it is but one step further to organise the weather too.

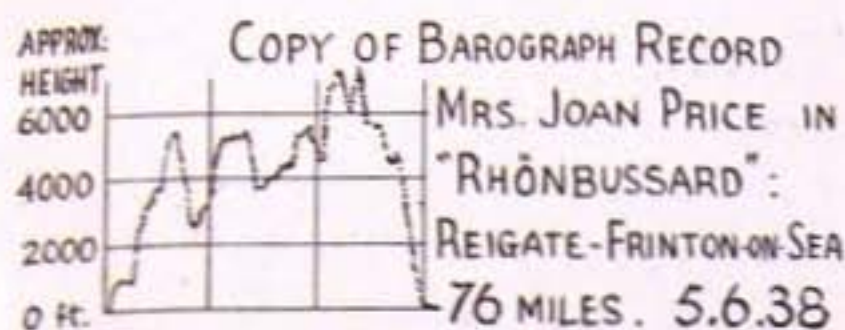
So that all these efforts should not be brought to nought, Miss Ann Edmonds required the almost impossible coincidence of three consecutive days of south wind, combined with a good lapse rate, over the Whitsun holidays. But when Miss Ann wants a thing she gets it, and nobody seemed at all surprised when the three days of south wind were delivered as required, complete with thermals.

There had been two unofficial trials of the site before, when launches were made from the top of the hill round the corner, but this was the official opening, with launches from the field at the bottom. The idea is to establish the site as one to which members of the London Gliding Club can go when the wind is in the south and refuses to blow up Dunstable Downs. From the many enquiries which Miss Edmonds received, there seems also to be quite a local demand for primary training. But at present the scheme is to get a winch installed just for launching soaring pilots into up-currents. As the winch had not yet materialised, Mr. Hatcher kindly brought his own from Croydon.

The wind on Saturday, June 4th, was east of south, and brought air from an anti-cyclone over Central Europe. There was evidently thermal lift as well as that from the hill, and several pilots got up to 2,800 ft., which seemed to be the ceiling of the thermals, some of which, according to Stephenson, were at 10 ft. per second. But this was good enough for crossing gaps, and D. F. Greig, in *GREY KITE*, got nearly to Guildford, but became held up over a poor stretch of slope which was blanketed by a hill in front (the very hill from which the old Surrey Gliding Club used to operate eight years ago). So he slid down between two trees to a landing at Warren Farm on Merrow Down.

P. A. Wills, in *MIXMOA*, got as far, but higher up; seeing Greig's predicament, he hurried back to Reigate. But J. S. Fox, in *RHÖNADLER*, climbed above the hill lift and carried on to Farnborough aerodrome, insisting that he had done it on thermals and hadn't used the "Hog's Back" at all.

Sunday brought quite a different wind; it began as W.N.W. but soon began to back. Flying started at 10.20. The first pilot managed two minutes and the next two and a half minutes. Then O. ("Pop") Furlong found just one little bit of Buckland Hills which was catching the wind, and managed six minutes. This gave a clue, and as each pilot in turn added to the general knowledge of where lift could be found, flights became longer, till by mid-day everyone was getting up comfortably.



This air appears, from the weather maps, to have come originally from the cold north and swung round a rather intense depression in mid-Atlantic the previous Wednesday and Thursday. It was the air in which Wills put up the new height record from Dunstable.

Pasold, launched in his BUSSARD at 12.51, was soon away; he landed later on the playground of a school in Colchester, 65 miles away—but the boys were on holiday. He had climbed to 4,540 ft.

Mrs. Price and Greig found themselves going round in opposite directions in the same thermal at the same height. When they had become disentangled, Mrs.

Price went off to Frinton-on-Sea on the longest sailplane flight of her life—76 miles, and the coldest—6,000 ft. At Frinton the golf club took possession of her BUSSARD's wings and the tennis club of the fuselage, and neither would give way, so the trailer, when it came, had to go round like a Carter Paterson's collecting van.

Greig went to Croydon aerodrome, took a long time trying to get down from 5,000 to 2,000 ft., gave it up and came back against the wind, reaching Reigate at 5,600 ft. He was up from 2.44 to 3.50, and Mrs. Price from 2.34 to 5.45.

Monday brought a due south wind, apparently from the edge of the continental anti-cyclone. It again produced cloud lift, and took people up to cloud base at 2,000 ft., sometimes at 10 ft. a second.

On Saturday night Mr. R. M. Paulter, of Farnborough, gave a most useful meteorological lecture which will be reported later. And, finally, we must express gratitude to Mr. Robert Sanders and Mr. and Mrs. Charles Sanders for their hospitality and for allowing the free use of their land.

The Newcastle "Gipsy Meeting"

THE Newcastle Gliding Club has made such astonishing progress in the last year that a visit to them could no longer be delayed, and the "Gipsy Meeting," the first they have held for visiting pilots, provided the opportunity, if only for three days out of the nine. One longed, too, to see all the "characters" of the Club News come to life: the builder of that dream-ship, the JALLAN; and Bell, the ground engineer, who has only spared time to do 14 minutes' flying in his life (and the club began over seven years ago!), and "Mac," and the rest. The only thing I missed seeing was the club's assortment of soaring sites, for the only one flown from during my visit was Hartside, on the Pennines, which is not one of their regular sites at all.

Hartside is terrific. It is so terrific, apparently, that the air rarely troubles to climb up it at all. Four years ago Dr. Dewsbury and Mungo Buxton tried to soar in what should have been half-a-gale of soaring wind, and couldn't keep up. Nor could Erik Addyman, on a later occasion, on his light-wind ZEPHYR. And on June 22nd, in a wind enough to chill the marrow, Wills in MINIMO, Mrs. Price in RHÖNBUSSARD, and O'Grady, the club's star pilot, in the KITE, barely kept their height for a minute or so and then sank to the bottom, where they found that the wind was merely blowing along parallel to the Pennines instead of climbing up over them.

But after I left the incredible happened: somebody soared there at last—and too well! W. E. Hick, in the club KITE, was bunjied off from only half-way up the mountain (1,000 ft.), rose rapidly over the top, and was engulfed in stratus cloud 200 feet higher up. After flying backwards for two miles inside this he came out over the lee side and landed on a lonely and boggy moor, where presumably he would be still if Mrs. Wills hadn't spotted a distant streak of white two miles away from the road. For the clouds came

down and blotted him out soon afterwards. As it was, the rescue party had to peg the KITE down for the night and return next day with a horse, the only towing vehicle which could negotiate the bog.

The visit was a stimulating experience, and I am grateful for the hospitality of Mr. and Mrs. Burningham, whose house I could use as little more than a dormitory—such is Gliding! A.E.S.



At Hartside, in the Pennines, during the Newcastle Club's "Gipsy Meeting." Above, the "Rhönbusard" and "Minimoa" are waiting for a launch, while the club winch (below) is got ready after being extricated from a bog. The lonely moors on which Mr. Hick landed, two miles from anywhere, are seen in the upper picture, rolling away into the distance where Cross Fell, 2,930 feet, appears on the horizon.

Going West

By P. A. WILLS

[On April 30th Mr. P. A. Wills raised the British Distance Record for soaring flight to 209 miles. Since then he has raised the British Altitude Record to 10,080 feet, and has thus become one of the first pilots in the world to qualify for the new international "Golden C" certificate, for which soaring flights of 300 km. distance and 3,000 metres climb are required.]

I

THE newspapers always call it Buchan's third cold spell, though I don't know what Professor Brunt would say about that. Be that as it may, I have personally noticed that in each of the past four years we have had, between March 20th and April 30th, a spell of highly unstable north-east winds. In past years I have made desperate plans to get a launch from the South Downs during the period, which have always come to nothing, but this year the advent of aero-towing at Heston, specially organised to be ready in time, made it easy; and to celebrate the event, Buchan's third this year turned out at least twins. In fact, unstable north-easterlies blew steadily for practically the whole period, to the great confusion of farmers but the great profit of sailplane pilots.

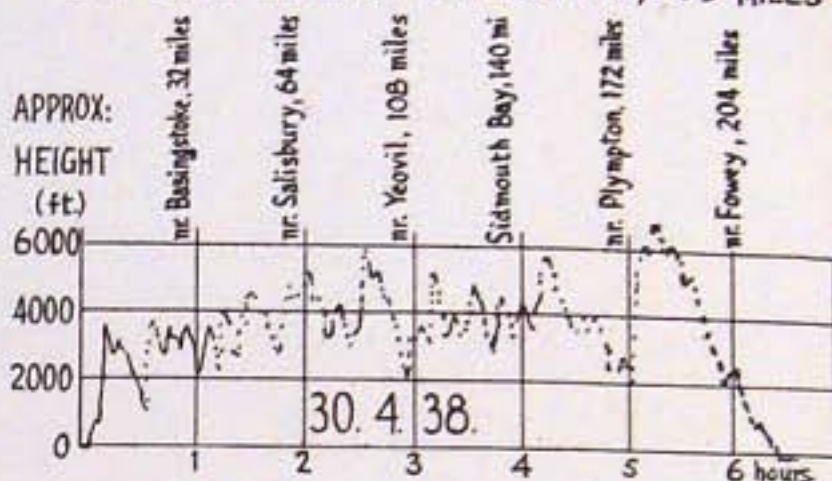
BRITISH GLIDING DISTANCE RECORDS

- September 4th, 1932: G. M. Buxton in "Falcon": Askam-in-Furness to Coniston, 13 miles.
 August 22nd, 1933: G. E. Collins in "Professor": Dunstable Downs to South Mimms, 19 miles.
 March 18th, 1934: P. A. Wills in "Professor": Dunstable Downs to Latchingdon, Essex, 56 miles.
 August 5th, 1934: G. E. Collins in "Rhönadler": Dunstable Downs to Holkham Bay, Norfolk, 95 miles.
 July 5th, 1936: P. A. Wills in "Hjordis": Dunstable Downs to Pakefield, Suffolk, 104 miles.
 April 17th, 1938: C. Nicholson in "Rhönsperber": Hulsh, Wilts., to Bigbury-on-Sea, Devon, 120½ miles.
 April 18th, 1938: J. S. Fox in "Rhönadler": Hulsh, Wilts., to Fowey, Cornwall, 145½ miles.
 April 30th, 1938: P. A. Wills in "Minimoa": Heston Airport, London, to St. Austell, Cornwall, 209 miles.

Going to the office on Friday, the 29th, I looked wistfully up from the crowded city streets at the activity of a different sort going on overhead. It seemed too much to expect yet another such day to follow, but that evening the Weather Bureau said: "Same again." That meant north-east wind, cloud streets starting as early as 9 a.m. with a tendency (in London, anyway) for the sky to cloud over completely later in the day. I asked, however, whether this was not due to the influence of the North Sea, and if so, as one went cross-wind to the west, one would shortly get out of the danger area, i.e., the area down-wind of the North Sea. They agreed that this was likely, and that I would probably be safe from Salisbury onwards. It looked, therefore, as if part of the problem would be to get to Salisbury (65 miles) before, say, noon. This meant early breakfast at Berkhamstead, to be rigged and away from Heston if possible by 10.30 a.m.

We spent a busy evening getting everything teed up for an early start. I ruled out the necessary line of

COPY OF BAROGRAPH RECORD: P.A. WILLS IN "MINIMOA": HESTON - ST. AUSTELL, 209 MILES



flight on the map, and studied the course as closely as possible. The conditions looked as if they might be very similar to those of my flight, earlier in the month, from Huish to Plympton, so I hoped I might find the same sea-breeze effect which I had then found so useful from Lyme Regis onwards. The course I mapped out, therefore, took me to Lyme Regis, thence out to sea and along the coast to Exmouth, then on towards Plymouth. As a matter of fact on the actual flight I was seldom five miles off this course at any point.

On Saturday morning, however, it did not look very hopeful. The instability was there all right, but the wind was strong and far too northerly. We left consequently rather later than to plan, and without luggage or even money, except for the housekeeping money, it being luckily pay day at home. We said we would be back to tea.

Arrived at Heston the sky looked marvellous. Tremendous streets ran up and down wind as far as the eye could see, and although the surface wind was almost due north, the upper wind, judged from the line of the cloud streets, was north-east. The actual direction, from 1,000 ft. upwards, was officially confirmed as 50° , whereas my course, to get me round Sidmouth Bay, had to be 70° (or rather, 250°). Across a 20 m.p.h. wind this was better than I had feared, but quite bad enough. However, I hoped, in my favour, first, for the favourable sea-breeze effect already mentioned, and, second, that the wind might drop with the combination of oncoming evening and conflicting sea-breezes that might be found from Bridport—if I got as far—to Plymouth, which I formally declared as my goal. Now, as it happened, both these preconceived possibilities came true. Let us therefore be optimists always.

A last point was that, with the big veer in the wind, it was clear if I got into difficulties anywhere, as I got lower these would be increased by the northerly surface wind taking me ever more seriously off my course.

I make no apology for this long preliminary argument, because I am sure that the previous planning of a long flight is of the utmost importance, particularly in England, where every really long flight must of necessity be in the nature of a goal flight.

II

With the various delays and uncertainties it was 11.05 by the time we actually took the air. I had asked to be towed up-wind towards a cloud street over Harrow, but we had barely crossed the aerodrome boundary, only 600 feet up just east of the gasometer, when the aeroplane ahead jumped as if it had been shot. Instinctively I released, then cursed myself for being so hasty.

However, there undoubtedly was lift somewhere near by, and after a little searching she took it fairly in the seat of the pants. The variometer jumped from six to nine, and a bit later to 12 feet per second climb. We circled up, back over one corner of the aerodrome, into the base of a cloud at 3,600 feet near the Staines reservoir. I turned her nose north-west, put it well down, and struck off at 65 m.p.h. The battle was on.

North of Staines was another cumulus. I found the up-current beneath at 2,500 ft. showing 3 ft. per sec., but this was not enough. I now declared as a rule of the day that when over 3,000 ft. I would not be content with 3 ft. per sec. If after a search round I could not bring it up to at least 5 ft. per sec. I would go on. But I would never just circle in bovine content unless I got up to 9 ft. per sec. Until that I watched every circle and manœuvred restlessly about searching for the meatiest bits. Time was the essence of the flight, and to save it meant constant hard work. Lesser lift I used by flying as slowly as possible through it, putting the nose down again when it was past.

I worked this second thermal up to 6 ft. per sec., and set off again. But this time further lift was hard to find. Virginia Water and Fort Belvedere slid beneath, and I was getting dangerously low. I abandoned the cross-wind struggle and went straight down-wind towards a large common short of Farnborough (Chobham Ridge). I was miserably reflecting that there was not a safe landing-spot in sight, what a lot of luck there was in putting a sailplane down in one piece, and what a lot of work had been wasted on this effort, when we struck lift, 700 feet above the start, perhaps 500 above the common below. A last-minute save.

My pride over rates of climb quite gone, we struggled round and round and round . . . A while later we were up again at 3,900 feet just north of Farnborough, well off the course, and rather depressed.

However, this was the last shock for a long way. We got back to our course at Basingstoke, flew along south of the road to Whitchurch, where we worked a thermal up to over 15 ft. per sec. climb, along to Andover, with Southampton Water and the Isle of Wight in sight to the south, then Salisbury. The rolling country of Salisbury Plain was, as expected, stiff with thermals.

Over Salisbury we had some fun. We found ourselves climbing at 6 ft. per sec. up beside a large and dense-looking cumulus. The best lift seemed in a circle of which the nearest point was perhaps 25 yards south of the wall of cloud. At 5,100 feet the lift declined,

so I decided to go inside and try for more. We charged at the solid wall of cloud, hit it—and burst out on the other side, as if through a pane of frosted glass. It could not have been more than 25 yards thick, then we were in clear air again—in the most violent down-current of the day, over 15 ft. per sec.

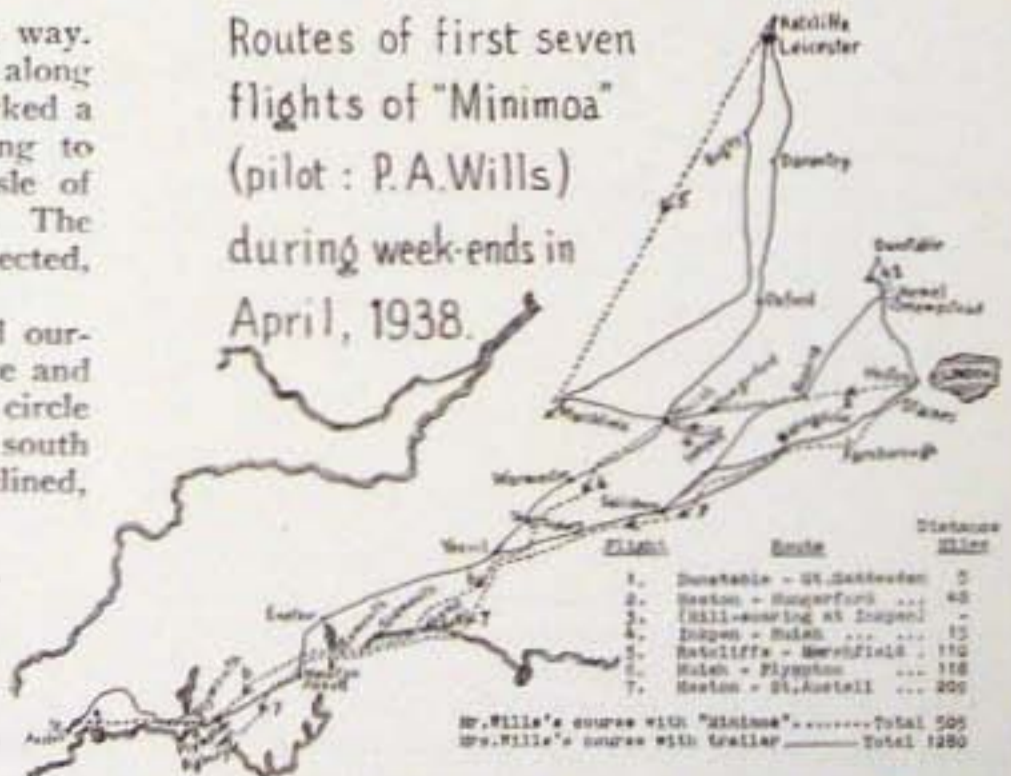
"You nibble a bit off this side," said Alice, "and you grow taller; off the other side, and you grow shorter. Curiouser and curiouser." I went back and nibbled some more on the other side.

I had been carefully checking my average speed, and found we had made 32 miles for each of the first two hours. This would get us to the proposed junction with the coast at Lyme Regis about 3 o'clock, and after that I expected to be able to increase speed. I reckoned on being safe to at least 3.30, so it might be a near thing to catch Brer Fox, which would take place, if at all, at Exmouth.

But I was wrong in my calculations; the big speed-up of the day was now at hand. After Salisbury we



Routes of first seven flights of "Minimoa" (pilot: P.A.Wills) during week-ends in April, 1938.



The photos above show the "Minimoa" just before and after its first launch in England on April 3rd. The map shows the routes of the flights it made in April, including the record flight described in this article, which is numbered 7 on the map.

flew along the line of hills used at Easter by the Cambridge Club, past White Sheet Hill to Shaftesbury, and in this third hour covered 44 miles.

Now came Blackmore Vale, which I had previously found, on the flight to Plympton, rather cold to strangers. It was again. Again near Yeovil I gave up and turned north to make for the aerodrome. Again I spotted the same little sloping wood; again it came to my aid. The conditions were extraordinarily the same from now on to Exmouth.

We climbed thankfully to 3,800 ft., then made no bones about it but fairly bolted down-wind for the sea. Between Bridport and Lyme Regis was the same belt of coastal lift, formed from one to three miles out to sea by a south-easterly sea-breeze undercutting the north-easter. In this we flew fast along the coast, over the blue sea, past Seaton, Babbacombe, Sidmouth, to Exmouth. Here the same strong thermal took us up to 5,500 ft., and after my last experience at this spot a new caution informed me. Our ground speed had increased greatly since reaching the coast, as I had expected, but the struggle at Yeovil had brought the fourth hour's kill down to 32 miles again. We put our first bird, Exmouth, in the bag, and concentrated on the second, Plymouth. The wind was now dropping, the clouds dissolving.

From Exmouth we flew to a cloud beyond Newton Abbott, where I found an unexpected aerodrome, circle and all, beneath. Weak lift from a seedy-looking cumulus took us hesitatingly to 4,000 ft. again—and then a long glide found us heading down a river ending in an estuary and a cardboard conical island planted in its mouth, Bigbury. The fifth hour again saw 32 miles go by.

The prospect of getting enough height to cross the high land north of me and make Plymouth aerodrome seemed remote, though as we crossed one or two of the brown rocky spurs of Dartmoor with perhaps 500 ft. to spare I found weak lift over each. With a prevailing dearth of landing grounds I was thinking of making a bid for the beach at Bigbury, so recently furrowed by the skid of the SPERBER, when we came to the end of Dartmoor.

Just to the north I saw the text-book spot for a wind-shadow thermal. Dartmoor billowed down from about 1,600 feet in a series of rounded slopes, facing the westering sun. The bulk of the moor to the north-east provided obvious protection against the north-east wind, so the quiet air over the slopes should have had every opportunity to warm up. I gave up my safety-first plan of Bigbury sands and reached the hopeful spot at 1,900 ft. Immediately I found lift; in no time Plymouth aerodrome was in the bag; a bit later I began to be torn between completing a 178-mile goal flight, or going on while the going was good, and trying for 200 miles, a nice round figure. Then I remembered the "Golden C" requirement—300 kms. or 186 miles. By this time I was at cloud base, 6,000 ft. over Plymouth. Inside the cloud lift was strong but patchy, and at 6,900 ft. I gave up the mental struggle and went on west. I came out of the side of the cloud and saw the irregular coastline of Cornwall ahead, the numerous inlets and rivers silver against the declining sun, the colours of the landscape darkening by silhouette.

I flew along the coast, finding dying lift here and there. The land and sea breezes both seemed to have gone; smoke below was rising gently and vertically. Six hours, yet again 32 miles clocked on.

Over the river running down to Fowey was gentle lift; farther on I could see St. Austell, a surprisingly large town, the hills behind it dotted with huge white pyramids of china clay. I remembered that this was the home town of Capt. Phillips, where he used to land his "Avro 504." How bucked he would have been with all this! I reached St. Austell at about 1,500 ft., saw a sloping field behind a garage on a by-pass, and circled down to a landing at 5.15 p.m.

I had caught a heavy cold and felt extremely ill. In addition I had had nothing to eat since 8 a.m. But the task of keeping at bay the ravening hordes of small children until the *MINIMOIA* was safely packed away took another two hours, before I could get any food.

The official distance (by Great Circle course) was eventually given as 209 miles. The distance covered by my wife with the trailer, retrieving me in the two days, was 581 miles. Who won the greater virtue? No prize is offered for the answer.

To All Points of the Compass

EIGHTY-TWO miles to the south-west on Monday; 68 miles to the east south east on Wednesday; 70 miles to the north on Friday—what is the area enclosed by the three points reached by Dr. H. T. Edmunds in a week's flying from Wiltshire in the *RHÖNADLER*? Whatever the answer, these are Dr. Edmunds' notes on the three flights:—

Monday, June 13th.—Winch launch at Inkpen; hill-soaring for 45 minutes. Then off to Salisbury; S.W. to Dorchester; west across wind (blowing from north) to Bridport. After a struggle to avoid going out to sea, got round the bend at Lyme Regis; kept inland to Musbury; then due south to Axmouth. Total time, 4 hrs. 45 mins.; greatest height, 4,600 feet. Very bumpy near the clouds, so he did not enter any.

Wednesday, June 15th.—Winch launch at Inkpen followed by hill-soaring; then S.S.E. to Winchester; east across (north) wind to Petersfield, Midhurst, and parallel to the Downs about four miles away from them until reaching a point near Ditchling Beacon (site of National Gliding Meeting in 1930). Total time, 2 hrs. 50 mins.; greatest height, 3,500 feet.

Friday, June 17th.—Aero-tow to 1,700 ft. at Huish. Wind slight, from S.W. Tried to go due north (without maps); occasionally had to go round "holes" in the sky where no clouds were. Marlborough, Faringdon, Witney, Chipping Norton, then no more towns till the landing at Stretton-on-Dunsmore. Total time, 4½ hours; greatest height, 5,200 ft. in cloud. It is curious that on each flight the thermals gave out about 4 p.m.

Correspondence

Variometer Speed-Calibration

SIR,

The idea of variometer speed-calibration is to show roughly how fast one should fly between clouds, or in different down-draughts. I worked out these speeds for the RHÖNADLER, and have them marked up on the right-hand side of my Cobb-Slater variometer. For best performance I then fly at whatever speed the height of the red ball indicates. The process of arriving at these calibrations is as follows:—

Firstly: One must get a "Performance Curve" from the manufacturer of whatever type of sailplane one is flying. These performance curves give the rate-of-sink in still air for all different forward velocities. From these data one can work out the various gliding angles corresponding to each forward speed; e.g. if the plane's performance at 30 m.p.h. (44 ft. per sec.) gives a sink of 2 ft. per sec., the gliding angle is 1 in 22.

Secondly: One considers the case of flying in a down-draught of 1 ft. per sec. In this case one will be losing 3 ft. per sec. instead of 2, during one's 44 ft. forward progress, making the effective gliding angle only 1 in 15.

Similarly: In down-draughts of 2 ft., 3 ft., 4 ft., etc., one would get effective gliding angles (at this 30 m.p.h. speed) of 1 in 11, 1 in 19, 1 in 7, etc., respectively.

The next stage is to start one's calculations all over again, and work out a similar series of gliding angles for a speed of, say, 35 m.p.h. Then do it again for speeds of 40, 45, 50, 55 and 60 m.p.h.

Our object is to find the best speed to fly at in any particular down-draught, so from these figures we now plot curves on a graph. The graph must have gliding angles marked up one side of it, and forward-speeds marked along its base. We draw one curve corresponding to each down-draught, including one curve for still air.

We now have a series of curves showing the plane's performance in all sorts of air conditions; and if we have drawn them correctly, each curve should have a definite peak showing the best performance corresponding to the particular down-draught which that individual curve represents. If, for example, the 3 ft. down-draught curve has its peak directly above the 55 m.p.h. mark on the graph, it is then obvious that one should fly at 55 m.p.h. in order to get the best performance out of one's plane when flying in a 3 ft. down-draught.

To calibrate the variometer we have to refer once more to the original Performance Curve on which we might see that at 55 m.p.h. the plane was losing 5 ft. per second: this figure, added to the 3 ft. down-draught, gives one's total loss of height at 8 ft. per sec. Therefore, if one was flying at 55 m.p.h. with the red ball showing 8 ft. per second, one would be getting the maximum forward gain possible for the least loss of height while flying through this 3 ft. per sec. down-draught.

When flying into a down-draught one has to dive to gain speed, but this dive only temporarily upsets the

calculation, and it is very soon possible to adjust one's speed to the corresponding variometer calibration. However accurate these calibrations may or may not be, they certainly offer a most helpful suggestion of one's best procedure when sinking fast. Personally, I have great faith in these new figures on my variometer.

With regard to such ideas as these, might I be allowed to make a suggestion. It can be said of the gliding fraternity generally that they are the best sportsmen in all the world, and that it is the ambition of those who are lucky in having had more experience than many others to pass on any useful information to those who are less fortunate than themselves. Might I request that anyone who may have any original ideas of value should not hide his lamp under a bushel, but should go to the small trouble of writing it down for the interest of those who read this periodical.

In conclusion, could some mathematically-minded person start working out for me the best procedure for "Round the Country" flying, and tell me the best speeds at which to fly in various down-draughts against the wind? Supposing one's best performance in a 1 ft. down-draught was at 35 m.p.h., and one had to fly against a 35 m.p.h. wind, the answer would definitely be a "Lemon." Will someone work that one out for me?

J. S. Fox.

More Semi-Technical Matters

SIR,

Following the example of W.R.H. in last month's issue, here is an idea from Dunstable:

A miniature flagstaff and silk streamer fixed on the nose of a secondary to indicate drift. I understand that this is very useful for improving turns and even straight hill soaring.

Another gadget which I have tried to make, without much success owing to mechanical limitations, is a direct reading air speed indicator. It consists of a motor car side lamp with the bullseye replaced by a rounded spring-loaded nose which is free to move backwards. This is connected to a pointer reading on a vertical scale at the rear of the case. The side lamp was chosen by virtue of its shape approximating that of a streamline body, thus reducing eddies.

The advantages of this type of instrument would seem to be the lack of lag associated with a diaphragm A.S.I. and also a greater degree of consistency due to its not being affected by barometric or temperature change.

Another point which does not seem to be generally appreciated is that diaphragm instruments are greatly affected by altitude. The higher one goes the slower will be the reading, because the less the pressure the less will be the difference between the static and pressure sides of the diaphragm, therefore a smaller deflection.

I would welcome readers' views on the direct reading instrument and A.S.I.'s in general.

E. LAVINGTON.

The Dunstable—Long Mynd Prize

The following letter has been written by the Chairman-elect of the London Gliding Club to the President of the Midland Gliding Club:—

DEAR MR. HARDWICK,

There are, I believe, very few people now who are aware of your magnanimous generosity in the past to the British Gliding Movement, and for that reason they do not know how great a debt of gratitude they owe you.

It is only natural for newcomers to take everything as they find it, and to remain in ignorance of the patient labours of the men who have gone before them and who have built up what is now there for them to enjoy. They do not realise that without your generous assistance the London Club, the parent-club of all the other British Gliding Clubs, would have died a very natural financial death. And not only the London Club but also your own Midland Club at the Long Mynd would have succumbed under all the ill-fated luck which you have had to face since you founded it.

Your generosity seems unbounded, and we at the London Club are all fully grateful to you again for your most unreasonable sporting offer of a prize of £50 to the first person to glide from Dunstable to the Long Mynd. I, for one, think that you should withdraw this offer, and give it instead to the first member of your own club who flies to Dunstable!

If, however, it should be my luck to be the first person to reach Long Mynd, I should be only too pleased to go halves with you, in due recognition of what we all owe you, and return £25 to the very deserving cause of your "Long Mynd Building Fund." What is more, I am certain that any other British pilot who should chance to be the lucky one would be only too willing to repay the gratitude he owes you in a similar manner.

With very best wishes to your new project,

I am,

Yours sincerely,

J. S. Fox.

British Gliding Association

Certificate of Airworthiness

A new Certificate of Airworthiness form is now being taken into use. From now onwards the new form will be used for a glider which is granted an original C. of A.

In the case of a glider which already possesses a C. of A., the new form will be substituted for the old type when the C. of A. is renewed, and the details shown on it will be completed as far as possible from the information which is available.

Learning to Glide

ON the opposite page is a list of British Gliding Clubs. As far as we know, they all provide elementary gliding instruction for members. The terms of subscription and flying charges are given where known.

Those affiliated to the British Gliding Association provide instruction in soaring flight as well.

The clubs usually operate at week-ends, and some of the larger ones are active on week-days too when conditions are suitable and enough people turn up.

An excellent way to get gliding instruction is to obtain it in concentrated form by attending one of the courses held by the larger clubs. The fees given in the following list are those charged to non-members; they include flying instruction charges, food, and camping accommodation. These are the courses which have been arranged:—

July 29th to August 8th.—Midland Gliding Club; fees: £8 18s. 6d. for 11 days, or £4 15s. 6d. for 5 consecutive days.

July 29th to August 12th.—London Gliding Club; fee: 11 guineas, plus 1 guinea special membership.

August 7th to 20th.—Yorkshire Gliding Club; fee: £12 12s.

August 13th to 21st.—Midland Gliding Club (Public Schools Camp); fee: £8 8s.

September 9th to 18th.—London Gliding Club; fee: 8 guineas, plus 1 guinea special membership.

There may be other courses notified in our advertisement columns.

These courses are open to both beginners and more advanced pilots. For advanced pilots only, there is a special course at the Yorkshire Gliding Club from July 24th to August 1st; fees: entrance fee for the course, £1 11s. 6d.; extra for those using club machines, £5 5s.; extra for those requiring full board, £2 12s. 6d.; extra for each aeroplane-tow, not exceeding 10s.

To join these courses, apply to:—

H. E. Hervey, Manager, London Gliding Club, Dunstable, Beds. (Tel.: Dunstable 419.)

Camp Secretary, Yorkshire Gliding Club, Spellowgate, Driffield, Yorks.

R. B. Durose, Midland Gliding Club, 1, Newhall Street, Birmingham, 3.

Certain gliding schools in Germany and Poland take foreign pupils. Considerable notice must be given, and certain formalities have to be gone through. The addresses to which applications to join should be sent are:—

Aero Club von Deutschland, Berlin, S.W.11, Prinz-Albrecht-Strasse 5, Germany.

Aeroklub Rzeczypospolitej Polskiej, Warszawa, Rue Krolewska 2, Poland.

Cheaper Gliding Books.—*Kronfeld on Gliding and Soaring*, published by John Hamilton at 21s., has been reduced to 8s. 6d. *Gliding and Sailplaning*, by Stamer and Lippisch, published by John Lane at 5s., is now on sale at 2s.

List of British Gliding Clubs and their Secretaries

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

Clubs Affiliated to the British Gliding Association

England.

CAMBRIDGE UNIVERSITY.—J. W. S. Pringle and P. M. Thomas. Club rooms at 1, Benet Street, Cambridge. Flying ground at Caxton Gibbett (Tel.: CAXTON 39); winch launching. Subscription, 3 guineas p.a.; Associate membership, 1 guinea p.a.; no entrance fee. Flying charges: 1s. to 1s. 9d. per winch launch; 7s. 6d. to 9s. per aero-tow. Flying, seven days a week during term. Resident instructress. Limited number of non-University members admitted.

CHANNEL.—F. G. Whitnall, 16, High Street, Cheriton, Folkestone. Auto-towing at Hawkinge Air Station; soaring at Arpinge, 2 miles N.W. of Folkestone. Hangar at Arpinge.

DERBYSHIRE AND LANCASHIRE.—C. Kaye, 63, Clarkhouse Road, Sheffield. (Tel.: 62463.) Primary training and soaring. Headquarters at Camphill, Great Hucklow, Derbyshire (between Buxton and Sheffield), adjoining flying grounds at Bradwell Edge and Eyam Edge. Clubhouse (Tel.: TIDESWELL 207) and hangar. Subscription 3 guineas p.a.; non-flying £1 1s. (both include 5s. subscription to Royal Aeronautical Society, Manchester Branch); no entrance fee. Flying charges: from 6d. per flight; soaring flights from 2s. 6d. Resident instructor-manager.

DORSET.—L. A. Lansdown, The Portman Arms Hotel, East Chinnock, Yeovil, Somerset. (Tel.: WEST COKER 01 Y4.) Primary training and soaring at Maiden Newton; soaring also at Kimmeridge, Isle of Purbeck.

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

FURNESS.—J. S. Redshaw, 18, Fairfield Lane, Barrow-in-Furness, Lancs. (Tel.: 803.) Training sites at Hawcoat, Birk-rigg and Gleaston. Soaring sites at Moorside (near Ireleth) and Bootle Fell, Cumb. Hangar at Moorside. Subscription, £2 p.a. and flying fees.

KENT.—Miss R. H. Sinclair, Lady Place, Sutton Courtenay, Berks. (Tel.: SUTTON COURTENAY 46.) Primary training ground at Lenham, near Maidstone, Kent.

LONDON.—Tring Road, Dunstable, Beds. (Tel.: DUNSTABLE 419.) Flying ground, Dunstable Downs (1½ miles S.W. of Dunstable). Primary training and soaring. Clubhouse and hangar; sleeping accommodation; 13 gliders and sailplanes for members' use. Subscription, 3 guineas p.a. (country member, 2 guineas); entrance fee, 2 guineas. Associate member, 2 guineas p.a.; no entrance fee. Flying charges, from 3s. per day. Resident full-time instructor; flying on Sundays and every week-day except Thursday.

MIDLAND.—M. F. Barnes, 100, Holly Road, Birmingham 20. (Tel.: SMETHWICK 1181.) Primary training grounds at Hands-worth (Vernon Avenue), Northfields and Hereford. Soaring site at Long Mynd, 3 miles W.S.W. of Church Stretton, Salop. (Tel.: LINLEY 34.) Clubhouse and hangars; 10 gliders and sailplanes for members' use. Subscription, 3 guineas p.a. (10s. 6d. junior membership); entrance fee, 1 guinea; flying charges, 3s. per week-end for primary or secondary training; 6s. per hour for soaring.

NEWCASTLE.—A. P. Miller, 25, Holme Avenue, Walkerville, Newcastle-on-Tyne, 6. (Tel.: WALLSEND 63320.) Soaring sites at Chillingham. Auto-towing at Cramlington Aerodrome. Workshop in Newcastle.

SOUTHDOVS.—A. York Bramble, 7A, First Avenue, Hove 3, Sussex. (Tel. Hove 4335.) Primary training and soaring grounds at Devil's Dyke, Brighton. Clubhouse and hangar, ¼ mile S.S.W. of Devil's Dyke Station.

YORKSHIRE.—H. T. Blakeston, Spellowgate, Driffield, Yorks. Primary training and soaring. Flying ground, Sutton Bank, between Thirsk and Helmsley. Clubhouse and hangar. (Tel.:

Sutton under Whitestone Cliff 19.) Resident Steward; full residential facilities. Full range of machines for members' use. The present Secretary is: L. A. Alderson, 32, Wensley Green, Chapel Allerton, Leeds 7.

Northern Ireland.

ULSTER.—N. P. Metcalfe, c/o Ulster Spinning Co., Ltd., Belfast. Flying centre and hangar at Downhill, Magilligan Strand, Co. Londonderry. Auto-towing and soaring.

Other Clubs

BEACON HILL (Essex).—G. F. Harris, Eastwood Rise, Eastwood, Southend-on-Sea. Primary training ground at Canewdon, Essex. Workshop at Southend. Subscription, 10s. 6d. p.a.

CORNWALL.—J. W. Graham, Red House, Tywardreath. Flying ground at Rosenannon Downs. Primary training; soaring possible.

COTSWOLD.—J. D. Pether, Culver's Close, Burford, Oxon. Primary training at Minster Lovell, near Witney, or Pewit Farm, Wantage, Berks.

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

DEVON.—S. G. Tolman, Journal Office, Exmouth. (Tel.: 76.)

EAST GRINSTEAD.—G. J. Smith, "Toiskity," Sackville Lane, East Grinstead, Sussex.

HEREFORD.—See Midland Gliding Club.

HULL.—R. E. Havercroft, 216, Park Avenue, Hull. Flying ground, Hedon aerodrome (auto-towing).

IMPERIAL COLLEGE.—L. S. Holt, Imperial College of Science, South Kensington, S.W.7. Members use London Gliding Club's machines and flying ground at Dunstable Downs; also a sailplane for club's exclusive use.

NORFOLK AND NORWICH AERO CLUB.—Gliding Section: J. F. Taunton, Municipal Aerodrome, Norwich. North Walsham aerodrome. One sailplane; auto-towed launches.

OXFORD UNIVERSITY AND CITY.—Mrs. H. Aspell, 5, Holywell, Oxford. (Tel.: 3448.) Subscription, 2½ guineas p.a.; entrance fee, 1 guinea.

PORTSMOUTH AND SOUTH HANTS.—R. G. H. Parnell, 128, New Road, Portsmouth. Flying ground: Portsdown Hill.

ROCHDALE.—A. Claypole, 17, Agnes Street, Castleton, Rochdale. Primary training at Shuttleworth; hangar. Subscription, £2 p.a.

STOKE-ON-TRENT.—H. N. W. Goss, 36, Crewe Road, Alsager, Cheshire.

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

WORKINGTON AND WEST CUMBERLAND.—W. L. Foster, c/o The United Steel Co., Moss Bay, Workington, Cumberland. Primary training at Siddick, Workington (hangar and clubhouse). Soaring possible at The Hay, Cockermouth.

Scotland.

DUMBERTONSHIRE.—J. V. Campbell, Kirklea, Cardross Road, Dumbarton. Primary training ground at Barrs Farm, Cardross. Subscription, 2 guineas p.a. (non-flying, 1 guinea). Flying at week-ends; charges: 1s. per day, 6d. per launch thereafter.

FIFE.—Alex. M. Aitken, 14, Kinneair Street, Buckhaven.

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

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

Channel Islands.

JERSEY.—A. J. Scriven, "Quinton," Samares, Jersey. Subscription, £3 p.a. Flying on Sundays and Thursdays.

Wales.

SWANSEA AND DISTRICT.—A. H. Knight, 209A, High Street, Swansea.

News from the Clubs

London Gliding Club

Sunday, June 5th.—To-day showed that it is wrong to speak of Reigate as an "alternative" site to Dunstable, for both places were used to good effect in a south-west wind. Reigate doings are described elsewhere; by the time the wind reached Dunstable, which is further from the sea, it had built up such enormous cumulus clouds that a new British height record was the result.

In 1931, at Dunstable, Buxton got up in a PROFESSOR to 1,000 feet; in 1933 Dewsbury circled the CRESTED WREN up to 3,000 feet; and in 1934 Eric Collins took his RHÖNADLER several times to 5,000 feet. To-day Wills in MINIMOVA achieved over 10,000 feet—how much over is not yet officially established. He describes it in a separate article.

Dewsbury had a nibble at the same sort of clouds. He had gone up to try and finish off his "Silver C" by doing five hours. After three hours of it he disappeared into cloud; shortly afterwards he came out of it in a terminal dive, was sick, and landed.

Ellis and W. Adcock each did five hours, each managing to get hold of a club GRUNAU for the purpose. Peter Davis is reported to have gone $4\frac{1}{2}$ miles in RHÖNADLER. The air was rough, and a permanent thermal rose from the knob of the Bowl—or, more correctly, rose at intervals from the same permanent point of origin. A KADET was spun through $2\frac{1}{2}$ turns and righted below hill-top level; the pilot, an *ab initio*, went up in it again "to regain confidence," touched his skid on the hillside and swung round, became airborne once more before anything gave way, and went on flying.

Total soaring for the day, 52½ hours.

On the 8th Horsfield took a "C" on his SCUD II; is this the first time the type has been used for getting a "C" certificate?

On the following Thursday conditions were rather queer in what should have been, and was most of the time, a soaring wind. Pilots would get heaved up about 200 feet suddenly for no apparent reason, and just as mysteriously drop through 200 feet in a few seconds to hill-top level. In theory a down-current can't continue all the way into the ground, but a club FALCON wants a new nose.

Sunday, June 12th.—A light N.W. wind moved to N.E. later; Murray got a thermal from a winch launch in FALCON III and rose to 1,200 feet. Campbell, trying to avoid another GRUNAU, scraped over the southern boundary hedge and landed intact in the pig farm. These were the only feats of news value among 58 winch launches, 65 flights from the hill-top, and 94 ground-hops. Brigadier-General A. C. Lewin and Sir Francis Acland joined the club to-day.

On the following Tuesday, in the evening, there was something very like an "evening Thermal" effect. Sproule, in FALCON III with a passenger, rose in smooth air to 1,500 feet, finding lots of lift to westward of the road. Hervey, with the help of a variometer, reached 2,000 feet in Desoutter GRUNAU; he seemed to think the thermals were localised, as he got this height by circling.

A total flying time of 52½ hours was put up on Sunday, June 19th.

Sunday, June 26th.—Now that it is no longer possible to break the British distance record from here in a soaring wind, cross-country flights from Dunstable are becoming scarce. To-day, however, Hiscox went 14½ miles to Henlow, and Greig six to Luton aerodrome. A remarkable side-slip was made by a pilot trying for his "C"; instead of turning round at the Bowl, he descended at a great rate to the bottom of the Knob. A R.A.F. officer who happened to be passing along the top kindly wrote to the club to say that he observed the pilot to have full left aileron and full right rudder all the way down.

Instruction Course.—Nine members attended the course held from June 3rd to 12th. One of them, G. B. S. Errington, is test pilot for Messrs. Airspeed, and he took his "A," "B," and "C" certificates in one day, following this by doing the duration flight for "Silver C" two days later. Altogether, during the course, 5 "A," 5 "B," and 2 "C" certificates were taken. There were 453 launches, and timed flights totalled 13 hours 37 minutes.

Further instruction courses at the club, open to non-members, are from July 29th to August 12th and from September 9th to 18th.

Thermals at Dunstable certainly start low down. On the 23rd Hervey launched his 6 ft. span model glider by hand from flat ground; after a short level flight it began rising slowly,

going round in circles, till it reached the area of slope lift in front of the Bowl; up it went over the top, with Hervey in hot pursuit, and dropped to earth on the lee side. He used to make models professionally, but is too busy nowadays to do so.

Another spare time occupation carried on by a club member is that of Sproule, who turns out car mascots of plated brass in the shape of sailplanes—you can have your own machine modelled for your radiator top. Yet another subsidiary industry is that of painting in oils, done by Ann Edmonds, who, unlike most artists, knows what real clouds look like; she can put your sailplane, and any others you like, into the picture to order.

Hitherto there has been no standardised system of signalling to pilots in the air; try to indicate to one that he may stay up for longer if he likes, and he will immediately land; while if you want him to land and give you a turn, he somehow can't see your signal at all. Mr. Hervey, Chief Instructor, after much experience of the kind of signals needed, has now worked out, and circulated to instructors, the following system:—

Flag Signals.

The following flag signals should be used by Instructors whenever possible:

- (1) To assist pilots in the early stages of soaring,
- (2) To flag down pilots who are flying dangerously.

The best position for hill-top instructors when flagging for "C" flights is on top of the hill opposite the Golf Club gates.

Any instructor who is in a position to do so, should take prompt action to flag down a pilot who is endeavouring to reduce the number of gliders owned by the club.

SIGNALS.—With the instructor facing the glider, the red flag should always point away from the hill, the white flag towards the hill.

1. Red flag held out: "You are flying too close to the hill."
2. White flag held out: "You are flying too far out from the hill."
3. Both flags waved together: "Fly faster."
4. Both flags held out but not waved: "You are flying too fast."

In each case flags should be dropped when the pilot is flying correctly.

To flag a glider down: Signal 1 should be given continuously until the glider is so far out from the hill that it is forced to land.

Summary of Flying.

Week ending:	Days of Flying	Ground-hops	Timed Flights	Flying Time hrs. min.
June 5	5	168	148	67 17
" 12	7	402	329	44 16
" 19	5	172	174	61 0
" 26	4	128	146	43 46
Reigate Meeting	3	—	85	73 48

Total since January 1st: 6,319 launches, 858 hours 4 minutes flying time.

For the corresponding period in 1937 the figures were: 5,340 launches, 464 hours 37 minutes flying time.

Certificate Flights.

June 5th.—Errington, "A"; Hurdnall, "A"; Errington, "B"; Errington, "C"; Morton, "C"; W. Adcock, part "Silver C" (duration); Ellis, part "Silver C" (duration); R. Pasold, part "Silver C" (duration); Wills, part "Golden C" (height).

June 8th.—Logan, "A"; Mortimer, "A"; Anderson, "A"; Horsfield, "C."

June 9th.—Steel, "A"; Huggett, "B"; Pierce, "B"; Yates, "B."

June 10th.—Glenn, "A"; Olsen, "A"; Errington, part "Silver C" (duration).

June 11th.—Roake, "A"; Bristow, "A"; Miss Waldron, "A"; Hurdnall, "B"; Steel, "B"; Riley, "B."

June 12th.—Glenn, "B."

June 14th.—Arnold, "A"; Davie, "A"; Mortimer, "B"; Harris, "B."

June 19th.—Hurdnall, "C"; Manning, "C."

June 26th.—Bowes, "A"; Waugh, "B"; Lee, "B"; Wilson, "B"; Spence, "C"; Lavington, "C" (erroneously given in last issue as obtained on May 29th).

A Letter.—The following letter, dated June 6th from the Dunstable Downs Golf Club, has been received by Mr. Hervey.

"Dear Sir,

"I have been given to understand that you propose holding a Gliding Week shortly and that you anticipate a large increase in the number of Gliders being used with the consequent increase in spectators.

"My Committee have instructed me to ask you to be so good as to remind all persons using Gliders to refrain from landing on our course and especially to point out to them the necessity of avoiding contact with the high tension cables stretching along the roadside from the Guest House to our entrance gates."

Cambridge University Gliding Club

Friday, June 3rd.—Pat Pringle went off across country in the CAMBRIDGE from an aero-tow at Cambridge Airport. He lost height after the release until down at 600 feet he got a thermal which took him to 5,000 feet over Newmarket. After flying for nearly one and a half hours he landed at Honington Aerodrome, 23 miles from Cambridge.

Sunday, June 5th.—A good day's aero-towing at Duxford. A welcome visitor was K. W. Turner, now of the Bristol Sailplane Club, with a new GRUNAU BABY destined for his club. To make sure the machine was up to standard he climbed it from an aero-tow up to the clouds at 5,000 feet and then continued a further 1,000 feet inside the cloud. He was unable to go across country as he had no trailer, and so contented himself with a long flight over the town of Cambridge. Simpson went away in his KITE on a goal flight to Norwich, where he landed two and a half hours later. This flight is described elsewhere in this issue.

Thursday, June 9th.—Gardiner had a tow in a KITE, climbed to 3,200 feet, and flew to Newmarket and back (14 miles).

Wiltshire Camp.

In view of the great success of the Easter Camp at Draycot, a summer camp run on the same lines was held immediately after the end of term.

On June 11th, the club's sailplanes were taken down by road, with a visiting machine, Barker's SCUD III; also the "Moth" was flown there for use on days when hill-soaring was not possible.

Fox decided that the best way of getting the RHÖNADLER to Draycot was to fly it there, so he started off from Heston and, flying against the wind, landed five hours later six miles short of his goal. He later completed his journey by aero-tow.

Monday, June 13th.—Hill soaring in a N.E. wind at Inkpen, with good thermal conditions. Dr. Edmunds flew the RHÖNADLER 70 miles to Lyme Regis, and Barker the SCUD III 40 miles to Ringwood.

Michael Thomas completed his "Silver C" by doing the duration flight in the club KITE; Pirie flew six miles out and return, and Ricketts took a "C" in the TOTTERNHOE. Nearly everyone flying reached cloud base, and the total soaring time was 18 hours.

Tuesday, June 14th.—Barker soared for one hour from an aero-tow at Draycot. Conditions were not very easy, and the other eight tows did not produce soaring flights.

Wednesday, June 15th.—Another good day at Inkpen, with a strong wind and cumulus at 3,500 feet. Barker flew to Gosport Aerodrome, and Dr. Edmunds to Ditchling Beacon, where he had the misfortune to slide into a hedge on landing. The machine was undamaged, but he was unable to get out of it until some people came and pulled it back, releasing the cover.

Pirie made the duration flight for his "Silver C," and Blake got his "C." Most of the members again used the hill merely as a jumping-off place for thermal flights, and the total time was again 18 hours.

Friday, June 17th.—From seven aero-tows at Draycot two cross-countries were made and ten and a half hours' soaring recorded.

Dr. Edmunds flew to Rugby, and Barker to Ivinghoe. Barker had hoped to fly to Dunstable, but lost his way in the haze which was so thick that he could not see the ground.

Later in the day "Gracias" appeared and was flown. This is a KITE, by Wingfield, out of Northern Ireland.

Saturday, June 18th.—Soaring on Draycot Hill for the first time since 1933. Two and a half hours' soaring were done, and then it started to rain and the wind died.

Sunday, June 19th.—The club's "bunji" was taken out of the moth balls, where it had reposed since Kimmeridge a year ago. It was taken to the top of White Sheet Hill, where seven hours' soaring was done, with a greatest height of 1,200 feet.



The Cambridge Club's "Totternhoe" roosts in a tree, and the fire brigade is called in.

[Photo by K. Lingford.]

Monday, June 20th.—Winch launching on the top of Draycot Hill. The only soaring flight was made by Charles Wingfield in the GRACIAS; he found a thermal soon after releasing at 500 feet and circled to 2,000 feet. After flying for twenty minutes, he returned to a landing at Draycot.

Tuesday, June 21st.—A new site at Oliver's Castle, near Devizes was tried. Slazenger was launched in the KITE, rose to 600 feet on hill-lift and found good thermal conditions, enabling him to fly back nine miles to Draycot. At one time he was very low, and gained a little height by the unusual method of bouncing on a hill-top!

Flights were also made by GRACIAS and the CAMBRIDGE; the latter was flown back to Draycot at the end of the day by John Pringle.

Wednesday, June 22nd to Saturday June 25th.—Flying took place every day at Oliver's Castle.

Twenty-three hours were flown without "incident," except for a rather unusual kind of crash by the TOTTERNHOE. After flying for about seven minutes, the machine was seen to spin into the trees on the highest point of the hill. When the rescue party arrived they found the pilot quite undamaged, and the machine nearly so, but perched in the top of some 50 foot beech trees. Even with the help of the local police and fire brigade it was one-and-a-half hours before the pilot was lowered to the ground, leaving only the problem of recovering the TOTTERNHOE. A rope was passed round the fuselage, and when two trees had been cut down the machine made a very spectacular descent, being held by the rope a few feet above the ground. The whole proceedings had taken over five hours, and when the machine was examined it was found that there was hardly any damage except to the nose.

Gardiner made several flights in his H-17, and cross-countries to Draycot were made by John Pringle, Slazenger, and Parker.

Summary of Flying for June in Wiltshire.—86 hours, 45 minutes soaring, 121 winch launches, 18 aero-tows, 18 bunji launches. Certificates gained.—Two "Silver C duration," two "C's."

Midland Gliding Club

Saturday, June 4th.—Sunny with a gusty southerly wind. A large number of members were at Prestatyn and Derby. After tea an inspection was made of the new piece of land that we have flying rights over; this is to the east of our ground and should enable us to winch up high enough to reach the east side of the Mynydd and give us the use of another fine slope facing slightly south of east; this should be a great asset to the club.

Sunday, June 5th.—A sunny and unstable day with a strong S.W. wind. Thermals were of great strength and frequency and of large dimensions; how we wished that our pilots had stayed at home instead of going away. However, the two-seater worked hard, piloted by Testar and Keeble, while Falcon and Turok were flown by Whalley, Holland, Sheffield, and Sanders. The last-named totalled nearly 4½ hours in various machines and would have done more if he hadn't gone to the bottom in a bad lull. About 7 p.m. the wind went too far south and we called it a day.

Whit Monday, June 6th.—A very strong southerly wind was blowing. Time was occupied by washing and polishing the Turok. Since the covering of wax seems to protect the varnish from the frequent dry rubs-down that the planes get when covered with dust, we intend doing the same to all machines.

After tea along came Price with a plywood gusset and a bent metal fitting. "Here," said he, "is the Kader that went to Derby." Fortunately there is a little more left than that, and we were very relieved to hear that Cecil Keilly had got away with only bruises.

Tuesday, June 7th.—Sunny, wind southerly and gusty; winches with the Nacelle looked most emotioning. Barnes and Oliver returned from Prestatyn with Tidder.

Saturday, June 11th.—Late on the Friday night Mr. Hardwick, Testar, and a pressman came out ready for an early start next morning; the wind, however, was disappointing, and all the day blew in patches; the lift all seemed to be coming on the front of rain storms—minor cold fronts, one would imagine. On one of these Mr. Hardwick took the pressman for a flight, they reached 1,200 feet and cruised around the valley for some time; on the passing of the storm the wind dropped as usual and down came the two-seater to land. Alas, she overshot, and after a creep to the south end half-way down, went to the bottom in the approved field. The resulting pages in the Birmingham paper made most interesting reading.

James flew his Kite three times in the storms and got over the 1,000 feet mark every time. In the evening, just as the machines were nearly all away, the wind sprang up, so out we all went and flew again.

Model gliding seems to have taken a hold on our members; James's model was pursued enthusiastically up and down the hill for hours.

Sunday, June 12th.—A light northerly wind with an overcast sky, no good for thermals. However, out came the nacelle and the winch, Johnson and Neil each getting a "B" leg.

Thursday, June 16th.—Very warm and sunny with cumulus about and a gentle breeze from the N.W.

Davies and James brought down Roberts and four or five others from Prestatyn in hopes of getting some two-seater rides; there was, however, insufficient hill lift. Davies had a winch and did 9½ minutes, but went to the wrong spot for thermals. James then went off, but gradually sank to 200 feet; at the last moment, however, he contacted the Mynydd thermal and rose rapidly to cloud base at 2,200 feet, where he played for 42 minutes until he decided to come down voluntarily. Frank Davies had another winch after tea, but the thermals were gone and the sky clear, so he soon came down to earth.

Sunday, June 19th.—A grand west wind all day, strong enough to enable us to throw machines off without the bunny. Gerry got 3,300 feet in Professor (good machine, that!) and was feeling very superior when down came James and announced 3,600 feet in Kite; the rivalry between our private owners is something cruel.

Two-seater unfortunately lost her skid early, and tail skid too, so was out of action during the day. Falcon I was blown over tail first; fortunately the rudder was the only part to suffer.

Turok was flown by all and sundry and is becoming very popular; if it wasn't for her secondary type sinking speed she would be a very nice machine for thermal work.

Day's total, 20 hours 47 minutes.

June 25th and 26th.—This week-end was devoted to the combined display with the South Staffs Aero Club at Walsall Aerodrome.

Saturday was set apart for erecting machines, marquees, enclosures, etc., and then in the afternoon and evening a good

number of aero tows were made in preparation for the morrow—and the National Competitions; amongst others the new Gull was flown and found good. How noisy an aerodrome is after the Long Mynydd!

Sunday morning was pleasantly fine and everybody was rehearsing for the afternoon. Oliver (in "the World's Smallest Glider") was trying to slow-roll and spin, and the resulting evolutions were amazing and stopped all work on the aerodrome.

The display in the afternoon was a great success; 7,000 people bought admissions. The ground and air were filled with motorless aircraft; Miss Johnson, Rushon, Edwards, Wynne, Oliver, and others flew Kite, Gull, Grusau, and H-17, performing all varieties of aerobatics, including 10 consecutive loops in Tidder, and a shooting up of the crowd at 80 m.p.h. by Gull. Winches were also made of Kite and Nacelle, and open Dactine. The Aero Club for their part put up a fine display of aerobatics in a "Tiger Moth," a blind take-off, a race round Barr Beacon, and in the evening joy riding (20 rides to the hour, too!)

Thermals were disappointing by their absence and the only lift noted was in the evening, when Miss Johnson got some off a dull bit of cloud and stayed up for some time in the Gull.

Thanks are due to all the volunteers who worked so hard and long to make the day a success.

Inverness and District Gliding Club

Since the commencement of May the weather in the north has been good enough for gliding to be resumed, and we have been able to put in some quite useful work.

This season our equipment has been increased, and we now have a 40 h.p. Packard with 3,000 feet of steel rope for winching purposes, and the club machines consist of an Open Primary, a Nacelle Primary with fairings on the wing roots, and a Falcon I, all supplied originally by Messrs. Slingsby, the nacelle being added later by a local firm.

Several "A," and "B" certificates have been gained by club members. For our training ground we have been very fortunate in having had the free use of the Longman Airport in Inverness owing to the courtesy of Highland Airways, Ltd., and recently this same privilege has been extended to us for a further season by Mr. Whitney Straight, who has now acquired the lease of the airport. The club have also been fortunate in being able to arrange for a shed right alongside the aerodrome in which all three machines are housed fully assembled.

Like many other clubs, no doubt, we should like to have a bigger membership for financial reasons, among others, but with a nucleus of staunch "Old Timers" and a few really keen members being added to our list from time to time, we look forward with confidence to the future, and perhaps a share of the Government subsidy to enable us to contend with the perpetual problem of finance.

Newcastle Gliding Club

On **Empire Air-Day** we joined with the Durham County Branch of the Yorkshire Club in a show at Usworth Aerodrome. Unfortunately the weather was atrocious so we could do little except winch Hick and O'Grady in the Kirby Kite up to cloud base (350 feet) for circuits. As the Kite was the first machine of any kind to leave the ground, gliding attracted particular attention, and we hope that this, combined with the excellent showmanship of the Yorkshire Club branch, will result in increased membership for both clubs.

On **Sunday, May 29th**, John Allan wrote off our GRUSAU on a tree below Heburn Moor, to the great disappointment of those who hoped to fly it at Dunstable. We have since succeeded in raising the means for a replacement, but too late, we fear, for the machine to be entered in the Competitions.

The Turok was flown on the same day by Lucas, who wandered about for three-quarters of an hour and then landed on top as the wind died down. Horsley flew the Turok down to the bottom field.

On **June 5th** conditions were excellent. We took the Turok to Heburn Moor, where it was flown by Birmingham, McLean, and Philip Taylor. "Mac" achieved 1,800 feet in what looked like an ascending spin, and Phil put the machine exactly on the spot as usual, in spite of the down-draught which upsets the calculations of most people on this site for the first time.

Horsley then went off for his "C" certificate. After getting 900 feet and holding the Turok up for 25 minutes he decided to fly across to Ross Castle in search of something better. He was unsuccessful and could not get back, so attempted a landing on

the highest part of the ridge. He certainly landed. We hope to have the TUTOR ready again for the last few days of the Gypsy meeting.

The Gypsy Meeting opened on June 19th. P. A. Wills, R. P. Cooper, and Mrs. Price arrived with MINIMOIA and RHÖNBUSSARD, and we were delighted to welcome Doc. Slater, too. On the 19th both the visiting machines made goal flights of eight miles from Hebburn Moor to Tughall near the coast. The club KITTE meanwhile was flown by O'Grady, who took it up to 3,000 ft. and then landed to give Smart a turn. Smart has been trying to get up to 3,000 feet for nearly a year, as this is the last leg of his "Silver C," but once again conditions grew steadily worse as soon as he was launched. He stuck it out for an hour and a half, but could not improve on 1,200 feet, and when the ground crew moved the trailer to the landing ground he took the hint and landed.

These notes are being written while the Gypsy meeting is still in progress. Conditions since Sunday have not been very kind, but we hope for improvement before the end of the week.

Derbyshire and Lancashire Gliding Club

Week-nights, June 7th-10th.—Steady west winds resulted in some grand soaring, and "C's" for Slater, Sugden, Woollas, Cuss, and Swale. Congratulations to all of them, and especially to our two 14-year-olds, Swale and Slater, who we hope will become the country's youngest "Silver C's" in due course.

Saturday, June 11th.—Wind W.N.W., 20 m.p.h. Believe it or not, our evening thermal arrived at 2 p.m. and stayed for the rest of the day! The steady ceiling all that time was 2,000-2,500 feet for the TUTOR class, and 3,000 feet or over for sailplanes; and the lift extended all over the Bradwell and Hope Valleys, so that one could wander at will for miles around. Several excursions were made to Win Hill (4½ miles) and Peveril Castle (4 miles) with little loss of height. It would seem that an exceptionally good lapse rate, aided by the particular configuration of the land, was responsible for the phenomenon, for it was very cold at 3,000 feet; Coleman reported that the liquid in his soap bubble variometer actually froze. Isolated clouds were continually forming at 2,000 feet and no extra lift was found above them. Coleman in his G.B. and A. Verity in the TUTOR did their 5 hours, and then J. Parker went up in the TUTOR to attempt his, but after 3½ hours he was forced down by low clouds forming in the late evening.

Total flying, 25½ hours.

Sunday, June 12th.—Wind N.E., 5 m.p.h. A good training day for a change, during which Simpson and Armstrong obtained their "A's." No thermals were found from winch launches, so P. Brown in disgust shot up the crowd instead, but made the mistake of not getting into a landing position first, so that he found himself forced to the bottom.

Tuesday, June 14th.—Wind W., 25-30 m.p.h. The most startling evening thermal we have had yet, with the KADETS this time at 4,000 plus and sailplanes at 5,000 plus (above hill-top, of course). As on Saturday, isolated clouds were forming over the Edge at 1,500-2,000 feet, but in contrast, it was quite warm at a bright and cold on the ground, so the lapse rate can hardly be the explanation this time. We give it up. The lift was so steady, and extended over so many miles that the problem of getting down became really serious, especially for the more inexperienced pilots—machines at 4,000 could actually be heard screaming from the ground. Hardy in a KADET at last managed to get down to 800 feet over the back wall, but there he stuck, despite all his efforts, for half an hour, before landing; it is a great credit to him that in all that time he never once got into a dangerous position, for it was phenomenally rough. The wind at ground level had increased to 50 m.p.h. and all machines made hectic landings. A KITTE's controls just couldn't cope with it—it was just blown round down-wind and dug a wing into the moor. The lucky three with barographs, Swale, A. Verity, and Dickson, secured their "Silver C" heights, of course.

The club's new GULL arrived during the week and was given its first flights; it made a very favourable impression. It seems to be about equal in performance to the BUSSARD, but circles more easily, and the cockpit is very spacious and comfortable.

Saturday, June 18th.—Wind S.W., 5-10 m.p.h. Training. A good many attended the Lancashire Aero Club's Garden Party at Woodford Aerodrome, where the GULL and a KITTE were taken in hopes of aero-towing. This did not materialise, however, and a few winch launches to 500 feet in dead smooth air were a poor substitute.

Sunday, June 19th.—Wind W., 40 m.p.h. Small cumulus everywhere. To-day found the GULL team for the Competitions practising hard, and the GULL showed its paces for the first time,



The Old and the Young: Below, Godfrey Slater (left) and Duncan Swale, who have just got their "C" soaring certificates at the age of 14. Both their fathers are sailplane pilots. Above, Mr. Eustace Thomas, reputed to be in his sixties, takes off in his "Condor" on the 5-hour flight which gains him the "Silver C."

flying circles round everything except the CONDOR and BUSSARD. It was looped by Smith. Eustace Thomas went up just before tea in the CONDOR for his 5 hours. With half an hour to go he was at about 3,000 and then the wind began to drop. . . . The machines sank lower and lower, and with 10 minutes to go he was down to 400 feet; the excitement was intense, and there was universal relief when time was up with still a little height to spare. He has now fully qualified for the "Silver C"—hearty congratulations!

Saturday, June 25th.—Wind W., 30 m.p.h. The lift extended right up to cloud base at 2,400 feet (sky overcast) and there were very few thermals, so flying was not very exciting. Upton in his G.B. was forced down by cramp after doing 3½ hours of his attempted 5.

Sunday, June 26th.—Wind W.S.W., 20 m.p.h. Uncertain lift and a short beat made for uneasy soaring. Smith plugged away all day at the FALCON III, giving 15-minute flights to each of the campers on their first day, in order to give them a taste of the good things to come. Meanwhile "B's" were gained by Miss Rowlands, Armstrong, and Simpson.

Flying time for month: 120 hours (club record).

Certificates: 2 "A," 3 "B," 5 "C," 1 "Silver C" (completed by duration), 5 part "Silver C" (2 duration, 3 height).

Yorkshire Gliding Club

Beginning with the 29th May, a day of variable wind, mainly hill-soarable, but finally becoming calm; Pick making the greatest duration with four-and-a-half hours; over 24 hours' soaring in the day, and Barker made an out-and-return flight to Rievaulx in the *Scot III*.

In the ensuing week there was flying almost every day and the wind varied from S.S.E. to S.W., sometimes up to 25 miles per hour. Hancock, newly promoted to the *Tutor*, reached 1,700 feet in thermals on the 3rd; Locke did five hours duration towards his "Silver C," and other flights brought that day's total to 14 hours—a good total for a week-day. On the Saturday, Barker flew *Scot III* for about an hour in a south-south-east wind and reached 1,400 feet. Meanwhile training went on beneath him, and Jonas qualified for his "A," Young for his "A" and "B."

Conditions the next day, **Whit Sunday**, were much more favourable and Barker flew 47 miles to Flamborough. He was in the air two and a half hours and reached 4,600 feet. He arrived over Scarborough at 4,000 feet and flew across wind down the coast to Flamborough Head—the greatest possible distance from the Bank. Further progress in a southerly direction would have brought him nearer home, of course, due to the in-curving of the coast-line. Meanwhile Deane-Drummond was away with 4,500 feet in the *Kite*, and landed on the beach at Cayton Bay—a distance of 36 miles, time in the air, 2 hours 50 minutes. This, of course, is the necessary height and distance for his "Silver C." Back at Sutton Bank, Young had qualified for his "C."

The *STEDMAN* two-seater was back again with its new trailer, attractive colour scheme and amazingly comfortable seating arrangements, and was launched upon its first flight. It remained in the air for half an hour or so on cloud lift and reached 1,000 feet. Not a breath of wind was blowing up the hill, and the *Kadet* was at the bottom! Stedman has fitted the machine with speaking tubes and they have shown themselves to be invaluable for dual instruction. Pupil and instructor can converse without raising the voice at all, and little things can be discussed which might otherwise be neglected due to a natural disinclination to bawl at one another.

The flying time for the day was more than 18 hours, but the close of proceedings was marked by Jonas, who, in attempting a circuit, flew from us all into the car park field and tried to demolish the ticket office with the *Nacelled Dagling*. The damage was confined to the *Nacelle*, but was pretty thorough!

Whit-Monday was rather disappointing with low cloud and a S.S.E. wind. Wordsworth, Barker, Deane-Drummond, Pick, and Hastwell soared the *Kite* and *GRUNAU* over the south slope and the Whitestone Cliff for roughish half hours, and Stedman in the two-seater (his own), with Mrs. Watson as passenger, did half-an-hour over the south slope.

The next day, Tuesday, brought another south-west wind up to 30 miles per hour, and conditions were a little rough; Pick was one of the first to be launched, in his own *GRUNAU*, and decided to make a day of it—actually he was in the air 6 hours and 45 minutes and had a maximum height of 2,200 feet. His fast revving barograph went round a number of times and produced a chart like a large helping of spaghetti!

In the evening Kronfeld, who had been towed back to Welburn from the Isle of Man by Mr. Mark Lacayo, gave his pilot a ride in the *FALCON III* at Slingsby's invitation.

This concluded the Whitsuntide meeting, but several members stayed until later in the week. There was about three hours' flying on Wednesday, June 8th, and Shaw landed at Cold Kirby, about five miles away; Pick went across country in his *GRUNAU* and landed near Scarborough.

On the 9th Raphael flew to Scarborough (a goal flight) and completed his "Silver C," subject to confirmation. He flew in the club *Kite* and reached 5,000 feet on the way. Deane-Drummond did his five hours, which, again subject to confirmation, completed his "Silver C" also.

To-day the *FALCON III*, flown by Shaw, did its annual trip to Welburn. The machine was wanted at the aerodrome at the week-end to give dual instruction, and Slingsby suggested to Shaw that he should fly her over. This arrangement was made the day before and we wonder if it is not the first goal flight planned twenty-four hours ahead? Shaw had 4,500 feet, and was 55 minutes in the air, quite a lot of the time being spent in getting down!

The weather ceased to favour us, and the rest of the week and the week-end was spent in training at Sutton and Welburn, and a number of "A's" and "B's" were obtained.

Soaring weather again on the 14th (mid-week) and about 8½ hours' flying was done: Priest, owing to an error of judgment in landing the *Tutor*, stove her in somewhat. Nolan-Neylan, Piddington and Coleman all qualified for "C" certificates. There was flying on the 16th, 17th, and 18th, a number of passenger flights being made, and a new member, Bainbridge, commenced training under Shaw, who is now giving us his services as an instructor, when possible.

Nine-and-a-half hours' flying was done on the 19th, Shaw and Pick over two hours each, and Locke was given his first "pass-out" for the two-seater.

This week-end we took the *STEDMAN* two-seater, the *FALCON III*, and Slingsby's *Kite* to our Durham branch at Sunderland. In spite of poor weather conditions and a little mechanical trouble (the latter most ably dealt with by two members of the branch, who undertook a major repair on the winch on the open field, and, moreover, completed it in time to do a number of the launches in the evening), many interested supporters of the club, and others besides, were given two-seater flights by Stedman and Heath; also, the *Kite* was put through its paces by Slingsby and Stedman.

On the 22nd, Hailes, Sutton and Maw, from our Durham branch, came to Sutton in search of "B" certificates. After what happened to the *Nacelled Dagling*, same still being very much in dry dock, *Hols* had to be dusted and lowered from the rafters where she now hangs in honourable semi-retirement. Two "B's" were obtained, and the old *Hols* showed that she can still do her stuff, and can she take it?

The 24th, 25th, and 26th were all good hill-soaring days. On the Sunday (26th), the wind dropped in the evening and Jowett, in the *Kadet*, went to the bottom. We understand that Sharpe was so annoyed that he took off at once in the two-seater and flew down to interview Jowett on the subject—anyhow, he went to the bottom as well! Billy Sharpe, Jowett, and Forbes were all passed out for the *GRUNAU* to-day.

Our new *GULL* is expected any time, and the fleet for the high-performance camp in July will be complete. Parachutes and aero-towing arrangements are in readiness and we hope that many "Silver C's" will be completed.

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