Sailplane and Gliding

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August 1958



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SAILPLANE AND GLIDING

OFFICIAL ORGAN OF THE BRITISH GLIDING ASSOCIATION

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CONTENTS

TITLE	AUTHOR	PAGE
National Gliding Week	*W. A. H. Kahn*	187
Second R.A.F. Championships	*A. E. Slater*	188
To Holland from the Cotswolds	*A. Gough*	191
Glider Maintenance—8	*R. C. Stafford-Allen*	195
"Gold C" Completed	*P. Scott*	198
It's All Yours	*Ann Welch*	204
Adventures of Joe		205
Vic Carr	*H. N. Gregg*	206
Sherburn Cable Retrieving Apparatus Project	*E. Haswell, J. C. Riddell*	207
Cover Design Competition		208
Lasham Whitsun Rally 1958	*Ann Welch*	210
This Gliding		211
A Heavenly Day	*Philippa Chubb*	212
Correspondence	*B. Coverdale, R. S. Barnaby and G. R. Barrell*	215
The Phoenix	*H. Nagele and R. Eppler*	216
Gliding Certificates		222
Kronfeld Club News, Model Aircraft Exhibition		223
World Championship Preliminary	*A. E. Slater*	224
Final Results, Poland		228
Annual Best Flights		231
Book Reviews	*P. A. Wills, D. H. G. Ince*	231
Club and Association News		232
National Gliding Week Programme		
Officials		i
Some Random Facts about Gliding		i
Flying in the Gliding Week		ii
Awards, Gliding Records		iii
List of Entries		iv-v
Soaring Weather. Notes on Gliders		vi
Learning to Glide		vii
Map of Club Sites		viii

COVER PHOTOGRAPH.—Four gliders being towed by one aeroplane during the Opening Ceremony at Leszno, Poland.—Photo by B. J. Koszewski.

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World Gliding Championships
1958

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Hearty Congratulations to Commander Nicholas Goodhart, R.N. who has clearly established his superiority as one of the World's Leading Sailplane Pilot's by his superb performance with an 'off the peg' sailplane competing with specially designed competition aircraft of fabulous cost and efficiency.

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National Gliding Week

FEW things give more pleasure to a glider pilot than receiving and returning hospitality. Be it in this country or abroad, we are always assured a warm welcome when visiting other clubs. It is vitally important that this happy state of affairs should continue. First, the interchange of ideas and technical knowledge is the very life-blood of our sport. Second, the visiting pilot invariably learns a great deal from watching the flying on a strange site which must help him in his own efforts. Third, it helps us to understand other people's problems which we may, in the past, have condemned out of hand. Last but by no means least, we meet so many varied and interesting people who indulge in our sport.

At the time of writing, our team are flying in the World Championships in Poland, where they will surely make many new friends. They will come home with many tales of hospitality and invitations to visit clubs in other countries. For those of us who remained at home, let us make a resolution that we will visit at least one other club every year and thus strengthen our sport still further.

An ideal opportunity for inter-club visiting presents itself during the National Gliding Week when Dunstable, Nympsfield and Portmoak will be host to pilots from all over Britain. Each site has a great deal to offer. Dunstable, as the "doyen" of British gliding sites is well worthy of a visit. Before the war, the National Championships took place there and later this year the National Aerobatic Contest will be staged. Nympsfield, the home of the Bristol Club is situated in a beautiful part of England and the view from the ridge across the Severn Valley into Wales is quite breathtaking. Although only two years old, this site has been developed very quickly and offers wonderful gliding and great comfort. Portmoak, a site which has been created quite recently by the very enterprising Scottish Gliding Union, has the famous Bishop Wave to tempt you.

The need for the National Gliding Week is obvious. With the growth of our sport, both in pilots and machines, some restriction must be placed on the number of gliders entered in the National Championships. The present qualifications call for a Silver C badge and some aero-tows. As this may have to be increased, many pilots might not have a chance of entering until they have reached a higher standard. The Gliding Week offers them this opportunity for during the period, they will be set tasks as in the National Contests. They will gain valuable experience of competitive flying which will stand them in good stead in later years.

Furthermore, the organisation of a full National Contest is rather more than some clubs can arrange as it involves many people for very many days. The Gliding Week, which is really half way between a National Contest and a local Rally will not tax the club quite so much. Whoever wins at each site, it is certain that all the participants, be they pilots, organisers or crew, will enjoy themselves to the full.

W.A.H.K.

Second R.A.F. Championships

by A. E. Slater

It looks as if the R.A.F. Gliding and Soaring Association will be holding a Championship meeting regularly every two years in future, in alternation with the British National Contest. Starting in 1949 with six members and one glider the Association was seven years old by the time it held its first Championships at Netheravon two years ago with 16 machines entered by seven clubs. This time 22 sailplanes were entered by eight clubs, and the contest was held at South Cerney, near Cirencester in Gloucestershire, from 17th to 26th May.

Entries were divided into two classes, cantilever and strutted, and, as before, there were about three times as many with struts as without, though this did not prevent some fine flights being made in both classes. The proportion is likely to undergo a drastic change by next time, as another Skylark III, a T-42B, and 15 Olympias are on order; this has been made possible by an increased allocation from those in charge of the R.A.F. sports fund, possibly after seeing the Army and Navy so well represented in the present British Team for the World Championships.

Third Day

MONDAY, 19TH MAY.—After two days of unflyable dirty weather, a task was set this day—distance along a line through Swanton Morley in Norfolk. However, there was a stronger cross-wind than forecast, and it blew everyone so far off course that no one's projected distance along the track reached the official minimum. Being in the warm sector of a depression did not give any help.

Fourth Day

TUESDAY, 20TH MAY.—Both classes were given a goal race: the first to Hawkinge near the Channel coast, 139 miles, and the second to Lasham. Both places proved out of reach, one reason being that pilots were chasing the high cloud of a retreating front, so of necessity had to hold their average speed in check.

However, two Wessex pilots nearly made Hawkinge: Andy Gough landed the Skylark III seven miles short, and N.W. "Paddy" Kearon, with the Olympia, was 10 miles short. Roger Mann reached Tonbridge with the Moonrakers' Gull 4.

In the strutted class, Donald Spottiswood made best distance with 48 miles in East Anglia's Eon Baby.

Fifth Day

WEDNESDAY, 21ST MAY.—This was the great day of the meeting. Everybody was sent off for free distance, though many gave goals in case a Diamond or even a record should prove within reach. Andy Gough's was Lille, a modest 225 miles which he overflew by more than 50 per cent. A first-hand description of his 348-mile flight to Heerlen in Holland appears elsewhere.

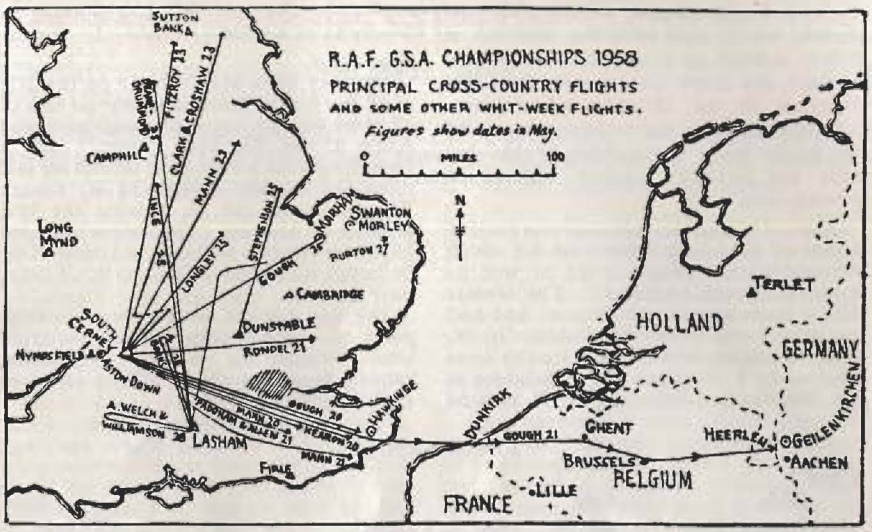
Roger Mann had similar ambitions (275 miles to Brussels) but he approached the Channel from too far south and was brought down by lack of thermals over Romney Marsh. This second best distance of the day took him from 11.15 to 14.50, and the Moonrakers ousted Wessex from second place in Class I.

The Gull I, the same that made the first Channel crossing in the hands of Stephenson 19 years ago, was taken north of the London Control Zone (which was out of bounds) by G. Rondel, of the Fenland Club, to Great Dunmow in Essex, putting the machine in top place in Class 2. And the Sedbergh from Wessex was flown 96 miles to Tonbridge by Roy Padgham and F. W. Allen, mostly using a localised cold front; this remarkable achievement, which raised the machine to second place in Class 2, is described by them in a separate article to be published later.

The air this day was following the second of two extended cold fronts, both belonging to the same depression, which was centred off Norway.

Sixth Day

THURSDAY, 22ND MAY.—Another unflyable day; in the afternoon "Jock" Findlater, official meteorologist to the Championships, was to be heard lecturing on thermals, while Air Commodore Christopher Paul was to be seen at the telephone, fully occupied in trying to arrange transport for Andy Gough and his Skylark back from Germany.



Seventh Day

FRIDAY, 23RD MAY, brought powerful cumulo-nimbus clouds behind a cold front belonging to a deep and concentrated depression over the Irish Sea. Roger Mann took the Moonrakers' Gull 4 into three in succession, getting first 10,000 ft., then 13,000 ft., then 14.500 ft, He had 1¼ inches of rime ice on the leading edge and strips of ice projecting from the trailing edge, and had to keep moving the ailerons and brakes to prevent their getting frozen up. Meanwhile he had covered 130 miles to Hemswell, Lincs., in a wind so strong that Grunaus and such were not allowed out.

The wind helped Ken Fitzroy to maintain high average in an Olympia over a flight of 179 miles to his home station at Dishforth, just beyond Boroughbridge in Yorkshire; the newspapers made it 69 m.p.h., but as the flight took from 13.25 to 17.00 hrs., I make it 50 m.p.h. He tried two cu-nims but left each of them at 8,000 ft. because icing was so bad; in fact, ice remained on the wings for 100 miles because he was keeping around icing level at 4,000 ft. Near Sheffield he found a typical squall line with a belt of good lift a quarter of a mile in front of it.

Another flight to Yorkshire—162 miles to a cricket pitch at Pickering—was made by E. W. Clark and T. G. Croshaw in the Cleveland Club's Kranich. It was done in two stages: first a 40-miles hop to Edgehill, from which they got an aero-tow upwind to Little Rissington, where they released. This second stage took from 15.20 to 18 55 and included a climb to 10,500 ft over Nottingham in a cu-nim with only moderate icing.

Eighth Day

SATURDAY, 24TH MAY.—This, as the day before, was not a contest day, because of dirty weather again, though an unofficial spot-landing contest was won by R. Hayter in the Moonrakers' Sedbergh, with an overshoot of only 7½ feet.

Ninth Day

SUNDAY, 25TH MAY.—A goal race to Marham was Class 1's task, and Class 2 had distance along a line through the same place, almost at right angles to the task at the Lasham rally, which was distance along a line to Camphill. What with a northerly wind on one side of England and a southerly wind on the other, the forecasters were somewhat foxed, and while Lasham pilots drifted off course to the right, the R.A.F. were drifting to the left.

Andy Gough, the only one to make the 125 miles to Marham, which took him five hours, went nearly twice as far as his nearest rivals. He found it none too easy, often having to wait some time in one bit of lift till the next cloud formed in the direction he wanted to go. His sun glasses came in

useful towards the end, as they show, he claims, which part of a flat cumulus is active: it shows up as a round blob. Under a clear sky these glasses will show dry thermals in the direction of the sun. Unfortunately, on the retrieve, the top of his trailer hit a low railway bridge, but only the Skylark's canopy suffered in consequence.

Around Market Harborough was a sticky region of spread-out strato-cumulus which brought several people down as well as lowering Gough to 600 ft. The Wessex Kite 1 made second best distance, and best in Class 2, with 90 miles to Oakham by W. "Bill" Longley, and 72 or 73 miles were covered by L. Bayley and R. Padgham in the Windrushers' Sedbergh, N. W. Kearon in Wessex Olympia and Ken Fitzroy in Moonrakers' Gull 4.

Tenth Day

MONDAY, 26TH MAY.—Not a particularly good day for the finish; a triangular task of 47 miles was set, via Little Rissington and Aston Down, for both classes. But a freshening wind blew up the second leg and prevented anyone completing it, though Kearon nearly did so, making the best distance of 32 miles. The Gull 4 managed 26½ miles and two Sedberghs 22 miles. One Sedbergh wandered off course to Witney, near Oxford.

The day finished with a lively farewell party, at which a corps of four guitarists went through an extensive repertoire, ranging from the classic gliding songs to rock 'n' roll.

FINAL RESULTS

Class 1

	Club	*Sailplane*	*Pilots*	*Points*
1.	Wessex	Skylark III	Sgt. A. Gough	300
2.	Wessex	Olympia	Wg.-Cdr. N. W. Kearon	240.9
3.	Moonrakers'	Gull 4	Flt.-Lt. R. Mann, Flt. Lt. K. Fitzroy	234.4
4.	Windrushers'	Olympia	Sqn.-Ldr. Maygothling	139.9
5.	Cleveland	Kranich	Flt.-Lt. E. W. Clarke	59.0

Class 2

1.	Wessex	Sedbergh	Flt.-Lt. R. Padgham, Flt. Lt. F. Allen	274
2.	Fenland	Gull 1.	Sqn.-Ldr. T. Ware, Flt. Lt. G. Rondel	255.5
3.	Wessex	Kirby Kite 1	Cpl. W. Longley, Cpl. Newholme	251
4.	Moonrakers	Sedbergh	Sqn.-Ldr. J. Croshaw, Sqn. Ldr. R. Hayter	225.5
5.	St. Athan	Eon Baby	Flt.-Lt. P. E. Hills, Flg. Off. T. G. Morgan	110.2
6.	Windrushers	Sedbergh	Sqn.-Ldr. L. Bayley	101.3
7.	East Anglia	Eon Baby	Flt.-Lt. D. Spottiswood	100
8.	Wessex	Rhönbussard	Petty Off. S. Turton	92.8
9.	Wessex	Grunau Baby	S.A.C. R. Tucker	78.4
10.	Moonrakers	Grunau Baby	Maj. J. Evans, Chf. Tech. Owens	69.7
11.	Cleveland	Grunau Baby	Flt.-Lt. McKenzie, Flt. Lt. Clarke	49.7
12.	Wittering	Grunau Baby	Chf. Tech. Balmforth, Jnr. Tech. Hosey	42.5
13.	Windrushers	Prefect	Lt.-Col. Wall	17.1
14.	Windrushers	Grunau Baby	Sgt. Davis	15
15.	Fenland	Grunau Baby	(Just failed qualifying distance)	—

Total Launches 355
(of which 135 were competition flights)

Total Hours flown 161
(of which 124½ were competition flights)

Total Cross-Country mileage 2,850

To Holland from the Cotswolds

by Andy Gough

With this flight made during the R.A.F. Championships, which he won for the second time, Sergeant Gough beat both the United Kingdom Local distance record of 315 miles and the British National record of 318 miles.

THE Championships gave me the chance I have awaited. The necessary leisure and freedom from Service duties, the best of retrieving crews, the right machine, the right weather prophet and the weather, a helpful and understanding wife and a good slice of luck, enabled me to achieve my ambition to hold the British record.

The 20th May was the first contest day of the Championships: the task, a goal race to Hawkinge which gave me 133 miles of flying practice. I was fortunate to win this event, but owing to a breakdown of the retrieving crew I did not get back to base and bed until 4 a.m., so I hoped that the next event would be a short goal race.

The 21st May was the second contest day: the task, a free distance in an easterly direction—so much for my hoped-for short goal race. Conditions were reasonable and our Met. prophet gave me hope. Plans were hurriedly made on the spot. I despatched my retrieving crew to the Dover area. Flight Sergeant Charles Gould jumped to it with his Chipmunk aircraft and towed me up at 11.25 hours approx. I placed my bar of chocolate within easy reach and released the sailplane at 2,000 ft. in weak lift. Looking downwind, I could see better conditions towards Swindon. I reached cloud-base at 3,000 ft. and then set course to catch the better conditions, which seemed good, and by flying at about 80 knots between thermals I reached the Dover area in approximately 2 hours 10 minutes.

I estimated that the maximum height I could gain would be in the region of 6,000 ft., so I then went back inland and spent an hour or so in trying to better my height. I ate half of my bar of chocolate and returned to Dover with about 4,000 ft., under a cloud giving me about 3 metres per second climb rate. Reaching 6,000 ft. again I was at zero sink rate and about four to five miles out to sea; it was then I decided to cross to Calais. About half-way across the Channel I encountered an area of about 3 metres sink and went down to about 3,500 ft. By checking on the waves I noticed that my course to Calais was now cross-wind, so I headed for south-west of Dunkirk. On altering course for south-west of Dunkirk, I flew under a piece of cumulus with negative sink conditions. This was a good move, as I soon had Dunkirk beneath me at about 2,000 ft.

Approximately 5 miles inland I picked up some weak lift until I reached a position 10 to 12 miles inland, when I got my first real thermal of 1 metre. Although conditions were not really good, I decided to press on. I carried on in weak thermals and reached Ghent before getting thermals strong enough to take me over 2,000 ft. I recognised Ghent, having been stationed there during the war years, and I was familiar with the area.

I followed the autobahn to Brussels. On arrival I had a splendid view of the Atomium in the Exhibition which made a striking spectacle when viewed from the air. I was sorely tempted to land in the huge car park space alongside the exhibition and take the opportunity to exhibit a British sailplane, but I knew that I had to go on if I were to beat the British distance record. I then consumed the last of my bar of chocolate and made plans to proceed to Geilenkirchen airfield in Germany, as I knew exactly where it was.

I was now working the thermals to cloud base, but they were becoming fewer and farther apart. I flew over the River Maas to Beek airfield (Holland) and saw a Goevier sailplane sitting on the ground. I wondered why the sailplane was not being flown—I soon discovered the reason when several parachutists began to drop on the airfield. Obviously, this was no place for me, so I reluctantly gave up my thermal, as I knew there could not be many more to be had at this late hour (approximately 7 p.m.). However, I had one more weak thermal and at approximately 2,500 ft. I thought I would

have enough height to reach Geilenkirchen, as I still had a tail wind of about 10 knots. On approaching Heerlen (Holland) at 2,000 ft., I noticed between me and Geilenkirchen a beautiful rainbow—with all that goes with it—so down came the rain and down I went.

Finally, landing on the east side of Heerlen, the first people to meet me were two Dutch Customs officers who informed me that I was on the Dutch-German border. They asked me where had I come from. When I told them that I came from England they said that was obvious –but from which part of Germany had I flown that day? Whilst trying to convince the Customs officers that I had flown from England that day, three Dutch policemen arrived on the scene. Again I had to go through the hoop, but after showing my map with the course marked on it, all was well and everyone was satisfied and delighted.

I cannot speak too highly of the kindness and helpfulness of the Dutch officials They also helped me to phone R.A.F. Geilenkirchen who sent a jeep and trailer for the retrieve Whilst waiting the arrival of the jeep and trailer, I was showered with hospitality; several fried eggs and long sausages with the choice of tea or coffee soon restored me to my normal state I was then ushered into a large farmhouse which was packed with locals all very kindly insisting on drinking to my health Before being "put under the table" and killed with kindness, the jeep and trailer came to my rescue

I am very grateful to Flight Lieutenant Coatsworth, the C.F.I. of R.A.F. Geilenkirchen, who turned out with the jeep and trailer at such short notice. I was very glad to see him, as he is an ex-glider pupil of mine. Thus ended my flight of 348 miles in 7 hours 55 minutes. On arrival back at South Cerney, I was informed that I had been observed at Hawkinge by no less than six official observers.

Should there be a next time, I should like to make more detailed plans before the flight and record more technical details for the benefit of those attempting similar flights.



(Photo by M. W. Diffey)

Andy Gough standing beside the Wessex Olympia. Note the modified canopy on this glider.

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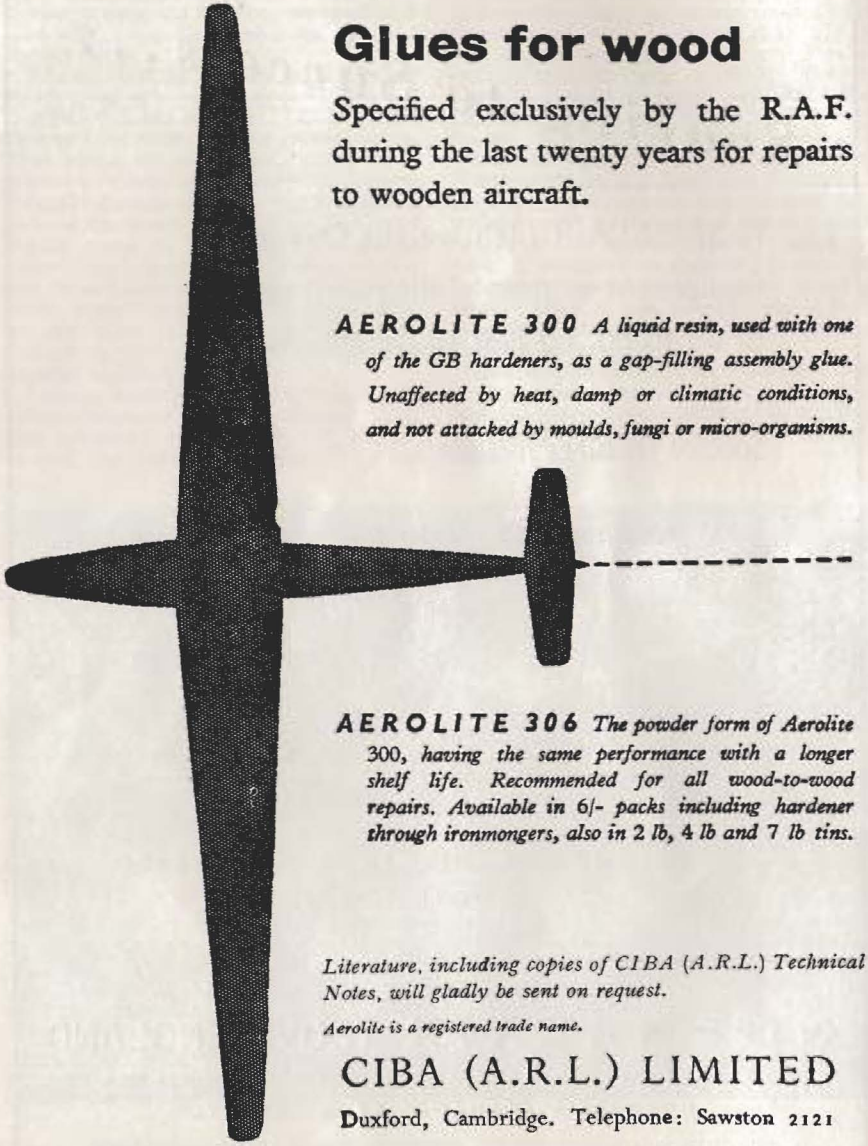
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Glider Maintenance—8

by R. C. Stafford-Allen

THE C. OF A. OVERHAUL AND WEIGHING OF GLIDERS

THE Certificate of Airworthiness of a glider lasts for twelve months, and may be renewed for a similar period on application to the British Gliding Association, together with the renewal fee, and a certificate, on the proper form, signed by a B.G.A. Approved Inspector, that the machine is airworthy. This latter involves a complete inspection of the machine, and it is the purpose of this chapter to give an outline of what this involves. Apart from the inspection of the machine as it stands, there are some items which must be removed, or stripped, for inspection.

There is some misconception about Approved Inspectors in some quarters. The Inspector is a man who is qualified to pass, or condemn, a part of a glider, or to pass, or condemn, any work carried out on it. The work itself may be carried out by anybody, but it must subsequently be inspected and certified as O.K. by an Approved Inspector. This means that a Private Owner is perfectly at liberty to do his own C. of A. overhaul on his own glider, provided that he gets his work inspected and approved by an Approved Inspector. Many Private Owners do just this, and the usual way of going about it is as follows:—

When the C. of A. is soon to expire, an Approved Inspector is contacted and asked to do the inspection. The machine is prepared by removing all inspection panels, etc. The Inspector makes a thorough examination of the whole machine and its log book, and writes down all the repairs, snags, etc., which he deems necessary. The Owner can then carry out the work, and when he has finished it he contacts the Inspector again. The latter then inspects all the work done and satisfies himself that it has been properly done. He then ensures that the logbook has been correctly made up, listing all the repairs carried out. If he is quite satisfied he signs the log book entries, and recommends the renewal of the C. of A.

Let us assume that you have a glider whose C. of A. you want to renew. Before you do anything else, make sure that the log book is up to date, and that all repairs have been signed up by an Approved Inspector, or you may find that these repairs will have to be opened up and the work re-done. Have the machine ready for the Inspector, with all inspection panels off and the seats out, and try to arrange lights so that the whole machine can be easily examined. Assuming that the glider is in reasonable condition, the list below is a rough outline of the work you can expect to have to do:—

All fittings will be checked for corrosion, and any found must be cleaned off and the fittings repainted.

All main pins, hinge pins, control pins, etc. will be checked for wear and replaced where necessary.

All control cables must be drawn, inspected and re-protected. Any damaged ones will have to be replaced.

All fittings will be examined for security. The whole structure of the machine will be examined for soundness, and any suspicious joints or bad timber made good.

The fabric covering will be checked for condition and will have to be renewed where necessary.

All protective coatings will have to be made good.

The instruments will have to be checked, and the A.S.L. calibration verified. All perished rubber piping will have to be replaced.

The release hook will probably have to be overhauled.

The wheel, tyre, skids and skid rubbers will have to be checked and replacements fitted where necessary.

The Inspector may also require the glider to be re-weighed.

The weighing of a glider is not a difficult matter, provided the equipment is at hand. You will need two big spring balances, or steelyards, a measuring tape, some rope slings, and a good strong overhead beam from which to suspend the glider. Before we start, however, it might be a good idea to get quite clear what we are after, with all this weighing racket.

The glider is weighed for two reasons, First, we want to find out the empty weight of the glider so that we can determine, knowing the maximum permitted all-up-

weight, what payload the glider can carry. Second, and this is rather more important, we want to find out where the Centre of Gravity of the empty glider is. This is vitally important because, in the C. of A. document, you will find the maximum forward and aft positions of the Centre of Gravity (C.G. for short) for the loaded glider are laid down in the C. of A. document. It is necessary to know the position of the Empty C.G. before the position of the Loaded C.G. can be worked out for various loads. You will find that the Empty C.G position is stated in the C. of A. document, but this will be affected if any large repairs have been done, or the machine has been re-fabricated; and in these cases the machine must be re-weighed and the new Empty Weight and Empty C.G. position determined By the way, you must not alter the C. of A. document yourself. You must supply the B.G.A. with the information and they will do the alteration.

So far, so good. Now to the actual weighing. Hang up your two spring balances to the overhead beam, move the glider into position under them, and by means of the rope slings, hang the glider on the balances. Adjust the length of the ropes until the glider is in flying attitude. As a rough guide to this, get the lower surface of the wing as near the horizontal as you can. In the C. of A. document you will find the C.G. is always referred to as so many inches forward or aft of a Datum Point and this Datum Point is defined. The most usual Datum Point is the leading edge of the wing at the root. We will assume that this is the Datum Point for the glider we are considering. Read the weights indicated on the spring balances, subtracting, of course, the weights of the rope slings, etc. Also measure the distances of the slings from the Datum Point.

Referring to Fig. 15, let A lbs. be the reading of the nose balance and B lbs. be that of the tail balance. Also let a and b inches be the distances, respectively, of the two slings from the Datum Point.

The Empty weight, W is clearly $A + B$ lbs. Now the position of the Empty C.G. is x inches aft of the Datum Point, and x is the dimension we want to find. Since the glider is in equilibrium, all the clockwise and anti-clockwise moments exactly balance. It does not matter what point we choose to take moments about; the result will be the same. However, the calculation is easier about some points than others. Let us use the sling A for a start. Taking clockwise moments on the left, and anticlockwise moments on the right of the equation, we get:—

$$W(x + a) = B(a + b)$$

$$\text{Therefore } x + a = \frac{B(a + b)}{W}$$

This gives us $x + a$, and, since we know the dimension a, we can find x by subtraction.

This is not quite the whole story, though. We know now the maximum load the glider may carry. It is All-Up Weight minus Empty Weight. We ought to check the C.G. position when a pilot of this weight is in the cockpit. With most ordinary types of

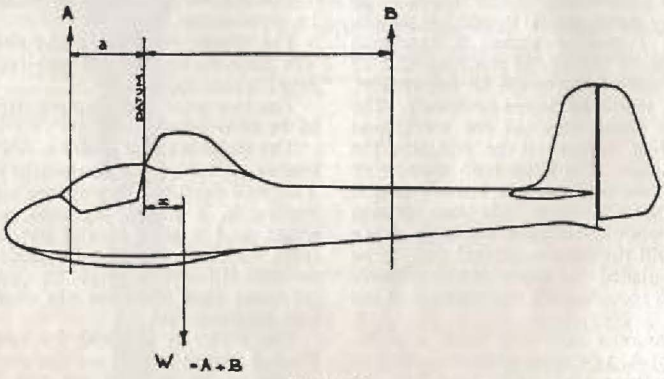


Fig. 15

glider, increasing the pilot weight moves the C.G. forward, because the pilot sits well forward of the empty C.G. If, with the maximum pilot weight in the cockpit, the C.G. is between the limits, then all is well. If it is not within limits, then we must determine what pilot weight brings the C.G. up to its forward limit. Any pilot heavier than this must carry ballast on the tail, to keep the C.G. within the limits.

To check C.G. position at Maximum Pilot weight we proceed as follows:—

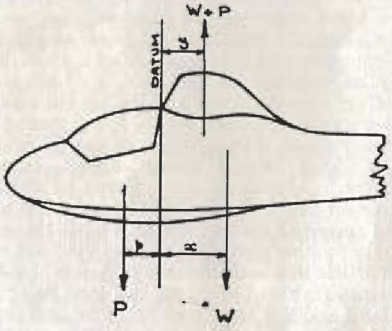


Fig. 16

In this figure:

P = Max. Pilot Weight (AUW—W)
W = Empty Weight of Glider
x = Empty C.G. Distance from Datum Point (which we have just found)
p = Pilot's C.G. Distance from Datum Point (which is given in the C. of A.)
y = the loaded C.G. position which we want to find.

We know all these quantities except y. If we imagine the glider hanging by a rope attached to its loaded C.G., it will exactly balance, and this rope can be represented by the arrow $P + W$. The tension in the rope is clearly $P + W$ which equals the All-Up Weight (A.U.W.)

Take moments about the Datum Point:

$$Wx = (P + W)y + Pp$$

$$\text{Therefore } y = \frac{Wx - Pp}{P + W}$$

This gives us y. If this comes between limits, then all is well. If it does not, then we shall have to investigate further. Before we do so, we will check the minimum pilot weight. This may be an odd thing to do, but the reason will become obvious later.

Checking for Minimum Pilot Weight is a little different from the last two checks. In this case we know all the *dimensions* and are trying to find out a *weight*. Assume we have got a pilot, of unknown weight, in the cockpit but that the C.G. position is on the aft limit.

Draw a diagram like Figure 16.

This time take moments about the C.G.:

$$W(x - y) = P(y + p)$$

$$\text{Therefore } P = \frac{W(x - y)}{y + p}$$

From this we can find what Pilot Weight P gives us the maximum aft C.G. position.

It should be clear now why we have considered the Minimum Pilot Weight case before discussing the Maximum Pilot Weight case where the C.G. comes out in front of the permitted forward limit. All we have to do in this latter case is to repeat the above check, using the forward limit for y instead of the aft limit. This will give the Maximum Pilot Weight that can be carried unless ballast is fixed to the tail of the glider.

All the details of Empty Weight, Maximum All-Up Weight, Maximum and Minimum Pilot Weight must be displayed on a placard in the cockpit. The best plan is to position this information beside the Flight Limitations Card, in the cockpit. By this means the pilot has all the information which he must know about the glider, presented to him in one place instead of having to search around the cockpit for the facts on which his life may well depend.

(This series has now finished and will shortly be published in book form by the Association, price 5s.—ED.)

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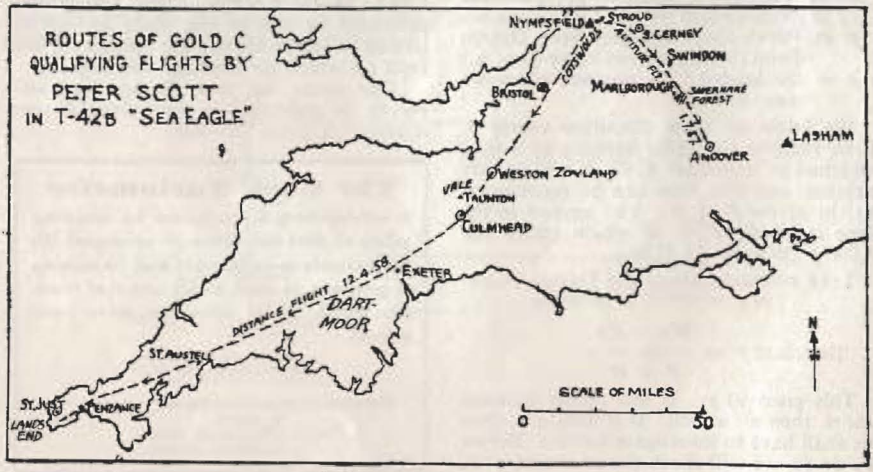
"Gold C" Completed

by Peter Scott

Just under two years after starting to learn gliding at Nympsfield, the Bristol Gliding Club's site, Peter Scott, who is now vice-chairman of the club, has completed his Gold C with a 300 km. flight to Land's End, having done the 3,000-metre climb from the same site last July. Here he describes both flights:

1.—A SHORT EXERCISE IN CLOUD FLYING

ON 1st July, 1957, the clouds were gangling and loose-limbed like rather bedraggled chickens. To be sure their tops were in flower occasionally, but their feathery flanks trailed away to a damp and ragged fringe at the bottom. Twice I tried to get up to them, flying alone in the T-42B "Sea Eagle," but each time I scraped in weak thermals for little more than twenty minutes. My third launch was at 4 p.m. and for half-an-hour I struggled to keep up. A thermal off the spur on the ridge took me very slowly to 1,500 ft. (all heights above site), but an excursion under the most promising cloud out in the vale drew a complete blank. Back at the ridge, another weak thermal suggested that it was better to look down for lift than to look up. I drifted back over Stroud, scarcely climbing above my glide-path home, until at 2,000 ft. I suddenly noticed a slight improvement, and at 2,800 ft. I was among the trailing wisps of a small cloud. So far I had flown about four times in cloud and on one proud occasion had climbed over 1,000 ft. on turn-and-slip—I had no artificial horizon—before using the air brakes to cure excessive speed. Here, I thought, was an opportunity for some much-needed practice. So, with the green ball standing at a fairly steady 5, I wandered into the murk. After a while my circles emerged on one side, so I moved further into the cloud and the lift fell away to nothing. I turned north, flying through patchy cloud with glimpses of the ground. The cloud looked darker ahead—much darker. Almost at once I was in much stronger lift, with the Cobb-Slater standing at 10 green all the way round. I settled down to the routine advised by Tony Goodhart in an article in a back number of SAILPLANE & GLIDING which I had read not long before. "Turn and slip and speed and turn and slip and speed . . ." I said to myself out loud and unceasingly, breaking the monotony occasionally when the speed approached 60 m.p.h. to say (also out loud): "get that bank off—too much turn". It was Bernie Palfreeman who had suggested that too much bank was probably the cause of my



earlier zoomings. After a while the green ball went even higher up the tube and the altimeter ploughed round in the most purposeful manner. "Turn and slip and speed . . ." I kept saying, while I wondered how long it could last. 6,700 ft. was my previous highest: Bernie had been to eight-and-a-half: it would be nice to get to nine . . . The green ball stayed mostly at 20. A little tuft of water appeared at the front of the canopy by the ventilator, then the canopy began to mist over, and there was an icicle on the total energy head; then it began to get lighter and much rougher. I pulled down my loosened straps and gripped the stick more firmly. With my other hand I held on tight to the connecting bar of the air-brakes (a safe hand-hold which cannot jerk them open in a bump). "Turn and slip and speed . . ." came from a very dry mouth. "Turn and slip and speed and turn and . . . get that bank off . . . and slip and speed and . . ." The hand of the altimeter wound on past 9,000 ft. I'm not quite certain at what stage the idea of a "nice little exercise in cloud-flying" changed into an attempt at Gold C height.

A lot of things were happening now. It became very turbulent indeed; the Eagle had no oxygen; and then I couldn't remember how many feet there were in 3,000 metres, but I was too fully occupied to work it out. The speed became erratic, the sailplane was tossed about like an autumn leaf and then suddenly there was silence and the air speed indicator swung down to nought; we were in a spin. Now, I felt, was quite a good time to pull out the airbrakes, and when a suitable airspeed had been restored I glanced across to the altimeter—10,800 ft. With the airbrakes out I was trying rather unsuccessfully to fly straight and level in a south-westerly direction, and a few seconds later, just twenty minutes after I had gone into it, I burst out of the side of the cloud. It was dazzlingly bright and supremely beautiful: immediately below me was the cauliflower top of one of the foothills of my cloud; and far, far below that again were the straggly wispy strato-cu fragments which had been covering four-eighths of the sky all day. I made a 360° turn to look at the cloud behind me, and only then realised that it was a solitary giant—the only big cloud within 20 miles. From below I had had no idea it would be so big. There did not seem to be very much more above, but I was so close to it that perhaps, as with a mountain



Land's End (*Photo by D. Stowe*)

peak, the summit was hidden by the closest bastion. Most striking of all was the colour—a brilliant golden-yellow in the evening light. The grandeur of the scene was breath-taking, and I was still under the influence of the glorious relief that the sailplane was under control again. At the same time I was desperately trying to do mental arithmetic and to establish my whereabouts. A thousand metres is 3,281 ft., so what is three thousand metres? Three ones are three, three eights are twenty-four, four and carry two . . . ah! that must be Aston Down, and there's the green reservoir on Minchinhampton Common . . . and carry two, three two's are six and two is eight, three three's are nine—9,843 plus a thousand for the launch . . . Golly, aren't those clouds beautiful over there under the sun. Well 10,843, but . . . but . . . I only went to 10,800. I've missed my Gold C Height by 43 feet! Except of course that I must have lost at least that after the launch and before my first thermal. But supposing the barograph didn't agree with the altimeter? Obviously I had cut it dangerously fine. Incidentally, from that height if I had set off straight away I could have made one glide to Lasham (just over 100 km. from Nympsfield) and we wanted the Sea Eagle at Lasham, so that's another opportunity missed. Bother!

By now I was half-way home and down to 7,500 ft., with plenty of sink about. What should I do? If I went back to Nympsfield, maybe Peter Collier could leap in and get *his* Gold C Height, but that was rather unlikely as the cloud was now far down wind and no other clouds looked at all promising.



Peter Scott standing beside his T-42 "Sea Eagle" just before take-off

(Photo by P. Talbot-Ponsonby)

Very gradually it became more and more clear that there was only one sensible thing to do—to turn back, re-enter the cloud, make certain of Gold C Height and then head for Lasham. Even after this conclusion became inescapable I found I was still pointing towards Nympsfield. I took a final screw on my courage and swung into a steep 180° turn. The die was cast. I was committed to a further "short exercise in cloud-flying."

Five miles to the eastward my cloud still brooded over its own dark shadow lying across the valley at Chalford. It was a bigger cloud now, and it seemed to be higher—a solitary giant more frightening than ever, now that it had come to manhood. Its top was apricot-coloured and crisp, with purple shadows; its foot was murky blue almost merging with the darkness of the Cotswolds below. My first climb had been made in ignorance of the size and quality of the cloud I had been sucked up into, but this time I could see only too well my opponent. I would dearly have liked a really good reason for staying out in the friendly sunshine. I must have been flying in some fairly strong downdraughts, because I only got back to the cloud at about 4,000 ft.—a few hundred feet above its base.

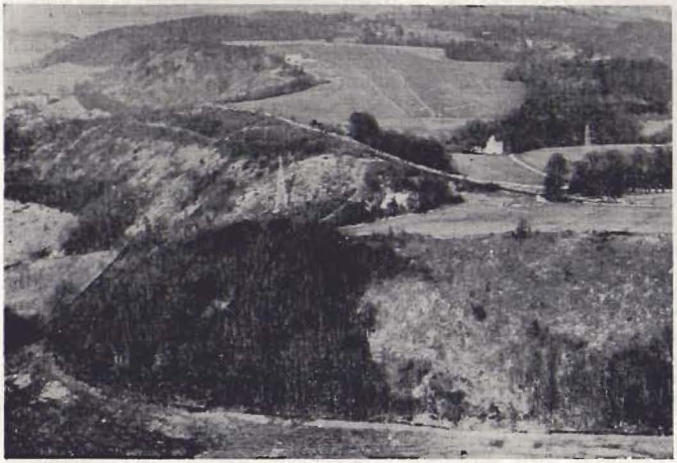
I switched on the turn-and-slip and plunged into the side, having made a mental note that south would be the quickest way out. At once I found lift and began to circle, but it was not very good, and in searching around to improve it I burst out into the clear air to the north-west. Back inside again I ran straight into steady ten green, which soon improved to about twenty. "Turn and slip and speed and turn and slip and speed . . ." From the beginning the climb was more turbulent than the first. I kept trying to get into the darkest part, in the hope that it would be smoother away from the edge, but it was a vain hope. There was a patter of rain, and later a patter of hail; and there was icing at the front of the canopy as before. Did the hail make it a cu-nim I wondered? It was not very loud hail, and there was no lightning. But, cu or cu-nim, I was steaming up at 20 ft. per second and bouncing about like a pea in a pod the while: ". . . and turn and slip and speed . . . hold off that bank . . . and slip and speed . . ." The altimeter crept past my previous best and up to eleven thousand, and now the turbulence increased sharply. With no oxygen I had no particular wish to go much higher, but the attempt to straighten up on a southerly course proved disastrous; a few moments later rapid fluctuations of the airspeed persuaded me to pull out the air brakes. Until then I was still going up, and the altimeter needle now stood at 11,500. I was holding on tight to the airbrake control with one hand, gripping the stick grimly with the other, and occasionally pulling down my shoulder straps which kept working loose. Still attempting to fly straight and level, I found that the airspeed continued to fluctuate disconcertingly; and then suddenly it increased very sharply

so that the indicator read 80 m.p.h. The brakes were out, and at this speed we should have been losing height fast, but instead the green ball was at twenty and the altimeter needle was surging round clockwise. Fascinated and seriously worried, I watched it go up 700 ft. in about thirty seconds before, with a frightful bump, we flew into a violent down. A minute later the airspeed shot up again, and once more with full brakes out and 80 m.p.h. on the clock we climbed 700 ft.; again there was a violent jerk and we were going down and a few seconds later we were out in the blessed evening sunshine. The panic was over. I tried to shut the brakes but they were frozen open. Ahead two great walls of cloud were closing together and I aimed at the gap. The Sea Eagle just squeezed through and I could almost hear the clang as they met behind me. I tried the brakes again and they closed half way but no more. And so my hard-won height fell away in a miserable glide with the red ball steadily at 10 or worse.

Nevertheless, I headed for Lasham. The total distance from Nympsfield was 65 miles, but already my cloud had taken me fifteen miles to the eastward, so that I had barely 55 miles to glide. From 11,000 ft. in still air, with the air brakes in, Lasham should have been in the bag with a little to spare. But with the airbrakes out and the sky full of sink, it was quite another kettle of fish.

I flew out over the Cerney gravel pits half hidden by wispy cloud and headed for Swindon. Every minute or so I tried the airbrakes again and managed to get them a little more shut, but I was down to 7,000 before they finally clicked home. To get to Lasham now I must obviously find some more lift. Over Marlborough was another big cloud and beyond this and to the east were a couple more. I headed out west of my course to the Marlborough cloud. I was a few hundred feet below cloud base when I got to it . . . and found nothing. A bonfire was burning at the edge of Savernake forest and the smoke came up towards my cloud. There was even a tuft of slightly lighter cloud at the point where the bonfire's hot air appeared to enter the darkness of the decaying giant. Round and round I went, muttering the familiar sailplane pilot's *cri de coeur*—"There must be something here somewhere." But the best I could find brought the red ball down to one for part of the circle. At a quarter past six in the evening it was perhaps only to be expected.

I headed on, working desperately at my gliding-angle graph, and soon saw that Lasham was just beyond my grasp. Clearly there would be no more lift, so I had the choice of landing in a field a few miles short or turning off to the nearest aerodrome. Andover seemed to be within reach and from there I could be aero-towed to Lasham; so to Andover I went—48 miles



View from the S.W. of the Bristol Club's Cotswold Soaring Site at Nympsfield

(Photo by A. A. Wall)

from Nympsfield. The long glide was not without its anxieties, for the sunlit town far out on the horizon seemed an impossible distance, but when I remembered that I had 500 ft. more than I had thought because of the differences in airfield height, I was able to sit back and enjoy the beauty of the countryside in the orange evening light.

I landed at a quarter to seven and not long afterwards my barograph chart was being signed by Andy Gough, while I consumed an excellent high tea provided by Mrs. Gough and organised the aero-tow on to "The Hub".

2. "BE PREPARED"

THE quality of sailplanes is now such that Gold C distance flights are two a penny, but as they re also tremendous fun, why should we not make them three a penny? Not for nothing was I a Boy Scout, and I am more than ever convinced that most of the success of a 300-km. cross-country flight depends on the plans you have laid beforehand. You must be absolutely ready, absolutely early enough, on the day of days.

Perhaps the most important thing is to have a clear conception of where you are going. Or so at least I found it on the 12th April, 1958. St. Just aerodrome is 298.8 km. from Nympsfield, so a dog-leg is required, but as the turning point does not have to be declared I had drawn three arcs on my map. At each end was an arc of 80 kms., one from the point of departure and one from the goal. Between the two arcs was another obtained by joining Nympsfield and St. Just with a string representing 300 kms., which of course was slightly slack, and by pulling it out to one side and sliding a pencil along the inside of it from one 80-km. arc to the other, I marked this out on the south side of the direct line and could then say that any recognisable point outside the three arcs would be an adequate turning-point for the 300-km. flight. I also knew that the far end of the Cornish Peninsula was proverbially devoid of thermals, especially in the late afternoon. And so I decided to go as far outside my arc as possible, so that even if the tip of Cornwall let me down and the goal could not be reached, there was some chance of getting the distance.

On the morning of the great day, which was a Saturday, there was a conspicuous lack of activity at Nympsfield although the sky was already full of cloud streets. Peter Collier was fussing over the Club Skylark II and Derek Stowe (who had made the Land's End flight last summer but whose photographs were questionably adequate) was preparing the Club Olympia. There was a winch driver but not enough people to hold wing-tips on the way to the launch point. I towed out the Skylark behind my car and John Hahn came with me to the individual hangar which houses the Sea Eagle. When we got back to the launch point, with the Eagle behind, all was in readiness for the first launch of the day, and at about 10.20 Peter began to circle off the top of the launch. By the time the cable had been retrieved he was already at cloud base and fast disappearing down wind.

My launch was at 10.37 and I fumbled the dregs of Peter's thermal. I was down to 400 ft. before I found another and I, too, was away. As I circled up towards cloud base I watched the blue Olympia arriving at the launch point and finally taking off. Here were the three of us bound for the same goal. I think it was this "competition atmosphere" that frightened me most. After all, Derek Stowe had been there once already and Peter Collier had taught me to fly a glider. Somehow I must contrive not to be the first of the three to land.

The 12th of April was not, in my view, a "day of days", although of course it was a very good day. As I meandered slowly down the West Country I never climbed more rapidly than 400 ft. per minute, but with 20 miles an hour of wind behind me and an early start, I reckoned I had only one job to do and that was to stay airborne. Not for me the wild down-wind dash between thermals; not for me the 70 miles per hour average. All I needed to do was float lazily along on the wind, dallying with every flutter of lift that I came upon.

I had some qualms when crossing the dreaded Taunton Vale. I performed some involuntary aerobatics while using both hands to photograph my turning-points first at Weston Zoyland and then at Culmhead which was a bit further outside the arc. Just past Exeter I spotted a red Olympia circling three miles astern of me, but I have not yet discovered who it was. Over

Dartmoor the only respectable cloud was in the very centre and rapidly decaying, but the dregs of its lift wafted me to the green fields beyond.

By the time I climbed in a glorious blue thermal which steamed up amongst the wreckage of a decaying cloud over the china clay mines near St. Austell, I reckoned that I had a good chance to make my goal. But in cross-country soaring everything seems to be going so well until the moment when suddenly it isn't. At 5,300 ft. I turned westwards from the china clay mines into a dead blue sky. Hastily I looked at my graph and worked out that at 20 miles per hour of following wind and 40 miles to go the outcome lay delicately in the balance. I flew as accurately as I could at 43 knots. And as I flew my anxiety mounted. For whatever happened now I was in for one of those horrible marginal glide-outs which left one making decisions much too near the ground. At first it all seemed to be going rather well, but then surprisingly I ran into more rapid sink. This I hoped might mean a new brew of thermals, and indeed tantalisingly a tiny puff of cumulus appeared over the cliffs at the very tip of the peninsula. But it was not to be. Mistakenly I stopped twice in burble which might have been the edge of something I could use, and in both cases lost heavily in the circle.

At last it was evident that I could not conceivably work my way round the high ground to St. Just airport. And indeed in my calculations I had forgotten to add the airfield height of 300 feet of St. Just itself. So I turned left down-wind into the low country stretching south-westwards from Penzance. I was getting very near the ground, keeping one field up my sleeve and assessing another ahead. They were all horrifying small. At last it was clear that I could not top the next ridge and I must turn instantaneously back. I swung round not more than fifty feet above a tiny field into a wind which was gloriously stronger than I had expected. The Eagle hung delightfully in it, sat gently down and came to rest in 48 yards, 20 yards short of the wall and 305 kms. from Nympsfield. It was five hours to the minute since I had taken off.

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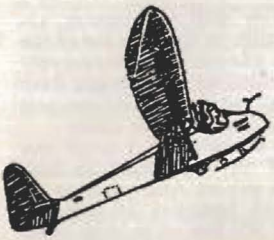
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ITS - ALL - YOURS

For and About Instructors



by Ann Welch

HAVING suffered again lately from that bugbear of British Gliding—unserviceable winches—I would like to put forward the argument that there is not much difference between the operating costs of aero-towing, and winching or motor towing. The big Clubs do both. Winching for most launches and aero-towing for soaring launches. Aero-towing as the main means of launching in this country has not seriously been considered before now for two reasons.

1. The cost of aeroplanes used to be very high in relation to gliders and gliding equipment. This is not now the case, and a reconditioned Tiger Moth is half the cost of a new glider.

2. The performance of gliders was not, in general, high enough, nor had a sufficient proportion of them permits to be towed.

As a general principle, the performance of the gliders wants to be such that one tug can keep three of them airborne without anybody waiting unnecessarily in non-soaring conditions. This means that from 2,000 ft. a glider must not reach the ground in less than 12-14 minutes doing normal flying. This approximates to a gliding angle of at least 1 : 25.

Perhaps the best thing about aero-towing from a small club's point of view is that there is none of the slavery inherent in struggling with unserviceable winches, worn out cables or unsuitable tractors. Fewer people are needed to get flying started, and the surplus energy of club members can be used either to build a trailer, so that gliders can be flown across country, or to erect or decorate acceptable civilised club premises. If talent is not available in this direction there is a great deal to be done in improving the ground training, for which there never seems time in the ordinary club.

While it is admitted that the tug can only be flown by a skilled pilot, whereas the winch can be driven by any intelligent club member, it is usually easy to find pilots who would like to tug as often as possible, because by this means it is possible for them to maintain the validity of their private pilots licence at no cost to themselves.

It is easy to say that you cannot get so many launches with an aeroplane as you can with a winch, but the following comparison may be of interest. A day's work by two instructors is compared, both working the same overall hours, and taking such time as is needed to talk to pupils on the ground, etc.

Winch launching	Aero-towing
1 winch, 2 drums 85 h.p.	1 Tiger Moth, 1 rope 120 h.p.
1 winch driver	1 tug pilot
1 cable-retrieving car	
1 driver for this car	
1 wing tip holder	1 wing tip holder/signaller
1 signaller (light signals)	
1 instructor and pupil	1 instructor and pupil

Assuming all are volunteers, the costs are approximately as follows:—

1 winch (new £1,300, old £400)	£1,300	£400
1 cable	£40	£40
1 cable-retrieving car (£50-£100)	£100	£50
	£1,440	£490
1 Tiger Moth	£550	
2 aero-tow ropes (1 spare)	£7	
	£557	

Thirty winch launches and 10 aero-tows were carried out over the test period; 10 pupils were flown in each case (the standard lesson when winching is three circuits). The winch launches, using a T-21, produced 2 hrs. 20 mins. flying and the aero-towing 3 hrs. 40 mins. flying. At the rates being charged in the club, this worked out at 1s. a minute to the pupil for winch launching and 10d. a minute for the aero-towing.

It is not suggested that winching and car towing should be discarded, but that any club may well discover that it can do much more of its flying from aero-tows with no greater expense, and a lot less complication than at present. The winch would then be used as a subsidiary means of launching for packing in approach and landing practice, joyriding, and to help out at rush periods. There is no danger in operating winching and aero-towing from the same field provided they are under a single authority.

THE ADVENTURES OF JOE

It took a long time for Joe to get through his "C" oral. The soaring flight had been easy even with the brakes left open inadvertently: It was just one of those days. Now, at last he had remembered how to define Night in the United Kingdom, and had worked out the difference between finely divided sand and tow ropes, and was ready to inflict himself upon the great wide world.

The C.F.I. himself had briefed Joe for field landings, while praying fervently to himself that a nice big empty airfield would turn up at the right moment. And this is what happened—fortunately.

On the way, Joe encountered, and was sucked up by three conveniently placed thermals, before finding the inevitable region of sink surrounded by wonderful cumulus too far to reach. The glider came down quite steadily until Joe suddenly remembered that he ought for some time past to have been looking for fields. It was at this fortunate moment that he saw an aerodrome ahead.

There was a bright new yellow windsock, and a shiny white tee, and the two of them, pointing in different directions, threw Joe into a fury of indecision. He knew that after his last dual check on cross-wind landings the instructor had said quite plainly: "Joe, promise me that you will *always* land into wind." But he knew also that the law said that landings must be made according to the tee. While he was wondering whether the wrath of the police would be greater than that of the C.F.I., Joe suddenly saw another Tee, true it had a peculiar white bar alongside it, but it matched the windsock. Relieved that the awkward decision had been taken from him, Joe opened the brakes and sailed gently across the aerodrome into wind.

On unlatching the canopy he was met by a man who seemed to be suffering from an acute form of sunstroke, and a very loud voice.

"But I landed according to the Tee," explained Joe meekly, "look that one there with the bar alongside."

The Man became positively incoherent. "That's not a bar, you fool, that's the letter I. Can't you read? T I stands for Thorney Island. That's where you are. Or didn't you know that either?"

BOOKS AND PUBLICATIONS

"Gliding" by D. Piggott	25/-
"The World's Sailplanes"	17/6
"The Soaring Pilot" by A. & L. Welch	18/-
"Playground in the Sky" by A. F. Gotch	12/6
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C.F.I.—COVENTRY GLIDING CLUB



(Photo by P. H. Partridge)

Vic Carr has always been keen on flying. He served in the R.A.F. from 1943 to 1947, and was selected for Air Crew. To his great disappointment, changes made in service policy at that time prevented him from going on with flying training, and he spent most of his service years as a Radar Operator. He first became interested in Gliding when he saw a copy of "Sailplane" in a N.A.A.F.I. canteen in Singapore, and on his return to civilian life started gliding at Dunstable in 1948. After a rather slow early progress, he had gained two Silver C legs and had just become an Instructor when he married another Dunstable member in 1950, and moved to Leicester where he joined the Leicester Gliding Club.

The Leicester Club however had just about ceased active flying at that time, and although Vic continued to be a member as Dunstable till 1953, travelling difficultiet meant that he was rather out of touch with gliding for some time, until the then new Coventry Club was able to provide facilities to the Leicester Club Members.

I well remember the day in the summer of 1953 when Vic first came to visit us at Baginton. He was obviously keen, alert, and with a very observant pair of blue eyes, and he at once set to work to do his full share—and a bit more—of the jobs on the flying field. After a few months Vic was able to arrange for the Leicester Club Olympia, then on loan to Dunstable, to be transferred to Baginton—thus giving us our first high performance aircraft. We were delighted when, in March 1955, Vic made the first Silver C distance flight from Baginton back to Dunstable, so completing his Silver C Badge requirements and being the first pilot to do so from Baginton. Since then his flying has gone from strength to strength. He became Deputy C.F.I. of the club in the middle of 1954, and was appointed C.F.I. in September 1956, in succession to George Thompson. He did his 300-kilometre Gold C distance flight in an Olympia on 30th April, 1957, flying from Edge Hill to Mevagissy in Cornwall; and on 27th May, 1958, completed his Gold C badge with a climb to 11,600 ft. in a storm cloud.

Not only is our C.F.I. a first-class pilot in his own right, but he has proved himself to be a born leader and an excellent instructor. As an instructor it is noteworthy how well he handles pupils; he is a sound psychologist who knows just when to encourage the diffident, instill confidence into the hesitant or, on the other hand, to restrain the over confident, and reprove the offender yet without giving offence. As a leader in the club he is always able to look at our affairs with a fresh and pioneering mind—for instance, to him must be credited much of our Edge Hill development—and he can be most persuasive in committee if he wants to get a new project approved. Not only has Vic been a tower of strength on the purely flying side of club activities, but his knowledge and skill on the aircraft and general engineering side has been equally valuable to the club. In fact he is as good an all-rounder as any club could wish to have for a C.F.I. and the club is indeed grateful to him for the tremendous amount of work, energy, and time he has given to furthering its aims. We must not forget to thank his charming wife, Mary, for the part she has played in supporting Vic in all his efforts.

H.N.G.

Sherburn Cable Retrieving Apparatus Project

by E. Haswell and J. C. Riddell

Once upon a time Ewey and I were mulling over some ale in the Club bar when the conversation turned to the problem of retrieving the winch cable. We had a rather senile tractor. True, the redoubtable Lewis had managed to get it to go the length of Sherburn Aerodrome, and it had arrived boiling in silent indifference, while we boiled with articulate concern as thermal after thermal popped like some hideous breakfast food.

The tractor had to go. We sold it to a good-natured man who gave us £3 more than we expected. That removed the problem of the tractor, but it also removed our only retrieving vehicle. Clearly the time for action was with us. We bought a car from a man who was glad to see it go. On the first day we used it on the aerodrome, the rats, who hitherto seemed quite contented with their lot, deserted it. On reflection I agreed with them. It had no brakes. The offside door was held open with rope, so that drivers could change more easily. This happened after every launch. We were running out of new members to drive it. We had a crisis.

There remained one encouraging feature. Ewey was quite pleased with its mechanical condition. I said "Let's make a car out of Dexion." I burst out laughing. Ewey didn't. He just said "yes" after some thought. I stopped laughing and drew up a scheme on the back of the flying list. Then together we laid down the principles of the ideal retrieving car.

1. It must be cheap.
2. It must be light so that fuel consumption would be low.
3. It must be reliable, and therefore accessible, so that components are easily changed.
4. It must have the minimum of parts so that there would be less to lose.
5. It must be strong to withstand the uneven aerodrome surface.

The solution was to use the components we had and fit them into a framework. We used Ford spares, as they could be bought from wreckers for next to nothing. The Ford Ten engine seemed to have enough power and used little fuel. The tyres on our old car were good, so we were all set to go. I suggested that we should stop flying and



(Photo by "Yorks. Evening Post")

The novel "Dexion" cable retrieving car made by the Yorks. G.C.
L. to R.: E. Haswell, J. C. Riddell and A. Hawkins

put our equipment into good order for the coming season.

One day I walked into the winch house and there was Ewey and Jack with an axe. The car was rather tatty. We had begun our project S.C.R.A.P. It is surprising how members' imagination was fired Week-end after week-end they kept at "It." Jack reconditioned the engine: he fitted new bearings, ground the valves, fitted new gaskets all round, new water hoses, and a new ignition harness. Ewey fitted a new front cross member and made the frame on good old bridge-building principles. Six weeks' hard labour was rewarded when the car came out of the shed and started right away.

It was certainly spartan. There was no body-work except the frame, although there was one seat salvaged from the other body. It had a starter, and as the engine and transmission had molybdenum disulphide additive with the lubricating oil, the internal friction was low, and this greatly helped cold starting. The performance was startling. With the low power-to-weight ratio it had excellent acceleration. A hand throttle had been fitted so that a steady speed was possible across the grass. This is never easy without one, and this prevents snags with the winch wire. It even towed our Rice winch to and from the airfield. We had fitted adequate brakes to the rear wheels only, and this drew it to a dignified halt. We were very pleased with ourselves and bought each other beer on the strength of it. Even the rats came back but, finding nowhere to nest, they went back to their temporary accommodation in an old aeroplane.

The use of this car reduced our fuel bill considerably, and even though it is running all the time it costs us about 9d. per launch in fuel. As the vehicle is efficient, it deserves and gets much more careful treatment from its drivers and it is pleasant to drive. It has answered our retrieving problem at Sherburn.

This car is a monument to the type of Club member that Gliding cannot do without—the people like Ewey, Jack, and Jim who worked in the bitter cold of winter to build a car because they liked doing it. The cost was low, about £35, but the ease of launching has repaid those who worked on it as they now get their flying with a great deal less fumble than before. That is the secret of a good club.

The title is an abbreviation for nothing very much. We call our little car Sputnik; perhaps the name is a little hackneyed now, but by definition it goes round and round the aerodrome without getting anywhere very much. So far we haven't found a dog to drive it.

COVER DESIGN COMPETITION

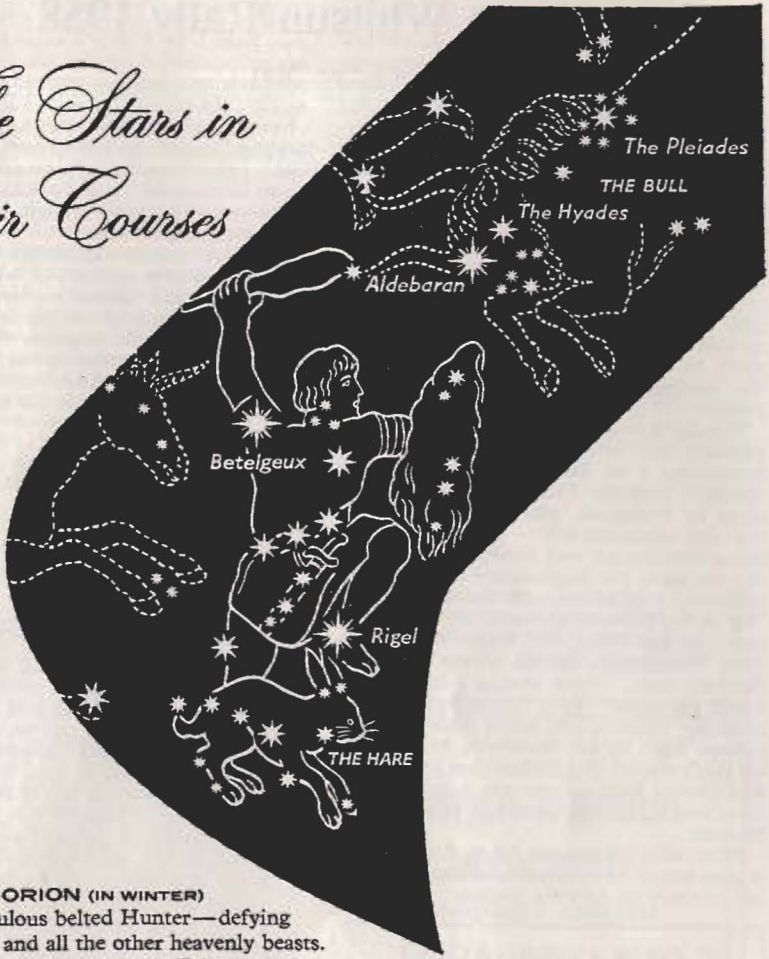
The Magazine Committee announces that the winner of the competition is David Collins whose design has been used on the cover of this issue. The runners-up are Peter Wildbur, Ann Welch and Colin Moore.

[The following report has been sent by the Judges appointed by the Committee, which conducted the competition.—ED.].

THE cover designs submitted were of a much higher standard than the page-heading designs for the previous competition, and the jury did not find it easy to agree the winner among four or five very good entries. The main design problem was that of combining a photograph successfully with a coloured cover and lettering to make a unified whole. A black-and-white photograph can look rather dull in contrast with a large mass of bright colour; one does not mount a photograph on a bright mount. The winning design solves this problem by its use of white, which ties the whole thing together. Its lettering is very legible and likely to attract attention on a bookstall. Several designs failed in this respect. It looks so simple that it might seem to have needed very little thought, but a good design based on a lot of careful elimination often has this effect.

Another entry that found some favour was completely competent and sound, but its tasteful Trajan lettering and its formal layout were thought a little dull, more suitable perhaps for a brochure for a Bank. Another, with a glossy black cover, was smart, but a dazzling white margin killed the photograph, and the lettering was not legible at any distance. Another series of entries, variations on a theme, were all very professional but were not bold enough.

The Stars in their Courses



No. 3—ORION (IN WINTER)
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OVERSEAS REPRESENTATION THROUGHOUT THE WORLD

Lasham Whitsun Rally 1958

24th-26th May

THE first purpose of this year's Whitsun Rally at Lasham was to provide competition practice for the British Team, and the pilots of the 22 gliders which entered were warned that the tasks would be difficult. Competitors were given the choice of aero-tows or winch launches, but everyone selected aero-tows.

Saturday, 24th was a dreadful day. A gale blew furiously across the airfield and no one flew. The time was needed and well spent by the British crews in dealing with the seemingly endless preparations for Poland.

Sunday produced a morning of some promise, and with "Wally" Wallington's connivance I set Distance on a Set Line through Camphill. This line extended passes close by Portmoak, and was some 25° off the wind which was S.W. The thermal and cloud distribution was patchy early in the day owing to the development of some big cumulus, and consequent flattening out. The earlier pilots to go had a difficult time, and Nick and Philip, with Lorne Welch and John Williamson, landed in the Oxford-Banbury area. Those leaving a little after 1 p.m. did better—Tony Deane-Drummond reaching Yeadon, 190 miles with a magnificent flight by any standards, to become the day's winner. David Ince flew 130 miles, and George Burton, who was secretly after his Gold C, down wind 127 miles, near Newark.

Pilots who left around 3 p.m. found conditions better, but did not have enough time left to catch up with the leaders.

C OF A OVERHAULS?

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Monday dawned with pouring rain which continued steadily for some hours. "Wally" stated, rather improbably it seemed, that by 3 p.m. we would have cumulus, and by 3 p.m. we did—good enough to get the launching going in a panic.

The Task was an experiment—Distance round a set course, in this case a triangle of 36 miles. It was chosen for two reasons, (a) to use to the limit the soaring weather available, and (b) In response to popular demand. The task served its purpose, but I would like to state here and now that I do not consider it a good task, the reasons for and against being as follows:—

ADVANTAGES

1. Soaring can continue as long as conditions last.
2. There is little retrieving.
3. It has some (but not much) spectator value.

DISADVANTAGES

1. It encourages "last ditch" flying, competitors being tempted to go on literally until the ground arrives, or
2. If the competitors are sensible, those still in the running will land at the end of a convenient lap, and the organisers have not one, but possibly several doubtful winners to cope with.
3. If the start is made late in the day the actual time of take-off puts too much of a penalty on the later pilots to go, this is, in fact, what is likely to happen every time this task is set, because no one in their senses would set Distance round a set course if they had the whole of a good day to play with.

With regard to the minimum size of triangular courses, I feel that even 35 miles round is too small, particularly if the day is one of big cumulus development, or of big liftless voids. Turning points come up too frequently to be able to use cloud, and a bad patch over the course for an hour or so can wreck the day's competition, even though there may be good cumulus all around.

Much the better alternative is a Race of a stated number of laps, say 2 or 3, round a somewhat larger triangular course. On a

very good day 3 laps of a 100 km. triangle would be satisfactory, or 2 on a lesser day. Even these tasks are no substitute for the straightforward 200 and 300 km. triangles, apart from the reduction in possible retrieve costs.

One of the problems of competition gliding today is the effect on the pilots soaring ability of the proximity of large numbers of gliders. Many pilots are not worried by continually having to manoeuvre among other aircraft, or for that matter write down turning-point observation, but others are. Since the object of soaring is to get the most from the weather, and not become a form of aerial obstacle racing, the task setter must endeavour to give every opportunity to the pilot to win who is best at finding and sorting out the best conditions on his own.

To return to Whit Monday. The triangle Lasham - Worthing Down - Whitchurch junction, 36 miles, was set, and competitors had to attempt the longest distance round this course. By 6.30 p.m. 5 pilots had managed 3 laps, and the thermals were beginning to fail. Tony Goodhart started the sensible rot by coming into land from a couple of thousand feet, and he was followed by Nick and Tony Deane-Drummond, who agreed to land by radio. David Ince also completed 3 laps, but Aylett Moore's Eagle, the Mogul, nearly completed four. At the end of the third time round Aylett picked up the sea breeze front and set off again. Unfortunately Worthy Down was south of the front and he had to cut the corner, but reached the second turning point before flying back to Lasham.

Prizes of flying tickets were won by Tony Deane-Drummond, and the five pilots who completed 3 laps. A special prize was awarded to George Burton for the longest flight in a 15 metre glider.

ANN WELCH.

THIS GLIDING

"GLIDERPILOT STUCK IN AN UPDRAUGHT. —Last Sunday was a terrible experience for Herr Gizo von Petersdorf, who got stuck in a glider behind Table Mountain. Although he has no aircraft licence, he was pulled into the sky with a Piper Moth aircraft piloted by his nephew, Heine von Michaelis. Herr Gizo flew the monoplane glider Wolf. After release he just caught an updraught otherwise he would have fallen. Then he lost control and got stuck over Table Mountain for five hours. Fortunately, the wind did not stop, otherwise Herr Gizo would have had to bale out. It is believed by reliable sources that the glider eventually managed to crash-land on the Youngsfield aerodrome. Fortunately, Herr Gizo was unhurt. Herr von Michaelis then presented his Uncle with a special medal for bravery in danger, a so-called Silver C medal. This is a medal only awarded to glider pilots who manage to crash-land safely."—*From "Wingspan" (South Africa): original source not disclosed.*

Strange Experience

"During that time he flew a glider solo for the first time. 'It was great fun. I had the feeling of being all alone,' said Peter."—*Brentford & Chiswick Times.*

Ouch!

"SEGELFLUG VON ENGLAND AN DIE DEUTSCHE GRENZE.—Der englische Sergeant Andy Gouch stellte einen neuen Segelflug: rekord auf . . ."—*Westfalische Rundschau, Dortmund.*

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A Heavenly Day

by Philippa Chubb

I SAT and stared at the advertisement and began to laugh hysterically! "Buy one of our luxurious, smooth riding, roomy cars", it said "you will think you are GLIDING along".

My thoughts switched back to last week-end, that never-to-be-forgotten day when my husband surprised us by declaring that he had thought of a heavenly way to spend the time. "What could be nicer", he asked, "than a fairly short but pretty run in the car to Lasham, that hub of gliding?" There we could watch the sailplanes and he could explain to the family all the finer points.

The children were delighted, and remembering that I had once heard of Prince Philip's interest in the sport, I donned my prettiest summer dress, and we sallied forth.

Our enthusiasm grew with the miles, the weather was perfect, with white cotton wool puffs billowing across the vivid blue sky, and a gentle breeze stirring the trees just awakened to spring.

"There's a glider," shrieked my youngest daughter Jill, in wild excitement and sure enough a graceful plane was circling nearby. We soon found the airfield.

Strangely enough it seemed that a hundred other people had woken with the same idea! However, after a little manoeuvring we managed to park the car in a convenient place.

We all craned our necks to watch the circling beauties, red, green, white and pink, they looked like gigantic butterflies flirting with the breeze.

Soon we were out of the car and ambling over to the launching point. A lusty "Mind your heads!" brought us literally to earth. As we strolled across the grass, one of these sailplanes bore down upon us—we were walking on the landing area! Trying to look unconcerned we hurried on. Gliders look much larger when travelling over one's head at a range of about 20 feet!

At last we reached the comparative safety of the tarmac, where dozens of very important looking people were scurrying

How to get "SAILPLANE AND GLIDING"

Owing to increased postal rates and rising publication costs, the Association regrets that postage must now be charged in full. From 1st October 1957, new and renewal subscriptions obtained through the Association will be 17s. ($3.00) per annum, both home and abroad. The price of the magazine remains unchanged at 2s. 6d.

"Sailplane and Gliding" can be obtained in the U.K. at all Gliding Clubs, or send 17s. (post free) for an Annual Subscription to:—The British Gliding Association, Londonderry House, 19 Park Lane, London, W.1. Single copies and most of the back issues are also available, price 2s. 10d. post free. Enquiries regarding bulk orders of 12 or more copies, at wholesale prices, should be made to The British Gliding Association.

OVERSEAS AGENTS

AUSTRALIA:	Stockists: Hearn's Hobbies, 367, Flinders Street, Melbourne.
CANADA:	T. R. Beasley, 1425 Painter Circle, St. Laurent, Montreal, Canada.
SOUTH AFRICA:	The Aero Club of South Africa, P.O. Box 2312, Maritime House, Loveday Street, Johannesburg.
U.S.A., & OTHER COUNTRIES:	Please apply direct to British Gliding Association. Single copies 2s. 10d. or 17s. annually. (50 cents or $3.00 annually).
SCANDINAVIA:	Hans Ellerstrom, Gronalundsgatan 9B, Malmo, S.V., Sweden.

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around, all dressed in sensible flying suits. One was fastening the cable to a glider, another fitting on a parachute, others driving tow cars or pushing back their planes. We felt rather inadequate. However, the children soon started asking questions and father at last managed to engage one of the toilers in conversation.

"Why don't you put your names down for a joyride?" he suggested. What a wonderful idea! We rushed to the board. There seemed quite a list, but undaunted we added our names. "You could always help push back the planes if you would like to be useful," remarked our new friend casually. Well, it seemed only fair in the circumstances, so we volunteered as one man!

How I wished I hadn't remembered Prince Philip's interest! A flowing summer dress may look pretty, but it is no match for the wind on an airfield. I not only began to feel cold, but spent half my time trying to keep respectable.

We chased after the next plane to land, reaching it triumphantly well ahead of all comers. It was only when we began to push that we realised why those others had been perhaps a *shade* reluctant. The pilot climbed out and was pushing on the nose, "Don't touch the trailing edge" he cried, as our willing hands reached up. "Push—here, here and here." Now it's a surprising thing that a sailplane made of the lightest of materials, so light in fact that it floats around with no engine in the air, is altogether a different proposition when it lands! We heaved and shoved and were glowing with pride when at last we were back at the launch point. This performance was repeated with waning enthusiasm on my part many times, however I was not going to be outdone by the rest of the family, so I battled on. No one ever seemed to stop for a meal. I longed for a cup of tea.

I was just about to give in, when a charming instructor called my name. "Your turn for a joy ride Mrs. Chubb," he smiled. I was helped into an open two-seater. "Anyone spare a cushion?" he called. "That's all right," I assured him, as there was no response. "I don't mind a bit." I realise now I was too hasty, but then experience is always paid for! The instructor strapped me in, and called "O.K." to the man with a bat outside. He began to wave it to and fro to signal to the tow car. Suddenly, with a shout of "All out" he waved it frantically above his head, and before I knew what was happening the sailplane was pointing what seemed to me to be vertically into the sky, and travelling at enormous speed. The instructor assured me that this was not so, adding that we were only at about 45° and travelling at no more than sixty miles an hour. "We'll soon be up to 1,000 ft.," he said, "and then I'll release!" A slight jerk and we were on our own. At last I felt my stomach catching up with me. "Over there you can see Alton," pointed out my companion in his best sightseeing voice. I murmured a suitable reply. No use saying I couldn't see anything for hair which was all over my face—why didn't I wear a scarf?

I sorted myself out. This was really lovely, just a gentle turn and a feeling of floating on a cloud. I began to enjoy myself. Without warning our left wing went up. I clutched at the side in alarm, and shot a look at the instructor. To my surprise he was beaming. "Lift," he cried. "Wonderful." I watched fascinated as the little green ball on his instrument began to rise. We rose and fell like a switchback at Southend, meanwhile the pilot, a look of ecstasy on his face, put the plane into a tight turn. "What marvellous luck," he exclaimed still turning, paying complete disregard to my face, which I am sure was a bright green. The fields and hedges below were going round at a frightening angle and speed, and we were buffeting up and up as fast as ever, 2,000 ft.-3,000 ft., 3,300 ft., and still we went up, until at last we straightened out.

I began to enjoy the view, and as a sneaking look at my watch revealed 12 minutes in the air, I felt I was doing well.

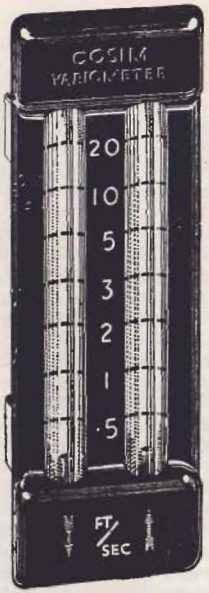
One minute all was right with my world, the next we dropped like a stone! "Just relax," smiled the pilot, maddeningly, "It's quite usual to hit sink after lift. I'll just put the nose down to gather speed and get out of this spot of trouble in no time." The ground rushed towards us and the noise of the wind in my ears was like thunder. How on earth does one relax in such circumstances? And as for going with the 'plane—I had no choice!

We reached terra firma at last, and as my family ran towards us I put on my brightest smile. "It's absolutely wonderful," I cried, surreptitiously crossing my fingers.

However, I know one thing, there is one make of car I shall *never* own, even though thousands don't agree with me!

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British Gliding Association

NATIONAL GLIDING WEEK 1958

26th July—4th August

ORGANISED AT THE FOLLOWING REGIONAL CENTRES

LONDON REGION—London G.C., Dunstable, Beds.

SCOTTISH REGION—Scottish G.U., Portmoak, Kinross.

WESTERN REGION—Bristol G.C., Nympsfield, Glos.

Clerks of the Courses:

Lt.-Col. D. H. Tapp, Dunstable.

T. Davidson, Portmoak.

J. N. Cochrane, Nympsfield.

CHAIRMAN, ORGANISING COMMITTEE: Mrs. Lorne Welch, M.B.E.

SECRETARY, BRITISH GLIDING ASSOCIATION: Mrs. Ian Bonham.

The Organisers wish to thank the many helpers who have given up a great deal of time or are devoting their annual holiday, to making the Meetings a success.

Some Random Facts About Gliding

Gliding, the enthusiasts will tell you, is the King of Sports. Yet few people understand how a glider manages to stay up. A common question we are asked is "What happens when the wind drops?"

Gliders in fact are really only aeroplanes without engines and like aeroplanes are able to fly because of the lift produced by the wings. Instead of the engine, a glider uses the pull of gravity to provide the forward speed to enable it to go on flying. As long as the glider goes on gliding down hill, it continues to fly and be controllable. The modern gliders are so well designed that they can go a long way whilst only coming down very slowly. A gliding angle of 1 in 30 means that from 2,500 feet up, the glider in still air will fly 30 miles before reaching the ground. By using the airbrakes which you will see protrude vertically from the wings on most machines, a skilled pilot can land his machine in a space no longer than the average football field.

Few people, however, understand about soaring. When a glider flies into air that is rising, it is carried bodily upwards although still flying at the same speed and altitude that it was previously. The glider will rise, or soar, whenever the air in which it is flying is rising faster than the glider is gliding down. Gliders cost between £700 and £1,800 each. Most gliders are owned by clubs but privately owned gliders are increasing in numbers, usually owned by four to ten pilots thus cutting down the expense. Surprisingly enough, gliding is not expensive as most of the work is done by the members. The great attraction of our sport is that it is essentially a team sport on the ground and an individual sport once you are in the air.

Flying in the Gliding Week

DURING recent years gliding performances have improved to such an extent that competitions no longer consist of pure distance flying; this would be impractical since the pilots are capable of flying so far each day that it would take all night to bring them back again. Today, in gliding competitions all over the world, tasks are set by the organisers for each day's flying and the pilots have to try and complete these tasks. The tasks are based on distance and speed, and there are now no tasks for height or duration. Each day one of the following will be set:—

1. Free distance.
2. Distance along a set line.
3. Pilot selected goal.
4. Speed flights (point to point, out and return, dog leg or triangular).

The particular choice will depend on the weather and on the desirability of having some variety in the type of flying. The first day might, for example, be free distance, with each pilot trying to fly as far away as he can in any direction which he likes; the winner for the day is the pilot who lands furthest away. The second day might be announced as a "speed flight" with a point to point race to another site; in this case the winner for the day is the pilot who reaches the site in the shortest time.

The particular "task for the day" is announced at the pilots' briefing in the morning, and once this has been done it cannot be changed. The pilot can have up to three aero-tows or six winch launches each day and he can therefore make more than one attempt at doing the task which he has been set, but he can score marks only for his best flight that day.

Scoring is carried out by a system of marks and points according to a few simple formulae. These are worked out in such a way that the glider which puts up the best flight each day is awarded 100 points and the other gliders in proportion to their performance. To prevent the competition becoming, in unsuitable weather, a series of futile downward glides, a minimum performance is set. If no glider exceeds this performance, the day is declared as a non-contest day.

A full understanding of the method of marking can only be obtained from the detailed rules, but the following notes may help in showing the general system.

Free distance. One mark is given for each mile flown in excess of 15. Thus a pilot who goes 60 miles will get 45 marks; a flight of 140 miles, 125 marks and so on. At the end of the day the best performance is given 100 points and the others receive points in proportion.

Distance along a set line. The set line is announced at briefing; it may be straight, as for example Dunstable-Portmoak or kinked, Dunstable-Nympsfield-Portmoak. Marks are given for the distance flown along the line with a severe penalty for those who land appreciably to one side of it. There is again a minimum distance to qualify; this is normally 20 miles but it may be reduced, and this would be done if the line of flight is set into a strong wind.

Pilot selected goal. This is practically the same as Free Distance; but before take-off the pilot declares a goal of his own choice. If he lands there he gets a bonus on the distance he has flown in excess of 15 miles. He can fly beyond his goal if he wishes, but if he does so he forfeits his goal bonus.

Speed flights. The task is declared as a race to another aerodrome, or a race around a set course. It is quite impractical to start all the gliders together and see who finishes first; instead the time of each glider is taken from the moment of crossing a starting line to the moment of crossing the finishing line. 50 points are given to each glider which completes the course, while in addition the glider with the shortest time is given an additional 50 speed points. Other gliders which complete the course are given speed points in proportion. Gliders which fall by the wayside obtain no speed points at all, but they are given points for the distance flown.

Since a glider may be flown by different pilots on different days, points are awarded to gliders and not to the individual pilots. The winning glider is naturally that with the largest number of points; as a maximum score of 100 points is awarded each day, after 3 days the possible total is 300 points and after 4 days 400 points.

Awards

No National Champion will be proclaimed, but the winners and runners-up at each Regional Centre will be announced.

The Winner of each Regional Centre will be the pilot (P.1) who amasses the greatest number of points during the Competition.

The Organising Clubs will announce trophies, awards and daily prizes to be competed for at each Regional Centre.

GLIDING RECORDS

Single-Seaters	INTERNATIONAL	BRITISH NATIONAL
DISTANCE	R. H. Johnson (U.S.) 535 mi.	A. Gough 340 mi.
HEIGHT GAIN	W. S. Ivans (U.S.) 29,100 ft.	P. A. Wills (in N.Z.) 28,200 ft.
ABS. ALTITUDE	W. S. Ivans (U.S.) 42,100 ft.	H. C. N. Goodhart (in U.S.) 37,050 ft.
GOAL FLIGHT	R. Fonteilles (France) 421 mi.	H. C. N. Goodhart (in U.S.) 318 mi.
GOAL & RETURN	V. Zejda (Poland) 322 mi.	R. C. Forbes (in U.S.) 217 mi.
100-KM TRIANG.	J. Wojnar (Poland) 57 mph.	F. Foster 46.3 mph.
200-KM. TRIANG.	P. F. Bikle (U.S.) 55 mph.	A. J. Deane-Drummond 38.8 mph.
300-KM. TRIANG.	G. A. J. Goodhart 48 mph.	G. A. J. Goodhart (in N.Z.) 48 mph.
Multi-Seaters		
DISTANCE	U.S.S.R., 515.6 mi.	L. Welch & F. G. Irving, 254 mi.
HEIGHT GAIN	U.S.A., 34,425 ft.	A. D. Piggott & B. Whatley, 15,240 ft.
ABS. ALTITUDE	U.S.A., 44,255 ft.	
GOAL FLIGHT	Poland, 336.3 mi.	W. A. H. Kahn & J. S. Williamson, 194 mi.
GOAL & RETURN	S. Africa, 270.9 mi.	H. C. N. Goodhart & F. Foster, 141 mi.
100-KM. TRIANG.	Germany, 49.7 mph.	D. B. James & D. Marshall, 35 mph.
200-KM. TRIANG.	Poland, 41 mph.	A. D. Piggott & P. G. Burgess, 22 mph.
300-KM. TRIANG.	Yugoslavia, 40 mph.	

UNITED KINGDOM RECORDS

These may be set up by pilots of any nationality starting from the U.K., whereas British National records are set up by citizens of the U.K. in any country.

Single-Seaters

DISTANCE	A. Gough on 21.5.58, South Cerney-Heerlen, Holland, 348 mi
GAIN OF HEIGHT	J. S. Williamson on 19.7.57 at Lasham, 26,300 ft.
ABSLOUTE ALTITUDE	J. S. Williamson on 19.7.57 at Lasham, 28,500 ft.
GOAL FLIGHT	A. W. Bedford on 2.5.51, Farnborough-Newcastle, 257 mi.
GOAL & RETURN	A. J. Deane-Drummond on 1.6.57, Lasham-Kidderminster, 197.5 mi.
SPEED, 100-KM TRIANGLE	F. Foster on 23.6.57, from Dunstable, 46.3 mph.
SPEED, 200-KM. TRIANGLE	A. J. Deane-Drummond on 2.6.57, from Lasham, 38.8 mph.
SPEED, 300-KM. TRIANGLE	H. C. N. Goodhart, on 25.6.57, from Lasham, 41.2 mph.
SPEED TO 100-KM. GOAL	D. Goddard on 30.7.56, Lasham-West Malling, 67.2 mph.
SPEED TO 200-KM. GOAL	B. Thomas on 7.8.55, Camphill-Ferryfield, 42 mph.
SPEED TO 300-KM. GOAL	E. A. Moore on 27.5.57, Lasham-Perranporth, 57.4 mph.

Multi-Seaters

These U.K. Records are the same as for British National, except the following:

GOAL & RETURN	D. G. Goddard & T. Hargreaves on 28.4.56, 84 mi.
SPEED TO 100-KM. GOAL	D. B. James & K. O'Riley on 27.5.57, 60 mph.
SPEED TO 200-KM. GOAL	J. Williamson & D. Kerridge on 9.4.55, 34.9 mph.
SPEED TO 300-KM. GOAL	W. A. H. Kahn & J. S. Williamson, on 12.4.58, 43 mph.

Women's Records, British National and U.K. Local

DISTANCE	Mrs. Ann Burns from Lasham, 192 mi.
GAIN OF HEIGHT	Mrs. Ann Burns from Long Mynd, 10,500 ft.
GOAL FLIGHT	Mrs. Ann Burns from Lasham, 192 mi.
GOAL & RETURN	Mrs. Ann Burns from Lasham, 97 mi.
SPEED, 100-KM. TRIANGLE	Mrs. Ann Burns from Lasham, 25 mph.
SPEED TO 100-KM. GOAL	Mrs. Rika Harwood from Lasham, 51.6 mph.
SPEED TO 300-KM. GOAL	Mrs. Ann Burns from Lasham, 39.3 mph.

1958 NATIONAL

Entries at LONDON

Contest No.	PILOTS
9	C. Ellis (London, S.W. 7)
16	Wg.-Cdr. N. W. Kearon (Bomber Command, High Wycombe)
35	Dr. B. James (Marlow, Bucks.)
40	G. H. Lee, A. W. F. Erskine (Harpenden, Herts.)
44	A. H. Warminger (Norwich, Norfolk)
61	P. Dirs, R. Ruffett (Claygate and Sutton Coldfield)
62	J. M. Hands, S. R. Dodd (Luton, Beds.)
73	Fl.-Lt. K. Fitzroy (R.A.F. Dishforth, Yorks.)
74	Fl.-Lt. R. Mann (R.A.F. Upavon, Wilts.)
75	Sgt. A. Gough (R.A.F. Andover, Hants.)
76	M. Riddell and M. Fairman (Stevenage, Herts.)
80	C. Wills and T. Fisher (Henley and Romsey)
81	D. Hiscox (Beckenham, Kent)
59	Sq. Ldr. L. Bailey (R.A.F. Biggin Hill)

Entries at SCOTTISH

1	P. A. Wills (Henley, Oxon.)
8	G. H. Stephenson (Ealing, W.5)
15	B. J. Davey (Worcester Park, Surrey)
18	G. Benson, E. Stark, C. Green (Leominster, Hereford.)
45	J. C. Riddell (Harrogate, Yorks.)
66	W. N. Tonkyn, P. Minton (S. Croydon and London)
83	A. J. Thorburn, W. Adamson (Kirkcaldy)
84	C. Ross, D. P. Docherty (Dundee)
85	W. Lawson (Edinburgh)

Entries at WESTERN

6	Cdr. H. C. N. Goodhart, J. S. Williamson (London S.W.1 and Bungay, Suffolk)
10	P. Scott, P. Collier (Slimbridge, Glos., Nympsfield.)
11	J. C. Neilan, M. V. Laurie, L. Welch, A. Welch (Farnham, Surrey.)
12	E. Shepherd
23	L. Redshaw (Askam in Furness)
26	F.-O. F. D. Cretney (R.A.F. Bicester)
28	B. B. Sharman (R.A.F. Andover, Hants.)
33	D. W. Corrick, K. Aldridge, R. H. Perrott, E. Chubb (Bristol)
37	A. H. Baynes, K. W. Blake, J. B. Jefferson (Sheffield)
38	J. D. Jones, M. Hodgson (Bristol)
49	H. N. Gregg (Coventry)
51	M. Wilson (St. Albans)
52	Lt.-Cdr. M. P. Seth-Smith (Birkenhead)
53	A. Doughty, J. Currie (London)
54	D. H. Darbishire, S. B. Wills (Godalming, Surrey.)
56	P. J. Neilson, C. Thompson, P. J. Bulman (Radlett, Herts.)
58	Lt.-Col. Sir C. Dorman (Shrivenham, Wilts.)
64	M. P. Garrod, C. W. Bentson (Radlett and London, W.1)
78	J. M. Hahn, T. R. H. Parkes, A. H. Yates (Bristol)
82	G. Burton (Newbury, Berks.)

GLIDING WEEK

REGION—DUNSTABLE

ENTRANT	GLIDER	Final Position	Total Points
London Gliding Club	Skylark III	.....	.....
Royal Air Force	Skylark III	.....	.....
Surrey Gliding Club	Skylark II	.....	.....
G. H. Nixon and Partners	Olympia	.....	.....
A. H. Warminger	Skylark III	.....	.....
London Gliding Club	Olympia	.....	.....
London Gliding Club	Skylark II	.....	.....
Royal Air Force	Skylark III	.....	.....
Royal Air Force	T-42	.....	.....
Elliotts of Newbury Ltd.	Olympia 419	.....	.....
A. Cleaver and Partners	Meise	.....	.....
D. H. Tapp and Partners	Kite II	.....	.....
D. Hiscox	Olympia	.....	.....
Elliotts of Newbury Ltd.	Olympia 415	.....	.....

REGION—PORTMOAK

P. A. Wills	Skylark III	.....	.....
E. J. Furlong and Partner	Skylark III	.....	.....
Imperial College Gliding Club	Skylark II	.....	.....
Col. Benson and Partners	Skylark II	.....	.....
J. C. Riddell	Skylark I	.....	.....
F. G. Irving and Partners	Skylark III	.....	.....
Scottish Gliding Union	Olympia	.....	.....
Scottish Gliding Union	Olympia	.....	.....
W. Lawson and Partners	T-42	.....	.....

REGION—NYMPSFIELD

H. C. N. Goodhart	Skylark III	.....	.....
Peter Scott	T-42	.....	.....
M. V. Laurie and Partners	T-42	.....	.....
Army Gliding Club	Skylark II	.....	.....
L. Redshaw	Olympia	.....	.....
Windrushers G.C. (R.A.F.G.SA.)	Olympia	.....	.....
Wessex G.C. (R.A.F.G.S.A.)	Olympia	.....	.....
R. H. Perrott and Partners	Skylark II	.....	.....
B. Thomas and Partners	Skylark II	.....	.....
J. D. Jones and Partners	Olympia II	.....	.....
Dr. H. N. Gregg	Olympia II	.....	.....
Handley Page Gliding Club	Rhonbussard	.....	.....
Army Gliding Club	Skylark II	.....	.....
A. Doughty and Partners	Kite II	.....	.....
D. H. Darbishire and Partners	Olympia	.....	.....
Cambridge University G.C.	Skylark II	.....	.....
Army Gliding Club	T-42	.....	.....
London Gliding Club	Sky	.....	.....
Bristol Gliding Club	Skylark II	.....	.....
G. Burton and Partners	Olympia	.....	.....

Soaring Weather

MANY people seem to think that in order to stay up in a glider there must be a wind blowing, and that the stronger the wind the easier it is to soar. This is only true for soaring along a hill. The soaring in these competitions is done by using thermal upcurrents, and it is not necessary for the wind to blow at all.

Thermal upcurrents are bubbles of air which get warmer than the air surrounding them, and sail upwards like invisible hot air balloons. Air which is lying over towns, villages and cornfields warms up more quickly than the air over woods and lakes, and as it warms it expands, becomes lighter and more buoyant, and starts to rise. These bubbles of air go on rising until they have cooled down again to the same temperature as the surrounding air, or until they come up to a layer of air which for some reason is warmer than the air below it—such a layer of air is called an "inversion."

If the thermals are composed of moist air, they will form cumulus clouds, which make very useful signposts for the glider pilot, quite apart from the fact that he can climb up into the cumulus and gain extra height.

The glider pilot flies across country by finding these thermal currents and circling round and round in them while they carry the glider up.

At the top of each thermal the glider pilot stops circling and flies towards his destination looking for another thermal in which to circle up again. If he fails to find one, he will have to land and the flight is at an end.

The glider pilot can, of course, fly down wind, across wind, or into wind as he wishes, but as with a little boat trying to go against a strong tide, it is seldom worth while trying to fly a glider against a strong wind or a gale, as it will take many hours to go only a few miles.

Most of the flights in these Competitions will be made using thermals and cumulus clouds. Usually in this country the height of the base of the cumulus at this time of year is between 3,000 and 5,000 feet, and it is possible to use them from about 10 a.m. to 7 p.m. if the conditions are good.

Notes on the Gliders

SIZE. The wing span of the average single seater machine is about 50 feet whereas the two-seaters have a span of about 60 feet. The length varies from 20 to 30 feet.

WEIGHT. The empty weight ranges from about 360 lbs. for the small single-seater to over 800 lbs. for some of the high performance two-seaters.

CONSTRUCTION. All the gliders in this Contest are made of wood. This is usually spruce with birch or gaboon plywood covering. The skids are made of ash. The wings, and in some cases the fuselages are covered with a light cotton fabric. The new gliders, such as the Skylark and Eagle have noses made of fibre glass. This material is cheaper and easier to work. In years to come we may well see whole gliders made of fibre glass.

PERFORMANCE. Unlike most vehicles where the performance is associated with how fast they will go, the important aspects of a glider are how slowly it will descend through the air and at how flat an angle it can glide. The best gliders descend about 120 feet per minute whilst the less streamlined ones have a "sinking speed" of about 200 feet per minute. The Skylark III probably has the best gliding angle, about 1 in 32. That of the Grunau Baby is about 1 in 19.

AGE OF MACHINES. Most of the gliders in the Contest were built in the past few years but some the Rhönbussard and other machines with wing struts are nearly 20 years old.

COLOUR. Gliders are painted bright colours by the owners because besides looking attractive, it makes the machine easily visible in the air and thus reduces the chance of collision.

INSTRUMENTS. Most gliders are equipped with parachutes and such instruments as Air Speed Indicator, Altimeter which records the height and very sensitive climb and descent gauge called a Variometer. Some gliders are fitted with oxygen and radio.

LANDING GEAR. Most gliders have a single wheel behind the skid. When the pilot lands, he holds his wings level until he stops and then allows one wing to drop until it is resting on the ground. This is quite safe and no damage is done to the wing tip.

Learning to Glide

THERE are many different reasons why people start flying gliders. For some it is merely a cheap way to eventually flying aeroplanes; for others it is a means of getting into the air which is less noisy, or nearer their home than a flying club, or by which they can solo at 16 instead of 17. But for most people the reason that they continue to go on flying gliders is invariably not the often mundane one which prompted them to start. For gliding is a sport, which gets more and more fascinating the more skilled the pilot becomes. All cross-country flights, and soaring inside thunderstorms, can only be achieved by the pilot's own efforts. There is no question of just opening a throttle and pointing the aircraft in the right direction. All the lift the pilot needs must be found and used with skill and cunning, and at the end of every cross-country flight the pilot must choose a strange landing place, perhaps 10 miles away, perhaps 200, from home. The unexpectedness of gliding is one of its greatest charms.

A map of gliding clubs is given on another page, and for more detailed information about a particular Club you should if possible visit it one Saturday or Sunday, introduce yourself, watch what goes on, and perhaps have a ride in the two-seater.

It is impossible to estimate costs in advance, as this depends very much on how often you visit your Club, and how much flying you do. You will find out that many people enjoy this sport who have quite modest incomes, and as most of the work is done by members themselves, costs are kept down. For members coming from a distance most Clubs have bunkhouse accommodation. Many Clubs hold holiday courses during the summer where you can spend a week or a fortnight packing in the elementary lessons in as short a time as possible. The prices range from 12 gns. to 21 gns., depending on the length of the course, but this includes full board and lodging for the period, gliding instruction and flying charges.

When you first start you will be introduced to your instructor who will take you up for a short flight in a two-seater to see how you like it. The glider will be launched either by winch or car tow, and before the instructor releases the wire, you will probably have reached about 800 ft. in a steady, steep climb. After the launching wire has fallen away the instructor will adjust the speed to about 37 m.p.h., and will fly you on a wide circuit of the aerodrome. It will be easy for him to explain what is happening and what interesting landmarks to look out for, because the only sound will be the gentle whistle of the air past the glider.

After this flight your training begins in earnest. First you are taught the use of the controls, and how to fly straight, and make gentle turns, then how to take off and climb up, and how to make an approach and landing.

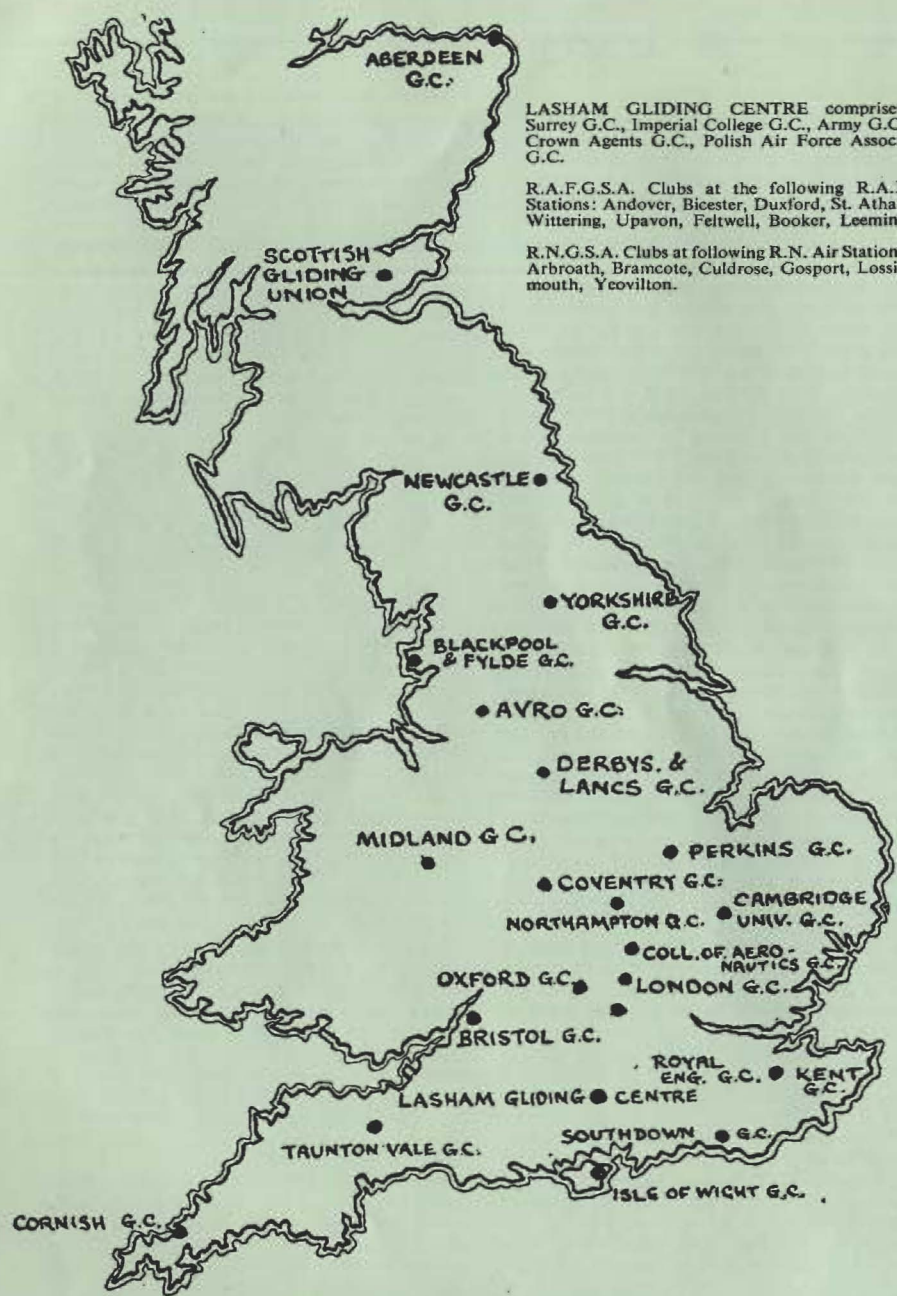
You will also have to learn stalls and spins, not because it is necessary for you to be able to do them, but because it is important that you learn to recognise how inadvertent bad flying can lead to stalling the glider, and what you must do to recover from a stall or spin should you still be so careless as to do one by mistake.

After a while you will be flying the glider from take-off to landing without much help from the instructor, and when he is finally satisfied that you can fly circuits properly, and are able to deal with such possible occurrences as the cable breaking on the launch, you will go on your first solo. From this point on, although you will have further dual flights to see that you do not get into bad habits, it will be up to you to put in as much practice as possible until you can fly the glider really well, and have learnt to find and use the lift that will carry you high above the gliding site, so that you can visit the clouds and fly for miles over the country.

You will find it helpful to do some reading on the subject before attending a course or joining a Club. Among many books which may be obtained from the bookstall on this site or from the British Gliding Association are, for a general introduction to the subject "On Being a Bird" by Philip Wills (cheap edition, 5s.) and, for the theory of gliding, "Elementary Gliding" by Paul Blanchard (also 5s.).

SAILPLANE AND GLIDING is a magazine published every other month (2s. 6d. per copy, which you will find full of news and views about gliding.

BRITISH GLIDING CLUBS



LASHAM GLIDING CENTRE comprises: Surrey G.C., Imperial College G.C., Army G.C., Crown Agents G.C., Polish Air Force Assocn. G.C.

R.A.F.G.S.A. Clubs at the following R.A.F. Stations: Andover, Bicester, Duxford, St. Athan, Wittering, Upavon, Feltwell, Booker, Leeming.

R.N.G.S.A. Clubs at following R.N. Air Stations: Arbroath, Bramcote, Culdrose, Gosport, Lossiemouth, Yeovilton.

For further enquiries about where to Glide, write or call the BRITISH GLIDING ASSOCIATION, 19 Park Lane, London, W.1. Tel. HYDe Park 3341.

Correspondence

WHO DISCOVERED THERMALS?

Sir,

Under "Correspondence" in the April issue appears a letter by A. H. Yates entitled "Who discovered thermals?"

This question led me to again read a book in my library which I went to great pains to obtain several years ago and which may not be familiar to your many readers. Since it may very possibly be available in your libraries in England, I thought I would call your attention to it, so that you might enjoy it. The book is *Animal Flight* (A record of Observation) by E. H. Hankin, M.A., Sc.D. Published in London in 1913 by Iliffe & Sons Ltd.

This book is a delight to the soaring pilot in view of what we now know of Thermals. Mr. Hankin is a little reluctant to come right out and say that he has discovered thermals—in fact, he is inclined to discover them in one paragraph, and then deny their existence in the next, but his observations on the soaring of birds are keen and his generalities on soaring flight lots of fun.

I will quote a couple of sentences:—

"The fact that soaring flight commences at a definite time of the day, earlier in summer and later in winter, is a proof that sun energy is involved." (p. 53.)

"It might be suggested that a layer of highly heated air has formed over the surface of the earth, and that this at last breaks through the super-incumbent layer of air at one place. The hot air rushing upward at this place may be supposed to acquire a rotary motion . . ." etc. (pp. 275-6).

BILL COVERDALE.
Waynesville, Ohio.

[This book, a classic in the history of soaring, is in the B.G.A. Research Library —ED.]

Dear Sir,

I read with interest Alan Yates' letter regarding the discoverer of thermals. While it is probable that many early airplane and glider pilots encountered thermal lift, here in the U.S.A., Wolf Hirth is generally given the credit for having identified the thermal as a special form of usable lift, and demonstrated its use.

Wolf was a guest contestant at the first U.S. National Championship Soaring Contest in Elmira, September 1930. On this particular day operations had been conducted from South Mountain, from a small sloping pasture near the top of the ridge, about 700 ft. above the floor of the valley. The slope of the ridge was heavily forested, with open pasture land and cultivated fields at its foot.

About 5 p.m. the wind died down to a calm. All gliders had landed, but one was missing. Wolf Hirth volunteered to be launched in his "Musterle," glide to the airport, taking a turn along the ridge on the way to try to locate the missing glider, and to report back to us by radio from the airport through the amateur radio set-up which was our communications service.

Although the sun was down and there was not a breath of wind on the hill, to the amazement of all (including Wolf), there was good lift on the slope, and the "Musterle" cruised up and down the ridge until almost dark. Hirth's explanation, later confirmed, was that the trees and the dead air among the trees on the slope absorbed heat all day and gave it off in the form of lift as the surrounding air cooled more quickly in the evening, in a manner similar to the cycle later associated with bodies of water.

RALPH S. BARNABY,
Past President,
Soaring Society of America.

PARACHUTES

Dear Sir,

With regard to your recent correspondence about parachutes in gliders, I would like to put on record, that on the 14th June while cloud-flying over Lasham in a T-42 two-seater, we collided with another glider at about 4,000 ft. resulting in my losing the left hand outer-wing section. Both the pupil and myself got out safely and made parachute descents, because of this I am now able to write this letter. Need I say more! One thing I would like to advocate, is the correct adjustment of parachute harnesses, even for a circuit, this may seem tiresome, but believe me it pays.

G. R. BARRELL.

THE PHOENIX
A Sailplane made of Artifical Materials

by H. Nagele and R. Eppler
Academic Flying Group, Stuttgart

(Translated and reproduced from "Swiss Aero Revue" for March 1958, by permission of the Editor and of O.S.T.I.V.)

1. History of Development

THE designers of the Phoenix (FS-24) had already decided in 1951 to develop and build as a private venture a sailplane capable of good performance. From the beginning the intention was to get away from the common contemporary trend towards heavy sailplanes with high wing-loadings, and to achieve this by reducing the weight rather than increasing the wing area. For this purpose a new method of shell construction was developed, which used as its principal material balsa wood with a stiffened outer skin of paper-and-glue layering. The advantages and also the tricks of using balsa wood were already well known to the designers from experience with model aircraft, and a large number of strength tests confirmed the advantages of this method of construction both in weight and stiffness. The fuselage could be made as a pure shell (monococque); the wing still needed a spar.

Unfortunately the building of this type was greatly prolonged through financial stringency. In course of time it even had to be suspended because of purely external difficulties; but this could be more easily borne in that such great strides had been made meanwhile in shell construction as well as in aerodynamics that it seemed better to start on a new design rather than finish the old. Fortunately the Stuttgart Academic Flying Group was able to get a subsidy from the Baden-Wurttemberg "Land", which made further research possible as well as the construction. Thus it was possible to finish this new development in the course of a year, although naturally such completely new paths led to new problems and difficulties. Now that the new principles employed have been fully justified by flight tests, the time has come to describe the new sailplane in detail.

2. Method of Construction

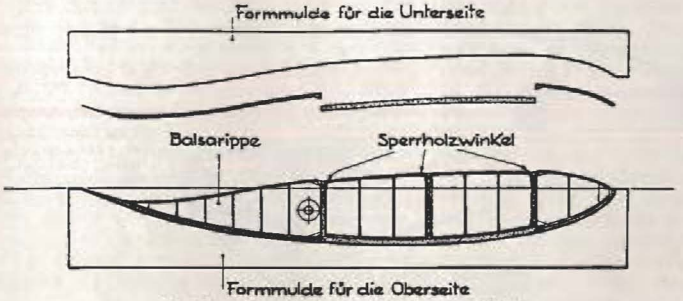
Balsa wood as a filling material for the sandwich skin was retained. As outer skin, fibreglass-strengthened polyester resin has recently become available. Therefore the skin can be attached in any convenient form and it will nevertheless retain its exceptional strength. Strength tests have shown also that the combination of balsa wood and fibreglass-strengthened polyester give particularly favourable strength qualities because both materials can be used to carry the whole load. The tensile breaking points are so similar that even in combination the two materials reach almost their highest tensile strength. Naturally the balsa wood in particular shows certain unrealiable characteristics and "scatter" in the material. This can, however, be accepted because the attainable strength qualities in the ratio of the respective weights were so favourable that, even at relatively low weights, high safety factors could be achieved.



Fig. 1.
General view of the "Phœnix".

The working of the artificial materials is

basically simple. The glass fibres can be laid on without further preparation and the resin may be quite simply applied from the outside. Consequently the form of the surfaces. This polyester can even be mixed with paints without any reduction of strength, even in those layers which lie on the surface, so that the final coat of varnish



Translation: Mould for the under-surface; balsa rib; plywood angle; mould for the upper surface.

Fig. 2. Sequence of wing construction.

outer skin of the shell does not need any particular attention. The filling layer of balsa wood is, however, also easy to install in almost any desired form because the balsa wood is very easy to work and to glue. Specifically the constant variation of the filling layer thickness in the wing skin does not produce any difficulties. The orientation of the fibres of the wood to give the direction of greatest strength is considered in conjunction with the orientation of the threads of the applied web. If at a certain place the strain is applied mainly in one direction only, then a strengthened web will be used in which 90% of all the glass fibres lie in the desired direction. So it is possible to install the weight-bearing materials throughout in the most favourable position and in the correct direction, thereby giving a great saving of weight.

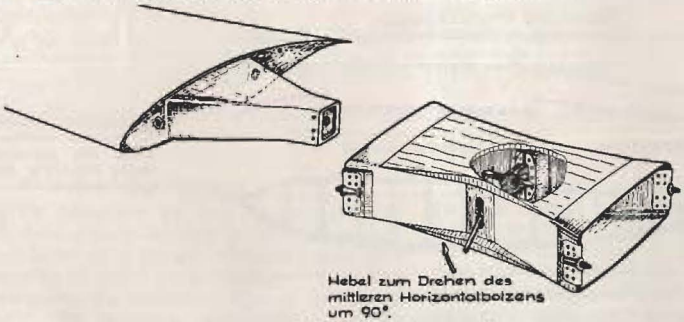
A well-known difficulty with the working of polyesters in the hand-application procedures is the fact that all polyesters have an unpleasant sticky surface as they polymerise when exposed to the oxygen of the air. Consequently they are generally worked in sealed forms, and this has meant that a wing of 8 metres half-span does not yet come into consideration. Covering with foil is not possible because of the relatively complicated surface shape of a glider, as this leads to waves which afterwards have to be smoothed out with great difficulty. These difficulties may be avoided by application of a special polyester for varnishing purposes, made by the firm of Lechler, which polymerises right up to the air can be applied quite thinly. Possibly later on this will not be necessary. In the meantime, epoxy resins have proved better than polyesters, although no colour tests have been carried out.

So it appeared that the new building methods were completely acceptable for a purely shell construction, by which the advantages of the skin, not only for the surface but also for all weight-carrying parts, can be fully utilized. It was perhaps a bit much to suggest that this new development should be undertaken in a small academic flight study group, since so many big firms are already working with such artificial building materials and have not yet dared to follow its ultimate implications. But the prospect of progress regarding weight, accuracy of form and manufacturing potentialities was so attractive that this step had to be taken. Moreover, nowhere else had the special combination of balsa wood and glass fibre-strengthened artificial resins been worked upon, and yet this combination made everything possible (a patent is being taken out for it). All other materials which have so far been considered, i.e., foam or honeycomb construction, are inferior to balsa wood as a filling material for the sandwich skin.

3. Construction and Manufacture.

The fuselage skin was constructed over an inner wooden kernel. First of all the filling is glued on to the body, so that from the start the weight-carrying points and the rim of the cockpit cover can be strengthened

by using plywood. A separating material is used so that the skin can later be separated quite easily from the kernel. On the kernel the outer skin of glass fibres and polyesters



Trans'ation: Lever for turning the central horizontal bolt through 90°.

Fig. 3. Wing attachment.

was applied, and afterwards the skin was separated into an upper and lower half, lifted up and the inner skin inserted. In the lower half of the fuselage were successively installed the wing bridge, seat, controls, etc. The upper half was afterwards replaced in position and glued with overlapping glass fibres. The resistance of the skin to knocks is so great that in no case was additional stiffening necessary.

For the plexiglass hood a "negative" shape made of glass mats and polyester was built up on the fuselage body, and in this mould the cover was blown, so that it took up the required contours accurately. This process is not usual, but after initial difficulties it proved itself well.

For the wings, two very exact form moulds of the outer contours were constructed. On them, the upper and lower wing sections were constructed in their final form. First the outer skins were inserted, then the balsa wood was glued on and the inner skin added. After ribs and supports had been fastened to the upper wing section, the lower-section skin could be laid on in three parts so that the supports and gluing points most under strain could be kept under good control (Fig. 2). All fastenings and linkages for the rudder and flaps were installed before gluing. Rudder and flaps were, however, cut out of the wing skin after the gluing process, so giving a perfect fit into the contour.

The wing profile has a good thickness between 15% and 55% of its chord. This range was strengthened if high bending moments had to be considered. The thicknesses of the artificial outer skin and the balsa wood filling were so arranged throughout that as regards distortion and normal tension the same safety factors exist. This was achieved by building in three supports at 15%, 35% and 55% of the wing chord which at the same time carried the cross loads and part of the torsion.

The positioning of the load-carrying points on the wing skin was adapted to the new method of construction. The glass web layers of the strengthened wing zone were mainly inserted direct into a wing root fitting and its supports. The suspension is achieved according to an idea of W. Hutter, by three parallel bolts which are fastened in a tubular wing bridge, the middle one of which is fitted with a bayonet fastening for final latching and security (Fig. 3).

A finished wing was submitted to strength and loading tests for both bending and torsion. It was put into a jig which had the same main fittings as the wing bridge of the fuselage. The tensions in a number of places were determined by means of extension measuring marks and, in addition, the bending and twisting was determined by levelling instruments. The case of pull-out from a dive with high speed and 4*g*, which in flight would only occur for a few seconds, was held in the test for 30 minutes, as was the diving case, which results in very high torsion moments at the cambered rear portion of the profile. The loading with 1.3 times stationary load was kept up for three days. In none of these load tests was there any significant permanent distortion, even though the construction regulations permit them to a certain extent. Also the measured tensions were everywhere below

the permitted values. The bending at the pull-out from dive was measured and found to be approximately 42 centimetres. Naturally, the wing is much stiffer compared with normal wings.

The direction of the main loads can be easily verified. The wing bridge extends over 40% of the wing chord and over this entire region is glued to the fuselage skin so that the torsion is transferred. The sheer stresses are particularly applied at the seat, winch-cable coupling and skid. As all these points are at a small distance from the wing bridge, they provide in consequence, due to their small size, a light but nevertheless very strong unit which comprises the wing bridge, seat, coupling and skid. The idea of a special nose-hook was abandoned because aero-towing can be achieved without difficulty with the centre-of-gravity coupling.

The elevator is operated with a coupling bar, the rudder with cables, the ailerons and flaps with torsion tubes activated by cogs with high gear ratios. The transmission gives low torsion moments and high stiffness. All control mechanisms lie within the outer contour.

For quick assembly the arrangement adopted gives a particularly easy solution. At the same time as the wing is hung on to the three bolts of the wing bridge, the ends of the torsion shaft for the ailerons and flaps couple together, also the elevator assembly with automatic elevator connection is pushed from in front into the hollow of the rudder assembly and fastened.

already appreciated therefore that under certain circumstances a gain in climbing speed in a thermal is more important for cross-country cruising speed than an extremely high speed in level flight. Great importance was therefore laid on especially good circling flight. The low wing-loading necessary for this purpose is inimical to a good gliding angle at extremely high speeds. In this respect, however, much can be gained without raising the wing-loading by good aerodynamic form. The entire design was laid out, not from the point of view of rate of descent or gliding angle, but only for average speed on cross-country flights, which alone was taken as the standard. As well as the very carefully shaped fuselage, the choice of wing profile, fuselage taper, wing-loading, wing dimensions and all other appropriate flight details were so selected that the average cruising speed attained its optimum. The only quantities which could not be systematically determined were the upcurrent strength and distribution. The necessary assumptions here were based on weak thermals. It appeared that even with strong thermals there would only be a small disadvantage in so far as cross-country flying was concerned.

In calculating the wing profile, the requirement of best average cross-country speed demanded on the one hand, at small lift coefficients, extremely low drag, but on the other hand, for circling flight, maximum lift. These two conditions could be fulfilled with the help of a new calculation proceured

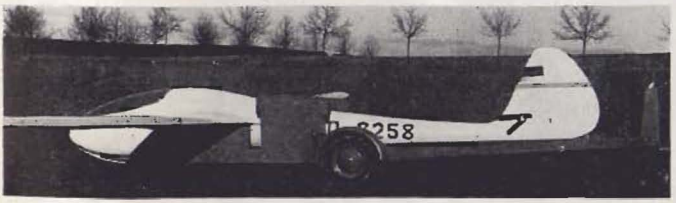


Fig. 4.
Rigging the wing with the fuselage held in the trailer.

The (open) trailer is kept so short that the fueslage can be easily lifted onto its skid. The wings can therefore be rigged while the fuselage is still on the trailer (Fig. 4). Afterwards the fuselage is lifted at the point where the elevator assembly is connected, and the trailer is removed.

4. Layout and Aerodynamics

The layout and design follows exactly the principles previously laid down. It was

The final wing profile produced, at low lift coefficients, a fully laminar upper surface, and at high lift coefficients a laminar undersurface. It was submitted to searching examination in the wind tunnel of the Gottingen Aerodynamic Research Institute. The resultant experimental curve is shown in Fig. 5.

The following are the data of the machine (see also Fig. 6):—

Span, 16 m. (52 ft. 6 in.)

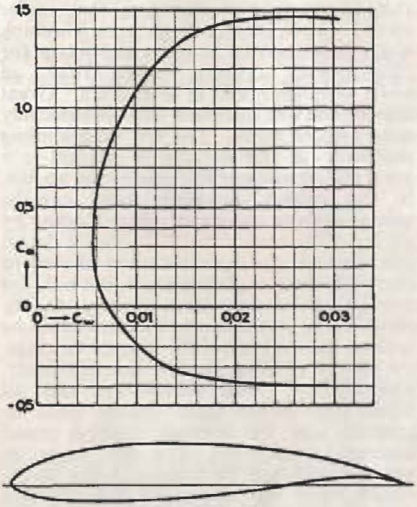


Fig. 5. Wing section and measured polar curve.
Ca = lift coefficient; Cw = drag coefficient

Length, 6·84 m. (22 ft. 5 in.)
Height, 0·95 m. (3 ft. 1 in.)
Wing area, 14·36 sq. m. (154·6 sq. ft.)
Aspect ratio, 17·83.

WEIGHTS:
Wing with elevators, 94·9 kg. (209 lb.)
Fuselage with instruments, 61·3 kg. (135 lb.)
Controls, 8 kg. (17·6 lb.)
Ballast, 100·8 kg. (222·2 lb.)
All-up weight, 265 kg. (584 lb.)
Wing loading, 18.5 kg./sq. m. (3·79 lb./sq. ft.)

Flight performance calculated with the experimental profile and 100 kg. additional load:—

Best gliding angle, 1 in 37.
Speed at best gliding angle, 80.1 km./h. (49·8 m.p.h.)
Lowest sink, 0·53 m/s (1 ft. 9 in. per sec.)
Speed at lowest sink, 69·2 km./h. (43·0 m.p.h.)
Rate of descent at 50 km./h., 0·59 m/s (1 ft. 11 in. per sec.)
Gliding angle at 100 km./h., 1 in 31.

Fig. 7 contains a graph of empty weights plotted against span, which P. & A. Morelli have given *a propos* their paper on the Veltro. The curves show the approximate variation of empty weight with increasing span for conventional and laminar sailplanes. This presentation shows quite clearly the weight economies which were aimed at in the Phoenix.

Great emphasis was also laid on agreeable handling characteristics. To ensure good performance, the ailerons need to be moved as little as possible. Their actuation, however, should not on that account be reduced compared with ordinary sailplanes. For this reason the wing-tips were given an elliptical outline, which not only gives a particularly favourable lift distribution but enables an aerodynamically efficient aileron to be employed. As a large aileron chord at the inner and outer ends contributes little to the action of the aileron, but much to its drag, each aileron was given a small chord at the inner end and a somewhat oblique axis (see Fig. 6). Such an elevator possesses good efficiency even if of short length. In order that sloping aileron axes can be employed, the outer portion of the

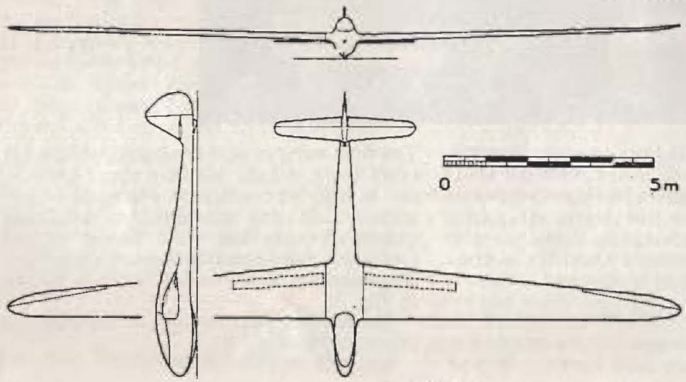


Fig. 6. General arrangement drawing.

wing must be bent slightly upwards. This did not cause any additional difficulty with the construction of the form mould, but made an important contribution to the rolling moment. The rudder was made relatively large. Because of the small wing weight and the great length of the fuselage, good efficiency was also expected here. The longitudinal stability was carefully calculated beforehand and the flying "feel" was aided by spring suspension of the rudder. Landing was assisted by means of spoiler-flaps on the underside. These flaps give greater lift, so that a low landing speed is achieved. The gliding angle can be very much steepened by the flaps, which can be extended to 90°; and this, together with the low landing speed, makes landings in very small fields possible.

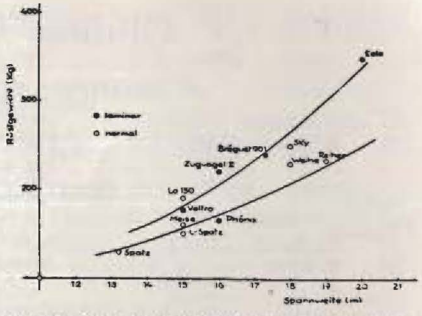


Fig. 7. Comparison of relationship between empty. weight and span for various sailplanes. Vertical scale, empty weight in kg.; horizontal scale, span in metres

5. Flight Characteristics

The test flights of the Phoenix went smoothly. No difficulties were experienced with winch-launching or with aero-towing at the c. of g. point. The flying characteristics can be described as pleasant. The operation of all controls is good. The rolling time from −45° to +45° at 65 km./h. (40.4 m.p.h.) is four seconds. This value is perhaps surprising in view of the small ailerons. It conforms, however, almost exactly to the theoretical calculations which show that larger ailerons of other shapes have smaller effect. The spoiler-flaps confirm expectations. There appears to be no change of trim right out to 90°. The increased drag makes extremely steep landings possible. The intended circling flight characteristics were also attained. At a speed of 60 km./h. and a bank of 30° a circling time of fifteen seconds was achieved, which implies a turning circle of 80 m. diameter. The rate of descent in such circling was 0.7 m./sec. With 45° bank and at 60 km./h. a twelve-second circling time was achieved, which gives a 65 m. diameter circle and a 1 m./sec. rate of descent. These circling characteristics have already made possible thermal flights in December when other sailplanes found it impossible to soar.

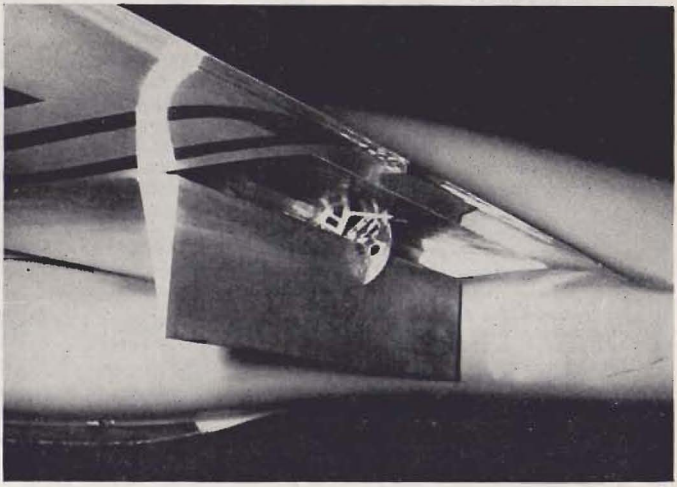


Fig. 8. Landing flap fully out. Note the reflection on the under surface of the wing.

Gliding Certificates

DIAMONDS FOR GOAL FLIGHT

No.	*Name*	*Club*	*Date*
226	A. Burns (Mrs.)	Surrey Gliding Club	12.4.58

GOLD C CERTIFICATES

No.	*Name*	*Club*	*Date*
33	A. Burns (Mrs.)	Surrey Gliding Club	12.4.58
34	P. Scott	Bristol Gliding Club	12.4.58

SILVER C CERTIFICATES

No.	*Name*	*Club*	*Date*
716	J. F. Westhorpe	London Gliding Club	4.7.58
717	H. Doktor	Yorkshire Gliding Club	21.4.58
718	H. Bell	Coventry Gliding Club	21.4.58
719	P. Berthelson	Coventry Gliding Club	13.4.58
720	L. A. G. Glover	Coventry Gliding Club	13.4.58
721	H. T. Greenaway	Coventry Gliding Club	12.4.58
722	M. Wilson	Coventry Gliding Club	12.4.58
723	C. M. B. Horsfield	Surrey Gliding Club	20.4.58
724	G. R. Barrell	Surrey Gliding Club	20.4.58
725	I. W. Strachan	Midland Gliding Club	16.4.58
726	G. A. T. Davies	Midland Gliding Club	26.4.58
727	J. N. Stevenson	Surrey Gliding Club	27.4.58
728	R. F. Pollard	London Gliding Club	27.4.58
729	N. H. Maygethling	Windrushers RAFGSA	27.4.58
730	D. W. Corrick	Bristol Gliding Club	27.4.58
731	H. Corney	Derbys & Lancs Gliding Club	26.4.58
732	P. G. Russell	London Gliding Club	25.4.58
733	M. Finnimore	HCGC Hawkinge	25.4.58
734	V. Crown	London Gliding Club	11.5.58
735	J. H. Stanley	Army Gliding Club	11.5.58
736	J. A. Drake	London Gliding Club	11.5.58
737	J. J. Lasenby	RAF Wessex	20.5.58
738	B. J. Davey	Imperial Coll. Gliding Club	20.4.58
739	J. Costin	London Gliding Club	11.5.58
740	R. Wilkin	Yorkshire Gliding Club	4.5.58
741	S. J. Burt	Surrey Gliding Club	21.4.58
742	R. S. Waller	Cambridge Univ. Gliding Club	11.5.58
743	D. A. Davies	RAF Windrushers	18.5.58

C CERTIFICATES

Name	*Gliding Club or A.T.C. School*	*Name*	*Gliding Club or A.T.C. School*	*Name*	*Gliding Club or A.T.C. School*
J. A. R. Tydeman	No. 614	J. W. L. Bonallack	Kent	R. J. Pirie	Surrey
P. C. Goodman	RAF Andover	J. W. Winch	No. 643	T. F. Ripley	Yorkshire
S. J. Warwick-Fleming	RAF East Anglian	H. P. Gray	RAF Wessex	J. W. Harris	Cornish
A. E. W. Jones	No. 643	W. B. Reekie	No. 611	R. D. Preston	RAF Moonrakers
G. G. Clay	Avro	B. Mann	No. 643	P. Burford	London
R. Wise	No. 633	J. S. Ruskiewicz	Polish A.F.	I. M. Gillard	RAF East Anglian
P. A. Martin	Coventry	J. Murray	RAF Gutersloh	M. J. Webber	Bristol
T. N. Rosser	London	W. G. Close	No. 643	D. M. King	Northampton-shire
A. D. Wishart	Scottish G.U.	D. A. Y. O'Clarey	Coventry		
J. C. Counter	Hawkinge	D. Nichols	Oxford		

Name	*Gliding Club or A.T.C. School*	*Name*	*Gliding Club or A.T.C. School*	*Name*	*Gliding Club or A.T.C. School*
K. B. Coughlin	Scottish G.U.	P. Hanneman	Surrey	R. F. Pledge	Yorks.
P. E. Bethell-Fox	Cambridge	D. G. Broclesby	No. 643	R. F. Jessop	No. 614
I. L. Weir	Derbys & Lancs.	R. Walker	Avro	P. K. Dey	Empire Test Pilots
E. A. Keay	Cornish	D. B. Lane	RAF Wessex		
D. J. Walker	RAF East Midlands	A. J. Brooks	Coventry	F. O'Brien	Cambridge
		N. F. Webb	RAF Four Counties	S. J. Cole	Bristol
G. M. Wade	Cranwell RAR	R. T. Munt	No. 615	S. V. Swallow	Surrey
A. Steele	Aberdeen	J. L. Sharpe	No. 631	K. W. G. Smith	Kent
C. Allsopp	RAF Geilen-kirchen	A. Waltham	Perkins	D. M. Ashford	Imperial College
		P. North	Coventry		
A. J. Rutherford	RAF East Anglian	R. G. Spratt	RAF Windrushers	G. M. Bellingham	RAF Gutersloh
G. M. Mettam	Surrey	P. Coster	Cornish	M. H. Barrett	BEA
M. R. Calkin	RNGSA Fulmar	E. J. Baker	RAF Wessex	J. R. D. Green	Surrey
		T. E. R. Taylor	RAF East Anglian	I. M. Mansfield-Robinson	RAF Wessex
B. J. Davey	Imperial College	C. W. L. Smith	Cornish	A. H. Taylor	Surrey
		R. G. Vaile	Imperial College	J. F. Coupe	Kent
A. Middleton	RAF East Midlands			G. A. Hawkins	Yorkshire
		S. M. Smith	Midland	C. A. Bosworth	No. 621
M. J. Hay	Army	R. S. Trigg	RAF Chilterns	A. J. Newton	Handley Page
G. Winterbourne	London			R. J. Burton	RAF Wessex



UNLIKE last summer attendances on Wednesday nights have remained good. Mainly due to an interesting series of films and talks. By the time these notes are out, two further improvements should be in evidence, new bar-flooring and benched seats around the wall.

As an innovation the Club will be holding an exhibition of paintings and drawings of gliders and light aeroplanes by amateur artists. This is planned for the end of October and anyone interested in exhibiting should contact the Secretary. We are also hoping to hold towards the end of the autumn a social O.K. dinner-dance if there is sufficient support. More details of this will be given to members in the Club's newsletter.

The membership is still increasing and amongst our newcomers are four M.P.s, tactfully split between the two major parties. Anyone interested in joining the club should write to the Secretary at the club.

Diary of Lectures and Film Shows
Wednesdays at 8 p.m.

July 23rd	THE WAY TO THE STARS—feature film with Michael Redgrave.
30th	National Gliding Week (no lecture).
Aug. 6th	MALTA STORY—feature film.
13th	Talk.
20th	GENEVIEVE—feature film with Kenneth Moore, John Gregson, Kay Kendall and Dinah Sheridan.
27th	Talk.
Sept. 3rd	COLDITZ STORY—final feature film in the series.
10th	To be published later.
17th	To be published later.
24th	To be published later.

MODEL AIRCRAFT EXHIBITION

THE British Gliding Association has arranged to take a stand at the above Exhibition, which is to be held at the New Agricultural Hall, Westminster, from August 20-30th Saturdays included. The Exhibition is open daily from 11.00 a.m. to 9 p.m.

As we will have to man the stand ourselves, readers are urgently requested to give up as much time as they can spare, please write or telephone the Secretary of the British Gliding Association. 19 Park Lane, London, W.1, telephone Hyde Park 3341.

World Championships Preliminary

An account of the visit to Buckingham Palace, the crossing to the Continent, the journey to Poland and the practice period.

by A. E. Slater



(Photo by Ian Bonham)

P. A. Wills, Chairman of the Association, towing his trailer into Buckingham Palace before leaving for Poland

At precisely 4 p.m. on Thursday, 5th June, five Standard Vanguard Estate cars drove in through the gates of Buckingham Palace, four of them pulling trailers. After their occupants had taken tea in the Palace with the Duke of Edinburgh, and one or two trailer doors had been opened so that he could see what was inside, the convoy emerged again and proceeded to the Horse Guards' Parade, where they proceeded to rig Nick Goodhart's Skylark III for the benefit of Press photographers. One gliding man, a civil servant whose window overlooks the Parade, could scarcely believe his eyes when he suddenly looked out, and momentarily thought the machine had made an emergency landing there, but the presence of four trailers soon convinced him that there must be some other explanation.

The party was soon spread out along the road to Dover, with only one little *contre-temps* to worry about—before rigging in the Horse Guards' Parade, Nick Goodhart had thrown his coat in through the open window of his Vanguard, and now a wallet containing about £40 was missing from a pocket The story reached the Press, with the result that Ann Welch, whose car arrived at Dover first, was continually called to the hotel telephone there for latest news of the wallet story—had it really disappeared on the Parade, or—horrid thought!—at some earlier stage of the afternoon's proceedings? All anxiety was allayed when Nick turned up with the news that he had found the wallet intact on the floor of his car; it must have fallen out of his pocket.

Next morning all four trailers were successfully backed or manhandled on to the S.S. *Twickenham Ferry* to everyone's satisfaction except that of certain innocent persons who thought their cars were going on the same boat. The B.G.A. had informed the railway authorities in January of the exact length of the trailers, but the information had not been passed on to the right quarters, so that the trailers took up a lot more room than expected and several cars had to be transferred to a later boat to make room for them.

From Dunkirk to München Gladbach took just five hours by Ann's "control car," but the others took longer with their trailers. Nick Goodhart made fastest speed, with the result that he arrived at the Belgian-Dutch frontier an hour before the others, only to find that the authorities in Holland had kindly provided a motor-cycle escort to take the whole party across the southern tip of the country, so he thought it only courteous to wait there for the other three to catch up. But that part of the journey went swimmingly without anyone needing to worry about losing the way.

At München-Gladbach we were most hospitably looked after for the night by the Army at the big N.A.T.O. centre outside the town, thanks to excellent organisation by Mr. Bell, who looks after the Visitors' Mess, and to the courtesy of General Sir Dudley Ward. Unexpectedly we found Wally Kahn there awaiting our arrival.

Once again we had a motor-cycle escort, this time to put us safely onto the Autobahn next morning, bound for Nürnberg. The original plan was to spend the next night in Berlin, but difficulties were foreseen with the East German frontier, and we were to enter Poland through Czechoslovakia instead. But the scheme to spend Sunday, 8th June driving 400 miles from Nurnberg to Leszno had to be given up, because our drivers were too tired.

So there we were, on a Sunday, with no Czech money, faced with the need to spend a night in the country, with only transit visas allowing us to pass through without stopping. Fortunately the British Air Attaché in Prague, and his assistant, Mr. R. Parker, did not mind being suddenly asked at lunch-time on a Sunday to fix things for us, which they did very capably. They had already been called upon by the New Zealand team a day or two before for a similar purpose.

The spectacle of the control car parked in Wenceslas Square drew a large crowd, which grew to enormous proportions as one trailer after another drew up alongside. And while we were there a sixth car arrived, containing Toby Harrison, Jill Walker and Sally Thompson, on the way to crew for the New Zealand and Australian teams; and then a seventh containing John Graves and some other members of the American party.

The occupants of all seven cars put up for the night in the "Hotel Pariz" at a place called Hradac Kralove. It had been a day of instability and cumulo-nimbus clouds, and everybody had seen several sailplanes in the air in various places, mostly before reaching Prague.

The whole party spent about an hour and half a getting out of Czechoslovakia into Poland, after which the first arrival at Leszno was the control car at 3 p.m., after no worse



The unusual sight of a Skylark III being rigged on Horse Guards Parade in the centre of London

(Photo by Godfrey Harwood)

trouble than a police check outside Wroclaw for inspection of papers and driving licences. Here we may as well give the composition of the British contingent. Each pilot had two crew members and one member of the "base team" in his car.—

Commander Nicholas Goodhart, R.N., Lorne Welch, Brian Jefferson, and Kenneth Owen (in charge of publicity), with Skylark III in trailer.

Lieut.-Col. Anthony Deane-Drummond, Mrs. Evie Deane-Drummond, Major John Archer, and C. E. Wallington (meteorological adviser).

Philip Wills, Mrs. Kitty Wills, Ray Stafford-Allen, and Harry Midwood (ground engineer), with Skylark II.

Lieut.-Commander Antony Goodhart, R.N., Frank Irving, Peter Swift, and John Williamson (reserve pilot, and in charge of radio), with Olympia 415.

Control car: Mrs. Ann Welch, Betsy Woodward, Alan Yates, and the Editor. The last two got their visas a few hours before setting off, and only then by describing themselves as OSTIV delegates; the Warsaw authorities tried to keep them out till the contest actually began, on the ground that they were also journalists.



(Photo by Godfrey Harwood)

Our pilots on the Horse Guards Parade. L. to R.: Lt.-Cdr. G. A. J. Goodhart, R.N., Lt.-Col. A. Deane-Drummond, M.C., P. A. Wills, C.B.E., Cdr. H. C. N. Goodhart, R.N.

These five cars were in radio communication throughout much of the journey; some of the speakers were amused, in a certain foreign country, to hear their conversation interrupted by an angry but unintelligible outburst; no doubt certain officials somewhere are still trying to make head or tail of certain tape recordings.

We might add here the composition of the Commonwealth teams, which came this time from five countries.

Australia: Don Brown (formerly of Surrey Gliding Club), with Jill Walker and Sally Thompson of England as crew.

New Zealand: Keith Wakemen, with Christopher Wills from New Zealand, Toby Harrison and Peter Cummins. The first two were hoping to fly together in a Bocian, but changed it for a Jaskolka, which Wakeman flew.

South Africa: Evert Domisse, with Gordon Clarry from his own country, and Ruedi Vögeli and his wife Hanni from Switzerland (the only Swiss present, apart from OSTIV delegates).

Rhodesia (strictly the Central African Federation): Eric Burditt, with Colonel Geoff Benson and Teddy Proll from England; they took the route through East Germany. The Colonel, by the way, still maintains his habit of making tea at 6.30 a.m.

Canada: Gordon Oates and Charles Yeates, with a German Geier II and a French Bréguet 901 respectively; they brought no crew with them, but each has a ground crew of two Poles, who know hardly any English but are magnificently efficient.

Accommodation on the airfield is in tents, as to which the following translation of the relevant information was handed out to all the English-speaking teams on arrival:—

"The lodgings for all national crews taking part in Championship are prepared in the tents, which are neighbouring and are situated according to the alphabet. For each crew there is one tent. If there are women among the members of the crew, they can according to their wish stay with their crew, or in the special tent together with other women, the members of other crews. If the women member of the crew will wish to stay with her manly crew, the screen will be provided. The whole tents town has the electric lights . . ."



(Photo by B. J. Koszewski)
Opening Ceremony by the Polish Prime Minister, Mr. J. Cyrankiewicz

What with the British team including three married couples, a satisfactory arrangement of "the screen" was worked out. Betsy Woodward made up a bed in the British stores tent, to the frustration of possible pilferers, and the other two non-team members, Alan Yates and the Editor, were accepted into the Rhodesian tent.

There was a fine wash-house, and feeding arrangements were super-generous.

PRACTICE PERIOD

Tuesday, 10th June, was given to testing flying instruments and controls, and then, next day, a task was given. 70 km. to Sroda in the N.E., against the wind, and back again. Nobody completed the course, but a few got part of the way back. Deane-Drummond nearly got there, Nicholas Goodhart went two-thirds of the way, and our other two pilots rather less; but no official results were put out, so that they could not be compared with the rest of the field.

A 106-kilometre triangle was set for Thursday, 12th, with an 82 km. race down-wind to Wroclaw as an alternative. Most pilots tried the triangle; some tried both. Adam Witek, flying the Mucha-Stanart described in the June SAILPLANE, won the Wroclaw race in 50½ minutes against seven Open Class pilots and two others of the Standard Class, after first going round the triangle and securing 19th place in that.

The British pilots all attacked the triangle, which was won by Bozidar Komac in a Yugoslav Meteor, with Rene Fonteilles second in a Bréguet 901 and Aleksander Saradic in the other Meteor, third. Komac's time was 1 hr. 13½ min. Deane-Drummond finished in 9th place with 1 hr. 42 min., Wills 15th with 1 hr. 57 min., Nicholas Goodhart 16th with a minute longer, and Tony Goodhart 22nd in a field of 32 who got round.

The position of the Yugoslav Meteors as Britain's most feared rivals was confirmed the next day, when a 208-km. triangular race was set and they secured 2nd and 4th places. But a foretaste of what was to come in the field of rivalry was provided by Ernst-Günther Haase with the German HKS-3, who won the race in 4 hrs. 36 mins. Deane-Drummond again did best of the British team, in 9th place with 2 hrs. 51 mins. and Nick Goodhart took a minute longer. In front of them, besides the three already mentioned, were the two Poles with Jaskolkas, two Czechoslovakians, and Daniel Barbera of France. Tony Goodhart and Philip Wills came 6th and 7th among Standard Class pilots.

For the last practice day another triangle was set, this time of 308 km. Nick Goodhart finished second this time, with 4 hrs. 21 mins., and again Komac beat him with 3 hrs. 54 mins., which was announced as a new world record. Then came the two Poles, and in 5th place Deane-Drummond with 4 hrs. 24½ mins., beating the other Meteor by 5 minutes and Haase (in 11th place) by 15 minutes. Tony Goodhart came 5th in the Standard Class, and Philip Wills, instead of trying the triangle, set off for an attempt at 500 km. by covering the first two legs of the triangle, so as to be officially observed, and then dashing off from Wroclaw to the south-east as far as he could go. He finished up among the Tatra mountains, finding good lift up to 7 p.m. and landing at 7.45, but landing 15 kms. short of the 500.

John Williamson flew the Olympia 415 round the triangle for practice; he had never flown the machine before, or any of the Olympia 4 series, and got round in 5 hrs. 21 mins.

The official opening was performed on Sunday, 15th by the Polish Prime Minister, Mr. Josef Cyrankiewicz, after which we had a marvellous aerobatic sailplane display, including evolutions never before seen by most of the visitors, and a Helicopter took a Jaskolka off the ground and then dangled it vertically below like a fish on a line.

1958 WORLD GLIDING CHAMPIONSHIP RESULTS

ERNST G. HAASE (W. Germany) and Adam Witek (Poland) are the 1958 World Gliding Champions in the open and standard classes respectively. In the open class Nicholas Goodhart (Gt. Britain) and R. Mestan (Czechoslovakia) are the runners-up, and in the standard class P. Persson (Sweden) and H. Huth (W. Germany). Brief details follow of the days' tasks and a full list of the final results. A full report on the day to day flying and met. conditions will be published in the October issue.

TASKS SET DURING THE PRACTICE AND CONTEST DAYS

	June	
Thursday	12th	Practice day 106 km. triangle Leszno—Rawicz—Goslyn—Leszno
Friday	13th	Practice day 208 km. triangle, Leszno—Sroda—Klotoszyn—Leszno
Saturday	14th	Practice day 308 km. triangle, Leszno—Kalisz—Wrockaw—Leszno
Sunday	15th	Opening Ceremony followed by aerobatic display
Monday	16th	1st day, 230 km. out and return, Leszno—Jelenia Gora—Leszno
Tuesday	17th	2nd day, 106 km. triangle, Leszno—Rawicz—Gostyn—Leszno
Wednesday	18th	3rd day, 307 km. goal race, Leszno—Warsaw
Thursday	19th	Rest day
Friday	20th	Flying cancelled due to weather
Saturday	21st	Flying cancelled due to weather
Sunday	22nd	4th day, 93 km. goal race, Leszno—Ostrow
Monday	23rd	Flying cancelled due to weather
Tuesday	24th	5th day, free distance
Wednesday	25th	Rest day
Thursday	26th	6th day, distance along a fixed line N.E. through Inowroclaw
Friday	27th	Flying cancelled due to weather
Saturday	28th	Flying cancelled due to weather
Sunday	29th	Closing of contest and prize giving

THE PLACINGS OF THE BRITISH TEAM FOR EACH DAY WERE

		Open Class			*Standard Class*		
		Place	*Pilot*	*Points*	*Place*	*Pilot*	*Points*
1st	*day*	9-10	A. Deane-Drummond	856	13	T. Goodhart	420
		9-10	N. Goodhart	856	23	P. Wills	296
2nd	*day*	3	A. Deane-Drummond	890	5	P. Wills	783
		15-16	N. Goodhart	673	7	T. Goodhart	737
3rd	*day*	1	A. Deane-Drummond	1,000	7	T. Goodhart	841
		5	N. Goodhart	848	18	P. Wills	159
4th	*day*	7- 8	N. Goodhart	836	11	T. Goodhart	546
		29	A. Deane-Drummond	278	20	P. Wills	293
5th	*day*	4- 6	N. Goodhart	959	5	T. Goodhart	925
		10	A. Deane-Drummond	914	6	P. Wills	911
6th	*day*	1	N. Goodhart	1,000	2	T. Goodhart	958
		2	A. Deane-Drummond	986	3	P. Wills	937

FINAL RESULTS

OPEN CLASS

Name	*Nation*	*Sailplane*	*Place*	*Points*
E. Haase	W. Germany	HKS III	1	5,651
N. Goodhart	Great Britain	Skylark III	2	5,172
R. Mestan	Czechoslovakia	Démant	3	5,124
B. Komac	Jugoslavia	Meteor	4	5,118
E. Makula	Poland	Jaskolka	5	5,066
D. Barbera	France	Bréguet 901	6	4,997

Name	*Nation*	*Sailplane*	*Place*	*Points*
A. J. Deane-Drummond	Great Britain	Olympia 419	7	4,924
J. Laur	W. Germany	Zugvogel III	8	4,916
L. Maxey	U.S.A.	Zugvogel III	9	4,884
J. Kumpost	Czechoslovakia	Spartak	10	4,761
A. Saradic	Jugoslavia	Meteor	11	4,427
V. Marecek	Czechoslovakia	Démant	12	4,063
A. Araoz	Argentine	Skylark III	13	4,031
M. Gorzelak	Poland	Jaskolka	14	4,016
H. Molander	Sweden	Zugvogel III	15	3,937
R. Kuntz	W. Germany	HKS I	16	3,906
R. Fonteilles	France	Bréguet 904	17	3,885
C. Yeates	Canada	Bréguet 901	18	3,863
L. Haza	Czechoslovakia	Démant	19	3,857
H. Burditt	Rhodesia	Jaskolka	20	3,692
J. Weiss	France	Bréguet 901	21	3,614
H. Resch	Austria	Mg-23	22	3,477
J.Fuhringer	Austria	Mg-23	23	3,355
L. Legenyei	Hungary	Siraly II	24	3,335
P. Bikle	U.S.A.	Bréguet 901	25	3,089
M. Wierietiennikow	U.S.S.R.	Jaskolka	26	2,774
A. Thomsen	Denmark	Jaskolka	27	2,639
G. Fennes	Austria	Mg-23	28	2,610
G. Oates	Canada	Geier II	29	2,468
W. Jefimienko	U.S.S.R.	Jaskolka	30	2,349
E. Kisely	Hungary	Siraly II	31	2,276
M. Zwieriew	U.S.S.R.	Jaskolka	32	2,241
R. Hossinger	Argentine	Jaskolka	33	2,103
S. Smith	U.S.A.	Bréguet 901	34	2,066
E. Sommisse	South Africa	Jaskolka	35	1,813
I. Oda	Japan	Jaskolka	36	1,636
W. Wakeman	New Zealand	Jaskolka II	37	1,280

STANDARD CLASS

Name	*Nation*	*Sailplane*	*Place*	*Points*
A. Witek	Poland	Mucha Standart	1	5,232
P. Persson	Sweden	Zugvogel IV	2	5,086
H. Huth	W. Germany	Ka-6br	3	5,021
J. Horma	Finland	Pik 3c	4	4,844
H. Tandefelt	Finland	Ka-6	5	4,673
J. Wojnar	Poland	Mucha Standart	6	4,553
T. Goodhart	Great Britain	Olympia 415	7	4,427
V. Stepanovic	Jugoslavia	Ilindenka	8	4,170
C. Labar	France	Bréguet 905	9	3,973
W. Toutenhoofd	Holland	Skylark II	10	3,702
N. Opitz	Hungary	Standart Futar	11	3,578
Z. Rain	Jugoslavia	Ilindenka	12	3,395
P. Wills	Great Britain	Skylark II	13	3,379
I. Silesmo	Sweden	Zugvogel IV	14	3,352
W. Gonczarenko	U.S.S.R.	Mucha 100	15	3,343
F. Compton	U.S.A.	Mucha 100	16	3,246
N. Sejstrup	Denmark	Eon Olympia	17	2,888
J. Sadoux	Argentine	Skylark II	18	2,885
A. Xhaet	Belgium	Mucha 100	19	2,841
M. Petersen	Denmark	Ka-6	20	2,755
P. Lafosse	Belgium	Ka-6b	21	2,692
J. Friis	Denmark	Eon Olympia	22	2,540
J. Kaay	Holland	Skylark II	23	2,324
D. Brown	Australia	Mucha 100	24	1 634

A.R.I. AUSTIN. It is with deep regret that we have to report the death of ROGER AUSTIN following a road accident on 1st July. He was working at R.A.E. BEDFORD and had much to do with the development of the Olympia 4. He obtained the 22nd British Gold C Certificate in 1956. He had recently married MISS GAYNOR REES and was believed to have just returned from his honeymoon.

Advertisements with remittance should be sent to Chelron Press Ltd., 3, Cork St., London, W.1. (REGent 0677) Rate 6d. per word. Minimum 7/6. Box numbers 2/- extra. Replies to Box numbers should be sent to the same address.

PUBLICATIONS

"AUSTRALIAN GLIDING" — monthly journal of the Gliding Federation of Australia. Editor, Allan Ash. Subscription 30 shillings Australian, 24 shillings Sterling or 3.50 dollars U.S. and Canada. Write for free sample copy. "Australian Gliding", Mineside Post Office, Mount Isa, Queensland, Australia.

"MODEL AIRCRAFT"—Official Journal of the Society of Model Aeronautical Engineers. Features contest winning model designs, constructional articles, photographs and reports of international and national contests. 1/6 monthly from any newsagent. Send for specimen copy free from "Model Aircraft", 19-20 Noel Street, London, W.1.

"SOARING"—Official organ of the Soaring Society of America. Edited by Lloyd M. Licher. Obtainable from Soaring Society of America, Inc. Box 66071, Los Angeles 66, California. Subscription $4.00 in North America and $5.00 elsewhere, apply to your Post Office for a form.

SLOPE SOARING with a radio control model sailplane is a fascinating pastime and a typical phase of aeromodelling. Read about this and other aeromodelling subjects in AEROMODELLER, the world's leading model magazine, published monthly, price 1/6d. MODEL AERONAUTICAL PRESS LTD., 38 Clarendon Road, Watford, Herts.

READ POPULAR FLYING the bi-monthly magazine of the Popular Flying Association. Subscription £1 a year. Specimen copy with scale plans of the Hirtenberg HS9A and history of this unique aircraft 1/6d. from The Popular Flying Association, Londonderry House, 19 Park Lane, London, W.1.

SOCIETIES

BRITISH INTERPLANETARY SOCIETY 12 Bessborough Gardens, London, S.W.1. Full particulars of membership, together with a programme of lectures, film shows, etc., in London and other towns obtainable on request. Annual Subscription £2.2.0. Entrance fee 10/6.

EQUIPMENT FOR SALE

CABLE parachutes (B.G.A. approved) obtainable from Ratsey & Lapthorn Ltd., Medina Road, Cowes, I.O.W.

BINOCULARS and telescopes. Send for lists. Approval terms allowed. Also binoculars cleaned, adjusted and repaired. Quotations free. Hatton Optical Co., Lansdowne, Bournemouth. Established 28 years.

AIRCRAFT FOR SALE

RJ-5. Present owner has no time to fly, so Dick Johnson's World Record Sailplane (535 miles) is for sale. 40 to 1 Glide-Ratio. 55' Span Laminar-Flow Metal Wing. C.A.A. Licensed. Mint Condition throughout. $7,000 or $7,500 with enclosed trailer. Thomson, 477 North Kellogg, Santa Barbara, California, U.S.A.

TUTOR in excellent condition all through, fitted spoilers, full instruments and supplied with C. of A. £135. Southdown Gliding Club, Firle, Alciston, Sussex.

£50 modified cadet with improved performance. Instruments and full year's C. of A. Apply Box 35.

WANTED

COVERED TRAILER for Tutor. Box 36.

Annual Best Flights

ANNUAL best flights reported since the last issue have made up in quality what they have lacked in quantity. Additions on flights which better earlier results are as shown.

Distance single-seater

21st May. Sgt. A. Cough, Skylark IIIB, South Cerney-Heerlen (Holland) 348 miles.

Goal Out and Return single-seater

28th May. Mrs. A. Burns, Skylark IIIB, Lasham-Kidlington-Lasham, 94 miles.

Absolute Altitude single-seater

1st June. D. Cretney, Olympia, R.A.F. Bicester, 15,600 ft.

Gain of Height single-seater

1st June. D. Cretney, Olympia, R.A.F. Bicester, 13,100 ft.

200 *km. triangle single-seater*

15th June. D Ince, Olympia 419, Lasham-Warminster-Grove-Lasham, 35 8 m.p.h.

Special mention, distance two-seater

21st May. R. Padgham and F. Allan, T-21 Sedbergh, South Cerney-Tonbridge, Kent, 96 miles.

Record flights are of course, subject to homolgation.

BOOK REVIEWS

Gliding: A Handbook on Soaring Flight: by A. D. PIGGOTT. Published by Adam & Charles Black, London, 1958.

DEREK Piggott is without doubt one of the finest gliding instructors in the world. His book is therefore an important event, and covers the ground he has set himself completely and with professional perfection. It includes everything that a glider pilot should know from the day he joins his club to the day he enters the elite. He omits nothing—such as No. 13 in the list of 15 things to be remembered before taking off on a cross-country flight.

This book is a monumental one, it would be a bold man who criticised it in its facts. The only small point I could disagree with was in his warning that in a side slip care should be taken against an inadvertent spin. In my humble view it is well-nigh impossible to spin out of a side slip, since the aircraft must first roll right over onto the opposite wing.

This is a volume for the serious student and instructor, for anyone who wants to learn how to glide or to glide better. It does not pretend to propaganda, and contains no stirring descriptions of the fine flights which Derek has carried out on occasion. But it is obvious to the reader that he could not write such a book did he not love the teaching and practice of soaring flight.

P. A. WILLS

The World's Sailplanes: by BETSY WOODWARD. Price 17/6 or 18/3 incl. postage from B.G.A. Prices to OSTIV Members 14/- via Betsy Woodward.

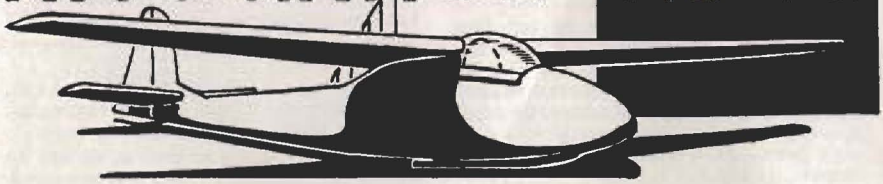
THE Author has rendered a very valuable service to the gliding community in collecting together a wealth of information on sailplanes from all over the world. Drawings and photographs, together with dimensions, weights and details of performance are given for both one off and production types.

A work of this sort depends on information from many sources and this has been extracted with great determination. Checking on its validity cannot have been an easy task and here the critical reader may notice inconsistencies particularly when comparing performance and other details of different aircraft.

This is no way detracts from the value of this book as a work of reference for sailplane pilot and student of design. It seems safe to say that it will be read at many firesides during many winters to come and that it will long prove a ready source of information for many sliderules.

DAVID H. G. INCE.

CLUB AND ASSOCIATION NEWS



WITH the arrival of each copy date it is interesting to receive news from the newly formed clubs telling of the trials they have encountered and managed to overcome. These nearly always fall into the same pattern, difficulty in finding a suitable site, lack of funds and aircraft, but all abounding with enthusiasm to get on and get things going.

The older clubs also tell us of consolidation of sites, and equipment—with improved flying and social facilities both for members and visitors alike.

The continued interchange of visitors with and without aircraft, though not by any means a new thing, is becoming more and more popular and visits are now regular items of news.

Press Secretaries have the task of sorting out all these details for club news and members' co-operation is important to get the details correct and sent in on time.

Club news for the October issue should be in by first post 20th August, sent to S.E. Ambulance Station, New Cross Road, S.E.14, and as usual typed double spaced on foolscap.

COLIN MOORE,
Club and Association News Editor.

ACCRA

WE have now been flying our T-31B (affectionately known as "Comfort") for 10 months and ten of our early members are now flying solo. March was a good soaring month, but in April and May the rain had a habit of making its appearance on Saturdays and Sundays.

Norman Foreman set up a new record by keeping Comfort (and a Joy Rider) up for 53 mins. on 27th April and our first lady member to fly solo, Nora Hall, did so on 19th April.

The Syndicate B-Spatz arrived at the beginning of March and within a fortnight, Karl Tiede had kept it up for 2 hrs. 20 mins. during a local soaring flight. A week later, on 23rd March, Gerry Burgess alleged that he had completed a 36 mile triangle, but had no photograph to prove it, the barograph had not then arrived and the official observers observed the wrong point at the north end of the triangle. First round to Mr. Fumble.

On 30th March, Karl Tiede lost so much height trying to take a photograph of his first turning point (Silver C triangle) that he had to abandon the triangle and look for a landing place. This first turning point is, of necessity, 4 miles inside bush-covered country but Karl just made a patch of open ground near the edge of the bush. The only trouble was that he was ¾ mile off the road and our first retrieve was rather a comic

affair which, in view of a lack of those convenient farmhouses with telephones, resulted in a large amount of chaotic coming and going before the searchers met up with the searched.

In general the soaring here has not come up to expectations. Any lift over 4 ft. per second is exceptional and 3 ft. (when it can be found) is the normal average. Cloud base on soaring days is usually at about 3,000 ft. and up to 4,000 ft. in November and December. Although flying restrictions have now been lifted so that cross-country flights are permitted, no cloud flying is allowed except in an area (over dense forest and bush) twenty miles north of the launching site. Our recent experience (March-June) is that the lift fades at between 2,500 and 3,000 ft. and that, even if permitted, entry into cloud would not be easy. There is no doubt however, that Silver C distance and height can be achieved but the 5 hr. duration flight presents a problem. There is almost invariably a dead period in the later part of the morning after the early cu has faded. In addition, afternoon soaring flights have never continued after 4 p.m. although occasional isolated thermals, very weak, have been found up to 4.30 p.m.

P.G.B.

ARMY

MEMBERS continue in placid contentment characteristic of their calling to, receive their just deserts. Tony Deane-Drummond off to the Internationals, Skipper Stanley his Silver C, H. Hutchinson his 5 hour duration (all in thermals and never in cloud), and Tom Potts a posting to B.A.O.R.

E.S.

BRISTOL

A WEST wind and unstable conditions on 27th April, brought the Pundits up from Lasham and a dog-leg course to Lympne via Bicester and Alton was declared by Lorne Welch, Eagle, Frank Irving, Skylark III, and Cliff Dowdall in a Skylark II. All three got away but Lorne Welch was the only one to cover the full distance, the other two landing at the first and second turning points respectively. Wally Kahn brought his Eagle along, but was content to do local soaring. The day was noted for a remarkable retrieve, in which the retrieve crew made a 200 km. speed record to Hastings, having overshot Sea Eagle by about 170 km. On the same day Tom Parkes reached 7,400 ft. in the Skylark II and Peter Philpott obtained Silver C height.

May 11th gave Philpott his Silver distance when he took the Olympia 50 miles to Bicester.

Whit week-end started cold and wet but the weather improved on the Sunday, although the thermals were difficult to contact. Gordon Fisher soared locally for 4 hrs. in the yellow Skylark. The Tuesday started with cu. forming very early and first to contact was Derek Stowe in the club Skylark who eventually reached 8,000 ft. Peter Scott was next away and was not heard of until 7 hrs. later when he reported from Peterborough, having been attempting a triangle via Nottingham.

After trying several clouds, Mike Garnett reached 10,400 ft. to give him Gold C height, the second in the Club. On the same afternoon, Alwyn Sutcliffe reached 8,000 ft. in the Olympia and Bob Perrott completed his Silver C by going 47 miles to Gaydon, reaching 6,500 ft. on the way.

A further Gold C height was obtained on 11th June by Derek Stowe in the Club Skylark, and Ken Brown, in the Yellow Skylark, just failed to get the necessary height by a few hundred feet.

Nympsfield is certainly maintaining the promise it showed in our first full year of operations, last year, and the flying statistics so far for 1958 are; with 1957 figures in brackets:

Launches from site	2,734	(1,982)
Hours flown	604	(489)
Cross-Country miles	1,207	(590) including 342 by visitors.

The best month was April with 216 hrs. and 599 miles flown by Club machines.

After much sawing of steel and drilling of holes, the new two drum winch finally emerged from the workshop on Whit Monday and went into operation straight away.

A start has been made on the Parry-Jones Memorial garden and this should be completed in the near future to a design by Peter Scott. The area is surrounded by a low Cotswold stone wall and will be of grass with flower beds and several flowering trees. A path across it will have in the centre a large map of England with all gliding sites marked on it.

M.S.

CAMBRIDGE

ALTHOUGH our fleet has been reduced by one aircraft, the Olympia, and although the occasional hold-up caused by the finite wisdom of the odd member is not unknown in our operations, the club seems to be doing more flying than ever. This year we have already thermal-soared on 48 days and logged over 3,000 flights.

A large number of pilots have had reason to be pleased with their performance. Among them are Stewart Waller who took the Prefect 65 miles to the coast and thereby completed his Silver C, and Mike Bedford who went to Leiston in the Skylark on the same day, also on his first cross-country flight. And above all, we saw the first out-and-return to Oxford. This profound piece of punditry was produced by Peter Nielson who declared a 300 km. triangle, rounded the first turning point, Stanton Harcourt, but had to break off from the second leg in view of high cloud. However, he managed to bring the Skylark II back to Cambridge after 6 hrs. in the air, having covered something like 150 miles.

For the National Gliding Week, Peter Nielson, Peter Bulman and Chris Thompson hope to take the Skylark to Nympsfield.

Looking into the future, we see that there is many a plot afoot. There is a T-42 being built at Kirbymoorside which may well find its way to Cambridge, and there is a lorry in the hangar ready for transmutation into a new self-mobile two-drum winch, bigger and better than the "Brute", our present winch. The new gadget will be known as the "Beast", and it will be considerably nearer the winch-driver's dream of a winch than the Brute. Who knows, one day we may be able to charge the winch-driver a launching fee, if he is really having more fun than the chap at the other end.

G.S.N.

CORNISH

THE greatly improved weather these last few months has enabled us to push up our launching rate again, assisted by the introduction of the two-cable system by our C.F.I. We have also had three Silver C duration legs (one by an *ab initio* member) and a number of A's and B's. We have also had four successful courses, and have had to add three extra ones to our programme for the rest of the year.

Ted Berry and George Collins took the Tiger and Olympia over to Plymouth at the beginning of June for the Air Display, and there followed an excellent demonstration. George also made recently our first within-the-County cross-country when he did a round trip of 50 miles in 1½ hrs.

Bill Lewis, Hon. Local Secretary and Transport Officer, is being widely congratulated on a new cable-release mechanism he has invented for the retrieving car. It gives a greater degree of safety to all concerned and is exceptionally good for us, using as we do fenced runways.

During 30th June members of the Croydon Experimental Flying Group spent a week flying with us and we had visits from Fred Slingsby and Godfrey Harwood and their wives. Godfrey Harwood flew down in the motor Tutor from Lasham. Fred Slingsby told us that our site is as good as he has seen anywhere.

C.M-H.

COVENTRY

TWO items of news stand out in the annals of the Coventry Club this month—we heartily congratulate our C.F.I., Vic Carr, on completing his Gold C, and Howard Greenway on becoming our youngest Silver C pilot.

Vic. climbed from 1,300 ft. to 11,500 ft. in a storm-cloud over Gaydon, after an aero-tow out to Leamington to clear the Birmingham control zone. Everyone at Baginton was delighted to hear that Vic. had attained his ambition, which is a fitting reward for all the hard work he has put into the Club since taking over as C.F.I.

Howard flew the red Olympia some forty miles to North Luffenham on Sunday, 9th May, reaching 6,000 ft. on the way and so completing his Silver C at the age of 17½, only a month or so after his father, John, had completed his.

We have also to congratulate the following on first solos for A and B certificates: Messrs. Huntley, Webster and Aspinall, and Gus. Cunningham on getting his Silver C height in the Viking.

Baginton is becoming popular as a cross-country goal; we have been delighted to welcome recently Ted Stark (Skylark II) from the Long Mynd, Mrs. Ann Burns (Skylark III) from Lasham, and A. N. Other from Bicester (R.A.F. Windrushers) (Olympia)—the last named had reached

15,000 ft. en route. Visitors may like to know that the Coventry Aeroplane Club can sometimes give an aero-tow retrieve.

General flying has gone very well in recent months, with a steady tally of up to 100 launches on each flying day; we set up a new Club record of 128 launches on 20th April. We have now bought a second new Prefect from Slingsby's, so that our fleet of seven Club aircraft now is: two each of T-21B, Tutor, and Prefect, with the Viking; we are also pleased to see yet another syndicate Olympia on the field, that of Messrs. Findon, Sheffield, Thwaite and Wright. Thus we can now muster eleven aircraft on parade. This growth of our fleet is putting some strain on our launching facilities, and work is in progress to convert the Humber tow-car to a second two-drum winch, so that we shall then have two twin-drum and one single-drum winches.

H.N.G.

CRANWELL

As usual the weather clamped down during February and very little gliding was done. However during this period John Delafield and Ian Strachan managed to tow down from the Newcastle Club a Kite 2B, in spite of a very heavy snow storm. This aircraft has proved to be a great success, and is the first case at Cranwell of two Flight Cadets actually buying their own glider. Towards the end of term a Chipmunk was established at the Station, and has been used frequently for providing aero-tows. This is a great asset and to some extent offsets the disadvantage that we have in that we cannot begin gliding until about 2 p.m. during term time.

During the Easter vacation we held a most successful camp. The first week was spent at Cranwell and the second at the Long Mynd. During the first week we had the use of the Chipmunk for aero-towing and a great deal of soaring was done. On the first day Ewan Perreaux did a cross country in the Prefect of 43 miles, having taken over the aircraft from Flt. Lt. Bridson who had just done the air test. This particular air-test deserves mention because in it the glider was taken to Coningsby and back (just!), thereby breaking the out and return record for the Club. Also during this first day Delafield broke the local endurance record with a flight of over 4 hrs. in the Kite.

At the Long Mynd we had a few days of "Northerlies" (left over by the Cambridge Club who were there before us) and these conditions only gave one cross country worthy of mention. This was by Delafield in the Kite who flew 35 miles to the Black Mountains. However the last two days of the camp made everything worthwhile. The weather on these days was fine and there was an unstable North-Westerly airstream, which although 45° off the ridge, proved to be soarable. During these two days Ian Strachan gained all 3 legs of his Silver C, and on his cross-country did a really excellent flight of 65 miles to R.A.F. Ashton Down, near Stroud. He remarked that if he had noticed any activity at Nympsfield he would have landed there. Ewan Perreaux got his 5 hrs. as well in the Tutor, and really deserves full marks for "sticking it out" under such very uncomfortable conditions. Several cross-countries were done at Long Mynd which did not qualify for Silver C distance, ranging from an eventful valley landing by Chalmers Watson to flights of about 25 miles by Flt. Lts. Dunn and Taylor. Taken overall this Easter Camp was most enjoyable, and next year we hope to be able to arrange the same sort of camp again.

As for the summer term there is very little worthy of mention as yet, apart from our activities over Whitsun and half-term week-end. On the first week-end a party of four Cadets took the Kite down to the R.A.F.G.S.A. at North Luffenham, and had quite a successful time. During half-term gliding was held at Cranwell all day Saturday and Sunday. For this week-end our C.F.I., Flt. Lt. Bridson, brought his Skylark II up from Dunstable. On the Saturday he had a trip of 3 hrs., landing away at the R.A.F.G.S.A. site at Swinderley 10 miles away—just to "show the flag". On the Sunday Ian Strachan did the same thing in the Kite, but unfortunately there was no one gliding at Swinderley then.

During the coming months several of our members plan to visit the Long Mynd and Lasham and we hope to renew old acquaintance with these clubs. In return we would like to say that if anyone manages to glide all the way up to Cranwell he will be welcomed, and no doubt suitably entertained.

J.D.

CROWN AGENTS

SEVERAL visits have been made to Lasham by both home based and overseas members. At the time of writing, Dick Kuyper and family are still on the site, and are flying regularly. He was dogged by bad luck in getting his five hours' duration in thermals, having had three attempts, the last one falling short of the requisite time by only 3 minutes. The fourth attempt was successful, and he stayed airborne for 5 hrs. 33 mins.

David Marshall was luckier, and on 14th June managed 5 hrs. 46 mins., thus completing the second leg of his Silver C.

Though not "pure" gliding, an interesting flight, or series of flights, was made in June by Godfrey Harwood who flew the Motor Tutor (Slingsby T-29 with J.A.P. 36 h.p. engine) from Lasham to Perranporth, refuelling at Yeovil and Plymouth, and back to Lasham a few days later with one stop only at Exeter.

J.E.G.H.

DERBYSHIRE & LANCASHIRE

ON 13th April, Bill Elrington flying the private Sky, declared a 100 km. dog-leg flight to St. Davids via Hereford but landed at Rhoose airport, Cardiff, some 148 miles from Camphill; Ken Blake, in the private Skylark II, flew some 28 miles towards the Long Mynd.

It is interesting to note that Camphill was near the centre of the anti-cyclone of the 12th and 13th and that therefore our inversion was lower and our convection poorer than in southern England where about nine 300 km. and one 500 km. flights were achieved.

On Sunday 27th April, the wind at Camphill appeared to be 280-290/35-40 kts. at 3,000 ft. and the thermals were of course very broken, with a cloud base of not more than 2,000 ft. above the field at 11.00 hrs. Under these circumstances it was rather surprising that Elrington should declare Lympne Airfield, even though he was flying a Sky.

Congratulations to Bill on achieving the improbable and reaching Lympne, some 190 miles away, in record time. This year's first Gold C leg and Diamond.

Our congratulations to Harold Corney on his 140 mile Silver C distance flight in the private Gull IV to Mendlesham Airfield near Ipswich. Rumour has it that his retrieving crew stationed themselves somewhere on the 30 mile radius from Camphill and waited, hoping that he would be able to reach them.

Michael Kaye flying the club Skylark II, declared a 100 km. speed attempt to Boston and landed at R.A.F. Sutton Bridge, some 88 miles away.

Keith Johnson, flying the club Olympia, landed at Mansfield (28 miles away) due to some trouble with his breakfast.

Our congratulations to Brian Hollingsworth and Ron Allen (our new publisher) who obtained their C's on 9th March and 7th April. Also to Ron Tune and Paul Neumark on their farewell to Tutors and elevation to Prefects.

On 26th May, Dennis Ward took a privately owned Krajnek to Carburton—a distance of 27 miles. His partner, Ron Frodsham fared better on 14th June when he flew the Krajnek to Sherburn in Elmet, in 1 hr. 50 mins. and achieved his Silver C distance by a comfortable margin.

J.A.K.B.

DUBLIN

ALTHOUGH weather conditions have been very favourable during the last few weeks, we have not been able to take full advantage. The Kranich and the Petrel have both been delayed with their overhaul. It was only last week the latter emerged from the workshop, dazzling all eyes with its new colour scheme of red fuselage and cream wings.

The Kite Syndicate had very bad luck early in May, when one of their members made what appeared to be a three point landing which resulted in a sharp twist to the fuselage and the loss of the empennage.

Besides losing the tail, no one is quite certain what other damage lies hidden between it and the cockpit.

This only leaves the Grunau on active service and there is a race between Jim Bellew and Con. McNulty to the field every Sunday morning to take the test flight. On 10th June Jim won the race, took the test, and at the top of the launch found that he could not release the cable. Fortunately, after overtaking the car below, it released automatically and for the next hour all present on the field helped to sort out a pile of tangled cable. Eventually Con's turn came up and resulted in his second Silver C

Aug 58

leg, with a climb to 4,500 ft.

It seems fairly certain now that the Club will be given permission to use one of the Air Corps' hangars until the end of the year. By that time they expect us to have built our own accommodation.

K.J.M.

FOUR COUNTIES

MAY, our first full month operating from R.A.F. North Luffenham, has brought the highest monthly number of launches which we have yet done—over 400, plus about 32 hrs. flying time. This excludes the soaring done at South Cerney in the Inter-Command soaring contest, where our team pilots were Jack Kent, Peter Balmforth and Phil Hosey. Spider Webb and Bill Harrison helped retrieve the Grunau with the aid of the Club's jeep which we have just bought.

Len Wilkes, Gerry Mudford, David Brooke, Mike Farrand, M. Plt. Carlisle, Sgt. Keay, Wg. Cdr. McKeand and John Dry, have all recently got their B's. Bill Harrison has got his C with a 24 min. flight in the Tutor.

We are still having trouble, however, with our Humbers for auto-towing. This tends to limit our launches to an average of only fifty a day. To overcome this, Don Ross, our C.F.I. and Tony Lamb, are working on a two-drum TVO winch. When this is ready we hope to have 2-3 cables regularly in operation, with one standby, which should vastly improve the launch rate.

T.J.B.

KENT

AT the A.G.M. held at the end of the Club's second year, Richard Parkinson was elected Chairman of a new Committee. Roy Hubble was elected as C.F.I.

The third year of operating at Detling has started off with a flourish. The oldest and the youngest (legally permissible) members of the club went off on their first solos. They are George Court, who blushingly admitted to being 59 years old, and Marion Jones, who is 16 years young. Four other first solos were achieved on the same week-end by members in the more average age range.

Last Sunday's fine weather enabled some good soaring trips to be achieved by the T-21 and Olympia. Roger Neame, in the syndicate Skylark II, missed his five hours by some twenty minutes.

M.G.

LAKES

AT long last, we proudly proclaim some tangible achievement in our flying records with which apparently far distant object, the Club was formed some twelve months ago.

During the work of recent months, we had almost lost sight of this objective beneath a congealed morass of sweat, tears, cement and mud and certain quarters had made fond reference to us as the "Lakes Hangar Construction Company".

However, begone dull care in the face of three C Certificates safely tucked away by John Allen, Jo Bird and John Young, on Whit Monday, in the Tudor. These are our



Progress on the Lakes G.C. hangar continues rapidly under the watchful eye of the C.F.I.

first C's attained on the site and thus a pinnacle in the history of the Club, and a shot in the arm for the enthusiasm of the many members who eagerly await the return of the Venture—now overdue—and their first solo and subsequent C Certificates.

We had hoped to resume a full flying programme at Whitsun with the expected return of the Venture by this time but, as it had not arrived, we downed tools long enough for a short flying spree by half-a-dozen of the Solo members on Whit Monday and have since consigned the Tutor to its trailer in order to complete hangar work ready for the reception of the Venture —we hope in a week's time after C. of A.

The hangar now only awaits the doors fitting and glass in the windows. Matthew Hall recently returned from Ireland with two Wild winches in excellent order (the winches, not Matthew).

J.M.Y.

LASHAM

In spite of a washed-out Saturday and Monday morning, the Whitsun Rally produced some excellent flights, the best being Tony Deane-Drummond's 190 miles to Yeadon Airfield near Leeds. This flight was made on the Sunday, second being David Ince, who reached Wirksworth approximately 130 miles, and third, Aylett Moore, in his T-42, the Mogul.

Other notable flights recently have included Ann Burns's out and return of 97 miles to Kidlington which, subject to confirmation, gains two records, John Williamson and Ann Welch T-42 record out-and-return to Westbury, and Brenda Horsfield's and Lt. Cdr. Dimock's climbs, both of which reached around 11,600 ft.

The excellent weather of the week-end of 14th and 15th June, was marred by the in-cloud collision between the Club Eagle flown by Geoffrey Barrell and Julian Merfield, both of whom bailed out successfully, and the privately owned Sky flown by John Messervy, our New Zealand full-time Instructor. John himself was preparing to bail out when he realised that the aircraft, 14 ft. of whose port wing was missing, was controllable and by extremely skilful flying at not less than 65 knots, he landed back at Lasham. During the flight back at one point his variometer recorded 3 ft. a second lift. It is understood that this is the first collision in cloud since gliding started some 25 years' ago.

During this week-end, visiting members from Newcastle made good flights in their Skylark 11, Ian Paul reaching Newark on Trent, 140 miles, on the Sunday.

Others gaining their Silver C height were Jill Mettam, Peter Adair and Chris Hely Hutchinson, the last named also staying up the necessary 5 hours.

H.T.

LONDON

There has been much activity both in the air and on the ground at Dunstable since our last notes.

Briefly, Valerie Crown completed her Silver C with a good flight to a point near Newmarket reaching 6,000 ft. in clear air en route, in the Prefect; John Drake in his Kite 1 and Costin in the Club Olympia landed nearby and completed their Silver C's also. The Gull 1 flown by Norman Preston did a 50-kilometre triangle and your scribe took it to North Weald. Mike Garrod has now completed his Gold C and one Diamond by getting his height recently and Philip Ramsden and Douglas Bridson have got Gold C height.

One party visited Nympsfield, and another party visited the Southdown Club over Whitsun with the Gull I and a Kite 1. We were made very welcome indeed at both clubs and much enjoyed our short stays.

An enormous earth dumping and bull dozer levelling job is at present in progress as a result of which a really first-class and very large car park is being created which will solve this problem once and for all, and believe it or not, it will be complete before you read these notes!

Our courses so far have been well attended and we have obtained several new members from them.

We shall be holding a National Gliding Week and it is hoped to be able to award good daily prizes; including a year's subscriptions to "Flight" and "Aeroplane", a carton of Guinness containing 16 oz. cans; a candy box in Wedgwood Jasper, and an international travelling iron. We are also most indebted to the Rover Co., for their loan of three Land-Rovers for the period of the competitions.

Arrangements are also being made for the National Sailplane Aerobatic Contest for the Jack Hanks Trophy on 21st September 1958.

P.F.

MIDLAND

We are extremely pleased to report our first Gold C distance leg to be done in a club aircraft. Wilbur (B. R.) Wright was the successful pilot and he was flying an Olympia, on Sunday, 13th April. Unfortunately he missed a diamond by a few miles because Leiston Aerodrome just would not appear out of the murk. Charles Green, in his Skylark II, made diamond goal distance by flying to Great Yarmouth in four hours on 11th April. Glyn Davies completed his Silver badge on 12th April by taking the Red Olympia 60 miles, in rather poor conditions.

The week-end of 14th-15th June, was quite exceptional for its thermals, which were enjoyed also by members of the Cambridge and Southdown Clubs, temporarily operating at the Long Mynd. One Southdown member arrived with a Tiger Moth and hook, much to the great delight of those who sampled this very satisfactory way of being launched.

Much effort is at present being put into improving the car park by drainage and surfacing. Of late years this area has become more and more like a swamp in wet weather.

J.H.

NEWCASTLE

The thermals began in earnest on 4th April when instructor Dave Wilson and pupil H. Blaydon, took the T-21 up to 3,700 ft. and were airborne for an hour. The next good day was the 26th with the T-21, this time with Alan Pratt and J. Thompson going up to 4,100 ft. during the course of a flight lasting 33 minutes. The 27th was considered good enough for attempts at Gold C legs and Alan Pratt in the Sky and Andy Coulson in his Skylark III decided to try for distance. After several false starts due to winch trouble, they finally got away and were seen circling in and out of cloud to the south of the field. Alan then decided to go for height instead. He landed back at the field after 80 minutes having climbed to 10,000 ft. in the meantime, but unfortunately he had forgotten to turn on the barograph so another good flight has been in vain.

May, as far as the soaring goes, began on Saturday 3rd, when Alan Finlay gained his C certificate with a forty-minute flight in the Tutor and no one else was able to do anything as the thermals seemed to die out when he landed. They revived next day, however, when Dave Wilson took a



(Photo by S. M. Smith)

Group of Midland G.C. members at the Annual Dance at the Lyttleton Arms Hotel. L. to R.: Mrs. J. Hickling Mr. J. Hickling, C.F.I. Mr. G. Roberts, Mr. C. Green

passenger in the T-21 for a flight lasting 36 minutes.

The next two week-ends weren't up to expectations, but there were several flights in the 20-minute region. Things picked up again the next week when the T-21 was again to the fore when Dave Wilson and J. T. Anderson took it up to 3,500 ft. during a 35-minute flight, while Andy logged another 1½ hrs. in two 45-minute flights.

On 25th May with two flights by the Skylark III (totalling 2 hrs. 5 mins.). Andy then took over the T-21 and with Albert Newberry in the other seat, took it up to 4,100 ft. in a 45-minute flight. The other flight on that day was by Denis Driver who kept it up for 35 minutes and reached 3,500 ft.

L.A.C.

NORTHAMPTONSHIRE

DURING the week-end of 7th and 8th June, the Club held an At Home, when the aerodrome was thrown open to the public without charge, but there was a small fee for parking cars. About 500 car-owners took advantage of this facility, and were able to watch the normal activities of a gliding club. Passenger trips were also offered as an attraction, and, thanks to our Chairman, Bill Sykes, who lent his Eagle, we were able to carry 90 visitors. Both the Eagle and the Club's T-21 were kept fully booked up, flown by the club's senior pilots, and it is estimated that, if we had had more two-seaters, we could have doubled the number of passenger flights. Our debt to the C.F.I., Ken Pearson, both for help in the organisation, and for laying on vast numbers of A.T.C. Cadets to help, should be recorded.

A couple of week's earlier, Ken Pearson had, by invitation, taken our T-21 to Hucknall, where, with Joe Saunders, he had given an aerobatic display in connection with the big Air Display there. The show was written up in the magazine "Flight", and was, by all accounts, a great success.

The first C certificate of the season to be obtained on the site was gained last Sunday, 15th June by Vic Hartopp. We are especially happy to record this success as Vic is such an active and helpful clubman.

The profit from the At Homes, together with sundry other sums which have accrued to us by devious means, have been put into a special account towards a higher performance sailplane than we at present have. There has been a considerable influx of new members lately, many of last year's *ab initios* are now potential C pilots, and the need for a better machine is being increasingly felt.

B.C.H.

OXFORD

THINGS keep moving much as usual here at Weston-on-the-Green with the two-seater list getting longer and longer, and in order that everyone will get a fair deal, we have had to restrict our membership somewhat. The position is kept in constant review by the Committee and in actual fact potential members haven't had to wait more than a month or so before being admitted. The position has been somewhat eased lately.

Our Olympia has now returned to service after a face lift resplendent in yellow and black. It started its new lease of life with a bang when Chris Hurst, our Ground Engineer, who was responsible for the work, took it to Bridport, near Weymouth —a distance of 109 miles from the site. It would appear that this was a flash in the pan, for on almost every week-end conditions appear to be good all round the airfield and not having aero-tow facilities have been just out of reach.

A party took the Olympia to Lasham in the hope of doing something good, but unfortunately the weather wasn't kind to them.

At the same time, two of our instructors were there on an Instructors' Course and John Ellis was granted a full category. John has been instructing at Oxford for many years but hasn't had time in the past to apply for a category. In view of his vast experience, he has now been appointed C.F.I. We who spent an enjoyable week at Lasham, would like to take this opportunity of thanking all who made a bad week as far as the weather was concerned, so enjoyable.

Do we hold the record for the longest Committee meeting? At the last General Purposes Committee meeting the committee were so long winded that having started at 7 p.m. it had to be adjourned at 11.45 p.m. and continued the next day—total time, 7 hours. They must be excused however, as some vital points of future club operation and policy were discussed.

V.R.C.

PERKINS

WE have replaced our Red Tutor with a Baby EoN—purchased from the Derbys & Lancs. Club.

It is a beautiful machine to fly and we can't imagine what on earth possessed the Pundits at Camphill to part with it—but we are very pleased that they did.

Some of our members, by the way, have booked a place in one of the summer courses at Camphill and are looking forward to this chance of being able to spend a week at this delightful site.

It gave us pleasure to have our Chairman, Fred Wallace, back on the Airfield after his recent absence through health reasons.

Last month we changed our solid launching cable, the old one had done 1,400 launches and had seven knots in it.

We use nothing else now but solid cable from "British Ropes" and with our P.6 powered "wild winch" we can frequently top 2,000 ft. before releasing.

When these notes appear we expect our "new" Tutor will be operational. This has been assembled from separately bought components and has had a spoiler Installation carried out—completed with a kit from Slingsby's.

This will give us three fully instrumented machines—"Daisy May" the T-21B, Baby EoN and The Tutor.

S.W.H.

SOUTHDOWN

FLYING hours have continued to increase favourably during May and June.

The Whitsun week-end was enlivened by a welcome visit from the Gull 1 and Kite 1 Syndicates from Dunstable.

A party of 80 Dutch Rotarians and their hosts in this country, descended on the club on the first Sunday in June. The T-21 which had been grounded by low cloud was despatched into the murk with a rapid sequence of passengers in the cause of international relations and club finance.

The camp at the Mynd in June with our C.F.I. George Constable, leading the party, was a great success. The new 15 cwt. Passion Wagon, which Leslie Allard has spent so much effort on, towed up the Olympia, whilst Dickie Reed again generously loaned his Landrover to take care of the Tutor. During the camp, Dickie flew up in his Tiger Moth, with an ecstatic Joan Cloke as passenger, and gave a series of

SCOTTISH GLIDING UNION



Taken from halfway up Bishophill looking S.W. towards Benarby on the left. The Scottish G.U. is on the nearer site of the loch, within reach of the two slopes

Aero Tows from the east-west run. Although some doubts were expressed before the first tow, the results seemed very satisfactory.

For normal launching during the camp, we were indebted to the Cambridge Club for the unstinted use of their winch—it was very much appreciated.

The help of a certain member of the Cambridge Club, more used to getting vehicles into than out of inaccessible places, was also very much appreciated in helping to get David Harris and the Landrover out of a bog.

R.M.

WESSEX R.A.F.

JUDGING by the numbers of visitors who attend our displays, gliding seems to be catching on with the general public. Our fleet consists of a Primary, Kirby Cadet Mk. II and Mk. III, Sedbergh, Grunau, Rhönbussard, Kite I, Olympia IIA, and a Skylark III. The old Primary always draws appreciation from the onlookers especially when its arrival coincides with the C.F.I.'s aerobatic displays in the Skylark.

With one eye on the R.A.F. Gliding and Soaring Championships, the C.F.I. has been cracking his whip harder than ever. Several cross-country flights have been made, including trips to St. Mawgan, Bridport, Booker, Marham, Reading, Dunsfold, Woking, Bicester, Tarrant Rushton, Laverstock and Crawley. The old Primary is brought out when everything else is in the air and it was actually soared by Cpl. Longley on one occasion.

R. Sandford in the Olympia IIA did his trip to St. Mawgan, Cornwall, in the 4 hrs. 24 mins.

The club did well in the R.A.F. Championships being 1st and 2nd in the unstrutted class and 1st, 3rd, 8th and 9th in the strutted class.

For endurance, Sgt. Gough's flight of 346 miles to Holland in 7 hrs. 55 mins. is most noteworthy. Flt. Sgt. Gould had the honour to share in the record by towing the Skylark up to its release height.

Club members turned up to the Championships in force and rendered worthy assistance as drivers, retrieving crews, recorders, etc.

(A day to day report of the R.A.F. "Champs." appears on p. 188.—ED.)

J.D.

YORKSHIRE

WE are now very busy with Holiday Courses, which are well booked up. With Henry Doktor in charge, and a good supply of second pilots, winch drivers and Lady helpers, we look like having another very successful season. We are also going ahead with preparations for National Gliding Week.

Three recent cross-country flights are worthy of note. Ron Hellewell in the Kite 2 flew from Sutton Bank to Spilsby in Lincolnshire, a distance of 85 miles, ground speed 40 m.p.h. Maximum height reached was 5,000 ft. At one time Ron came out of a small cu-nim to find himself over the sea, but finally landed some miles inland.

David Hill in the Kite 2 flew to Bempton Ciffs, near Bridlington, distance 46 miles. This gave him Silver C distance, but he is still waiting for his height qualification which persistently eludes him.

Bob Wilkin made the first flight from Sutton Bank to Sherburn, in the Kite 2, where he received a big welcome. The shortest cross-country lately was made by a prominent member who flew the two-seater from the top of the bank to the bottom, but we are not talking about that.

At Sherburn, we ceased activities at the end of June. This was due to the closing down of the Yorkshire Aeroplane Club, a sad fate which is overtaking many flying clubs. The future of the airfield is uncertain at present, but it seems certain that the West Riding has lost one of its best private airfields. The site has been of great value to the Y.G.C., many new pilots have been trained under ideal conditions, and we have also been able to train several members to become instructors and two-seater pilots.

At Sutton Bank, we now have Henry Doktor as full-time resident instructor and ground engineer, and he is making a fine job of overhauling and painting the Club aircraft. When Henry has finished with the spray-gun we should have the smartest and most colourful fleet of aircraft ever. (Who said "about time?").

E.H.

[Unfortunately we have had to cancel our National Gliding Week Meeting, owing to the small number of entries received by the B.G.A.]



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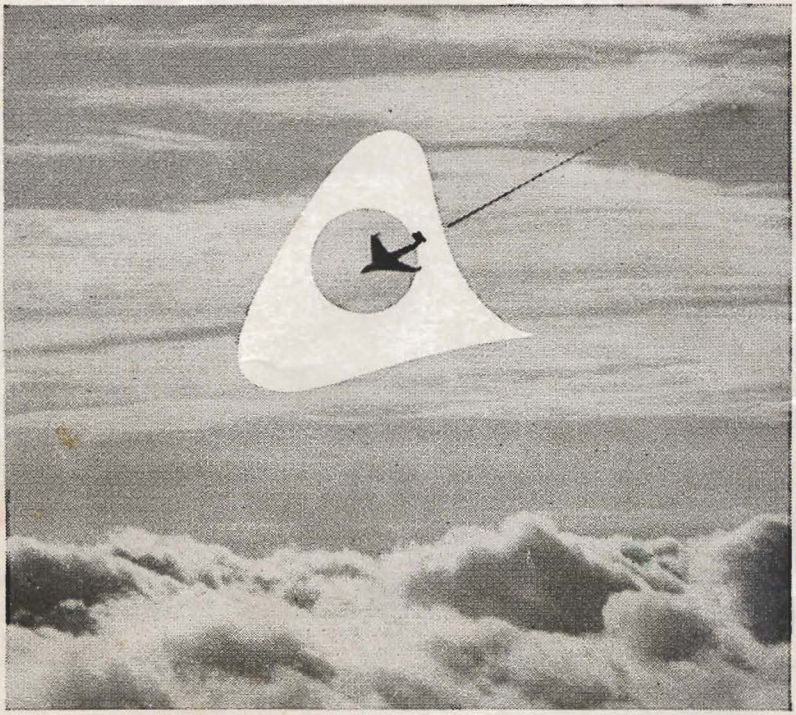
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