GLIDING

NUMBER 3 AUTUMN 1950

QUARTERLY 2/6

GLIDING

Edited by Alan E. Slater, M.A., F.R.Met.S.
Published by the SAILFLYING PRESS LTD.
Directors: Philip Wills, C.B.E., Ann Douglas, Jacques Cocheme, A.F.C.

OFFICIAL ORGAN OF THE BRITISH GLIDING ASSOCIATION

CONTENTS

Cover Photograph.—Sailplanes of eleven nations gathered at Orebro in Sweden for the International Contest in July.

Single copies of "Gliding" price 2/8d. (post free) may be obtained on application to The Secretary, British Gliding Association, Londonderry House, Park Lane, W.1., to whom all subscriptions should be addressed. Annual subscription 10/8 (post free) should be sent to the same address.

Bulk orders (12 or more copies) should be sent direct to the publishers, The Sailflying Press Ltd., 38, Great Titchfield Street, London, W.1.

The BGA Comes of Age

On 4th December, 1950, the British Gliding Association will be 21 years old. It was on that date in 1929 that the historic "Gliding Lunch" was held at which the Association was formed. Many people who are gliding today have little or no idea how the gliding movement started in this country, or even how soaring flight came to be established at all as a possible and worth-while accomplishment. Its existence is taken for granted.

From the few seconds' hovering by Otto Lilienthal in 1895 to the 9¾ minutes achieved by Orville Wright in 1911, most of the very few soaring flights made by man were done in order to learn the art of balancing in the air, in preparation for power flying. Then, during the period from 1919 to 1922, when treaty restrictions prohibited the building or importing of aeroplanes in Germany, soaring flight began a course of development in that country which has led to its present world-wide status as a fascinating scientific sport. Wolfgang Klemperer beat the 1911 record with a flight of 15 minutes in 1921, Arthur Martens first soared for one hour and F. H. Hentzen for 3 hours in 1922, Max Kegel climbed into a thunderstorm in 1926, and in 1928 Robert Kronfeld came on the scene to liberate soaring flight finally from its confinement to the windward slopes of hills.

The year 1929 was, with the possible exception of 1922, the most notable in soaring history, mainly owing to Kronfeld. On 14th April he set up an altitude record of 4,183 feet, on 15th May he made the first flight of over 100 km., and on 30th July he raised the record to 8,494 feet and soared 93 miles from the Wasserkuppe to Bayreuth. The fame of these and other flights spread far beyond Germany, and on 6th November, 1922, *The Aeroplane* published a special "Gliding Number" to publicise the new knowledge. Among the flood of letters which it brought to its Editor, there was one from Mr. D. C. Culver, an ex-pilot of the first world war, suggesting a luncheon party at which all those interested could meet. The party was held on 4th December at the Comedy Restaurant in Panton Street, and 56 people turned up, including Mr. C. G. Grey, then Editor, and Mr. Thurstan James, present Editor, of *The Aeroplane*.

Mr. Culver, from the chair, started by suggesting the formation of a gliding club, which would start operations by buying a Zögling Primary from Germany; but by the time the meeting broke up at 4 p.m., its ambitions had run to electing a provisional committee for a "British Gliding Association," with him as chairman and the late Mr. Howard-Flanders as secretary.

The new Association started with a flourish and a great number of gliding clubs were formed, but many of them soon collapsed, often by crashing their only machine. This was followed by a few years in the doldrums, when the movement was with difficulty kept alive, but it picked up again in 1933, when a substantial amount of soaring began to be done. A Government subsidy was offered in 1934 on condition that certain differences of opinion within the movement as to the constitution of the B.G.A. were resolved, and as a result this constitution was altered in 1935 to something resembling its present form.

Since then, apart from a war-time adolescent period of suspended animation, the B.G.A. has been run by gliding people for gliding people; it therefore enters adulthood travelling along the right road. But the part played by the present Chairman in setting it on that road sixteen years ago is probably unknown to more than one or two people still active in gliding, so relentlessly does the personnel of the movement change with the years. Even the Editor of this journal, though a founder member of the London Gliding Club in February, 1930, did not quite make that Gliding Lunch twenty-one years ago.

Here and There

American Contest

The 17th National Soaring Contest, held at Grand Prairie, Texas, was won by Dick Johnson with his new RJ-5 sailplane. He exceeded both the national goal and distance records with a 337-mile goal flight across Texas. Coverdale, Ivan and Reeves were placed 2nd, 3rd and 4th, all flying Schweizer 1-23 sailplanes.

Jon Carsey, of Texas, has been elected President of the Soaring Society of America, and Eugart Yerian has been appointed Editor of "Soaring," the official organ. Paul Schweizer continues as Secretary. The Society's official address is: Box 71, Elmira, N.Y.

Towed to 7,000 metres

The present international distance record of 749.2 kilometres (465.5 miles) was set up by Olga Klepikova in Russia in 1939. At the recent international contests, the story was being told of how this record was done. Miss Klepikova, it is said, was towed up to 7,000 metres (23,000 ft.) about an hour and a half before thermals were due to begin, and glided some 150 kms. down wind while sinking gradually to cumulus level. The remaining 600 km. of soaring flight were, of course, a considerable achievement, and Miss Klepikova observed the stipulation that the net loss of height between launch and landing must be less than 1 per cent of the total distance.

The Gliding Commission of the F.A.I., meeting at Orebro in Sweden in July last, proposed that in future the full distance should only count if the net loss of height between launch and landing does not exceed 1,000 metres. If it does, then each metre of height loss in excess of 1,000 will result in a forfeit of 25 metres of distance flown.

Gliding in Pakistan

The Karachi Air Scouts gave a gliding demonstration before Air Vice-Marshal R. L. R. Atcherly, C.-in-C., Royal Pakistan Air Force and some headmasters of the local schools who visited the Air Scouts Camp on 7th July. Air Scouts' Annual Camps for the various centres in Pakistan have been organised by the R.P.A.F. at Drigh Road to coincide with the summer vacation.

New British Altitude Records

Flight Lieutenant A. W. Bedford, of the Empire Test Pilots' School at Farnborough, climbed 19,118 ft. and reached 21,338 ft. above sea level in an Olympia on August 24th. He thereby broke four official records, the British and the U.K. local records for both gain of altitude and absolute altitude. An account of his flight appears in this issue of GLIDING.

The pilot made his first sailplane flight in May, 1949, and since then has put in 54 hours 25 mins. in sailplanes, much of it while practising for an aerobatic display at the R.A.F. Show. This record flight gave him his "Gold C" (the distance was 193 miles), with a diamond added to it for his climb of over 5,000 metres. His only previous cross-country soaring flights were 31 miles on 27th July this year, with 3,600 feet climb, and 101 miles from Farnborough to Merrifield on 29th July, when he was in the air 5 hours 45 mins. and thus completed his "Silver C."

Flt. Lt. Bedford joined the R.A.F. in 1940, obtained his wings in August, 1941, and has since done 2,635 hours power flying, including 267 hours of instrument flying.

CORRECTIONS

In the last issue (No. 2), in the Table of Contents, "International Contents" should read "International Contests." On page 73, "Viking Seaplane" should read "Viking Sailplane."

In the two centre pages (tinted), there should be an addition to the list of entries for the National Contests: No. 31, entered by Flying Training Command, R.A.F.; type Sedbergh; pilots: F./O. I. Ladley, S./L. R. H. H. Pelling, F./Lt. J. H. Pressland, L./A.C. E. McCullock.

In the article "Cross-Channel Meteorology," p. 102, second column, the last line but one should read: "remember this south-*westerly* wind aloft." The point is that pilots trying to cross the Channel from France, in thundery weather with a south-easterly surface wind, are liable to be carried out over the North Sea if they fly blind for long in the clouds.

Glider Experience and Pilots' Licence

As a result of a discussion between the Ministry of Civil Aviation, the Royal Aero Club, and the British Gliding Association it has been agreed that glider flying experience may count towards the requirement for the Private Pilots' Licence, provided that under no circumstances will the total experience requirements be less than the 40 hours required for the private pilots' licence. Holders of the "Silver C" or Dual Instructors' Category A will have to pass the practical flying tests and the technical examination.

Relief of Petrol Tax

A scheme has been formulated by the Ministry of Civil Aviation to afford grants to flying and gliding clubs in the United Kingdom in relief of expenditure incurred from 5th April, 1950, on account of the increase in the tax on petrol.

All gliding clubs approved for this purpose by the Ministry of Civil Aviation will be eligible for the grant in respect of petrol consumed in connection with recreational and instructional gliding, i.e. petrol used for the towing, launching and retrieving of gliders by powered aircraft, winches, bungies or road vehicles. (Towing by powered aircraft operated by flying clubs will be excluded as the grant in respect of such operations can be applied for by the flying clubs). Payment of the grant to gliding clubs will be made on the basis of receipted petrol bills or audited accounts of payments for petrol. For 1950 the grant will be paid on this information, provided that the number of launches is not less than three per gallon claimed and that the road consumption is not less than 15 miles per gallon claimed. Payment will be dependent on the maintenance of adequate records by clubs showing the number of launches made and the details of road journeys performed; these records must be made available for examination by the Ministry if required.

As regards towing by powered aircraft other than those operated by flying clubs payment to gliding clubs will be at the approved rate per hour according to the type of aircraft as shown in the list to be issued by the Ministry. Payment will be dependent on the maintenance by gliding clubs of records.

Further particulars have been circulated to gliding clubs.

The B.A.F.O. Annual Gliding Contest

In this year's B.A.F.O. gliding championships, held over ten days at Scharfoldendorf, in Germany, more than 125 hours were flown from 415 launches, although soaring conditions were seldom ideal for long.

This year's greatest distance was flown by Flt. Lt. R. A. Carson, in a Weihe sailplane. He landed at Remsfeld, near Kassel, in the U.S. Zone, 65 miles south of Scharfoldendorf. This officer, who runs the R.A.F. Gutersloh Gliding Club, also captured the competition's height record by reaching 2,250 metres—over 7,000 ft.

Among the groundcrew entrants, Corporal Peter Alan Linsell, a radar fitter (air), of R.A.F. Station Fassberg, was winner in the duration class with an airborne time of 5 hours 48 minutes.

The only woman competitor was Corporal Myrtle May, W.R.A.F., a member of the Headquarters Gliding Club.

Consolidated results were:—

B.A.F.O. Challenge Cup:—1, Headquarters, B.A.F.O., 1,526 points; 2, Gutersloh 748½ points; 3, Royal Engineers, Hameln, 254 points.

Brady Trophy:—1, Flight Lieutenant D. E. Osland (the Headquarters Club chief flying instructor), 1,060 points; 2, Flt. Lt. R. A. Carson, Gutersloh, 585½ points; 3, Corporal A. Goff, Scharfoldendorf, 313½ points. These three won the "A" team (Weihe) prizes.

"B" team events, covering other high performance sailplanes:—1, Corporal L. Simpson, R.A.F. Bückeberg, 269 points; 2, Flt. Lt. A. L. Crocker, Gutersloh, 95 points; 3, Major Macey, Royal Engineers, Hameln, 91½ points.

"C" team events (Grunau Baby II's):—1, Lt. D. W. Dall, Royal Engineers, Hameln, 104½ points; 2, Lt. R. M. Barwell, Royal Engineers, Hameln, 58 points; 3, Sergeant J. J. R. Davies, Gutersloh, 51 points.

The prizes were presented by Air Chief Marshal Sir Roderic Hill, Rector of the Imperial College of Science and Technology.

National Gliding Contests, 1950

THIS year's National Gliding Contests were held at Camphill, Great Hucklow, the site of the Derbyshire and Lancashire Gliding Club, from 22nd to 30th July inclusive.

During the period there were 264 launches by winch and bungy, 513 hours' flying, 104 cross-country flights including 31 goal flights, and 6,050 miles flown across country.

The Derby and Lancs. Club worked heroically to give us the most successful national contest ever held in Britain. They also laid on a soaring wind up one or other of the two slopes every day, including 28th July, which was declared a non-competition day owing to an unfavourable forecast; this, though it turned out pessimistic, gave the pilots and ground crews a much-needed rest.

Instead of giving a survey of the whole of the flying, which would necessarily be inadequate as there was so much of it, we have considered it better to publish in the following pages several detailed accounts by the pilots of some of the more outstanding flights of the meeting. The list of flights given below includes all those for which points were earned.

Philip Wills received the first prize of £20, and additional prizes, for the best out-and-return flight and for the highest score by an individual pilot. The second prize went to the Royal Naval Gliding and Soaring Association, whose sailplane was flown alternately by Lt. Comm. G. A. J. Goodhart and his brother Lt. Comm. H. C. N. Goodhart.

London Gliding Club received third prize for its Olympia, flown by G. H. Stephenson.

The Londonderry Cup was awarded to the London Gliding Club for the greatest score by a member of a club team, and the Du Garde Peach Trophy to the Royal Naval Gliding and Soaring Association for the greatest score by a club team.

The Firth-Vickers Trophy went to S. C. O'Grady for the best performance in a sailplane of British design (Petrel), and the EoN Cup to the London Club for the highest score by an Olympia.

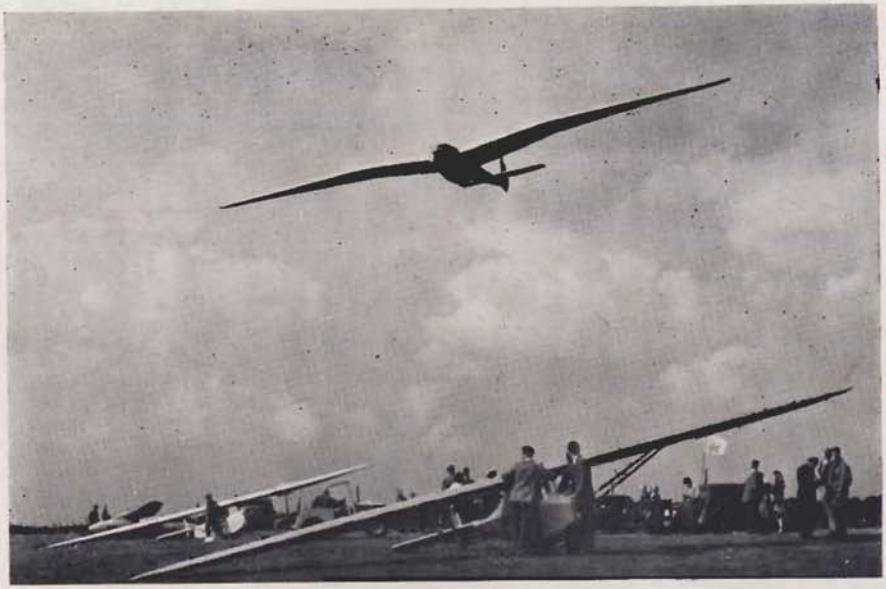
FINAL PLACING OF AIRCRAFT

Order	*Aircraft*	*Entrant*	*Marks*
1.	*Weihe*,	P. A. Wills	869
2.	*Mu-13a*,	R. Naval G. & S. A.	827
3.	*Olympia*,	London G.C.	805
4.	*Rhonbussard*,	Frank Foster	799
5.	*Olympia*,	D. G. Ince	722
6.	*Olympia*,	Surrey G.C.	694
7.	*Weihe*,	Surrey G.C.	587
8.	*Olympia*,	Bristol G.C.	583
9.	*Gull IV*,	London G.C.	553
10.	*Olympia*,	Surrey G.C.	514
11.	*Petrel*,	A. de Redder	496
12.	*Olympia*,	H. C. G. Buckingham (for Maintenance Command)	452
13.	*Olympia*,	Cambridge Univ. G.C.	432
14.	*Olympia*,	H. C. G. Buckingham (for Bomber Command)	390
15.	*Olympia*,	W. T. Fisher	380
16.	*Kranich*,	Cambridge Univ. G.C.	378
17.	*Olympia*,	T. Rex Young	368
18.	*Olympia*,	Imperial Coll. G.C.	355
19.	*Olympia*,	H. G. Cartwright	343
20.	*Sedbergh*,	Flying Training Command	278
21.	*Olympia*,	Army Flying Club	230
22.	*Sedbergh*,	A.T.C. Instructors' School	229
23.	*Grunau*,	A.T.C. 64 Group	189
24.	*Olympia*,	A.T.C. 188 Gl. School	175
25.	*Olympia*,	Newcastle G.C.	167
26.	*Prefect*,	A.T.C. 65 Group	65
27.	*Sedbergh*,	A.T.C. 89 Gl. School	53
28.	*Gull I*,	Derby & Lancs. G.C.	24
29.	*Rhonbussard*,	A.T.C. 146 Gl. Sc.	—

NOTE: The 16th, 21st, 26th, 28th and 29th in the list retired before the end of the Contest. The 1st, 4th and 5th were flown exclusively by their entrants, the 2nd by Lieut. Commanders G. A. J. and H. C. N. Goodhart, and the 3rd by G. H. Stephenson.

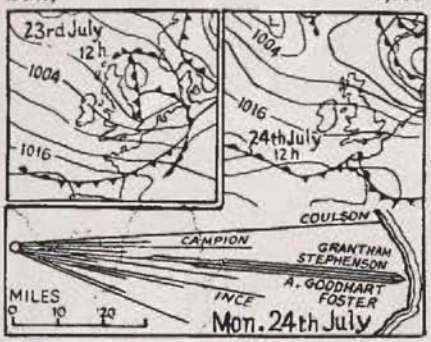
Marks were scored by 58 individual pilots, of whom the following headed the list: Wills, 869; Stephenson, 805; Foster, 799; Ince, 722; C. A. G. Goodhart, 632; Brown, 512; Staffurth, 463; Deane-Drummond, 317; Fisher, 300; Blanchard, 273; Archbold, 272; Ellis, 262; Murden, 248; Sanders, 238; Hall and Lee, 231.

Photo on opposite page: Cambridge Club's Kranich flying at the National Contests.



CROSS COUNTRY FLIGHTS

Pilot & Landing place	*Distance (miles)*	*Altitude (feet)*
23rd July		
Goodhart, G. A. J. *Camphill*	—	1,800
Archbold, *Camphill*	—	1,500
Wills, *Crich, Nr. Matlock*	18	—
24th July		
Meidzybrodski, *Warsop*	25	2,300
Gilbert, Miss *Stannington*	11	2,700
Fisher, *Whitwell, Nr. Worksop*	21	—
Lee, *Scofton*	28	—
Turner, 4 *mi. S. Lincoln*	53	3,600
Kahn, *Pleasley Hill*	21	3,200
Dickson, R., *Coal Aston*	12	2,200
Hooper, *Woodthorpe, Nr. Stavely*	17	2,900
Stephenson, *Ingoldmells (Goal)*	85	4,000
Squelch,	—	1,500
Martlew, *Ossington*	36	3,800
Hurry, 2 *mi. E. Mansfield*	26	2,300
Swinn, 1 *mi. E. Coal Aston*	14	1,900
Redshaw, *Rebellion Knoll (local)*		1,500
Coulson, 15 *mi. N. Ingoldmells*	85	5,200
Ince, *Metheringay*	56	4,200
Campion, *Scampton (Goal)*	48	3,500
Grantham, *Ingoldmells (Goal)*	85	6,600
Erdman, *Coal Aston*	12	3,100
Butt,	—	1,800
Foster, *Ingoldmells (Goal)*	85	7,500
O'Grady, *Whitwell, nr. Worksop*	21	2,400
Blanchard, 2 *mi. E. Fiskerton*	56	2,600
Pressland, *Eckington*	16	3,200
Goodhart, G. A. J. *Skegness (Goal)*	85	6,400
Allan, *Ladywash*	—	2,700
Butt,	—	1,800

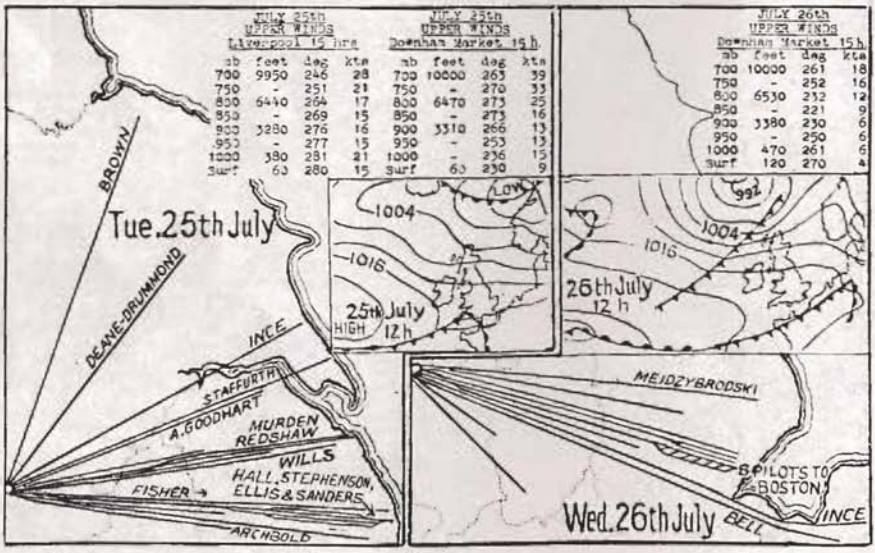


25th July

Pilot and Landing Place	*Distance (miles)*	*Altitude (feet)*
Deane-Drummond, *Malton*	69	4,300
Wills, *North Coates (Goal)*	75	5,700
Goodhart, G. A. J., *Gox Hill, nr. Hull*	66	5,300
Hall, *Ingoldmells*	85	3,500
Brown, *Guisborough*	90	5,000
Ince, *Aldboro, nr. Hull*	77	4,600
Clayton	—	1,900
Staffurth, *Withernsea (Goal)*	78	4,800
Murden, *Donna Nook (Goal)*	79	4,600
Butt, *Dore, nr. Sheffield*	8	3,200
Ladley, *Waddington*	51	3,800
Redshaw, *Donna Nook (Goal)*	79	3,200
Foster, *Hemswell (Goal)*	48	4,300
de Redder, 18 *mi. S.E. Gainsborough*	59	3,900
Stephenson, *Ingoldmells (Goal)*	85	6,000
Fisher, *Chapel St. Leonards*	85	4,700
Archbold, *Burgh le Marsh*	83	3,900
Ellis, *Ingoldmells (Goal)*	85	3,900
Neubroch, *Hathersage*	—	1,700
Cartwright,	—	2,200
Sanders, *Ingoldmells (Goal)*	85	4,200
Heron, 1 *mi. W. Lincoln*	48	3,200
Edwards, *Waddington*	51	5,200

26th July. Goal Race to Boston

Blanchard (task) *Boston (2 hr. 48 min).*	73	—
Phillips (task) 2 *mi. N. Boston*	73	5,600
Meidzybrodski, *Calceby, nr. Skegness*	76	5,000
Rowley, *Tollerton*	38	3,500
O'Grady, *N. Boston*	74	6,000
Ince, *Massingham*	106	5,450
Beck (task), *Boston (3 hr. 38 min.)*	73	4,500
Irving (task) *East Pleasley*	23	4,000
Bell, *nr. Kings Lynn*	100	5,300
Thompson, *Boston (3 hr. 16 min.)*	73	3,700
Foster (task), *Boston (2 hr. 45 min.)*	73	5,700
Dennett (task), 2 *mi. from Boston*	73	—
Lee (task), 7 *mi. N.E. Sleaford*	60	—
Goodhart, H. C. N. (task) *Boston (2 hr. 27 min.)*	73	—
Staffurth (task), *Boston (2 hr. 43 min.)*	73	6,300
Wills (task), *Boston (2 hr. 3 min.)*	73	—
Stephenson (task), *Cranwell*	54	—
Dickson, N. (task) *Boston*	73	—
Pelling	—	2,000



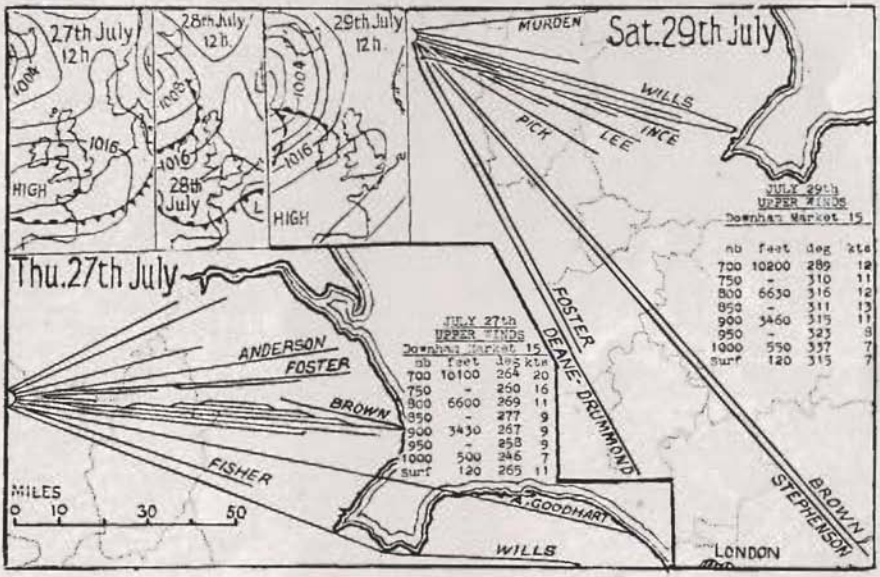
27th July

Jordan, *Scunthorpe*	49	4,600
Goodhart, G. A. J. *Happisburgh*	140	4,900
Staffurth, *Belchford*	—	4,000
Brown, *Brunton*	—	2,300
Ince, *Ingoldmells (Goal)*	85	5,700
de Redder, *Santoft*	42	3,600
Alexander, *Spilby*	79	6,800
Cartwright, *Blyton*	44	3,600
Hurry, *Ingoldmells (Goal)*	85	4,100
Wills, *Coltishall*	134	4,900
Redshaw, *Camphill*	—	1,700
Stephenson, *Ingoldmells (Goal)*	85	5,800
Anderson, *North Coates (Goal)*	75	4,400
Gilbert, Miss, *Fodwick*	20	3,100
Allan, *Dronfield Woodhouse*	10	1,700
Campion, *Wales Station*	19	2,800
Foster, *Manby (Goal)*	75	4,200
Swinn, *Mosborough Moor*	15	3,100
Latham, *Horncastle*	67	4,000
Heron, *Burgh on Bain*	64	3,900
Ladley, *Stamfree, nr. Clown*	19	3,200
Sanders, *Perlthorpe*	30	4,300
Hooper, *E. Retford*	33	3,000
Fisher, *Cranwell (Goal)*	54	3,900
Brown, *Ingoldmells and back to Wragby*	108	4,100
Redshaw, *Camphill*	—	1,700

29th July. Out and Return Boston.

Brown, *W. of Southend*	154	4,200
Meidzybrodski,	—	2,000
Goodhart, G. A. J., 1 *mi. S.S.W. Southwell*	36	4,600
Deane-Drummond, *Dunstable*	111	6,500
Wills, *Boston and back to Bakewell*	142	7,200
Ellis, 2 *mi. E. Heckington*	65	3,200
Hall, *Fulbeck*	48	4,200
Stephenson, *Woodham Ferrers, Chelmsford*	151	6,400
Coulson, *Camphill*	—	1,500
Murden, 3 *mi. S.E. Gainsborough*	41	4,400
Foster, *Castle Ashby, nr. Northampton*	85	6,400
Archbold, *Ossington A/D*	36	3,200
Ince, *Helpringham*	64	6,200
Pick, 1 *mi. W. Sedgebrook*	38	3,300
Lee, *Sapperton, nr. Grantham*	58	3,800
Pelling,	—	1,500

Note.—Straight lines on the maps do not give the actual course followed by each pilot. Upper Air data and weather charts (which show isobars and fronts only) are based on the Daily Weather Report of the Meteorological Office.



Half-Way to Edinburgh

by Donald Brown

SUCCESS in a competition is achieved on the ground as much as in the air: this at least is my impression from only two competitions. As this has been said before by pilots with immeasurably greater experience than I, the truth of it is slowly becoming apparent to my idle brain. An account, therefore, of any flight, particularly of a competition flight, would be incomplete unless prefaced by the reasoning behind the plan of flight.

On the morning of July 25th, it was my turn to fly the Surrey Club's Weihe. I went to the briefing where the met. man told us of a weak trough lying roughly north-south, with a westerly air stream over the site. He forecast unstable conditions for the majority of the day, with possible high cover later. On the strength of this report the obvious thing was to dash downwind to the coast 85 miles away.

The Weihe, due to its aspect ratio, was handicapped and, therefore, if it were possible for the other machines to get to the sea it would be useless to do the same thing in the Weihe. Therefore I reasoned it would be necessary to take advantage of the penetration of the machine and achieve a greater distance by flying crosswind. This was my first competition error, for at this stage I had not considered the possibility of declaring an out-and-return, with little hope of actually returning but every hope of getting the double marks for each mile towards home, for if the forecast high cover had materialised there would have been no chance of returning home. So I decided to fly crosswind, hoping to stay with the trough and the belt of unstable air.

The decision now was whether to go north or south. I decided to go north, reasoning that as the trough moved across, the air stream would become more southerly. This, of course, was my second error, for had I but looked at the synoptic chart at the rear of the briefing room, or the Times weather map, as I did a day later, it would have been obvious that the wind would veer northerly.

On the basis of my wrong assumption and with gold dust in my eyes, I decided that, providing I could keep sufficiently to the west during the early stages of the flight, Edinburgh would, with the anticipated backing and weakening of the wind, be a possible goal, and I therefore declared East Fortune. It is now obvious that, without leaving the ground, I had made sufficient errors to destroy any chances of achieving top marking for the day.

At 12.15 I was winched off on to the West Slope at Camphill, made one beat to the north, returned along the slope, contacted a thermal at the southern tip of the ridge, and at 12.30 was at 3,500 ft. above sea level and on my way.

I had never flown cross-country from a ridge before, but, having seen the congestion the previous Sunday, I had decided that at all costs I must get a thermal before the ridge became too crowded, or retire to small ridges to the north and east and wait in solitary state for my own private thermal. This day it wasn't necessary; I left with scarcely a backward glance at the most interesting collection of "landing" fields and headed north to the Ladybower Reservoir. I reached the northern end of this in 15 minutes and on north.

At 1.0 o'clock, half an hour after leaving the site, I was 18 miles to the north, with Barnsley visible to the east. The conditions by this time did not look at all promising; the cloud was ragged in appearance and excessive in amount. This seemed to be the moment to get as much height as possible and hang on until the sky cleared a little, so in weak lift I entered cloud at 4,000 ft. There was not much lift in it and I wasted 15 minutes gaining 500 ft. When I came out I had of course lost my way, and at 1.25, finally decided I was just north of Sheffield.

By now I realised my chances of reaching Edinburgh were greatly diminished. Nevertheless, heading W. by N. I attempted to make up the ground I had lost. By circling very infrequently, flying slow and straight into wind when the opportunity offered, I was able to make up a considerable amount of ground and get over the agglomeration of towns to the south of Bradford. Feeling so pleased at having

more than made up the ground to windward I once again had a go at a cloud. Even mice learn from their mistakes. I came out of this one a little higher (5,400 ft. A.S.L.) without a notion as to where I might be. At 2.35 I found out. I was at Sherburn-in-Elmet, 15 miles downwind from the point where I had entered cloud.

By now the clouds had got bigger, more well defined, and covered less of the sky, and the wind was already veering to the north. It was not difficult to soar, there being plenty of thermals of the order of 6 ft./sec., but 6 ft./sec. was not even sufficient to maintain a course due north, and at 3.0 o'clock I was over York, much too far to the east.

At Sherburn-in-Elmet, being so far east, I had decided to abandon all hope of reaching even Newcastle and could therefore afford to drift slowly eastward and hope to reach the sea on the bulge around Whitby but, on looking westward from York, I saw the daddy of them all. There to the westward, stretching literally as far as the eye could see to the north and to the south, was a continuous unbroken lenticular cloud in the lee of the Pennines at what I assumed to be 8,000 ft., and 20 miles west

of the railway line running north from York. Once again I had visions of Scotland. I gave the cat another goldfish, entered cloud, played the fool for half an hour, achieving 6,700 ft., and was still over York.

In the lee of the wave cloud there was a belt of clear sky and it obviously was not possible to reach the wave from the height which I had achieved. With the wave as my last hope of reaching Scotland, I was sorely tempted to trust to the luck of the gods, fly due west and hope to meet a secondary wave in the lee of the other. Discretion being the better part of foolhardiness, I again proceeded northward.

The clouds over the plain were becoming smaller and less frequent, and I therefore pressed on in a straight line, flying slowly through lift, not circling, until I reached the depressing height of 1,600 ft. near Wombleton. Ahead over the Cleveland Hills and to the westward over the Pennines, good cumulus was still building. My plan now was to scramble across to the Hills and, under the anticipated good conditions, once again get to the westward.

That was the future. The present was 1,600 ft. Using any lift that I could find, and flying due north between lift at minimum sink, I drifted north-eastward until at Kirbymoorside I again attained 3,500 ft. From this height, 2,500 ft. above the Clevelands, I decided to leave the security of good retrieving roads and press on up Rosedale. This I did, once again flying straight as long as possible through lift, and by circling in two thermals I was within what appeared to be safe gliding distance of the northern edge of the Cleveland Hills at 5,300 ft. Then, creeping southward under the last cloud until the lift ceased, I put the nose down and headed for the plain. Instead of the edge disappearing below the nose it started rising and, scattering a few pearls of wisdom upon the wind, I depressed the nose still further and cleared the edge of the Cleveland Hills by 700 ft., turned immediately along the edge, which faces north-west, and found slope lift. This carried me to 2,300 ft. A.S.L. Ahead of me stretched two small slopes almost to Middlesbrough and so, agreeing with myself that I might just as well be slope-soaring five miles from Middlesbrough as fifteen, I went on to the second slope which I reached at 2,000 ft., maintained height along it and, passing

Captain Cook's Monument, went on to the third slope which I reached at about 2,000 ft.

This third slope consisted of a low ridge surmounted by a hill called Rosebury, a pyramidal heap with sufficient face on it to "figure-of-eight" in front of it. Unfortunately this slope faced west, and with the wind in the north-west the upper part was unreliable, and I slowly descended to 900 ft. Here I sat for half an hour hoping that the 7/8 strato-cumulus would clear. At five past six it showed signs of doing this, and I flew forward from the hill hoping to contact lift under a vague cloud which was coming towards me. The cloud was vaguer than I was, and I landed at 6.15 at Hemble Hill Farm, Guisborough, Yorkshire.

At Hemble Hill Farm I received a welcome fit for Blériot, and in the comfort of a delightful lounge was able to ruminate over the mistakes and lessons of the flight. As I have previously said, the main mistakes were made before leaving the ground and thereafter it was mostly attempting to make the best of a bad job. Entering cloud had probably shortened my distance considerably, a point which my old instructor had frequently emphasized. The obvious lesson in flying being not merely to remember what one has been taught, and has read, but to follow the advice and cease to treat the flight as a Sunday School treat.

Camphill to Happisburgh

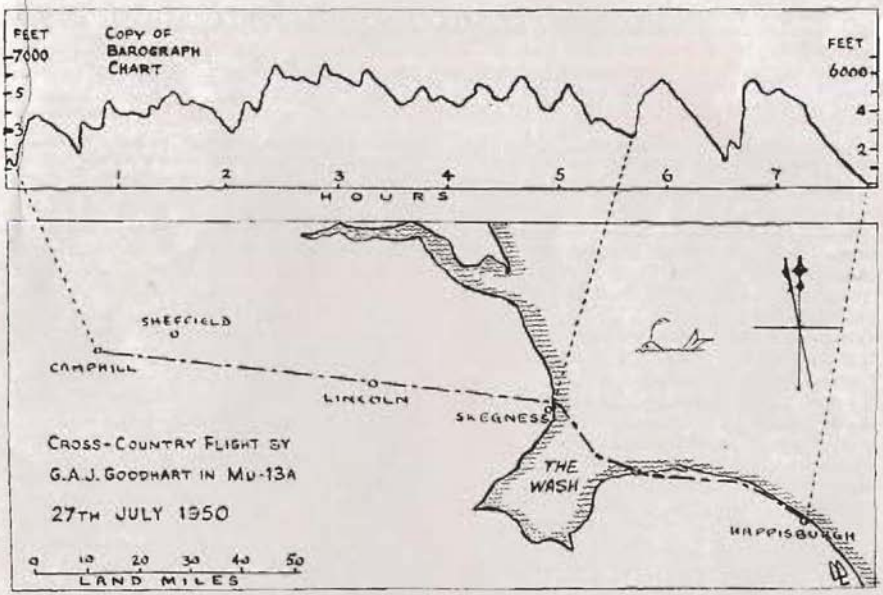
by Lieutenant Commander Tony Goodhart

THURSDAY, 27th July was the fourth consecutive day of good soaring weather at Camphill and as the wind was westerly I declared, in company with about eight others, for the, by now, well-worn tramline to Jingle Bells (Ingoldmells Aerodrome, just North of Skegness) as my goal. After a quarter of an hour's hill soaring, having taken off at 10.30, I reached 3,200 ft. A.S.L. (2,000 ft. above the hill) and set off eastwards, only to find, as so many people did, that lift was weak over the moors between Camphill and Sheffield; and over Rotherham I found myself, in company with two blue Olympias, only a very few hundred feet above ground. However, a large steel factory, gushing forth smoke and flame, provided much needed lift and we (the Mu and I) plodded rather shakily on, taking advantage of every little thermal. About 12.30 we had some trouble near Lincoln and were down to 1,300 ft. A.S.L. The Gull IV and two or three others were in the same bit of trouble, and we followed each other about looking for lift, which came intermittently and weakly. However, it got better as we climbed, and an hour later we reached 6,200 ft. in cloud.

Incidentally, the Mu-13a has such an ineffective rudder and so much aileron drag without any inherent stability, that it is thoroughly awkward in cloud, particularly to a pilot whose cloud flying before the competitions was measured in minutes, and not very many of those.

The rest of the journey to Ingoldmells was comparatively uneventful, though it took a long time and we didn't complete

The brothers Goodhart with their Mu-13 at Camphill. Nick standing, Tony in cockpit.



the 85 miles until just before 16.00. An average speed of only about 17 m.p.h.

I was just about to start throwing away the unnecessary 3,000 ft. with which I had arrived, when I remembered that the daily prize was for longest time in the air, so I floated around eking out my descent. There was a lot of good cumulus a mile to seaward of the coast and rather to my surprise I found myself wafted to cloud base at 5,100 ft. just off Skegness.

The thought then struck me: "Why not go across the Wash and score some more distance marks?" Unfortunately I hadn't got the map of the other side and couldn't see it either, but remembered that it was about 15 miles across, and rapid mental arithmetic indicated that I ought to get there, so I headed south-eastwards, keeping one eye over my shoulder watching Skegness in case I had to beat a retreat. The Norfolk coast soon hove in sight and it was apparent that we would easily make it. We crossed the coast at 1,300 ft. and were immediately met with a small thermal off some marshy-looking land; this was discarded after 1,000 ft. and another, a really violent one smelling strongly of artificial fertiliser, was found half a mile inland which took me quickly back to 5,000 ft.

By this time, 17.30, I was somewhat weary and almost keen to get down; however, it takes a long time to lose 5,000 ft. in the Mu and we finally landed three-quarters of an hour later close to Happisburgh Lighthouse, 140 miles from Camphill, after 7 hours 48 minutes in the air. The 55 miles from Skegness had been accomplished at 27 m.p.h.

Meanwhile the unfortunate retrieving crew had gone to Ingoldmells only to be told that the Mu had been last seen heading out to sea. They reached Happisburgh at half past midnight after driving 250 miles. The Mu was quickly loaded into the trailer and we got back to Camphill just after 09.00 after a further 200 miles driving.

The difference in speed before and after Skegness, 17 m.p.h. before and 27 m.p.h. after, is most noticeable. The reason? Not that conditions were better after Skegness, but that only two thermals were used with straight glides at best speed in between, not bothering about intermediate patches of lift. The moral? PRESS ON—(though not regardless).

To and from Ingoldmells

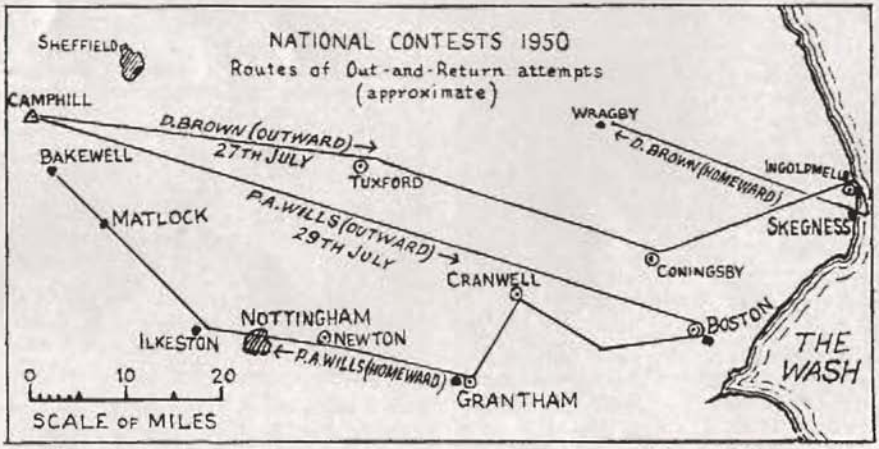
by Donald Brown

With the lessons of Tuesday, 25th July, in my mind I managed to get up for breakfast, took the trouble to look seriously at a map and have a look at the synoptic chart. Thus prepared, I listened to the met. man. The conditions seemed much the same as Tuesday with the exception that the trough was a little better defined and would be represented by a line of active cumulus. The wind at the site was westerly and would remain so all day, with a possible slight backing in the afternoon.

I once again decided to go along the line of the trough to the north, which, with the more favourable wind and better forecast convection, seemed a good proposition. I knew the way and, having covered 90 miles in adverse conditions, considered Brunton, to the north of Newcastle, a possible goal. Having declared Brunton, I took off at 10.40. With the passing of time came the passing of aircraft, and by 11.10 there were more than enough aircraft on the ridge for the thermals that were reluctantly drifting over; so I decided to go to a smaller ridge to the north at the entrance to the Ladybower Reservoir and wait there for my private lift. I arrived just in time to catch it and was soon on my way to Sheffield.

Whilst I was beating up and down the ridge I had noticed to the westward a long bank of cumulus which I had assumed to be orographic cloud over the high ground to the west, but as I approached Sheffield the cloud, which now stretched N.N.E.-S.S.W., came very much nearer and started to collapse. It was obviously the trough, and the clouds were flattening rapidly. To the north it was as black as the proverbial sin, and immediately above, patches of high cover were already obscuring the sun.

Deciding that if I were to make a serious attempt at the competitions it would be useless to go ahead, and merely get points for distance, I waited for my opportunity to get back to the site and declare a more feasible goal to the east. Unfortunately it appeared that I had already waited too long and was slowly descending. Using what lift I could to maintain height or sink slowly, I was just about deciding to give up and land when the high cover cleared and I was able to pick up a thermal which took me to 3,800 ft. Without more ado I headed



This map illustrates both Mr. Brown's article and that by Mr. Wills which follows it.

back towards the site and without any difficulty got down to about 1,000 ft. above the moors. Another small thermal took me to 2,700 ft. A.S.L., and from there I was able to fly in a straight line, maintaining height through thermals, diving between, and reaching the end of the Camphill ridge at 1,300 ft. A.S.L. The hill lift was not as good as when I had left, and I had doubts as to whether I should be able to get height enough to get into the landing field; but, with 200 ft. to spare, I turned in, made a landing and rushed off to declare another goal.

Wally Kahn, my partner, soon arrived and helped to get the machine back to the launching point. I asked him for a turning point and he gave me Ingoldmells which I declared as my goal for an out and return. At 1 o'clock I was launched for the second time that day, with little hope in my heart of ever reaching Ingoldmells, let alone returning. By now the trough had arrived and there was 7/8 cover above the site. Beating back and forth with a few other dispirited late starters, I was, at 25 minutes past one, introduced to scientific gliding. Looking out of my window I saw what every glider driver dreams of—a sheet of paper lifted from the streets and hurled skyward. I was looking around for other conventional convectional signs—vultures circling, smoke rising vertically, clouds above, cornfields below, or the green ball rising—when, to my consternation, the greater part of a packet of Jeyes Hygienic toilet paper was hurled from the window of a nearby Olympia. Realising the variometer must soon become out of date, I abandoned its viscissitudes and became hypnotised by these sheets of paper going hither and thither. Their behaviour was alarming. A sheet that one moment would be rising decorously the next moment would be falling to earth rapidly. However, by following the more intelligent sheets in company with David Ince and the originator of this cunning device, I reached a height of 2,700 ft. A.S.L. and decided it was now or never. The weather being bad, map-reading was reduced to tearing downwind on a compass bearing, trying to catch up the clear sky and hoping that would coincide with the crossing of the Trent about 40 miles to the east. It did, and at 2.20 I was able to identify Tuxford 35 miles from the site. The soaring was normal and I had covered 35 miles in 45 minutes from leaving the site.

From Tuxford, due to Ingoldmells being on another map, I went a little to the south, reaching Coningsby at 3.0 o'clock. From there I could see the white front of Butlin's Holiday Camp, which I proceeded to and reached at 4.05. Now came the problem of recognition. I came lower to take photographs and make notes of the disposition of aircraft on the ground, when suddenly the Mu-13 appeared 200 ft. below me. Then, at ten past four, a blue Dragon Rapide came up from Ingoldmells aerodrome, showed me to the more opulent campers seated therein, and descended again. This, in lieu of a firework display, I took as adequate recognition.

I started circling underneath a cloud drifting out to the sea from which I finally emerged at 5,900 ft. out at sea from Skegness. I was now on my way back. Lift was still plentiful but not in sufficient strength to make headway against the wind. I slowly descended, delaying my descent as I passed through thermals, until at 1,500 ft. I once again fell back towards cloud base at a reasonable rate. From there, with two more thermals, I succeeded in maintaining my position above the ground and decided there was little point in waiting, and descended again, this time without any luck and landed 1½ miles east of Wragby, having returned along a straight line between Ingoldmells and Camphill a distance of 26 miles in 1 hr. 20 min. The total distance was 111 miles.

The point about the flight which is rather interesting is the fact that I made better speed while in the bad conditions immediately after leaving the site than when I reached the clear sky. This presumably comes under the heading of "necessity being the mother of invention," for once I reached the normal good soaring conditions I became, quite unwittingly, more lazy.

It seems to me that half the battle in going faster is a sincere belief in your own ability to go faster. It is only supreme confidence that will cut out the dithering in making the decision whether or not to enter or leave a thermal. For this reason I feel that an analysis of a flight can be helpful in convincing oneself that one *can* go faster, and it seems to me that it is the best conditions which are not used to the full, while from necessity not so good conditions are more usefully employed.

Bradwell Edge to Boston and nearly back

by Philip Wills

THIS was a very surprising flight, and it is not often that after seventeen years' sailflying one is surprised.

On the last Saturday of the 1950 National Contests it was announced that if any competitor decided to attempt an out-and-return flight to Boston, 73 miles away, special arrangements had been made to mark the turning point. This had proved very necessary, because two days before I had attempted an out and part return flight to Coltishall, and in spite of previous warning, the watchers there failed to spot me whilst for nearly 20 minutes I circled down from 4,000 feet. When they eventually gave me a recognition signal I was down to 600 feet and couldn't get away.

As a result of this, my wife and I had worked out a method which, whilst it had certain obvious disadvantages, appeared extremely likely to solve the problem, and in fact we used it on this occasion with complete success.

Before take-off, I estimated the average speed I would achieve on the outward flight, and hence the estimated time of my arrival at the turning point, *after getting away from the site on the first thermal*. A few days earlier, on a goal race to Boston in rather similar weather, I had done the distance in 1 hr. 40 mins. after getting away. On that flight I had of course delayed take-off until the time of day when maximum thermal strength had developed, whereas on this flight I clearly had to get away as early as possible. I therefore estimated two hours, and in the event was right to within five minutes.

I took off at 10.40, and got away at 12.10. At 2.10 p.m. my wife phoned Boston, and in effect asked them to go out and examine the sky with great care, as there was a sailplane circling overhead between 2,000 and 4,000 feet. There was no need in this case to ask them to fire me a Verey light, because a letter, changed every hour, was being displayed on the airfield.

The man came back to the phone a minute later and in a somewhat surprised voice replied that my wife was right.

The flaws in this procedure are obvious. If I had arrived early I should have had to waste time waiting for "D" hour; if late or not at all, a good deal of telephoning to increasingly incredulous Boston would have gone on. But at least it produces a positive check.

The outward flight to Boston produced little trouble. The weather forecast was for winds of 270°-300°, 15-20 knots at 2,000 ft., so, on the face of it, the homeward flight almost dead into wind appeared almost impossible; but during the week it had been very noticeable that the forecasted westerly winds dropped considerably as one neared the coast and towards the evening. I had accordingly estimated an average speed on the return leg of 15 m.p.h. and asked my trailer to manoeuvre accordingly. In the event, it was not the wind which just defeated me, but an entirely unexpected development.

When I turned at Boston and looked back on the homeward leg, I was horrified to find that the westerly sky was blotted out by a high layer of thin cloud, which must have been creeping along behind me as I flew east. This later proved to be the last remnants of an old front, too small to have interested the met. forecasters, but large enough to alter the prospects of a sailplane pilot decisively for the worse. This line of high cloud ran north and south as far as the eye could reach, and was only five miles west. East of it was blue sky and cumulus, but beneath it was a smoky murk, in which were dimly suspended a few odd large lumps of ill-defined darker murk like large decaying cumulus.

Straight back along the course was no hope at all, so the first problem was whether to attempt the return flight north-about or south-about. Due north the conditions were easy, but this did not get one any nearer home, whereas a sooty cumulus lump was dimly visible on a course of about 250°, to the south of Cranwell. I set off for this; everything depended on the thin chance that in spite of the upper cloud-sheet there was still lift

n these ragged clouds, which seemed to be based at about 4,000 ft. and to go up quite high, to 8,000 or 9,000 ft.

Whilst still in the clear air I made as much height as possible, finding 6-10 ft. per sec. under the thin bright cumulus to over 4,000 ft. The wind had duly dropped, and was perhaps 10 m.p.h. northerly. As I came under the high cloud the air became smooth and dead, and it looked as if I would be lucky to make 15 miles on my homeward leg. But over Scredington I reached the edge of the first lump of dull cloud, and found gentle lift from 1-3 ft./sec. The area was large, and I cruised about until finally I worked up the climb to 5 ft./sec. and entered the cloud, which was dark and flabby, but alive.

A long period of circling and manoeuvring blind brought me to 7,700 ft., when I set a compass course of 260° and emerged S.E. of Cranwell. Still no sign of life on my direct homeward course, but dimly seen was another cloud-mass somewhere near Grantham. I set sail at minimum sinking speed, and smoothly and quietly covered the intervening distance. Once again, over Grantham aerodrome, I was gently sucked into the dirty inside of the cloud, and this time by hard work emerged 25 minutes later at 8,800 ft. Again I glimpsed signs of further activity through the prevailing gloom, this time near Newton, East of Nottingham. Another long quiet glide, a slow and sooty ascent, and I was over Newton at 6,100 ft. Now the sky ahead seemed absolutely featureless, but stay—over on the far side of Nottingham, at Ilkeston, a power station was smoking away, and over it was suspended its own, lone cumulus.

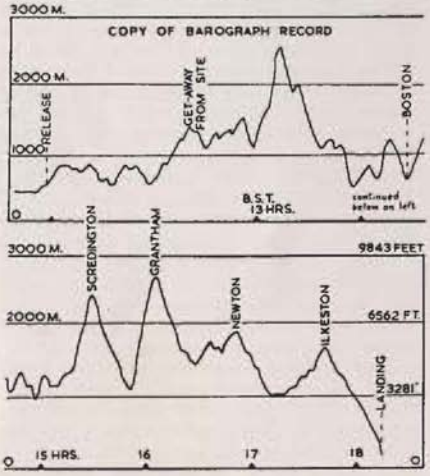
It was a memorable glide, high in the grey air over the centre of Nottingham, signs of the Pennines at last in the north-west, and faint signs of sun in the far west at last, but too far away to be likely to get me home. In any case it was getting late, after 17.00 hrs., and the surreptitious cumulus under the upper cloud-sheet could hardly go on lifting for long.

But the Ilkeston power-station one did, and in it I climbed again to 5,600 ft. From this I worked on my home course under a last-ditch patch for another mile or so, then there seemed nothing for it but a straight glide as far home as possible. Still 25 miles to go, but perhaps the hills round Matlock would provide some unexpected lift.

But they didn't. Gently but firmly the ground came up to meet me; I passed over Matlock at perhaps 1,750 ft., and flew up the valley towards home. Bradwell Edge was in sight, but in itself is 1,300 ft. high, so was quite out of reach. I followed the railway round to Bakewell. On the outskirts was a large showground, with a ring in the middle bordered by an oval white fence. I intended to land alongside the ring, but at the last minute saw that this ground was covered with wooden stakes, so changed my plan and landed in the bulls-eye, at 18.10 hrs. I had been airborne 7½ hours, but so interested that only when I got out did I realise that I might have to eat standing for quite a few days.

The entire population of Bakewell tore up, intent it seemed on tearing the machine —in a perfectly friendly way—to pieces. I fought a desperate but successful battle to preserve it until help arrived from Bradwell Edge, only four miles away. The total straight-line distance was therefore 73 miles out in 2 hours, and 69 miles homeward in 4 hours.

NATIONAL CONTESTS 1950:
P. A. WILLS IN "WEIHE"
BRADWELL-EDGE-BOSTON-BAKEWELL,
29TH JULY



Retrieves—Various

by K. E. Machin

Now I don't want you to get the impression from what follows that every one of our Club retrieves is a shambles. On the contrary, over 5% of them go according to plan. Still, it's the flying that really matters, and if every retrieve went off without incident, we should lose half the fun of gliding, and we should never have the chance to tell those wonderful and complicated stories which usually start off: "Do you remember the time that John took the telephone message, and . . ."

Of course, on the most chaotic retrieve of them all, John swears to this day that it was the telephone girl at the aerodrome who succeeded in getting into the message the names of two places, ten miles apart. Anyhow, there we were at one of them, at midnight (why is it that we always seem to reach the landing place at midnight, regardless of the time we set out?), rushing madly round the aerodrome, or, to be more accurate, three-quarters of the way round the aerodrome, looking for the Prefect. We didn't find it.

The time was now ripe for the retriever's last hope—the police. It was a good hour before we found a phone box, and, being miles from anywhere, there was no light in it. Laurie delved into the bowels of the Fordson and produced The Wandering Lead, which was plugged in and run across to the phone box. This later proved to be a mistake, as ever afterwards that night we had to push the Fordson to start it. The constable was a bit baffled at first, asking all the usual questions—"How big is it?"—"How did it get here?"—"Oh, is there a *man* in it?", but he obviously got the idea very quickly, as he finished up with the most succinct comment on gliding we have yet heard—"Well, if you don't mind me saying so, sir, it's a bloody funny way of carrying on!"

While going to meet the bobby, the inevitable happened, and we took the wrong turning. It was perhaps as well, because half way up the road to somewhere entirely different, a very tired and incredibly cheesed Pip staggered out of a bus shelter to meet us. We asked where the Prefect was, to be told: "Well, the wings and tail-plane are here, but the fuselage is about a mile away!" Apparently he had been told that there was an aerodrome "just up the road," and had decided to get an aero-tow retrieve. After trundling the fuselage along the road for about an hour, this project was abandoned. It turned out later that if we had gone round the other quarter of the aerodrome aforementioned, we should have found the Prefect fuselage. What our reactions would have been then have formed the subject of much speculation since.

Of course, pilots haven't always been found standing by their aircraft regardless. On one occasion, the silk-dressing-gowned figure who leaned out of a bedroom window to answer our request for directions turned out to be the pilot. Unfortunately, he was unable to help, as he had forgotten where he had left the aircraft. Chris, on the other hand, was found having tea with the headmistress of the girls' school, in whose cricket field he had landed. The sight of the Olympia wings being carried by an enormous crocodile of small girls, and the three cheers for the pilot given by the assembled school, will always be remembered by Chris. That is, he will never be allowed to forget them . . .

Tools, or the lack of, have always played a great part in Club retrieves. There was, for example, the night when the usual gliding Club short cut led to a firmly padlocked level crossing. After much consideration, it was decided that since a train had just gone through, there wouldn't be another for a long time. Laurie, of course, was carrying the enormous tool box that never leaves his side, and in no time brought out his level-crossing-gate-opening tool and coped with the job. Incidentally, the theory about the trains was wrong.

David (not the same one, of course; there are six in the Club!), on the other hand, wasn't so far-sighted. He rushed into Nina's one night to gather a party to fetch the Kranich. Somebody who mildly suggested that this retrieve, at any rate, might be

organised, was told in a very firm tone: "This retrieve *is* organised. I've got it all under control." Three hours later, after turning right instead of left near the end of the journey, we found the aircraft. The same somebody said "Er—David—the de-rigging tools?" Now we know that the Kranich *can* be de-rigged with a hammer and a screwdriver.

We don't always use Club transport for retrieving, of course. One day we got a message from Gordon to say that he had landed in Holland. On further investigation, it transpired that this should have read *at* Holland-on-Sea. Alex said "We'll take the F.M." This was an incredibly exotic Special he had just acquired, and he was bursting to try it out. When we ground to a standstill half a mile down the road, we tried all the usual things before despatching Alex on the bus to fetch his other car. The party that was left eventually found a tap that the owner hadn't, and turned off the reserve petrol tank onto the main one. By this time, of course, the battery was quite flat, and since the designer was a supreme optimist, there was no provision for a starting handle. We hailed a passing car, who, being another gliding type, produced out of the back what can only justifiably be called a hawser, which soon got the F.M. started. We reckoned that Alex wouldn't have got his Mark II (this time an A.C.) started yet, so pressed on to his garage. He was at this very moment pressing off by another route to meet us. When we finally coincided, it was decided that food and petrol were the main requirements. Unfortunately, we could only raise about 9/- between us. We tossed up, and it came down petrol, so that night we starved.

Although the A.C. didn't boil after a mile like the F.M., it did have a curious habit of stopping every ten miles. All that was then needed was to disconnect the petrol pipe, and blow through it with a tyre pump. We didn't have a tyre pump. Another feature of the car was that it seemed to use as much water as it did petrol, so when the Olympia was finally loaded up, the radiator needed filling. There was a stream nearby, and we were just debating whether 24 journeys with Gordon's hat were better than 41 with a small can, when a bod materialised out of the midnight gloom with a large jug. After that, everything went fine. Except, of course, for the tow-bar coming adrift . . . just like the time the trailer broke loose, went between an A.A. man and his box, and finished up in the cemetery . . .

It's strange how few people understand the ways of gliding clubs. There was the girl, for instance, who wanted a lift, and asked where we were going. We replied, quite truthfully, that we didn't know. The vague suspicion that this aroused became a certainty when she asked what was in the trailer, to be told "Nothing!" Still, she didn't leave as quickly as the milk-lorry driver who was accosted at six in the morning by two haggard figures, wearing (for some obscure reason) college gowns, and brandishing a five-gallon petrol drum.

All these episodes, though, are somewhat complex. For a really simple and thoroughly effective way of confusing a retrieve, we have to hand it to John. He just turned right instead of left when leaving the aerodrome gate . . .

We'd like to tell you about the retrieve of Charles from the bottom at a well-known gliding site not a hundred miles from Church Stretton, but unfortunately the major credit for that one lies with Another Club. Still, next time you're at Redhill, ask Wally about it. It's a good story.

As we sit and talk about the many retrieves we have known, we begin to wonder whether it was worth it. We remember the hangovers the next morning, we remember the fish and chips, we remember backing the Fordson into convenient positions for people to climb off its roof into college—then we remember fetching Gil and David from Canterbury. That was a retrieve which was memorable indeed, which will go down for ever in the Club's annals. Nothing at all went wrong.

SLINGSBY 18-metre SAILPLANE

THE large-span version of the Gull IV, produced by Slingsby Sailplanes, Ltd., and described in our last issue (p. 86), should be finished and undergoing test flights by the time these lines go to press. Flt. Lt. R. C. Forbes has been approved as test pilot by the Air Registration Board, and will carry out flight tests at Detling, Kent. The type was developed at the request of the R.A.F. Gliding and Soaring Association, and more than one is being built.

From Wave to Wave Across Country

by R. Derek Roper

This is the first flight of its kind to be done from the Derbyshire and Lancashire club's site, and the second in England. A photograph of Mr. Roper climbing above the cloud layer was published in our last issue on page 76.

On Sunday morning, 28th May, 1950, with a W.N.W. 30 m.p.h. surface wind, I was towed up to the bungy-launching slope on Bradwell Edge. Gerry Smith and George Thompson were already flying at about 1,500 ft. in a sky-full of strato-cu., which appeared to be thinner and more broken over the valley than elsewhere.

At 11.45 hrs., accompanied by a cloud of blue smoke from the Bungy-Beaverette, we were catapulted over the edge. The hill lift was rapid and fairly smooth to about 1,000 ft., where the lift was more turbulent and intermittent. By dodging in and out of small lumps of cu. which were lower than the main mass, height was increased to about 1,500 ft. The thinning-out of the cloud layer over the valley was, by this time, more complete, and a gap showing blue sky was running along the Bradwell Valley. George and Gerry could be seen 500 ft. or so higher and well south of the valley over Tideswell direction; they also were working their way through the lower scraps of cu. and were nearing the main cloud base, still in the same cloud gap that I was in.

Working my way towards them, and gradually gaining height, I arrived beneath them at about 2,000 ft. and at the main cloud base. Here the lift smoothed out and steadied at 5 ft./sec. Heading into wind—a little more north than on the ground—I crept slowly out into the gap. As the three of us rose upward through it, the scenery became most impressive.

We were flying in the bottom of an elongated bowl of dazzling white cloud, 3,000 ft. deep, lying across wind, with the sun blazing out of a clear blue sky. The cloud could be seen sweeping down the far side, dissipating as it reached the hole in the floor of the cloud-bowl, and then rushing up behind us to disappear over the crest, as yet out of sight. The cloud surface was not dead smooth, but slightly uneven due to convective turbulence; here and there, however, the characteristic, smooth streamlined appearance associated with lenticular clouds could be seen. The altimeter reeled off a few more thousand feet, with the lift still steady at 5 ft./sec., till we were level with the cloud top at 5,000 ft. We could then see that our cloud-gap was but one of many; in fact, the strato-cu. floor was dotted with stationary holes as far as the eye could see. It was then that I decided that a cross-country flight was indicated—but first I wanted to get as high as possible in the present wave. On careful examination of the relative position of the cloud-gap, it became obvious that not only was I a little out of wind, but I was also not flying fast enough. By heading more north still, and increasing air speed to 45 m.p.h., we were carried up by the wave to exactly 10,000 ft. indicated.

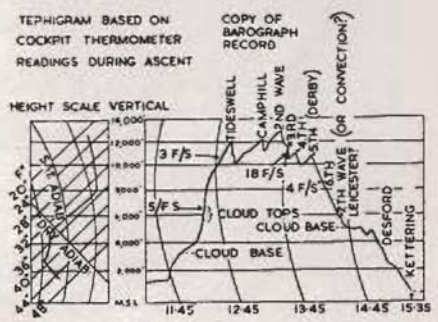
At this height, Gerry flew alongside in the scarlet Olympia, just as I was thinking that another 500 ft. would see the "Gold C" height safely in the bag; at that moment, down went the green ball to be replaced by strong red! This could only mean one of two things—either the wave had shifted, or we had drifted out of it. At that height, reference to the cloud gap was of little use in determining a small amount of drift; so, hoping for the best, we put the speed up to 60 m.p.h. and headed more north still. By this time we were heading a little east of north, I thought (George agrees with me, but Gerry reckons we were still a little on the west of north). After losing nearly 2,000 ft., the green ball showed signs of life; so, gradually easing off the speed to 50 m.p.h., we climbed at 1-2 fps. back to 10,000 ft. again. Incidentally, at 9,500 ft. a slight turbulence was noticed that shook the aircraft for some minutes, and I wondered if we were passing through a shear layer; it occurred both times that I passed that level. The others didn't notice this, though so it may not mean anything.

At 10,000 ft. the lift seemed to have finished; then George came circling around in the Viking, making signs to me. Thinking he must be wanting to take photos, I produced my best smile. This didn't seem

to be what he wanted—then it dawned on me that he was jabbing a forefinger downwind. Either he'd found better lift or else he was wanting company on a cross-country, I decided; so, doing a 180-degree turn, I followed him downwind through strong sink. Gerry decided to try the upwind wave, and succeeded in reaching it, rising to nearly 11,000 ft. above Camphill.

The time was now about 1½ hours after take-off. Flying at 40 m.p.h., with a 50 m.p.h. tailwind, it was not long before George and I were over the next cloud-gap, and, turning round into wind, were rising at a steady 3 ft./sec. This wave seemed to be in the region of Bakewell, but we are not quite sure. It took us from 9,000 to 11,000 ft. (George was higher—11,500 ft.) and then petered out, leaving us in a temperature of 12 degrees of frost. Here George, who was not warmly clad, decided that he was too cold to continue, and succeeded in making Camphill in a long upwind dive. Luckily, I was muffled to the eyebrows and still reasonably warm, so, turning south, I high-tailed it for the next wave—going through a patch of no-sink on the way.

Arriving at 8,500 ft., I managed to scrape 500 ft. of climb out of it before reaching no-sink (or did I drift out of it?) Off on a south course again—not realising at that time that the wind would be backing towards the west as I descended—to find another one over Derby, which took me from 8,000 ft. to nearly 9,000 ft. about 2½ hrs. after take-off.



This was the last useful wave contacted; two patches of no-sink were met on a long glide down to about 3,500 ft., somewhere near Leicester, I think. The sink during this glide was above normal (about 4 to 5 ft./sec.), and the strato-cu. had thinned out until only solitary lumps of dissipated-looking cu. were left, with a 3,000-ft. cloud base. It was then that I noticed the cloud shadows showing a light westerly wind, so I altered course downwind. The thermals enabled the glide to be stretched out but no more. In fact, after half-an-hour's hard work, I had just managed to hold cloud-base. I was then reduced to circling in reduced sink obtained from Desborough aerodrome hangars at 1,000 ft. on the altimeter (2,000 ft. above the ground). This brought me within striking distance of Kettering, which obstinately refused to oblige with anything but slight turbulence. A landing was made on Glebe Playing Fields at 15.35 hrs. An hour later the sky was practically clear.

The approach must have looked a little dicey, because one of the first offers of assistance (of which there were many) came from a lady who said "Excuse me, but can I help you? I am the local midwife!" She then went on to explain that the reason for this generous offer was that she was the only person on the local estate whose house was equipped with a 'phone.

Lessons learnt:—To watch wind direction and speed very carefully. Quite considerable changes can take place, which can quickly put you in the Wrong Spot. If the lift is lost in strong winds, it is a Bad Thing to circle, because one circle can land you half a mile downwind, and if this is still the Wrong Spot, it takes a long time to battle up-wind again through strong sink. When travelling downwind to the next wave, start a turn into wind before the green ball rises and let the wind drift you into the wave during the turn. If several aircraft are flying in the same wave, it seems to be good practice to keep apart; it gives everyone a better idea of the "lie" of the wave and it will not be so likely that all the machines will lose contact with the lift simultaneously—hence an advantage in doing a cross-country in pairs.

Lessons of the 1950 Contests

On the only non-flying day at this year's National Contests, 28th July, the opportunity was taken to convene a meeting of all present to discuss future competition policy.

Mr. E. Swale opened the meeting and asked Mr. Philip Wills to take the chair. Mr. Wills said that there were three points he had in mind on which the views of those present would be of the greatest value to the British Gliding Association in organising future contests. These were:—

(a) Whether in future the system of compulsory task flying could be adopted.

(b) What minimum pilot standards could be laid down for entrants.

(c) Would competitors be able to enter if future contests lasted for a fortnight instead of a week?

The first speaker, Mr. G. H. Lee, of London Gliding Club, suggested a fourth point:—

(d) A discussion on marking systems.

(a) The Chairman opened by saying that compulsory task flying was now the rule at International contests, and also at most other countries' Nationals. It had three important advantages: (i) it was much better education for pilots; (ii) it gave a much clearer comparison of the relative competence of each competing pilot; (iii) last, but far from least, it reduced the retrieving costs to competitors. On the other hand, it was a rather sterner discipline, and only those present could say whether such an increase in our standard of contest rules would now be acceptable.

The kinds of tasks which could be set were:—

(a) Unrestricted distance flying, with altitude.

(b) Goal flying, with altitude, possible including goal and return flying with altitude.

(c) Goal races.

(d) Out and return races.

A very interesting discussion ensued, with suggestions including optional task flying, task flying for a senior class only, and compulsory task flying in the year between the Internationals, with "jamboree" flying in the alternate years; but the general feeling of the meeting crystallised as in favour of compulsory task flying for at least the 1951 Nationals, with a system of marking involving rather less drastic penalties for failure to complete the set task than had been the case in this year's goal race.

(b) On the question of future pilots' standards, the meeting agreed that these should be raised in future, in order to reduce the number of accidents experienced this year. But there was a considerable lack of agreement on precisely what these standards should be. Some speakers favoured the "Silver C," others were strongly against it. If the contests were held on a hill site, clearly some hill-soaring experience was required, but if from an airfield this was less necessary.

In connection with safety, a good point was made by Mr. F. Foster, who proposed a rule prohibiting cloud-flying over the site if the cloud-base was less than 2,000 feet.

(c) On the point of fortnightly contests, nearly all present agreed that it would be impossible to devote more than one working week to the Nationals, so that the longest period available would be if the Contest ran over a Bank Holiday, giving a total of ten days.

(d) The Chairman described an interesting marking system proposed by the Dutch at the last F.A.I. meeting, devised to solve completely the "daily factor" problem. Broadly speaking, the proposal was that the best flight on each competition day should receive 200 marks, all other flights being marked on a straight line down from the optimum performance.

In the subsequent discussion, it was stated that the system used in the 1949 B.A.F.O. Contests had been very satisfactory, and might be examined carefully. Another speaker suggested that the B.G.A. might offer a prize for the best suggestion for a marking system to be submitted by Christmas, 1950.

On the whole, however, the view appeared to be that the system used in the 1950 World Championships was as good as any.

International Contest at Orebro

THE British team at the International Contest held at Orebro, Sweden, from 3rd to 16th July, had a most interesting, instructive and enjoyable experience; and if they did not do so well as had been hoped, this must be attributed in the first place to the exceedingly high standard set up by many of the pilots of the competing countries. It is noteworthy that the scores of the competitors were much closer together than at the 1948 meeting in Switzerland, and in consequence there were some spectacular changes of position, such as the pilot who headed the list on the first day and dropped to 14th place on the second.

Everything was exceedingly well organised by our Swedish hosts, and the aero-towed launches, in particular, went like clockwork at a rapid rate on each competition morning.

Mrs. Ann Douglas was team captain, and the team was made up as follows:

Senior pilot, Philip Wills, C.B.E., with Weihe sailplane. Ground crew, Mrs. Wills, Mike Smedley and Lt. Cmdr. Nick Goodhart.

Billy Nilsson, the winner.

Lorne Welch, with the Surrey Club's Weihe sailplane. Ground crew, John Sowery, Ron Macfie, and Peter Helson.

Flt. Lt. R. C. Forbes, with Weihe sailplane. Ground crew, Flt. Lt. Sid Emberley and Sgt. E. W. Basham.

Flg. Off. P. G. Mallett, with Gull IV sailplane lent by Mr. Charles Ryle. Ground crew, Capt. Edward Twiss, Sgt. Douglas Campion and Leslie A. Lansdown.

It is impossible to cover both the International and the National Contests in one issue of GLIDING, but we have been promised a report by one of the Swedish meteorological staff who spent much of his time assiduously collecting information from the pilots, so we hope to be able to deal with this aspect of the flying in a later issue. For the present, we give below a table of the final placings.

Final Placings

Order	*Pilot*	*Country*	*Points*
1	Nilsson	Sweden	867.536
2	MacCready	U.S.A.	847.791
3	Borisek	Yugoslavia	777.504
4	Arbajter	Yugoslavia	755.047
5	Magnusson	Sweden	744.450
6	Persson	Sweden	729.780
7	Löf	Sweden	714.206
8	Gehriger	Switzerland	712.934
9	Fonteilles	France	704.659
10	Lambert	France	660.381
11	Temmes	Finland	655.345
12	Comte	U.S.A.	647.142
13	Alm	Sweden	640.602
14	Haltiala	Finland	637.339
15	Forbes	Great Britain	630.376
16	Jensen	Denmark	622.498
17	Malotaux	Holland	605.711
18	Rasmussen	Denmark	598.327
19	Maurer	Switzerland	595.058
20	Ruckstuhl	Switzerland	585.891
21	Lasch	South Africa	570,598
22	Legler	Switzerland	558.289
23	Schachenmann	Switzerland	554.384
24	Welch	Great Britain	533.627
25	Mallett	Great Britain	519.144
26	Kleyn	Holland	484.239
27	Wills	Great Britain	482.229
28	Lepanse	France	466.467
29	Haydn	Norway	234.251

Exploiting the Cunim for Speed and Height

by Flight Lieutenant A. W. Bedford, A.F.C.

VISUALISING the possibilities of a suitably equipped sailplane I discussed a proposed plan with Commander Wilson, our C.T.F.I., who, full of enthusiasm, persuaded the powers that be to agree to the installation of oxygen and an electric artificial horizon in one of our Olympias. However on completion of the job it was found that the maximum permitted all-up weight was exceeded by 18 lbs. It then became increasingly difficult to get anyone to give their signature to clear the sailplane for flight, although all agreed that the effect from a structural point of view would be negligible. That meant the removal of the oxygen bottle pending official clearance.

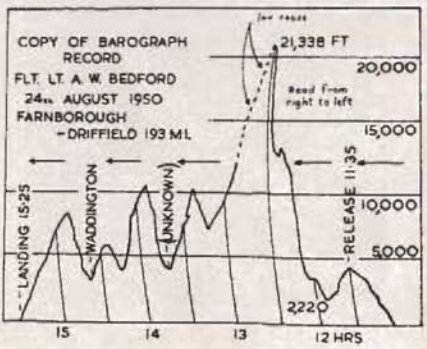
By now I was itching to make full use of the new equipment since, with the artificial horizon, the loss of the airspeed indicator through icing was no longer important. I would like to say now that, although a keen supporter of instrument-flying on a limited panel, I feel it's going a wee bit too far to have to be content with noise as the only indicator in pitch, should the A.S.I. fail. This technique may be satisfactory to those versed in this art, but if one is going to get a maximum out of the sailplane without too much sweat and blood, then the artificial horizon appears to provide the best solution.

On Thursday, 24th August, 1950, the weather forecast gave winds from S.S.W. at all heights, varying in speed from 25 knots at 2,000 ft. to 45 knots at 20,000 ft.; cloud 3/8 to 5/8, cumulus and cumulonimbus, building up to 30,000 ft. One look at the sky confirmed the situation, and without delay I prepared for flight with sealed barographs, maps, chocolate, gloves, etc. Since conditions were ideal for a long, fast flight north, I named Wombleton (about 25 miles north of York) as my goal, a distance of approximately 230 statute miles.

Flt. Lt. Blackett kindly towed me off in the Auster from Farnborough at 11.10 hrs. We climbed to 4,000 ft. in disappointingly calm conditions, so much so that the variometer from the moment of take-off showed its extreme displeasure by recording a consistent red ball registering 10 ft./sec. down. I found this rather disconcerting because, although I knew our tug was rather teased out, I didn't think it was quite that bad.

Two miles S.E. of Odiham I released from the tug and spent several minutes in vain trying to remedy the variometer by "beating" the instrument panel and squeezing odd tubes behind the instrument, but all this was of no avail.

Now, at 3,000 ft., I set course for a large build-up of cumulus cloud. At 11.50 hrs., arriving under this cloud at 2,000 ft., I immediately struck really powerful lift, which so shook the green ball of the variometer that it jumped up to 10 ft./sec., and from that moment on it never looked back. I switched on the artificial horizon and, with the inverter whining like a young jet engine, I entered cloud at 2,500 ft. and settled down into a steady left hand turn at 45 m.p.h. I.A.S. The Olympia rode the gusts quite effortlessly and altitude was quite easy to maintain, regardless of airspeed fluctuations. The cloud became darker at 3,000 ft. and torrential rain, sounding like hail on a corrugated iron roof, tumbled down. Water poured in a steady stream through the joint at the canopy and the fuselage, soaking my trousers and shoes to the skin.



Flt. Lt. A. W. Bedford, whose flight broke the British and U.K. records for absolute altitude and gain of height.

At 3,500 ft. I came out through the side of the cloud, but turning on a reciprocal course I headed for the most likely looking area in the middle. I was not disappointed and lift at 15 ft./sec. rocketed me up to 8,000 ft., at which height I first noticed a rapid ice build-up on the canopy. A peep through the clear vision panel revealed that the wings were plastered with ice roughly 1 inch thick, falling back and thinning out to a distance approximately 6 ins. aft of the leading edge. At this stage I kept operating the spoilers and moving the controls to prevent their obstruction by ice. The handling characteristics appeared to be quite unaffected by ice, and as far as performance went the overall lift was so powerful that the effect on the rate of climb was negligible.

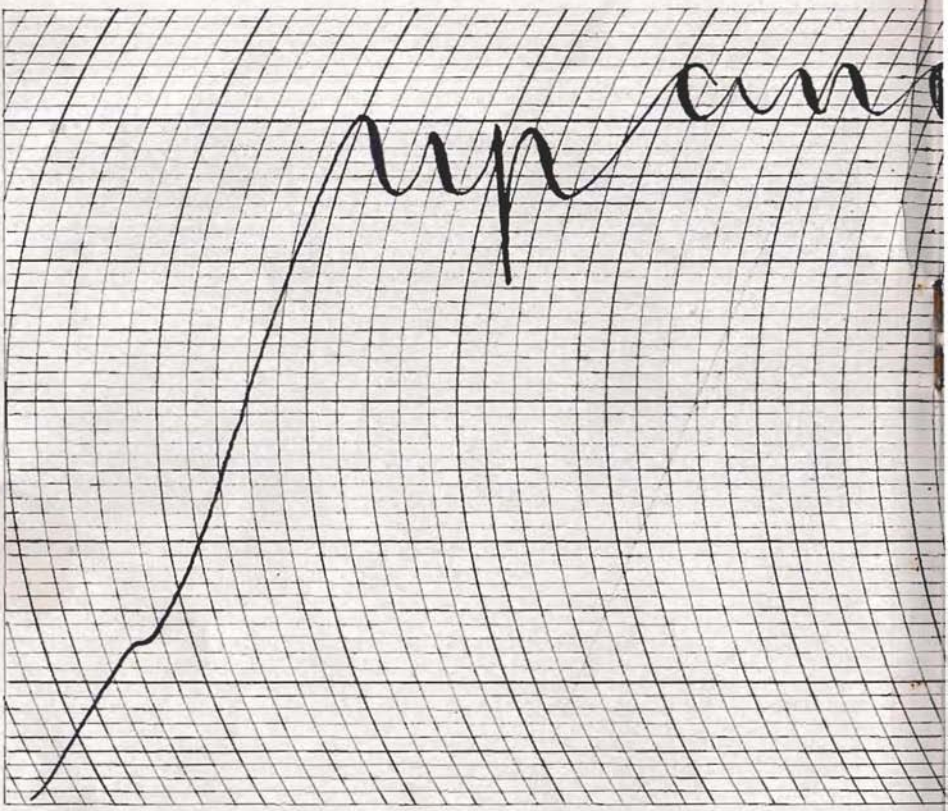
Oddly enough the A.S.I. did not freeze up until 12,000 ft., when the needle flickered and gave a last dying gasp and then remained motionless and useless.

From time to time it was necessary to make small corrections to the orbiting circle to remain in the maximum lift area. However, at 13,500 ft. I temporarily lost the lift, but it took only a minute or so to get back into the best area.

I was thoroughly enjoying this unique experience of absorbing so much useful energy from the elements, when a sharp bombardment of hail made me snap out of it and face the fact that the oxygen bottle was on the ground some 14,000 ft. below. With this well to the fore in my mind, and taking every precaution to check up on my reactions, I steadily left 15,000 ft. beneath me, praying that the barograph was still working.

Nestling down in the seat, I suddenly felt the pricking of static electricity jumping from the locking pin of the Sutton harness to my neck and from the inverter to my backside. Thus spurred on, I saw the British altitude record in sight and, making some rather haywire calculations, I decided to err on the right side and go straight up to 20,000 ft. The green ball was now stuck hard at the top of the tube, and the altimeter was winding up at a remarkable rate, and what with a busy session of instrument flying in turbulent cloud, and no oxygen, the whole situation seemed to me like a sailplane pilot's nightmare.

At 20,000 ft. I realised that it would be foolish to carry on more, but being foolish



ELLIOTTS OF NEWBURY LTD

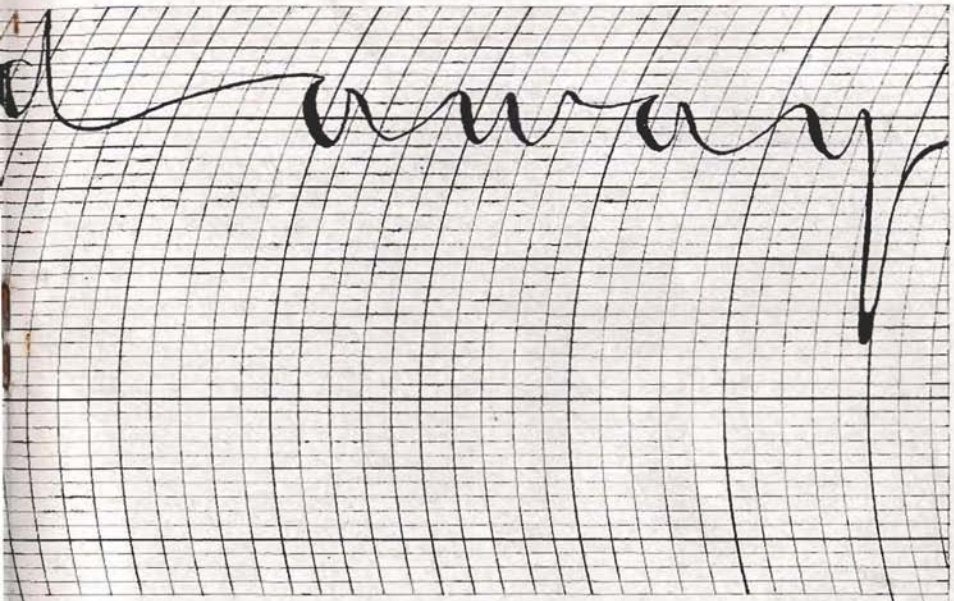
ALBERT WORKS . NEWBURY . BERKS

Manufacturers & Distributors of

OLYMPIA EON
HIGH PERFORMANCE SAILPLANE

o

BABY
INTERMEDIA



BRITISH NATIONAL & U·K LOCAL ABSOLUTE ALTITUDE RECORDS

21,340 FT. A·S·L

BRITISH NATIONAL & U·K LOCAL GAIN OF HEIGHT RECORDS

19,120 FT. GAINED

GOLD BADGE WITH DIAMOND. **193** MILES IN **230** MINS

We extend to Flt. Lt A.W. Bedford A.F.C our congratulations on his performance in a standard "Olympia Eon" sailplane on August 24th 1950.

EoN
TE TRAINER

o

PRIMARY EoN
AB INITIO TRAINER

I stuck it out to 21,500 ft. indicated on the altimeter.

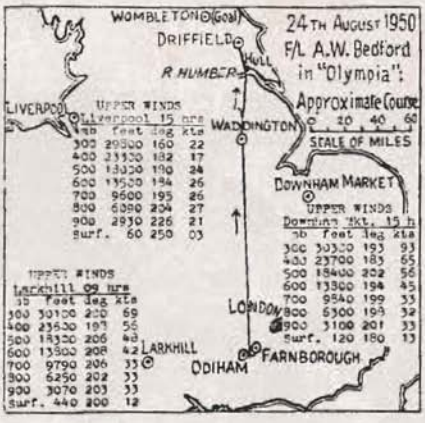
Assuming by now that I had run off the barograph scale and also experiencing mild anoxia, I threw away this dynamic source of lift, reluctantly extended the dive brakes and let down on a northerly heading to 16,000 ft. At this height I retracted the spoilers and flew at an estimated 60 m.p.h. (I.A.S.) still in cloud, heading, I hoped, roughly downwind.

On this course I progressively lost height down to 7,000 ft., and feeling somewhat exuberant I celebrated the situation by consuming my chocolate ration.

Availing myself of more lift I nipped up to 10,000 ft., and again flew north. After being continuously in cloud for 1 hr. 30 mins., I broke clear at 4,000 ft. and saw an aerodrome some ten miles ahead. I did not know my position, but, feeling quite happy and confident that I was roughly on track, I overcame the necessity of a navigational problem by entering a convenient large cunim on my port. The green ball was soon away at 15 ft./sec. and at 11,000 ft. I levelled out and flew on north at 60 m.p.h. (I.A.S.).

Reaching 4,000 ft. in cloud, more lift took me to 6,000 ft. and ten minutes later I saw Waddington aerodrome 4,000 ft. beneath me.

Towering masses of cumulus and cunim were there to welcome me, and without further ado I headed on 330° for a promising source of lift. One could not go wrong, and with similar characteristics to the previous clouds I soon found excellent lift to 8,500 ft. At 15.00 hrs. I broke cloud at 6,000 ft. and was surprised to find that I had already crossed the Humber and was over Hull city.



The conditions ahead looked rather dead, with considerable amounts of alto-stratus covering the sky. At this stage I flew back south to mark time in the large mass of cloud I had just left, hoping that the formation would take me towards my goal, but unfortunately instability faded out north of the Humber.

Perusing my map, I noticed Driffield marked just outside "Gold C" distance. I cruised at an I.A.S. of 40 m.p.h. just waiting for lift. This, however, was not forthcoming and I arrived at Driffield with 3,500 ft. to spare, and after waiting 15 minutes before landing, in the hope that conditions would improve, I finally touched down at 15.25 hrs.

The distance covered was 193 miles, in 3 hrs. 50 mins. giving an average speed of 50½ miles per hour. Three hours of the journey were spent in cloud, thus reducing the necessity for serious map-reading.

COMMENTS.

Cumulo-nimbus clouds are the glider pilot's friend, provided the latter is prepared to co-operate. To approach the cunim problem full of apprehension with visions of structural failures, lightning, hail, icing and so on, is just asking for trouble, as is, of course, the "couldn't care less" attitude. I feel that, provided one adopts a sensible approach to the subject, and uses a completely relaxed instrument-flying technique, backed by some serious cloud-flying practice, then the battle is half over. There are still one or two obvious requirements which deserve comment.

(a) Instruments: in addition to the normal sailplane instruments, one should have either an artificial horizon, or an efficient de-icer for the pitot system, to ensure operation of the A.S.I. under all conditions.

(b) That the pilot is in reasonable I.F. practice and can recover from any unusual attitude. This latter precaution is useful more for a confidence boost than anything else.

(c) That the pilot appreciates the conditions likely to be encountered in such clouds, and accordingly flies maintaining attitude rather than a constant airspeed.

This is where the artificial horizon is invaluable. A good pitot de-icer would, however, do as a substitute, provided the airspeed was allowed to fluctuate about a mean.

(d) Oxygen is essential for any serious flying above 15,000 ft. if one is to get the best distance out of the available altitude. The 7,500 ft. I threw away, with spoilers out, might have just made my goal possible.

(e) The barograph charts should have been smoked. A spare barograph would have been well worth while.

Having experienced such a flight, one feels that, properly instrumentated, the sailplane (particularly the dual version) could undoubtedly provide invaluable information in connection with met. research. This machine, stressed as it is to a design ultimate factor of plus or minus $9\frac{1}{2}$ *g* at a pull-out from maximum diving speed of 130 m.p.h., would be ideal in many respects for cunim investigation, covering ice formation, gust acceleration and the behaviour of structures.

In addition, in these days of an All-Weather Air Force, the glider presents an excellent opportunity for pilots to obtain an interesting intimate contact with the weather, and also to supply one aspect of instrument flight attractively and economically.

Kronfield Memorial Trophies

ROBERT Kronfeld, the pioneer of distance and altitude soaring, lost his life while carrying out his duties as a test pilot on 12th February, 1948. A fund was started to provide a memorial in a form which would give practical encouragement to the advancement of soaring flight, and on 8th September, at Londonderry House, a simple ceremony was held at which Mr. Lawrence A. Wingfield, who organised the appeal, made the presentation to the British Gliding Association.

Mr. Wingfield gave a brief outline of Kronfeld's career; he was born in 1904, learned to glide in 1927, began making soaring history in 1928, and came to England in 1930 to take part in a soaring meeting on the Itford-Firle ridge, from which he made the first cross-country soaring flight in England—50 miles to Portsmouth. He settled here permanently in 1934, became naturalised in 1939 (he was born an Austrian), joined the R.A.F. and took part in the early development of military gliding at Ringway. He rose to the rank of Squadron Leader in 1943 and was awarded the Air Force Cross. After the war he did some research in Canada and was then employed by General Aircraft, especially on the testing of tailless aircraft.

The memorial takes the form of five Swiss barographs designed for recording altitudes up to 40,000 feet, and each inscribed: "Robert Kronfeld Trophy." They will be loaned to suitable individuals and clubs.

Mr. Philip Wills, on behalf of the B.G.A., expressed his thanks for this "extraordinarily appropriate presentation," which would be an extremely valuable acquisition to the British gliding movement. He mentioned that one reason Flt. Lt. Bedford broke off his climb, when putting up the recent altitude record, was that he had only a 6,000-metre barograph.

The barographs cost about £47 each, and a sum of £227 13s. 6d. had been collected. The following is a list of the subscribers.

	£	s.	d.
General Aircraft Ltd. ..	105	0	0
Guild of Air Pilots	5	5	0
Oxford Gliding Club ..	5	5	0
Philip A. Wills	5	5	0
J. Laurence Pritchard ..	2	2	0
Lawrence A. Wingfield ..	10	10	0
Anonymous		7	6
S. Scott Hall	5	5	0
Slingsby Sailplanes Ltd. ..	5	5	0
H. V. Roe	1	1	0
Leo. Walter		10	0
R. C. Stafford Allen.. ..	5	5	0
"Flight"	10	10	0
"Aeroplane"	10	10	0
Elliotts of Newbury ..	5	5	0
B. S. Shenstone	5	5	0
Derbyshire & Lancashire Gliding	5	5	0
Kemsley Flying Trust ..	10	10	0
Sir H. Lebus	5	5	0
F. F. Crocombe	5	5	0
Prof. G. R. T. Hill	5	5	0
Airspeed Ltd.	5	5	0
Blackburn & General (Development Sect.) ..	8	8	0
	£227	13	6

Courses for Dartmouth Cadets

For two successive years, cadets from the Royal Naval College at Dartmouth have been instructed in elementary gliding at R.N.A.S. Culham, Oxfordshire, known as H.M.S. Hornbill, under the command of Capt. J. W. Grant, D.S.O., R.N.

The first two courses were held in the second half of August, 1949. Of the senior cadets at the college, 80 had volunteered for the 30 places (15 for each week's course). The first group were trained with extreme caution, as any untoward incident would have scorched the scheme at the outset; consequently only four pupils were launched high enough to get their "A" certificates. Everyone in the second 15, however, got his 'A.' This was at the end of only five days' instruction, interspersed with many other activities.

At the outset each cadet was taken up in a Kranich for a taste of thermal soaring. Excitement rose to fever pitch when two cadets were being circled in the same thermal, at the same level, each calling out the variometer readings in the hope of helping his own pilot to outclimb the other. This, for most of the cadets, was their first experience of becoming airborne.

Solo training was on Eon Primaries lent without charge by Elliotts of Newbury. The cadets were also taken up in aeroplanes, and in other ways made familiar with the working of a Royal Naval air station.

The first party were asked for their candid comments at the end of the week. They surprised their hosts with an admission that they would have preferred more time with the gliders and less with the aeroplanes. To be in sole charge of an aircraft, however humble, evidently gave them a far greater thrill than being passively flown around by someone else.

The Flag Officer Air (Home), Vice-Admiral R. H. Portal, was so pleased with the 1949 courses that he arranged for 64 cadets to be taught gliding at Culham this year. They were taken in four groups of 16 each, starting on 17th August, and it is of interest that their ages were from 14 to 16, rather less than the average A.T.C. gliding trainee. Elliotts again lent two Primaries.

Lieut. Commander J. S. Sproule has organised the instruction, which is by auto-towing, starting with slides. Last year he was helped by Lieuts. H. M. A. Hayes and F. P. Curry, and this year by Lieut. C. Drake.

We have visited these courses both years, and are not surprised to read in *Portsmouth Naval Gliding Club Journal*: "These cadets were quite indefatigable, and when the gliding instructors collapsed exhausted it was always necessary to have something else, such as a tour of the air station, laid on for them!"

Correspondence

JAMBOREE

Dear Sir,

I should like to point out that there is nothing new in Mr. Kaye's suggestion to hold Gliding Jamborees; my own Club has organised two such meetings since the war and they provided quite good fun. If, however, there is the demand for this sort of meeting, which Mr. Kaye seems to think, it is rather surprising that nobody has troubled to organise more of these meetings and I do not see why on earth the B.G.A. should be expected to do the job.

As for the suggestion of a closed shop, I think this is rather an unfortunate phrase, as it must be quite clear that there must be a limit to the number of aircraft on any site.

Mr. Kaye's remark about growing professionalism in the sport, however, is quite a different matter and I am rather surprised that he has not suggested that the National Competitions should distinguish between these two classes. If he would care to suggest a definition of a Gliding Professional he will be providing a really useful contribution.

CHARLES ELLIS.

Performance Measurements of a Soaring Bird

by August Raspet

Engineering Research Station Mississippi State College

THE history of aviation is intimately connected with the bird flight studies of early researchers. The mythical flights of Icarus and Daedalus on wings fashioned of wax and feathers represent our earliest thinking about human flight. The flight of Daedalus from Crete to Sicily even to-day would represent a record-breaking motorless flight were it an actuality. The influence of da Vinci's studies of bird flight is apparent in his design. It is a prone-piloted ornithopter with scalloped monoplane wing surfaces. As the knowledge of flight accumulated there was an increased effort on the part of those striving to fly to understand natural flight. In the nineteenth century men such as Lilienthal, Marey, Langley and Huffaker made important contributions to the understanding of the elements of natural flight. At the beginning of the present century two students of natural flight, Hankin and Idrac, were able to continue their studies of flight despite the disrupting influence of the aeroplane.

Early efforts in bird flight research were confined to a close observation of the birds. A more refined approach was that of Marey who developed a time lapse camera which could be called the first movie camera. With this camera he was able to make models of the bird in a complete cycle of a wing flap. Langley also used a photographic technique with a stereoscopic pair of cameras. His studies as well as those of his associate Huffaker were confined to the soaring flight.

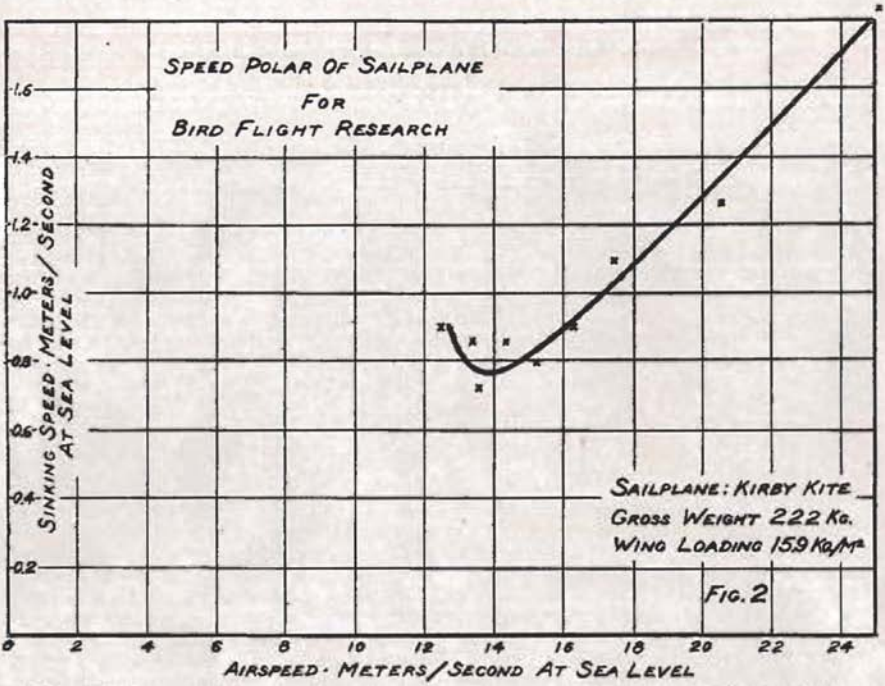
There is no doubt that an understanding of soaring flight should precede attempts at understanding the more complicated flapping flight. Soaring enthusiasts might have profited considerably in their development of the art and science of soaring flight had they maintained a closer liaison with the bird flight students. As an example of a possible contribution of this sort one merely needs to read Huffaker's* paper written in 1897 in which he describes fully and accurately the method of thermal soaring as used by the turkey buzzards (*Cathartes aura*) around Washington, D.C. It was not until 1932 that thermal soaring was first practised by man. Another example is that of dynamic soaring, the basis for which was propounded by Lord Rayleigh when he stated that soaring flight required either a wind which is not horizontal or which is not uniform in velocity. The utilization of the latter is, of course, dynamic soaring, which has not yet been accomplished in a controlled experiment by man. It is hoped in this paper to show how bird flight research on soaring birds can lead to an understanding of dynamic soaring.

The present study began in 1945 with an experiment in which a bird was trained by Mr. George F. Carter to carry a miniature barograph and recording anemometer. It was hoped to measure the performance of the bird as he glided between upcurrents. The method would have been subjected to errors due to the lack of knowledge on the strength of the downdraughts between the upcurrents. Unfortunately, no data were obtained by this method, for the bird died prematurely of an intestinal stoppage. Mr. Carter later offered to train a buzzard to fly in a wind tunnel. By this technique the errors due to downdraughts would not be included in the performance measurements. It would also permit a detailed study of the wing-tip slots such as land-soaring birds possess.

In 1946 the author accidentally flew with some seagulls on a ridge. It occurred to him that the performance of the birds could be obtained by a comparison with the sailplane's performance. The results shown in this paper were the result of a continuation of the first flight with the seagulls.

For bird flight performance measurements one requires a very slow-speed sailplane of good or exceptional manoeuvr-

* *Huffaker*, E. C., On Soaring Flight, Smithsonian Report 1897.



ability. Unfortunately the trend in modern sailplane design is headed toward fast sailplanes. The sailplane used in the current studies is an English-built Kirby Kite. Its performance curve or calibration curve as it is used in this work is shown in Fig. 2. A radio antenna is mounted in the nose of the fuselage. Installed on the wind shield is a Leica camera with a telephoto lens and a special optical viewfinder which permits determining the range of the bird.

Conditions ideal for collecting bird data are merely those ideal for thermal soaring. The crew for such measurements consists of three people, a pilot and two ground assistants. They go to the airport when thermal conditions are good, and tow the sailplane to 300 metres with an automobile. The pilot begins soaring while the ground observers scan the sky for birds. As soon as one is spotted soaring within reach of the sailplane the pilot is directed by radio to the bird. When the sailplanist sees the bird he begins reporting the airspeed and relative altitude of the bird with respect to the sailplane. The pilot attempts to adjust his rate of turn and turn radius to agree with that of the bird. Also, during this soaring phase the pilot reports the shape of the bird's wing. The buzzards normally have their wing-tip slots open when soaring (gaining altitude). After the bird and sailplane have gained sufficient altitude for the bird's immediate purpose, the bird will strike out on a cross-country jaunt, taking a fairly definite heading. He closes his tip slots and cruises at speeds up to 30 metres per second. During this cross-country flight the sailplane pilot may follow as closely as five metres behind and below the bird. He is thus able to see the bird's control motions, and to anticipate manoeuvres and to photograph the wing configuration at close range. During this phase of flight the bird is usually not aware of the sailplane. However, if the pilot speaks too loudly into his radio microphone or if the controls on the sailplane make a noise, the bird immediately notices the sailplane and attempts an evasive manoeuvre.

During this tracking the pilot sends to the ground observers the airspeed, relative

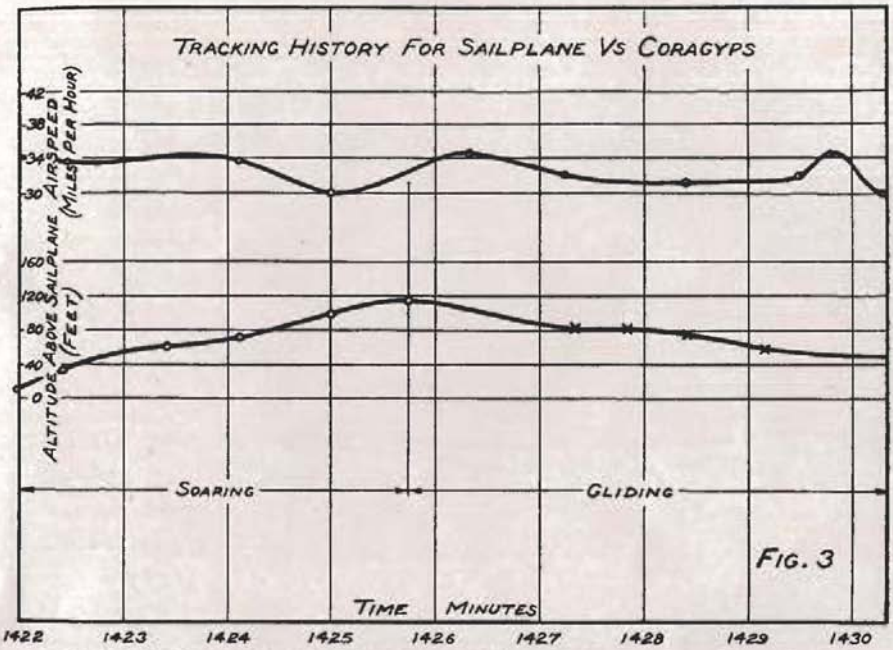


FIG. 3

altitude of the bird above or below the horizon, and the wing configuration at closely spaced time intervals. These data are recorded on the ground as a function of time and are later recorded as a tracking curve, Fig. 3. From portions of this curve where the bird is in constant-speed flight for at least one minute, the slope of the relative altitude curve is taken as the difference in sinking speed between the bird and sailplane. The sailplane's sinking speed is known from the calibration curve, Fig. 2, and thus the bird's sinking speed can be obtained since the difference is known. A series of such trackings will yield a speed polar for the bird in gliding flight. Similarly the data taken during the soaring phase may be plotted and the speed polar in soaring flight so obtained.

It should be mentioned that in the soaring phase, circling flight, no corrections were made for the increased sinking speed of the sailplane or bird due to centrifugal loading. The angles of bank used by both the sailplane and bird were usually less than 30°. Another assumption made in these measurements is that the bird and sailplane are influenced equally by vertical air motions in the atmosphere. Whether this is a valid assumption will be resolved by an independent experiment in which a captured bird will be taken up in a two-place sailplane at dawn when the air is stable. The bird will be released from the two-place sailplane while in slow flight so as not to disturb the bird. The measuring sailplane towed up at the same time will be ready to track the released bird and to make measurements in the still air. Whether the bird will co-operate in this experiment or simply dive to the lower warmer surface is yet to be determined.

On many occasions birds come to join the sailplane in a particularly good thermal. This makes it easy for the pilot to select a bird for measurement. It is evident from this behaviour that the birds are not disturbed by the sailplane and that the results obtained approximate quite closely those in natural flight. The advantage of the silent flight of the sailplane is apparent in such research as this.

Following the usual sailplane practice there is shown in Fig. 4 the three-view or

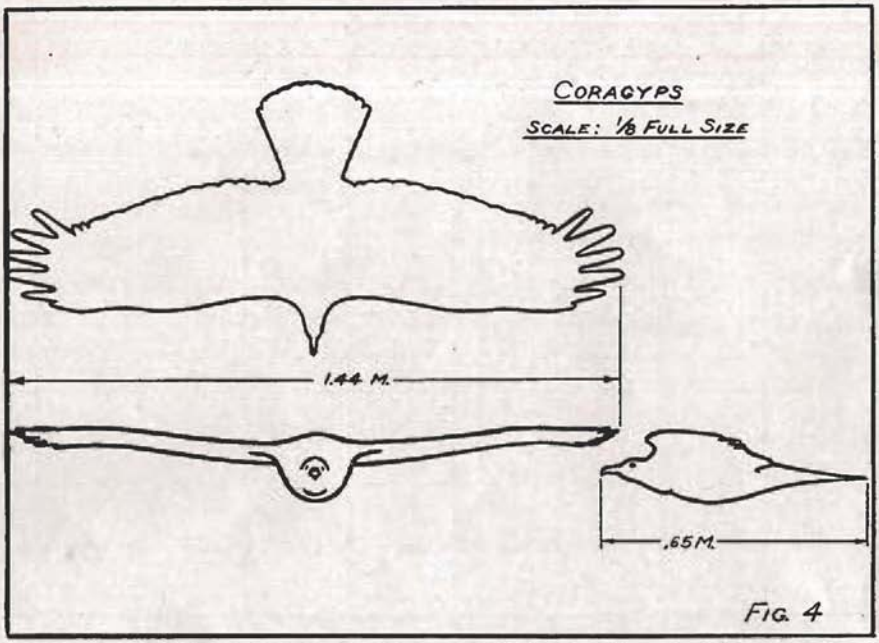


FIG. 4

general arrangement of the aircraft under consideration in this paper. The bird is commonly called a black buzzard or scientifically *Coragyps atratus*. He is an excellent soarer, though not as good as the turkey buzzard (*Cathartes aura*). However, the Coragyps happened to be quite plentiful in the autumn skies during the time the research was made. Fortunately, Coragyps is also 30% heavier in wing loading than the Cathartes. He is therefore easier to track with the sailplane used for this research. Since the sailplane had a wing loading nearly 2.5 times that of Coragyps, he had a distinct advantage in manoeuvrability over the sailplane. Because of this any evasive tactics of the bird were completely successful.

In Fig. 5 are shown the measurements obtained by means of the sailplane tracking a number of different black buzzards. There may have been variations between one bird and the next but in these results the data are treated as a statistical average representation of the bird's aerodynamics. The wing loading and aspect ratio shown are also averages obtained by numerous ornithologists. The captured bird technique may be an improvement in this respect, since the specimen (flight test article) can be weighed at take-off and also measured for its geometry.

Inspection of Fig. 5 shows that there are two distinct speed polars for the bird's two phases, soaring and gliding. The vertical velocity curve for the soaring phase appears quite similar to that of conventional sailplanes. However, the gliding phase curve has a much flatter polar. This is particularly evident if one views the gliding ratio curves. In sailplane terminology the bird would be said to possess a good speed range when gliding.

There are a number of other points which merit emphasis—the very low minimum sinking speed of the bird in soaring flight and the very low speed at which he can fly. If one computes the power required for the bird to sustain level flight at a speed of 13.8 metres per second one finds the phenomenally low value of 0.019 horsepower for a bird weighing 2.3 kilograms. This value corresponds to a power loading of 122 kilograms per horsepower. The lowest

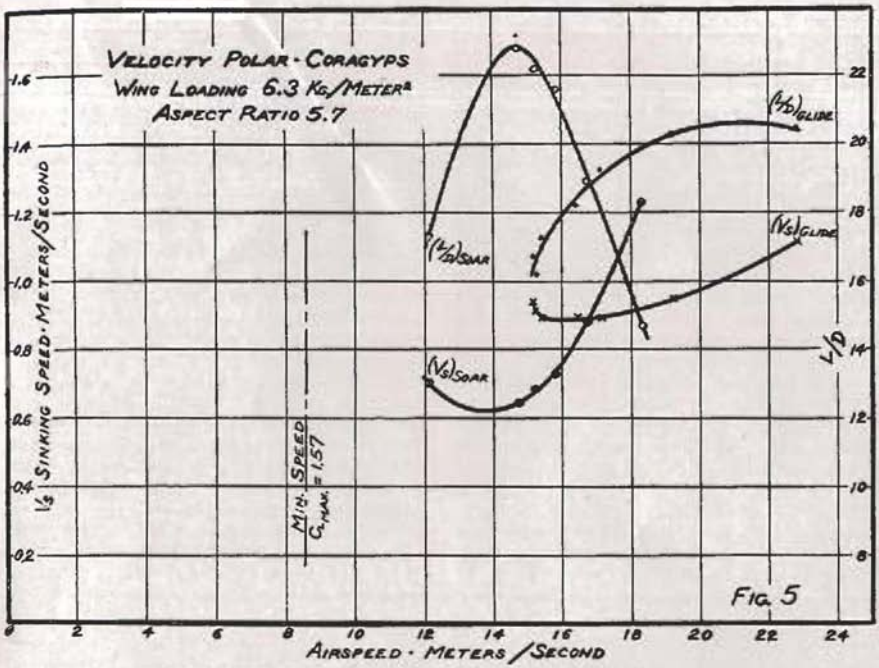


FIG. 5

soaring speed, 8.5 metres per second, was determined by timing the bird around a complete circle and measuring the diameter of the circle in terms of the known wing span of the bird. The lift coefficient at this speed is 1.57, a relatively large value considering the Reynold's number at which this lift occurs, namely 140,000.

If the same data shown in Fig. 5 are plotted in terms of the non-dimensional coefficients of lift and drag, there results the so-called drag polar Fig. 6. In this polar the lift coefficient is plotted as the square so that the drag polar, normally a parabola, is linearized. The reason for the bird's closing his tip feathers for gliding flight is immediately apparent from this plot. He does this to reduce his drag. With slots open he could not attain a lower drag coefficient than 0.019, but with the slots closed he can reach a minimum of 0.0058 in drag coefficient. It is also clear that the closing of the tip slots reduces the effective aspect ratio. At high speeds (low lift coefficients) the bird already has a very low induced drag and strives rather to reduce his parasite drag. Actual measurements of the induced drag and consequently the effective aspect ratio can best be done at lift coefficients much higher than those measured here. There is still left to be investigated the region $0.7 < C_L < 1.57$. On the drag polar Fig. 6 this represents a region three times more extensive than that shown. For this purpose a specially designed low speed sailplane is required, one which can soar at 8.5 metres per second and has a wing loading of not over 7.0 kilograms per square metre. This low wing-loading would also insure good manoeuvrability provided the controls were properly designed for low speed operation.

With such a research sailplane it will be possible to accurately investigate the flight of birds near their stalling lift coefficient. Some preliminary results obtained by extrapolation indicate that the Cathartes can utilize his wing tips as diffusors so as to attain an effective aspect ratio greater than his geometric. This means, in essence, that this bird may be controlling the flow beyond his wing tips or that he is extracting some

energy from the wing tip vortex. The delineation of this effect awaits the very low speed measurements. The very fact that the Coragyps is able even at comparatively low lift coefficients to control his effective aspect ratio is evidence that there should be expected even larger effects at the high coefficients.

The very low minimum drag coefficient 0.0058 becomes all the more interesting when one compares this with that obtained by some of the cleanest modern aircraft. The lowest measured drag coefficient which has been published is that of the Lippisch designed ME 163 which was 0.010. To explain the paradoxically low drag of the Coragyps the drag coefficient based on total wetted area was computed and found to be 0.0020. The Reynolds number of the highest measured speed of this bird is 4.4×10^5. At this Reynolds number the drag coefficient of a flat plate in laminar flow is 0.0021. Comparing this value with that of the Coragyps leads one to conclude that the bird must be able to control the flow over his body and wing so that it is laminar over its entire surface. How he does this can only be suspected. Victor Lougheed claimed that bird's feathers possess an asymmetrical porosity according to the direction of flow. He stated that a measurement shows the ratio of porosities to be 10:1. If this is true then we must suspect the birds of having priority on suction through a porous surface as a boundary layer control means.

This paper is intended to show how powerful a research tool the sailplane becomes when applied to bird flight studies. The results reported, while precise as measurements to plus or minus 5%, may not be truly representative of the static aerodynamics of the bird. He may after all be extracting energy from the atmospheric turbulence. If it is found by measurements in still air that a good portion of the energy for the bird's flight comes from this source then it will have been established that dynamic soaring is really practised by birds and that man must learn from them the mechanism.

From these measurements on the Coragyps it was shown that this bird is able to fly with an extremely small expenditure

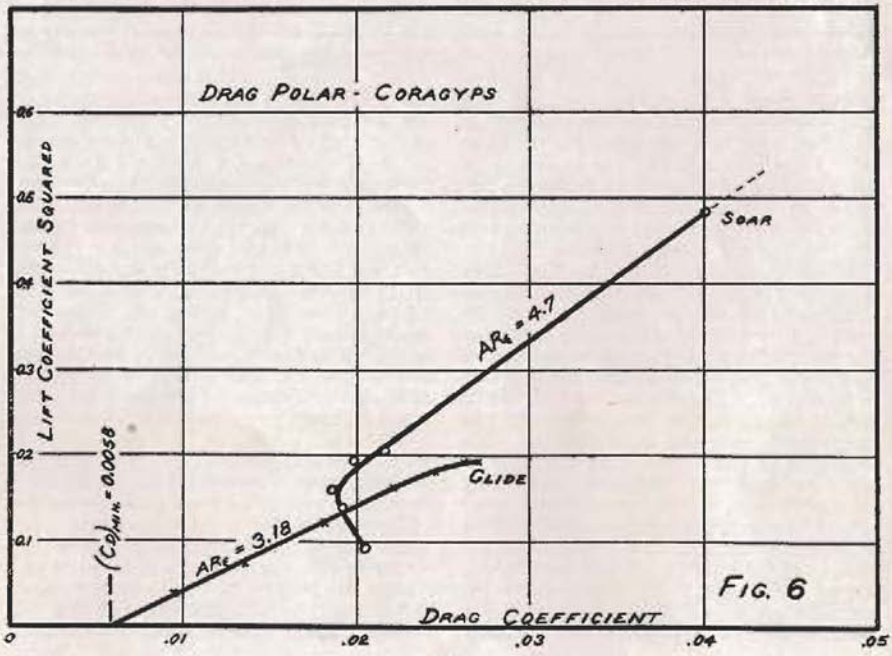


FIG. 6

of energy. His power loading at minimum power required was found to be 122 kilograms per horsepower. It has been found by biophysicists that 45 kilograms of animal muscle is able to deliver one horsepower for several hours. These two values represent the power required and the power available. If man could devise a flying machine utilizing the fine aerodynamic principles of a bird, yet weighing together with the powerplant (man) not over 122 kilograms, and if 45 kilograms of muscle could be brought to work, then the dream of da Vinci would become a reality. The energy balance is established by these measurements; when the mechanism is better understood, then and only then will man fly.

It is the author's good fortune to have the encouraging support in this work of Dr. Harold Flinsch, director of the Engineering Research Station. To the very skilful bird tracking by Richard H. Johnson, the author attributes the precision of these measurements. The author owes a debt of gratitude to him and to Fred Obarr, who might have been soaring had he not volunteered his help on the ground.

OSTIV Meeting 1950

THE "Organisation Scientifique et Technique Internationale de Vol à Voile," which was started two years ago to take the place of the pre-war ISTUS, held its third meeting at Orebro, Sweden, during the period of the International Contest. There were 18 delegates present from nine different countries; Beligum, Denmark, France, Holland, Norway, Switzerland, United Kingdom, U.S.A. and Yugoslavia; also a Swedish observer. The delegates met on 3rd, 6th and 8th July, and devoted nearly their whole time to working out a new constitution, which was deemed necessary as the OSTIV had not been sufficiently active under the old one.

The Netherlands delegate, L. A. de Lange, took the initiative in this action, and was unanimously elected President for the next two years. The former President, M. Jarlaud, who founded the OSTIV, had sent a message intimating his desire to resign, owing to pressure of business.

The new constitution proposes that the OSTIV should be "an independent organisation, working within the framework of the F.A.I.", instead of a sub-committee of the F.A.I., which it was previously. A Board of Trustees is to be elected every two years.

The trustees select a chairman for each of the committees, scientific and technical. Dr. Raspet (U.S.A.) and Mr. Eichenberger are the present chairmen of these two committees respectively. The function of each committee is to foster and co-ordinate international efforts in their respective spheres, and distribute information throughout the membership. The scientific and technical papers read at each conference are to be published, and each member-country is to contribute annually a bibliography and a copy of every pertinent publication appearing in that country. A catalogue of films of value to soaring is to be kept by OSTIV. Any information received which concerns safety will be distributed without delay.

During the period the OSTIV organised three evening sessions at which papers were read and discussed and films shown; the competing teams were invited and took part in the discussions. We publish one of the most interesting of these papers in the present issue of GLIDING, by kind permission of Dr. A. Raspet, and as the texts of the others become available, we expect to publish abstracts of them, or possibly, in some cases, the whole paper. The following lectures were given on 4th and 5th July:—

W. F. Ledermann (Switzerland): Experiences during Instruction Courses in Blind Flying.

K. E. Ovgard (Sweden): Time-compression Films of Standing Waves and Rotors.

A. Raspet (U.S.A.): Performance Measurements of a Soaring Bird.

Mr. Jucker: Results of Exploration of Waves by Soaring Flight.

A. Raspet: The Air Flow over an Extended Ridge.

W. B. Kiemperer (U.S.A.): Time-compression Film of Standing Waves at Bishop, California.

CLUB NEWS

Bristol Gliding Club

DUE mainly to poor weather, and partly to glider and tug unserviceability, the season has been a disappointing one for thermal soaring at Lulsgate. Apart from one or two short flights to Filton and Whitchurch the only cross-countries made so far this year have been G. E. Miller's 40 miles to Gloucester and D. J. Farrar's out and return to Wells (35 miles). At the National Contests, however, we had more success; the Club Olympia flown by K. W. Turner and C. Staffurth came in 8th, and a privately entered Olympia 16th. E. A. Thompson and J. M. Heron completed their "Silver C's." In all the two aircraft did 460 cross-country miles during the week.

Several camps have been held at our hill site at Roundway, where we have been flying since the beginning of the year. At Easter 40 hours were flown and at one time five aircraft were on the ridge together. Visiting machines were P. A. Wills's Weihe and a Surrey Club Olympia. Another successful camp was held at Whitsun, but the August camp failed to provide a soaring wind. So far we have got three "Silver C" durations and nine "C's" there. The site has also shown considerable possibilities for thermal soaring, though our present field is too short for high winch-launches or aero-tows. The two deserted farm cottages have been converted into a clubhouse, and a barn serves as a hangar. Roads have been made and electric light has been installed, but much work still remains to be done.

Thanks to an intensive advertising campaign, this year's weekly training courses have been well attended, most of the 100 or so vacancies being filled. Use of the two-seater has made results less dependent on the weather and a large number of "A" and "B" certificates have been gained.

At the beginning of the year a great many man-hours and not a little midnight oil were expended on overhauling the club's seven aircraft. Present constructional work includes a universal trailer, now nearly complete, and a winch rebuild.

Recent additions to club equipment have been a pair of Tutor wings, which have been used to convert a little-used Cadet, and a Ford V-8 Saloon, which is intended mainly for cross country retrieves, but can also be used as a reserve auto-tow car.

Up to the end of July we had flown 264 hours, covered 565 cross-country miles and made 2,922 launches.

J.N.C.

Cambridge University Gliding Club

THE year began well. In February, J. Grantham and P. J. Sullivan took the Kranich 34 miles to Matching, gaining a consolation prize in the Kemsley Winter Cross-Country competitions. Successes continued into the Spring. Flights in the month of April alone include one of 96 miles to Hastings by Sullivan in the Olympia; 88 miles to Canterbury in the Kranich by T. G. Phillips and D. D. Carrow; 80 miles from the Long Mynd to Silverstone by Grantham and D. L. Martlew, also in the Kranich. On a single day three cross-country flights were made: A. L. L. Alexander took the Olympia 50 miles to Sutton Bridge, Grantham took the Cambridge 1 27 miles to Royston and back, and G. S. Brown took the Prefect 22 miles to Hadstock and back.

Then the prangs began: three sailplanes in one season, a shameful record. First: Grantham climbed over 14,000 feet from a motor-towed launch at Bourn to gain the first leg of his Gold C, but was blown so far out to sea in the climb that he was forced to ditch the Olympia about a mile off the coast near Clacton. Second: W. Parr, a pupil pilot on one of his first circuits in the Prefect, thought he found lift at 200 feet and spun into a hangar roof. Third: Phillips, at the end of a 73 mile race from Camphill to Boston in the National Competitions, landed the Kranich in a field of fully-grown corn with dive-brakes open and broke off one wing and the tailplane. These accidents have had a damping effect on the season's achievements at a rather critical time in the Club's history.

At the end of April a Slingsby Sedbergh arrived to replace the Kadets which we

formerly used for initial training at Bourn. The change from solo to dual training which this involves has been combined with a change in the site at which the initial training takes place. All aircraft have now been transferred to Cambridge, since the Airport authorities have been kind enough to allow us full facilities for training there. We are hoping to eliminate the relatively large cost of solo training due to the number of small accidents of inexperienced pilots who had been thrown up into the air for the first time.

Meanwhile, as we await the repair of the damaged aircraft, we have been making do with the Cambridge I, now about sixteen years old and familiarly known as the Pons. At a camp at the Long Mynd in June, this aircraft was flown for three separate five-hour sorties in a single day. Since then she has been taken on a 50-mile goal flight to Southend by R. E. J. Ibbotson, and has also borne a number of first soloists. So, handicapped as we are, we are not entirely crippled.

D.S.B.

Gloucestershire Gliding Club

DESPITE the inclement weather and a certain amount of ham-handedness on the part of one or two of our members, some good soaring has been experienced on our site at Staverton, thermals having been on tap most days when flying has been in progress. Membership has not shown the increase that was hoped for, but old stagers have admired the progress made by youngsters who were but a year ago budding raw recruits. A new winch, the designing and building of which has been in the capable hands of Dave Dennett, is now almost ready for christening. In fact, during the serious deliberations of a session of the Committee recently, speech was suddenly made inaudible by the shattering roar from the V.8 engine from the adjoining workshop as some final adjustments were being made. Had an exhaust manifold been fitted the noise might have been bearable, but this is still one of the items needed for completing the unit.

The recently acquired Kite I has become a great favourite, and owing to the fact that it has obtained more "C" certificates (and "C's" have to be earned on thermals on this site) than our Prefect, it is becoming more and more popular. Geoff Brian also demonstrated that its cross-country capabilities are not to be sneezed at. The same pilot, however, became very unpopular when, on another occasion recently, he stooged about in the vicinity for over three hours in the same aircraft without going more than 10 miles from the site. His previous experience of landing at a "closed aerodrome" and nearly being locked up for the week-end in the guardroom must have dampened his venturesome spirit.

Mr. W. T. Fisher entered his Olympia in the National Competitions and was ably supported by a ground crew from club members. Another member, Lt. Col. N. J. Dickson, D.S.O., represented the Army Flying Club at the competitions.

Search is still going on for a suitable permanent hill-soaring site, and the latest efforts are being concentrated on the Nympsfield district.

The flying capabilities of glider pilots was admirably demonstrated recently by two members of this gliding club who joined the local power-flying club, when both were sent solo on powered aircraft after only 1½ hours dual instruction each. The two pilots in question both started their flying careers with the Club.

Indian Gliding Association

IN appreciation of the interest taken by the Communications Ministry of the Government of India, the Association has named the first two-seater sailplane imported from the U.K. for training purposes "Kidwai." The second, due to arrive in Bombay later, will be named "Khurshid Lal." The Association has already named its Olympia sailplane "Jawahar," after the Prime Minister.

The first two-seater was successfully test-flown at the Fersinji glider-drome on 10th July, by Mr. F. H. Irani, Chief Pilot Instructor of the Association.

To popularise gliding among the youth of the country, the Association proposes to organise joy-rides for students of schools and colleges in the State of Bombay at the end of the monsoon this year.

The Air Headquarters of the Government of India proposes to train 59 gliding instructors shortly.

Linton-on-Ouse Gliding Club

At the beginning of this year 12 Group withdrew its support from the club and so the 12 Group Gliding Club ceased to exist and the Linton-on-Ouse Gliding Club came in its place. About the same time the R.A.F. Gliding and Soaring Association was created and this club became affiliated to it.

We started the year very badly off for both aircraft and members, and struggled slowly on to the summer, by which time we had flying 1 Kite, 1 Tutor, 1 Cadet, and—bouncing along the ground—1 Dagling. With these, about 8 *ab-initio* pupils were taught well beyond circuit stages, and several power pilots were initiated into the secrets of gliding and instruction. In addition to this several members learned how to drive the winch.

Before the end of August, Wing Cdr. A. J. M. Smyth, our C.F.I. led a sortie to Sutton Bank with the Tutor.

Readers who know the Club will realise how sorry we are to say goodbye to Wing Cdr. Jackson, who is posted away.

London Gliding Club

The Club started the new year with 279 flying members, plus 39 associate and honorary, and a fleet of 12 aircraft. This figure does not include the many privately-owned machines which relieve the congestion on the Club fleet, and E. J. Furlong's T-21B two-seater, named "Dragonfly," which he has generously loaned to the Club in return for maintenance and help with the insurance. The Club's Gull I was sold to the R.E. Club early in the year, and was replaced in the summer by an Olympia, subscribed for by free loan from members. A second Olympia is also available by arrangement with the Leicester Club. The Gull IV is also kept busy on high-performance work and the Prefect and Grunau take a share in the cross-country flying.

The power cables crossing the S.W. corner, hitherto the most troublesome snag on our site, were interred underground last year at a cost of £1,350 raised by loan from the Kemsley Trust. This has made higher winch launches possible, but there is a need for more intensive study of the technique of catching thermals off winch launches, before full advantage can be taken of the improvement. Another capital outlay is the smoothing of two runways, each 12 yards wide, to speed up winch launches by allowing faster retrieve of the cable. Further speed-up has been attained by fitting the Rice winch with two drums, but great care is needed to avoid contact between the two cables during the launch.

Of the many cross-country flights, only a few can be mentioned here. One of the Kemsley Winter Prizes, that for cross-country flight from a bunjy launch, was won by Stephenson with a flight to Southend on 17th December, 1949. It was in very unstable air straight from the Arctic, moving so fast that he could not throw a circle without at once burning his boats. Another wintry cross-country was 70 miles to Shoreham by Hiscox, on 12th March. On April 16th, Stephenson, flying from the Surrey Club, broke the U.K. out-and-return record with a flight of 126 miles.

Among more recent flights of note was one by Lawrence Wright to Coltishall on 1st August, described in a separate article: it was the longest goal flight yet made from the Club. On the same day Renshaw took the Grunau to Cambridge, and next day Peter Rivers went there in the Prefect, entering cloud for the first time in his life and reaching 8,000 feet.

Jack Rice has come over several times to do aero-towing in his Tiger, usually at Luton, but it has also been shown possible to aero-tow from the Club ground, and Slazenger has lent his Gemini for this purpose. We used to do some before the war, but it needed an Avro to get over the power cables.

Three instruction courses, open to non-members and lasting 12 days each, have been run, and in June Flt. Lt. Anderson supervised a course for A.T.C. instructors, during which four of them made their Silver "C" duration flights. The second week in August was given over to a meeting for "Silver C" aspirants.

Owing to rising costs of insurance, the Club decided this year not to insure its machines against crashers, but to have repairs done by the workshop staff and to tighten up flying discipline. Dan Smith was appointed C.F.I., and in conjunction with the Flying Committee has produced a

manual of Flying Training Policy and Organisation.

An analysis has shown that pilots between the "B" stage and 10 hours give most trouble. A new Flying Training Syllabus has been worked out, in which the "C" certificate appears only half way through and even the "Silver C" comes before the end, to be followed by blind flying and aerobatics. The Club is now carefully building up a panel of two-seater instructors to put this syllabus into operation.

A.E.S.

Midland Gliding Club

FLYING time this year, up to the end of August, was 962 hours, or rather more than last year; this figure includes about 100 hours each by Cambridge Club and the Air Training Corps.

In addition to providing camps for its members, the club has become a favourite resort for gliding campers from elsewhere. Cambridge University Club came from 18th to 31st March with four machines, of which the Kranich did a cross-country to Silverstone (85 miles), and again in June, when the famous "Pons" put in three 5-hour flights in one day. A group from Surrey Club, with an Olympia, came for the Easter holidays, and Jack Karran climbed 3,800 ft. in an unusual standing wave in a southerly wind.

The College of Aeronautics (Cranfield) kept a Tutor at the Mynd for three weeks in July, which some eight of their pilots made good use of; and in the same month a Southdown Club party came for 10 days with one of their Tutors, in which J. Hahn made a cross-country of 22 miles. Starting on 20th August, the A.T.C. is holding five camps of a week each, keeping several machines on the site throughout the period for the use of successive groups.

Club cross-countries include a 25-mile circular tour by J. H. Hickling on 16th April (the day of Stephenson's out-and-return record in the south) and one to West Bromwich (45 miles) by J. Bruce Bowdler on 29th August.

The club fleet includes two Tutors, one of which is now fitted with a belly-hook and can be launched nearly twice as high as before; an Eon Baby, Kirby Kite, Olympia and T-21B two-seater; and the club has bought a half share in the Venture two-seater recently acquired by the President, C. Espin Hardwick, so that pupils and the public are well catered for. Mr. Hardwick's Petrel, which selected members may fly, has been reconditioned by Hawkridge Aircraft and looks very smart in cream with blue lining and a one-piece transparent canopy. His old Falcon II is also in working order.

David Ince is once more a regular attendant, having come down from Glasgow to a job in Birmingham. Teddy Proll, ground engineer and manager, is always available for week-day launches. The road from Church Stretton is not now fit for cars, which should come up from Asterton village at the foot of the west face, or by the more gentle slope from Ratlinghope.

A.E.S.

Newcastle Gliding Club

DURING 1950 the Club has continued to operate from the Morpeth aerodrome near Stannington. Emphasis has again been on *ab initio* training with the two club aircraft, a T-21B and a Tutor, using 12 S.W.G. mild steel wire for auto-launching with a 49 h.p. Rolls Royce car.

Several members have made their first solos in the Tutor after dual instruction in the T-21B and the system has worked well. Hazel Crawford became the first lady member of the club to obtain both "A" and "B" certificates on 2nd July. Jack Anderson, the secretary, and Prosper Wallace obtained our first "thermal C" certificates at Morpeth on 17th June and 16th July respectively.

The best thermal flights from the aerodrome during the year have been:—S. C. O'Grady and Jack Anderson in the two-seater, 1¼ hours, 4,000 feet; J. E. Anderson in Tutor, 32 mins. on 25th July; S. C. O'Grady and Lionel Tate in the two-seater on same date, 35 mins., reaching 2,800 feet in cloud.

The Club took part in the National Gliding Competitions this year for the first time since the war. S. C. O'Grady, flying the Petrel, won the Firth Vickers Trophy. His best flight was 73 miles to Boston, reaching 6,500 ft. on the way. Andy Coulson in the Olympia flew 85 miles to the coast near Skegness. His research into air

currents over the sea was terminated by the unwelcome attentions of a four-engined aircraft which forced him down from 4,000 to 2,000 ft.; as a result he only just regained the coast, and damaged his machine on landing. Dr. A. de Redder, also flying the Petrel, flew 59 miles to West Halesbury, completing his "Silver C."

A great deal of work has been put in at Morpeth and at our City headquarters by the honorary officials and their willing helpers. Operations at Morpeth have proved that, providing we can increase the attendance of pilot members and thereby enable the aircraft to pay their insurance and launching expenses from flying fees, we will grow again.

J.E.A.

Portsmouth Gliding Club

THE highlight of our flying activities of the past few months was the Summer Camp, held again with the Southdown Gliding Club on their site at Friston, Sussex. Valuable gliding experience was gained during those ten days, apart from the enjoyment of happy comradeship between the two Clubs.

The weather was such that we were fortunate enough to fly practically every day and all day, and the cliff and thermal soaring conditions, which we had ordered, arrived with an additional surprise packet of an "evening thermal" on two occasions during the week. We took our Club Grunau and the privately owned Kite I, and clocked over 24 hours.

On the second day of the camp, Jack Willard, Frank Charles, Audrey Johnson, Terry Townsend, "Johnny" Pears and Sid Hillman made their "C" Certificate flights, and on the last day Peter Bogue obtained his "C" on the cliff face by staying in the evening thermal for 33 minutes on his first flight in a Grunau. Two-seater training under the guidance of the Southdown instructors resulted in June Humphries and Jimmy Colbourne obtaining their "A" and "B" Certificates. (Celebrations are still going on!)

A few months ago we visited our hill site at Kithurst, with the aircraft towed by our recently acquired 1931 London taxi, and two of our "C" Pilots had their first soaring experience of this kind. Conditions were rough, but good flying time was logged, and a great deal learned, even by the *ab-initios* who could only watch and help.

The Club has made a total number of 883 launches this year, compared with 745 launches this time last year. Our *ab-initio* training is carried out in the Dagling, and the united efforts of our members are giving shape to the Cadet we are building, and which we hope will be in operation before long.

The Club operates each week-end at the Airport, Portsmouth, and our annual subscription has recently been reduced to £4 4s. 0d. (no entrance fee). Secretary's address is now:—1, Bury Close, Gosport, Hants.

A.P.J.

Royal Air Force Gliding & Soaring Association

National Contests

THIS year, for the first time, Royal Air Force Gliding and Soaring Association teams took part in the National Contests, held at the Derbyshire and Lancashire Gliding Club, Great Hucklow, from 22nd to 30th July. Three teams entered: one from Bomber Command and one from Maintenance Command, each flying an Olympia kindly lent by Messrs. Elliotts of Newbury, and a team from Flying Training Command equipped with the R.A.F.G.S.A. Sedbergh from Detling. Flight Lieutenant Archbold, of the Bomber Command team, was 11th in the final placing of pilots, but otherwise their performance was indeed modest. However, it should be borne in mind that the two R.A.F.G.S.A. pilots who took part in the British team in Sweden were debarred from taking part in the National Contests. From this modest beginning it is hoped in succeeding years to enter more and stronger R.A.F.G.S.A. teams who will constitute a real challenge to their civilian and naval comrades.

International Contests

For the second time, the British Gliding Association this year invited the R.A.F.G.S.A. to provide two pilots with their aircraft and crews for the British team participating in the International Contests in Sweden, held from 3rd to 16th July. The R.A.F.G.S.A.'s two "Gold C" holders, Flight Lieutenants R. C. Forbes and P. G.

Mallett, were selected, the former flying a Weihe and the latter a Gull IV. It is gratifying to see that the two R.A.F.G.S.A. pilots acquitted themselves well, and in the final placings Flight Lieutenant Forbes was 15th out of a total of 29 of the world's best soaring pilots, and gained the highest marks amongst the British entrants. At the end of the second day's flying, Flight Lieutenant Forbes was lying 4th, but unfortunately soon lost this position in the speed flying competitions. The best performances of the two R.A.F. pilots in distance and heights were: Flight Lieutenant Forbes, 293 km. and 2040 metres; Flight Lieutenant Mallett, 232 km. and 2370 metres. Taking part in two international competitions has taught these two pilots a great deal about contest flying, and the R.A.F.G.S.A. hopes to be able to use their experience for training other pilots for future competitions.

Reorganisation of the R.A.F.G.S.A.

When the Royal Air Force Gliding and Soaring Association was originally launched its aims were twofold: to provide gliding and soaring facilities at Detling, Kent, and to encourage and assist the formation of unit clubs throughout the service. However, after the first year's experience, it has become apparent that the site at Detling is too remote for the majority of our members and, for various other reasons, it has been decided to attempt a programme of founding unit clubs at a much earlier stage in the development of the Association than was originally intended. In order to effect this reorganisation, discussions are now taking place as a result of which it is hoped that the facilities formerly concentrated at Detling will be spread amongst a number of centres throughout the country, and it is thus expected that R.A.F.G.S.A. facilities will be more easily available to a greater number of members. It is proposed that membership be so arranged that members of any unit club can use the facilities of any other club on reasonable terms; also, that Associate Membership of the R.A.F.G.S.A. continue as at present, so that those who do not happen to be stationed near a unit club may use such a club's facilities on a temporary basis, when on leave, for example. These plans are to be discussed at the First Annual General Meeting to be held at 14.45 hrs. on 20th October, 1950, in Room 269, Adastral House, Kingsway, London, W.C.2. It is hoped that all those members of the Association and its affiliated clubs who can possibly do so will attend this meeting, and thereby lend a hand in putting the R.A.F.G.S.A. in good form ready for next spring. We have made a good start this year; a number of clubs are already equipped and flying, and, next year, we hope to provide more flying for trainees, as well as taking part in the 1951 National Contests.

W.H.I.

Royal Naval Gliding & Soaring Association

As stated in the first issue of GLIDING, it was hoped that the Admiralty would shortly agree to recognise gliding as an "attributable sport" and thus put it on the same footing, as regards injury, as any other sport. The Admiralty have now agreed, and, as a result, the activities of the Royal Naval Gliding and Soaring Association have increased considerably during the past five months.

Since the last report, a new club, the Condor Gliding Club at Arbroath Naval Air Station, has joined the Association and the other four, at Gosport, Eglinton, Lossiemouth and Stretton have all been actively engaged in circuiting interminably in Eon Primaries; though the good offices of the Kemsley Flying Trust have been able to obtain a Slingsby T.21B from which a marked improvement in flying skill has resulted.

One of the major snags in Naval gliding is the lack of properly qualified instructors. It is for this reason that several other Naval Air Stations have not also started clubs, although primary and intermediate gliders are available to them from the Association at very modest hire charges.

After much discussion the Association decided to enter a team to represent the Navy at the National Competitions. No team had been entered in 1949, and there were very few pilots of any experience from which to choose the team.

In the end the only two pilots available who came up to the minimum qualifications laid down for the competitions were the Lieutenant Commanders Goodhart. Of these, Tony had started gliding in October 1948, and had only done one cross-country

flight, while Nick, although he had got his "C" in 1938 at Sutton Bank, had done little gliding since and had never done a cross-country.

The choice of sailplanes lay between a Mu-13a and a Kranich. As the only towing vehicle that could be produced was Tony Goodhart's Ford 8, the choice necessarily fell on the Mu-13 and even then there were two hills that, after initial failure, had to be negotiated in reverse.

The Mu soon showed that it had a remarkably low sinking speed, and as somebody was heard, rather unkindly, to remark after the first two days' hill soaring, "The Mu is like scum, it always floats on top."

In the hope of speeding up retrieving, the Mu had been fitted with "walkie-talkie" radio (the fitting consisted of hanging the set round the pilot's neck). This worked well while soaring the ridges, but the range was insufficient to enable it to be used effectively on cross-country and it was later discarded.

Rather to everybody's surprise, and certainly to the Naval team's, the Mu showed itself capable of very reasonable cross-country flights and was finally placed 2nd in the competitions, winning the du Garde Peach trophy and three of the daily prizes. Which all goes to show that you don't have to have been gliding for years and years in order to put up quite a reasonable showing when competing against the real "Pundits"!

Scottish Gliding Union

FULL development of our soaring site at Bishopshill has again been retarded by difficulties of access, but Balado Airfield has been most active. In the first eight months of 1950, over 3,000 launches were made and 28 "A" and seven "B" certificates gained. Bishopshill produced eight "C's" in this period.

When the Eon Baby was crashed and written off in November, 1949, we were faced with a considerable problem. The Club machines at this stage were 1 Dagling, 2 S.G.38's, 2 Cadets and 1 Tutor—all training types. As a fair percentage of the value of the Baby had been recovered, the committee had a relatively free choice in the matter of a replacement, provided Kemsley Flying Trust assistance could be obtained.

Club pilots had been almost entirely trained by the solo method and the general standard of flying was considered to be not so high as was desired. While it was realised that a high performance machine was necessary, it was feared that a repetition of the Eon Baby incident may occur. The decision was therefore made to order a Slingsby T-21B two seater. This meant holding over the hopes and aspirations of a considerable number of the Club members for another year, but all have co-operated to make maximum use of the existing aircraft, despite their limited performance.

Much use has been made of auto-towing on the runways at Balado, using 0.098 inch diameter solid wire. The cost of this wire, which is 110 tons per square inch tensile strength, is 10s. per 1,000 feet, and the life approximately 250 launches. However, petrol consumption on our towing vehicle is high, and this partly offsets the advantages of this method of launching.

No flights worthy of special note have been made, mainly because of the absence of a suitable machine. Despite fine displays of standing waves on week-days, the week-ends produced nothing better than a few ripples, barely sufficient to support a glider. Their presence, however, makes the winter season at Balado as interesting as the summer, especially as the waves can be reached by winch or auto-tow launch in all wind directions from S. through W. to N.E.

Five seven-day Holiday Gliding Courses for *ab initios* were held during July and August and these have been most successful. It is intended to make these a regular feature of the Club's programme.

On the maintenance side, we have employed a full-time ground engineer since January, thus solving many problems. With the progressive reduction of aircraft maintenance facilities in Scotland since the end of the war, we would have been faced with a most difficult transport situation in the event of damage to gliders.

G.H.

Short's Gliding Club

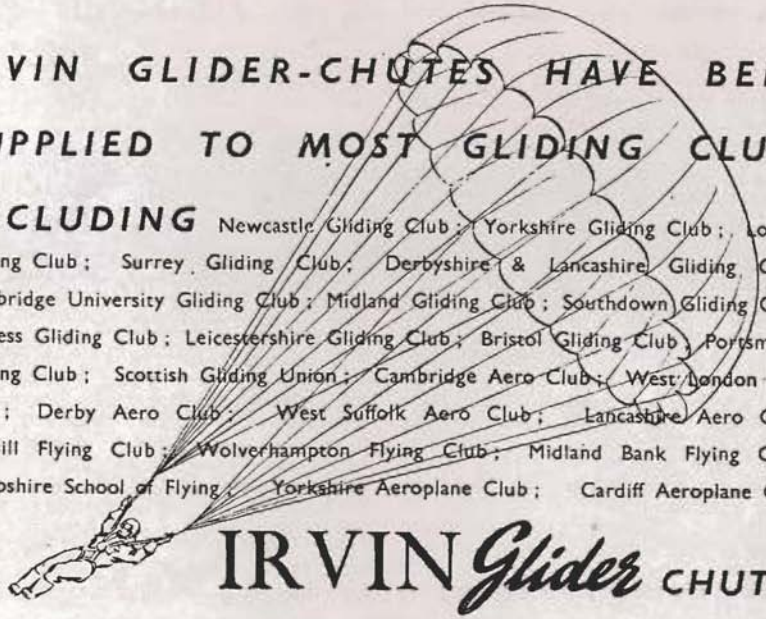
This Club was officially opened on 1st June by Mr. E. D. A. Herbert, director of Short Bros. and Harland Ltd., who referred to the good work done by the original Short's Gliding Group at Rochester, which resulted in the production of the Nimbus, the world's first high-performance low-

A.R.B. and A.I.D. Inspection approval. *A.R.B. Design Approval.*

F. G. MILES
LIMITED

AIRCRAFT DESIGNERS
Consultants on all aviation matters
Glider - towing installations

Redhill Aerodrome, Surrey *Tele : Nutfield Ridge 2200*



IRVIN GLIDER-CHUTES HAVE BEEN SUPPLIED TO MOST GLIDING CLUBS

INCLUDING Newcastle Gliding Club ; Yorkshire Gliding Club ; London Gliding Club ; Surrey Gliding Club ; Derbyshire & Lancashire Gliding Club ; Cambridge University Gliding Club ; Midland Gliding Club ; Southdown Gliding Club ; Furness Gliding Club ; Leicestershire Gliding Club ; Bristol Gliding Club ; Portsmouth Gliding Club ; Scottish Gliding Union ; Cambridge Aero Club ; West London Aero Club ; Derby Aero Club ; West Suffolk Aero Club ; Lancashire Aero Club ; Redhill Flying Club ; Wolverhampton Flying Club ; Midland Bank Flying Club ; Hampshire School of Flying ; Yorkshire Aeroplane Club ; Cardiff Aeroplane Club.

IRVIN *Glider* CHUTES

ICKNIELD WAY · LETCHWORTH · HERTS

Aerial view from above Southdown Club's site, showing Seaford town and Newhaven harbour beyond.

wing two-seater sailplane. After the ceremony the Nimbus was demonstrated on the aerodrome and Rear-Admiral Slattery, among others, was given a flight.

Southdown Gliding Club

STEADY progress has been maintained this year at our seaside site. Flying hours totalled 350 to the end of August against 260 for the whole of last year, and the difference is accounted for by the fact that our enemy, the east wind, has been largely absent, and consequently nearly every week-end has been a soaring one. Two-seater training has been in action since March and is an unquestionable success. Recently a "C" certificate was obtained by an *ab initio* member after nine weeks' tuition only, and such progress is by no means unusual.

Only this year has the club become strong enough to justify operating at other sites. The long-awaited N.E. wind arrived on 13th May, and the new trailer constructed by Johnny Billeness was quickly loaded with one of our Tutors and despatched to Firle. Cattle were grazing on the selected site, a mile to the east of Firle Beacon, 650 feet above the Lewes-Eastbourne road. The machine therefore had to be rigged near the entrance gate and was then dragged up the slope to the highest point, where our C.F.I., Ray Brigden, made the first flight. He attained 1,200 feet above point of launch, and was followd by those members qualified to attempt a bunjy launch, each doing 30-minute flights.

The next day a very early start was made from Friston with the first Tutor. Dave Parsey went off first at 9.45 a.m. and succeeded in getting his five-hour duration flight; he was hill-scraping for at least two hours before being able to settle down to a steady height of 600-700 feet. Meanwhile, the trailer had returned to Friston to collect the second Tutor and more members. Johnny Billeness set the record for height at 1,400 feet, which was not beaten.

In July a party of eight members visited

THE COSIM VARIOMETER

The latest in Variometer design

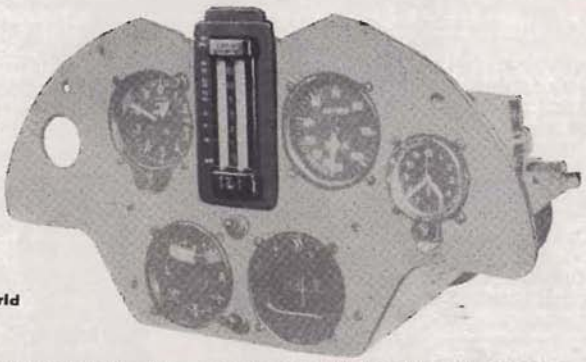
Accurate & sensitive

Negligible lag

Simple installation

Choice of two calibrations in both ft./sec. or metres/sec.

Used all over the world

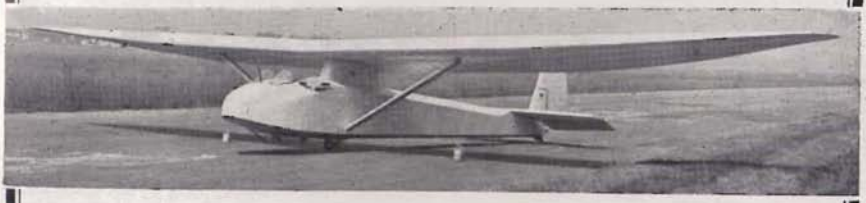


TAKES PRIDE OF PLACE ON ALL SAILPLANE INSTRUMENT PANELS

COBB-SLATER INSTRUMENT CO. LTD.

RUTLAND STREET . . . . MATLOCK

SLINGSBY SEDBERGH (T21B) Two-seater dual trainer with wide reputation for excellent performance and handling qualities



A SLINGSBY SAILPLANE IS THE VERY BEST

(It's agreed all over the Gliding World)

Um aeroveleiro Slingsby e o maximo expoente

سلنگسبی سیل پلین سب سے بہتر ہے

Een "Slingsby Sailplane" zweefvliegtuig is het allerbeste

Ett Slingsby segelplan ar altid bast

SLINGSBY SAILPLANES LTD., KIRBYMOORSIDE, YORKS

Designers and Manufacturers of Sailplanes and Gliders

the Long Mynd, 40 hours were flown, including a cross-country flight of 22 miles. In August our usual joint camp was held at Friston with our good friends and neighbours the Portsmouth Gliding Club. This was a great success, with 80 hours and 13 certificates, including nine "C's."

On 20th August one of the best days' flying ever was seen at the home site. Operations commenced at 4.15 a.m., rigging a visiting Olympia. This was launched at 5.40 and was soon 1,900 feet above Beachy Head, with the pilot settling down to do his five hours. After breakfast the home machines were launched until there were four gliders at Beachy Head. The lift faded in the afternoon but a total of 30 hours was logged for the week-end.

In a club that is fully operational but has no full-time staff, it may be of interest to mention how the work gets done. In the first place, no attempt is made to conceal from the new or intending member that he will be expected to work and sometimes work hard for his flying. Then, after a week or two, each new member is assigned to a working party—aircraft servicing, vehicle maintenance, etc. Then it is up to the leader of the party (these leaders must be binders as well as technicians) to see that he does a reasonable amount of work for his flying.

Since two-seater training started, the primaries have been put away, leaving the club with a small but fully utilised fleet of T-21B and two Tutors. It is hoped in due time to add a high-efficiency machine, but not before there are between fifteen and twenty members in regular attendance who could be considered suitable to fly it.

Finally, in this club, which has grown from almost nothing since 1946, it is considered that the answer to the difficulties that confront British Gliding lies in hard work in the clubs, not in the granting of a government subsidy. We do not desire to see the Welfare State extended to cover our sport, even though this might mean that the taxpayer would pay for our Saturday afternoon flying. D.C.S. & K.H.A.

Surrey Gliding Club & Imperial College Gliding Club

THE following is a summary of out activities from 1st January to 31sr August:—

This year a large number of out-and-return flights have been attempted. This has been encouraged because of the special technique required. In addition, people appreciate the smaller (or non-existent) retrieving fees. Another special feature this year has been the number of visits to other clubs. Quite apart from sending four aircraft to Camphill for the National Competitions, visits have been made to the Long Mynd, Staverton, Friston and Dunstable, in some cases more than once. In our turn, we have welcomed a much larger number of visitors than in previous years.

It is hoped to carry out fairly extensive investigations into standing waves during the coming winter, particularly in hitherto unexplored areas.

The figures for the period are:

Number of launches	4,000
Club aircraft, hours	710
Cross-country miles in club aircraft (including Weihe at International Competitions) ..	3,600

These figures do not include numerous flights carried out by private owners, starting from Redhill.

Details of the outstanding flights are:—

Welch in Weihe, 28th February, 58 miles to Birch aerodrome in 3 h. 40 m. (Kemsley second prize for winter cross-country); Welch in Weihe, 12th April, 203 miles to Brussels (described in last issue of GLIDING); Beck in Olympia, 11th June, 113 miles to Lulsgate in 3 h. 50 m.; Kahn in Olympia 2nd July, 141 miles' out-and-return to Netheravon and back (would have been a record but Karran completed the same course half an hour earlier); Kendall in Weihe, 4th August, 114 miles out-and-return to Welford and back in 5 h. 10 m. Also the following by private owners: Karran in Olympia, 28th February, 68½ miles to Boxted (Kemsley first prize for winter soaring); Stephenson in Olympia, 16th April, 126 miles out-and-return to Thruxton and back in 5 h. 8 m. (U.K. Local Record); Garnett in Olympia, 11th June, 176 miles to Instow (described in last issue); Karran in Olympia, 2nd July, 141 miles out-and-return to Netheravon and back (U.K. Local Record, to be described in next issue.).

FASTER PROMOTION AND

LONG SERVICE CAREERS

at the NEW HIGHER PAY RATES

THE NEW TRADE STRUCTURE recently announced for the Royal Air Force Ground Trades will greatly widen the opportunities that the Service can offer to present and future members. The benefits may be summarised as follows:—

All qualified airmen will have the opportunity to sign on for long service careers up to the age of 55 *with prospects of pensions up to £5 a week.*

Rank and pay will depend upon experience and individual ability rather than on mere vacancies.

The regrouping of over 100 different Trades into 22 Trade Groups will provide increased opportunities for advancement, and in most of them there will be the opportunity of reaching top rates of pay.

A skilled man in any Royal Air Force Trade will have the added opportunity to qualify for promotion as a technician in addition to normal opportunities.

NOW MORE THAN EVER THE R.A.F. IS A TARGET FOR MEN WITH AN AIM IN LIFE

Send coupon now for more details

TO: AIR MINISTRY (G.L.12) VICTORY HOUSE, LONDON, W.C.2

NAME _____

ADDRESS _____

_____ AGE _____

?

Do the jungle drums sound off key —Are your smoke signals producing Q.B.I. — Has your favourite dicky bird been serving the duff gen recently—

INDIVIDUAL ASSOCIATE MEMBERSHIP *of the* **B. G. A.**

!

is open to everyone and keeps you—

—ON THE BEAM *with a regular issue of pukka gen for* **10/6 a year.**

Also available, post free:

★ Basic Syllabus of Glider Training 3/6

★ Manual of Two-Seater Instruction 5/-

★ Oral Examination for "C" Certificate 1/-

★ Log Books, Tephigrams, Barograph Charts, etc., etc.

BRITISH GLIDING ASSOCIATION
Londonderry Ho., 19, Park Lane, London W.1

WESTERN AIRWAYS

Immediate Capacity for overhauls & repairs

Extensive spares stocks held including Fabric, Dope and Paint, Plywood, A.G.S. parts. Keenest prices. Enquiries welcomed.

Over 500 major repairs and overhauls completed on all types of Sailplanes & Gliders.

Immediate on site repair service.

Estimates free.

WESTON AIRPORT, Weston-super-Mare
(Phone WESTON-SUPER-MARE 2700)

Tasmanian Gliding Club

MR. L. W. Sadezky writes to the British Gliding Association from Tasmania:

"I was very disappointed to find on my arrival here that Tasmania did not possess an active gliding club, but I am pleased to say that the interest was here, and I managed to form a club in the north of the Island soon after arriving here. We have now an active membership of over thirty and have half completed our first machine, which is a Dagling. We have also managed to raise sufficient funds between us to purchase an intermediate machine from the Canberra Gliding Club. The machine is called the "Currawong," whatever that may mean, and it appears to have a fairly good performance; it has a fully enclosed cockpit and seems to have similar lines to a Grunau Baby. The price was £A350 which includes trailer and 2,000 yards of cable, so I think it is fairly reasonable. We hope to have it over from the mainland next week and should be operating within a fortnight.

"The climate and country here are just ideal for gliding, and even in mid-winter there are many days of strong thermal activity, so it is possible to practice the sport all the year round. There is also a very strong standing-wave condition which develops frequently in the centre of the island and often prevents civil air-liners from maintaining their allotted altitudes; I hope to have the opportunity of investigating it in the very near future.

"We are hoping to have a strong enough movement to compete in the next international contests, and also in the 1956 Olympics which are to be held in Australia. I would like to extend, on behalf of all gliding enthusiasts in Tasmania, our very best wishes for the future success and development of the British Gliding Movement."

Yorkshire Gliding Club

SINCE January 1950, the scope of the club's activities has been considerably extended by the inclusion of the soaring section of Slingsby's gliding club and by private ownership. The Petrel is now in the joint ownership of O'Grady, de Redder and Pick and the blue Kirby Kite belongs to de Redder, Coulson and others. Primary training has not begun; a suitable aircraft (S.G. 38) was bought, but so far there have been insufficient primary trainees to start the ball rolling. It is considered necessary that there should be enough to start a full working team in order to do primary work efficiently and with lasting enthusiasm.

It has not been possible to add any higher performance machines to the club fleet; in fact, depletion has been suffered due to an experienced pilot having written off the Kite Mk. 2. Another misfortune was in the shape of extensive damage to the T.21 two-seater, which was blown over whilst on the ground after a flight, despite the fact that

someone was sitting in the cockpit at the time. The Kite was on loan, and so far it has not been possible to replace it; the two-seater was off service for quite a long time, but has now been repaired, reconditioned and looks smarter than ever. In both cases the wisdom of adding the higher cost of full insurance to the already high cost of flying has been amply demonstrated: in the first case the owner is compensated for the loss, and in the second, the cost of repair defrayed.

At the National Competitions at Great Hucklow in July, de Redder at last completed his "Silver C" qualifications. In August the Cranwell College Gliding Club visited the site for the whole month, bringing aircraft and catering arrangements. They report a successful month, and the Yorkshire Club is grateful for small improvements around the site and for their care of club property whilst under their control.

Whilst it has not yet been possible to lay on catering facilities, the amenities of the clubhouse do improve slowly, and it seems hopeful that the day will come again when there is a resident steward and engineer. The Annual General meeting was held following the close of the last financial year—February 28th—and the accounts revealed that the Club is solvent and clear of debt. Norman Sharpe and George Hinchliffe resigned from the Committee, due to demands of other work, and the vacancies were and are filled by Alan Pratt (of the Slingsby Club) and by a fairly recent and mighty keen member, Joe Record.

There is now very much more activity about the place than has been seen for some years, and it is good to see new, cheerful and sometimes laudably anxious faces sticking out of cockpits awaiting the "all out." One or two incidents amongst the up-and-coming types had been noticed here and there—but space is too limited for funny stories. So, as was said of a young and able member after the second of two not - so - commendable performances: "Don't let your thermal efficiency outstrip your airmanship!"

G.A.H.

The next issue will include Club and Association news up to 30th November, and we should like to receive it immediately after that date.—Ed.

WINDAK SPORTSWEAR

In washable popuda

"FAIRWAY"

Utter freedom.
Pivot sleeves.
Full zip.
Fitted pockets.

Double texture
Windak Popuda
throughout.

In Mens Colours
FAWN
TURF TAN
SHERWOOD GREEN

"SWISS MISS"

Pivot sleeve.
Swiss Waist.
Full skirted for protection and style,
Storm Collar,
half lined for stern weather,
Windak Popuda throughout, and colour is the key note.
Studio Brown,
Royal Blue,
Powder Blue,
Spectrum Green,
Turf Tan,
Sherwood Green,
Rust Red,
Coffee Cream

Please write for name of nearest stockist

WINDAK LIMITED, WOODSIDE
POYNTON CHESHIRE A216A

ON SITE REPAIR AND OVERHAUL SERVICE

Anti-Prang Pills — Bank Balance Tunic
Claptrap Cough Cure — X Rays for C. of As.

For Shakey Sailplanes call the Glider Doctor

A College of Aeronautical Engineering Training and wide Aircraft Inspection and Overhaul Experience are at your service

D. CAMPBELL c/o
London Gliding Club, Tring Rd., Dunstable
B.G.A. Approved

MIDLAND GLIDING CLUB LTD.

The Long Mynd, Shropshire
Telephone No. Linley 206

Ab initio training to high-performance soaring
Club fleet of Seven Sailplanes including two Dual-Control Two-Seaters. Resident Ground Engineer

Catering and dormitory accommodation

New members can be accepted, particulars from the Hon. Sec.:— **F. G. Batty, F.C.A., 2 Lombard St. West, West Bromwich, Staffs.**

BRISTOL GLIDING CLUB

Ab initio training at Luisgate, Bristol.
Hill-Soaring at Roundway Hill, Devizes.
MINIMUM Subscriptions MAXIMUM Facilities
Fleet of 8 aircraft, including Olympia, Grunau, Tutor, Cadet & Sedburgh 2-Str.

We cordially invite membership
Write: **BRISTOL GLIDING CLUB** Tel.: 81790
102 Coombe Lane, Bristol, 9

SCOTTISH GLIDING UNION LTD.

Balado Airfield, Milnathort, Kinross-shire

Ab-initio training at Balado Airfield
Hill Soaring at Bishophill, Kinross
Fleet of 7 Aircraft including Two-seater

Excellent catering and Dormitory Facilities

Summer Holiday Courses of seven days duration are held each year. Beginners and others are welcome

Subscription £3-3-0 Entry Fee £1-1-0
Launches 3/- Soaring 15/- per hour
Write to the Secretary for further details

THE Derbyshire and Lancashire GLIDING CLUB

CAMPHILL
GREAT HUCKLOW
DERBYSHIRE

TWO-SEATER AB-INITIO INSTRUCTION.
INTERMEDIATE AND HIGH PERFORMANCE FLYING.

DORMITORY AND CANTEEN FACILITIES.

Write to the Secretary for details of membership.

SURREY GLIDING CLUB
Redhill Aerodrome

NUTFIELD RIDGE 2245

Ab-initio training on T21b two seater with experienced qualified instructors. Five sailplanes for cross-country soaring. Winch Launches, Aero-Towing. Hill Soaring. Weekday Flying. Full Residential Facilities. Link Trainer.
Subscription £6.6.0. p.a. Entrance £3.3.0.
Training Flights 2/6 each.
Sailplanes 15/0 per hour.
Associate Members (No entrance) £1.1.0. p.a.
Nearest Club to London *Details from Secretary*

LONDON GLIDING CLUB

Dunstable Downs, Bedfordshire
Telephone Dunstable 419 & 1055

Offers site of 140 acres and soaring ridge and permanent hangar, club house, workshops, dormy houses and restaurant.

Club fleet includes 2 dual 2 seaters, 2 Olympias, Gull IV, Prefect, Grunau II, Tutors, Cadets and primaries.

Launching by two drum winch Link Trainer
Resident instructor and engineers
Flying every day except Tuesday
Entrance Fee £5-5-0. Annual subscription £6-6-0

Copies of the first two issues of "Gliding" are still available.

The April issue "Gliding in Britain" dealt with the histories of the British Gliding Clubs since the war. It is priced at 3/8d. (post free). The July issue dealt with the International and National Gliding Competitions, and with the several cross-country and cross-channel flights made earlier in the year. It is priced at 2/8d. (post free).

Order direct from the Secretary, British Gliding Association, Londonderry House, Park Lane, London, W.1.

Printed for Sailflying Press Limited by Young Myers & Co., Ltd. and F. A. Clements (Chatham) Ltd. of Harrow and Chatham