GLIDING

Vol. 6 No. 2.
SUMMER 1955

2/6

QUARTERLY

GLIDING

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

OFFICIAL ORGAN OF THE BRITISH GLIDING ASSOCIATION
LONDONDERRY HOUSE, 19 PARK LANE, W.1

CONTENTS

Cover Photograph.—A Skylark II over Lasham. Photograph by Press Association.

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

After Twenty-Five Years

THE first event to bear any resemblance to a national gliding contest in Britain was an "Inter-Club Competition" held at Ditchling Beacon, on the South Downs, in 1930, during a week-end in October. There had, indeed, been an isolated soaring contest eight years earlier, also on the South Downs, but that was an international event, and was won by a Frenchman, Alex Maneyrol, with a world's record duration flight of 3 hours 21 minutes.

Compared with this, the Ditchling meeting was a modest affair, and one of the principal prizes, a silver cup, was won for a glide of 1 minute 40.4 seconds in an open primary glider by the chief instructor of the Surrey Gliding Club, an earlier namesake of the Club which is running the present National Championships.

It took a little time for British gliding to raise itself to Continental standards. Maneyrol's duration record was beaten in England by Major H. Petre in 1931; a cross-country flight of 50 miles along the South Downs in 1930 by Robert Kronfeld, then an Austrian, was first exceeded in 1934 by Philip Wills. The world's first climbs in thermal currents were made in 1930 by Wolf Hirth, of Germany, in the United States, and the first in England by Eric Collins in 1933. The first climb in a standing wave in the lee of mountains was also by Hirth, in 1933, and the first in England in 1937 by John Simpson. Not till 1952 did Britain catch up with the rest of the world, when Philip Wills won the World Gliding Championships and all the British team took high places.

The art of flying a sailplane across country in any direction one pleases, irrespective of the wind, has developed gradually without any outstanding pioneers. Its demonstration will be a special feature of the present National Championships. And if any of our visitors should think it paradoxical to want to reach some particular place without thought of pursuing either commercial gain or military efficiency, perhaps, before the Championships end, they will have caught the spirit of the meeting and realised that the art of soaring flight is just one of those things that make life worth living.

THE FUTURE OF "GLIDING"

As from this issue, the production management of this journal is being taken over by Mr. Alan Betts of Alan Betts Limited, 19, Clarges Street, London, W.1. (Mayfair 3488), and the advertising management by the Cheiron Press, 3, Cork Street, London, W.1, whose leading spirit is Miss Peggy Miéville, of the London Gliding Club. Distribution will continue to be from the British Gliding Association offices.

Sailflying Press wish to record their grateful thanks to the Trade Press Association, and particularly to Mr. R. Loader and Mr. O. F. Porter, who have been so largely responsible for the success of this publication from the very first issue.

National Gliding Championships

Lasham, Hants

By Ann Welch

THE 1955 Championships are to be held on a flat site for the first time for eight years, the last such meeting being at the Royal Naval Station at Bramcote in 1947. As then, all launches will be by aeroplane-tow.

In accordance with current practice a task will be set for each day's flying, and this may consist of any one of the following:—free distance, pilot-declared goal, distance along a line fixed by the organisers, and races either to a set goal, or around a set course. In this last category the course may be triangular, out-and-return, a "dog leg", or even several laps of a circuit.

There are several alterations in the contests this year from previous practice, some brought about by the geography of the site, and some by the introduction of new gliders.

1. There will be two main Sections, which may have different tasks, and which may even fly on different days: the Open Section, composed of the Individual and Team Classes, and the T-21b Section. Two-seaters, other than T-21b's, may fly in the Individual Class if they so wish, provided that they are flown by the same crew of two throughout. T-21b's can only fly in their own Section, and must fly two up.

The Individual and Team Classes will be marked together, as this reduces the possible loss for points purposes of a good flight on a day when few others in the same Class score. At the end of the Championships these two Classes will, however, be listed separately and have their own places and prizes.

2. There will be no handicapping. This has been decided owing to the difficulty of accurately assessing the Skylark II at this stage, as well as to the greater closeness of performance of competing gliders when the T-21b's are in a separate Class. On the previous system Skylarks would be put in with the Sky's, and the T-42 with the Olympias; neither arrangement being necessarily any more fair than with no handicapping.

There remains, of course, the problem of the Grunaus and other intermediate trainers which want to enter. These few gliders have provided the organisers with much food for thought, because in a contest where many of the flights may have an upwind component, no amount of handicapping will overcome the fact that such gliders may not have the performance to complete the task at all. The task setters must set flights for the average performer of any class, even though this means that one or two gliders may find them a physical impossibility. What is required for these few intermediate gliders, which are entered primarily for the experience and fun, is different tasks, and not handicapping benefits. When it is seen how many T-21b's are entering, it may be possible to put the intermediates in with the T-21b's where they will have tasks more suited to their performance.

3. Starting Order.—Instead of the starting list by ballot, a board will be put out at the launching point immediately after briefing (this will be at 9 a.m.), with starting times at two-minute intervals. As soon as the pilot with his glider are ready in the starting area, he can put his competition number down at any vacant time on the list. If he wishes to alter his take-off position he can do so up to 10 minutes before his listed time, and put his number down instead on any other vacant space on the starting list. Changes nearer than 10 minutes to take-off will not be allowed, as last-minute indecisions risk the chances of other competitors being launched at their selected times.

Launches will be to 2,000 ft. above the aerodrome, and the release made in a given area, which will ensure equality of starting points. Competitors are restricted to a maximum of three competition launches a day.

The Championships start on Sunday, July 24th, the Saturday being a practice day. Monday, August 1st, will be the last Championship day unless the weather is

unsuitable, when it will be devoted to prizegiving and packing up.

As it is hoped that many of the tasks will be out-and-returns of various sorts, both to avoid high retrieving costs and long night drives, it is not intended to have deliberate rest days unless competitors show signs of exhaustion. The amount of soaring it is usually possible to get in an English Summer is small, and if the weather is good it is hoped that everyone will be able to do the maximum amount of flying and recover during work the following week.

For those who have not been to Lasham: it is a standard three-runway war-time aerodrome with the longest run E.—W. of 1,800 yards. It is hoped to use this run as much as possible, particularly in light and variable winds. The height of the field is 600 ft. above sea level, and it is in the middle of the gentle undulating agricultural countryside of Hampshire. At the time of the Championships many of the fields will be standing corn, but in most flight directions the choice of fields is so large that competitors should have no real difficulty in finding good landing places.

The sector towards London will not be used for set tasks owing to Odiham and Farnborough aerodromes, the increase of built-up area, and the London Control Zone. Incidentally, the regulations concerning Control Zones and Airways will be strictly observed and competitors who contravene them may be liable to be suspended from competing on some or all of the remaining contest days.

The entry fee for competitors is higher this year than when the Championships have been held on a hill site. The fee, however, includes the price of ten aerotows, which, in the good thermal conditions which seem to exist at Lasham, should be enough to cover all the contest launches required. Any unlucky competitor who runs out of his vouchers before the last day can buy additional ones at the standard Club rate of 15s.

Accommodation will consist of the usual assortment of private and hired tents and caravans, with breakfast in the Clubhouse for those who do not wish to provide this meal themselves. Lunch and supper can be obtained in the public catering tent for those not out on retrieves, although packed lunches and a continuous snack bar will be available in the Clubhouse. The bar will, of course, be open at the usual times.

Members of other gliding clubs who are not competing, but who just want to visit the site, can become temporary members for 5s. for the period, and make use of all the Club facilities. If they arrive without warning, it may not be possible to provide either beds or meals, so such visitors should write in advance saying how long they want to stay, and what meals they will want. If they can be self-contained with their own tents this will help the organisation a great deal.

The Surrey Club and its associates have not run the National Championships before, and so ask for the indulgence of competitors for any shortcomings in organisation which may become apparent. A "suggestions box" will live in the Control tent for serious-minded reformers, and Championship officials should be approached direct for any help required.

We hope competitors and their friends will enjoy their stay at Lasham, and that the weather will be kind enough to give everyone some really satisfying soaring.

One Loose Glider

by F. G. Irving

The first crossing of the English Channel by a two-seater sailplane is described by the pilots, Lorne Welch and Frank G. Irving, who thereby set up a new British two-seater distance record of 250 *miles. There have been three previous soaring flights across the Channel, all in single-seaters: by G. H. Stephenson in a Gull I from Dunstable to Boulogne on April* 22*nd,* 1939 (127 *miles*); *by Lorne Welch in a Weihe from Redhill to Brussels on April* 12*th,* 1950 (210 *miles*); *and on the same day by Flt.-Lieut. L. A. Miller in an Olympia from Detling to Coxyde* (93 *miles*). *This article and illustrations are reproduced by permission of Flight* (*May* 6*th.*)

Pilots	L. Welch and F. G. Irving
Date	.. May 14th, 1955
Duration ..	.. 5 hours 46 minutes
Take-off ..	From Lasham Aerodrome at 1056 hrs. B.S.T.
Landing ..	At Louvain, Belgium, at 1642 B.S.T.
Type of Glider	.. Slingsby T-42 Eagle
Distance ..	.. 250 statute miles
Average speed	.. .. 44 m.p.h.

For various reasons, all quite respectable, it was not until 10 a.m. that I crawled out of the bunkhouse at Lasham to see a sky which was already superb. At the same moment, Lorne appeared looking very wide awake, but speaking of dreams such as the Channel and goals far into the Continent. The next hour was a whirl: drinking a cup of coffee, buying some chocolate, sorting maps, grabbing a camera and writing a goal declaration which said Aachen. As always we got airborne in a rush with only the vaguest of lines on the map and insufficient paper in the knee-pad.

Derek Piggott in the Tiger Moth towed us off straight upwind, as we had requested, and we cast off in rather inadequate lift three miles west of Lasham. For the first 30 miles it was something of a struggle. Wally Kahn, who had been towed off in the Weihe immediately before us, was visible some miles ahead going well, causing us to think that we had got out-of-phase with the thermals since we always seemed to arrive at one just as it petered out.

Near Redhill we got near cloudbase and after this stayed well up with little difficulty. At Tonbridge we overtook Wally, and enjoyed a "formation soar"—sometimes circling in the same thermal, sometimes cruising together under a cloud street. In general, the Weihe fared slightly better when climbing in thermals, and slightly worse when flying straight. One rarely sees a glider flying straight at close quarters for any length of time; it is a singularly beautiful sight.

In the meantime, we had started a debate —on the height to leave Dover. Being fairly pessimistic, the sums indicated that 7,200 ft. would give a good chance of pressing on in France, an estimate which, in the event, would have been about right.

The general cloud base had worked up to a little over 5,000 ft., but as we approached the coast we could see that over Romney Marsh and further east the clouds along the coast line had a curious appearance. Long streamers of cloud extended upwards from 3,000 ft. to more solid clouds at the top. We wondered whether they were due to damp ground or sea breezes and whether they indicated lift.

After trying unsuccessfully to find lift inland from Folkestone to Dover we sank to below 3,000 ft. After a little discussion, we took Lorne's courage in all four hands and went to investigate the low wisps of cloud near the coast. The first two wisps gave vast sink, but the third was surrounded by strong lift and we went up at a great pace, half the circle in clear air and half in the wisp. At 5,200 ft., just inland from the coast, we entered solid cloud and went smoothly and rapidly up to 8,000 ft. Above 7,000 ft. the cloud became progressively lighter, and we came out, on course, quite near the top. Dover harbour lay beneath, and after flying through the top of another cloud the Channel lay before us in clear bright sunshine. During the climb we had accumulated only a very small quantity of ice.

The French coast looked surprisingly close, but took quite a long time to approach, at our cruising speed of about 50 m.p.h. E.A.S. The rate of sink was almost normal (3½ ft./sec. average for the crossing). There was nothing to do but sit and wait, so we had a cigarette and some sandwiches, noted times and heights and indulged in a little photography. Nineteen minutes after leaving Dover, the French coast just west of Calais passed 3,700 ft. below. I, at least, felt a slight sense of relief at having solid ground beneath again.

However, the nearest cumulus were still some miles away and their bases ominously low at about 3,000 ft., but we eventually found a little thermal at 2,250 ft. Thereafter progress was quite slow and we were able to inspect the French countryside closely. After staying near the coast up to Coxyde, we turned somewhat inland. Shortly afterwards we felt that this had been a mistake, as conditions deteriorated and we were at one time down to 1,550 ft., but after more struggles we eventually got up to cloud base near Ghent.

There appeared to be a large expanse of flattened-out cumulus ahead and we began to think that Aachen had been an over-optimistic goal. West of Brussels we were

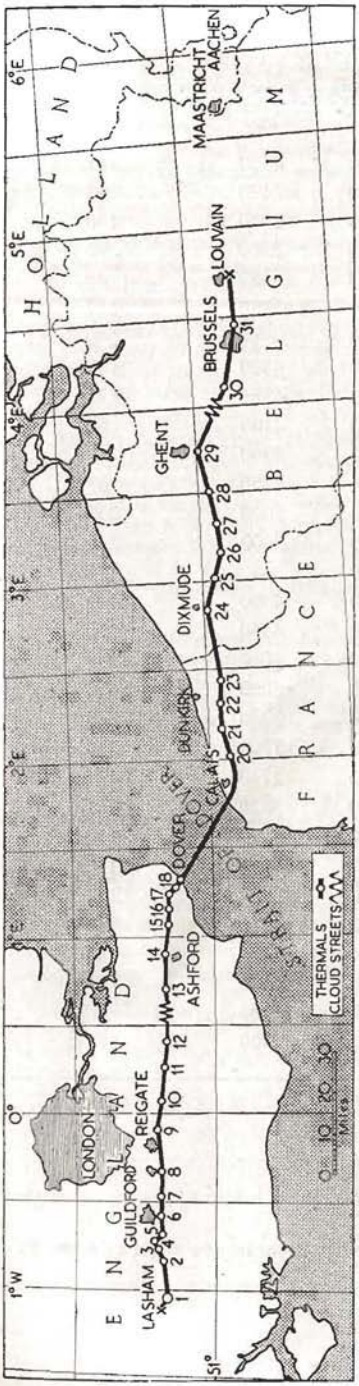
Frank G. Irving (left) and Lorne Welch beside the "Eagle" two-seater sailplane after their return to England in tow of a "Tiger Moth". The "Eagle", otherwise known as the Slingsby T-42, took part in last year's World Gliding Championships in Derbyshire, when Lorne Welch was its first pilot

Walter Kahn, seen from the "Eagle" while sharing a thermal with it over Kent. He is flying the same "Weihe" in which Lorne Welch crossed the Channel five years before. Wally also had hopes of a Channel crossing, but was unable to reach 10,000 ft. at Dover, which he considered necessary, because, unlike the other two, he had no "Mae West" life-jacket.

up to cloudbase again and then flew o1 across the city. It looked a long way to the fields on the other side, and it was only when down to 2,800 ft., a little over half way across, that we realised that the wind was now southerly rather than westerly. At this juncture Lorne observed that this was a funny height to be flying over someone else's capital city, but fortunately a little thermal appeared before it got too funny. This tided us over the forest east of Brussels, but it was the beginning of the end, for, after nibbling at some elusive patches of weak lift we found ourselves quite low south of Louvain. The sky still contained cumulus, but little looked active.

We descended inexorably, trying to find a sensible field among the little strips. Finally we picked a long field near some army barracks. The field consisted largely of mud and we ploughed no mean furrow.

Thereafter the absence of passports caused the gendarmerie to take an interest in us, but our driving licences seemed to be remarkably effective substitutes. After much telephoning by Lorne and a long cold wait, the gliding club from Grimbergen appeared. They had with them a small open trailer which took the wing tips and tailplane; with masterly cunning they managed to hire a large lorry which took the centre section and fuselage. All the bits of the glider were taken to Grimbergen, an aerodrome north of Brussels, which serves much the same functions as Croydon. We were very well looked after, and the next day we rigged the glider and were towed back by Derek Piggott, who had come out from Lasham with the Tiger Moth. At our end of the string it was very rough indeed



and sometimes cold, but at least we were under Perspex, whereas Derek steadily froze in the Tiger. Due to its short range we were obliged to stop at Ostend, Calais and Gatwick. Notwithstanding an irregular lack of paper work, all the authorities were most co-operative and we concluded that it was surprisingly easy to get around Europe without documents—once.

A few days after arriving back, some Customs forms caught up with us; on these the Eagle was listed, under the heading "Number and Description of Packages" as "One—Loose Glider". Hence the title of this article.

OBSERVATIONS.—The technique employed (Lorne doing all the flying, while I read maps, and did the sums, as below) certainly seemed very satisfactory, from the back seat point of view, since each person could really concentrate on the job in hand. Never having been paired in this fashion before, this flight represented something of an experiment for me, and no doubt one could be more useful with further practice.

The duties of the back-seat man were:—

(a) Map reading and navigation.

(b) Noting times, places, cloudbase heights and height-time plots of each thermal. At one-minute intervals the pilot was told the height gained in the previous minute.

(c) Assisting the pilot in choosing further clouds. This was probably of little direct use, since Lorne is far better at this sort of thing than I am, but it may be that an ill-informed second opinion provides some stimulus.

(d) Looking for fields when low, similar remarks apply as in (c).

(e) Providing food, drink and other comforts.

RANDOM COMMENTS.

by Lorne Welch

1. There can only be a few days in each year on which it is possible to make a Channel crossing and we were therefore lucky to have had this opportunity. However, if we had thought about it in advance we would have been better prepared and would have taken more suitable equipment.

Summary of Climbs in Thermals

Thermal No.	*Times B.S.T.*		*Heights A.S.L.*		*Rate of Climb*
	In	*Out*	*In*	*Out*	*ft./min.*
1	1108	118½	1970	4500	241
2	1127½	1130½	2380	2670	97
3	1132½	1134½	2600	2900	150
4	1137	1140	2630	2900	90
5	1141	1142	2880	2920	40
6	1144½	1153	2460	3880	167
7	1156	1158	3500	3960	230
8	1159	1200	4000	4400	400
9	1216	1218½	3620	4300	272
10	1224	1227	3800	4100	100
11	1232	—	4000	4300	—
12	1236	1240	3300	4600	325
13	1243½	1250½	3600	5000	200
14	1255	1259	3900	5000	275
15	1303	—	4330	—	—
16	1304	1308	4330	4900	143
17	1310	1312	4580	4850	135
18	1324	1325	2850	3080	230
19	1326	1337	3080	8000	444
20	1404½	1407½	2250	2700	150
21	1410	1418	2150	3750	200
22	1424	1427	2360	2740	127
23	1431½	1438½	2200	3820	231
24	1444	1450	3000	4500	250
25	1456	1500	3100	3870	193
26	1510	1514	1900	2700	200
27	1519	1526½	1550	4140	148
28	1542	1544	3620	3790	85
29	1546	1555	3560	5440	209
30	1606½	1608	4830	5280	300
31	1620	1622	2500	2800	150

Total time in thermals = 135 mins. = 40% of flight time from release. (5 hrs. 39 mins.)

Total height gained in thermals = 29,290 ft.

Mean rate of climb = 217 ft./min. (3.60 ft./sec.)

Total height loss = 29,290 + 2,400 ft. (where 2,400 ft. = height of release — height of landing).

Mean rate of sink = 155 ft./min. (2.58 ft./sec.); this includes the effect of some flying under cloud streets.

2. The wind over England was westerly with a little north in it (290°, about 20 m.p.h.); over the Continent the direction was slightly south of west and a little stronger. It seems that the best chance of continuing on the other side occurs under these conditions.

3. The goal chosen, Aachen, was a sensible one and with a little more cunning it would have been possible to reach it. However, it might have been better to have chosen a more northerly goal (e.g., Arnhem), as on both this occasion and on the day five years previously when I went to Brussels in the Weihe, there was an exceptionally good line of cloud stretching along the North Sea shore.

4. The crewing technique which we used was that which Ann and I had evolved last year. I am not going to say that this is the best, since it is the only one which I have really tried; but it certainly seems to work, and I am convinced that provided that one has a competent partner one can put up a better performance than one would by oneself.

5. For a flight of more than two or three hours' duration, comfort assumes great importance; everyone knows this. Why is it, then, that no-one in the whole world has ever built a glider which has a seat at the correct angle with a sensible built-in cushion of adequate depth?

6. The T-42 Eagle has a rather square look in comparison with some gliders, and one is therefore inclinded to think that its performance must be mediocre. Although its actual gliding performance has not yet been measured, enough soaring has been done to show that it is very good indeed.

A BATTERY
for use in gliders

by Lieut.-Col. Tony Deane-Drummond

MOST experienced pilots will agree that an electrically-driven artificial horizon is a highly desirable instrument for use in cloud flying. One of the main difficulties encountered in the installation is the provision of a suitable battery which is really reliable. The horizon and its associated invertor uses about two amps., which requires a lead-acid cell of at least ten ampère hours capacity at this rate of discharge (i.e., a theoretical five hours' running), if it is to have a reasonably long life.

Varley Dry Accumulators Ltd. of Barking, Essex, make a very suitable rectangular 2-volt cell which was originally designed for use in portable photo-flash outfits and is, therefore, as light as possible for a cell of this type. Details are:—

Type: VPT.9/14

Size: 3¼" by 1-13/16" by 4-⅝" (height overall)

Capacity: 5 hours at 2.4 amps.

Weight: 2 lbs.

Charging: 20 hours at 1 amp. or (max.) 8 hours at 2.5 amps.

Retail Price: £1 11s., fully charged.

The cells can be made up into batteries to fit the space available and give the required voltage. Provided the horizon is in good condition, a 12-volt battery of these cells will give about four hours' running before the horizon topples. An 18-volt battery is safer and gives an easy five-six hours' running. Two Olympias at Lasham have been fitted with these cells (one 12-volt and one 18-volt) and have fully lived up to expectations during the last 18 months and are still going strong. Prior to this, two other types of cells had been tried out, but were found to be most unreliable after use for only two or three months.

Australian Distance Record

by Mervin Waghorn

EACH year a small group of us from Sydney spend our summer holiday at Christmas time in attempts to carry out long cross-country soaring flights in our Olympia sailplane. For the whole of the rest of the year we are limited to local soaring at week-ends at Camden Aerodrome, near Sydney, because of the surrounding rough country.

To make up for the disadvantages of our local soaring site, we have excellent cross-country soaring conditions along a north and south strip about 150 miles inland.

This year, as for some years past, we made our headquarters at Narromine at the northern end of this strip of open wheat country, so as to take advantage of the prevailing north-westerly winds. Narromine has a large aerodrome, hangars in which we can camp and keep our aircraft, and, last but not least, an Aero Club with a well-stocked bar.

On these gliding trips we take it in turn to have a full day in the sailplane. My second turn was Sunday, January 2nd. On my first day, four days earlier, I had managed to do a flight of 207 miles to my declared goal of Wagga, which gave me my first Diamond to the International Gold C award, so for this second flight I was interested in straight distance or altitude.

At dawn a hot, dry wind was blowing steadily from the north-west. At 9 o'clock we got radio confirmation that it would be blowing from 330° to 340° at all heights and reach 25-30 knots at 10,000 feet; and 320 miles away on the aerodrome at Benalla the Gliding Club of Victoria were holding a camp, so I declared Benalla as my goal. To keep over clear country this meant I would have to achieve a course of rather more than 10° west of south, which meant coping with a strong cross-wind component tending to drift me over the rough country.

At 10.30 a.m. I released at about 2,000 feet in rather broken lift which expired about 500 feet higher. From past experience I expected the next few hours to be the trickiest. However, every long flight in a sailplane is a race against time in order to get as far as possible before the upcurrents cease, so I set off immediately in order to be a few miles on my way by the time conditions got better.

Within ten minutes of leaving the first thermal I was down to 900 feet, sweating it

Mervin Waghorn

out in weak and broken lift over a paddock five miles south of my starting point. So it went on for the next hour, circling, sweating and concentrating on every little bit of lift. I promised myself a cigarette the first time we got to 3,000 feet and just managed it about an hour out of Narromine. Twenty minutes later, in spite of my efforts, I had sunk to 800 feet and for five long minutes circled at this height without gaining or losing. Fifteen minutes later I had reached 4,000 feet, lit another cigarette and for the first time took stock of my position.

I was about 45 miles from Narromine well east of my track and had averaged less than 30 m.p.h. over the ground. At this stage the radio went dead. For the second year the expensive light-weight accumulator we had imported from England had passed out, leaving me no radio and no blind-flying instruments.

The next three hours the flight was safer, although still not good because the up-currents were so weak that this kept my speed down.

At 2.30 p.m., one hundred and thirty miles from Narromine, when downwind of a lake, there was another bad period during which I was low, but then conditions commenced to improve, the upcurrents were stronger, the tops much higher and I was able to push my air speed up to 75 m.p.h. between thermals. Two hours later I realised I had a chance of breaking the distance record of 260 miles and, after carefully examining the map, I realised by a quarter to five that I had done so.

The rate of climb in the thermals started to decrease, although after a long, slow ascent I reached my maximum height of the day, 9,000 feet at two minutes to six a few miles north of the Victorian border. From then on I lost height steadily until I reached Wangarratta at about 4,000 feet above ground.

Here I made the biggest mistake of the flight. Visibility was poor, the country ahead looked hilly and the fields small, and I became obsessed by the need for landing in a field suitable for towing out with the Tiger Moth, and decided, without carefully checking the distance I had flown, to return a few miles and land in a big stubble field at 6.45 p.m. As a result I threw away the certainty of doing the 311 miles needed for a Diamond Distance. My landing point was 303 miles from Narromine.

Conclusions:

This was not an outstandingly interesting flight from a technical viewpoint. Although I had to cope with a heavy cross wind, I still had a very comfortable component helping me in the direction I wanted to go. There was not a sign of cloud the whole day long, which was a good thing in view of the failure of our batteries.

The most unusual feature, which I had experienced on an earlier flight to Wagga, was the poorness of the conditions from 10.30 a.m. until as late as 2.45 p.m. Prior to that my average rate of climbing was three ft. per second and I used almost every thermal; after that time my rate of climbing averaged eight ft. per second, and I flew for an average period of ten minutes between thermals.

This flight shows that we can expect occasionally to fly further than 300 miles, even in our Olympia.

I cannot get it out of my mind that had it been possible to fly downwind instead of across, I would probably have achieved something like 400 miles; unfortunately this would have taken me 150 miles out to sea.

Gliding Certificates

Certificates are given for the following achievements:—

"A": straight glide of 30 seconds.

"B": glide of 1 minute with turns.

"C": soaring flight of 5 minutes.

"Silver C": distance, 50 kilometres (31.07 miles); gain of height, 1,000 metres (3,280.8 feet); duration, 5 hours.

"Gold C": distance, 300 kilometres (186.41 miles); gain of height, 3,000 metres (9,842.5 feet).

"Diamonds", additional to Gold C: one for 500 kilometres distance (310.686 miles); one for 300 kilometres flight to a declared goal; one for 5,000 metres gain of height (16,404.2 feet).

The following list shows all Diamond, Gold and Silver certificates issued this year by the British Gliding Association on behalf of the Royal Aero Club. Silver C and Gold C are each numbered consecutively, and Diamonds begin at No. 200 for goal flight and No. 300 for height gain (none yet awarded for distance).

DIAMOND FOR HEIGHT GAIN

No.	*Name*	*Club, School or Site*	*Date of Completion*
303	H. C. N. Goodhart	Bishop, California, U.S.A.	9.1.55

GOLD C

16	R. H. Prestwich	Midland Gliding Club	7.5.55

SILVER C

477	K. E. Machin	Cambridge University G.C.	19.3.55
478	G. C. Hudson	Cambridge University G.C.	16.3.55
479	C. P. Wills	Surrey Gliding Club	6.3.55
480	V. C. Carr	London Gliding Club	19.3.55
481	G. R. Williams	London Gliding Club	9.4.55
482	P. J. Neilson	Cambridge University G. C.	16.3.55
483	S. Fursman	No. 126 Gliding School, A.T.C.	23.4.55
484	R. G. Procter	Surrey Gliding Club	8.4.55
485	R. A. Mann	R.A.F. Gliding & Soaring Assn.	30.4.55
486	E. G. Shephard	Midland Gliding Club	30.4.55
487	G. R. B. Whitaker	Derbyshire & Lancashire G.C.	30.4.55
488	J. M. Anstey	Midland Gliding Club	7.5.55
489	N. C. Bennet	Home Command Gliding Instructors' School, Detling	7.5.55
490	P. Minton	Surrey Gliding Club	7.5.55
491	H. Tarnow	London Gliding Club	7.5.55
492	D. G. King	No. 104 Gliding School, A.T.C.	15.5.55
493	K. R. Johnston	Derbyshire & Lancashire G.C.	7.5.55
494	L. R. O. Storey	Midland Gliding Club	9.4.55

A 16-mm. colour film of the 1954 World Gliding Championships (350 feet, silent, running time about 15 minutes) is available on hire to clubs at a fee of £1 per night, return carriage to be paid by the hirer, who will be responsible for loss or damage up to a maximum of £15. The film is not subtitled, and a spoken commentary is advisable. Notes for this commentary will be provided. All enquiries should be made well in advance, giving alternative dates, to the British Gliding Association.

Lawrence Wright has recorded a commentary on tape in approximate synchronisation, and might be willing (given ample notice) to operate with his own projector and sound equipment. The tape is not available on loan. His address is: 16, Carlisle Street, Soho Square, London, W.1. (Gerrard 1253).

Book Reviews

Playground in the Sky—The Art and Joys of Gliding: by A. F. "BILL" GOTCH. Hutchinson, Stratford Place, London, 1955. Price 12s. 6d.

GLIDING people the world over love to read about their favourite sport, and Bill Gotch's book must certainly join the others on their bookshelf. Chapters are included on cross-country flying, instruments, clouds and cloud flying, power flying, aerobatics and why an aircraft flies. In appendices can be found up-to-date lists of gliding and flying clubs, details of gliding and power flying tests and a complete index. As an example of the latter, four sorts of bar are included: alcoholic (three references), bumper, roll and rudder (one reference each). Those who do not know what bumper or roll bars are will have to read the book to find out.

The book is intended to tell the uninitiated and beginners about gliding and fill them with enthusiasm for more. This it does very well in an engaging manner and a style all its own, with frequent comparisons with other sports, such as ski-ing, sailing, surf-riding, mountaineering, pot-holing, goggle-diving and even stock-car racing. Purists may quarrel with a few of the explanations, but this book is not meant for the pundits. Tantalising glimpses of the author's wide interests and past experiences make me wish that more space had been given to personal description of these side-lines—perhaps more in the nature of an auto-biography—and less to semi-technical explanations.

The book is complete with many excellent photographs and drawings. The dust jacket uses one of Charles Brown's superb photographs of the Olympia, which makes it one of the most attractive-looking books on gliding yet to be published.

A.J.D.-D.

Bird Man: by LEO VALENTIN, translated by MERVYN SAVILL. Hutchinson, Stratford Place, London, 1955. Price 12s. 6d.

TWO-THIRDS of this book is about the author's parachuting adventures and experiments, and is exciting enough. Rather surprisingly, he survives into the last third, which concerns his attempts to glide with wings fixed to his arms. This is regarded by him, as by the general public, as genuinely flying like a bird, whereas flying a conventional glider is evidently not. It is a curious distinction, and one wonders exactly where the line is drawn, because the author regards Otto Lilienthal as a pioneer of this kind of flying—not of the sailplane. But Lilienthal could at least land safely on his legs, while M. Valentin dare not even try; in fact, he has to take one arm out of its wing in order to pull the ripcord of his parachute, and how does the wing then differ in principle from that of any other aircraft?

He soon decided that stretching a cloth between the arms and legs, as was done by Clem Sohn and other pioneers, was unsafe, so he now uses rigid wooden wings; this is one step away from the purity of true bird-like flight, and one may prophesy he will have to depart still further from grace to achieve his declared ambition of landing without a parachute.

We are given hardly any technical information about the wings—not even their size, though, to judge by the photographs, the full span must be about eight feet and mean chord three feet. He says that wind-tunnel trials give the lift/drag ratio as 3.3, and that the wings weigh 14 kg., which the translator wrongly converts into 28 lbs. (it is nearly 31 lbs.), while his two parachutes add up to 17 kg. He first had a "tail" between his legs, but found it caused him to spin, first one way and then the other, according to how he shifted his legs, but apparently he made no attempt to hold them both at the same level. So he discarded the tail and yet was still longitudinally stable, though this fact does not strike him as curious, and he says nothing about the wing section, which appears from the pictures to be double-convex and very thin.

Right at the end the author feels obliged to think up a practical "future" for his wings, and what do you think it is? Why, since a man with such wings can land in a smaller space than even a helicopter, "this advance will have its military use."

A.E.S.

Yarmouth Milk-Run

by R. H. Prestwich

SINCE taking delivery of our yellow Skylark II in February, I have been suffering from intermittent attacks of gold dust in the eyes, particularly during working hours at the mill. As a result I had three alternative routes ready: Long Mynd to Yarmouth, Leiston and Lympne. The first effort was somewhat unsuccessful and I landed at Cambridge, much to the disgust of the C.U. Gliding Club, who reckoned I should have pressed on. They may have been right, too.

However, perusing weather maps (again in working hours) last Friday, there seemed a fair chance of conditions being O.K. for next day, May 7th, with a "high" approaching and no fronts anywhere that mattered. The actual forecast was: winds N.W., bright intervals with thunderstorms on the east coast, so I decided Kent would be the place. As it turned out the wind was west about 25 m.p.h.

After collecting Skylark from Doc Cotton in Craven Arms, I drove madly back to the Mynd, swallowed some breakfast and rigged. John Knotts very decently left off fettling his own aircraft, took the winch out and gave me a short launch from the road to 150 ft., and I was off. The whole area to the west was rapidly clouding over, so after grinding up in weak thermal to 1,400 ft. above the hill I pushed off towards a bit of cu over Church Stretton, finally arriving over Wenlock Edge at 4,400 ft. a.s.l.

Now began a most incredible fumble. No sunlight was visible, and the available cu had spread out across wind, giving almost total cover. I flew downwind and fished about for wind-shadow thermal behind the Clee, finding just enough to stay airborne. Eventually, I gained a few hundred of the necessary and pressed off to Birmingham, arriving at 2,500 ft. a.s.l. to find the whole place simmering in the sunshine. It came to the boil very nicely and I shot smartly up to cloudbase at 4,300 ft. a.s.l., then into cloud to 5,500 ft. a.s.l. in at least 10 up all the way.

I was pretty desperate by now, as I had taken such a long time in the poor conditions. I came out of cloud, flat out on an easterly course, and headed for the next cu about 12 miles away. Conditions were rapidly improving and good lift was available for the asking. I started disregarding lift giving less than 7-8 ft./sec. up, and flying off my height in packets of 1,500-2,000 ft., meanwhile cruising between 60 and 70 knots. Cloudbase lifted to 4,500 ft. a.s.l., with rather flat cu giving good lift. A good amount of flattening-out was evident, but the thermals still worked for all that.

After two hours' flying, I found a slightly more robust cu and climbed to 6,250 ft. a.s.l. When I came out I was above all the other cu tops in brilliant sunshine, bashing along on an easterly course at 70 knots, just a few miles south of Leicester. Thermals began to get slightly tired after this, and I started flying a little slower as a result.

At the end of the third hour Peterborough hove in sight, surprisingly enough more or less in the right place. Whoever christened Peterborough as "the Soke of" certainly knew his job. The place is surrounded by a fantastic amount of water, and only by a miracle manages to stay afloat. Lift was conspicuous by its absence. Finally a row of friendly brickworks chimneys pointed a thermal to me and after considerable fishing about I climbed slowly back to 4,400 ft. a.s.l., when the thermal quietly expired.

Due east things looked bad, but a cu in the far distance a bit north of my track looked a bit hopeful, so I went for it. This was directly over Downham Market, in the surrounding countryside of which I used to shoot ducks when at Cambridge. The cu did its stuff, but only to 4,100 ft. a.s.l. this time, before casting me out again into the cold, hard world. I headed for another rather shop-soiled cu, and finally arrived directly over Marham aerodrome at 2,400 ft. a.s.l.

The Thunderjets looked like little silver maggots on a carcase—in fact, the place simply reeked of Yankee gasoline. Fishing

around in weak lift, I thought longingly of the lovely thermal which would be produced if all this "gas" blew up! Suddenly I saw a yellow crash tender start up near the hangars and drive out beside the main runway. This meant that either they were going to play with aeroplanes, or that they were touting for custom. In any case the thermal packed in after lifting me only 300 ft., so I moved on to another about a mile away and immediately struck oil to the tune of 5,000 ft.

Looking round in comfort for the first time in nearly an hour, I was horrified by what I saw. Everything was completely clogged up with only one cumulus five miles away to the east. This looked very scruffy but I managed to climb to a height of exactly 4,300 ft. a.s.l. as recorded on the barograph. No more cu's were in sight, and the sky was overcast completely by high cloud.

Previously, I had calculated approximate heights that I would need to glide in from given points on the route. My present height fell short of the minimum by about 33 per cent, as I had exactly 40 miles to go with 4,300 ft. to use. Resolving to go down (no option, anyway!) with colours flying, I set off at 41 knots, shut the window, and set the trim to neutral. There I was (unfortunately not at 10,000 ft.!) cruising along in dead smooth air, feeling so depressed that for a few minutes I heartily wished I had stuck to sailing!

Suddenly Norwich appeared, and frantic perusals of the map followed. A village of Acle was just O.K. for distance, marked by a jumble of railway lines and dykes. If I could cross the railway I was home. Finally, to my relief, with the altimeter recording —800 ft., I passed over it. Ahead was Braden Water and some people racing Fireflies looked up in surprise as I passed over at 300 ft. Round the village, over some power cables, brakes out for a moment and we were down. What a scrape!

Some highly intelligent boys helped de-rig in a few minutes, and the Ling family provided a most welcome tea and telephone. When at 8.30 p.m. an almost dead John Hickling arrived after 8½ hours continuous driving, we were both given an excellent supper and invited to stay the night—a delightful ending to a very tiring day.

Yarmouth airfield was only two diamond-paved miles away, but at least I had done the distance. The Skylark's final half-hour's flight was almost a miracle, anyway, so coupled with the scrape to Birmingham, it proves that the Devil and Mr. Slingsby respectively must look after their own after all!

Photo by Maurice Hoare

Richard Prestwich's "Skylark," in which he made the flight described here, being launched from the Midland Gliding Club at the Long Mynd.

Calculating gliding angles from the barograph chart has yielded some unusual results. Flying at exactly 41 knots i.a.s. (nose pitot, cockpit static) the minimum sink works out at 4,000 ft. in 30 minutes at 2.22 ft./sec. and the gliding angle at 1 : 31. The gliding angle with the tailwind included was 1 : 52—shades of Mr. Nyborg! No doubt the pundits will point out numerous erroneous assumptions, but even so it makes you think. I am fairly certain that the air was dead with no lift. Before starting the flight I washed and leathered off the whole aircraft, which was very dusty. If I hadn't, I think I would have just recorded a long cross-country.

Height of release, 1,600 ft. a.s.l. Time, 4 hrs. 55 mins. Distance, 192½ miles. Max. height, 6,250 ft. a.s.l. Min. height between thermals, 2,400 ft. a.s.l. Calculated wind speed for the final glide, 27 knots.

Gliding in Pakistan

by Flight Lieutenant T. J. Page, D.F.M.

THERE are no civilian gliding clubs in Pakistan but gliding is organised by the Royal Pakistan Air Force as part of the pre-service training of the Air Cadets, an organisation similar to the Air Training Corps. Today, many, if not all, of the personnel selected for pilot training in the Royal Pakistan Air Force have received glider training at one of the five schools situated near the larger towns of Pakistan.

The schools are service-manned on a full time basis and are operated from service airfields. The instructors are R.P.A.F. power pilots who have satisfactorily completed the Glider Instructors' course at the Central Gliding School. Their appointment is for approximately one year. Afterwards they rejoin their squadrons.

Gliding was introduced into the R.P.A.F. in January, 1950, by Squadron Leader J. Z. Mikulski, a Polish officer who is now the officer commanding the Central Gliding School. He is ably assisted by his wife who is employed on the special duties list of the R.P.A.F.—a fact worthy of note, since Pakistan is a Moslem country where purdah for women is still prevalent. These two very enthusiastic glider pilots were gliding in Poland from 1933 to the outbreak of World War II. Sqn. Ldr. Mikulski was the officer commanding a Polish Glider Training School, and both he and his wife were pre-war National Gliding Champions. Sqn. Ldr. Mikulski flew as a pilot with the R.A.F. during the war, whilst Mrs. Mikulski suffered the rigours and privations of a Russian concentration camp.

The equipment of the R.P.A.F. consists of Olympias, Sedberghs, Eon Babys and Eon Primaries. Launching is by aero-tow with Auster aircraft and auto-tow with jeeps. Training is dual and solo (primary) combined, a policy dictated by the existing equipment. Pupils are taken to B Standard and a few have gained Silver C height. One cadet has obtained Gold C height. Cross-country soaring is not possible because of the surrounding mountainous and desert wastes, the few roads, and, in some areas, the unfriendly tribesmen.

Your correspondent can only write of those soaring conditions in the western coastal area of Pakistan around Karachi but there are stories of "wonderful lenticulars and turbulent convection" over the inland areas. Existing conditions, however, prevent their exploitation.

All through the summer months (April to September) in the Karachi area, when maximum temperatures range from 95° to 115° F., a wind blows steadily in from the sea from 260°. This wind varies by only a few degrees and has with it a "built-in" inversion at approximately 2,000 ft. (all heights above sea level), which effectively kills all lift above that height. Occasionally, by sheer hard work, thirty to forty-minute periods of soaring can be done between 1,000 and 2,000 ft.

During the winter months (October to March) an easterly wind from inland blows, which backs with height to westerly around 10,000 ft. This again puts a lid on the convection. Convection is very turbulent, and soaring in most cases is unpleasant and nauseating. The maximum height obtained in the area is 8,800 ft. and the average soaring height is 5,000 ft. Convection usually starts between 11.00-12.00 hours and in a strong easterly wind will sometimes last for about four hours; only very occasionally does lift continue for five hours or more. In light easterly winds, as the air over the land commences to rise, the cooler air from off the sea comes in and effectively kills all convection. Where the two air masses meet and advance inland, lift is very strong and turbulent. On the surface the wind direction can be seen changing and wind socks half a mile apart may record exactly opposite winds. All machines land within thirty minutes of the passing of the "front".

Observation shows that on an average day the sea breeze advances inland approximately 30 miles. To soar ahead of the advancing breeze would therefore take one too far inland to be able to return upwind to base from the heights available.

Very little convection cloud is seen in the area, as the air is too hot and dry up to the heights to which convection extends. Some build-up is seen away to the north-west over the hills and dust bowls, and lenticularis

cloud is sometimes seen, but this is too high and too far away to be utilised.

On most days the surface air is extremely rough, and while no lift can be found, downcurrents occur and these necessitate high circuits and approaches. Your correspondent has seen sailplanes landing while still on auto-tow at 40 m.p.h. and has experienced auto-tow to only 300 ft. after a 2,000-yard run!

Preparation and take-offs are hot, gruelling affairs in the high temperatures over the tarmac and runways; sweat rolls from the arms and trickles down one's back, especially under the hood of the Olympia. Under these conditions, flying dress consists simply of open-necked shirt and slacks, and dark glasses and a peaked sun hat are essential. Aero-tow take-offs commence in a cloud of dust; on auto-tow one rides over the drifting sand. The slipstream has a welcome cooling effect. The horizon is just a smudge, a change in shade, and the haze envelops the hills away to the north-west and gives the coastline, only seven miles away to the south, an undefined character which merges the mudflats into the inlets and makes the clear blue waters of the Arabian Sea muddy and grey.

Karachi lies sweating below, the beggars more intent on their alms bowls to notice sailplanes in the haze above being tossed like corks on an open sea. The seat of the sailplane bucks like a bronco at a Wild West show as the variometer reads green and red together, and the wing of the Olympia incipiently stalls at 55 m.p.h. in the turbulent gusts and rough cascading air. Airspeed fluctuates by 15 m.p.h. and constant reference to instruments is necessary. A continual look-out must also be maintained for air liners flying in and out of Karachi Civil Airport, as the airfield is only four miles away; the circuits overlap, and the local soaring area is in the air lane. To hit the slipstream of an airliner in a sailplane is like hitting a brick wall and, in the case encountered by your correspondent, resulted in sore shoulders for days, caused by being flung violently upwards against the straps, and the skin of both legs below the knees being badly cut by contact with the instrument panel. Landing after soaring in these conditions is fast and high and a satisfying relief.

A very good day occurred on November 24th, 1954, when Mrs. Mikulski soared for six hours six mins. over Karachi. This set up a new duration record for women in Pakistan and probably for all Asia. Unfortunately it cannot be recorded as a Pakistan National local record, as Pakistan has no official gliding organisation, and is not a member of the F.A.I.

Take-off was at 12.18 hrs. and height varied between 4,000 ft. and 5,700 ft. The surface temperature was 88° F. at take-off, rising to 92° F. at at 14.30 hrs., and falling again to 83° F. at the time of landing, 18.24 hrs. The tephigram showed a dry adiabatic lapse rate up to 740 mb. The isobars of the weather chart showed a high-pressure area over the centre of India and another over the North West Frontier Province.

The sea coast runs in a line N.W./S,E, approximately seven miles S.W. of the airfield, and from the time maximum temperature occurred at 14.30 hrs the surface wind veered to 180° at 15.00 hrs, and by 18.00 hrs was 260°/5 knots. This was caused by the sea breeze.

Sunset was at 17.42 hrs, and between this and the time of landing in the dark by flare path a large area of lift was found at 2,000 ft. On this day the sea breeze effect did not advance very far inland, and with the drop in temperature to 80° F. at 20.00 hrs the wind had returned to 030°/6 knots.

The conditions of the flight were comparatively smooth and the whole flight was carried out over the city of Karachi, where the surface temperatures would probably have been higher than those quoted (for these were recorded at a Meteorological Office approximately ten miles away). Apparently this higher temperature was sufficient to overcome the sea breeze effect. Altogether it was a very unusual day for the area.

Soaring records for Pakistan are:—

Duration:
8 hrs. 30 mins. (over Lahore)
Absolute Altitude:
16,500 ft. a.s.l. (over Quetta)
Gain of Height:
10,700 ft. (over Quetta)

No doubt these could be bettered, but it is felt that to do so would necessitate a concentrated effort in the right area, preferably inland over the hill, using oxygen and metal sailplanes.

. . . bread on the waters

THE death of Major J. E. D. Shaw on April 21st takes from us a man who did more than most to put the British gliding movement on its feet, but so quickly does time fly that many people now in the game may not know of him. He was in many ways a remarkable man, and of a race which is dying, or is being killed off, by the modern developments of the Welfare State: one who inherited great wealth, who by a combination of generosity and enthusiasm enabled one or two gifted people to develop their talents to the permanent advantage of their country. Fred Slingsby was one of these.

Fred may blush with surprise to be called gifted, but perhaps few people realise that he is the only person the world has yet produced to start from scratch without State aid and build up a comparatively large and prosperous factory exclusively employed in designing and building motorless aircraft.

I first met Jack Shaw by chance on May 26th, 1934. Two years of hard and complicated negotiation with the Ecclesiastical Commissioners had just achieved a lease for the B.G.A. of Sutton Bank, and we were all determined to show that, given the security of tenure of a soaring site, it was now possible to build up a new gliding club which could stand financially on its own feet. We hatched a plan to raise money on five per cent Debentures, build a hangar-clubhouse and pay our contributors back with the proceeds of National Competitions and Meetings, which we eventually succeeded in doing, as the Yorkshire Club to-day bears witness.

At this time also, Slingsby was building, for Buxton and me, Buxton's Hjordis, the first British-designed high-performance sailplane. He was doing this in his combined workshop and shop at Scarborough, which was so small that the spars had to be assembled in the passage.

On the day in question Buxton and I flew up to Scarborough Aerodrome in my Monospar to discuss our future plans on both subjects, and landed to wait for Sling to arrive. Whist we were waiting, an Avro Cadet landed and taxied up to the clubhouse. I saw everyone start to look very polite, then the engine stopped and out got the longest man I had ever seen. Jack Shaw must have been about 6 ft. 5 ins. high, but unlike most tall men he was on the same scale in the other dimensions. He had a thick thatch of blond hair, a blond moustache, and a round, rather cherubic face. As he walked up to us he dug into his pocket and produced a gigantic pipe, into which he inserted about a quarter of a pound of tobacco, which he then set fire to, with resultant immense clouds of smoke. He seemed to put the rest of us out of scale: one thought of Vikings, with two-handed swords, cleaving serfs from the chine to the brisket.

Major J. E. D. Shaw.

Shaw came up and welcomed me, as a visiting pilot, in a soft, rather drawling voice, then was borne away by the locals like tugs steering the Queen Elizabeth into harbour. Sling now arrived and, as we drove away, told me that Shaw was a wealthy landowner who was interested in private flying and gave much financial

support to the flying clubs. He lived at a near-by village called Kirbymoorside, where he owned a huge house called Welburn Hall, where he had his own private aerodrome, owned two aeroplanes and employed his own private pilot. He also took an interest in local industries, and amongst other things owned a small building firm in Kirby. In fact, he sounded so exactly what we were looking for that I turned back to the aerodrome to see if I could interest him in our project at Sutton Bank.

Apparently he was rather accustomed to being approached for donations to wild schemes. I discovered later that for some years after the 1914-18 war, any man coming to Welburn Hall who had fought in the war was given a free meal and a small sum of money to see him on his way, but this scheme, rather naturally, eventually led to such an elastic interpretation of war service that it had to be suspended.

When I had said my piece, Shaw immediately offered to give us a tarmac in front of our hangar; but, drawing myself up to my full height, I explained that we were very anxious not to depend on gifts, and what I would really like would be for his firm to build us our buildings at the cheapest possible price. This must have been almost his first experience of a rejection of such an offer, and from then on I think he took gliding to his heart.

We got our building—it was a combined clubhouse and hangar—and I think we paid £350 for it, though I also think it must have cost Shaw double that. But as it started to rise from the ground, and Sling and I got to know Jack Shaw better, the plan began to hatch which a short while later resulted in Slingsby, Russe'l & Brown Ltd., and eventually, Slingsby Sailplanes Limited.

I remember saying to him that he must not think that he would ever make much money out of it, but if it was successful it might make both ends meet, and it would certainly put the British movement on its feet to have its own reliable source of British-made gliders. I was wrong on the first count, although at first only in a negative sort of way. Shaw at that time owned a large yacht, with a full-time captain and crew, in which he used on occasion to go tunny-fishing. It must have cost him around £5,000 a year to run. But the new glider factory soon supplanted this in his interests, and he sold it, thus saving himself far more money than the new project cost him even in its early days.

At first Slingsby, Russell & Brown Ltd. operated in a couple of brick sheds attached to the building company and garage sponsored by Shaw, but after a year or two Shaw's enthusiasm got the better of him and he decided to erect a new works, next-door to his aerodrome, about a mile outside Kirby. What was Sling's and my despair can be imagined when we were told that he was not going to have the beauty of his estate ruined by a shoddy factory of the ordinary kind, but was to employ an architect to build something really worthy of its surroundings, a building which, to our fevered imaginations, looked something like a miniature York Cathedral.

Slingsby's one idea was all along to build a financially sound Company, whilst I also felt a personal responsibility that I should not have persuaded Shaw into a project which might lose him large sums of money. But again I was wrong. No sooner was the present large and imposing building finished than the war broke out. Slingsby Sailplanes was completely flooded with work, and to-day, what this building cost would hardly build a couple of pre-fabs.

But whilst one may therefore say that in some ways Shaw was fortunate, in one way he must be judged as deserving this success. He picked in Fred Slingsby a man of unequalled integrity and determination, whose initial enthusiasm for gliding, much aided by his dry Yorkshire humour and solid sense, outlasted all the difficulties and the incredible amount of work involved in building up an entirely new industry from scratch, and who has in twenty years turned the idea of a glider factory from a wild-cat scheme into a sound and solid reality, with immense benefit to the gliding movement the world over.

Jack Shaw was a man of a kind which to-day is decried by the many. He inherited wealth, and spent it lavishly. But now these sorts of men have been taxed out of existence, will future Slingsbys get their chance? In fifty years' time will even another Lord Kemsley be found to encourage with their personal funds the development of some activity which the politicians will not see can possibly gain them votes? I am afraid the answer is: "No, but we shall all get free false teeth instead."

PHILIP WILLS.

DIAMOND HEIGHT

by Tony Deane-Drummond

SATURDAY, May 14th, was the scene of much activity at Lasham. Goals as far away as Germany and Belgium were freely tossed around as pilots busied themselves with barographs and laid out maps all the way to Central Germany.

I was no exception, although, as I was fourth on the aero-tow list, a launch was not available till 11.20, after Lorne Welch and Wally Kahn had both been seen disappearing westwards about half an hour before. I declared Brussels just before Derek Piggott towed me off.

A strong 20-m.p.h. west wind was blowing, and straight upwind a line of not very hopeful cumulus was building up after a wide gap of blue sky. Unfortunately 2,000 ft. was reached before getting to the cumulus and rather stupidly I released in a very poor area. I soon realised that the Olympia could not reach the upwind edge of the clouds, and with a curse I turned downwind back to the airfield, which I made with 700 feet to spare. It was not a very good start.

A lucky thermal on the airfield boundary took me to just over 6,000 ft. and we were off. Conditions were not very easy and quite a lot of side-stepping between clouds was necessary to keep aloft. In spite of this, the Ashford-Lympne area was reached at 1.45 p.m. in just over 2 hours, or an average of about 40 m.p.h. I spent the next half-hour in the area north of Hythe trying to find a respectable-sized cumulus as a Channel stepping-stone. Unfortunately none were to be seen, and it was only with some difficulty that I remained airborne.

About 2.15, after reaching nearly 5,000 ft., I saw that the wind had begun to back to about W.S.W., and I decided the Channel was off. Retrieving was now the problem, and in order to shorten it I decided to try and fly back as far as possible. The wind was so strong that the only hope was to use the line north of the North Downs which stretch all the way to Detling and Chatham. By now the wind had backed to S.W. and although the ridge is quite low it provided sufficient lift in combination with numerous small thermals to reach the end of the hill near Rochester by 2.50.

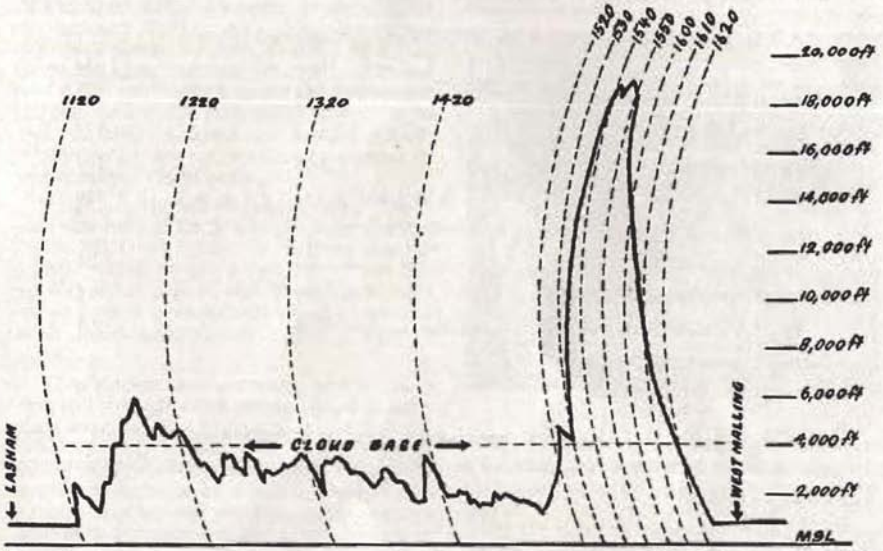
Thermal conditions had been deteriorating rapidly, but upwind a front running approximately north-south was approaching. Parts of the front were blacker than others and were spewing forth rain or snow. Unfortunately I was in the outer London Control Zone and so flew back along the hill parallel to the advancing front to get to the nearest uncontrolled area about 15 miles to the South East. Half way back, I began to get smooth lift from the advancing front, which took me without further trouble to a very large black cloud which had formed a little ahead of the main front out of which snow was falling. The cloud disappeared into a high layer of strato-cu, which I later discovered to be about 10,000 ft.

Cloud base was entered just downwind of the village of Charing on the Pilgrim's Way. Lift was fairly strong, about 10-15 ft. per sec., but after climbing a thousand feet or so, the rate of climb started to fall away and it was clear that I had not reached the main core of the storm. The Olympia was straightened up on a previously noted compass course and after 6 or 7 minutes (about 5½ miles through the air) hit very strong smooth lift at about 4,200 ft., that only required a few figure-of-eights towards the strongest surges to send both variometers off the clock. Seven minutes later 18,500 ft. was reached, giving an average rate of climb for 14,300 ft. of about 2,000 ft. per min. or 33 ft. per sec. Lift then stopped quite suddenly, which answered a little gremlin who had been talking into my ear about lack of oxygen after we passed the 15,000-foot level. Steering due west we sank quickly down to 18,000 ft., when more very strong lift was encountered. Lack of oxygen was now the problem and, opening up the dive brakes, I increased speed to 60 m.p.h. on the same westerly course. In spite of these precautions we climbed back up to 19,000 ft., but soon after hit a very strong downcurrent. All was well now, and so the dive brakes were closed and soon the cloud was left behind at 17,000 ft., to find myself a long way above the tops of all other cumulus in sight. Ahead, another front was approaching 30 or 40 miles away, whilst directly below a large area of clear

air pinpointed my position as east of the Isle of Sheppey over the Thames Estuary.

There had been comparatively little icing because freezing level was only 4,000 ft., and I later learnt that the temperature at 19,000 ft. was about —25°F. It certainly felt cold when I opened the window to take some colour photographs.

Thirty minutes later I landed at West Malling R.A.F. station from a straight glide, five minutes before heavy rain set in from the front I had been approaching. Subject to official confirmation, the gain of height registered on the barograph was 17,900 ft.



HOW TO GET "GLIDING"

"Gliding" can be obtained in the U.K. at all Gliding Clubs, or send 2/8d. for it or better still, 10s. for an Annual Subscription to:—The British Gliding Association, Londonderry House, 19 Park Lane, London, W.1. Back issues also available, price 2/8d. post free. Enquiries regarding bulk orders, 12 or more copies, at wholesale prices, should be made to the British Gliding Association.

OVERSEAS AGENTS

AUSTRALIA:	Stockists: Hearn's Hobbies, 367 Flinders Street, Melbourne.
NEW ZEALAND:	F. M. Dunn, c/o 51 Stapletons Road, Richmond, Christchurch.
SOUTH AFRICA:	The Aero Club of South Africa, P.O. Box 2312, Maritime House, Loveday Street, Johannesburg.
CENTRAL AFRICA:	Maurice Pike, P.O. Box 492, Salisbury, S. Rhodesia.
U.S.A., CANADA & OTHER COUNTRIES:	Please apply direct to British Gliding Association. Single copies 2/8d. or 10/8d. annually. (50 cents or $2 annually.)
SCANDINAVIA:	Hans Ellerstrom, S:t Johannesgatan 2, Malmo, Sweden.

Green Leather Cloth Binder, with gold-lettered spine, taking 12 issues (3 years): price 15/- post free from the B.G.A.

AIR TRAINING CORPS SAFETY RECORD

THE Air Ministry have given authority for the A.T.C. gliding accident rates for 1953 and 1954 to be released for publication in GLIDING.

A.T.C. gliding accident rates for 1953/54 are summarised below:—

	1953	1954
Total A.T.C. Schools	45	45
Total Launches	97,114	99,575
Total Gliding Hours	7,346	7,497
Total Certificates	(A & B 1,403 —C 71) 1,474	(A & B 1,512 —C 37) 1,549
Total Accidents	33	21
Total Avoidable Accidents	29	18
Total Accident Rate per 10,000 Launches	3.5	2.1
Total Avoidable Accident Rate per 10,000 Launches	2.9	1.9

1954 was the A.T.C.'s most satisfactory year ever regarding accidents. Since two-seater glider training was introduced in 1950/51, the accident rate per 10,000 launches has fallen as follows:—

1950 — 9.7
1951 — 6.6
1952 — 5.2
1953 — 3.5
1954 — 2.1

At the same time the annual launches and numbers of cadets trained in gliding has shown a steady increase year by year since 1950.

None of the 21 accidents sustained in 1954 resulted in death or serious injury to personnel. The same is true of 1953. Only three of the 21 accidents in 1954 were caused by A.T.C. cadets on solo flights. The remainder occurred when instructors were flying. Two accidents concerned winch cables which fell outside airfield boundaries and slightly damaged stationary cars. As regards damage to gliders, only two gliders were completely written off as a result of accidents and a further ten returned to the maker for repair. The remainder suffered only slight damage or no damage at all.

R. H. S. BUTT.

Altitude in Undress

by Philip Wills

THE Mackenzie country in the South Island of New Zealand is an extraordinary oval, flattish plain, at an altitude of between 1,500 and 2,000 feet above sea-level, almost entirely enclosed by a ring of mountains, running between 5,000 feet and 6,000 feet high except in the north-west corner, where the mountains tower up to the majestic pyramid of Mount Cook, 12,340 feet high, surrounded by dozens of other snow-capped peaks.

Originally the whole plain must have been one vast field of ice, fed by the huge glaciers of the Mt. Cook system, for in this range the rainfall varies within a few miles from 200 to 400 inches a year, and the glaciers move down from it at enormous speeds compared with their counterparts in the European Alps.

The Mackenzie plains are covered with sparse brown tussock grass. At first sight they seem dry and waterless, but in fact the whole terrain is laced with a network of clear, fast-running streams, and inset in it are three large lakes, Tekapo, Pukaki and Ohau. Lakes and streams contain large numbers of enormous trout, running up to over 18 lb. in weight.

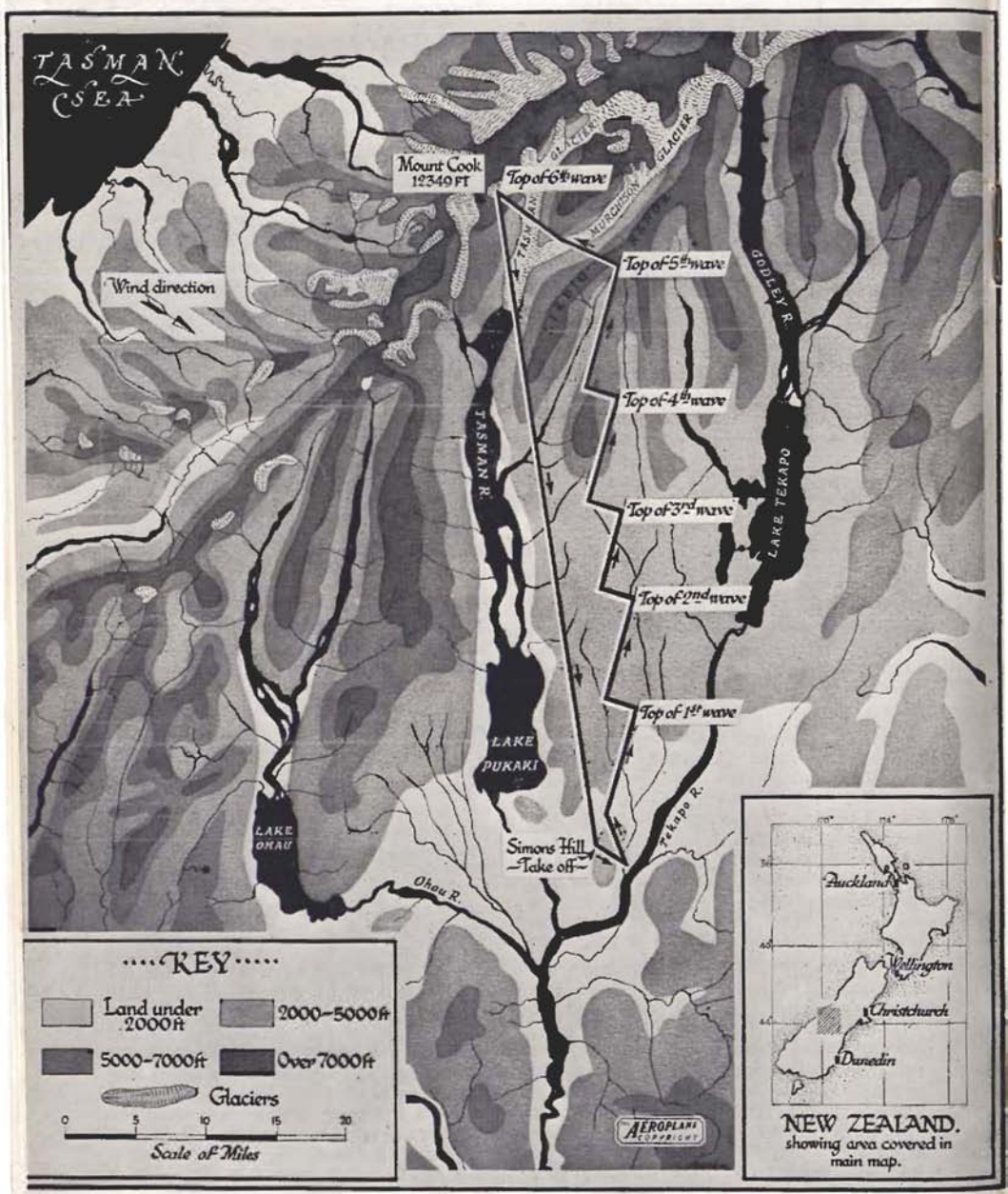
Beyond the eastern rim the country slopes down to the green Canterbury plains, but westward and south-westward range after tumbled range of mountain, partly unexplored because of their fantastic ruggedness, stretch to the coastline, at its nearest only 40 miles away. It is a country of great beauty and fascination, of sudden, local and inexplicable changes of weather; in fact, the air over it must be as complicated and interesting as anywhere in the World.

With the prevailing wind blowing from west and north-west, tumbling abruptly over the main mountain wall of the Southern Alps into the Mackenzie basin, it is quite obvious that conditions are ideal for the formation of standing waves going to probably unprecedented heights; indeed on many days this is made obvious by the appearance of lenticular clouds at enormous altitudes all over the sky. After the flight I am now going to describe, it is clear that waves of the first order of magnitude also exist in absolutely clear air, of a size which I do not think has previously been thought possible.

Philip Wills.

The Canterbury Gliding Club holds its Christmas training camp on a splendid site called Simons Hill near the south-western corner of the basin, and perhaps 15 miles from the western mountain wall. Here an isolated hill, rising perhaps 1,500 feet above the plain, provides hill-soaring in nearly all wind directions, with good landing fields at the foot. The friendly owner makes available his sheep-shearing accommodation, near a large flat field suitable for both aero-towing and winch launching onto the neighbouring brown slopes. Here, my friend Dick Georgeson and his wife took the Weihe sailplane which I shipped out to him two years ago, and which they allowed me once more to fly.

I had my first flight on December 27th last year, on a quiet day with numerous dry thermals to 6,000 feet above take-off. I had decided to try to stalk Mt. Cook, 45 miles to the north. It was necessary always to keep within range of one or other of the homesteads sparsely dotting the plain, because each of them had one or more ploughed paddocks in which a landing was possible; a landing in the tussock plain itself would carry a risk of damaging the keel of the aircraft, apart from the difficulty of retrieving out of such rough country.


TASMAN SEA
Mount Cook 12340 FT
Top of 6th wave
Top of 5th wave
Top of 4th wave
Top of 3rd wave
Top of 2nd wave
Top of 1st wave
Wind direction
TASMAN GLACIER
MURCHISON GLACIER
TASMAN R.
GODLEY R.
LAKE TEKAPO
LAKE PUKAKI
LAKE OHAU
Ohau R.
Tekapo R.
Simons Hill —Take off—
AEROPLANE COPYRIGHT
KEY
Land under 2000 ft
2000–5000 ft
5000–7000 ft
Over 7000 ft
Glaciers
0 5 10 15 20
Scale of Miles
Auckland
Wellington
Christchurch
Dunedin
NEW ZEALAND.
showing area covered in main map.

The upshot of this flight was that I got within about eight miles of the mountain, just over the first scattered patches of snow; but then the air became rough and untidy, and at 6,300 feet I thought it wise to retreat home.

On December 29th, there was a light westerly wind, and Dick Georgeson came down from a flight around midday saying he had found a wave to 11,000 feet, some way to the east of the site. But as there was a cloudless sky, except for a low cap of cloud blanketing the westward mountains, I did not expect anything very big when I took off at 16.15 hrs., and so did not dress for height, although Dick insisted on giving me a barograph and oxygen mask. As the ground temperature was nearly 100 degrees F., one did not dress for altitude unless one had to.

At the last minute the towing aeroplane found it was out of petrol, and though this still further reduced the chance of more than a few minutes' descending flight, I decided on a winch-launch onto a hill, thinking it didn't matter anyway. In the event, this unfortunate happening resulted in my eventual gain of height being considerably greater than it would otherwise have been.

I was winched to 550 feet, and turned back to the hill, which I reached at about 450 feet; the site at Simons Hill being 1,600 feet above sea-level, this gave me a low point on my flight of just over 2,000 feet above sea-level.

I found fairly good hill-lift at one point, and soon climbed up to the level of the top. Here I immediately found a thermal up-current, in which I circled up to 6,500 feet about four miles downwind of the site, over the pebbly channels of the Tekapo River.

From this point I flew north-westwards towards where Dick had previously reported a wave, and in a very few minutes found myself climbing at five feet a second. Incidentally, to fly down from a thermal upcurrent into a wave upcurrent a few miles away is a meteorological impossibility, but meteorological impossibilities are two a penny in the Lost World of the Mackenzie Basin.

Presumably, I was in the fourth or fifth wave in the lee of the mountain, and each wave would run north and south parallel to them. Mount Cook lay due north, so it became obvious that another attempt on it was possible. The lift was not strong, so careful flying was necessary as also a constant endeavour to picture the shape of the air in which I was flying, in the absence of any cloud to show the lie of the waves. I crabbed northwards until my wave seemed to peter out, then turned and flew upwind at 60 m.p.h. through the compensating downcurrent until, sure enough, I found myself in a slightly stronger one.

In this way I slowly dog-legged myself northwards and westwards until I was at 14,000 feet at the very mouth of the gorge leading up to the mountain. I tried to determine the distance between each wave and it seemed very short, until the following day I remembered that the speed shown on one's airspeed indicator grows progressively less with height. Indeed, flying at an indicated 36 m.p.h. at nearly 30,000 feet I was actually moving through the air at nearly twice this speed. But I don't think the wave-length was more than about two miles.

After my first flight I had discovered that there is a small aerodrome in the valley almost at the foot of the mountain and this knowledge gave me courage to continue flying up the eastern wall of the tremendous valley which here slopes up in a tumbled screen of rocks to the huge Tasman glacier. Then I noticed an exciting thing, which for the first time made me think of a possible height record.

Overhead and to the east, the sky was a clear and dazzling blue, but, as I have said before, the mountains to the west were completely hidden by an unbroken sheet of cloud clamped down on their summits. I now noticed that where this sheet of cloud came to an end, over the east-facing wall of mountains, it was curling over and descending like a waterfall down the slopes, evaporating into nothing after falling a few hundred feet. And Mt. Cook itself had a similar waterfall-like cap.

From the altitude I had now reached I was looking at this cap from above, and from this angle it looked irresistibly like the top of a lenticular cloud. The conclusion was that downstream of the mountain, even in clear air, the air itself might be rebounding in a wave-like form.

By now I was directly opposite the eastern face of the mountain, the width of the Tasman ravine away from it. I took a hasty

photograph and then decided to fly straight at it.

Not many years ago, to fly at an obvious downcurrent pouring down the face of a mountain in the middle of inaccessible peaks would have been regarded as a suicidal act, but sailplane pilots go on learning about the air, and on this occasion my analysis proved correct, for about two miles from it I flew into another wave, and this time far stronger than my previous one. The rate-of-climb indicator moved smoothly up to 20 feet a second, and the majestic mountain started to shrink below me like Alice in Wonderland with her toadstool.

The view expanded in all directions. To the west, an unbroken sheet of cloud with, beyond it, a glimpse of the sea. Below me, to the south-east, the whole Mackenzie basin lay like a huge, oval irregular brown frying-pan; beyond it to the east, the country sloping down to the sea, visible 100 miles or more away. To the north-east, endless snow-clad peaks and glaciers peering out of the edge of the cloud-sheet. Overhead, nothing but cloudless blinding blue.

The altimeter wound itself up to 20,000 feet, then 25,000 feet, and I moved up almost directly over the big mountain, now sadly diminished in size, the Weihe hanging apparently stationary in smooth space, facing into wind. I tried the controls to see if increasing stiffness might be apparent, due to the grease freezing or control-cables shortening in the cold; but packed with anti-freeze grease, they seemed entirely unaffected.

The cold—suddenly I became aware of it, and then was amazed that I had not felt it before. For I had taken-off clad for the heat of mid-summer, and was wearing nothing but an open-necked cotton shirt,

Two miles from the face of Mt. Cook. Notice the waterfall cloud effect which gave the first hint that a wave might be present

grey flannel trousers, a sports coat, light city walking shoes and a pair of thin nylon socks.

This rather dreary sartorial revelation now became a major factor in my future course of action, although I later discovered that my increasing numbness was being assisted by the fact that I did not fully understand Dick's oxygen system, and so was considerably under-feeding myself with oxygen.

About now I began to feel rather vulgar stomach pains, caused by the expansion of the stomachic gases in the low pressures of this high air. I began to wonder when to leave off.

Twenty-eight thousand feet above sea-level, and still going up. I had long ago broken both the British gain-of-height and absolute altitude records. Well, let's go for the height of Mount Everest. Twenty-nine thousand: done it. What about the round thirty thousand? Probably, fortunately, I forgot that at 33,000 feet the World gain-of-height record would be mine.

A number of small, sharp splintering sounds from the thin Perspex canopy of the cockpit made me sit up; it was showing signs of cracking, due to contraction in the cold. Supposing it cracked enough to break up?

The possibilities after that were uniformly dreary in the extreme. In my light clothes, I could stay in the machine, but I could not hope to lose height nearly fast enough to avoid being overcome by the cold long before I got down to a safe height. I could jump overboard with my parachute. This would mean leaving my oxygen supply, and I would then have a few seconds before losing consciousness. If I pulled the rip-cord at once, my rate of descent would be so slow that I would be frozen as stiff as a log long before I reached the ground. If I left it folded, I might expect to come round again around 10,000 feet, but it would take at least two minutes falling free to lose the four miles down to this height, and I would by then be far too frost-bitten to have any fingers left for pulling the rip-cord, if I hadn't already hit a mountain top.

The spectacle I presented was, in retrospect, not without its funny side. A very dusty middle-aged gentleman, in light summer clothes, nursing an uncomfortably bloated and borborygmal stomach, suspended in space in a small, thin, plywood cigar at a height considerably greater than Mount Everest (for the altimeter now showed we were approaching 30,000 feet), staring anxiously at a miserably thin bit of celluloid-like sheet a few inches in front of his face, which had almost certainly never been selected with a view to carrying such an onerous responsibility as that of preserving him from a rapid end by deep-freezing. The outside temperature was around 50 degrees of frost.

This is 20th-century fun with a vengeance.

With quite a sharp bang a 3-inch crack suddenly appeared just in front of my nose, and I came out of my reverie with a start. This was the signal for home. I turned down-wind, the rate-of-climb indicator swung to "down" and we were on our way.

The inside of the cockpit cover misted over with frost, and I put out my bare fingers to scrape a patch clear. My fingers stuck lightly to the transparent panel, and I felt as if they were being burnt. I snatched them away and rubbed them in the palm of my hand.

I put out my air-brakes to hasten my descent, but found that, even at 60 m.p.h. on the clock, I hardly seemed to be moving. As I had 45 miles to get back to base, I put them in again and put up my speed to 75 m.p.h., which must have been a true airspeed of around 150 m.p.h. At last we moved back into the downward part of the wave, and began to lose height at a round speed. My feet were lumps of ice. I took them off the pedals and left the rudder to itself and stamped a small tattoo on the floor of the cockpit.

Slowly we edged our way home, and at last we were down to 10,000 feet. I turned off the oxygen and took off the mask with a sigh of relief. There was the landing field, Dick and Helen still waiting patiently by the silver trailer. I had been away nearly four hours; it seemed longer.

I landed, still cold in my bones, but very, very happy.

Had the barograph worked? Glory be, it had. My lucky day.

The height achieved has now been officially confirmed as 30,400 feet Absolute Altitude, 28,200 feet Gain of Height—both British records.

Reproduced by courtesy of 'The Aeroplane'

Two Greif Gliders

GREIF Flugzeugbau, which has an office in Hamburg and a glider factory at Rendsburg on the Kiel Canal, turns out machines of its own design as well as the Grunau Baby IIb and III. Two of them are illustrated here—the Greif I in the air and the Greif V on the ground.

Greif I is a training single-seater sailplane which, the makers say, can be neither stalled nor spun, and can be flown at less than 28 m.p.h. It has spoilers, and adjustable pedals. The main planes, rudder and elevators are of wood, fabric-covered, and the fin and stabilizer plywood-covered; the fuselage framework is of steel tubing and the tail boom of dural. Other features are seen on the photograph.

Greif V is a two-seater school trainer, flyable as a single-seater, and is claimed to be foolproof. Elevator and aileron controls are worked by rods, so it is impossible to connect them up wrongly. A nacelle is provided for the seats. The wings have $7\frac{1}{2}°$ sweep forward and 2° dihedral angle; as they are of cantilever type, the machine can be rigged in 10 minutes.

Particulars given by the makers are:—

	Greif I	Greif V
Span (ft : ins.)	42 : 8	42 : 8
Wing area (sq. ft.)	140	226
Weight empty (lbs.)	265	463
All-up weight (lbs.)	463	860
Loading (lb./sq. ft.)	3.38	3.79
Safety factor	8	8
Gliding ratio	1 : 24	1 : 14
Sink (ft. : ins./sec.)	2 : $2\frac{3}{4}$	3 : 7
Price (U.S. dollars)	1,425	1,300

Other Greif models are: Greif II, aerobatic single-seater; Greif III, high-performance training two-seater.

Below—Greif V.

Right—Greif I.

News from Switzerland

by Alan H. Yates

The Elfe III

DURING the meeting of the O.S.T.I.V. Bureau in Zürich in March 1955, a visit was paid by Boris Cijan and Alan Yates to Birrfeld, thirty miles from Zürich, to see the latest Swiss sailplane, Elfe III. They were accompanied by "Pirat" Gehriger, Chairman of the F.A.I. Gliding Commission and Secretary of the Swiss Aero Club. At Birrfeld, a small grass airfield with hangars, workshop and restaurant, is the Club of the Academic Flight Group of Zürich's famous Technische Hochschule. The hangars contained eight sailplanes and nearly as many light aeroplane tugs. The main object of interest was the new Elfe III, a magnificent single-seater of latest design.

The Elfe III has a span of 16 m. (52 ft. 6 ins.) and an aspect ratio of 21. The centre section of the wing, 9 m. in span (29 ft. 6 ins.) is placed on the fuselage in one piece; each outer wing and aileron (3.5 m.) is added later. The wing has a full-span flap-cum-aileron which has a constant chord of only 7 inches. The flaps can be lowered as a whole for slow flying but they also act as full-span ailerons—the outer part deflecting more than the inner part. The aerofoil section was developed by the designer, Pfenninger, and is a laminar-flow section with its greatest thickness as far back as 60 per cent of the chord. The wing is 14 per cent thick at the root and about 12 per cent at the outer wing junction. The whole of the wing, back to the tiny flap/aileron, is ply-covered and magnificently free from waves. Dive brakes emerge well back from both surfaces of the wings and are thus unlikely to upset the laminar boundary layer.

The fuselage is slender and the cockpit very shallow. The owner, Max Schachenmann, is small enough to be comfortable, but Guido Schaefer, who flew it on the occasion of our visit, is taller and looked cramped. The fuselage is very long but the tail surfaces looked very small indeed. The rudder and elevator chords do not exceed 7 ins. The landing gear consists of a retractable wheel and tail skid; there is no nose skid at all. To prevent nosing over on landing, the wheel is set well forward of the centre of gravity. This results in a considerable weight on the tail skid (a trolley is needed for ground handling) and could lead to difficulties in directional control on landing. The cockpit is comprehensively equipped. The control levers include flaps, dive brakes, trimmer, wheel retraction, wheel brake and rudder pedal adjustment. Radio and oxygen are installed.

Guido Schaefer was aero-towed to 2,500 ft. on a demonstration flight which he ended with a "low pass" at 140 m.p.h. The stalling speed is reported to be 45 m.p.h. with flaps down and 55 m.p.h. with flaps neutral. The dive brakes looked very effective and the landing was straightforward. Each wing tip clears the ground by less than three feet, so that care in take-off and landing is essential. In flight the rolling performance looked good, a bank reversal 45° to 45° taking about three seconds only. Circling in thermals did not appear easy, however. Corrections with the rudder and aileron were frequently made and it seems probable that a greater tail surface would add usefully to directional and longitudinal stability.

Some forty flights and thirty hours have so far been flown, and the gliding ratio is said to be better than 35.

WLM II Improvements

The elegant Elfe III was built at Wildegg, near Birrfeld, by Rudolf Sägesser, who also constructed the WLM II. It will be remembered that the latter was flown by Gehriger at Camphill in the 1954 World Championships. Its handling qualities were unsatisfactory and he withdrew from the contest. The WLM II has been modified at Wildegg and will be flying again at Easter. To improve stability, the fuselage has been altered by removing nearly one foot in front of the tailplane and moving the cockpit forward by a similar length. A new rudder has been built and the ailerons lightened by changing from ply covering to fabric.

News of the Fauvel

The tailless Fauvel AV 36 has now been tested in several countries. The criticisms concerning the landing, arising from the short "wheelbase", have been echoed in other countries. Another difficulty is that of trimming when the pilot is on the heavy

side: as in all tailless aircraft, the permissible C.G. range is very small.

In order to reduce the danger from the V-tow if one side releases the other, the apex of the V must include a pulley. There is then no danger of spinning from the release as happened on one occasion in Germany. That the Fauvel is not the simplest of sailplanes to fly is shown by the current French ruling of thirty landings or five hours in other single-seaters before flying the Fauvel.

Breguet 901

This elegant sailplane, in which Pierre became the 1954 World Champion, is in production in France. Breguet proposes to build sixty in three years—says M. Bonneau.

The cost will be high unless there is some subsidy. Bonneau thought it should be available for less than £2,000, but the Dutch government sought to buy one and were quoted £4,000! The latter is probably nearer the economic cost, but all depends on whether the French government is prepared to cover the costs of tooling in the cost of those they have ordered themselves.

Correspondence

Statistics

Sir,

I feel sure that Dr. Machin will be relieved to know, in reply to his interesting letter in your Spring number, that I have been given a new Slide Rule for Easter. The moving part is egg-shaped, whilst the fixed part containing it is constructed of a transparent elastic material, so that the movements of the egg-shaped slide can be accommodated. With the aid of this instrument remarkable calculations are possible.

As an example, it is abundantly clear that the number of launches achieved by any gliding organisation are not necessarily any measure either of its efficiency or even of the amount of flying it has done. It measures effort expended, or, if you prefer a mechanical analogy, fuel supplied to the engine. I agree whole-heartedly with Dr. Machin that what we want to measure is achievement; and since nobody has really managed to devise any system to avoid measurement by examinations and proficiency tests, I know of no better measure of proficiency and achievement than that represented by the gaining of the various gliding qualifications represented by the badges A to Gold and Diamond C. (You will here perceive that I disagree fundamentally with the views expressed on page 38 of the Spring number by one of my own Clubs. This is clearly an example of democracy!)

With this idea in mind, the Royal Air Force Gliding and Soaring Association have decided this year to make their annual awards to Royal Air Force Gliding and Soaring Association Clubs on the basis of Certificates gained by Club Members during the year. As a first attempt, we have devised a points system by which each Club is awarded:—

For each	A	1 point
,, ,,	B	3 points
,, ,,	C	15 ,,
,, ,,	Silver C leg	30 ,,
,, ,,	Gold C leg	60 ,,

The value of each Certificate or leg was arrived at by examination of the proportions gained by civilian clubs in this country during 1954.

I agree thoroughly with the ideas expressed by Dr. Machin, and would be most interested (and grateful) for any views or comments on the scheme now being tried by the Royal Air Force Glidng and Soaring Association.

CHRISTOPHER PAUL,
Air Cdr. R.A.F.

Central Flying School,
R.A.F. Little Rissington,
Glos.

Highest in the Commonwealth

Dear Sir,

As a South African, I must object to the title of the article on page 155 of Volume 5, No. 4, Winter edition. Perhaps the flight to 39,500 odd feet over Johannesburg by R. Comte (supported by Peravia Barograph ads.) qualifies as having left the Commonwealth.

What do you think?

R. LILIENFELD.

Johannesburg

[Objection upheld. It should have been described as the highest in the Commonwealth by a British pilot—unless René Comte had acquired South African nationality as well as being Swiss and having flown for the United States in the 1950 World Championship.—ED.]

Club & Association News

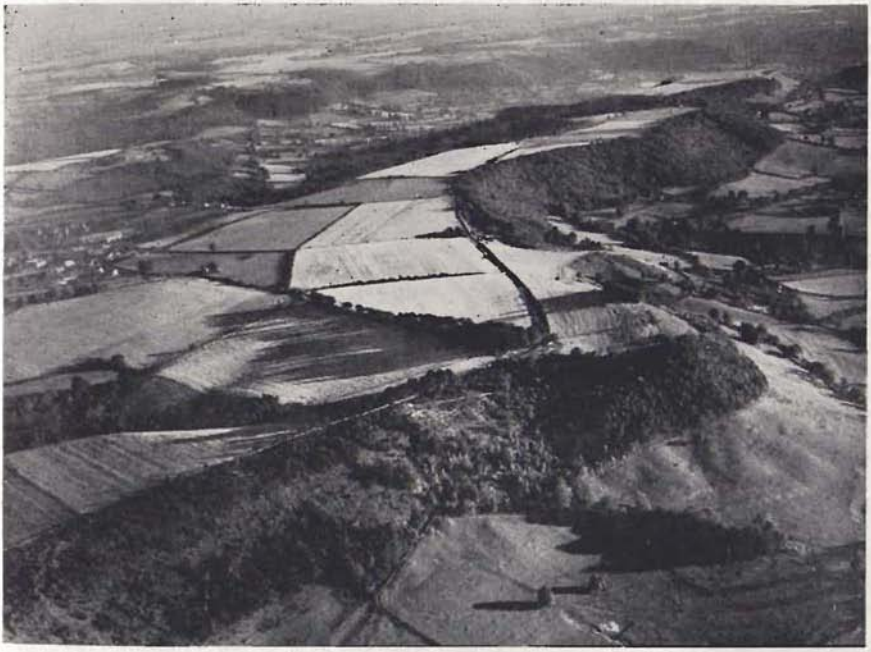
Bristol Gliding Club

THIS year has started well. Everyone is full of enthusiasm and we feel the club has never had such a rosy future. Nympsfield is now ours, and although we will not be operating there this year and there is much hard labour in front of us, this site, our first permanent home, appears to offer so much.

Our first task on taking over the land—ploughing and seeding with a high-grade grass mixture—is well under way. Plans are being prepared for the conversion of the 100 ft. long barn into the clubhouse and workshop, and the search for a hangar is on.

The main winch-runs have been plotted and are: 4,050 ft. W.S.W., 2,400 ft. W.N.W., and 1,800 ft. N.E. Launch heights of 1,200-1,400 ft. were obtained in quite moderate wind strengths during our early investigation of the site with Prefect and Olympia.

That Nympsfield will possibly become a true West of England soaring centre and put gliding within the reach of a considerable number of people in the Gloucester, Cheltenham and Swindon areas, is already



An aerial view of the Bristol Club's new site at Nympsfield, near Stroud, looking S.S.W. The nearest escarpment faces N.N.W., and the West slope is round the first corner. On the far side of the plateau is a S.E. slope. The triangular bit of field near the bottom left corner is part of the club's launching ground and will form the end of the N.E./S.W. runway; the greater part of the field is out of the picture to the left. To the right, the ground continues to slope gradually down to the River Severn

being shown by the number of enquiries we have had from these districts recently.

Compared with last summer, Lulsgate has produced a remarkable number of soaring days already this year. The first batch of thermals arrived on March 13th and produced a C certificate. On March 20th Arthur Bound-Pearce flew the Prefect for 55 mins. and obtained his Silver C height leg with a climb in "dry" thermals to 4,970 ft. a.s.l.

The Easter camp, held at Lulsgate for the first time since 1949, saw several pilots introduced to aero-tows. On the fourth day wave clouds formed to the west of Lulsgate and Derek Stowe managed to contact weak lift in the Prefect; he flew for 37 mins. and reached 2,300 ft. a.s.l.

Many long flights were made on April 17th by T-21, Red and Blue Olympias and Prefect. Late in the afternoon members were surprised to see a third Olympia in the circuit which proved to be Noel Anson from Dunstable.

Another good day for local thermal flying was April 24th; no great heights were obtained, due to an inversion at 4,000 ft., but good times were recorded, such as Doug Jones's two flights of 89 mins. and 98 mins. in the syndicate-rebuilt Red Olympia.

All the thermals at Lulsgate until May 7th provided practice for old and new hands alike, then the two Olympias went away; one flown by Tom Parkes reached R.A.F. Benson, 72 miles away, and the other by Mike Hodgson was taken to the Naval Station at Culham (68 miles). The two pilots landed within five mins. and a few miles of each other. During his flight, Parkes reached 5,800 ft. a.s.l., so gaining his height and distance legs for Silver C.

The next day, Sunday, saw the Mendip wave contacted well and truly for the first time in club history. Derek Stowe in the club Olympia reached 9,500 ft. a.s.l. and flew for 2 hrs. 8 mins. before general clouding over forced him to return to the airfield with brakes out.

The following Saturday, May 14th, Mike Garnett, flying the syndicate Olympia, broke the club distance record with his flight of 138 miles to Chignal Smealey in Essex. This was his first cross-country since his Silver C distance and was carried out in the excellent time of 3 hrs. 11 mins.

Up to the time of writing, two more cross-countries have been flown from Lulsgate. On May 21st John Daniel made an attempt on his Silver C distance, landing at Yeovil aerodrome after covering 49.3 kilometers. The same day Derek Stowe went to Seaton (50 miles) in the Blue Olympia after crossing the coast at 4,000 ft. over Lyme Regis.

To date, we have gained one A and 13 B certificates, five C and three Silver C legs; also our summer courses are nearly completely booked up: thus we are very happy about this year so far.

A.B.P.

Blackpool and Fylde

WE have now exceeded 500 launches since gliding was resumed last October and at least 15 members are more or less ready for their first solo. Unfortunately we have no solo aircraft with a C. of A., as Fred Breeze is no longer available.

We have experienced several interesting thermal flights with the T-21b, mostly over the beach, but in an east wind. Unfortunately, as all circuits take the power aircraft the quickest way over Blackpool on account of pleasure flying, we, who have to do the opposite circuit, always go the opposite direction over a golf course and grass lands and so miss the very useful thermals that take off from the centre of the town.

Sunday, May 29th, saw the arrival of an Olympia from Camphill piloted by Lawrence Robertson. This is the first glider landing at Blackpool from a cross-country flight. Mr. Robertson reported very strong thermal activity over Blackpool. As there was little wind we were unable to launch higher than 600-700 feet, which proved to be insufficient to contact anything useful.

J.S.A.

The Moonrakers (R.A.F.)

THE Club has now been in operation for over four years and has seen many gliding sites. The present site is at R.A.F. Lyneham, where gliding takes place every week-end and, during the summer months, on Wednesday afternoons and in the evenings. Gliding facilities are provided for six Royal Air Force Stations in the Wiltshire area, namely, Lyneham, Compton Bassett, Melksham, Colerne, Hullavington, and Yatesbury. The Club is affiliated to the Royal Air Force Gliding and Soaring

Association and is one of its larger area clubs.

During 1954 the Club flew a total of 1,988 launches comprising 164 hours, The aircraft is the Gull IV.

A Summer Camp is being held at R.A.F. Station Netheravon from May 25th to June 1st.

CROSS-COUNTRY FLIGHTS FROM LYNEHAM

To	*Max. Ht. feet*	*Distance miles*	*Duration hrs. mins.*	*Pilot*	*Aircraft*
Upper Milton Wells	3,700	34	2 9	A. C. Brimfield	Tutor
Filton (Bristol)	3,700	25	1 15	F./O. Ord	Gull IV
Oundle (Peterborough)	9,500	95	2 50	Flg. Off. Fitzroy	Gull IV
Theale (Reading)	4,200	40	1 30	Flt.-Lt. Morris	Gull IV

trained 9 members to B Certificate standard and 2 to C standard. In our Gull IV, one cross-country flight was made from Lyneham to Whitchurch, 27 miles, by Corporal Technician Paddick of Lyneham, who took 2 hours 1 minute.

This year the Club has already gained more certificates than were obtained during the whole of last year, having trained 11 members to B and 4 to C standard. The Club is well up compared with this time last year, having flown, at the time of writing, 1,334 launches comprising 105 hours.

The Club has available a T-31 two-seater, two Cadets, two Tutors, a Gull 1, and a Gull IV; it is hoped to add a Grunau to this list of aircraft in the near future. Two winches are in operation: the second has been made up from an old chassis and the engine out of an old retrieving truck. A Beaverette is used for retrieving and general work and a Ford Shooting Brake for road retrieves. Four members have flown cross-countries to date; details are shown below.

A Hamilcar Glider has been most appropriately converted into a workshop by the Club members. A work bench equipped with all the necessary tools has been installed and it is possible to open the nose of the Hamilcar to admit any one of the Club's gliders when they require repairing or to enable the Club's Engineer, Chief Technician Owens, to carry out inspections.

A team has entered for the National Gliding Championships this year; it will be: Flying Officer Fitzroy (Captain) of Lyneham, Flight Lieutenant Morris, Chief Technician Owens, both of Lyneham, Flying Officer Ord of Compton Bassett and, Corporal Technician Wells of Melksham.

At the moment the Club has a membership of 86; these are all representative of the six member stations and are made up of 8 Officers, 6 Senior N.C.O.'s and 72 Airmen. There are no W.R.A.F. members as there is no accommodation for them at Lyneham. Flight-Lieutenant Morris is the Club C.F.I. and there are five other instructors available.

F.E.O.

Surrey, Imperial College and Army

THE most notable trip so far this year has been Lorne Welch's return to Brussels, accompanied this time by Frank Irving, and flying the Slingsby T-42 "Eagle". The flight took place on Saturday, May 14th, and they were retrieved the next day by the C.F.I., Derek Piggott, who left Lasham at 05.30 in the Tiger, returning with the Eagle just as it was getting dark. On the same day Tony Deane-Drummond reached 19,000 feet in his own Olympia over Kent, and Wally Kahn went to Hawkinge (95 miles).

Other cross-countries this year have included Rika Harwood's to Snave in Kent (84 miles), which gained for her (temporaly) the Women's British National and U.K. Local distance records; this has been eclipsed by Anne Burns's last Sunday, June 5th, to Ternhill in Shropshire, well over 130 miles. On the same day Jeremy Brock who, like Anne, was on his first cross-country, went to Shawbury, about five miles from Ternhill; Malcolm Laurie and Tony Deane-Drummond both landed near Banbury (68 and 60 miles respectively); Bill Tonkyn reached Castle Combe near Chippenham in the Weihe (50); and Mr. and Mrs. Kahn visited Kidlington in the Eagle (47). While these gliders were away, "Mac" Mackenzie did his five hours in

thermals over Lasham, and the day was also memorable in that a member emerging from the bunkhouse at 05.00 saw an Olympia being launched.

Other trips not mentioned have been Lorne's attempt at the large tr angle (Lasham-Romsey-Newbury-Lasham) in the Eagle (but unluckily he had to land three miles short on the last leg); Bill Lydiard's to Lympne (92); Frank Irving's to Leigh, near Tonbridge, in the Kite II (56); and Paul Minton's to Westerham (43), completing his Silver C. Also John Neilan's to Devon (143).

The aircraft situation has recently improved, as we now have four Olympias, the Club having purchased the Laurie/Neilan one, which has been named MambO. Two of the Skylarks have been delivered, and the third should be along by August. Apart from these the three T-21's have been on routine circuits, interspersed with soaring where possible.

Private owners are also active, and as well as the Deane-Drummond/Karran Olympia, there is now a pale blue one owned by Dennis and Anne Burns. The Druid crowd have sold the "Druid" (see their article in the last issue of GLIDING) and have bought a Petrel from the Mynd with the proceeds, and Charles Dorman's Olympia now belongs to Wally, Cliff Dowdall and Dave Scallon. Various privately-owned Skylarks are expected.

"Prometheus", the Army's two-drum winch, as modified by David Martlew, is now fully operational and we have been using four winch lines on recent week-ends. The two tow-cars keep going, thanks to the work of the M.T. Committee, but there is the possibility of a more suitable vehicle with 132 h.p. and automatic transmission.

The catering run by Bunny and Ella Rawlinson is the best the Club has known, and they are using an ex-NAAFI caravan to serve cold drinks, etc., at the launching point. The dining room has been completely panelled mainly by Bunny Austin, and the lounge, formerly a workshop, is just about ready for use. The only blot is the sanitation, which remains primitive, but improvements are promised.

Preparations are going on for the Nationals, including the building of a three-strand barbed-wire fence all the way along the north edge of the airfield, 1,800 yards, and it is hoped that the Championships will be both interesting and pleasant for the competitors.

Derbyshire and Lancashire

EARLY this year (when the snow lay round about, crisp, very deep, and uneven) the Club sat back to take stock of 1954, and make plans for 1955.

As many people from many parts of the world will remember, 1954 was a very wet year in England, not least the latter part of July and the beginning of August. From the Club point of view it was the worst weather year for gliding that anyone can remember, and flying figures suffered accordingly. More serious was the widespread damage to the ground caused by the heavy traffic during the Internationals, large areas of grass being churned into quagmire. Much work has gone into making good this damage, levelling and re-seeding; together with the removal earlier in the year of the notorious wall-roots; this has produced a surface to the flying field which even the softest-bottomed Olympia need not fear.

The Diesel winch, after some teething troubles, has proved a great success, handling with great ease launches (of machines of the weight range usual in England) into winds anywhere from N.W. to S.W. A two-drum winch is nearing completion, the older winches continue to serve, and a Ferguson tractor is a valuable addition to the Club's transport.

With no championship being held here to utilise the members' surplus energies and help our finances, it was decided that a series of eight Summer Training Courses for non-members should be arranged, and by the time of writing every course is booked fully with a varied assortment of candidates from all over the U.K. The usual month's A.T.C. camp, at which relays of cadets gain hill-soaring experience, is also arranged.

The Club has decided to buy a Skylark II. A private-owner group has already taken delivery of one, having passed many snowy week-ends building a trailer for it. This had its first outing on a trip to Clwyd Gate, together with the Sky and an Olympia (also privately owned) for the week-end starting May 21. Unfortunately the weather, though unrivalled for sight-seeing, was not ideal for soaring the Clywd range.

The year has started well for cross-country flights. On April 9th Ernest Martin

got his Silver C distance with his first cross-country to Holbeach, 82 miles. On April 24th Mick Kaye went on a "blue thermal" day to Ashbourne, 25 miles. George Whittaker got his Silver C with a flight on April 30th to Sherburn-in-Elmet, 40 miles, while Keith Johnston got his Silver C with a flight on May 7th to Littleport, 104 miles.

During the Whitsun week-end there were three flights, again done largely in "blue thermals" with easterly winds. L. R. Robertson became the first to achieve a flight from Camphill to Blackpool, arriving with height enough for a loop or two over the Tower before landing at Squire's Gate, a distance of 65 miles over country usually regarded as markedly anti-thermal. Before the war the *Manchester Daily Dispatch* offered a prize of £100 to the first pilot to achieve this particular flight. Robertson awaits with interest the decision whether this offer is still valid (it has been awarded —ED.). The same day, May 29th, Mick Kaye had the same idea, and might well have landed at Squire's Gate soon after Robertson, but for the unaccountable disappearance of one of the maps normally kept in the machine. He reached Preston, about 12 miles short of the target, with some 6,000 ft. in hand, but being by then off the map, decided to land at Salmsbury, 50 miles from Camphill; thick haze made visibility poor, and Blackpool Tower could not be seen.

The six flights mentioned were all made in Olympias. On May 30th, in very similar conditions, Ken Blake made a cross-wind flight of 34 miles to Rothwell (between Wakefield and Leeds) in the Skylark II.

Recently the Club has engaged H. Page as full-time Ground Engineer. He has had a lot of soaring experience while stationed in Germany in the R.A.F. and it is hoped that he will in due course become qualified as an instructor and be able to help, when necessary, with training.

A.H.B.

Isle of Wight

OUR Chairman, Mr. R. B. Stratton, has attended an Instructors' Course (during which he gained a 'C') and a concession has been granted by the B.G.A. so that we may use dual training. This concession is for one year, and in this time we must train an instructor up to the B-2 standard.

Despite the high cost involved we hope to be able to purchase a T-21. We do not yet intend to obtain better solo machines in place of our Cadets, so the T-21 would also be used for soaring experience. A second Cadet is being overhauled for C. of A. and a few modifications may be introduced in an attempt to improve the performance.

Since we started flying on January 30th we have made about 300 launches, including slides and hops. However, it has been decided to discontinue training until we obtain a two-seater.

The modifications to our ex-fire engine are progressing slowly; the winch drum is fitted and only awaits cable rollers to be ready for trials.

T.R.B.

Southdown

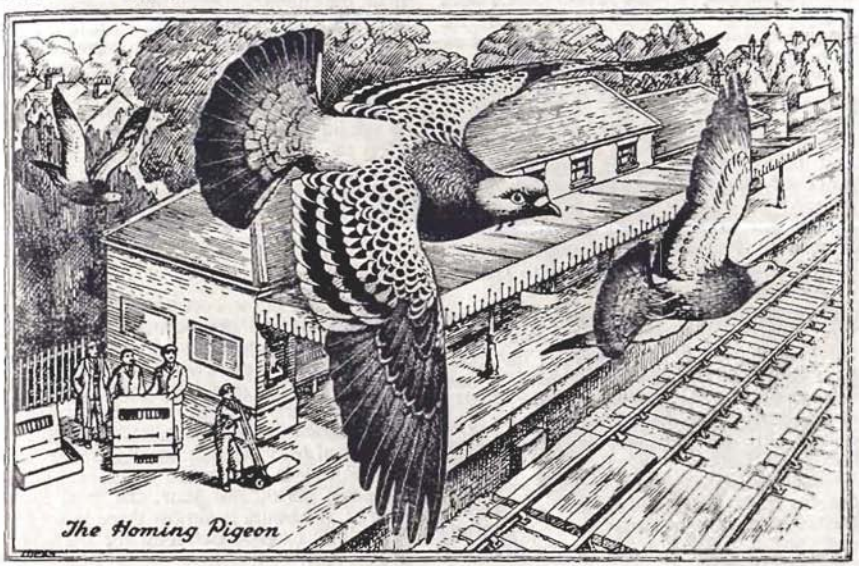
AFTER nine years of successful flying, operations at our Friston site, near Beachy Head, ended in March this year, when our tenancy of the field was brought to a close. We were fortunate, however, in being able to continue flying without interruption, as after an extensive search for a new site, we received permission to fly at Firle, on the Downs about ten miles inland and north-west of Friston.

Our new site is at the top of Bo-Peep Hill, which climbs the Downs on the south side of the main Lewes-Eastbourne road, at Selmeston. The land is owned by Lord Gage, who was an enthusiastic supporter of the first gliding meetings which were held in this country at Firle in 1922 and 1930. We have not only been very generously allowed to fly from this site, but we are hopeful that security of tenure for a number of years will also be given.

The folk in the area of Firle often speak of the earlier meetings held there and are very friendly and helpful. In particular we are indebted to a farmer, Mr. Thompson, who allows us the use of his granary as a clubhouse and parking area for our trailers and equipment. Another farmer, Mr. Phillips, has been immensely helpful, and as well as accommodating our T-21b in his Dutch barn, has been actively helping in the development of the site.

This development, which is already under way, involves the erection on the flying field of a hut which initially will hangar de-rigged aircraft and will later become our permanent clubhouse. Planning permission

Problems of flight

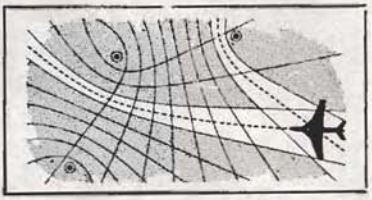


ON THE BEAM

By flying down a beam pilots can come into an airfield they cannot see and could not possibly find. With this invaluable technique man has rediscovered a gift he may once — long ago — have had: one that many creatures have in highly developed, highly efficient form.

Butterflies cross seas and make safe landfalls; the Chinook salmon swims oceans and returns, infallibly, to the very pool of the very river in which he was born; a pair of finches divide their year, season after season, in a particular bush in an English garden and another in a North African orchard. Most astonishing of all, the homing pigeon can be taken in any direction, for any distance, and after a turn or two in the air will fly unhesitatingly straight for home.

How does the pigeon do it? We do not know. We may never know. It is not sight, nor smell. If it is sense of direction, this must be developed to a degree of sensitive infallibility which puts it clear beyond human understanding. We can only say that—like hundreds of kinds of migratory creatures — the pigeon feels some mysterious, unmistakable pull towards home: that he senses some "radio beam" that gives him his direction.



Though we may never know the mechanics of the homing pigeon's "beam", we imitate its effects. Landing under any but the best daylight conditions can be difficult indeed without this navigational aid we have copied from Nature.

Pilots who come in to land on a beam or off it, have come to value, at all Britain's major airfields, the excellent and helpful service of the Shell and BP Aviation Service.

SHELL and BP AVIATION SERVICE

Shell-Mex and B.P. Ltd., Shell-Mex House, Strand, London, W.C.2
Distributors in the United Kingdom for the Shell, BP and Eagle Groups

for the erection of a hangar has already been given, and we hope to commence work on this after completion of the hut; the financial obstacle is a worrying one, but we hope it will not be insurmountable.

Whilst we have had only two months of operations at Firle, the site is proving to be a very good and interesting one. It provides an extensive north-facing slope, which, for high-performance aircraft, enables a distance of 50 miles west from Firle to be covered on hill lift alone. Chris Hughes earlier this year flew 49½ miles along the Downs to Petersfield, and this has since been followed by a 41 mile flight to Didling by John Holder.

A number of thermal flights, which were rare events at Friston, have already been enjoyed at Firle. The Olympia has been over 2,000 ft. on several occasions, and George Constable reached 4,100 ft. (4,712 a.s.l.) during the Easter week-end. The Tutors have also been reaching new heights, and Dick Vanson reached Silver C height by gaining 3,600 ft. from a bungey launch. On the flight he was accompanied by Bob Barnes in the other Tutor to 3,400 ft., but, unfortunately for Bob, the barograph was temperamental.

Lifting a fuselage into the Southdown Club's workshop.

We have now had experience of flying from the site in all wind directions, and it is proving to be an operational site under all conditions. Training has continued, and Roy Exell's polished solo flights on May 30th proved that dew-ponds, the odd tumuli, and slopes which are a little unusual to the unitiated, need be no deterrent.

At the end of May the hours flown were over 125, which doubles the figures for 1954 at Friston; and these were obtained from about half the number of launches.

R.M.

Coventry

SINCE our latest account was published the Club has been transformed almost beyond recognition. More and better aircraft, more keen members, good flying weather and the growing experience of our older members have all led to a surprising improvement in our flying statistics. Up to the end of May the number of launches this year, 2,040, is over twice that obtained in the same period last year; the total flying time of 310 hours is almost three times last year's and exceeds the total for the whole of last year.

Things really began to look up in the middle of February when Vic Carr brought the Leicester Club's Olympia from Dunstable to take up residence at Baginton. In spite of the snows a number of short soaring flights were made, including one of 25 minutes by Joss in thermals streaming off the aircraft works while the snow was four or five inches deep on the field. Hogging began in earnest on March 19th, when Vic Carr completed his Silver C with a trip to R.A.F. Halton by way of Oxford, 51 miles direct, 84 along his actual route. On the same day, Gerry Harrison earned his C with an hour's flight in the Viking, reaching 4,800 feet, but without a barograph, and John Quick and Cathy Liquorish obtained their C's in the Tutor, the latter on her third solo.

On April 9th, C.F.I. George Thompson, who needs only his distance for his Gold C, put in some practice by flying to Lympne, 140 miles, in just under five hours, while Peter Folkes in the Viking and Jimmy Joss in Dr. Gregg's Olympia both just failed to get Silver C height.

An agreement having been recently signed with the Air Ministry for the use of the aerodrome on Edge Hill, a fresh north-west wind on Easter Monday provided an

opportunity for trying out the merits of the soaring slope. The Club Olympia and Dr. Gregg's Olympia were taken, and between them 9½ hours' soaring was put in. This, with the flying at Baginton, set a new record of 14½ hours in one day.

April 24th was undoubtedly the best soaring day the Club has known. Gerry Harrison earned his Silver C height and duration with a flight over Baginton in the Olympia lasting 5¾ hours, reaching 5,000 ft. Laurie Fletcher also qualified for his Silver C altitude leg with a flight to 5,000 ft. in the Viking. Alan King, who had taken his A and B the previous day, earned his C with a flight in the Tutor to 3,100 ft., and Ken Darby his C with a 51-minute flight reaching 2,800 ft. The T-21 also made several soaring flights to around 5,000 ft. and put in time on aero-tow instruction. Totals for the day of 84 launches and 27 hours far surpassed all previous records.

On April 30th, Jimmy Joss, after a difficult start, flew the Club Olympia to Newton, near Nottingham, obtaining both distance and height legs for Silver C.

Our first visit by air from another club was on May 7th, when John Anstey of the Midland Club arrived in the red Skylark; Baginton had been his intended goal.

One of our zealous Silver C aspirants, Peter Folkes, had two attempts on consecutive week-ends, May 14th and 21st, covering 25 and 29 miles respectively; the next flight in the series should just get him in.

The week-end of May 21st-22nd saw our first occasion as hosts to a party of visitors; they were a small group from Lasham who joined in the Club activities with enthusiasm and considerably helped to strengthen the bond of fellowship between the two clubs. The Sunday produced an all-time Club record of 102 launches in the day, all with one single-drum winch.

Whitsun holiday was not as spectacular as had been hoped. Sunday was, however, quite a good day and George Thompson decided to have a shot at his Gold C distance in the Viking; unfortunately he got a rather late start and, being pressed for time, he had to take more chances and was forced to land 150 miles short of his Cornish destination. He touched down on a cricket pitch at Evesham five minutes before the match was due to start. The same day John Quick made Silver C height with 4,750 ft. in the Club Olympia, during which his compass became temperamental and caused him to land at R.A.F. Honiley. The Club Tutor was taken up to 4,000 ft. by John Graham and Ray Ashworth made a C flight in the Tutor reaching 2,800 feet.

If the Club can maintain its present rate of progress and at the same time get through all the other work which has to be done, especially the building of the workshop and the two-drum winch, the end of the year should see us well established on the road which the smaller clubs like ourselves know as the struggle for existence. Meanwhile we can look back with some pride on the first five months of the year: 8 A, 8 B, 15 C and 7 Silver C legs.

Fenland (R.A.F.)

IN spite of the rather discouraging weather at the beginning of the year, by May 24th we had done 1,380 launches and 116 hours 21 mins. flying, and gained 11 A, 8 B and 11 C Certificates.

Our transport is now in a much better shape after a comprehensive overhaul by Flg.-Off. V. Becker and Mr. Barsby, and we have purchased a tractor. This will leave the jeep free to retrieve cross-country flights, and will also effect a great economy on fuel.

The Club aircraft are now in excellent shape, and the Gull I (ex G. H. Stephenson) has now been fitted with an electric turn-and-slip.

We are now seeing more of the members from surrounding stations, and are very pleased to have two American members from the U.S.A.F. base at Lakenheath. One of them, Sgt. Conant, has just gained his C Certificate with a climb of 1,100 ft.

Two members, Flg.-Off. V. Becker and Cpl. Nicholson, have attended courses at the Home Command Glider Instructors' School at Detling.

On Saturday, March 12th, Mr. Tanner, a Met. Officer on the station, gained his C Certificate on a day when the presence of thermals was highly improbable. Some theorising and a look at the map leads us to believe that he has, in fact, discovered a small wave. To the north-east of the airfield is a small ridge of not more than 100 feet in height, and the strong north-easterly wind on that day produced lift which was very similar to wave lift. Unfortunately, further investigation will be impossible until the

THE DERBYSHIRE AND LANCASHIRE GLIDING CLUB

Camphill
Great Hucklow
Derbyshire

Initial training and soaring instruction in two-seaters by experienced qualified Instructors.

Intermediate and High Performance Flying

Private Owners Accommodated.
Dormitory and Canteen Facilities and comfortable Club House accommodation.
Resident Steward and Stewardess.

Well equipped Workshop and full-time Ground Engineer.

Write for particulars of membership to The Secretary.

BRISTOL GLIDING CLUB

Training at Lulsgate Bottom Aerodrome, Bristol
Hill Soaring Facilities available

Fleet of 7 aircraft, including :
Cadet, Tutor, Prefect, Olympia, T21B & T31 Two Seaters.

ENTRANCE FEE £2:2:0. SUBSCRIPTION £6:6:0
ASSOCIATE MEMBERS (NO ENTRANCE) — £1:1:0

We specialise in Summer Gliding Holidays for Ab-initio Non-Members.

We cordially invite membership
Write— **BRISTOL GLIDING CLUB** Tel: 35093
10 Lansdown Place, Bristol 8

LONDON GLIDING CLUB

Dunstable Downs, Bedfordshire
Telephone Dunstable 419 & 1053

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

Club fleet includes 2 dual 2 seaters, Sky, Olympias, Prefect, Grunau II, and Tutors.

Launching by two drum winches and Aero-towing.

Link Trainer Resident Instructors and Engineers

FLYING INSTRUCTION EVERY DAY
SIX AND TWELVE DAY COURSES
(open to non-members).

Entrance Fee £6-6-0, Annual subscription £6-6-0
Associate Members (No Entrance) £1. 1s. 0d.

SCOTTISH GLIDING UNION LTD.

Balado Airfield, Milnathort, Kinross-shire

Ab-initio training at Balado Airfield
Hill Soaring at Bishophill, Kinross

10 Club 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
Aerotows 15/- to 2,000 ft.

Write to the Secretary for further details

SURREY GLIDING CLUB

Lasham Aerodrome
Nr. Alton, Hants.
HERRIARD 270

Ab initio training on T21b Two-Seaters with experienced qualified instructors. 5 Sailplanes for cross-countries, winch launches and aero-tows.

Subscription £6.6.0. p.a. Entrance £4.4.0
Training Flights 3/0 each
Sailplanes 15/0 per hour.
Associate Members (No entrance) £1.1.0. p.a.
Details from Secretary

Southdown Gliding Club

BO-PEEP · FIRLE · SUSSEX

We are now flying from our new hill site at FIRLE, and warmly welcome new members and visitors.

Two-seater training, hill soaring and high performance flying are offered with a club fleet of 5 aircraft

Trains to Lewes or Eastbourne— Buses to Selmeston

Hon. Sec: MRS. L. S. LYCETT, 40 ST. JOHN'S PARK, BLACKHEATH, S.E.3.

Entrance Fee : £2. 2. 0.

Annual Subscription :
Full Membership £5. 5. 0.
Country membership £4. 4. 0.

Midland Gliding Club Ltd.

THE LONG MYND · CHURCH STRETTON · SHROPSHIRE

Britain's finest Gliding site for Thermal Slope and Wave Soaring—2375 hours flying in 1954.

First class clubhouse and facilities.

Club Fleet of Sailplanes includes:
Two Dual Control two seaters, two Prefects Eon, Olympia and Skylark.

Catering—Dormitory Accommodation for 50

Annual Subscription £5.5.0. Entrance Fee £2.2.0.
Country Membership (*over 100 miles from site*) and members of other Clubs £4.4.0. *Entrance Fee* £1.1.0.

New members welcome. All particulars from Hon. Sec.
S. H. Jones 43 Meadowbrook Road, Halesowen, Worcs.

strong north-easterlies are again with us, but it is pleasant to think that Feltwell can now produce two forms of lift: thermal and wave. The ridge has been aptly named the "Tanner" ridge.

On Sunday, May 15th, the first cross-country flight in the Club's short history was made by Cpl. Barnard in the Gull sailplane. He took off at 2.30 p.m. and after climbing under a cloud street to 4,900 feet flew 19½ miles eastwards to land five miles east of Watton. This was the best soaring day that we have had so far this year, and three other members of the Club took advantage of it and gained their C Certificates.

At the moment tentative plans are being made to arrange a Summer Camp at Dunstable, where it is hoped that some members will be able to obtain their Silver C duration legs.

Ab-initio members are trained on the Club's T-31b, and it has been found that a pupil requires about 20 dual launches before going solo on the Cadet. The average pupil then does about 20 solo flights interspersed with dual checks before being promoted to the Tutor, and is only allowed to fly the Gull after he has done about 20 hours' gliding. Throughout the early stages a close check is kept on a person's flying by means of dual checks, and by this means it has been possible to avoid accidents due to careless flying and bad airmanship.

A.v.B.

Salisbury (Southern Rhodesia)

WE are flying at full strength again after a lull of some six months, during which the club's Tiger Moth tug has undergone a C. of A., and a record rainfall was experienced throughout the Colony.

The club's T-31 has a new pair of wings which were taken from the new Slingsby "Super Tutor", recently imported in co-operation with a private syndicate. The two cockpits are now completely enclosed under a perspex canopy which consists of a built-up one-piece framework fitting onto the front cockpit, while the instructor in the rear seat now spends many happy hours imprisoned between two hinged perspex windows.

As far as equipment is concerned, the club has grown immensely over the past year and we now have the Tiger tug, the T-31, a winch, and four private groups: Derek Lane's white Kite, the Super Tutor syndicate, the H-17 in the hands of Eric Burditt, Jimmy Harold and Robert Mitchell, and the Grunau Baby.

The amazing fact is that as fast as our fleet grows, so the membership decreases. We could absorb another 20 members with ease (prospective immigrants please note!).

A good time was had by all (except two) during Easter, when the newly arrived dry season provided some good soaring instructional rides in T-31 for those two stalwarts Snowball and Ryland, and Jimmy Harold had an enjoyable two hours in the H-17. The two characters referred to earlier were Ivor McCormick and Maurice Pike, who proved that aero-towing is such fun (except for more than 15 minutes) on Easter Monday. Ivor and Maurice hopped gaily into Tiger and Grunau respectively, at Umtali in the Eastern Districts, and staggered out 2½ hours later after a non-stop "drag" of just about 140 miles back to Salisbury. This was the sequel to a visit paid to the Umtali Flying Club's air rally in October last year, since which time various factors had made the return trip impossible.

M. PIKE.

Dublin

THE power-flying club at Weston Aerodrome invited us to take part in their Air Display and Rally at Whit. We put the Cadet, Grunau and Kite on exhibition, the two latter being aero-towed to 2,000 feet, while the Cadet showed off some immaculate training flights. The sailplanes unfortunately contacted no lift, but the Grunau's hovering flight and the Kite's loops and stall turns were beheld with as much amazement as any of the power stunting.

At Easter, hill-soaring enthusiasts Bill Fitzsimon and John Quinn and members of the newly-formed Limerick and Kilkenny Clubs converged on the Devil's Bit ridge in Tipperary with a Scud II and Cadet. Bill's Minx had the trailer half-way up the Mynd-like boreen when the tow-bar snapped, but a local farmer came to the rescue with a pair of horses, and eventually the summit was won. Bill was bungied off a 1,500-foot shoulder into a moderate westerly and was lifted to 800 feet above the Bit where he found no difficulty in reefing the Cadet along the one mile beat. Another

expedition was planned for Whit, but no news has come through yet.

An orgy of carpentry, metalwork, rivetting and painting has been going on for some months in the Kite and Petrel syndicates. The Petrel people have produced by their very own hands an enormous (31-foot) trailer to replace the old ply-skinned job which sprang leaks in the winter and soaked a wing-tip of the Petrel. A slightly smaller model is almost ready to receive the homeless Kite II.

We look forward to getting Mr. Ralph Slazenger's Kranich into the air this season, and to this end are pressing the authorities for re-admission to Baldonnel aerodrome with its newly-laid concrete runways. There, with four sailplanes in operation, we should, on the run of things, get in the first Irish Silver C legs this season.

O'B.

Kettering Gliding Syndicate

THE past three months have been happily spent doing what comes naturally—left-hand circuits. Highlight of the Group's activity is our first C certificate from Sywell aerodrome in one of our ex-R.A.F. Cadets. accomplished by one of our newer boys, H. Britten, who gained height to 1,500 ft. and stayed in the air for 15 minutes. The C.F.I., T. Phillips, brought out his modified Cadet and treated us to an exhibition of soaring for 16 minutes; these two times are records in the Group.

D. Gott, C. Harper and F. Battiutis have all gained A and B certificates, graduating from ground slides on the faithful Dagling to circuits on the Cadet.

We have also obtained a very bent Grunau Baby, but after extensive repairs hope to escape from the eternal circuit and try our hand at cross-country with this machine.

H. Britten and R. Chapman recently attended a week's course at Long Mynd. Our stalling expert, Frank Poszerskis, is still performing his pet theory that (I quote) "It's such a lovely feeling"—a little hard on the lunch, but, it takes all kinds to make a world!

Any hints, tips or what have you, will be most useful to our small band of die-hards. so drop us a line. The Sec. is Miss D. Phillips, 70, Park Rd., Kettering, Northants.

A.G.C.

Yorkshire

FOR the third year in succession training camps are being run in co-operation with the Central Council of Physical Recreation, whose help in spells of non-gliding weather is invaluable. During the last camp, in spite of soaring flights every day except one, when circuits were still possible, members became surprisingly proficient at archery, fencing, and map and compass work, and the highlight of the week was the usual visit to Slingsby Sailplanes' factory at Kirbymoorside. Nine camps have been arranged this year and there are now only a few vacancies on the course of September 4th-10th.

Thanks to Mr. Slingsby and the Kemsley Trust, we now have the second two-seater T-21, and the original one having been overhauled (the workshop proving capable of taking even a T-21), both are now flying. A nucleus of new two-seater pilots is being trained and the Club continues to expand at an amazing rate, new members still pouring in.

We now have a number of members living on the doorstep of the Club, who come every evening to fly or help Bob Swinn with the latest development work in progress. Bob Wilkin got his C on May 2nd and Keith Moorey, with 29 hours flying in the last two months, his five hours Silver C duration flight during which his face was badly bruised by hailstones.

The winter's work on the airfield is now being appreciated, as also is the newly decorated Clubhouse, with sun pouring in through windows let into the entire south wall of games room and kitchen.

Easter broke all precedent by giving us four days of flying from dawn to dusk. Whitsuntide was correspondingly disappointing, being notable mainly for the display of more-or-less pyjama-clad figures sun-bathing before breakfast, the magnificent culinary efforts of the menfolk, the first launch made by the two-drum self-propelled winch constructed by Messrs. Lawson, Haswell and Wood, and the spate of tape recorders, cine projectors, loud-speaker units and electric drills, etc., trying out the recently installed 240-volt electric generator. All we ask for now are plenty of south, west or north-west winds.

SUE.

Cambridge University Gliding Club

ALTHOUGH the Club fleet has not been increased in number, there has been more flying since the beginning of the year than ever before during the same period. At the March Camp on the Long Mynd, 88 hours were flown, and Ken Machin, Peter Neilson and Gordon Hudson completed their Silver C. There were also six wave-flights with gains of over 5,000 ft., and Ken Machin took the Olympia 58 miles towards the Bristol Channel.

After the March camp a group of members headed by David Clayton took the Olympia to several slopes in North Wales which had not been soared before. In the course of events a new type of auto-tow launch was invented which involves the use of two cars going in opposite directions and a pulley-wheel somewhere in the system.

The Skylark left the works at Kirby-moorside on April 3rd and, thanks to Lionel Alexander's enthusiastic retriever-manship, was in the air at Cambridge less than seven hours later. By the end of May the Skylark had been flown by well over 20 pilots of the Club. Among the large number of soaring flights which are in her logbook already are John Pringle's climb to 7,000 ft., Peter Neilson's three hours over Cambridge, and above all Lionel Alexander's out-and-return to Bury St. Edmunds (total 50 miles) on 29th May. On the same day Sigfrid Neumann won the prize of £5 offered for the first flight during the year between Cambridge and Oxford by taking the Olympia 70 miles to Kidlington. Earlier in May Mike Jeager took the Olympia 48 miles to Clacton where several years ago an over-ambitious pilot had included one nautical mile in his cross-country flight in the very same aircraft, which then had to be retrieved by life-boat.

In June another camp will be held at the Long Mynd, and it is hoped to enter the Skylark, Olympia and Prefect for the National Championships at Lasham.

Although the Club has not yet acquired a clubhouse, there has been a little more social life than usual. A very non-mechanical Drinking Sub-committee has been in existence for some time, and Mary Arnott must be given full marks for having organised the first dance in the Club's history. And, of course, there was a Club Dinner which was attended by well over 80 members and guests. G.S.N.

Newcastle

IT is a year, almost to the day, since operations began at Usworth, and during that time 1,624 launches were made on 73 flying days for 152 hours' flying. Of this, private owners accounted for 121 launches and 18 hours. Flying membership has increased from 26 to 43. Five A, 5 B and 5 C Certificates have been gained, and two private syndicates formed: one for the Kite I (ex "Druid") by Dr. L. G. Kiloh and Ian Paul, while the other (J. Smith, Alan Crawford and Denis Driver) proudly owns a Kirby Cadet and has painted it bright red, thereby causing it to be dubbed "Bloody Mary".

At the Annual General Meeting, Pat Miller stated that the year was the most successful and profitable of the Club's history, but the establishment of a soaring site at Hutton Moor has again been vetoed; permission is being withheld until the water main is laid to Hutton Lowcross and the moor ceases to be a catchment area.

An increased launching rate has resulted from the use of solid wire on the winch instead of stranded cable. This was first suggested by Andy Coulson last year, and since then has given satisfactory service. The experiments are being carried out in conjunction with British Ropes Ltd.

On April 11th Doug Collinson and Andy Coulson both flew to over 2,000 ft. in our local wave—yes, we're in the fashion, too! [Wind data for 15 hrs.—surface, 15 kts. from N.W. by W., increasing to 42 kts. at 7,000 ft.; warm front approaching. ED.]. On May 7th Alan Pratt with a passenger thermalled to cloudbase at 4 900 ft. and was airborne 30 minutes and later for 40 minutes to 4,300 ft. with the writer, who was rather shaken to find himself looking directly down on the lighthouse on Roker pier.

Silver Jubilee

The Club's Silver Jubilee was celebrated on February 21st with a dinner at the Eldon Grill. Recordings made by the founder members were played, and from their reminiscences it seems that gliding wasn't much different 25 years ago, except that they hadn't got the Kemsley Trust to help them. We are looking forward to the next 25 years with guarded optimism. L.A.C.

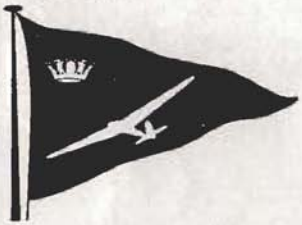
College of Aeronautics

THE beginning of the academic year found the Club with a large number of ab-initio members and no new experienced pilots; consequently the T-31 has been in continual use throughout the winter and on only very few week-ends did the weather prevent flying. The Tutor and Grunau have also done their share—some 1,100 launches in 12 months. Spoilers have been fitted to the Tutor, enabling it to be spot-landed consistently, so eliminating much ground-handling. Our hard-working dual instructor, P. A. E. Jeffery, has been assisted through-out the year by instructors from the N.A.E. Gliding Club at Bedford.

At an Easter Camp at the Mynd, T. Coldwell gained Silver C height in the Grunau with an ascent to 5,000 ft. in a wave. Members have obtained 4 B Certificates this year, and on May 14th A. Samuels and W. Monteith obtained C's when Cranfield had some good thermals induced by a sky full of cu-nims. Weak waves have been encountered over the airfield in strong S.W. winds and it is proposed to investigate these further, now that an Aiglet is available for towing.

A summer camp is being held at the Mynd. A.S.L.

Royal Navy



THE 1955 season has started well with six branch clubs reporting activities: the Portsmouth Naval Gliding Club, the Condor, Gannet, Seahawk, Gamecock and Fulmar Gliding Clubs. Rumblings have also been heard from the Blackcap and Nuthatch Gliding Clubs which want to renew active membership but for whom no equipment can, as yet, be found. Reports of activities have been received from the newly formed Royal Australian Naval Gliding Association at the R.A.N.A.S. Nowra, which is under the control of Lieut.-Commander Goodhart at present.

The Association is on a fairly good basis although some of the ancillary equipment is not getting any younger. Valiant and, in most cases, triumphant efforts are made to keep gliding, however, and keenness is high. The question of "where the money comes from", when dealing with impecunious naval personnel, is an ever-present problem: so is the question of getting more equipment to get clubs going. The latter is slowly being answered—the former never will.

A naval team is not being entered for the Nationals this year as the few advanced exponents of the art are not available. Perhaps next year we shall be able to compete.

The Midland Gliding Club has kindly arranged another course for some Association members at the Long Mynd this summer. The days spent there are particularly valuable to our members as it is the only ridge-soaring they can normally achieve—all the Association clubs operating from flat sites.

J.H.S.

Avro

THE Ferguson Tractor and the new winch came into operation at the beginning of April and since than 960 launches have been made for a total flying time of 75 hours. These figures are nearly equal to the totals for the whole of last year.

The Easter and Whitsun courses were both successful and account for 8 A and B, and 5 C Certificates.

A Visitors' Day was held on Sunday, May 2nd, when an all-time record of 74 launches were carried out, including 40 pleasure flights in the two-seater.

The most outstanding flight made during this period was a climb from 800 to 4,700 ft., made by Christianson and McWall flying the Tandem Tutor on April 16th. The flight was made in a lee wave, a rather rare phenomenon at Woodford, and the height attained now stands as a Club record. C.C.

Scottish Gliding Union regrets to announce the death on April 9th of Mr. William Thomas Andrew, who was a founder member of the Stirling Gliding Club in 1930 and of the Central Scotland Club in 1931. He was 62 years of age. He had devoted much of his life to modification of the internal combustion engine, and at one time to a transmission gear for autogiro rotors, and for the past ten years had been draughtsman at Forthside Ordnance Depot.

22 Countries now use

SLINGSBY SAILPLANES & GLIDERS

OUR CONTRIBUTION
TO THE
BRITISH EXPORT TRADE
INCREASES
YEAR BY YEAR

SLINGSBY SAILPLANES LTD.
KIRBYMOORSIDE, YORKS.

DESIGNERS & MANUFACTURERS
of all types of
MOTORLESS AIRCRAFT

Pioneers of British Gliding

Phone:
312 — 313

Grams:
"SAILPLANES"