Sailplane and GLIDING

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JUNE 1954

SAILPLANE AND GLIDING

OFFICIAL ORGAN OF THE BRITISH GLIDING ASSOCIATION

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Published by The British Gliding Association, 19 Park Lane, London, W.1.

Magazine Committee : Charles Ellis, Godfrey Harwood, Walter Kahn, Peggy Mieville, Veronica Platt, Ann Welch, Philip Wills.

Volume VII, No. 3. Bi-monthly.
June, 1956.

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COVER PHOTOGRAPH.—A Standard Estate Car of the type being loaned by the Standard Motor Co. to the British team for the World Gliding Championships towing a trailer. Slingsby Skylark III is in the background.
—Photographed by Sally Anne Thompson of Animal Photography.

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

ST. YAN 1956

THE end of this month will see the British team on their way to the 1956 World Gliding Championships, to be staged this year by our French friends at St. Yan. The practice period runs from June 23rd to 28th; the Opening Ceremony is on June 29th; the Championships will be flown between June 30th and July 12th; and the closing ceremony and prizegiving will be on July 13th.

No less than 27 nations have entered—a far larger number than ever before, and the total number of teams wishing to take part was much greater than the 60 aircraft which the French Aero Club laid down as the maximum number which they could conveniently handle. As a result, the maximum number of aircraft per country has been reduced from the original four to three, comprising two single-seaters and one two seater.

Accordingly the British entry now consists of Philip Wills, flying a Skylark 3 with the potent aid of Kitty, his wife, Frank Irving and Mike Neale; Geoffrey Stephenson (also a Skylark 3) with Beryl Stephenson and John Furlong; Commander Nicholas Goodhart, with Frank Foster as second pilot on the T-42, Lorne Welch and Lieutenant Flower.

This is a 100% entry from the Slingsby stable. The Skylark 3 gives promise of being a remarkable aircraft, the first in the so-called "laminar-flow" field which is no more expensive to buy than the previous generation, with excellent flying characteristics and a formidable speed range.

The T-42, which we hope by the time this appears will have been christened with a suitable name, is not primarily intended to be a world-beater in the Championship class, having been designed to meet the far larger—and more important—requirements for an inexpensive high-performance two-seater training aircraft. Nevertheless, Nick Goodhart has done remarkable things on far less efficient aircraft in the past, and his performance this time should be well worth watching.

In the field of instruments we have gained a reputation for last-minute surprises. This time we have the new Normalair light-weight oxygen equipment, which is, we believe, a tremendous advance on anything of the kind previously seen; and a new and improved version of the total-energy variometer. We are again using Pye radio and Standard Vanguard estate cars, and it is hard to see how either could be improved on. A list of subscribers to the fund which has made our entry possible headed by the magnificent £1,000 of the S.B.A.C. appears elsewhere in this issue.

Of the other entries, newcomers include Brazil, Egypt, Hungary, Japan, Poland, Czechoslovakia, Turkey, and a new Commonwealth entry, Dick Georgeson of New Zealand, where waves are as common as cabbages. The U.S.S.R. is, disappointingly, not participating.

This is Wills's (and Mrs. Wills's) sixth appearance (out of six World Championships); Stephenson's (and Mrs. Stephenson's) third; and Goodhart's first. Our best wishes follow them and their team to St. Yan.

BRAZILIAN CHAMPIONSHIPS 1956

by Pedro A. Sisson Tavares

THE Third Brazilian Gliding Championships were definitely a success. They were held in the Baurú area, near Matto Grosso in the west of São Paulo State, 206 miles inland from the Atlantic coast. We had a good turnout of 24 sailplanes and a like number of pilots with 100 assistants. The weather, unhappily, was not all good, but five contest days were accomplished.

The Contests were organised in two categories: the A category for gliders with gliding angles above 1:20, and the B category for those with gliding angles below 1:20.

This year's winner in the A category was a Baurú pilot, Acacio Oliveira. He won the award in a BN-1 sailplane made in a Brazilian factory, Neiva Ltda., Rio de Janeiro. The BN-1 is entirely home-designed and built. The winner in the B category was a São Paulo pilot, Engineer Padua Santos. He won the award in a Grunau Baby.

Here is a chronological report on the week of the contest:—

SUNDAY, FEBRUARY 12TH.—A few local people got up in the morning and came to Baurú airport to greet the early comers., The day was overcast, with rain; consequently all flying was done inside the protecting walls of the hangars.

MONDAY, FEBRUARY 13TH.—Incessant rain.

TUESDAY, FEBRUARY 14TH.—At about 10 a.m. all the pilots who had arrived were in the Administration Building for a pilots' meeting. For B category a speed race was selected over an out-and-return course along the track Baurú-Piratininga; for the A category a speed race over a course to São Manoel.

The winner in the A category was Acacio Oliveira, with a speed of 43 km/h (26.7 m.p.h.) over the course from Baurú to São Manoel. The winner in the B category was Padua Santos with a speed of 50 km/h (31.1 m.p.h.).

WEDNESDAY, FEBRUARY 15TH.—The pilots' committee selected a speed race over a short distance because of the very low ceiling—only 800 metres (2,600 ft.). For both categories the race was to Garças. The winner in A category was Acacio Oliveira with 54.9 km/h (34.1 m.p.h.) and in B category, Marley de Las Casas with 47 km/h (29.2 m.p.h.).

On THURDSAY 16TH and FRIDAY 17TH the sky was covered by heavy clouds; no contest.

SATURDAY, FEBRUARY 18TH.—A beautiful day, plus the good graces of the weatherman. Ceiling 1,200 m. (3,900 ft.) at 11 a.m., wind 2 m/s; good weather for soaring. For the A category was selected a speed race to Jaú and return; for the B a speed race over a triangular course—Baurú, Agudos and Piratininga. The start for both categories was at about 11.30 a.m., launching with tow-planes.

The winners were: in A category, George Münch, who won the award in a sleek Kranich II with a speed of 52.48 km/h (32.61 m.p.h.); in B category Padua Santos with 31 km/h (19.3 m.p.h.).

SUNDAY, FEBRUARY 19TH.—Ceiling 800 metres. For both categories a speed race was selected over a straight line Baurú-Lençóis Paulista, a distance of 50 km. (31 miles).

The winners were Padua Santos in B category at 40 km/h (25 m.p.h.) and Acacio Oliveira in A category with 52 km/h (32.3 m.p.h.).

MONDAY, FEBRUARY 20TH.—Thanks to the good weatherman, a Free Distance contest for both categories was selected.

The winner of the race in A category was Paulo Guimaraes, who flew his sailplane, a BN-1, from Baurú to Botucatú, a distance of 210 km (130 miles). In B category the winner was an Army Lieutenant-Colonel, Pedro Augusto Sisson, who flew his sailplane, a Neiva "B" two-seater, from Bauru to São Pedro de Piracicaba, a distance of 125 km (77.7 miles). Several pilots of both categories, in this race, flew their sailplanes over distances between 50 and 100 kms.

Final Scores

A Category

Pilot	*Sailplane*	*Points*
1. A. Oliveira	BN-1	4,200
2. J. C. Neiva	BN-1	3,900
3. Lt.-Col. Aldo Rosa	BN-1	3,500
4. G. Münch	Kranich	3,000
5. P. Guimaraes	BN-1	2,500

B Category

1. P. Santos	Grunau	3,500
2. Lt.-Col. P. A. Sisson	Neiva B	3.400
3. C. Guimaraes	Grunau	3,100
4. C. Arteman	Grunau	3,000
5. M. Las Casas	Grunau	2,100

EDITORIAL NOTE.—The 24 entries in the 1956 Brazilian Championships included the following types: In A category, 4 BN-1, 2 Olympia, Weihe, Flamingo, Kranich, Laister-Kaufman, AV-36; in B category, 3 Neiva-B, 10 Grunau Baby. Of the pilots 15 held the C certificate, 7 the Silver C, and 2 the Gold C (G. Münch and J. Cuadrado).

NEWS FROM FRANCE

by Walt. H. Pratt

THE eagerly expected Easter week passed without bringing the famous long-distance weather. For two years the soaring pilots of the Paris Region have been accustomed to run up impressive kilometerages during that time, and therefore disappointment was great when those conditions did not set in.

Nevertheless, the month of April did not pass without some cross-country flights. On April 7th alone, 5,187 km. (3,223 miles) were done from the various soaring centres around Paris, including five successful Diamond C goal flights and three Gold C distance flights.

On April 23rd, Paul Lepanse, Chief of the Soaring Centre of La Ferté Alais, set a new French speed record on a triangular circuit of 200 km. Flying a Bréguet-901, he covered the circuit La Ferté Alais-Montargis-Orléans-La Ferté Alais in 3 hours 12 min. at a mean speed of 65 km./h. (40.4 m.p.h.). Paul Lepanse already held the former record of 50 km./h. The international record is held by Poland with 67.3 km./h.

Paul Lepanse, together with Pierre, Lacheny, Gasnier, Trubert, Marchand and others, is actually taking part in a pre-training course at La Ferté Alais. They will soon leave for the National Soaring Centre of Pont-St. Vincent where the final selection of the pilots taking part in this year's World Championships will be made.

The firm of Louis Bréguet recently announced that it had begun the construction of the stratospheric sailplane S-10 whose study was undertaken by R. Jarlaud some years ago. This follows the completion of the study of a pressurized cabin for sailplanes. Paul Lepanse is expected to begin the flight tests of this revolutionary sailplane in the beginning of 1957.

Bréguet has also delivered two new Bréguet-901, the prototype 03 and the second of the series-produced machines. One was handed over to the official Service directing French sporting aviation and the other to the Flight-test Centre. The series-production of this type will continue at the rate of two per month. Furthermore the flight-tests of the Bréguet-904 high-performance two-seater will start at the end of this month.

The new Fauvel AV-22, two-seater version of the AV-36, has also started its flight-tests.

The firm Wassmer announced recently that it has received an order from the Sporting-Aviation Service for a single-seater performance sailplane. This 'plane will have a steel-tube fuselage.

A second French aero club, at Poitiers, purchased early this year a German two-seater sailplane of Ka-2 type, and this plane was successfully flown in the beginning of March. An improved version of this sail-plane, the Ka-2b, of 16 m. span, is actually stationed at Meaux, near Paris. This 'plane has been loaned by the constructor, A. Schleicher, for demonstration purposes. Finished at the end of March, it was brought by aero-tow from an airfield near the Wasserkuppe to Meaux, via Strasbourg and Pont-St. Vincent. It has already flown some 40 hours, and on April 21st made a distance-flight of 191 km. at a mean speed of 56 km./h.

THE "LO-150"

by Commander Tony Goodhart

THAT excellent publication, *The Soaring Pilot*, reached me in Australia a few days before the arrival of the LO-150, and it immediately assailed my mind with doubts. It assured me, on page after page, that the characteristics of the LO—high aspect-ratio, unusually high wing-loading, flaps, spoilers instead of dive brakes—although having points in their favour, were unlikely to produce a sailplane of good cross-country performance.

However, I consoled myself that the authors had reached their conclusions assuming "good English conditions", whereas my experience of (admittedly only two) Australian summers led me to believe that I could expect something appreciably better.

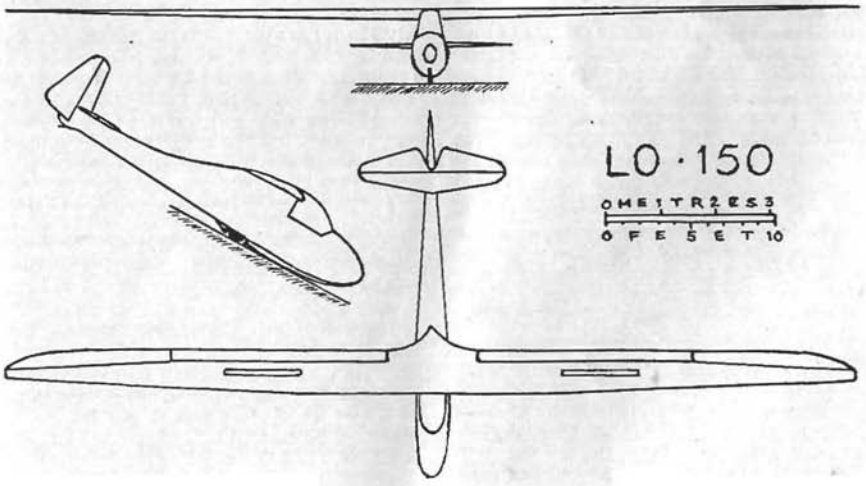
It was not until mid-August that I heard that the popular English sailplane, which the Royal Australian Navy Gliding Association had ordered many months previously, was *so* popular that we could not expect delivery in time for the Australian summer. On August 23rd I wrote (from New Zealand) to Wolf Hirth, since he happens, wisely, to advertise in GLIDING (now SAILPLANE & GLIDING), asking if he had any design suitable for our requirements. His reply arrived in just over a fortnight, complete with drawings, photographs and performance curves, and offering almost immediate delivery.

A letter, asking some half dozen questions about the LO-150, was again immediately answered and, after the exchange of a couple of cables, a firm order was given on October 1st. The sailplane left Wolf Hirth's factory just six days' later, painted to the R.A.N. Gliding Association's colour scheme, and having been test flown and fitted with our requirements of instruments. It arrived in Sydney on December 3rd.

Under 3½ months from first enquiry to delivery the other side of the world is a fine demonstration of business efficiency.

We rigged the LO-150 on December 9th, the day it reached the Naval Air Station at Nowra, and I made a ten minute test flight in it that evening. It would have handled better if I had put on the right flap setting. Unfortunately, the Australian Fleet Air Arm's only Tiger Moth chose the next day to go unserviceable, and this, coupled with other factors, meant that no more flights could be made before going inland to compete in the Australian Championships.

These Championships were, as in pre-



vious years, "decentralised", i.e., each pilot was marked on his "best" (according to a complicated, but very fair, marking system) two flights made in December or January. After a careful study of terrain and weather statistics for early January (the only period available to us), the R.A.N. Gliding Association had made arrangements, by courtesy of the R.A.A.F., to set up its base at Uranquinty, near Wagga Wagga, N.S.W. From here we could fly 100 miles south or west and up to 200 miles north, while remaining continuously over the wheat belt, in which virtually every paddock is a 100-acre—or more—aerodrome. Uranquinty itself is the R.A.A.F.'s Basic Flying Training School, and the aerodrome consists of three adjoining grass airfields, two of them of huge dimensions. The weather and the hospitality of the R.A.A.F. completed this picture of a gliding El Dorado.

The week after Christmas was spent panacea-ing the LO with total energy venturi, artificial horizon, oxygen, etc., and furiously designing, building and re-designing a trailer—which was finally completed at 4 a.m. on the day we set off for our inland base. Rather to our—and *much* to everybody else's—surprise, it towed superbly, even at 50 m.p.h. Ironically enough, having towed the 300-odd miles to Uranquinty, the trailer was not used again until we de-rigged at the end of our flying period out there.

However, back to the LO-150 itself. On January 4th, I was aero-towed for my second-ever flight in the sailplane. This time I remembered to put the flaps to plus 2 and we took off in fine style, but the Tiger was not at all well and I was towed back over the aerodrome going down wind at 100 ft. and was waved off as we turned back into wind at 150 ft., fortuitously in a thermal. The LO took this chance to demonstrate how well it can circle in small thermals and quickly took me, much to my surprise, to 4,000 ft.

Table of Flights

Date (*Jan.*)	*Flight*	*Miles*	*Duration* *hrs.*	*mins.*
4	Instrument Tests	—	2	50
5	200-km. triangle	124	5	25
6	Local	—	2	10
7	Goal and return	205	8	30
8	Local	—	2	0
9	300-km. triangle	193	4	10
9	Local (in clouds)	—	1	40
10	Goal & return attempt	—	6	15
11	500-km. G. & R. attempt	155	2	50
12	ditto.	289	8	30
13	Local	—	2	0
14	500-km. G. & R. attempt	292	8	45

This Table of Flights in the LO-150 will show you:

(a) That, in good (though not outstandingly so) conditions, the LO-150 is capable of very fast cross-country average speeds, giving as much as 290 miles in still air in about eight hours.

(b) That, once again, Australia's (or at any rate New South Wales's) weather was consistently soarable, day after day. I must admit that we were lucky: a fortnight earlier or later and I would dismally have been telling a very different story.

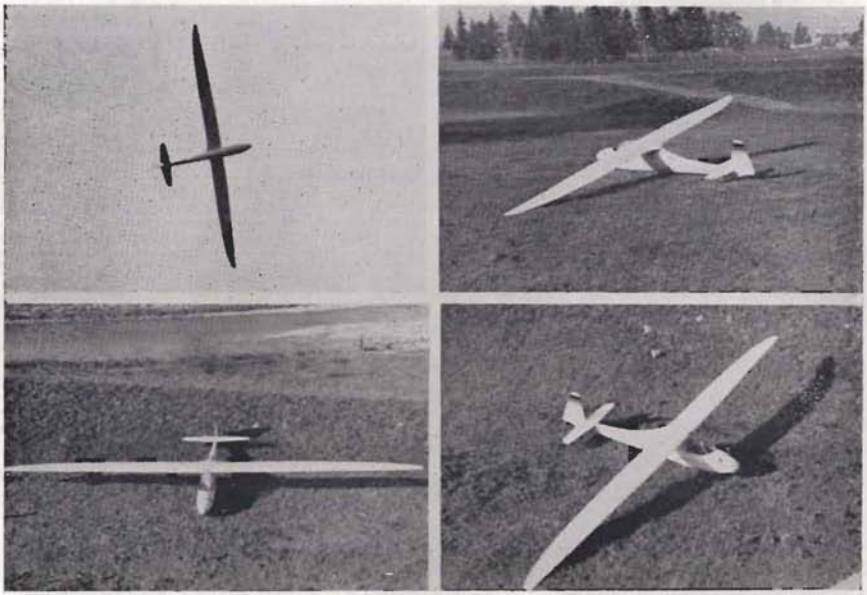
(c) That all flights were triangles, or out-and-returns (mostly unsuccessful). This because the wind was either very light or else from the north-west across the relatively narrow wheat belt; so that it was not worth trying a really long straight distance with its correspondingly long and irksome retrieve.

Flying Characteristics

The LO-150 certainly has an excellent gliding angle, which is particularly noticeable at the higher speeds. Having constructed my "speed to fly" scale (page 41 of *The Soaring Pilot*), I found that the speed between the thermals I hoped for would be between 70 and 80 m.p.h. (110-130 km./h.) My Horn type variometer is in metres/sec., and my altimeter in feet; however, I fortunately discovered that 200 f./min. is almost exactly—or at any rate "near enough for a sailing ship"—1 metre/sec., so it was easy to work from achieved rate of climb in hundreds of feet per minute to metres per second on the vario.

The *achieved* rates were usually of the order of 200 ft./min. early on, working up quite quickly to 400, and by mid-afternoon even 600, and then drooping back quite suddenly about 5 p.m. to 200.

Although minimum sink is at 50 m.p.h. (80 km./h.), it is particularly noteworthy that sink does not increase really appreciably right down to 40 m.p.h. (65 km./h.). Best speed for circling appears to be between 40-45 m.p.h. (65-75 km./h.) I.A.S. with about 40% of bank—I suspect that the A.S.I. must under-read by about 5 km./h.



Directional Stability

The one real fault I have found with the LO is that its directional stability is poor and one's feet have to work overtime (which certainly keeps them warm) in order to keep the slip ball near-central. On the one occasion I tried cloud flying, I found it extremely difficult (admittedly not helped by a faulty horizon) due to this lack of directional stability. From comparison of photographs it would appear that the Skylark II has a good 50% greater fin and rudder area than the LO.

The Flaps

The remarkable performance curve of the LO is undoubtedly due in part to the full-span flaps (the ailerons are moved in sympathy with the flaps, except for full landing flap).

The flaps are very neatly fitted, with boundary fences at inboard and outboard ends, and have six positions:

+2	Up to 90 km./h. (56 m.p.h.)	Extra lift for low speed, i.e. take-off and thermalling.
+1	90-100 km./h. (56-62 m.p.h.)	Best gliding angle.
0	100-110 km./h. (62-68 m.p.h.)	Forming part of normal Wing Section.
—1	110-130 km./h. (68-81 m.p.h.)	Normal between-thermal position.
—2	Over 130 km./h. (81 m.p.h.)	Effective wing area appreciably reduced: high speed in sink.
+3	Landing	Flaps well down and acting as air brake: can be used in conjunction with spoilers to limit speed.

From this table it can be imagined that one's left hand is not idle!

The Spoilers

Although apparently very small, the spoilers are remarkably effective in steepening gliding angle; and, in conjunction with landing flap, do limit speed, though not to a safe limit in a vertical dive—a manoeuvre which I have not, incidentally, attempted! It seems that there is a fundamental difference of opinion on the subject of

spoilers and dive brakes between some Continental and British designers.

General Construction

Our LO-150 has an extremely fine finish in silver with red motif; with the addition of a wax polish I doubt if it could be bettered. There are no fabric-covered surfaces at all, so there is the minimum of deviation from the designed shape.

Simplicity of rigging and de-rigging is no more than reasonable for the normal two-piece wing sailplane, but would probably be a lot easier if we had the proper de-rigging tools. There are a couple of bolts which secure the fuselage to the main spars, for which a special tool is obviously required.

In common with many Continental designs, the wings flex to what, at first impression, is an almost frightening degree. However, the stated safety factors are + 8 and —6.8, so they should be all right.

The cockpit had just enough room for all that is required, and the rudder pedals are adjustable for length—a great joy to be able to stretch one's legs after five hours or so. The sitting position is—unfortunately, I think—bolt upright.

There is not over-much space for such things as oxygen, inverter, batteries, pyjamas and the like, but with a bit of juggling they can all be squeezed in, and we are tailor-making the radio to fit the particular space available for it.

Conclusion

Wolf Hirth and the designer of the LO, Alfred Vogt, have struck a blow for the freedom of glider pilots in producing a sailplane with a remarkable performance throughout a speed range of 37-90 m.p.h. (60-140 km./h.) at a price way below that of other sailplanes with anything like comparable performance.

Of course, it is largely a matter of what you want. If the object is mainly local soaring, then there are other types which may be more suitable; but if the object is cross-country flying (and I hope that in many cases this is so), then, to my mind, the LO-150 has much to offer.

LO-150 Data

Span: 49.1 ft. (15m.).
Mid. Chord: 2 ft. 5½ in. (.75 m.).
Aspect Ratio: 20.6.
Section Clark-Y.
Wing Area: 117 sq. ft. (10.9 sq. m.).
Empty Weight: 440 lbs. (200 kg.).
Max. all up weight: 680 lbs. (310 kg.).
Max. speeds:
Turbulent weather 95 m.p.h. (150 km./h.).
Calm weather: 125 m.p.h. (200 km./h.).
Wing loading: 6 lb./sq. ft. (29 kg./sq. m.).
Min. sink: 2 ft. 3 in. at 48 m.p.h. (68 cm. at 76 km./h.).
Best gliding angle: 1:34 at 60 m.p.h. (97 km./h.).

A FORMER EDITOR

AFTER ten years with the International Civil Aviation Organisation Mr. Frank Entwistle has retired from the post of Chief, Flight Branch. He is, we understand, to take up a position with Cossor (Canada) Ltd. at Halifax, Nova Scotia, at an early date.

Frank Entwistle is probably not known to many of the present generation of sailplane pilots, but he played an important part in the early days of the gliding movement. As the Government official in charge of meteorology in the field, he was the very practical and helpful link between the aviator and the Met. Office at the first British soaring contest at Firle in 1922. He also took a very practical interest in the working of the British Gliding Association, and most generously gave up a tremendous amount of time to become editor of THE SAILPLANE & GLIDER when the present editor of *The Aeroplane* gave up the job on the transfer of THE SAILPLANE to the British Gliding Association in 1931.

Readers of THE SAILPLANE & GLIDING (which incorporates the former journal) will therefore join with the founder editor and present editor of THE SAILPLANE in wishing Mr. Entwistle well in his new post.

T.J., A.E.S.

Lee Waves Ahead of a Warm Front

by C. E. Wallington, M.Sc.

"I SMELL a wave," said Gerry Smith as we climbed towards a large patch of low cloud hovering at 800 ft. over Camphill. It was but a few seconds since we had left the ground anticipating only a short, somewhat bumpy trip along Bradwell Edge.

An approaching warm front with its ragged low cloud beneath a dismal grey veil of altostratus had already given the sky such a cold, uninviting appearance that, although the World Championships practice week was in full swing, we had the Camphill air to ourselves as we headed into the westerly wind, hoping Gerry's nose would not lead us astray.

Soon we were rising steadily at 10 ft/sec., and with an airspeed of 32 knots in a slightly cross-wind direction it was easy to maintain a position close to the western edge of a large patch of stratocumulus over the ridge. By this time the flight had become so smooth that the T-21 could almost be left to fly itself as it soared steadily upwards until, ten minutes later, it had gained a height of 6,000 ft.

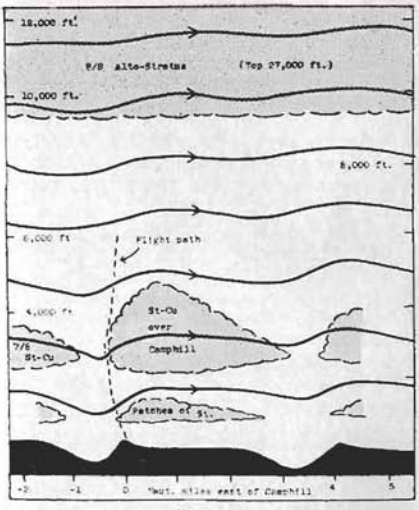


Fig. 1. Computed streamlines for 11,000 B.S.T. July 16th, 1954, are shown together with the observed cloud and local topography at Camphill.

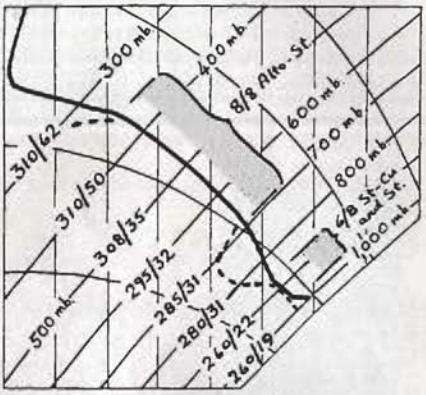


Fig. 2. Upper winds and temperatures deduced for Camphill for 11,00 B.S.T. July 16th, 1954. Full and broken lines indicate the temperature and dew point curves respectively. Cloud data are based on several aircraft observations. Winds are given in degrees and knots.

This altitude afforded an excellent view of the cloud structure which is sketched in Fig. 1. To the west stretched 7/8 St-Cu whose top was practically flat as far as the eye could see. Over Camphill the wave form of the hump-backed cloud beneath us was quite unmistakable; about five miles to the east a smaller wave cloud stood out from an irregular pattern of 4/8 St-Cu. Overhead the sun was just visible through an 8/8 cover of Alto-St whose top had been located at 27,000 ft. by the Met. Spitfire.

Such a wave flight as this may well be commonplace to the Camphill fraternity, but to me it was particularly opportune; an ample supply of meteorological data was available on the spot, so here was a chance to determine whether or not a theoretical approach to the phenomenon would accord with the evidence I had just seen.

Building up the Flow Pattern

The T-ϕ curve and cloud observations applicable to the time of flight (11.00 B.S.T. July 16th, 1954) are shown in Fig. 2. Applying Dr. Scorer's lee-wave theory to these data it is possible to compute the

streamlines across a ridge or valley of a certain, mathematically convenient, shape. Fig. 3 shows typical streamlines over these "idealised" ridges and valleys. To obtain the flow pattern past any particular ground profile it is necessary to select a few of these ideal shapes, stretch a valley here, squeeze a ridge there, and add them together until they represent the topography required. (All this is done in strict accordance with the mathematical rules of the game).

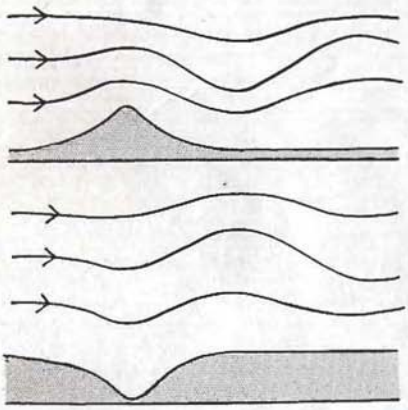


Fig. 3. Typical streamlines past an "idealised" ridge and valley.

Fig. 4 may help to explain the procedure. The lowest thick line represents the main topographical features of an east-west cross-section through Camphill. This profile can also be obtained by a synthesis of three idealised ridges and two valleys (shown by the thin curves A, C, E, B and D) superimposed on a datum line at 1,100 ft. above mean sea level. Each of the features A, B, C, D and E produce their own set of lee waves, the wavy parts of which are typified by the curves 1, 2, 3, 4 and 5 respectively.

At the time of our flight the wavelength, computed from the upper air data, was about 5 miles. It is apparent that, just west of Bradwell Edge, waves 1 and 2 were reinforcing each other to give the pronounced updraught which we had experienced in the T-21. East of Camphill, waves 1 and 3 almost cancelled each other out, leaving wave 2 effective until the Derwent Valley and White Edge waves, 4 and 5, complicated the composite flow.

Thus the airflow across the Camphill and Derwent Valley region was made up of five sets of waves. The net result of these waves is shown by the calculated streamlines in Fig. 1. These theoretical streamlines agree fairly well with the observations made, the only discrepancy being that the wave cloud about 5 miles to the east of Camphill was not so large as the streamlines suggest. Perhaps this is due to the somewhat irregular face of the underlying escarpment. On the flight path a calculated updraught of about 10 ft/sec. agrees moderately well with the observed 13 ft/sec. (allowing a 3 ft/sec. rate of sink for the aircraft).

These Fickle Waves

"Fickle" is an adjective frequently applied to waves in regions where no single ridge or valley predominates over the surrounding topographical features. A glance at Fig. 4 will help to understand why this should be so. It needs little imagination to realise that, if the wavelength of these lee waves varies, even slightly, the composite wave pattern may suffer radical changes in shape. As a result, wave clouds may form and disperse suddenly, and they may *appear* to move—with or against the wind. Each particular wavelength will produce its own pattern of "lift" and "sink" areas. No doubt some of the well-developed wave trains which appear east of the Derwent Valley are the aggregate of several sets of mutually reinforced waves.

Several weather factors can cause variations in the wavelength. Just how they effect these variations cannot be described in a few sentences, but two of the more

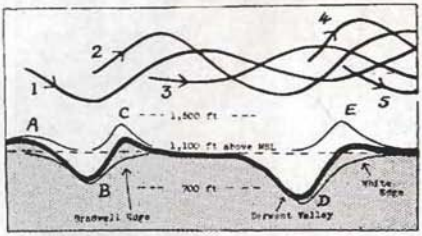


Fig. 4. The Camphill topography (thick line), can be obtained by a synthesis of five idealised ridges and valleys (thin curves) superimposed on a datum line (broken line). The ridges and valleys, A, B, C, D and E produce lee waves typified by the streamlines 1, 2, 3, 4 and 5 respectively.

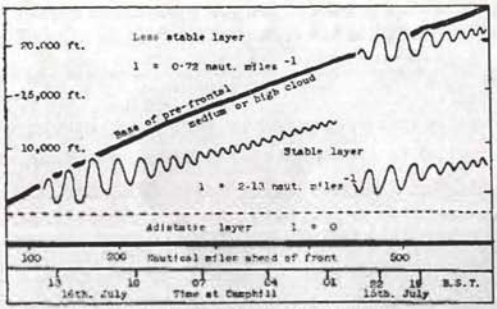


Fig. 5. Ahead of the well defined warm front, lee waves are strong in three zones. Their nature, at their most effective levels, is schematically sketched by the waves in these two zones. Remember that these waves will not be set in motion unless the airflow crosses a suitable ridge or valley. For the technically minded, the values of Scorer's parameter, "l" are shown in each of three distinct layers, viz. a low adiabatic layer, a stable middle layer and, above the frontal surface, a layer which is less stable because the air saturated.

common wavelength sequences deserve a mention.

The first concerns those days which are reasonably sunny. If any waves form on such days, there is a tendency for the wavelength to increase during the morning and decrease during the evening. It is also common for waves to disappear temporarily during the middle of the day.

The other sequence of events is associated with the approach of a well-defined warm front. Such a front was approaching Camphill at the time of our wave flight on July 16th. It can therefore be used to study the nature of lee waves likely in such situations. Theoretically waves were first effective at about 600 miles ahead of the front. At this stage the calculated wavelength was 4 miles, but it increased to 9 miles by the time the front was 440 miles away. Fig. 5 shows a slightly simplified cross-section of the front together with a schematic representation of the lee waves at their most effective levels. The depth of the wavy curves drawn in the diagram gives a rough indication of the variation in strength of the lee waves as the front approached.

The continued advance of the warm front then brought a 150-mile zone in which the upper winds and temperatures rendered lee waves practically ineffective. But after this the strength of the waves increased temporarily and the wavelength again increased from 4 miles to 9 miles before conditions prohibited waves of any sort.

This description of lee waves likely ahead of a warm front was deduced by theoretical reasoning, but it was at least supported by observations made from the ground and in the air at Camphill on July 15th and 16th. It is considered that the description may well apply to many well-defined warm fronts. Of course, the details will vary, but the broad wave pattern will still exhibit the features illustrated in Fig. 5.

I hope that these ideas have added to our knowledge of lee waves in general and warm-front waves in particular. It must be remembered that the ideas are mainly theoretical; they have been initiated, and to some extend supported by past experience, but still more evidence is needed to confirm or modify them. However, if we keep them in mind we can at least direct our observational efforts towards the relevant clues.

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ARCTIC GLIDING CLUB

by Dangerous Dan

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We have no equipment yet, but spirits are high ($10 per bottle). Club membership is mostly Eskimo and Indian with a stiff sprinkling of Canadians and a sprinkling of stiff Europeans, including two drunken Swedes, Bjorn Thursti and Lars Shantz. We were joined recently by a renegade American, believed to be on the lam from a Southern California glider club for non-payment of dues. He claims many flights in the Bishop wave. His name is Len Ticula. Whenever the Eskimo and Indian members get together, a fight breaks out, and when the rest of us try to figure out who is to stop the fight, another fight breaks out. This sort of thing keeps membership low and members high.

The Indians have a word for "glider". It goes on for a long, long time, sounds like stones being rattled in a tin can, and, literally translated, means "The-Great-White - Bird - That - Soars - Like - A - Great-White-Bird." One of the Indians, a widely-travelled youngster by the name of Little Loose Goose, has heard of Al Pow. Asked what he thought of Albie's wonderful 256-mile flight in the Lawrence, his face brightened from its usual sour expression and he replied, monosyllabically, "Pow? Wow!" Asked about Albie's *last* flight in the Lawrence, his face resumed its usual sour expression and he replied monosyllabically, "Ugh!"

In the absence of any gliding activity, a hockey game—Esks versus Reds—was staged on a day when the temperature rose to a muggy thirty below. The Esks were armed with hooch bottles, whaling knives and whale bones. The Reds were armed with hooch bottles, hunting knives and moose bones. It was quite a scrap. In the best traditions of Canadian hockey, rules were ignored and fights were frequent. Early in the game, during a goalmouth melee, the referee was struck by a whale vertebra and will be buried as soon as he can be shipped south. The bone was thrown by Roquette, the Fierce Frenchman, who is said to have caused a riot the last time he played in Montreal. This probably explains why he is now playing in the Arctic League. It's lucky for Roquette that no trees grow up here in the Arctic, or he would have been suspended immediately.

Between periods, "liquid" refreshment was served: rum cubes and cracked Coke or whiskey blocks and crushed Crush. (Man, that Crush is *cool* . . .). The game ended in a scoreless tie, and a replay has been arranged for New Year's Day. This will be a sudden-death final for the Gray Owl Cup.

THE 'phone was ringing. "Alex", said my Agent, "would you like to work in a night-club in Madrid?" It was wonderful news. I always wanted to try the terrific Spanish thermals I had heard so much about. We packed and took the next 'plane. Flying over Spain, the large number of airsick people suggested to me that my Silver C was secure.

Soon after arrival I had the necessary medical and official papers ready, which enabled me to fly free as a guest of the Spanish Government. Every foreigner who wants to fly sailplanes in Spain receives, providing approval is given by the Air Ministry, free accommodation with food and flying at one of the two largest schools, Cerro del Telegrafo or Huesca.

The gliding School of Cerro del Telegrafo is only 10 miles from Madrid. The head of the school is Capt. A. Nuñez, well-known veteran of Spanish and international gliding. He gave my wife and me the most heart-warming reception, which is characteristic of the international friendship which ties all pilots together.

All launching is done by aero-tow with one of two Storchs from a one-strip aerodrome. The sailplane fleet consists of 3 Kranich II, 5 Grunau Babies, 2 Weihes, 2 Skys and a Spanish experimental high-performance sailplane, the V.C.101.

Flying started at 9 a.m. every day. Being with my wife Dita the star performers at a night club, meant that we got home late and I could only sleep three or four hours in order to catch the school's bus. But who needs sleep when one can fly in such glorious weather? The sky was deep blue with glider pilots' dream-clouds painted on.

Two check flights on the Kranich, and I was promoted to the G.B. One couldn't go on a cross-country flight without the written permission of Capt. Nuñez, plus verbal advice "not to go away unless you have 6,000 ft. on the altimeter." Although the sky looked most photogenic, the cloud base didn't rise, at the beginning, above 3,000 ft. The wind came mostly from the S.W., but, as often happens, it can come from more than one direction at once.

As days went by, my hopes for completing the height and distance leg of the Silver C was fading. Then at 4 p.m. on June 27th the Chief gave the order: "Two G.B.'s on cross-country." Hands and feet moved quickly and I was strapped in as first off. The Storch started rolling and we soon climbed up to 1,500 ft., when the tow-plane shot up ahead of me and the

variometer showed 15 ft./sec. I released quickly and started circling. Sinking? But there was a thermal and I was in it. It's no use, I am down to 1,200 ft. I head toward the aerodrome. I might find something there; if not, I must try again.

Going up? Gently, carefully turning: I must not lose it again. Rate of climb increasing, going up rapidly, variometer registers 12 ft./sec., keeping speed constant, arrived at 4,500 ft., lift stopped.

"Don't go away" Capt. Nuñez had warned "with only 6,000 ft." Well, here is no more lift; I'd better look for it ahead and keep an eye on the aerodrome. That small town in front of me might give me the wanted lift (I had read a lot about such a thing). Reached the town with 3,000 ft.—still no thermal. It was too late to turn back, because the wind must have increased considerably and the ground was rushing quickly underneath.

That was a strong bump. Vario needle went off the clock. Yes, this is the thermal I heard about, violently rushing upwards, but not difficult to ride at all. Getting cool up here. Nearing cloud base, and vario registers 7,400 ft. There is no need to go into cloud; I have already passed well beyond the height-leg margin. Besides, I have no blind-flying instruments, and if there were I would not really know what to do with them.

"Follow the railway-line" rang the voice of Capt. Nuñez in my ear, "and when it bends left at Alcala, follow the road only to Guadalajara, then fly between two hills for about 10 miles; at the end of it is a castle, and there you land."

Reached Alcala, still 6,000 ft. in hand. I could see, about 20 miles ahead, Guadalajara, the town I was supposed to fly over, but could not see the hills behind it. Pushing ahead; the air got more and more turbulent. Although flying straight and level and increasing the speed to 55 m.p.h., still the G.B. was climbing steadily at 9 ft./sec. "What a monstrous thermal," I thought. Getting closer to the town; the map indicates the hills I am looking for, supposed to be 5 or 6 miles behind Guadalajara. What I could see there was a large mass of dark fog. Fog? 4.30 p.m. in the middle of a hot summer, and in Spain? Impossible! Must be a storm then. For the first time I realised that I was flying in a cold front; hence the constant lift.

The air is becoming really rough now—

I'm checking on my parachute—this frightful-looking black mass growing and coming towards me. I can never pass those hills, I thought. I turn around to look for an emergency landing field, and what I can see is even more frightening: sky to the S.W., just black to the N.E. There is no alternative but to choose the gap between and head N.W. towards a military aerodrome. I'm watching—like Big Brother—the storm developing on my original N.E. course, noticing soon, from the fast-moving cloud-shadows, that their direction is S.S.W. If I keep to the left of my course, the storm might pass, and could I reach my goal? Flying N. between 6,500 and 7,000 ft., I discover the sky clearing from my left, and soon see the hills.

The lift peters out slowly—gliding in zero lift—reach the hills—try hill-soaring, but the wind dies out with the thermals. Still 10 miles to go! I see my goal, but have only 3,000 ft. No safe landing field at the foot of the hill—just on the top. It would complicate the retrieve. Anyway, I passed the 50 km mark by Guadalajara. I decide to turn back and land near a small village, where I had seen a large field. I might even find a telephone there. Gliding back gently in beautifully smooth air, admiring the

contrasting countryside with its green grass, herds of sheep and red ploughed fields. Now everything looks so peaceful, contented and wonderful.

Here we are. Airbrakes open, landing close to the road—with emotion in my heart, looking up to the sky, thanking it for the wonderful experience, which is only a glider pilot's privilege.

People running towards me as I climb out of the G.B. I try hard to convince—in broken Spanish—the excited and ever-growing crowd that nothing went wrong with my engine, since I have none. It needed some explanation.

Do you ask: "Was it worth while—the early rising and the usual discomfort which goes with gliding?" Bet your life it was!

O.S.T.I.V. CONGRESS

WHILE the World Gliding Championships are in progress at St. Yan, the Organisation Scientifique et Technique Internationale du Vol à Voile will be holding its sixth Congress on the site.

The technical section of the congress will be presided over by Dipl. Ing. B. J. Cijan, from Yugoslavia. Subjects covered by the papers already offered are: design of Breguet sailplanes and the Skylark series; limited class sailplanes, the use of plastics in the construction of sailplanes, blind-flying on sailplanes, boundary layer problems, aerofoil theory and measurements; general problems on the mechanics of flight. More papers are expected.

The meteorological sessions are under the chairmanship of Dr. Joachim Kuettner, from the United States. The meteorological papers will cover new work on thermal and wave flying, observational methods, high-altitude sailplanes and other subjects.

Dr. Kuettner proposes to organise combined pilots-meteorologists sessions on such subjects as observational methods and the design of high-altitude sailplanes. The combined sessions are planned to bridge the rift between scientists and pilots and are regarded as important for both parties.

Programme

July 6th: official opening at 11 hrs.

July 7th: technical sessions of general interest, 9-12 and 15-18 hrs.

July 8th: excursion to Vichy (optional).

July 9th and 10th: simultaneous technical and meteorological sessions of specialist interest, 9-12 and 15-18 hrs.

July 11th: meteorological sessions of general interest, 9-12 and 15-18 hrs.

July 13th: general conference, 10-13 hrs.

July 14th: comparison flights of new sailplane types, continued on following days if necessary.

1956 WORLD GLIDING CHAMPIONSHIPS DONATIONS TO FUND

THE following donations towards the cost of sending a British Team to the Championships have been gratefully received by the British Gliding Association up to the time of going to press; later donations will be acknowledged in the next issue of SAILPLANE & GLIDING.

1956 World Gliding Championships Fund

	£	s.	d.
Society of British Aircraft Constructors	1,000	0	0
R. Fender	5	0	0
A. Orde	2	0	0
Chinese Canoe Club ..	5	8	4
A. McDonald	1	1	0
Kronfeld Club	12	8	6
T. Orton		5	0
S. C. O'Grady	1	0	0
W. A. H. Kahn	1	1	0
B. T. N. Newland	1	1	0
R. T. Cole	1	0	0
Surrey Gliding Club ..	5	5	0
R. C. Fitzroy	2	2	0
R.A.F. Brüggen Gliding Club	5	0	0
F./Lt. J. S. R. Salmond ..	2	2	0
J. Prowse		5	0
Cadbury's Voice & Vision ..	4	18	10
Plymouth Model Flying Club		10	0
S. Aldersmith	1	1	0
Cornish Gliding Club ..	5	5	0
L./Cdr. E. C. Littlejohn ..		10	0
D. A. Smith	3	3	0
D. R. Elrington		4	0
Midland Gliding Club ..	10	10	0
R. L. Neill	5	5	0
Team Donations:			
P. A. Wills	100	0	0
G. H. Stephenson ..	75	0	0
H. C. N. Goodhart ..	100	0	0
British Gliding Association	100	0	0
World Championships Appeal Ball	99	5	9
Royal Aero Club	50	0	0
Isle of Wight Gliding Club	2	2	0
A. H. Yates		10	0
Donations by purchase of gliding stamps	7	19	8
	£1,611	3	1

Nations Represented

Argentina	Hungary
Australia	Israel
Austria	Italy
Belgium	Japan
Brazil	New Zealand
Canada	Poland
Czechoslovakia	Spain
Denmark	South Africa
Egypt	Sweden
Finland	Switzerland
France	Turkey
Germany	United States
Great Britain	and
Holland	Yugoslavia

Latest British Types

Two British sailplane types which took part in the last World Championships are appearing this year in modified form.

The second prototype Slingsby T-42 two-seater, to be flown by Nick Goodhart and Frank Foster in the British team, differs from the first prototype as follows:—The centre wing panel has been reduced in span to 12 ft. and has no dihedral; the dihedral starts from the joints of the centre panel and the outer panels; the leading edge of the whole wing in plan form is straight; the dive brakes are in the outer panels; and there is a small increase in aspect ratio. The fuselage width has been increased to provide wider seats; leg room and head room have been increased; the depth of the fuselage has been reduced; and a two-piece hinged canopy has been provided (but this may not be a standard fitment).

The Olympia IV, which is to be flown by William S. Ivans (holder of the World's single-seater height record of 42,100 ft.) in the United States Team, is the result of the application by Messrs. Elliotts of Newbury to the original Olympia of the most recent American N.A.C.A. research on wing profiles; since 1954 the wing span has been increased by six feet, the ailerons enlarged, the cockpit lengthened, and the tail and the cockpit canopy re-designed.

A VISIT TO EL MIRAGE

by ERIC WYNTER

In early September Los Angeles lay under a heat-wave rising at times to 112°F. Smog settled down in a pale corrosive amber pool over the city and had even the policemen weeping in the streets.

On one such day we decided to go gliding. We set out at ten for El Mirage, about 80 miles away. The Hollywood Freeway, one of the vast arteries feeding the city, took us out from the civic centre, cut through miles of residential tangle with its lines of tall palms rising over Spanish houses, until we turned right and came up into the hills which rim the Los Angeles basin. There the houses peter out and you surface from the smog. The hills are hard and dead and hot, thinly covered with yellowed wild oats between the rocks and green only where the trees are. The road winds up to the Soledo Pass, 3,000 feet above sea level, and then falls into the Mojave Desert.

We drove through the desert north a few miles to Palmdale, ate a little and drank a lot for lunch and were too hot to stand the juke-box in the café, and then we struck off right along a minor road that leads across the southern border of the desert. Some way to the right ran the range of mountains we had crossed. Around us was a slightly undulating land, its surface dazzling in sun and wandering to the eye from the pulse of the heat thrown up from its bare soil. It was dotted with small dry bushes, and in some places Joshua trees (a large Yucca) rose up in curious twisted forms, their evergreen crowns mounted by tall brittle seed-bearing stems. There were also some hills, crude lumps of rock, dumped about over the desert floor, swimming in the heat and at times reflected in patches of mirage. All in all, a fierce landscape.

The few people along that road were mostly negroes living in small one-storey shacks, each of which formed the centre of a chaos of lean-to sheds, chicken-houses, broken chairs, dogs and children. From

Gus Briegleb (left) and a lady pupil at El Mirage.

the few we spoke to, they seemed a happy, confident crowd, as though secure in their barren surroundings from invasion by the whites. After some enquiries from these people we went on to a small filling station, then to a store and then a board saying Southern Soaring Association. This was it, bang in the middle of the Mojave frying-pan.

We turned down the track and in a mile or so came to Gus Briegleb's flying school at El Mirage, 3,000 feet a.s.l. It consists of a number of small buildings—offices, canteen, bunk-house, etc.—standing about in the wilderness, and a line of shelters with no sides to them, each one shading a sailplane with its wing-tips lashed to fixed trestles. A few yards beyond is one corner of a triangular concrete runway left over from the Air Force and beyond that a dried lake. Behind the lake a few undigested lumps of mountain stand up from the flats.

As we approached, a tug-plane with a two-seater on tow passed above us, gaining height, and disappeared over the hills. The itch to be up there was quickened by the sight of a dust-devil some hundred feet high, curving slowly as it travelled across the sand and sucked at the dry litter in its path. A light breeze fed it from our distance as it crossed the far tip of the runway.

As soon as you pull up in a car you roast. We got out into the glare of the sun and heat bouncing off the sand. By contrast, this grills—which is, however, a not unpleasant way of being cooked, as the air is so dry, and variable winds move over you in the pull of passing thermals. All about the club seemed still, but as we came to the hangars we met one of the tug-pilots sitting in the shade reading. He was a young man, a lean, caved-in character by the name of John, and he moved and drawled out his words very slowly, as though half his energy and substance had been sucked up the spouts of countless dust-devils and nothing was left but the dream of sending what remained up after the rest. He very kindly rose out of this condition and answered all the questions I had been storing up, and introduced me to the kind of thing that was to be found in desert gliding.

This, he said, was not a particularly good day. You could expect to reach ten thousand feet. I thought of the rare occasions at Dunstable when I had reached three thousand, and we compared notes. It was evident from John's remarks, and the fleet of bulky two-seaters in the hangars, that soaring in California is to soaring in England as ocean sailing is to the Broads. We talked on, sitting in shadow, until the tug came down, and presently a sailplane appeared in the sky, approached, ran along the runway and neatly turned out onto the dirt by the hangars. Out climbed Gus Briegleb, and we went over to be introduced.

Gus has you won over as soon as he takes your hand. You can see at once that he is so given to his work that he doesn't know it is hot; a man full of vigour, drive and good humour, who has found the finest spot to teach the finest of sports, so what do dust, heat and isolation matter? Working with him are his two sons when not at school, and looking after the other fractions of a glider-pilot's life is his wife. If you have been wilting and thinking of cool green English Downs, when you meet the Briegleb family you take on turgor pressure all over again and El Mirage becomes the one place.

We all went over to the canteen for a snack, and Gus told us of the various

records that had been made from El Mirage, two of them on the Sunday previous to our visit. Looking through the visitor's book, we found names from all over the world.

The time came for us to fly. Two tugs were operating. I climbed into a Corcoran TG-1a in front of one of the Briegleb boys, and my friend was launched shortly after us with Gus. But we never saw one another in the air.

The tug warmed up (warmed!), the tow-line was attached, signals given and we were trundling along the concrete. The sailplane rose, plunged about a bit, the tug rose, and after gaining height, Briegleb Jr. dropped the machine through the slip-stream into the low-tow position. The air, which had well-nigh kippered me under the canopy while I waited down below, now washed round the cockpit in a warm stream. We were towed up to 2,000 ft. (5,000 feet a.s.l.), entered a thermal and released. Briegleb put the plane into a left circle and we settled to a steady ten up. Meanwhile I just gaped and took photographs and let out interior exclamations. Everything was on such a vast scale. There was none of that praying for another five minutes off the ground. We just welled up into the sky in lazy, easy circles. Far down beyond the left wing-tip the map of the desert went round as on a turntable, shrinking as it turned; the hard, grey gauged-out hills, the patch of dry lake, the concrete triangle and the little buildings at its side, and the main base of the desert floor. From on high it appears as a brown expanse spread with black stipple which, by variations in intensity, forms vague square patches, some isolated, some overlapping like an abstract design. The road threaded this design from one end to the other, and right beneath us rotated one brilliant green square like a postage-stamp. This was a field of alfalfa under irrigation, while the many squares fading in the desert marked how the scrub had taken over, more or less strongly, other patches once irrigated and cropped and now abandoned. Close to the alfalfa I could see the foot of the dust-devil at the source of our thermal, a shadowy umbilical cord feeding us from below and moving just perceptibly across the ground.

At 8,000 feet I took over. My thermalling technique defeats the average English thermal, but it couldn't beat that one. We went on circling and the desert went on circling and the altimeter went on circling, and presently Briegleb, who was sitting in the shade without his shirt, asked me to leave that thermal as he was getting cold. The altimeter had reached 11,500 ft., and indeed it was chilly. But I straightened out with some reluctance as we were going up as merrily as ever.

On the straight the lift continued for several seconds, and then we fell out into the downdraught. I headed out for some hills to the north. The sink went on. We covered a few miles and lost 4,000 feet: we threw a circle in no-sink and somehow lost some more. But as we moved over the hills came that moment of truth when the ship bodies up under the pilot, and up we went again—this time to 10,000 ft., and with the lift still as strong we turned for home, wandered around the sky losing height, and finally slid down into the desert heat.

It was a ride I never shall forget. It embodied all my dreams on dead days at Dunstable; was huge, easy, unworrying; and gave me the line of my life to shoot. You could go up without struggle and land almost anywhere in safety. And making it all possible was that gustiest, most active dust-devil in the desert, Gus himself.

But I must add this afterthought. To achieve anything at El Mirage means running short of oxygen and colossal retrieves. Anyone can soar. When I returned to Dunstable and did my paces up and down the ridge at 700 feet, nibbled at drifting scraps of thermal, and just scraped through a patch of sink without having to land, I wondered if the ideal conditions of California could seed such a desperate and exquisite craving for lift as does our marginal creep along the hill.

CAMBRIDGE TO EXETER

by Peter Neilson

THERE are only two directions from Cambridge in which an attempt on a Gold C cross-country stands a reasonable chance of success. On June 9th, last year, when the rare unstable Southerly tempted many Lasham pilots to declare over-hopeful goals, there were two unsuccessful attempts on the northern route from Cambridge to Newcastle, when both George Whitfield and myself, in the Skylark and Olympia respectively, fell very short in the "Soke" round Peterborough. In any future flight in this direction it would be advisable to deviate well to the west at the start to avoid this area, which can be relied on to damp-off even the best-intentioned cumulus.

The other route lies to the south-west into Devon, and during last winter I spent many hours, when I should more properly have been working, drawing the necessary lines on maps and also confirming with the B.G.A. that an aero-tow a mile or two N.E. of Cambridge was essential to get 300 kms. away from Exeter Airport, the most convenient goal. It seemed that it would be wisest to keep north of the direct track at first, since, although this would mean abandoning the attractive chalky line of the Chilterns for the clay of the Oxford valley, it would split the otherwise continuous 70 miles of airway into two much smaller strips; also, if the wind were northerly, the gentle back-slopes of the sandy Cotswolds, a few miles to the north, might be equally good thermal sources.

The shadow of the Tripos, which seems very far distant through most of the year, tends to eclipse much of the usual club flying at the beginning of the Easter term, when, unfortunately, some of the year's best soaring weather can be expected during the spring north-easterlies. To appease my conscience and tutor, I decided to come up a few days earlier than necessary, ostensibly to work, and to keep a close watch on weather charts for the first week of term. If they produced nothing during this period, the idea would be off.

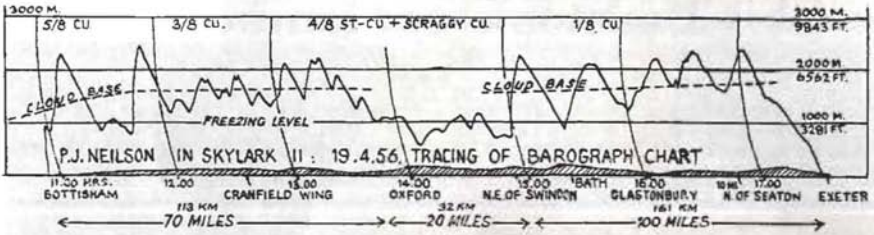
The forecast for Thursday, April 19th, seemed promising: winds light, north-easterly, cloud tops up to 10,000 ft. Indeed by 9 a.m. there were already well-developed cumulus outside my bedroom window. A hasty breakfast, and a dash out to Marshall's found Pip Gaskell, who brought back that fancy French diamond last summer, out before me, hoping for his height. He very kindly offered to take the Oly, leaving me the Skylark. By 10.50 the hurried checks of maps, cigarettes, barograph, goal declaration, etc., were done, and I was rapidly waking up behind the Tiger, under a sky over-full of good cumulus.

Release was at 11.00 hrs. and 3,000 ft. over the disused airfield at Bottisham. A convenient cloud close by took me straight up at 5 f.p.s. to 7,000 ft., the Skylark collecting about half an inch of ice on the

Peter Neilson waiting for a launch. Note the arms of the Cambridge University Gliding Club.

way. This ice, which was increased by the next cloud to about 1 inch, was to prove a bugbear for the next three hours, until the lowest part of the flight, appropriately near Oxford, finally melted it off. It increased the rate of sink to about 8 f.p.s. at 60 m.p.h. and the indicated stalling speed to 50 m.p.h. The ailerons also became remarkably ineffective, feeling more reminiscent of the Tutor. The continual judder of the tail in the turbulent airflow was also rather disturbing. No trouble was experienced with the pot-pitot or freezing controls, though the static and total-energy heads, of course, iced up immediately. Freezing level was very low: about 3,000 ft.

By Oxford, I was feeling very depressed, since Exeter seemed hopelessly out of reach. A combination of over-caution with ice had



produced an average over the 70 miles of only 20 m.p.h. and, worse, the area ahead looked very dead with large sheets of strato-cu and only a few wisps of decaying cumulus to be seen; the wind, too, seemed to have backed to north. I despairingly considered turning back to reduce the retrieving distance, but decided that a few miles here or there would make little difference, and I might as well press on, but as fast as possible.

It may have been necessary to hurry, but first it was essential to keep up, The next hour and a quarter was spent on the edges of cloud shadows, miraculously staying airborne, and, somehow, working slowly westwards. During this time one hour was spent circling for a total gain of height of only 3 000 ft., the loss when flying straight being 4,000 ft. Two long periods, 15 minutes and 10 minutes, passed circling at substantially the same height.

At the end of the fourth hour the air seemed to be getting a little brighter, and, while circling in the usual no-sink a few miles north-east of Swindon, the first thermal worthy of its name for over an hour suddenly shot the green ball up to an incredible ten f.p.s. On course again, at 7,500 ft., I came out of the side of a large cumulus sticking up through the centre of a strato-cu sheet. Time for a cigarette, chocolate and a look around in comfort.

Ahead, across the last airway, was a large clear patch; on the other side, some twenty miles away, over Bath, a large flat bank of cumulus. This was easily reached in twenty minutes, but would only produce 6,500 ft. even with much searching.

There were three more similar bars of cumulus, lying apparently across wind, some 10-15 miles apart, with clear sky and no down-draught in between. They were all remarkably smooth-topped, looking indeed very like roll clouds, tapering gradually over their length of about 30 miles, though the last, near Seaton, was much shorter. With much effort each was persuaded to yield 7,000 ft. in small, shifting, areas of good lift.

These unusual clouds may have been due to some sea-breeze effect, since the wind seemed less after each, and after the last was a gentle south-westerly breeze. Over Exeter, where the next cloud might have been, was an unmarked area of no sink.

A slow final g ide left plenty of height for circuit planning and a few atrocious aerobatics.

The flight can be divided into three stages: Cambridge-Oxford-Swindon-Exeter, the average speeds in each being 23, 15, and 40 m.p.h. That the speed over the last stage was nearly twice that over the first, when thermals were better and more frequent, drives home some obvious lessons.

The following day a very weary John Pringle arrived before noon, having nobly got up at some unmentionable hour of the morning, and driven the 250 miles alone.

A vital trailer part, the fuselage steady bar, was found to be still in Cambridge: a few minutes' improvisation in the old club spirit soon produced a substitute out of a starting handle and sundry bits of scrap-iron. We were home without incident by 8 p.m.

Mention must be made of the exceptional welcome that awaits the glider-pilot at Exeter Airport, both from the staff and from the very active Aero Club. Everything is laid on in an extremely hospitable fashion—food, drink, bed, even hot showers; when I was there an excellent evening's entertainment was also provided by the unusually talented club dramatic group's rehearsal of "Blithe Spirit". May we visit Exeter more often in the future!

PARTICULARS OF FLIGHT:—distance, 188 miles; time, 6½ hours; average speed, 29 m.p.h.; wind, N.N.E. 10 knots; course, S.W. (245°); cloud base, 4,000-5,500 ft.; best climb, 7.5 f.p.s.

Dunstable to Cornwall

by Frank Foster

A light along the sea, so swiftly coming,
Its motion by no flight of wing is equalled.
And when therefrom I had withdrawn a little
Mine eyes, that I might question my conductor,
Again I saw it brighter grown and larger.
Anon.

THIS Gold C flight was made along the oldest 300-km. route in the country, yet was also strangely a first; for a flight of that distance had not previously been made from Dunstable, due in the main to drawbacks that have only recently been overcome:—the geographical nature of the London Gliding Club site, which makes an early departure difficult on days of N.E. winds; and lack of—until recently—aero-towing facilities. With the advent of sailplanes having a high speed-range it is, I think, possible to overcome the disadvantage on many days of a late start, and still use a winch launch. Generally speaking, however, the aero-tow will pay dividends for a positive "get-away" at an earlier take-off time, and may well be essential for slower machines.

Of this gold distance leg—a rather belated first for our site—the story is straightforward. Winds 070°/23 knots at all heights at this end, dropping in the lower layers to the west. Pressure low over France and high to the north of track. Generally unstable with thunderstorms developing along the south coast.

At mid-day the sky belied the forecast; what little cumulus that had developed had almost all evaporated, and, at height, cu-nimbus ice-caps from old storms on the Continent threatened to cut off the sun. Another day when it wasn't going to work—Pat's look said so! However, a launch at 12.20 into a 15-knot wind; a run behind the hill; nothing doing; a right turn over the pig farm towards approach; a kick, at 750 ft. (all heights a.s.l.). A wind-shadow thermal drifting downwind from the bowl? Some tightly leashed turns diverted a landing back on site, and Pat's I-told-you-so look, to a possible landing near Ivinghoe. Much polishing of flying. A lot of perspiration. Just a little height. Not until Tring was 3,000 ft. safely below the wing.

From the top of the first climb it could be seen that cloud conditions appeared, as forecast, much better to the south, where cumulus was already developing steadily. Thermal strength was, however, good, and 10 ft. per second could not only be seen but—after a check with a stop-watch—believed. Working south, I cleared airways at Newbury and found awaiting my first real lift-sized cloud (note the moral to this story) at 13.35.

From here to Henstridge airfield, near Shaftesbury, was an easy run—each cloud bigger and better than the last. By Lyme Regis 13,000 feet, a little ice aboard, and it was apparent that on the last part of the trip the need was for "not too little but not too much"! A descent was made toward Exeter, where a friendly-sized cloud looked as if it might stop short of "Piggotting" one into the stratosphere. Ice was happily shed en route and a pin-point on Exeter airfield checked position in the reduced vertical visibility—not helped by the increasing masses of large cu. and associated cloud. A small bite up to 10,000 feet was 4,000 more than theory demanded, with the prevailing wind, to reach my goal of Tideford—a reasonable margin.

Out onto course to find on track "much too much": a solid mass from ground-level to 30,000 ft. or more. As one got near to it, "noises off" and full lighting effects became more and more evident. The airline pilot overcame the press-on-regardless view. I turned along the edge and flew on 300 degrees for what seemed eternity. Then a gap with a glimmer of light to the south. A course of 180 degrees, then—dreadful confession—brakes out to avoid parts of the cloud where flashes were at intervals of 5-10 seconds. Water poured in at the windscreen joint (note: modify at C. of A.). Through the skirt of cloud, 3,000 feet left on the clock, 1,200 feet above the moor. Perhaps 20 miles to go.

The rocks got bigger, in a bleak world I started to pick the most promising tracks on the ground as possible runways. Then a grey stone building—Princetown jail! Hope

and direction back into life! On course, best gliding angle. To be or not to be? However, brightness ahead betokened an area the storm had not reached.

Back into sunshine. Another real thermal —and how good it felt. I climbed gently up—no hurry now—and undid the knots in my stomach. Four thousand feet—plenty of height to coast gently along, the Skylark whispering gently and drying off in the sun. Careful map-reading found Tideford and, heaven sent, half a mile to the N.E., a newly cut and cleared corn field. A circuit round the village, and the local garage, brought out the proprietor of the latter to assist. This, he and his wife did most wonderfully: de-rigging, tea, and snacks, and finally seeing Pat, Carol and me off on the return journey at 1 a.m. One hundred and ninety-two miles by air; but oh! how many by road for the willing crew, especially when blow-outs, ferry boats, and night driving are freely thrown in for good measure?

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"Sailplane & Gliding" can be obtained in the U.K. at all Gliding Clubs, or send 2/8d. for it or better still, 15s. for an Annual Subscription to:—The British Gliding Association, Londonderry House, 19, Park Lane, London, W.1. Back issues are 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.

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The Cheap Syndicate Presses On

This is a sequel to the article, "A Cheap Syndicate", published in the Spring issue of GLIDING *last year*

IF you read your GLIDING (pardon, SAILPLANE AND GLIDING) from cover to cover like we do, you will have realised by now that the Druid syndicate had become the Petrel syndicate. If you don't want to know how this came about, we advise you not to read this article.

We had a successful winter with "Druid" (Kite 1), mostly at Dunstable, and by Easter had clocked some eighty hours and done another C. of A. Then we took her to the Mynd Rally, where we did *not* come out bottom. The only cross-country was by Roy, who was the first of the group to complete his Silver C by going to Bromsgrove, which he thought was Bridgnorth. This retrieve was epic in that two vehicles were used: Jim's "Sidderney" couldn't pull the trailer up the Clee Hills, so Ted's taxi went along to assist, then carried on for the ride. The Burway hill up the Mynd proved insurmountable, even in tandem, as the taxi, pulling first, had a lower bottom gear and Sidderney was catching up; Frank Irving came to the rescue.

So there we were: we had a nice aeroplane, we had acquired a trailer, a barograph and a parachute, one Silver C and the promise of more to come. We seemed well set for the summer. But, no! In the Midland Club's little hangar languished Mr Hardwick's Petrel. The more the chaps saw of this the more they liked it. One specification was first satisfied by Jim climbing into the cockpit to see if his stiff leg fitted. After that, consultations with the Midland Club Committee, Sling, Frank Irving, and all available pundits went apace. We left having made an offer, subject to our selling the Kite.

Two weeks later Dr. Kiloh came from Newcastle and bought Druid for an immense amount of money, which same measly sum the M.G.C. were prepared to accept for their Petrel.

The next step was to collect the goods. This was undertaken by Jim, Ted and Roy in Sidderney, with the Surrey Club's Daisy trailer, and turned out to be "one of those retrieves". The expedition set off with tins of food and sleeping bags at 8 p.m. on Friday, and arrived half way up the Asterton hill at, as usual, 0?.00 hours on Saturday. They crawled up to the top on foot and slept till Colonel Benson's voice on the phone woke them to the fact that their equipage blocked the hill. The day was

The Petrel at Lasham: The group's first view of her in one piece.

spent making adaptations to fit Petrel onto Daisy's trailer and the homeward journey began at 4 p.m., with some help from a friendly Land Rover until Sidderney warmed up. His final protesting squeak of brakes fell upon a sleeping Lasham.

On Sunday the idea was to rig the beast. But she wouldn't. Dozens of helpful bodies heaved and strained and shouted, but to no avail. Interval for lunch, after which we returned to find that three stalwarts had popped her together—no trouble at all! Then Frank Irving "snagged" her, with the vultures hanging around. When Frank's chisel revealed a smell no cheese has ever equalled in one wingtip, we began to wonder why we had let our nice little Druid go.

Jim hired a barn near Farnborough, and instigated the rebuilding of eight feet of wing-tip. Cables hung from rafters, a primus heated a five-gallon drum of water for bending the plywood, and one tended to step on chickens. There was alarm and despondency when a bug was found lurking in a corner. Jim popped it in a matchbox, and through the help of Malcolm Laurie it was found to be one of the sort which eat woodworm. In case some of its staple diet should also be lurking about, the almost-completed wing was hastily removed.

Soon all the group had their first flights, probably Petrel's first aero-tows. All came down grinning from ear to ear. Jim described her as an aerial goldfish bowl. Ann fulfilled an ambition at least six years old, and said she felt like the little man in the Mickimoa in Lawrence Wright's "Cloud Cuckoo" film. The most gratifying thing about Petrel seemed to be her slow flying speed. Thermal circling could be that much tighter—Skylarks, Olympias and even T-21's were left far below, shaking their fists as we shot up in the most powerful core. The A.S.I. sat nearly on the stop and was useless, so we all flew, most successfully, on the fore-and-aft-level indicator. And all this with better penetration than Druid's. It wasn't at all bad, and we left regrets behind.

The following week-end we flew over ten hours in her, and Jim did his Silver C height. And then came the cross-countries: Ted began by falling less than a kilometre short of the fifty. Jim did a leisurely 44 miles to Godstone, where the crew spent nearly two hours trying to find him in the last half mile. Alan has been evolving a radio homing device ever since. Then Ted made quite sure of his badge by going 64 miles to a marsh near Eastbourne. The "crash" was reported to the local fire brigade, who tried to cross the surrounding streams, and the local constabulary was in attendance. Petrel was carried in pieces on a haycart to the farm.

She spent the Comps. as a demonstration piece for the crowd, at one point doing a flat bungey launch for their amusement. Nearby an EoN primary was worked on a stand for Hulton Press by the group, for which we earned a handsome sum for the C. of A. and trailer fund. A familiar sight at dusk was the Procter Bradford chugging hangarwards with the "broomstick" in tow. Meanwhile we were working on the Comps. at a great rate, and trips in the Petrel saved our sanity and amused various pundits who were allowed to fly her. Among them was John Simpson, who has originally bought her from Slingsby and had kept her all the war in the grounds of a Reading school. Paul Minton, who was seen getting glummer and gruffer all week "on the gate", descended from a 3,000-ft. aero-tow one evening with a grin that threatened to split his face.

Soon after the Comps. Ted's ideas on gliding were straying from those of the rest of us, and John Bunting joined the group in his place. Meanwhile we were engaged on repairs to the starboard wing. A four-year-old repair had not been done properly and a piece had to be spliced into the rear spar near the root. We recovered the wing while we were at it, and Roy test-flew Petrel one Sunday in the very dusk. Only just in time, as an expedition was planned for the following week-end. The R.A.E. celebrate the Queen's birthday in October with a Monday off, and this week-end we decided to take Petrel to a hill. The wind caused the choice to fall for one near Blandford, and those who had to stay at Lasham were surprised to be awakened on Saturday night by Sidderney's usual squeak. A sodden and sniffling group reported that Petrel had had an argument with a molehill on landing, which had upset the skid and surrounding structure.

It was agreed to begin the monster C. of A. forthwith. We had made her just serviceable in the spring, and now intend to re-cover, paint her pretty colours (the colour card is worn out by much fingering and discussion), and generally make a beautiful job of her.

Jim took the fuselage to Farnborough; the wings are being done at Lasham.

"Sidderney" tows the Petrel.

Our progress report, as of the beginning of November, shows a total of some sixty hours by the group, plus about five given to "odds and sods", Jim Roy and Alan (also Ted) have their Silver C's (Alan completed his in a Skylark), and we had a wonderful summer's flying. We have still only invested the price of a depressed motor-car, and pay into the kitty 5/- a week running costs, NO flying fees. We can't understand why there isn't a healthy crop of such groups by now. What has happened to private enterprise?

JIM TORODE
ALAN CRONIN
JOHN BUNTING
ROY & ANN PROCTER.

POSTSCRIPT.—The colour decided upon was a good neutral white! Frances Torode: "Now I shall have to wash her *every* week instead of every other." It is now February and the workshops are cold. However, vast quantities of ripper and dope have been used to good purpose, and our target for test-flying is Easter. With the help of sums by Peter Bisgood we are fitting an anti-balance tab on the pendulum elevator to give some "feel", and there are plans to start building an open trailer before too much of the soaring season has passed. We *should* be well placed for summer 1956.

BRITISH GLIDING ASSOCIATION NEWS

Records Homologated

U.K. GAIN OF HEIGHT AND ABSOLUTE ALTITUDE: D. Piggott in Skylark II, on 14.7.55 from Lasham, 28,000 ft. absolute altitude and 21,000 ft. gain of height.

INTERNATIONAL AND BRITISH NATIONAL SPEED OVER A 300-KM. TRIANGULAR COURSE: Cdr. G. A. J. Goodhart, R.N., from Urinquinty- Yanko- Oaklands- Urinquinty, Australia, on 9.1.56, at a mean speed of 76.636 k.p.h. (47.62 m.p.h.). It should be noted that this record has been homologated by the Fédération Aéronautique Internationale as an International Record.

Whitbread Bursary

Colonel W. H. Whitbread has generously given to the Association, through the Central Council of Physical Recreation, £50 to assist glider pilots with a little experience to continue their training. This sum will be divided between five pupils, so that each will receive £10, to be used as credit for flying fees only during the 12 months following its receipt. The qualifications are:—

1.—The pupil must have attended a course of at least one week's duration, or have carried out 20 training launches in two-seaters.

2.—The pupil must not, at the time of application, have qualified for his C certificate, or carried out more than 100 flights in gliders or aeroplanes.

3.—Applicants who have taken courses or training prior to January 1st, 1956, are not eligible to apply and the closing date for application for this year will be July 1st.

Alex Orde Fund

The Council are disturbed to note that no claims have yet been made on this Fund, which was set up in 1955 to help young and promising pilots to reach the standard necessary to take part in World Gliding Championships, and has agreed that the qualifying age for the Fund should therefore be raised to 30 years of age, or under. Otherwise the conditions remain as set out in GLIDING, Spring 1955, page 1. (Two flights which should qualify for the fund were made on April 19th: 189 miles from Cambridge by Peter Neilson, aged 21, and 176 miles from Lasham by John Williamson aged 27.)

Glider Colours

The Council recommends that all Clubs and Private Owners should consider repainting their aircraft in a really bright colour, or putting such distinguishing marks on them as will make them really visible in the air. Gliders coloured red, flame, orange, yellow, pale cream, white and black, show up well and can be easily seen in widely varying conditions, whereas gliders painted grey, silver, pale blue or pale green, show up very badly in the air and increase the risk of collision. If it is impracticable to repaint the glider, or some major part of it such as the fuselage, to make it more conspicuous when flying, it should be given contrasting stripes or markings of a dark colour such as red, dark blue or black, or alternatively white.

Advertisements with remmittance should be sent to Cheiron Press Ltd., 3, Cork St., London, W.1. (REGent 0677) Rate 4d. per word. Box numbers 2s. extra. Replies to Box numbers should be sent to the same address.

WANTED

WANTED. A pair of Tutor Wings suitable for Kirby Cadet. State price, condition, age, and where same may be inspected. Box 24.

MEDIUM or high performance sailplane wanted: Dr. C. C. Ungley, Royal Victoria Infirmary, Newcastle-upon-Tyne.

TWO-SEATER–preferable T.31. A.W.R.E. Gliding Club, Aldermaston, Berks.

WANTED. Open or closed trailer to carry T.21 (Sedbergh) or trailer suitable for conversion. Details to G. Penteflow, Rothwell Lodge, Rothwell Rd., Kettering.

WANTED. With C. of A., 2nd hand T.21, T.31, Tutor, Intermediate and high performance such as Olympia and other equipment for Perranporth. Apply Cornish Gliding Club, Parc Sparbles, Carbis Bay, St. Ives, Cornwall.

WANTED. Second-hand Training Gliders and Equipment for newly formed Lakes Gliding Club. Reply Sec., 128, Burneside Rd., Kendal, Westmorland.

FOR SALE

FOR SALE. Kite 1 of Slingsby construction and in good condition. M. Mandefield, "South View", Norby, Thirsk, Yorks.

BAROGRAPHS. 8,000 metres, 3 and 6 hours, £27. 12,000 metres, 2, 4, and 10 hours, £30 (U.K. prices). From Thermal Equipment Ltd., 17, Hanover Sq., W.1 or the British Gliding Association.

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"SOARING"—Official organ of the Soaring Society of America. Edited by R. C. Forbes, British Gliding Champion 1951. Obtainable from Soaring Society of America, Inc., Post Office Box 71, Elmira, N.Y. and apply to your Post Office for a form.

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EASTER TASK-FLYING RALLY

THE Midland Gliding Club held its usual task-flying rally at Easter, but without the usual west wind till half-way through. The 15 entries will probably have made this the biggest event of the British gliding year, as there are to be no National Gliding Championships.

Laminar flow was much in evidence. The first production model of the Skylark III, which Philip Wills is to fly in the World Championships, was taken up by him for the first flight of its life on Good Friday. Hugh Kendall's K-1 two-seater turned up with its latest modifications, and though it attempted no contest flights, Harry Midwood persuaded Nick Goodhart to soar it in hill lift. The laminar-flow Olympia IV, flown by David Ince in the contest, had also undergone alterations, mainly to improve its performance at low speeds.

The first competition day was Saturday, March 31st. An anticyclonic N.N.E. wind contained thermals which were hardly good for more than 1,500 ft. above the Long Mynd, or 3,000 ft. above sea-level, and bits of cumulus which lasted only a few minutes per bit. Pilots had the choice of better thermals to the east or waves to the west, according to Mr. C. E. Wallington, who came to do the meteorological briefing from the Met. Office at Dunstable.

The day's task was for the longest distance along a line running southwards through Shobdon airfield and beyond, but only two pilots got any considerable distance, and that by contacting waves over the Black Mountains in Wales. Philip Wills climbed into the first one over a terrific windward-facing escarpment, and in the second wave over the Crickhowell-Abergavenny valley he reached 8,500 ft. This was enough for a glide across the Bristol Channel to Taunton, but his trailer was in South Wales, so he landed at Cardiff's new municipal airport at Rhoose.

David Ince rose to 6,000 ft. in the same wave system, which he found to consist of five waves, none of them marked by cloud.

At the Midland Gliding Club Rally, members of Cambridge University Gliding Club lift their "Bluebird" T-21b two-seater out of its trailer.

The first of them was 10 miles upwind of the Black Mountains escarpment, which must therefore have reinforced a wave system which was already there, though there is nothing on the map to show what could have started it up.

Ince landed beside St. Athan aerodrome, four miles from Wills. They had gone 80 miles, but Wills was nearer the prescribed line, so he became the day's winner with 100 points, while Ince earned 96.5. Wills, on his return, said he had been greeted on landing by Mrs. Sharland (better known as Miss Freydis Leaf), who had been doing an air-mapping job but had to give it up owing to the impossibility of flying level, and was glad to hear the reason why.

Allan Pickup and James Grantham, each in a Skylark II, made the next best distances of 32 and 31 miles, and there were several shorter ones—in fact, all but two got away, though many found no more thermals after those sent up by the Mynd.

There must have been waves to the east as well as the west on this day, for Sqn. Ldr. "Bill" Nadin dropped in next day in his Auster with the news that he had climbed to 9,000 ft. in a Prefect of the Air Training Corps from an aero-tow to 2,500 ft. at Mere, in North Staffordshire, leaving the cumulus clouds far below him.

Easter Sunday brought much the same weather, with slightly better thermals but a threat of high cloud spreading from a weak cold front over Scotland. The task was a goal of the pilot's choice; but, as before, nobody seemed inclined to let the N.N.E. wind carry them across the Bristol Channel, and many gave goals in Pembrokeshire, which involved their travelling across wind.

David Ince declared for Dale, the very last aerodrome at the far tip of Wales; but he reached Central Wales at the same time as some of the threatened cirrus and, although it was very thin, his thermals gave out and he had to set down at Llandovery, less than halfway to his goal. Then the sky cleared, and in time he saw another batch of small cumulus clouds coming along from the north-east, bearing Philip Wills's Skylark among the most advanced puffs.

Wills missed the "clamp" by not succeeding in getting away till after lunch on his third launch. He was making for Carew-Cheriton and missed it by only four miles, landing at Tenby. He had passed through a wide belt of smooth lift parallel to the South Pembrokeshire coast, 6 to 10 miles inland, and thought he could have reached his goal if he had only followed this lift farther. It must have been created by a "sea breeze", as he landed in a south-west wind.

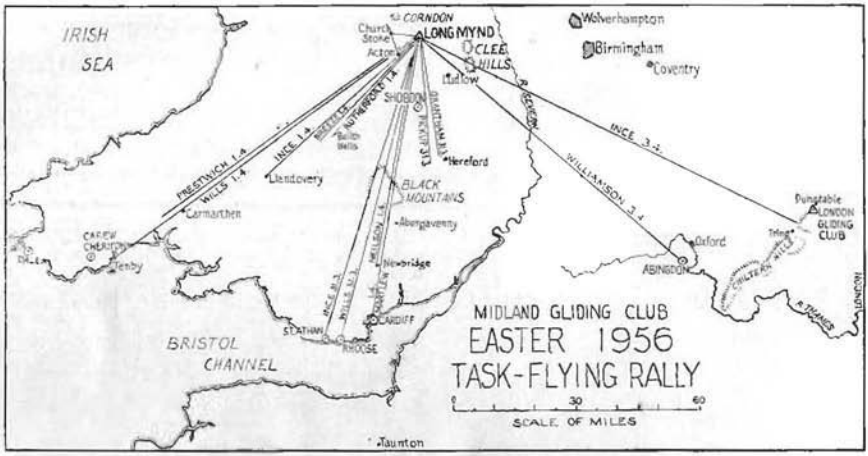
Richard Prestwich, in his Skylark II, made for the same goal as Wills, 100 miles away, and missed it by 20 miles. He avoided Ince's "clamp" by getting away early on his first launch; but his only reliable lift was in "wind-shadow thermals" from south-facing slopes. Towards the end it got so hazy that he had to navigate by following a motor-coach with a conspicuous roof, which was evidently bound for Caermarthen. Just after landing, he saw a buzzard flapping under full power, so "honour was satisfied".

Only one pilot reached his goal—David Martlew, flying the Surrey Club's Weihe. He had declared for the old Cardiff airport, 73 miles away, and reached it in 3½ hours after soaring in the slope lift over the Black Mountains, but without contacting any waves. With 30% bonus marks for attaining the goal, this made him the day's winner and lifted the Weihe to second place in the contest with 131.7 points to Wills' 194.5. Ince was in third place with 116.7, Prestwich and Pickup's Skylark II had 98.6, and the Cambridge University Skylark II, flown by Grantham and Neilson, 84.4. Neilson had missed St. Athan by 21 miles.

Easter Monday brought more cumulus than before, but it was flat and ragged. The wind started north and finished west. A race round a 22-mile triangle was set, with turning points at Acton to the S.W. and Church Stoke to the W. Nobody got round; and although David Martlew failed to do so by only three miles, he could not satisfy the judges that he had identified the first turning-point. Prestwich in a Skylark II and Chris Riddell in Skylark I were the only others to round the second turning-point, so they each earned 100 points.

Four pilots rounded the first corner, and among these Ted Shepherd, in the Midland Olympia, overshot the second turning-point to Corndon Hill, where he spent an hour and a half looking for it vainly through the thick haze.

The third day finished with Prestwich and Pickup's Skylark II leading with 198.6 points, just ahead of Wills with 194.5. Then came the Surrey Weihe with 131.7; Riddell's Skylark I with 122.3; EON Olympia IV with Ince, 116.7; Cambridge Skylark II with Grantham and Neilson, 84.4; Fred Breeze's



Gull IV, 32.15; Midland T-21b two-seater, 16.15; Anstey and Rutherford's Skylark II, 13.5. Other entries were the Cambridge Club's Olympia and T-21b, Midland Club's Olympia, Mü-13 from the Royal Naval Gliding and Soaring Association, and the Skylark II of Col. Benson, J. Knotts and C. Green, which was damaged early in ground-handling.

On the fourth day, Tuesday, everyone had to wait until a cold front had gone through at noon, after which they set off on the day's task, a goal of the pilot's choice. A strong W. to N.W. wind induced many of the visitors to try to fly home, or as near home as they could get. John Williamson, whose turn it was to fly the Surrey Club's Weihe, secured first place for it in the contest, as well as becoming the day's winner himself, by reaching his goal at Abingdon, 88½ miles away. He got stuck for three-quarters of an hour over the Clee Hills soon after leaving, and even sank below their top; but after that all went pretty well and he arrived at Abingdon at 5,000 ft.

David Ince would have beaten him to it if he had attained his goal of the London Gliding Club at Dunstable, 109 miles away, but he missed it by only four miles. He managed to reach the Chiltern Hills before the thermals gave out and soared along them, but the Tring Gap proved too wide to cross without the help of thermals.

Allan Pickup reached the Clee Hills, but every thermal he got there rapidly became a downcurrent, and finally, after hanging around for 2½ hours, he landed at the bottom. Bruce Bowdler, the only other pilot to get away, reached Ludlow.

(*Adapted with permission from A. E. Slater's account in "The Aeroplane".*)

Final Results

	Pilots	*Sailplane*	*Points*
1.	J. Williamson D. Martlew	Weihe	231.7
2.	D. Ince	Olympia IV	202.2
3.	R. Prestwich A. Pickup	Skylark II	198.6
4.	P. A. Wills	Skylark III	194.5
5.	C. Riddell	Skylark I	122.3
6.	J. Grantham P. Neilson	Skylark II	84.4
7.	F. Breeze J. Hickling B. Bowdler	Gull IV T-21b	32.15 16.15
9.	J. Anstey R. Rutherford	Skylark II	13.15

SOLID WIRE FOR WINCH LAUNCHING

by ALAN PRATT
Instructor, Newcastle Gliding Club

GENERALLY throughout the gliding movement a flexible stranded wire rope of 20 cwts. to 30 cwts. breaking strain is used, and this has a weak link of 9 cwts. breaking strain attached at the glider end, which snaps if the load on the glider, due to gustiness or bad winching, is too great.

Owing to the very high cost of stranded wire rope and its short life, due to abrasion on the ground and high-speed operation, The Newcastle Gliding Club decided to experiment with solid steel launching wire. These experiments were made with the Club's standard equipment, without any modifications whatsoever. From the results obtained, slight modifications to the winch drum gear have proved necessary, and these are detailed in this report.

Equipment Used.

WINCH.—A standard Wilde Winch (ex barrage balloon winch) having a Ford V8 engine and gear box.

The drum to hold the wire is 12 inches in diameter, with large side-flanges. From the drum the wire passes through two vertical side-rollers, and between two horizontal rollers which are mounted in front of the vertical rollers. No pay-on gear or any other method of distributing the cable evenly on the drum is fitted.

PARACHUTE.—A sailcloth parachute of approximately 3 ft. 6 in. diameter is secured to the wire at the glider end, to slow down its rate of descent when released from the glider.

WIRE.—The following different types of "cast" wire were tried.

(1) 14 s.w.g., 100 tons per sq. inch breaking strain.

(2) 11 s.w.g. 70 tons/sq. in. breaking strain, soft steel.

(3) 11 s.w.g. (0.116 in. diameter) 70-80 tons/sq. in. breaking strain cast steel wire. (Approximately 3,000 ft. equals 1 cwt.)

Results of Tests.

(1) Owing to its initial hardness this wire

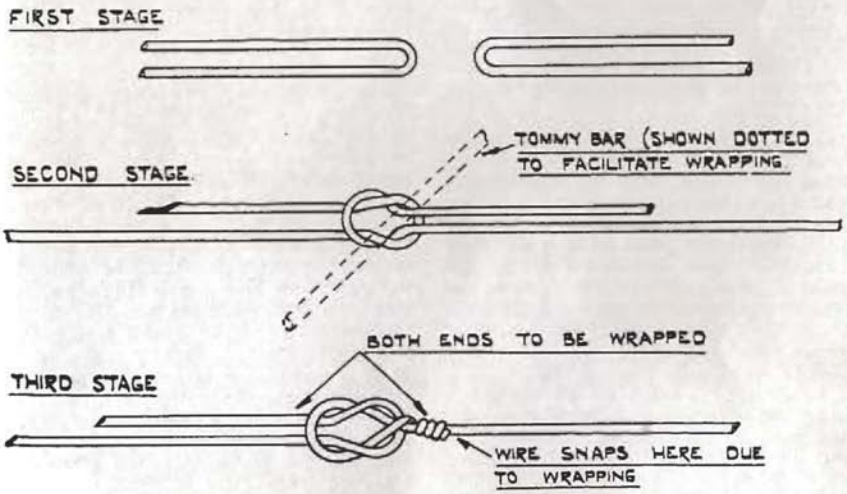


FIG. 1.

became so work-hardened by constant bending over the drum that breaks became frequent after a very small number of launches.

(2) This wire did not have sufficient reserve of breaking strain. It was found that, after a break, the joint in the wire parted almost immediately it came under load.

NOTE.—There has not been a single case of any type of solid wire failing under direct tension, with the exception of two occasions where the wire was badly worn due to abrasion of high spots where the wire had been kinked.

(3) This wire has been found to give the most satisfactory results. The first failure in this wire has always been due to mishandling on the part of the winch driver, or the pilot in the glider. Due to inexperience in the use of solid wire for launching, these failures have been more frequent than we expect them to be in the future.

OPERATION.—Approximately 3,000 ft. of wire is wound evenly on to the winch drum, and the parachute and weak link are added to the glider end. The glider end of the cable is attached to a car and pulled across the airfield towards the waiting glider, at a steady speed of 8-10 m.p.h.

Owing to the natural springiness of the wire, care must be taken on the tow-out to prevent violent accelerations or decelerations, as this causes loops to form on the winch drum which may be of large diameter and therefore prone to slip over the side flanges, or foul obstructions, with a resulting kink or snap.

LAUNCH.—The winch driver must first check that there are no loose loops of wire round the drum, due to the drum's momentum after the towing vehicle stops. If all is in order, the launch may commence.

First, the winch driver takes up any slack in the wire at slow revs., and when the wire is taut he increases the revolutions sufficient to pull the glider off the ground and allow it to take up a steep climb at an airspeed of approximately 45 m.p.h.

When the aircraft is within 30-35 degrees of being directly overhead of the winch driver, he should throttle back; the pilot must then immediately release the towing wire. Pilots must not release until there is a fall in air-speed due to the reduction in winch engine revolutions, indicating that the winch driver is ready for the release. (This of course does not mean that the pilot is forbidden to release at his own discretion in the event of an emergency.)

When the winch driver sees the wire is free, he should open the throttle slightly to keep a light tension on the down-coming wire until the parachute touches the ground, whereupon the drum should be taken out of gear and allowed to free-wheel to a stop.

Possible Causes of Trouble.

If at any stage of the launch the pilot releases the wire while in tension with the winch throttle open, the ensuing spring in the wire, combined with the rapid acceleration of the drum, will result in one or more loose loops forming on the drum, which may be partially covered by succeeding layers. Unless great care is taken when retrieving the wire to the take-off point, a snag or kink will develop from these loops and result in a break during a later launch.

In the event of the aircraft being allowed to get almost directly over the winch before the pilot releases the wire, it is not possible to keep a light tension on the wire (except in very strong winds) without over-revving the winch. This would result in loose loops on the drum with subsequent damaging of the wire.

In the event of the wire not being wound-in as instructed above, the cable-retriever must drive all the way back to the winch and then return to the parachute, checking the wire from the winch to ensure there are no kinks before retrieving it.

Once the wire has been broken due to the formation of kinks as mentioned, a joint is necessary which must combine strength with flexibility. The only joint which has proved satisfactory is a reef knot.

JOINTS.—To tie the reef knot, a U-shaped bend of small radius is made in each end of the wire (see Fig. 1), and the two ends are threaded together to form the knot and tightened by a strong pull (Fig. 1, second stage).

The loose ends of the wire are then wrapped closely around the parent wires for 2½ to 3 turns, as shown at the right-hand side of the sketch showing third stage in Fig. 1. A tommy bar, shown dotted at the second stage (Fig. 1), should be used to facilitate this wrapping. The loose ends remaining are twisted back and forth parallel to the axis of the parent wire, and a snap quickly results close to the wrapping.

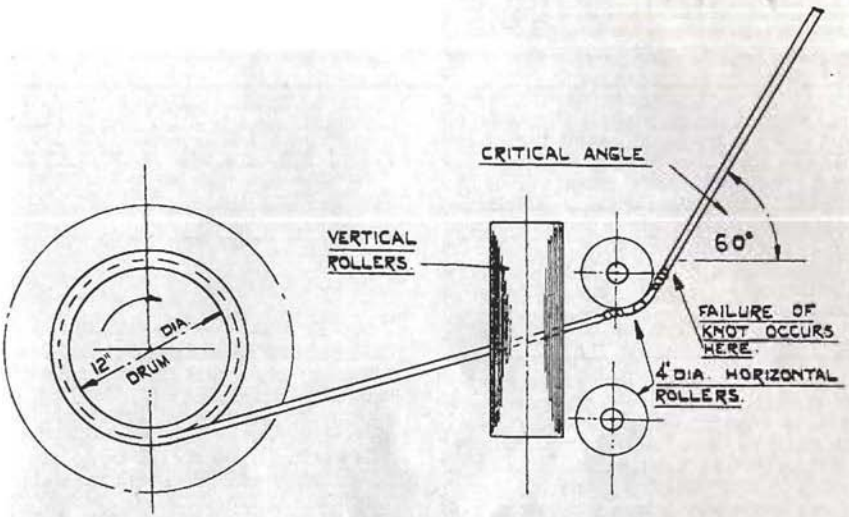


FIG. 2.

Operating with the wire in its original unjoined state, there has been no direct failure. Due to lack of care and inexperience—together with over-enthusiasm to retrieve the cable for the next launch, loops have been pulled into kinks, which eventually caused a break. When one or more knots have been made in the wire, they become points where failure will occur even under expert operation.

The knot itself is subject to a great deal of bending when passing over the rollers at acute angles, and this gives rise to work-hardening and ensuing brittleness immediately behind the wrapping of the wire joint. The break occasionally occurs under direct load at this point, but more frequently as the knot is passing over the 4-inch diameter guide rollers when the angle is in the region of 60 degrees (see Fig. 2).

Conclusions

The life of the solid wire is short compared to the best-quality stranded wire rope when using the above-mentioned drum and rollers without pay-on gear, but cost for cost the solid wire wins hands down.

With automatic pay-on gear, and the guide rollers re-arranged to reduce the cable angle, almost trouble-free operation should be a certainty.

With the present roller system a knot should be re-tied after 30 to 40 launches, removing the work-hardened material in the process. The number of knots should be kept to a minimum at the expense of removing lengths of 10 to 20 yards to convert two knots into one.

If the wire is being operated on an abrasive surface such as a hard runway, the knots may require renewing because of wear after only 20 launches.

With present equipment, the life of a length of wire is approximately 500 launches. With the modified drum and rollers and the addition of pay-on gear, this figure should be doubled, or even trebled. It has also been observed that the use of solid wire reduces wear on the surface of the rollers, and provides a polished finish.

The Newcastle Gliding Club is indebted to Messrs. British Ropes, Ltd., for supplying the wire used in these investigations, and for technical assistance.

[We are also indebted to Messrs. British Ropes, Ltd., and their magazine *Rope Talks*, for permission to publish this article.—ED.]

THIS GLIDING

UNDER this heading in our December, 1955, issue, we reproduced from *Woman's Own* a despairing letter from a lady whose husband neglected her to go off gliding every week-end, asking "where am I failing him", and eliciting a helpful reply from *Woman's Own's* expert in family affairs. That this particular problem is world-wide is evident from a similar cutting from a German periodical, sent us by Martin Deskau, of which the following is a translation:—

"*He is 20; I am 19. For a whole year we had been happily betrothed. Every day we were together, and my fiancé had time only for me and for nothing else in this world. But for the past three months all this has changed. A friend of his has inveigled him into gliding. He finds it so enthralling that he squanders the whole of his spare time on the gliding field and in the club. When I complain, he says: 'There is nothing to stop you coming with me!' Yet when I go there, it is just one big frustration. He sits in the machine or works on the machine. For me, all he has is just one word 'later . . .' Now I have said to him: 'Choose between your sport and me.' He answers: 'A man needs variety.' My parents only laugh. They think I should be glad that he has 'flown away' from me. Yet I love him still and want to win him back. But how do I do that?*"

This brings a lengthy reply from the magazine's expert in affairs of the heart—twice as long as the original letter. Here is some of it:—

"*In the Middle Ages there was a love potion by means of which one could recapture the unfaithful or indifferent lover. Unfortunately I have not the recipe. But what you have done is an infallible recipe for getting rid of a man with the utmost possible speed. A 20-year-old young man cannot sacrifice all his free time and his hobby-horses to the lady of his heart. He must master the world and all its opportunities. So your fiancé has every right to take up gliding. It is also clear that at first he will succumb to this passion. If you truly love him, you should understand that. You must try to join in his hobby. This does not mean that you should squat sullenly in the club waiting for him to come down from the clouds, but that you yourself should take part in this sport. Gliding is not exclusively a masculine pursuit. If you cannot join in, then you should fill in your spare time with your own interests and await calmly what will happen to your love . . . If you uncomplainingly leave him to pursue his hobby—if you also, with maidenly cunning, keep him waiting, then in a short time he will become impatient and will gladly give up a few flying hours in order to be with you.*"

* * * *

Pest Control Sought

"To the list of 'pests and nuisances' which trouble farmers, a new one was added on Wednesday—the glider. Mr. M. Shaxson said at a meeting of West Sussex National Farmers' Union Branch Executive Committee that three gliders came down into his field at Midhurst, all of them without notification, although the occupants had said they had previously decided to land there."—*Midhurst, Petworth & District Times.*

'UP & DOWN'

Belgian Year

Two Belgian feminine records have been beaten during the past year: the distance by Mme. Debauche with 65 miles from Temploux to Aachen in a Spalinger-18 on May 15th, and the duration by Mme. Litt with 5 hrs. 50 mins. on August 17th. M. Xhast, who broke the two-seater record with 6 hrs. 18 mins. on the same day, was the winner of last year's Belgian national contest, in which he flew a Spatz. Bad weather during the contest, from July 17th to 24th, limited distance flights to less than 22 miles. During the meeting two German sailplanes, a Schleicher Rhönlerche and a Greif 1, were presented by their makers. This year two national gliding centres will operate: at Templouse for high-performance flying, and at St. Hubert for beginners' courses, which will cost 3,000 frs. (£21) for 3 weeks to the B stage, plus 1,100 frs. (£8) for food, and free lodging. Total flying for 1955 was 1,376 hours from 5,056 launches, Mr. A. van Ishoven writes.

GERMAN SOARING EVENTS IN 1956

by Martin Deskau

As we are participating in the World Soaring Championships at Saint-Yan, no centralized DAeC (German Aero Club) contest is being held. Instead, contest flights can be made from any gliding site throughout the year. Good flights are to be reported to the Soaring Flight Commission of the DAeC, and barograms, etc., have to be sent in.

There are two classes in this contest, a *Leistungsklasse* (for pilots older than 21 years) and a *Nachwuchsklasse* (for pilots under 21). Minimum performances, below which no points are given, are 250 km. and 150 km. respectively for free distance flights (1 point for each km.), 200 km. and 100 km. for goal flights (1.5 points for each km.), and 150 km. and 80 km. for out-and-return flights (2.5 points for each km.). If two-seaters are flown by two people, all minimum distances are reduced by 20%. The same sailplane can be flown by more than one pilot. Winner of the contest is the entrant on whose sailplane most points have been collected, and prizes go to the entrants. The Landesverbände (regional associations) of the DAeC can also give special prizes for the best entrants in their region; for this purpose they can reduce the minimum performances.

The second important contest is for the Ferdinand Schmetz* Segelflug-Preis. This is for pilots of under 30 years only. The tasks are triangular flights of 100 km., 200 km. and 300 km. length. Only single-seater sailplanes are to be used, and only completed courses count. Speed matters if several pilots have flown equal distances. The flights can begin and end on any gliding site in Western Germany. This contest lasts from March 1st to October 31st. Winner is the pilot who has flown the greatest distance during this time. He receives a prize and he can use an HKS-1 for one year if he has made one 300-km. flight or one 200-km. flight or three 100-km. flights during the contest; his club receives 3,000 DM in cash. The club of the second best pilot gets 2,000 DM in cash and third to seventh prizes are 1.000 DM each.

Then a bigger Rhön contest will be held this year at the Wasserkuppe from July 27th to August 5th. Participants will be divided into two groups, those with contest experience and those without. The tasks are free distance flights, goal flights, out-and-return flights, triangular flights, and for pilots of group II endurance flights, in case no distance flights are possible. Special prizes will be given in a technical contest for designs which make gliding safer or more economical, or which make better performance possible. The sailplane entered in this contest must, however, participate in the gliding contest for at least three days.

On February 26th a big air show was held on the ice of the Titisee, Black Forest. Some 20,000 spectators watched the display, in which Elli Beinhorn, Albert Ruesch from Switzerland and Carli Marsen, doing aerobatics in his sailplane SP-1, participated, amongst others.

* Ferdinand Schmetz, with E.-G. Haase and H. Kensche, was responsible for producing the HKS sailplane.

CZECHOSLOVAK TWO-SEATER GLIDERS

by R. A. G. Stuart, M.A. (Cantab.)

CZECHOSLOVAKIA was probably the first country in the world to standardise all glider training on two-seaters and abandon the old method of training on single-seaters altogether. It is therefore interesting to see how this has worked out in practice. It is generally agreed that the new method is far better than the old one, but there is not the same unanimity when it comes to the question of what sort of glider the two-seater should be.

The type standardised in Czechoslovakia was the LF-109 Pionýr (Pioneer), now known as VT-109, as all gliders now have the prefix VT which stands for Větron Typ (glider type). While this type, which was designed by Vladimir Stross, satisfactorily fulfils its design function of training glider pilots as quickly and safely as possible, it has several defects when it comes to conversion to single-seater types. For example, it was often found in practice that instead of being able to convert directly from the Pionyr to the VT-125 Sohaj (Gallant), an intermediate stage on the VT-24 Krajánek (Journeyman) was necessary, though the designer states that this should not be necessary, as the performance of the Pionýr and that of the Krajanek are much the same. Other criticisms of the Pionýr, which is widely used in other East European countries besides Czechoslovakia also, are that its climb on aero-tow is too slow, its speed range is not large enough, its pilotage lacks smoothness, and its hangarage would be improved by smaller span. However, the first of these points is largely due to the low power of the tugs generally used and the relatively heavy weight of any two-seater design. Further, its designers had been transferred to other work before the completion of the second prototype, and all the manufacture and testing went on without the supervision of the designer responsible (Ing. Stross), with the result that some faults which would have been rectified if he had been there, were not in fact remedied.

The Pionýr has on the whole done a good job, but the question arises whether it should now be replaced by a more efficient universal two-seater of the type suggested by its critics. In this connection it is interesting to note that Ing. Stross, assisted by Ing. Matějcek, designed an improved version of the Pionyr incorporating the modifications now suggested by its critics, i.e. a retention of the Pionýr fuselage but with slightly cleaner lines, and the fitting of wings and tail unit of aerodynamically better design, in autumn, 1952. The project, designated XLF-209, was submitted to the appropriate authorities at the beginning of 1953, but permission to build was refused on the grounds that the Pionýr was more suitable for the needs of the moment. The performance of the projected glider approaches that of the Sohaj and is much better than that type in circling, a factor which results from its ability to fly at 55 km/h. (34 m.p.h.) with two crew and 50 km/h. (31 m.p.h.) as a single-seater. The Pionýr's high safety factor in overload conditions and in hard landings has been retained, and the projected XLF-209 is also easy to repair and has a low constructional weight owing to the use of steel tubes. If permission to build is finally granted, the XLF-209 may well prove to be the answer to the critics.

DATA (calculated).—Span, 16 m. (52 ft. 5.9 in.); aspect ratio 13; weight 230 kg. (507 lb.); gliding ratio 24; rate of sink 0.85 m./sec. (2 ft. 9½ in./sec.) with two up, or 0.75 m./sec. (2 ft. 5½ ins./sec.) with one up.

THE GLIDING PRESS

OSTIV NEWS No. 1 is a newsletter of 14 multigraphed pages, edited by Betsy Woodward and Alan Yates, which has just begun publication. Much of this issue is about the forthcoming conference at St. Yan; but it also contains more than four pages of technical and meteorological Bibliography—a promising start on a job which it has been OSTIV's unachieved ambition to carry out ever since it was formed eight years ago.

Free Flight (Canada) has blossomed forth into a larger size, with 32 printed pages, and a charming cover photo on the February issue of a glider being put in the shade by "Miss Pennsylvania", whose name, address and measurements are listed within. Particularly interesting among the articles is one on a new tailless sailplane, the BKB-1, of 39 ft. span and 300 lb. empty weight, rigged by the insertion of one pin. The magazine in its new form costs £1 (Sterling) a year for six issues, from the Editor, P. Stickland, 36 Westover Hill Road, Toronto, 10.

The Thermal (Southern California) for April begins by reporting a lively discussion on aero-towing ("It is very disconcerting to the tow pilot who has been flying around trying to locate thermals, to look back and find no glider"), and on spiralling ("At 80 m.p.h. making a 20-second turn you cover more area than at 40 m.p.h. in a 25-second turn").

Soaring (United States) for March-April concludes a series of four magnificent articles by Dr. Joachim Kuettner, on the Jet Stream Project at Bishop, which started in the September-October issue last year. We hope to summarize these shortly.

Australian Gliding for January has a fuller account of the South Australian Contest which its editor, Allan Ash, has already described in SAILPLANE & GLIDING. The magazine is obtainable from him at Box 1268 L, G.P.O., Adelaide, for 24s. (Sterling) a year.

Thermik (Göttingen, Obere Maschstrasse 8) describes in its January issue a new aerobatic two-seater, the "Stosser", with 5 degrees sweep-forward of its 42 ft. span wings and an all-up weight of 1,003 lbs. Gliding angle is 1 in 26 and minimum sink 3 ft./sec.

Vuelo Silencioso (Argentina).—The issue of September 1955, just arrived, begins with a reprint of the article by Frank Irving and Lorne Welch on their Channel Crossing, published in the last Summer issue of GLIDING under the title "One Loose Glider" which has been translated "Un Velero perdido."

Wingspan (South Africa).—The last issue we received, dated May, 1955, describes a lee wave 100 yards out to sea all along the coast of French West Africa, caused by a land breeze and rising to just over 1,000 ft. Betty Rowell, who discovered it while flying home from England in an Auster, thinks it may extend 1,300 miles continuously from Morocco to Cape Verde.

Gliding Certificates

SILVER C CERTIFICATES

No.	*Name*	*Club*	*Date of completion*
549	J. J. Brock	Surrey Gliding Club	31.3.56
550	G. A. Thompson	Derbyshire & Lancashire G.C.	31.3.56
551	D. G. Goddard	Surrey Gliding Club	18.3.56
552	A. T. Morgan	R.A.F. Oldenburg Gliding Club	9.4.56
553	B. Brownlow	R.A.F. Oldenburg Gliding Club	10.4.56

APRIL C CERTIFICATES

C. W. Bentson	London	G. L. Allan	Scottish G.U.	I. H. Agutter	Southdown
G. H. Dixon	RAF Wahn	H. Simler	London	R. H. H. Corke	No. 92 G.S.
K. D. Massey	Perak F.C.	M. I. Orrey	RAF Moonrakers	M. G. Mandefield	Newcastle
J. Curd	RAF St Athan	A. R. Le Roy	Wessex	I. E. B. Banting	Wessex
J. Baker	Surrey			P. C. Cummings	No. 166 G.S.

M. J. Walker	HCGC Hawkinge
Margaret A. Lane	Surrey
D. G. Ellis	Isle of Wight
P. Burgoyne	HCGC Hawkinge
M. J. C. Wilson	Handley Page
R. W. Stevenson	No. 633 G.S.
P. S. MacKie	R.N. Fulmar
G. Johnson	Wessex
A. L. Pittwood	Wessex
A. O. Ellefsen	Derbyshire & Lancashire
D. M. H. Du Boulay	Surrey
T. A. Taberham	No. 611 G.S.
C. D. Tippett	Surrey
A. C. Boyce	No. 661 G.S.
D. J. D. Brown	Wessex

APRIL B CERTIFICATES

C. W. Bentson	London
M. E. Graham	No. 612 G.S.
R. C. Blake	HCGC Hawkinge
V. Asquith	No. 643 G.S.
A. O. Conibear	No. 624 G.S.
F. T. Walker	No. 613 G.S.
P. E. G. Emms	HCGC Hawkinge
P. J. Rouse	No. 613 G.S.
D. J. Spittles	No. 622 G.S.
M. J. Davies	No. 615 G.S.
L. B. Teasdale	No. 641 G.S.
J. A. Dalley	No. 615 G.S.
P. R. Butler	No. 631 G.S.
B. L. Clements	No. 613 G.S.
J. T. Carter	No. 89 G.S.
J. A. Kearsey	No. 615 G.S.
A. M. Hipkin	No. 613 G.S.
J. V. Lowther	No. 661 G.S.
B. W. Lawson	No. 614 G.S.
G. H. Dixon	RAF Wahn
R. F. Salvage	No. 615 G.S.
R. H. Hearth	Army
D. J. McCartney	No. 661 G.S.
R. Wolburn	No. 641 G.S.
R. G. Williamson	No. 641 G.S.
M. H. Gill	No. 643 G.S.
W. R. Thomas	RAF Moonrakers
R. J. Everitt	RAF Windrushers
C. M. Fitch	No. 614 G.S.
J. E. Heeson	No. 614 G.S.
R. J. Thompson	No. 623 G.S.
P. Hanneman	No. 613 G.S.
P. G. Smith	No. 612 G.S.
P. J. Wickens	No. 615 G.S.
R. Turner	No. 633 G.S.
D. W. Bloor	No. 632 G.S.
A. J. Pretlove	No. 614 G.S.
S. Roach	HCGC Hawkinge
E. Hunneman	No. 632 G.S.
P. J. Thomas	HCGC Hawkinge
B. J. Hoptroff	No. 623 G.S.
O. K. Welborn	No. 632 G.S.
M. W. Allsopp	No. 622 G.S.
F. W. Lovett	No. 634 G.S.
A. E. Hopley	No. 631 G.S.
G. N. Dawber	No. 631 G.S.
A. D. Groom	No. 631 G.S.
J. H. Hoskins	RAF Wittering
D. Knowles	No. 624 G.S.
R. Neve	No. 624 G.S.
P. C. Baird	No. 624 G.S.
T. Hardwell	No. 624 G.S.
D. J. Aldred	No. 624 G.S.
J. P. Griffin	HCGC Hawkinge
K. T. French	HCGC Hawkinge
M. C. James	HCGC Hawkinge
Anthea Parfitt	Surrey
P. Worsley	No. 643 G.S.
O. F. Darlington	No. 611 G.S.
R. A. J. Pearson	No. 611 G.S.
L. W. Smith	Fenland
M. G. A. Giles	No. 130 G.S.
J. M. Lambert	No. 643 G.S.
D. J. Ryder	No. 643 G.S.
R. P. Grace	No. 614 G.S.
J. P. Brooke	No. 624 G.S.
N. Dunmow	HCGC Hawkinge
G. Hancock	No. 642 G.S.
G. Kitson	No. 642 G.S.
D. B. Stockton	No. 642 G.S.
D. C. Bland	HCGC Hawkinge
D. A. W. Rivers	No. 643 G.S.
A. C. Adcock	No. 643 G.S.
A. F. Nightingale	HCGC Hawkinge
R. M. Logan	HCGC Hawkinge
B. P. Spriggs	No. 622 G.S.
J. B. Sowerby	No. 642 G.S.
F. R. Neate	HCGC Hawkinge
J. Deas	HCGC Hawkinge
R. P. Oliver	RAF Moonrakers
K. B. Hutchins	HCGC Hawkinge
D. G. Menzies	HCGC Hawkinge
S. J. Booth	Newcastle
D. F. Davies	No. 614 G.S.
P. D. Porter	No. 643 G.S.
C. J. J. Saggs	No. 613 G.S.
D. Squires	HCGC Hawkinge
G. G. Hurcum	HCGC Hawkinge
T. McCafferty	HCGC Hawkinge
J. Wilding	No. 631 G.S.
P. M. Race	No. 643 G.S.
J. T. McArthur	HCGC Hawkinge
N. R. Rogers	HCGC Hawkinge
M. R. Gamble	No. 623 G.S.
G. R. Todd	No. 632 G.S.
R. R. Goodbody	RAF Windrushers
D. Graham	No. 661 G.S.
J. J. Platt	No. 623 G.S.
C. P. Wakeley	No. 615 G.S.
G. J. Kelly	HCGC Hawkinge
K. D. Massey	Perak F.C.
J. Bonner	Aberdeen
A. V. Hull	No. 643 G.S.
F. P. Cook	No. 641 G.S.
R. L. Pateman	No. 614 G.S.
J. Curd	RAF St Athan
B. Willison	No. 644 G.S.
M. O. Milledge	No. 642 G.S.
J. P. C. Whitaker	Surrey
J. H. Jones	No. 614 G.S.
P. H. Dengate	HCGC Hawkinge
B. Lane	No. 624 G.S.
D. Kirby	No. 642 G.S.
J. A. Stockill	No. 642 G.S.
J. A. Wilcox	No. 644 G.S.
M. C. Virden	HCGC Hawkinge
R. A. Bradwell	No. 643 G.S.
J. Davison	No. 641 G.S.
R. E. Anstee	RAF Wittering
M. J. C. Penney	No. 614 G.S.
M. R. Brown	No. 615 G.S.
M. J. Mitchell	HCGC Hawkinge
A. L. Brookes	No. 644 G.S.
Bertille J. Hunt	Coventry
J. Baker	Surrey
B. Wallis	No. 612 G.S.
G. D. Rowles	No. 612 G.S.
M. McMenigal	HCGC Hawkinge
D. A. Howells	No. 633 G.S.
R. W. Gardiner	HCGC Hawkinge
J. D. Branch	No. 633 G.S.
G. A. Chappell	No. 633 G.S.
D. W. Miller	No. 612 G.S.
M. J. Baker	No. 621 G.S.
D. W. Cope	No. 633 G.S.
J. G. Mogg	No. 621 G.S.
N. Middleton	No. 643 G.S.
E. A. Nicholl	HCGC Hawkinge
J. Tattersall	R.N. Fulmar
K. G. Nott	No. 624 G.S.
V. C. Pearson	No. 615 G.S.
M. Coaten	No. 615 G.S.
J. S. Dore	No. 633 G.S.
E. P. I. Whittaker	No. 644 G.S.
D. Goodall	No. 633 G.S.
G. B. Standring	No. 633 G.S.
J. M. Yates	No. 641 G.S.
K. J. Crooks	RAF Gütersloh
T. Parker	No. 634 G.S.
J. H. Pickering	No. 612 G.S.
W. C. Elder	No. 662 G.S.
F. Whalley	No. 45 G.S.
G. F. Miller	Scottish G.U.
Joan M. Rowland	Scottish G.U.
L. H. Mason	Scottish G.U.
J. Paterson	HCGC Hawkinge
Heather M. Gregg	Coventry
J. A. Jones	No. 633 G.S.
R. W. A. Ellis	No. 612 G.S.
A. J. Cooper	No. 644 G.S.
B. M. Baker	No. 614 G.S.
J. G. Mingard	No. 612 G.S.
A. V. Skinner	HCGC Hawkinge
P. Ripley	No. 642 G.S.
P. Smith	No. 624 G.S.
P. Mumford	No. 614 G.S.
P. H. Baker	No. 621 G.S.
G. W. Goodman	No. 644 G.S.
F. E. Jarman	No. 612 G.S.
L. A. Cooper	No. 643 G.S.
G. Smith	No. 662 G.S.
G. L. Allan	Scottish G.U.
D. Johnstone	HCGC Hawkinge

C. D. Matthews	No. 621 G.S.
T. H. Cleev-Evans	R.N. Gamecock
B. P. Stirling	No. 631 G.S.
R. Terry	No. 615 G.S.
M. L. Gotch	No. 613 G.S.
N. C. V. Ireland	No. 611 G.S.
D. G. B. Francis	No. 613 G.S.
J. H. Sloman	No. 621 G.S.
J. H. Bartlett	No. 623 G.S.
A. G. Robinson	No. 632 G.S.
R. T. Nurse	No. 611 G.S.
G. C. Chappell	HCGC Hawkinge
G. W. McLean	No. 644 G.S.
I. H. Williams	No. 613 G.S.
J. E. Last	RAF Moonrakers
G. T. Willmott	No. 624 G.S.
M. S. Brown	No. 644 G.S.
C. Horsfall	R.N. Gamecock
P. W. Andrews	RAF Moonrakers
P. R. Borley	No. 104 G.S.
D. G. P. Stevens	No. 632 G.S.
J. M. W. West	No. 643 G.S.
R. A. Henderson	No. 662 G.S.
J. Jackson	No. 632 G.S.
G. F. Lawrence	No. 644 G.S.
P. McCusker	No. 2 G.S.
A. J. Vincent	Handley Page
D. G. Brocklesby	No. 643 G.S.
T. G. C. Dutton	HCGC Hawkinge
J. G. Munro	HCGC Hawkinge
R. A. Shaw	HCGC Hawkinge
D. J. Spencer	No. 623 G.S.
Hilda E. C. Barkel	Coventry
M. H. Powell	No. 631 G.S.
A. K. Tillman	No. 614 G.S.
B. P. Warmoll	No. 612 G.S.
R. Cummings	HCGC Hawkinge
A. M. Williams	HCGC Hawkinge
R. G. C. Evans	No. 634 G.S.
K. C. Ball	No. 622 G.S.
M. B. Townsend	HCGC Hawkinge
M. L. Luff	Surrey
L. T. Johns	No. 624 G.S.
D. J. Jones	No. 632 G.S.
A. J. Banks	HCGC Hawkinge
G. F. Barraclough	HCGC Hawkinge
C. C. Le Cornu	No. 622 G.S.
J. F. Chapman	No. 613 G.S.
H. T. Porritt	HCGC Hawkinge
L. A. Cullinan	Newcastle
R. A. Hare	RAF Moonrakers
Barbara H. Cartwright	Coventry
M. J. Townsend	No. 613 G.S.
G. C. Beange	No. 5 G.S.

APRIL A CERTIFICATES

M. J. Davies	No. 615 G.S.
G. H. Dixon	RAF Wahn
R. J. Everitt	RAF Windrushers
L. W. Smith	Fenland
S. J. Booth	Newcastle
K. D. Massey	Perak F.C.
J. Curd	RAF St Athan
N. Middleton	No. 643 G.S.
M. Coaten	No. 615 G.S.
K. J. Crooks	RAF Gütersloh
T. H. Cleev-Evans	R.N. Gamecock
A. J. Vincent	Handley Page
L. A. Cullinan	Newcastle

Other A Certificates are included in the B Certificate list.

MARCH C CERTIFICATES

J. J. Braithwaite	RAF Geilenkirchen
E. B. Jerzycki	London
D. H. Woolley	Oxford
M. J. Crosby	No. 1 G.S.
E. C. Knox	No. 661 G.S.
W. E. Rolph	RAF Windrushers
J. E. S. Temple	Oxford
L. W. N. Jones	RAF Gütersloh
Margery C. Jackson	Surrey
W. G. D. Birnie	No. 5 G.S.
T. J. Thomas	Midland
P. H. Ranson	Southdown
T. Dilworth	RAF Gütersloh
D. G. P. Brown	RAF Abu Sueir

MARCH B CERTIFICATES

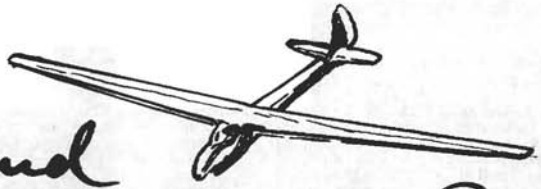
T. A. Walsh	No. 632 G.S.
G. J. W. Pettinger	No. 84 G.S.
J. N. Hopcraft	Surrey
G. C. Hart	RAF Abu Sueir
M. J. Gale	No. 624 G.S.
D. H. Eastmond	No. 624 G.S.
J. Chivers	No. 614 G.S.
R. Gilbert	No. 5 G.S.
J. H. Harris	No. 104 G.S.
M. J. Harwood	No. 634 G.S.
H. A. V. Banks	No. 122 G.S.
E. P. Greenberry	No. 622 G.S.
J. J. Braithwaite	RAF Geilenkirchen
M. B. Fortune	No. 188 G.S.
J. C. Hodgson	No. 621 G.S.
I. E. Woodcock	No. 632 G.S.
F. H. Smith	RAF St Athan
W. B. Russell	No. 622 G.S.
P. Harrington	No. 166 G.S.
J. F. Cumming	No. 2 G.S.
E. R. Oliver	No. 623 G.S.
M. T. Smith	No. 622 G.S.
E. B. Jerzycki	London G.C.
J. Embleton	HCGC Hawkinge
J. Donaldson	No. 634 G.S.
D. H. Woolley	Oxford
R. Finlay	No. 662 G.S.
R. Wake	No. 22 G.S.
P. J. Evans	No. 643 G.S.
B. R. Smith	No. 643 G.S.
K. F. J. Murray	No. 614 G.S.
D. J. Butterworth	HCGC Hawkinge
E. J. Lawrence	No. 643 G.S.
D. W. Burleigh	No. 611 G.S.
G. A. Masters	HCGC Hawkinge
G. E. Abel	HCGC Hawkinge
P. Willatt	No. 624 G.S.
P. J. Bond	No. 614 G.S.
R. N. Slater	No. 614 G.S.
M. J. Crosby	No. 1 G.S.
R. J. Chenery	No. 611 G.S.
J. N. Heath	RAF Moonrakers
J. O. Dean	HCGC Hawkinge
K. D. Unwin	No. 644 G.S.
I. A. Firth	No. 623 G.S.
G. R. Janney	HCGC Hawkinge
P. G. Blake	No. 633 G.S.
P. H. M. Kelly	No. 614 G.S.
D. Winters	HCGC Hawkinge
D. Cull	HCGC Hawkinge
G. Cunningham	No. 31 G.S.
D. N. Maw	HCGC Hawkinge
R. C. Paine	No. 614 G.S.
J. B. R. Brown	No. 624 G.S.
T. G. L. Silverside	HCGC Hawkinge
H. V. Howitt	HCGC Hawkinge
R. G. Jones	HCGC Hawkinge
R. L. Rastall	Coventry
Beril D. Sanders	Coventry
E. F. Uren	No. 624 G.S.
E. C. Knox	No. 661 G.S.
W. E. Rolph	RAF Windrushers
M. W. Sell	No. 87 G.S.
J. S. Wheddon	HCGC Hawkinge
G. A. Moore	No. 632 G.S.
M. Jillings	No. 612 G.S.
D. D. A. Magne	No. 622 G.S.
D. J. D. Brown	RAF Wessex
E. G. Wood	No. 614 G.S.
D. G. Kilby	HCGC Hawkinge
A. Webley	HCGC Hawkinge
M. D. Hannell	No. 615 G.S.
A. Dixon	No. 611 G.S.
I. R. Robinson	No. 633 G.S.
M. A. Wall	No. 631 G.S.
H. P. Buckminster	RAF Gütersloh
L. W. N. Jones	RAF Gütersloh
R. A. Smart	Surrey

MARCH A CERTIFICATES

J. J. Braithwaite	RAF Geilenkirchen
P. Harrington	No. 166 G.S.
J. F. Cumming	No. 2 G.S.
E. R. Oliver	No. 623 G.S.
D. H. Woolley	Oxford
Beril D. Sanders	Coventry
W. E. Rolph	RAF Windrushers
M. W. Sell	No. 87 G.S.

Other A Certificates are included in the B Certificate list.

Club and Association News



That the sport of Gliding is growing in popularity is evinced by the ever-increasing number of Clubs. In this issue we welcome the formation of the Kent Club, which should prove remarkably accessible to Londoners, and the Cornish Club, which will cater for many enthusiasts in the Westerly toe of England. Promotion of a new club is no easy task, and great credit is due to those organisers who have given so freely of their leisure time. Press Secretaries of Clubs are asked to note that contributions for the August issue will be required by June 25th and should be sent to 33B, Eccleston Square, London, S.W.1.

GODFREY HARWOOD,
Club & Association News Editor.

The Kronfeld Club

As the work of redecoration has been finished, an informal General Meeting was held on Wednesday, April 25th, instead of the usual talk, to find out what members' views were as to the future use of the Club and to ask for suggestions.

Although the ordinary Wednesday talks or films were appreciated and well attended, members thought it would be a good idea to run a series of more instructional lectures on such subjects as meteorology, pilot navigation, construction of aircraft, theory of flight, etc., and these will be run on a Thursday evening, and as soon as they have been arranged, a list of them will be sent to all members.

Our main need now, as was emphasised at the General Meeting, is equipment in the form of projectors for slides or films and in particular an epidiascope, so that we do not have to borrow them every time they are needed and there will be a charge of 2/- for each instructional lecture, which will go towards the purchase of such equipment.

It was also decided that during Summertime the Club would not be open on Fridays, as most members go to their Flying or Gliding Clubs, but if any members want to use the Club on Fridays, then it can always be opened by special arrangement.

The Membership is now over 200, but we can always do with new members and prospective ones are very welcome to come along if they want to see the Club before joining or if they are not in London and would like details they should write to: The Honorary Secretary, The Kronfeld Club, Basement, 74 Eccleston Square, London, S.W.1.

AUSTRALIAN NAVY

THE Gliding Association made its 2,000th flight on April 1st, after eight months of operations. We now have 20 regular solo pilots, and are considering the purchase of another single-seater, probably Edmund Schneider's latest design—the ES 56, which came second to the LO 150 in the Australian Championships.

News has just been received that Tony Goodhart, our Chairman and C.F.I., has been selected to represent Australia at the World Championships, but it remains to be seen whether the naval authorities will approve.

When the First Sea Lord, Admiral Earl Mountbatten of Burma, visited the naval air station at Nowra recently, it was considered that he had probably seen plenty of powered air displays, so a gliding display was arranged. A naval airman flew our T-31, and aerobatics were done in the Grunau. The Admiral was so impressed

that he demanded a flight, and he and Countess Mountbatten were both taken for short flights in the 2-seater which they thoroughly enjoyed.

A.C.G.

AUSTRIA

THE annual general meeting of the Austrian Flying and Gliding Association was held on March 23rd and 24th, when it was announced that since the war the total of flying and gliding clubs had reached 152, with 350 gliders and 30 power aircraft. Up to the end of 1955, 60 A, 110 B and 170 C certificates had been awarded, and 18 silver C badges won.

BRISTOL

A SUCCESSFUL Easter Camp at Nympsfield marked the start of the Club's permanent occupation of the site and gave an indication of the type of flying we may expect there. Prodigious last minute efforts on the part of Alwyn Sutcliffe and an extra keen team had the T.21 trailer completed just in time, so that with the Olympia and Worley/Fisher Kite II, we had three aircraft flying.

On Friday and Saturday, in spite of a N.E. wind and low inversion, strong and frequent thermals were encountered and many members had the unfamiliar experience of having to open the brakes at 1,000 feet to get down. On Sunday the conditions deteriorated and by Monday had become calm and anti-cyclonic: however a number of members and visitors were introduced to the site. A most professional looking dry stone wall now forms an imposing entrance.

On Tuesday the wind obligingly went round to W.N.W. and gave us the first opportunity of soaring the main ridge. We were not disappointed and found that 1,200 feet was easily maintained, while Mike and Betty Garnett found themselves at 4,400 feet above the site and still going up in what was almost certainly wave lift.

Altogether a very satisfactory Camp and greatly reassuring. With Prefect and Tutor flying at Lulsgate a total of 41½ hours was flown over the holiday. The average time of flight at Nympsfield of 17 minutes com-

pared with 6½ at Lulsgate gives an indication that our target of 1,000 hours per year is not unduly optimistic.

The hangar is now virtually complete and is undoubtedly one of the finest glider hangars in the country. Built by the Curtis Engineering Co. of Frome, it is constructed of steel portal frames with asbestos cladding and is 70 feet in span by 60 feet deep. Full span doors are fitted and we expect it will hold eight or nine gliders without elaborate stacking.

Work is in progress on the barn/clubhouse conversion, though this is still far from complete. Members sleeping in the loft recently were awakened in the small hours by the sound of breaking crockery from below and were startled to find a pair of horses investigating what may once have been their stable.

Our tenth post-war A.G.M. was held on March 22nd, the chair being taken by Rex Young. John Cochrane, John Parry-Jones, Tom Parkes and Nick Lyons as Chairman, Vice-Chairman, Secretary and Treasurer, respectively, were returned unopposed. After much discussion the meeting regretfully adopted the proposal to increase the Associate Membership subscription (for men) to £2 2s. 0d. and the entrance fee for flying members to £4 4s. 0d. This latter step forms part of a policy to restrict intake of new members to a number that can be trained quickly and efficiently without interfering with soaring by more advanced members.

E.T.L.S.

CAMBRIDGE UNIVERSITY

With the beginning of term and the better weather, everybody's spirits (and most of the gliders) have been soaring, and a very good start has been made to the season. During the vacation all the aircraft went to the Long Mynd for a fortnight's camp, but unfortunately the West wind seemed to lose itself, and we had to be content with soaring the East face on the one day that it was possible in the Skylark and the Olympia. The Easter task flying was undertaken by three of our aircraft the T-21b "Bluebell", Skylark and Olympia. The best flight was on the Sunday, by Peter Neilson, who flew the Skylark to Newbridge, a distance of 62 miles.

Immediately after task flying the Olympia was taken by David Martlew, Lionel and Barbara Alexander and Bill Crease to the latter's hunting grounds in the Clwyds. Waves were found on four successive days, and "Alex" reached 7,400 ft. in one of them.

The outstanding flight so far this year has been Peter Neilson's Gold C distance and Diamond Goal flight from Cambridge to Exeter on April 19th. He covered the 188 miles in 6½ hours, a very fine effort for which he must be congratulated.

The first week of term, we held a week's continuous flying in which several first solos were flown. We were visited by nine R.A.F. cadets from Henlow, and Neville Cutler got his Silver C height in the Olympia. On April 21st, Bryce Smith completed his Silver C by flying to Cranfield.

B.H.S.

GERMANY

The Wasserkuppe Gliding Association is holding its first post-war competition in the Rhön mountains from July 27th to August 5th. Already pilots from Belgium, Egypt, Holland and Switzerland have entered. Tasks will include straight cross-country flights with or without nominated goal, out and return flights and triangular flights. Entries closed on June 1st.

CENTRAL AFRICA

The Soaring Association produced in February its first Newsletter, giving news of the Central African clubs, and much information of both general and technical nature.

The Bulawayo club has a hangar and clubhouse some 11 miles outside the town, and an H-17 and syndicate Kite I are much in evidence, the latter having been aerotowed. A T.31 is under construction supervised by Eric Churcher, and Messrs.

Patterson and Vorster maintain the Primary for which winch launching is available, with telephone line between take-off point and winch.

At Kitwe, in Northern Rhodesia, a new Bergfalke two-seater is to be seen operating from the airfield in the hands of Ted Pearson.

Main item of news from the Salisbury club is that a new site on the Golden Stairs road is being developed, some six miles outside the town. A hangar is being erected and a clubhouse is planned.

Umtali, oldest established gliding club in the Federation, has suffered a slice of ill-fortune, their T.31 2-seater having stalled on approach. Neither pupil nor pilot were hurt, but the starboard wing is a write-off. Pending rebuilding, operations have been resumed with the club's Primary glider.

CORNWALL

OVER 40 people attended the preliminary meeting of the Cornish Gliding (and Flying) Club held in Truro on March 21st. Many others sent assurances of support, and the promoter, Major J. W. E. Berry, C.B.E., put forward resolutions to form the Club, which were carried unanimously.

A Committee of eight members was elected as follows:—Major Berry—Chairman, F./Lt. G. T. Collins, P./O. E. J. Conium, Capt. G. B. Garland, W. Huxtable, F./Lt. L. S. Phillips, P./O. W. J. R. Robins, and A. F. Walmesley.

A site for gliding operations has not so far been finally selected, possible places being Perranporth, St. Mawgan, St. Eval, and St. Merryn. The entrance fee and annual subscription are fixed for the time being at 2 guineas and 6 guineas respectively. For details write to Major Berry, "Parc Sparbles", Carbis Bay, Cornwall.

COVENTRY

WE started the year with the feeling that we would be doing very well if we could equal last year's flying activity. Now we find that we are beating last year's statistics, in spite of the fact that for the majority of the time we have been operating with a reduced fleet, the Olympia being in dry dock for its C. of A. At the time of writing, April 17th, we have done 1,740

launches and 195 hours; these figures are up on last year by 39% and 12% respectively.

On March 4th, a party of six Viking pilots led by Vic Carr, the Deputy C.F.I., went down to Edgehill to see if any ridge soaring was possible. Although the wind was not quite in the right direction, it was very strong and it turned out that hill soaring was possible over a short length of the ridge within reach of the airfield and heights of up to 1,300 feet were recorded. Each of the pilots got in a spell of about forty-five minutes and for five of them it was their first taste of ridge soaring. John Greenway supplied the launches with his tractor which took the Viking up to over 1,000 ft.

A similar expedition on Easter Tuesday led by the C.F.I. introduced a further four pilots to the ridge at Edgehill, and on this occasion although the wind was not so strong, it came from a better quarter and the ridge was soarable along its entire length (about 2½ miles).

The Easter holiday as a whole was quite a success as every effort was made to increase the utilisation of the fleet to offset its deficiency in numbers; we have only the T.21, Tutor and Viking in use at the moment.

On Easter Monday, flying actually started at the unhallowed hour of 6.28 a.m. This was however, April 1st, and although Vic Carr was there to get things started, a large number of those who had promised to turn up had decided that they weren't going to be caught by such a blatantly obvious leg pull.

The best soaring day to date has been April 15th, when heights of up to 5,400 ft. were reached in dry thermals.

Since our last account eight more pupils have soloed—five of them ladies. They are, in order, Mike Thompsett, Ray Rastall, Beryl Sanders, Betty Barkel, John Colvin, Bertille Hunt (wife of the Club Secretary), Heather Gregg (youngest daughter of the chairman) and Barbara Cartwright. We now have nine active lady solo pilots in the club.

Also since our last account, Messrs. Smith, Greenway, Rastall, Bell, Gilbert and Colvin have obtained their "C" badges.

We are pleased to note that John Greenway has now graduated to the Viking, as this means that he will be able to join in the flying himself the next time there is a hill soaring expedition to Edgehill. In the past John, whose farm is in the immediate vicinity of the hill, has greatly contributed to the success of such expeditions by supplying advance information over the telephone and then laying out the launching cable in readiness for the arrival of the party.

It is now definite that we shall be holding a Summer Camp at Edgehill for the four weeks starting on July 14th. This year we expect to have some temporary hangarage accommodation which should save us a lot of time and anxiety. All enquiries about the course should be sent to P. Folkes, 130 Church Road, Molesey, Birmingham.

M.S.H.

DERBYSHIRE & LANCASHIRE

ALTHOUGH flying news should take priority, perhaps every twenty-one years social news might be allowed at the beginning of the club notes. On March 24th we had our twenty-first birthday party at Buxton; this consisted of a comparatively formal dinner, with speeches, and an excellent dance. The speakers were mercifully brief, amusing and to the point; Cyril Kaye proposed The Guests, John Furlong replying, and Philip Wills, The Club, Gerry Smith replying. Basil Meads presided benignly over all, still unshakably in the Chair after twenty-one years.

The two months since February 20th have seen rather too many East wind days, but despite this, there has been quite a lot of interesting flying, notably at and after Easter. The first half of this period produced chiefly training flying, the most notable event unfortunately being an accident—fortunately with no personal injury—to a Tutor, which left the edge at a height too low for comfort and safety, and started its final turn-in at a height too low to be possible.

On Sunday, March 25th, there was a soarable South wind and some thermal soaring was enjoyed by the club and also a visiting party from Cranfield, who had come up largely to get some hill soaring. Friday, March 30th, was good for circuits only; there was training, and also the first flights made by Harry Midwood and Roger Austin) in the K.1 since modifications were made to the outer wing-section. This machine seemed to cover an impressive distance, rather fast, from an ordinary launch.

Easter Saturday, the 31st, there was a strong North-East wind, and Bernard Thomas, suspecting waves, took a launch in the Skylark II and flew 3 or 4 miles across to Siggett Edge and the Mam Tor valley, where after gaining height in hill lift he flew out into wave lift, which took him to 7,300 ft., and allowed him to cruise over a wide area from Hathersage to Buxton, Whaley Bridge, Chapel-en-le-Frith, etc. Roger Austin, in an Olympia from Twinwood, reached the same height and had a 3½ hours flight. Angus Thomson in the club Olympia, completed his Silver C by a flight to near Market Drayton, using two thermals and about three waves, achieving both height and distance.

On Easter Sunday no distance flights were attempted, but there were 14 flights across to Mam Tor, and back, without anyone falling by the wayside. Monday was clear, with an inversion at about 2,500 ft., shown by a marked haze-horizon at that level. The wind was gentle, West, freshening enough to allow hill soaring, whereupon four members completed their C's—Ellefson, Derek White, Jack Bland, and Gaynor Rees.

Tuesday started with rain, but later produced yet another wave, easily reached from the West wind hill-lift. At first it attained 1,750 ft., later rising to 3,500 ft. for some time, but after everyone else had come down Mick Kaye got to 7,500 ft. and then regained the site, despite low cloud cover which had moved over it. On Sunday, April 8th, there was again a West wind wave in late afternoon—cloud at 1,400 ft. cleared away suddenly to reveal high lenticulars, Mick Kaye again getting highest, to over 8,000 ft. Waves having been kind up to now, we hope for more and stronger thermals than we have had this year at Camphill, and more and longer cross-countries.

All the summer courses have been fully booked, many more having applied than could be accepted. We are also having from time to time to restrict temporarily the entry of new flying members to avoid overcrowding at the ab initio stage.

A.H.B.

DUBLIN

We often wondered what our first cross-country effort would be like, and thought Silver C distance or thereabouts would be a satisfying start. Then, on Sunday, April 15th, it happened. Jim Bellew flew our silver Grunau over the hills and far away—62 miles to Wexford, to be precise. Jim is a power pilot who has been bitten by the gliding bug, although his comments after two-and-a-half cold and turbulent hours in the open cockpit are unrecorded! The flight in its early stages was something of an obstacle race over the Wicklow Mountains, Jim having to fly around Lugnaquilla (3,100 ft.) instead of over it. With a strong north-westerly pushing him on to the coast, he was busy making good a southerly track and diving away from cloud bases at an average of 5,000 feet. His arrival near Killurin turned the village *en fête* and he was soon recovered from the effects of his trip.

Sunday, March 25th, was another eventful day, when we finally connected with the "Wicklow Wave". Fred Heinzl (Petrel) and Jim Bellew (Grunau) were first away and roamed about at 5,600 feet for close on two hours. Afterwards Pat Whelan and Mike Harty got over an hour each. It was strange to see the hovering machines soar into a clear blue sky, for no trace of wave clouds appeared until quite late in the evening. Even the Cadet held launch height for 15 minutes!

We have had a goodly share of thermalling too, our chances being greatly enhanced by sure-fire launches to 1,400 feet, and scarcely a week-end passes now without people staying aloft for the odd hour or so. On Sunday, April 29th, Eileen Trost chalked up another "first" for the Club by soaring for 20 minutes, thus becoming the first lady to qualify for an Irish C.

We must record also the presentation by Mr. Denis Greene of the Irish Aviation Club of a perpetual challenge Cup for gliding to be awarded for the most meritorious flight of the year; the equipping of one of our V8's with a hydraulic tension gauge and an A.S.I. by C.F.I. John Byrne who thinks auto-tow is "woefully under-instrumented" and has made launching quite a scientific (and safer) business; and finally the leasing by the Kite syndicate of advertising space on their trailer which now displays a Volkswagen rampant on a field of . . . aluminium!

O'B.

KENT

Some seventy interested persons attended the inaugural meeting of the Kent Gliding Club on April 26th in Maidstone, when the film "Wings for Pauline" was shown. Hugh Gardiner, who has fostered the scheme so far, explained the terms of membership and stated that the Air Ministry has approved the use of Detling airfield, which is also used by the Royal Engineers' club.

Some forty persons were signed up as members, following an appeal by John Furlong for immediate action, and a Committee was elected as follows:—President—John Furlong, Chairman—Hugh Gardiner, Secretary—Mrs. Gardiner, Treasurer—R. Able, Publicity—P. Crabtree, Social Secretary—Mrs. Crabtree, C.F.I.—Ken O'Reilly, Ground Engineer—R. C. Davis, i/c M.T.—F. Parkins.

Pending the acquisition of gliders and equipment, the Kent Club will be flying with the R.E. Club, and operations will have commenced by now. Thus is resuscitated the original Kent G.C. which is claimed to be the first in Britain, having been formed in 1930 and disbanded on the outbreak of war in 1939. For details write to Mrs. Gardiner, 1 Devon Gardens, Birchington, Kent.

G.H.

LONDON

March really saw the start of the soaring season, and there were 432 launches for 82 hours with 2 silver C durations.

Easter was disappointing in wind direction and strength, but H. Kuntze in the blue Olympia managed to reach Halton, where he was re-launched by the A.T.C. and continued to Reading. This fine effort in marginal conditions won him a copy of "Soaring Pilot".

The annual Dinner-Dance was held on April 14th, and a model of a Sky was presented to Johnnie Walker, Vice-

President, for his servcies to the club over a quarter-century.

The £10 cheque donated by the late Capt. Lamplugh for the first Gold C from Dunstable went to Frank Foster, as did also the Dent Cup. The Cellon Cup for the best ab initio pupil in 1955 was awarded to L. Collins.

The next day Frank Foster and Philip Ramsden did out and return flights to Kidlington, while Noel Anson reached Yeovilton, 110 miles.

April also saw the new Land Rover retrieving vehicle in service, with an exclusive list of those permitted to drive it! No fewer than 25 gliders are now based at Dunstable, all spare space being occupied by de-rigged machines, while the trailer park looks very impressive. We could do with more hangar space, if only we had the money. Private owner groups number 13, and most of them are doing their own overhaul and repair work, which tends to increase the club's reserve of competent technical members.

The A.G.M. was held on May 26th—too late for inclusion in this issue. From July 30th, to August 4th, inclusive, we are arranging to hold a task flying rally, and it is hoped to invite members from other clubs to compete.

P.F.

The London Gliding Club Annual Dinner-Dance was held at the Clubhouse on Saturday, April 14th, 1956. Seated at the top table can be seen, from left to right—Mrs. G. H. Lee, Mr. G. H. Lee, Mrs. D. A. Smith, Mr. E. J. Furlong, M.B.E., (President), Mr. D. A. Smith (Chairman), and Mrs. S. O. Hiscox.

NEWCASTLE

THE sombre picture painted in my last notes has been lightened considerably in recent weeks. First, the Olympia has been equipped with C. of A. and Insurance, and already five pilots have converted to it. These five, Malcolm Sanderson, Harry Oxman, Alan Crawford, Denis Driver and D. Wilson, are now much envied by the other solo pilots who must be content for the present with the Cadet.

The second cheering event is the completion of the new winch which is expected

at Usworth shortly and should greatly increase the launching rate.

The 'chain gang' at work retrieving the cable after repairing a break.

The first thermal flights of the year were on St. Patrick's Day (March 17th), when Alan Pratt and Peter Wiles in the T.21b, and Andy Coulson in the Kite II, shared a thermal for half an hour.

The gipsy meeting was restricted to private owners, but the Silver Kite I, the blue Kite I, and the Kite II arrived at Greatham on Good Friday. Aero-towing proved impossible due to the gale force wind, but motor-towed launches to 1,000 feet with only 1,000 feet of wire were done consistently.

Next day S. C. O'Grady soared the North slope at Hutton Moor in the Blue Kite for 2¼ hours, landing eventually at Waterfall Farm near Guisborough. On Easter Sunday there was very bad visibility due to haze from a strong inversion at 3,000 feet, but Andy Coulson and Alan Pratt had soaring flights.

Easter Monday saw the first silver C duration flight done on the club site by Dr. L. G. Kiloh who completed it, in a combination of hill and thermal lift, and after an initial struggle, at Ingleby Greenhow. Thanks are due to the Tees-side Flying Club for fitting their Tiger Moth with a towing hook and thus largely contributing to the success of the gipsy meeting.

At Usworth during Easter, flying with the Cadet continued, and Bryan Marley, Jack Jones and Leo Cullinan gained their B certificates. It is hoped that the Wednesday sessions, now possible with daylight saving, will be well supported from now on, and with the new winch the launching rate should be about double that attained last year. L.A.C.

NEW ZEALAND

THE N.Z. Gliding Bulletin, March issue, gives further news of soaring in January on the Kaimai ridge by the Auckland Gliding Club; a fuller account of this ridge is given below, written by Gordon Hookings who gained his Gold C and goal diamond in France last July.

Over the Christmas vacations in both 1954 and 1955 the Auckland Gliding Club held soaring camps based at Waharoa, ninety miles from the city, but on neither occasion did the wind blow from the West often enough to provide much soaring on the Kaimai ridge. However, on New Year's Day, the formation of a roll cloud was noticed and all three gliders were taken up to about 7,000 feet. Similar conditions prevailed on January 4th, and provided several hours' soaring.

This ridge rises steeply from a broad valley to an average height of about 2,000 ft. above the valley floor, and it stretches for more than 20 miles so that magnificent hill soaring and wave soaring are available. There is an established airfield at Waharoa, seven miles from the ridge, and it is there, in the clubhouse of the Piako Aero Club, that the gliding club members make their base.

On Good Friday, this year, the Auckland Aero Club's Tiger Moth, piloted by the Club Captain, Merv. North, towed Ralph Court in the ridge in the Olympia and he rapidly climbed to an average cruising level of 3,500 ft. even although the wind was only a moderate South-westerly. Ron Meadows and Jim Bond were then towed from the airfield to the ridge, and at regular intervals one of the machines would land on the top-dressing strip for a change of crew. By this means a total of 13½ hours' soaring was logged by the two gliders, with six pilots enjoying the thrills provided by this excellent site. At the end of the day the Olympia was flown from the ridge direct to the airfield, while the T31 was towed back to the base by the Tiger Moth.

On Saturday, the cloud ceiling was low and the wind light and South-easterly. Occasionally the appearance of sunlight suggested a wave to the lee of a particularly

broken portion of the ridge, and Ralph Court reached a height of 3,300 ft. in what was almost certainly the second wave of the system in this region. About an hour before dark, Gordon Hookings was towed towards a smoother portion of the ridge, and after passing under the turbulent roll cloud (base 1,500 ft.) emerged to find a cloud-free region about ½ mile in width and 10 miles long, between the roll cloud and the ridge. Here the lift was characteristically silky smooth in the lower levels, although near the ceiling of 4,400 ft., there was large-scale turbulence. The return to the airfield just before dark was made via valleys in the cloud and it was not necessary to use the Turn and Bank, nor was there any perceptible turbulence.

Next morning—Sunday—the wind was still from an easterly quarter and Ralph Court was towed off in the Olympia without any breakfast, wave soaring being much preferable to food. Gordon Hookings and Roy Kemp followed in the T-31, but after ¾ hour the commencement of thermals must have spoilt the lee wave action; at any rate the T-31 had to land on the top-dressing strip after having reached a maximum height of only a little over 3,000 ft.

On Monday morning the thermal conditions promised to be good enough for Gordon Hookings to set off in an attempt to reach the Auckland headquarters at Ardmore. However the thermals did not live up to their promise and he had to land after covering one third of the distance. Meanwhile the odd thermal was being exploited at Waharoa and Merv. North completed his C in the T-31.

All who participated in the expedition returned full of enthusiasm for the soaring potentialities of the region, and counted themselves lucky that it was possible to soar on all four days of the holiday.

The Blenheim club now has 60 members, which is remarkable for the size of the town. Five are lady members. The T-31 has been launched 938 times for a total time of 145 hours up to the end of February, and had earned a nett profit of £170. Flying charges are:—for each winch launch 2/- plus 6d. per minute for the first five minutes flying time and 4d. per minute thereafter; for aerotowing (by Auster) 1/2 per minute, plus 4d. per minute glider flying time. The main ambition in this club is to soar across the sea from South Island to North Island.

The fourth annual training school of the Canterbury club was held at Simons Hill, some 10 miles from Lake Pukaki in the Mackenzie basin. Twenty-eight members attended and a total of 147 flights was achieved in the 12 days, total flying time being close on 100 hours. On January 4th, Christopher Wills attained 7,000 feet in a thermal flying the Tutor, being passed only by Dick Georgeson's Weihe which climbed to 9,000 feet. The latter machine has now been sold to a syndicate comprising Chris Wills, Trevor Husband and Warren Denton, while Dick Georgeson awaits a 2-seater Slingsby T-42.

From Otago comes a highly interesting report of the T-31 flying in the Mangatua Wave and reaching 10,000 feet with more to come, had not approaching darkness and cold compelled a descent. Thermal conditions at Alexandra are also reported to be very favourable.

At South Canterbury the club's Tutor has been flying, and at the time of writing the "Kookaburra" 2-seater trainer is almost finished, as is also the T-31 being built from kit parts by the Tauranga club, and another by the club at Wanganui.

OXFORD

ALTHOUGH we had two days in February when we managed a little soaring at Kidlington, flying was generally restricted to training circuits, with Chris Hurst qualifying for his A and B certificates.

March opened with the Club's Annual General Meeting, when the Secretary's report revealed that we carried out 3,839 launches in 1955 for a total of 415 hours flying time. This showed an increase of 22 flying hours over the previous year although the number of launches had decreased by 500. During the year 17 A, 16 B and 3 C certificates were gained, plus one Silver C height leg. Professor Varley was re-elected Chairman and John Gibbons remains Secretary for 1956.

March proved a pretty good soaring month. In particular we had one excellent day when all five aircraft in use were airborne at the same time. Eric Stow made a goal flight of 83 miles to the Long Mynd in his Olympia. Julian Temple, who recently completed a conversion course on to Olympias at Lasham, soared the Gull on his third flight as a member of that syndicate. Arthur Speechley has made us a magnificent time-keeping board, complete

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with clock and all mod. con. Meanwhile the Club G.B. is back, fitted with a wheel but, alas, no spoilers. However, a number of Tutor pilots have been duly converted on to it in time for what we all hope will be a good soaring season.

Having already had eight soaring days in March, April too, shows promise. On the 15th, Ross Dike qualified for his C certificate and Derek Barrett had a long flight in the Red G.B. John Ellis was up for two hours in the Gull and gained his Silver C height leg. George Varley, Eric Stow and John Gibbons were airborne most of the afternoon—John Gibbons opted to land at Dunstable whence Frank Foster and another member of the London Club did an out and return flight to Kidlington. This activity by our members amounted to 14 hours soaring for the one day.

D.W.H.R.

SURREY, ARMY & IMPERIAL COLLEGE

THIS year started well and by the end of March we had made twice the launches for the similar period last year. March itself accounted for 1,944 of these and just over 250 hours. We have also up to the time of writing, the end of April, gained 14 Silver C legs and these included Derek Goddard's 156 miles distance to Wales and Martin Seth-Smith's height and duration in thermals on April the 14th.

On April the 29th, "Gulliver", the privately owned Gull II, was towed to Petersfield and from there hill and thermal soared to Lewes and back, thus, we believe, breaking the British and U.K. 2-seater out and return record. What the records will not show is that it took three trailer journeys to retrieve the glider. A new private machine at Lasham is John Furlong's Sky now owned and flown by Paddy Pitt-Roche and Michael Pertwee.

Thanks to David Martlew, John Williamson and the Weihe, the Mynd Cup is back with us again for another year. John also flew the Weihe to Cornwall in April, a distance of 176 miles. This, together with Derek's trip to Wales, gives us a reasonable foundation for Douglas Trophy hopes for 1956.

On the administrative side, the Surrey A.G.M. was held on April 14th and Hugo Trotter, Godfrey Harwood, and Dick Watson are back as Chairman, Treasurer and Secretary, respectively. Points of interest raised at the A.G.M. were that we now had a paid staff of 10 and that for the first time the excess of income over expenditure had gone into four figures.

Due to the unsatisfactory position of our security of tenure, we have had to start a waiting list for new members, but we are taking people from this as soon as facilities allow, and although we have increased our course fees by 50%, the courses are now almost all completely filled. With regard to these last, they are again being run by outside instructors, so that flying is available under the two Dereks on all weekdays.

H.T.

YORKSHIRE

EVERY cloud has a silver lining, so they say; how we wish it had a west wind, too! At the time of writing the winds in the North to East sector are persisting and so far this year we have had only three or four good soaring days. Nevertheless we have made the best of it, and it was very encouraging when, at the beginning of March, Anthea Riddolls made her first solo flight—a grand finale to a good day's flying.

Soon after Easter a training camp for members was held and it seems that the five members who attended had a very enjoyable time, although once again the weather was unkind after the first two days. New members are coming along all the time, and training is progressing as quickly as possible.

The absence of suitable winds has however resulted in some good, for it has enabled the scheme for bringing water to the Club to be completed, and a steady flow is now being pumped up from the stream to the Club by water ram. The supply has been led into the kitchen and, with financial encouragement from two other members, Bob Swinn is now working on a scheme for the provision of certain improved facilities for our Ladies and Gentlemen. Fortunately Bob has a great capacity for hard work, and the club is indebted to him and all the other members who have toiled over a long period to make this water supply possible.

Coming events include a visit by members and friends to Blackburn & General Aircraft Ltd. at Brough on Saturday afternoon, June 9th, our first holiday course of the year, which commences on June 17th, and—let us hope—some really good soaring weather!

M.H.L.

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