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SAILPLANE AND GLIDING

OFFICIAL ORGAN OF THE BRITISH GLIDING ASSOCIATION

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COVER PHOTOGRAPH.—A Gull I executes a sharp turn while soaring over Dunstable Downs.—Photo by G. Butt.

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Lasham to Land's End

by A. J. Deane-Drummond

SATURDAY, 6th April, started well and by 8.30 small cumulus had sprung to life all over the sky. The wind was strong from the north-east and it was clearly going to be an excellent cross-country day if it did not cloud over too much.

Rather naturally, I had planned many trips down to Cornwall, but somehow these plans never seem to fit exactly the conditions as one finds them. The first problem was the declaration of goal. Should I go for Lands End or should I play safer and declare one of the airfields beyond Truro which are all over 300 kms. from Lasham? The wind was blowing right down the peninsula at about 20-30 knots, which meant that I would need about 5,000 ft. over Bodmin to make it. Conditions looked so good and the fascination of getting to Lands End made me decide on Lands End Aerodrome. I then marked off the five-mile points back to Bodmin, which is about 48 miles from the tip.*

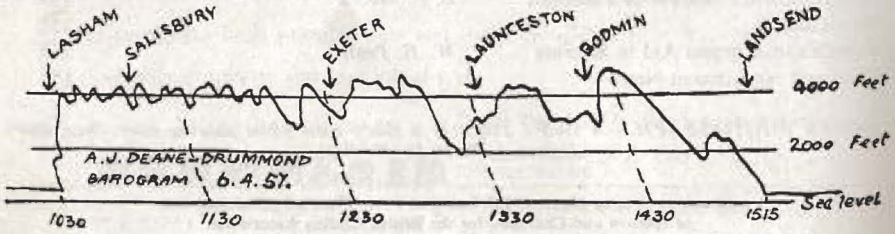
Clouds were quite shallow, and so it was vital that I kept where the thermals were most likely to be strong, which meant staying in the middle of the peninsula rather than attempting to use the sea breeze effect. If it was essential to pass over Bodmin, it was necessary to keep to the north side of Dartmoor, rather than allowing the wind to drift me down into the Plymouth area from which it might be difficult to escape. The most difficult part of the flight was likely to be between Exeter and Bodmin, and so it turned out to be.

*See article in SAILPLANE AND GLIDING, April 1957, page 92.

I was launched by car tow at 10.30 a.m. and soon found a thermal which blew me up to cloud base at about 4,000 ft. above sea level, a mile or two downwind of Lasham. The clouds were now formed in long streets a few miles apart and I resisted the temptation to make too full use of them. I had to keep on track and only followed each street down until I hit a strong thermal. From cloud base I steered off cross-wind to the next street and repeated the process. As a result I covered the first 100 miles in about two hours and was nicely placed a few miles north of Exeter for the rest of the trip.

Over Exmoor there was rather a lot of cloud which proved to be still fairly active, and from which I extracted the last scrap of lift. As we passed over the highest hill just south of Okehampton I cursed when I saw that the sky in front appeared to be completely blue. However, as we came closer there were a few small wisps of clouds scattered here and there and these all produced weak thermals. Over Bodmin there was quite a sizable cloud developing, and after a bit of a struggle we managed to get within reach. Sure enough a series of strong thermals pushed us up to nearly 5,000 ft., by which time we had drifted a few miles to the south-west. All being well, it should now be in the bag, and I started to fly as accurately as possible towards the goal. The air was now quite dead, but as I was well above the line at the first check point, I increased airspeed to 40 knots, which I held for the rest of the trip.

To my great astonishment, just past Hayle, I flew into an isolated strong thermal which I circled in for a few turns. I already



had about 700 feet in hand for the goal, but the suddenness and unexpectedness of this thermal almost forced me to use it. After climbing 700 feet I once again set course and flew straight through another thermal near Penzance. We arrived over the goal with 1,400 feet to spare and landed a minute or so later.

Subsequent examination of the barograph showed that the average rate of sink for 26 minutes during the last glide was 100 feet per minute, which gives a gliding angle of about 1 in 40 in still air, or about 1 in 60 allowing for the wind. I have had comparable gliding angles on several occasions last summer, so perhaps Sling has made his glider even better than he thinks.

A valiant retrieving crew arrived at 9 p.m., and by 9 a.m. on Sunday we were back at Lasham after 19 hours on the road. It is they who should get the medal.

OTHER FLIGHTS ON 6th APRIL

(*See map on p. 150*)

TONY Deane-Drummond's flight of 215 miles to Land's End, described above, was one of seven cross-countries made from Lasham that day. The others were:—

Mrs. Anne Burns in another Skylark 3, 140 miles to Harrowbeer aerodrome at Yelverton, between Tavistock and Plymouth, beating her own United Kingdom feminine record of 134 miles (see SAILPLANE & GLIDING, February 1956). At 11.45 a.m. Mrs. Burns writes, she was the last to take off of those who got away, and by midday the sky had clouded over at Lasham. Owing to the northerly wind she was soon down at the coast after skirting Southampton area, but, like so many others who have gone that way in a north-easterly wind, found something like a "sea breeze effect" giving good lift under a line of cumulus about a mile out to sea. One of her best thermals appeared to come, rather surprisingly, from the wet-looking Exe estuary. A climb to 5,500 ft. a.s.l. at Newton Abbott proved insufficient for crossing Dartmoor, over which, and beyond, there were no clouds, and she was nearly down at Princetown and considering a landing on the prison sports ground. But a wind-shadow thermal enabled her to continue to a landing at Harrowbeer at about 3.40 p.m. She concludes: "Never have I had so many helpers, including Dartmoor ponies."

David Carrow in a Skylark 3b, 109 miles to Exeter. He got away on the next launch after Deane-Drummond, and writes that the cloud streets were the most remarkable feature of the day, running diagonally towards the coast but petering out some 5 miles before getting there. He ran down the streets to about 15 miles from the coast, just before they began to die, and then jumped north-west to the next street, repeating this performance several times. After he had landed, the streets appeared to be "stratocumulating." He adds that the lift was extraordinarily good low down, in spite of a very strong wind.

Derrick Goddard in a Skylark 2, 91 miles to Lyme Regis. Like Mrs. Burns, he is reported to have used some clouds near the coast, unconnected with the streets.

Paddy Pitt-Roche in a Sky, 84 miles to Crewkerne. He had the next auto-towed launch after Carrow.

Mrs. Rika Harwood in an Olympia, 81 miles to Dorchester, where she was entertained to tea in the prison by its Governor (an experience which Mrs. Burns just missed). Mrs. Harwood thinks she would have done better to keep further north.

Tony Morgan, of the Fenland R.A.F. Club, 44 miles goal flight from Lasham to Christchurch in a Gull I.

On the same day, John Holder broke the Southdown Gliding Club's distance record by flying 90 miles from Firle to Coombe Bissett, south of Salisbury, in the club Olympia. He started from Firle at 10.30 a.m., climbed 1,450 ft., crossed the gap to Lewes and soared along the South Downs to Petersfield. From there he continued in thermals another 40 miles in a direction W. by N. before "closing conditions" brought him down.

The weather chart shows a cold front advancing quickly from the north-east, being over the Wash at noon and along a line Bristol-Bournemouth by 6 p.m.; it was evidently the cause of the "clamp" which chased the pilots. The air in which they flew was unstable up to a strong inversion which existed between 5,000 and 5,600 ft. It had come from the Arctic by sea, without touching Scandinavian land.

204 MILES OUT-AND-RETURN IN NEW ZEALAND

by S. H. Georgeson

(This unique flight in both directions along a standing wave in the lee of the Southern Alps, carried out above 20,000 feet all the way, was mentioned in our April issue and is here described in full detail by the pilot.)

TAKE-OFF from Harewood Aerodrome in the Skylark 3b was at 10.30 a.m., with a ground wind of 020°. The wind backed to 330° approximately and from the Met. this direction was held to around 3,000 feet.

The tow behind the Tiger was uneventful, and no downcurrent was met until just prior to crossing the first range of hills into Lees Valley, when we struck a reasonable downdraught of about 5-10 feet a second on the vario. Turbulence followed this, and after crossing into Lees Valley I noticed small roll-type cloud in the lee of the hills to the west of the valley. At this altitude we passed through heavy rain and cloud, with marked turbulence, and I was frightened that the tow pilot would wish to turn back. However, he stuck to his guns and I released in the first lift I encountered of any consequence, at a little over 8,000 ft. We rocketed up to 10,000, where I promptly lost the lift and spent some time looking for it. The next two hours were spent in finding patches of lift and losing them again. However, the over-all picture was a steady gain of height.

At 11.00 I had achieved my aim of reaching 20,000 ft., which, under the conditions, I considered the right altitude to set off for Burkes Pass. For the next ten miles we encountered lift and reached a height of about 22,000 ft. In the lee of Mount Hutt a heavy downdraught was encountered which caused quite a lot of concern, as the usual technique for getting out of this situation did not seem to apply. However, by sticking to my guns and facing into wind, I eventually got back into lift again. We were able to keep a steady gain of height of between 20–22,000 ft. going southward until we reached the Two Thumbs range after crossing the Rangitata River. Mount Cook was completely obscured by cloud and most of the McKenzie basin was also covered by cloud. A very big downdraught was encountered here, and once again I was able to get out of it by diving at maximum speed of approximately 108 knots. Lift then became very vigorous and we sailed blissfully up to 25,000 ft., when I decided I had gone high enough for the next leg, which was the fifteen mile run down to Burkes Pass and back out to the same position.

We arrived at Burkes Pass one and a half hours after leaving Lees Valley. I was able to photograph my turning-points, and was about to take further photographs of the magnificent view, when I noticed that I had only one film left in the camera. It was lucky that I woke up to this fact, as I would not have been able to photograph my last turning-point.

The trip back was considerably slower, as there was a head wind component and I was flying at over 100 knots in order to make headway. The downdraughts were ex-



tremely heavy whenever encountered, the worst being in the lee of the Two Thumbs, where I was forced down at a rate of something over 2,000 ft. a minute to a height of about 13,000 ft. In the last set of circumstances, diving into wind produced no results and I was forced to turn down wind and pick up the next wave. I very nearly missed this, as I almost flew through it before realising I was in it. This put me quite a long way back from the foothills and meant that somewhere on the way to Lees Valley I would have to get back into the first wave, presumably from the foothills.

For the first time for about three hours I managed to take off my oxygen mask and swallow some tea, which I felt very much in need of owing to the cold and through having no lunch. However, I quickly had to put back the mask once the wave had started. I was able to build up height to a little over 22,000 ft. before starting out again and had to resort to flying at maximum permissible speed in order to make headway. I got into the first wave again about half-way between Mount Somers and Mount Hutt without undue loss of altitude.



The Lees Valley at the northern end of the route, photographed by Mr. Georgeson.



Mr. Georgeson's photograph from his turning-point, showing Lake Tekapo.

The leg from Mount Hutt to Lees Valley was relatively simple and I arrived back over my starting point at about 18,000 ft. I was able to photograph the area and then dived for Harewood about 25 miles away.

The total time on oxygen was 4½ hours and was unbroken except for about 30 seconds for tea.

The meteorological information regarding this flight is still not available, but should it prove interesting, comment can be made in another issue.

The most remarkable feature of this flight seemed to be the fantastic number of small waves which appeared to be produced by odd little bits of hill. It also seemed apparent that other waves were superimposed upon these by ranges of hill further to the west. This had the effect of making the air flow very complex, but it was obvious that the higher one got, the easier flying became. Probably if this flight had been done at an altitude of say 25-30,000 ft. the problem of excessive downdraughts could have been avoided.

There was no visible means of support, as

the lower clouds took the form of scud but were evidently a roll cloud. High overhead was a stratus cloud which had a beautiful cleanly defined leading edge, beyond which the sky was blue. The photograph, which was taken at 20,000 ft., shows the leading edge of the arch at the top of the picture. The lower cloud lying about 10-15,000 ft. was extensive in the Mackenzie Basin but did not exist east of those shown, or east of the sailplane's flight path. Landing time was 17.15. The 6¾ hr. flight was done in relative comfort owing to the roomy and comfortable Skylark cockpit. The most important factor against cold was that it was draught-proof.

SAFETY HIGH

The Diluter Demand Oxygen System

by David Ince

THE development of aircraft oxygen equipment has progressed from a crude "pipestem"—which literally delivered oxygen straight into the victim's mouth—via continuous flow, with its mask and economiser or rebreather bag, to the modern "demand" system.

Sailplane pilots are already familiar with the continuous flow design, and numerous examples are to be found on gliders all over the world.

A lightweight mask has a continuous flow of oxygen delivered to it. Attached to this mask is a rebreather bag, which captures the initial portion of each exhaled breath consisting primarily of unused oxygen. Rebreathing makes it possible to economise in two ways, by using up this otherwise unused oxygen, and by supplying a reservoir to collect oxygen delivered from the regulator to the mask during each period of exhalation. The mask itself is fitted with a valve through which the final portion of the exhaled gases are blown off. In order that the supply of oxygen may be adjusted according to altitude, the oxygen regulator is provided with a manually operated flow controller.

The demand system is less well known. This was developed during the last war, as a result of certain inherent drawbacks in continuous flow which, although they do not concern us directly here, are nevertheless interesting when comparing the merits of the two designs.

Briefly, a man breathing 100% oxygen at 40,000 ft. will be in approximately the same condition as if he were breathing air at 10,000 ft. Since the continuous flow system, under maximum flow conditions, supplies 100% oxygen, it may be assumed that 40,000 ft. is about the upper limit for the use of this equipment. Although this is basically true when the user is at rest, any movement or activity may result in failure of the mask to seal itself to the face and in



"... *any movement or activity*"

overbreathing of gas in the rebreather bag. The resultant inboard or inward mask leakage will dilute the oxygen supply with air, making hypoxia very probable. As long as its limitations are observed, continuous flow is a good method of supplying oxygen for flights at moderate altitudes, and it is interesting that the American Military Aviation Ceiling for this type of equipment is 25,000 ft. The demand system was devised primarily to overcome this problem. As its name suggests, this delivers oxygen only



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A lightweight, compact glider set, including the Aro A-12A (ceiling 41,000 ft.) or the A14 (ceiling 44,000 ft.) diluter demand oxygen regulators with mask, contents gauge and cylinder.

MAXIMUM ECONOMY — Oxygen supply automatically adjusted to personal needs and altitude.

EXTREME SIMPLICITY — Simply put on the mask when oxygen is wanted.

GREATER SAFETY — Particularly at the higher altitudes from the demand principle without rebreathing.

The National Gliding Championships 1957.....

Used by W. S. Ivans on his world absolute altitude record flight to 42,220 ft., also by Commander H.C.N. Goodhart on his British absolute altitude record flight to 37,000 ft.

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during the inspiratory phase of the breathing cycle, and extensive tests have shown it to be an improved method of supplying oxygen at high altitudes, inasmuch that 100% oxygen is assured as long as the face-to-mask seal is airtight.

A simple valve fitted to the mask permits exhaled air to be blown off to atmosphere. During inspiration this valve closes and no air is admitted to the mask.

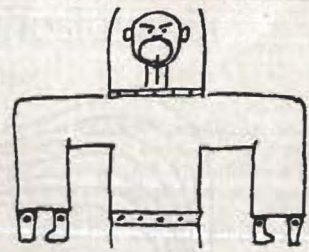
The demand regulator is a metering system which controls the flow of oxygen to the mask. Basically it consists of a round box across which is stretched a thin rubber diaphragm. Attached to the diaphragm is a linkage to the valve which opens or closes the port connected to the oxygen cylinder. When the mask is attached to the regulator *via* a hose connection and the wearer inhales, a slight negative pressure sucks in the diaphragm which in turn operates the linkage and opens the valve. In practice, of course, the victim is protected from the full 1,800 p.s.i. cylinder pressure by two reducing stages, and the oxygen is delivered to him at ambient pressure.



"ceiling for this type of equipment . . ."

Oxygen regulators of the diluter demand type incorporate an additional "air mix" stage, which conserves the oxygen supply by mixing it with air at altitudes below about 31,000 ft. The diluter mechanism which mixes the air and oxygen consists of a bellows-controlled lever which in turn controls the air and oxygen ports. As the altitude increases, the oxygen valve slowly opens and the air valve slowly closes. Thus the air/oxygen mixture is varied according to altitude in accordance with physiological requirements. Experience suggests that the diluter demand system is good up to about 40,000 ft.

For the hardier spirit a pressure breathing diluter demand oxygen regulator, in conjunction with the appropriate mask, can be used up to about 44,000 ft., but above this height the usual modern aids to high altitude claustrophobia become inevitable.



"high altitude claustrophobia . . ."

What does the diluter demand system have to offer? At a weight comparable with the continuous flow system it provides:—

1. Maximum economy, as the oxygen supply is automatically adjusted to personal needs and altitude.
2. Extreme simplicity: oxygen is permanently available at the regulator; to obtain delivery it is only necessary to put on the mask and breathe in.
3. Greater safety—particularly at heights in excess of 25,000 ft.

British Oxygen Aero Equipment will shortly be marketing a gliderset which consists of a 400-litre cylinder together with the Aero A-12A diluter demand oxygen regulator and a mask and hose assembly, and it is expected that one set at least will be seen at the British National Championships. The A-14 pressure breathing regulator, together with a suitable mask, will also be available as an alternative.

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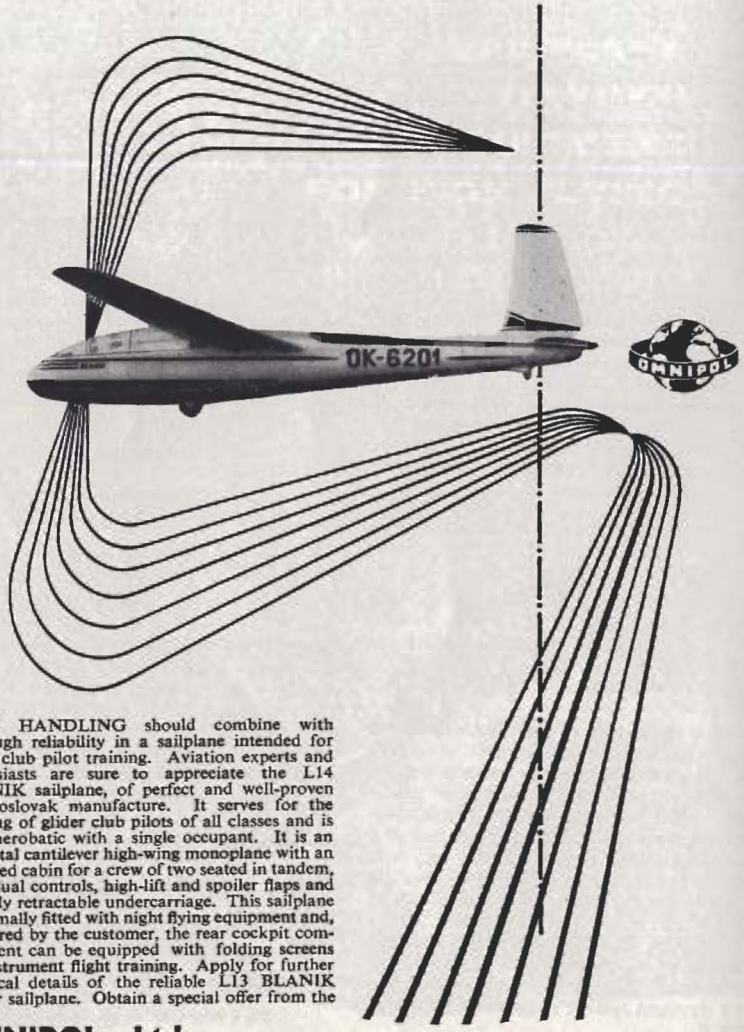
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Gliding in Czechoslovakia

by Bernard Orna

GLIDING enjoys great popularity as a sport in Czechoslovakia. Amateur pilots are linked through membership of the Czechoslovak Aero Club, which is itself a constituent member of the Fédération Aéronautique Internationale. The activities of the pilots are centred on the district and regional branches of the Aero Club and the flying clubs that have been set up at many large factories and institutions.

The training of glider pilots, more specifically, is carried out exclusively with two-seater craft of the Pionyr type, with dual control. These gliders have proved very satisfactory and pupils can also learn in them the basic elements of aerobatics. Training is completed by fulfilment of conditions for acquiring the Silver C certificate and after passing their flying examinations, the new pilots transfer to further training on gliders of the Sohaj type.

The Sohaj is a single-seater glider, which has become the type most extensively used on Czechoslovak airfields. It is an all-wood craft with a wing span of 52¼ ft. and maximum speed of 130½ m.p.h. Apart from this, a two-seater Kmotr glider and a Lunak glider are also being used. The latter has



New Czechoslovak sailplane types: two of the "Demant" in the foreground, and beyond them a "Blanik" all-metal two-seater of 59 feet span. Both types were flown in last year's World Championships.



Czechoslovak pilots beside a "Sohaj", of wood construction and 52 ft. 3 in. span.



The "Pionyr", a Czechoslovak two-seater trainer with a fabric-covered steel-frame fuselage, a span of 46 ft., and a permitted top speed of 155 m.p.h.

particularly good flying qualities and is used for difficult aerobatic exercises.

During 1956 pilots received the first of two new types of glider. They were the single-seater Démant and the two-seater all-metal Blanik. The latest knowledge in the building of such craft has been applied to their design and construction. Both have laminated wings, retractable undercarriages, and comfortable cockpits with transparent plastic hoods. Their gliding ratio approaches very nearly 1:40. The Blanik has a wing span of a little over 59 feet.

Standards and qualifications in gliding are promoted by the Central School of Gliding, which offers residential courses; it serves only higher specialised training.

The work of the School has already been reflected in a considerable improvement in the flying skill of Czechoslovak glider pilots. For example, in the newly introduced event—a speed flight over a 200 km. (124.27 miles) triangular course—Jaroslav Hollan has reached 71 km. an hour (44.11 m.p.h.) which is 5 km. faster than the international record established by Makula of Poland. In a speed flight over a 100 km. (62.136 miles) triangular course the young pilot M. Zejda topped 87 km. an hour (54.06 m.p.h.). Master of Sport Jaroslav Kumpost, who has represented Czechoslovakia internationally, is also the first in the country to have won the F.A.I. diamond badge.

These results in national and foreign competitions are encouraging proof of the soundness of Czechoslovak glider design and they naturally help forward the further development of the sport and the skill of its exponents.

HOW THEY BROUGHT THE GOOD BOOZE
or: ENTENTE CORDIAL!

WE sprang to the cockpit, the Pilot and me
And we thermalled and thermalled and thermalled all three;
Not a word to each other, we kept gaining height,
10,000, 20,000 and Paris in sight!
And we shouted aloud, we were feeling so gay,
As we came in to land down the Champs Elysées!

There very soon gathered a très énorme fou,
And a gendarme came up and said "C'est défendu!
"Car ce n'est pas un Runway, pas cette Avenue!"
And he blew on his sifflet and waved both his bras,
And jamais was heard such a grand brouhaha!
When parmi the ranks of the startled canaille
Appeared a gentil ami from the F.A.I.

He frapped on our dos and embrassed both our joux,
And said he could peut-être donne some aide à nous,
For it happened he ported in his Deux Chevaux
Some suitable cable pour un auto-tow
And he'd be heureux to donne us a launch bientôt!
So we dragged our sailplane, l'Arc de Triomphe dessous,
And fastened our belts and cried "Allons-nous!"

We sped down the length of the Champs Elysées,
And tout le monde shouted "Adieu mad Anglais!"
And all the way home, such was our elation,
We did every imaginable aerobation,
Until, 'neath the gleam of the evening star,
We each helped the other walk out of the bar!

E.A.L.

Glider Maintenance

by R. C. Stafford-Allen

This article is the first chapter of a "Maintenance Handbook" which will be published by the British Gliding Association. The author, who took a leading part in reviving the Oxford Gliding Club after the war, is now Manager of the London Gliding Club. The purpose of the book is to help private owners, and people operating gliding clubs in out-of-the-way places, to keep their machines in a good state of airworthiness; and it should also be useful to the man who hopes to get B.G.A. approval for his work.

We may define Maintenance as work carried out on a glider to prevent deterioration, or to delay its effects, while repairs may be defined as operations to rectify damage. These two definitions are clearly not perfect since they do, in a sense, overlap. However, they are good enough for our purposes.

Let us deal with Maintenance first. However much money we lay out on the purchase of a brand new "Super-Heaven" sailplane, it will, from the moment we take delivery, begin to deteriorate. But, by taking a little thought, and putting in some work on it, we can keep that sailplane in virtually brand new condition. The first thing we must deal with is:—

Lubrication

It is more or less axiomatic that, where metal rubs on metal, some lubricant should be used to reduce friction and prevent wear. In the general structure and control system of gliders, the moving parts are all slow-moving, and for this purpose the best lubricant is a good quality grease. Unfortunately most manufacturers are rather stingy in the matter of fitting grease nipples, which enable grease to be pumped in with a grease gun. Unless this can be done, it is extremely difficult to get the grease into a bearing, and no amount of grease slapped on the outside of a bearing does any good at all. Probably the best method may be said to be: "take it apart, grease it, and put it together again."

There is a good deal to be said for the use of heavy oil, about SAE 140, for control systems, particularly for control surface hinges. Where the latter are of the usual pin-and-split pin type, the only satisfactory way to get grease into them is by taking them apart. Slapping grease on the outside only seems to result in a frightful-looking sort of toffee-apple of dust, sand and mud forming around the hinge. To strip every hinge is a long job. Now, heavy oil does creep into the bearing surfaces, and it does not take long to go round a glider and put a drop on each hinge.

The points which do require regular attention are as follows:—

1. The release hooks.
2. All control surface hinges.
3. All pulley bearings (*bearings only* please).
4. Stick bearings and torque tube bearings.
5. All control lever bearings and the pins which connect the levers to the rods or cables.
6. Landing wheels unless of the sealed ball-bearing type.

You cannot do any harm by over-lubricating provided (and this is important) the oil or grease goes where it is meant to go. You can do a good deal of harm by allowing oil or grease to get into places where it should not be. Therefore take great care that no lubricants get into the wrong places. These are as follows:—

1. On to any timber. If left, the timber will soak up the oil and eventually become rotten.
2. On to any fabric. The same will happen.
3. On to any cables. The result of this is that the oil, or grease, will collect grit and form a grinding compound which will wear away the cable where it passes over pulleys, or through fair leads.
4. On to any rubber. If left, the rubber will dissolve into a horrid sticky mess.

If you should accidentally spill a little oil in any of these places, wipe it up at once; it will save you a lot of work in the end.

Finally, how often should you lubricate your glider? This is a difficult question, as so much depends on the conditions under which the glider operates and is stored. You will be fairly safe, however, if you make a rule to do it about every 20 hours' flying, or once a month at least.

Corrosion

This is the chief enemy of the STEEL in your glider. There are several ways of combating it, but all of them depend on covering the metal with a protective skin. Some steel parts are cadmium or chromium plated, but the most usual method is by the use of some sort of paint. The principle to follow is this: keep the protective skin intact. If you see any rust developing, remove it carefully with a wire brush or fine emery cloth and repaint. If you have to do this, please make sure that the corrosion has not weakened the fitting appreciably. If it has done so, you *must replace it* with a new fitting. There are a few metal parts which cannot be painted, such as spar pins, etc. These must be kept covered with grease.

There is one other place where corrosion must be guarded against, and that is wherever wood and steel touch. Wherever there is plate fitted onto a wooden member or wherever steel bolts pass through timbers, there is a chance of corrosion due to the moisture in the timber itself. If you have to replace bolts or plates in these conditions, make sure that both wood and steel have a liberal coating of chromate jointing compound before assembly.

Timber and Plywood

Both these will deteriorate if they are allowed to become too wet or too dry. The timber and ply was in its best condition when your machine was built, and your aim should be to keep it so. Therefore ensure that the protective covering on all the woodwork is kept intact and touch up with the paint brush whenever necessary. This is particularly important if your machine is built with casein glue as damp will cause a fungus to form and attack the glue.

Fabric

When the fabric was applied to your machine it was doped to tighten it, and to make it waterproof. The doping scheme ought to have included in it at least one coat of aluminium dope to make it opaque as well, although there are still some machines flying with clear-doped fabric. The main enemies of fabric are ultra-violet light, which rots the fibres, and oil, water or acid which will eventually destroy it. Therefore, keep these things away from fabric as far as you can. If the doping was properly done, the fabric should be impervious to water so the odd shower of rain will do no harm. However, if water gets inside the wing, it may be able to soak the fibres of the fabric, so keep the drainage eyelets clear. Ultra-violet light is a thing you cannot do much about, except to avoid sunlight for unnecessarily long periods; and in any case, if the doping is really opaque, the ultra violet light will be prevented from getting at the fabric. In brief, keep the fabric clean, and do not let the sun get at it more than necessary.

Instruments

Modern aircraft instruments are extremely reliable bits of mechanism, and if anything does go wrong with them, it is generally much better to send them either to the manufacturers, or to a specialist firm



for overhaul. The difficulty is that even if one knows what is wrong with them, they must be checked for accuracy after any adjustment, and this almost always requires a special calibrating gadget of some sort. However, to prevent trouble developing, the following points should be borne in mind:—

1. Use good quality rubber pipe for the connections, and replace it whenever there are any signs of perishing.
2. Keep moisture and dust out of instruments and their piping.
3. Do not subject instruments to rough treatment, shocks, etc., and do not blow into Air Speed Indicators or Variometers.

Cables

Most gliders use cables in their control circuits, and it is most important to keep the cable tensions correct. If the tension is too slack there is a risk of turnbuckles fouling ribs or bulkheads, while if the cable is too tight the fittings may be subjected to unnecessarily large loads. The effect of "g" on cable loads must not be overlooked. In a loop, for example, the elevator cable of most gliders is subjected to quite a big increase in tension, since it is only supported at two points about 15 feet apart. Due to the extra "g," it tries to sag, and if the tension was tight to start with, the increase of tension may be very great.

Cables tend to stretch and shrink as the temperature increases or decreases, so they may require adjusting fairly frequently. While on this point, remember that a sailplane sitting on the ground in a temperature of 75°F. or more, on a fine sunny summer's day, may well be at 8,000 ft. a short time later, where the temperature will probably be around freezing point; so do not over-tighten the cables in summer.

What is the correct tension for cables? This is a very difficult matter to describe in print, and is much better learnt by an actual demonstration on a glider. However, here are two rough guides. On a machine such as a Tutor with no mass-balance on the elevator, the tension in the elevator cable is about right if the stick will just fall forward due to the weight of the elevators. On a machine like the Olympia, the cable is about right for tension if you just cannot feel a "tight-spot" in the elevator movement. This latter case is of course complicated by the fact that the elevator is partially mass-balanced, so the first method does not work properly. Use these tensions as a guide to the setting of aileron cables. Rudder cables on most gliders are bungee-tensioned in the nose of the machine, and in this case they look after themselves as regards tension. We are assuming, of course, in all these tests, that the control circuit is properly lubricated.

Safety and Locking

All parts of a glider must be so fitted and locked that there is no risk of anything working loose or coming undone. We can consider turnbuckles first. One commonly used type has a barrel in which there is a socket at each end with right and left handed threads. Into these sockets screw the eyebolts. With this type, all the threads of the eyebolts must be inside the barrel if the turnbuckle is "in safety" or able to develop its full strength. If any threads show, then the cable must be increased in length, by the addition of links, etc., to allow full engagement of all the threads. A second type of turnbuckle, found on Olympias and other gliders, consists of a right and left handed screw for the central portion, and this fits into two sockets which are swaged onto the ends of the cable. In this type the central screw is threaded almost up to the middle, and there is a different method of determining whether sufficient threads are engaged with the sockets to provide full strength. On each socket will be found a small hole, about ⅛ inch from the mouth of the socket, and this is the "safety hole." The socket is "in safety" if the screw has been screwed in past this hole. This must be verified, either by looking into the hole or by feeling with a pin or piece of wire. This type of turnbuckle also has two brass locknuts which should be screwed back against the sockets when the adjustment is correct. In spite of these locknuts, the turnbuckle *must* be properly wire-locked as described below.

All turnbuckles must be locked against possible movement. Soft iron locking wire is generally used for this, and it can be bought, galvanised, very cheaply at any ironmongers. There are two accepted methods of locking turnbuckles. The first, shown in Fig. 1 (a), is done by passing a length of wire through the hole in the middle of the barrel, bending the ends up and passing them through the eyebolts or fittings. The ends are then wrapped round the shanks of the eyebolts (and the wire

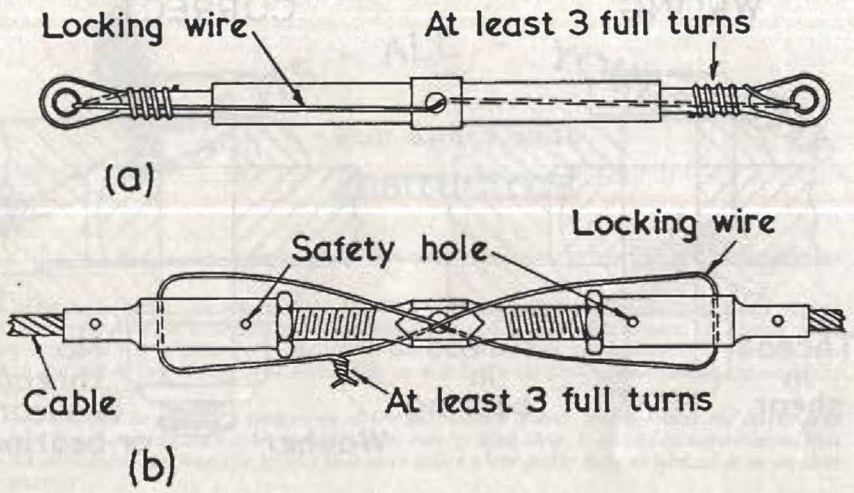


Fig. 1

itself) for at least three full turns, but preferably more.

The second method, sometimes called the "figure-of-eight" lock, is preferable where the turnbuckle is in an inaccessible place, and the wrapping round of the ends is a difficult job. In the screw type of turnbuckle, each socket will be found to contain some more holes. One, near the cable end, is a little blind hole and was used by the makers to ensure that the cable was fully home before it was swaged in. This hole does not concern us, but near it is a hole right through the socket. This is the locking hole. The wire passes through this hole, crosses through the hole in the central screw, through the locking hole in the other socket, and the two ends are twisted together with at least 3 full turns (preferably more) to form a complete figure-of-eight as shown in Fig. 1 (b). This may seem more complicated than the first method, but you will find that it is not. One can usually fiddle the wire in easily enough, but often the wrapping down of the ends is very difficult in a confined space, using the method of Fig. 1 (a). The advantage of the second method is that once the wire is threaded into place, and the ends brought together, a pair of pliers can be used to twist up. Whatever type of locking is used, always fold down ends of wire so that no fouling can occur.

Bolts are used all over the structure of most gliders, and all bolts must be locked so that there is no danger of the nut accidentally working loose. One simple way of locking a bolt is to bash the end over until it is riveted over the nut. This is an admirable method for bolts which, you hope, are never going to be undone. The snag is that if ever you do have to take the bolt out, it, and its nut, must be scrapped and a new bolt and nut fitted. The next method is by means of a castellated nut and split pin fitted through a hole in the bolt. This is very satisfactory, but in awkward places attempts to get the split pin into place can lead to much bad language. There are on the market a number of so-called locking washers which do the job quite well. They have a serious disadvantage, however, in that all of them tend to cut the fitting and the nut with their locking elements, teeth, claws or whatever you like to call them. You will do well to avoid them on gliders.

Lastly we come to the Stiff nuts, Nyloc,

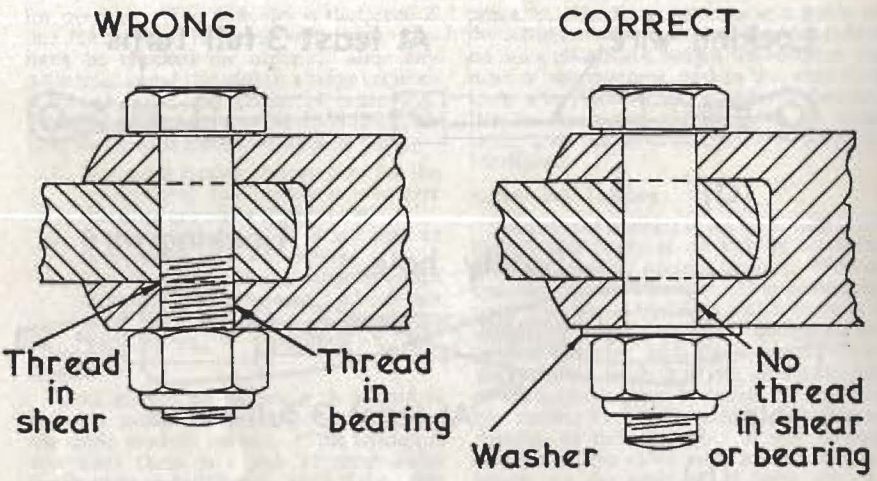


Fig. 2

Simmonds nuts or Pinnacle nuts. These are self-locking nuts and they really are self-locking. They have none of the snags of the above methods and should be used whenever possible. One small point: make sure that the bolt thread does go right through the nut, otherwise the self-locking element may not be able to do its job. These nuts may be used over and over again, but reject any which do not seem to be reasonably tight on the thread. As a rough guide, if you can screw the nut right on with your fingers it should be scrapped. Some manufacturers prefer to use slotted nuts and split pins in control circuits, etc., where there is a chance of the bolt rotating, and you should always use the same method as the manufacturer.

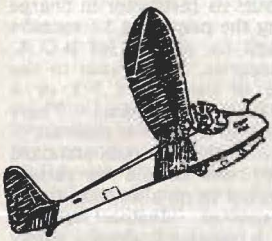
One method of locking which is sometimes seen should *not* be used on gliders. This is the practice of screwing down a second nut tight onto the first one. It is an unreliable method and usually damages the bolt threads.

When replacing bolts with new ones, make sure that the new bolt is the correct length. Bolts should not be fitted with their threads in shear or in bearing. Fig. 2 should make this clear.

For this reason a washer should always be fitted, and you should check that the straight portion of the bolt does actually reach right through the fitting but not through the washer.

Wing pins should be good fits in their holes and should be kept greased. The usual way of locking these is to fit safety pins, though if a machine is only very rarely derigged, it is a good plan to use split pins and washers. These do not rattle so much, and are not so liable to catch on clothing, etc. This can be a danger with safety pins in exposed places, and it is quite easy to pull open a safety pin unnoticed from this cause.

Finally, a few general points. Never use a split pin more than once. Always use the correct size of split pin or safety pin. Always use non-corrodible split pins. Do replace locking wire with new if you have to unlock a turnbuckle. Do watch for corrosion, bad fabric, slack fittings, hinges, faults in woodwork finish, etc., and deal with these matters at once.



ITS - ALL - YOURS

For and About Instructors



This new feature, for which Mrs. Ann Welch, chairman of the B.G.A. Instructors' Panel, will be responsible, is dedicated to those pillars of gliding—the Instructors. If any of them have any time left to contribute, the writer would be delighted, particularly if letters are sent which are full of new ideas about instructing or which discuss some controversial aspect of the best way to teach.

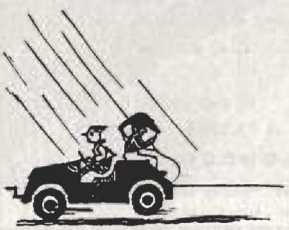
It is hoped to give each time news of the Instructors' Panel, and continue the adventures of Joe. If he seems to the reader to be a rather enterprising chap, it should be remembered that all his adventures are true life stories that have taken place either here or abroad at some time or another.

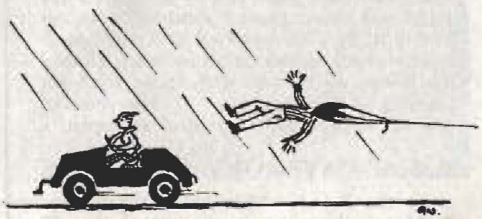
News of training methods abroad will be included when available, and some shy and retiring C.F.I. will be dragged into the limelight.

Correspondence, bright ideas, and all other contributions should be sent to the office of the British Gliding Association, c/o "It's all yours."

THE ADVENTURES OF JOE

It was soon after Joe joined the Club that it happened. Being of a helpful nature Joe had jumped on the Beaver as soon as he heard the shout of "mate wanted." No one could tell him what to do above the noise of the engine, but he learnt the practical way, and spent the morning being driven up and down the field hooking the cable on and taking it off again, until he lost count. He also lost his turn but dismissed the sacrifice as being that of a worthwhile Club member. Then it started to rain. By this time Joe had become so familiar with his job of Increasing the Launching Rate that he could do it with his eyes shut. He did not actually shut them, but put the cable parachute over his head to keep out the rain and this had the same effect. Even if he could have seen it would not have helped, because when the weak link attaching the cable to the beaverette broke, the wire snaked away so fast that it was almost invisible. Unfortunately, but somewhat naturally, the parachute went too, and with the parachute went Joe. It is always difficult to explain unpremeditated departures to friends, and Joe found it particularly so in this case, as on landing he broke his jaw.





THIS IS WHERE WE CAME IN . . .

"While we were standing about discussing this last flight a sudden strong gust of wind struck the machine and started to turn it over. Everybody made a rush for it. Blank, who was at one end, seized it in front . . . All our efforts were in vain. The machine rolled over . . . D. who had retained his grip, was carried along with it, and was thrown about, head over heels inside the machine. Fortunately he was not seriously injured, though badly bruised."

Who wrote this? The Instructor in charge at the Wincham Gliding Club during the winter gales? No prize for the answer. It was written by Orville Wright in December 1903 describing the end of the day on which the first aeroplane flight was made.

A MATTER OF SPEED

While carrying out category tests I have noticed that very few instructors know the simple and almost universal means of checking normal speed in flight. Many clubs still send pupils on first solos in different types of gliders to those in which they did their dual training. Because of this it is extremely useful to be able to give them some means of checking their speed in addition to descriptions of noise and attitude, and reliance on the occasionally fallible airspeed indicator.

The pupil should be taught, while he is still dual, that if he wants to confirm that his flying speed is adequate, he should glance sideways along the undersurface of the wing. If the underneath of the wing is parallel to the horizon or the leading edge slightly lower down, the speed is sufficient for normal flight. If it is slightly nose up from the horizon, the glider is TOO SLOW and the nose should be lowered at once. With the knowledge that he can always check his speed positively by this means the pupil will have greater confidence in his ability to fly a strange type at a safe speed.

This check works on all ordinary gliders, and particularly well with those used for training in this country. It does not, of course, work when the brakes are open.

B.G.A. CATEGORY RENEWALS

At the B.G.A. Instructors' Conference in March this year, it was agreed that 50 launches or 5 hours as Instructor in charge on gliders during the preceding 12 months would be required for renewal of B.G.A. Instructors' Categories, in addition to the recommendation of the local C.F.I. or a member of the Instructors' Panel. There will continue to be no charge for renewal.

It was agreed also that the pass standard for the Category test should be raised, although there would be no alteration to the Qualifications required. Instructors who wish to obtain a category should apply direct to the B.G.A., who will send them an application form and details of exactly what is expected for the test. This will be done, preferably, at the Instructor's own club by a visiting examiner, or at a B.G.A. Instructors' school.

NEW INSTRUCTORS

H. N. Gregg, Coventry Gliding Club. Categorised March 1957.

D. Lowe, R.A.F.G.S.A. Fenland G.C. Categorised April 1957.

A. T. Morgan, R.A.F.G.S.A. Fenland G.C. Categorised April 1957.

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TOM DAVIDSON, C.F.I. — SCOTTISH GLIDING UNION

From among the varied brands of character to be found in any gliding club, we are indeed fortunate if we can select as C.F.I. one whose background of long and sound experience goes hand in hand with dependability and stamina.

The Scottish Gliding Union is lucky in this respect, as Tom Davidson, our C.F.I. since 1950, is well endowed with all these virtues.

Tom's flying career began in 1916 when he joined the Royal Flying Corps. After one and three-quarter hours instruction he flew solo in a Maurice Farman Longhorn, and so collected his Royal Aero Club Pilot's Certificate at a time when a few of us were in short pants, and the fathers of our newer members were still in their teens.

Posted to No. 7 and No. 5 Squadrons in France, he flew B.E.s and B.E. 2cs, doing Artillery Co-operation, short-range bombing and photography. Then to single-seater fighter work with 19 Squadron in B.E.12s. Bristol Scouts and Morane two-seaters also came his way, and when 19 Squadron re-equipped with French Spads, Tom was promoted to Flight Commander.

In those days the life of a pilot was estimated in weeks and, having miraculously survived his first year of operational flying, he returned to England for a spell to take over the Avro Flight at Central Flying School, Upavon. His job there was the training of single-seater fighter pilots. During this period he added more types to his list of aircraft flown and he became one of the first members of the C.F.S. Association.

Back to France again for a second bash at the Boche—in 23 Squadron, now flying



Tom Davidson briefing a pupil for her first solo at Balado.

Spads, the fastest kite at that time. Unfortunately, however, "Archie" shot him down when he was on a low flying mission and he spent the last year of the war as a prisoner in Germany.

1939 saw him back in uniform, in the Administrative Branch of the Royal Air Force. He was demobilised for the second time in 1945 with the Honorary Rank of Squadron-Leader.

His introduction to gliding came in 1947 when he joined the S.G.U. and later became an assistant Instructor. In 1950, when Andrew Thorburn, the S.G.U.'s first C.F.I. resigned, Tom was elected, and he has worthily held the appointment ever since.

He has done a lion's share of hard work for the Club as C.F.I., and his polished flying sets a very fine example to those who come to him for instruction.

To some of us the title "Fair weather pilot" may aptly be applied—not so with Tom. Rain, snow and winds that blow will not deter him from making steady progress in the T21b with his latest batch of fledglings. A measure of his reliability is to be found in the fact that, of the four thousand odd flights he has had in gliders, more than three thousand five hundred have been done as P.1. in the two-seater. A.T.

O.S.T.I.V. Affairs

A BOARD Meeting of the International Scientific and Technical Organization for Soaring Flight (OSTIV), held in Zurich from 1st to 3rd April, was attended by Mr. de Lange (president), Dr. Eichenberger, Miss Betsy Woodward, and Messrs. Agesilas, Gerbier, Boris Cijan, Reinhardt (for Wolf Hirth) and Alan Yates. Mr. A. Gehriger and Dr. Muri also attended for one session.

Standard Class

The Board was pleased to hear that the Fédération Aéronautique Internationale had adopted, almost unchanged, the suggestions of OSTIV and learned that several manufacturers were already at work on new "standard" sailplanes. Arrangements for the award of the OSTIV Prize for the sailplane which is judged by an OSTIV Jury to be the best combination of cheapness, simplicity and efficiency were discussed. This prize will be given for the first time at the World Championships of 1958. It was learned that designers in one country were already planning one sailplane to win the Standard Class and Championship, regardless of cost, and another to please the OSTIV Jury! It may be that the sailplane used by the winning pilot is not "cheap to construct and operate" and is, therefore, not in the spirit of the class. The OSTIV Prize will, in that case, be the more important award.

Publication of Congress Papers

Most of the papers read at the sixth congress at St. Yan in 1956 have already been printed in *Swiss Aero Revue*, the official organ of OSTIV. Associate membership of OSTIV (28s. per year to Betsy Woodward, Imperial College, London, S.W.7.) entitles the member to the *Swiss Aero Revue*, which contains an OSTIV section—reprints of papers and bibliographies on gliding.

The next congress will take place during the World Championships in Poland in June 1958. Now is the time to be thinking about papers for presentation there!

Active Membership of O.S.T.I.V.

The controlling members of OSTIV are the national aero clubs, and in the U.K. this responsibility is delegated to the British Gliding Association. In several countries, as in ours, the Aero Club is primarily a sporting body and has no special interest in "science et téchnique." The national aeronautical and meteorological societies in these countries are also likely to support the activities of OSTIV by financial help and by sending delegates. OSTIV is therefore to consider opening Active Membership to such societies. ALAN YATES.

B.G.A. NEWS

National Championships 1957

It has now been finally decided that, despite the present continuance of petrol rationing, all competition launches will be by aero-tow. The Regulations are being printed at present and will be available in the near future.

The main difference from 1955 is that the competitors will be divided into two leagues, each having their own tasks and marks. The marking system is similar to last time, but with a few modifications to bring it into line with F.A.I. ideas.

There may be an *hors concours* entry from abroad.

GLIDING COURSES ABROAD

Switzerland

Pilots holding a C certificate and over may fly from the Alpine Gliding School at Rigi-Kulm, near Lucerne. Anyone interested should contact Albert Kirsten, of Sempacherstrasse 1, Lucerne, or the Air Attache at the British Embassy in Berne.

France

Courses are available at the French National Gliding Centres of Pont St. Vincent (near Nancy), La Montagne Noire (near Castelnaudary) and Saint Auban sur Durance (Basses Alpes). Bookings should be made with Service de la Formation Aéronautique et des Sports Aériens, 155 Rue de la Croix Nivert, Paris XVème. (Translation of French leaflet giving dates, etc. is available from B.G.A.).

Austria

Alpine Gliding School (with whom bookings should be made) at Zell am Zee, near Salzburg. A limited number of translations of the Austrian leaflet (and actual leaflet) are available if required. The World Sport & Travel Association are also arranging Tours at an inclusive figure and their leaflet "Sporting Holidays 1957" can be obtained from the B.G.A.

Union Alpine Gliding School at Aigen im Ennstal, near Steirmark. A limited number of leaflets with translation available.

Bundessportschule, Spitzerberg bei Hainburg a.d. Donau, Niederösterreich. No details or brochures available; those interested should apply direct to the School.

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(silver gliders and stripes on navy blue)

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Germany

Courses at the historic Wasserkuppe School, Post Gersfeld/Rhön (with whom bookings should be made), from May to October, with a break for the Model and Gliding Nationals at Whitsun and end of July respectively. Translations and a limited number of German leaflets and forms are available. (Near Fulda.)

Courses at the Hornberg Gliding School, (14a) Hornberg bei Schwäbisch Gmünd (with whom bookings should be made). No details, dates or prices, but a limited number of handouts in German available. (Near Stuttgart.)

Spain

Any Courses have to be arranged through the British Embassy in Madrid, and only a very limited number of people can go. The B.G.A. is trying to obtain details and these will be circulated to clubs as soon as obtained.

Details of courses in other foreign countries can be obtained by individual pilots writing direct to the Aero Club of the country concerned, and the B.G.A. will be pleased to supply the appropriate addresses.

Performance of the AV-22 Two-Seater

by Charles Fauvel

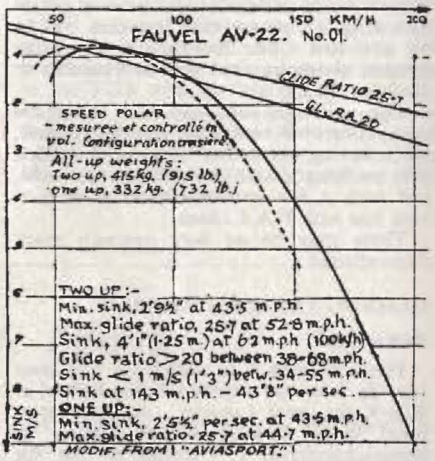
THE examination by the Flight Testing Centre of the performance of this two-seater sailplane has confirmed the polar curve of velocities given herewith, which shows that the AV-22 corresponds well to an all-purpose biplane: for dual control training, *ab initio*, advanced and high-performance; and, if flown as a single-seater, for first solo, training, and high performance with suitable equipment, including ballast if desired. It is normally furnished with radio, and optionally with respirator.

With the first model, No. 01, a gliding angle in the region of 1 in 26 was attained (actually 1 in 25.6); this value will be exceeded in No. 02, which will incorporate some refinements and will shortly put in an appearance. Its drag, moreover, remains less than that of conventional single seaters of 15 m. span and 5 m. length.

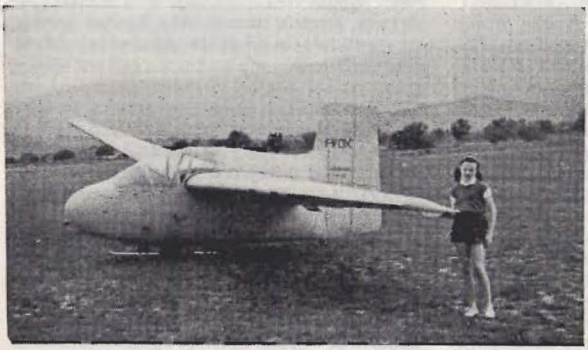
The instructor's seat is raised nearly 30 cm. (1 foot) at the centre of gravity, and moreover gives him exceptional visibility and comfort, while he makes use of the single instrument panel in front.

Thanks to the purchase premium, the machine will sell at about a million francs (£1,015) only to the clubs, complete in flying order with basic equipment (supplementary equipment also benefits from the premium).

Examination of the recording instruments



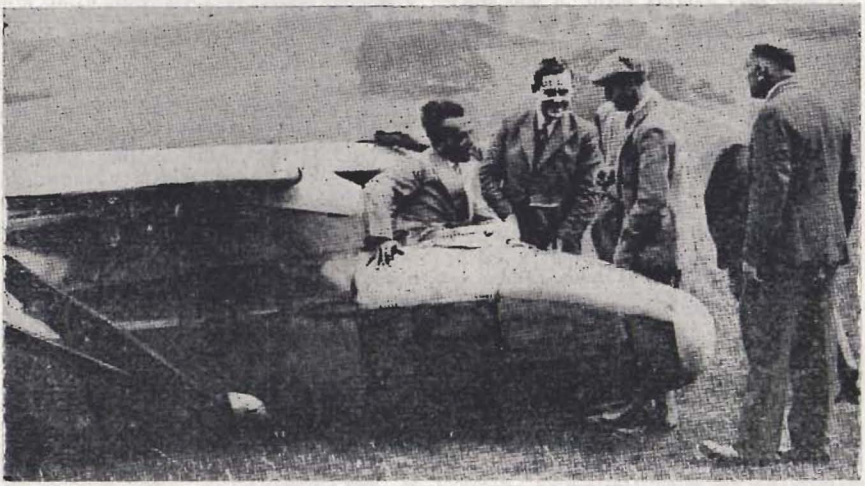
has shown that the maximum speed attained with two up by M. Fauvel and his mechanic M. Hervé, during the high speed trials carried out for the Flight Testing Centre, was actually 270 km/h. (168 m.p.h.); this represents the highest controlled speed ever attained in France with a glider, and in the same flight a pull-out of 5*g* was carried out, likewise the highest measured.



"AV-22", the two-seater version of M. Fauvel's famous "flying wing". (Block reproduced by courtesy of "The Aeroplane".)

During this high-speed trial, a speed of 230 km./h. (143 m.p.h.) was maintained whilst descending several hundred metres, giving a rate of sink of 13.30 m./sec. (43.6 ft./sec.) or a gliding angle of only 12°. This enables the actual minimum drag coefficient of the aircraft to be obtained, which is thus shown to be only 0.0153 (for the AV-36, the minimum drag coefficient is 0.0154) despite an old-fashioned thick aerofoil section which, although having favourable characteristics at moderate angles of attack, has quite a high minimum drag coefficient.

ROBERT KRONFELD



On Ivinghoe Beacon in 1930. *L. to R.: Robert Kronfeld beside his "Wien", J. R. Ashwell-Cooke (chairman, London Gliding Club), the Prince of Wales, and E. C. Gordon England (chairman, B.G.A.).*

In selecting a pioneer of motorless flight as the subject of a short biography, one's first choice naturally falls on Robert Kronfeld. He was not the first to glide, nor was he the first to soar; but he, more than anyone, freed the sailplane from dependence on hill slopes and showed how it could be flown to great heights and over long distances. Not until this was proved possible did soaring flight really catch on in one country after another, our own included.

Born in Austria, Kronfeld started gliding in 1927 at the Rossitten school in East Prussia, and flew his C test there late in the year, with the air below freezing point, almost certainly in an open primary glider, as the type was still being used there for C tests three years after.

Soon he became an instructor at the historic gliding centre on the Wasserkuppe, one of the Rhön group of mountains near Frankfurt-am-Main; and here, during the German national contest of 1928, he became the first pilot to use the upcurrents under cumulus clouds by making an out-and-return flight to the Himmeldankberg and back, 4½ miles each way, returning against the wind under a cloud street (a term not then invented). As an instance of Kronfeld's care in leaving nothing to chance in competition work, I remember seeing his team on that day repeatedly give him the exact wind direction by lying down end-to-end on a neighbouring promontory, the Pferdskopf.

Kronfeld was flying the "Rhöngeist," a V-strutted machine which was the prototype of the "Professor," the first quantity-produced high-performance sailplane and the only one for the next three years (two or three came to England). Dr. Alexander Lippisch, the designer, then produced a hotted-up and larger-spanned version, the "Wien," the cost of which was defrayed by the City of Vienna. In this, Kronfeld began breaking records all over the place, starting on 15th May, 1929, with the world's fistr 100-kilometre soaring flight; it was made along the Teutoburger Wald, a range of low hills which pass Oerlinghausen, of more recent gliding fame.

At the 1929 contest on the Wasserkuppe he flew the Wien 89 miles to Hermsdorf with a climb of 6,644 ft. on 20th July, making deliberate use of a cold front for the first time; and then, on the 30th, 150 miles to Sienlas, near Bayreuth, starting with a climb to 8,494 ft. inside an enormous cumulus cloud. All these figures were world's records, and in the following year he raised the distance to 102 miles.

THE HIDDEN VARIOMETER

It was about this time that Kronfeld brought into use his secret variometer—secret because he used to carry the vacuum flask into his cockpit along with a packet of sandwiches, throwing out an occasional hint about coffee. How he managed to take readings from this instrument is a bit of a mystery, for the Wien's cockpit cover came up to his neck like a horse-collar, so that he could not possibly see inside. As was the practice in those days, the Wien had two instrument dials placed horizontally on the fuselage nose so that the pilot could look down on them; was one of these the variometer dial, disguised as an A.S.I. so as not to give the game away?

Subsequent records by Kronfeld were national rather than international, and two of these were for British height and distance. In June 1930, the British Gliding Association, then six months old, invited Kronfeld over with his Wien, while the *Daily Express* secured Carli Magersuppe, with a Professor, and they jointly organized a meeting on the South Downs at Firle Beacon. Here Kronfeld made climbs of up to 2,300 ft., and on 15th June soared 50 miles along the Downs to Bedhampton Hill, near Portsmouth. A month later he demonstrated the Wien to the Prince of Wales (now Duke of Windsor) on Ivinghoe Beacon, helped by a few London Gliding Club members; the affair was kept a dead secret and there were no crowds.

Next year Kronfeld was back in England in order to win a *Daily Mail* prize of £1,000 for a double glide across the Channel on 20th June, first from an aero-tow to 10,000 ft. at St. Inglevert, and then from another to 9,000 ft. at Dover. This was the opening day of the competition, but the *Daily Express* got one up on the *Mail* by having a Canadian opera singer cross the day before from a tow to 12,000 ft. over Folkestone, using a Professor.

A week later Kronfeld was demonstrating at Hanworth, the "London Air Park." From here, after an aero-tow, he flew the Wien across London to Chatham on 30th June 1931; then, after another aero-tow next morning, he soared back to Hanworth. This time he had brought over not only the Wien, but a curious new machine, the Austria, with a flimsy-looking cantilever wing of 98 ft. span, a hanging nacelle, and a boom supporting the tail. It was the last word in purely slope-soaring design—literally the last. In the following year it broke up in a cloud near the Wasserkuppe, and Kronfeld saved himself by parachute. The wreckage came down in so many little bits that they were left where they fell, until the landowner objected that they were damaging his cattle's legs.

After Hitler came to power in 1933, Kronfeld had to return to Austria, from which he made sorties to other European countries, flying his Wien over Vesuvius, and finally selling it in France to a M. Lumière.

THE "DRONE"

In England C. H. Lowe-Wylde, founder of the Kent Gliding Club and manufacturer of gliders of his own design, had added a motor-cycle engine to his B.A.C. VII to produce the ultra-light "Drone," but killed himself in it in 1933. Kronfeld then joined a company which had been formed to exploit this machine, and settled down in England, later becoming naturalised.

Then, in 1938, he was appointed chief instructor and manager to the new Oxford Gliding Club at its site at the foot of the Chilterns by Aston Rowant. Here Kronfeld worked strenuously, building up the club and getting the members a great number of A and B certificates, but few C's, in spite of

the adjoining hill. At a lecture to the Society of Arts in February 1939, he described his methods, and gave his opinion that "the future of gliding will depend very much on whether gliding can systematically be used with success as preliminary instruction for aeroplane pilots."

One must confess a disappointment on hearing the great pioneer of high-performance soaring talk like this. And when, on meeting him at Dunstable during the war, I suggested that gliding should be regarded primarily as a means to soaring flight, he dismissed such an outlook as "idealism." But in 1947, when he landed at Bramcote during our national contest after flying straight from Switzerland, where he had met the leading soaring pilots, he had obviously been infected with their enthusiasm, and a visit to any post-war World Championship would, one feels certain, have won him over for good—if he had lived to see one.

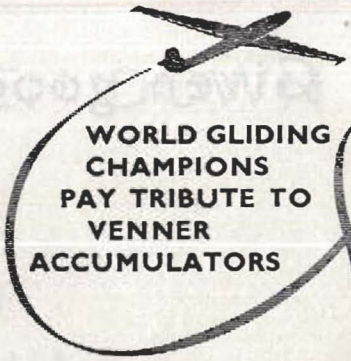
THE WAR YEARS

During the war Kronfeld threw himself whole-heartedly into military gliding, and his war-time career will be found well and appreciatively described by Robin Fender in the SAILPLANE & GLIDER for March 1948. His efforts won him the Air Force Cross in 1943. When it was over, he became a test pilot, and in February 1948, was testing a large tailless glider, built as a try-out for a larger powered machine, when it performed a violent "bunt" and its occupants were subjected to extremely high negative "g". His companion remained sufficiently conscious to escape by parachute; but Kronfeld's injuries were such as to have probably caused instant death.

Only a few days before this, an unexpected side of Robert Kronfeld's character was revealed when, at a chance meeting in the Royal Aero Club, he described to me how he had once cured a fellow-officer of a severe neurosis by applying the classical technique of psycho-analysis, though he had no medical training. So often does the versatility of a clever man go unsuspected by those who thought they knew him well.

Now, to perpetuate his name, we have the Kronfeld Club in London as a meeting-place for all those who owe so much to his pioneering.

A.E.S.



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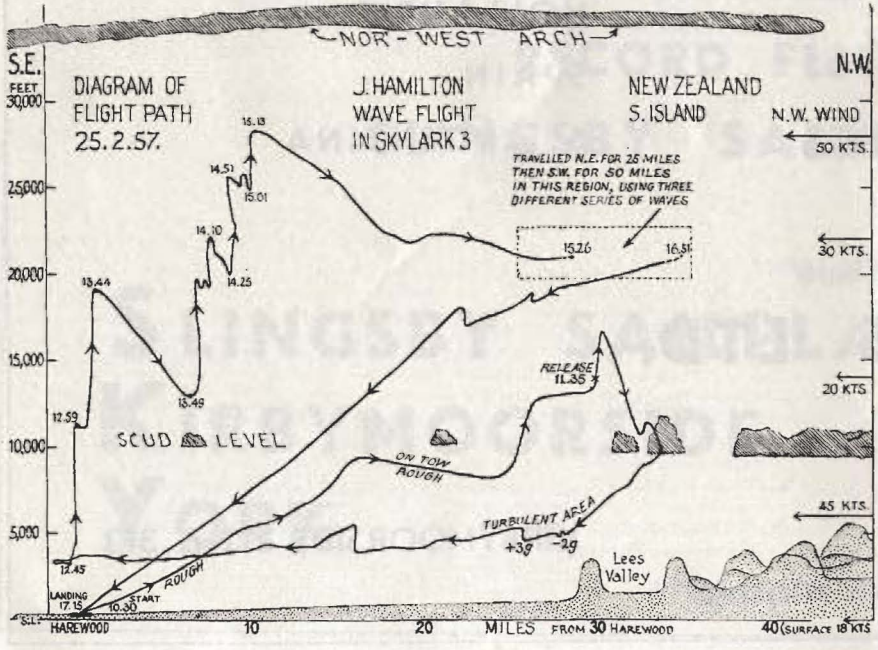
by Jon Hamilton

(If this flight proves to have been Mr. Hamilton's five-hour Silver C duration test, it may well be called a 1957 Version.)

At 10.30 on 25th February I was towed from Harewood in nor'west conditions. W. Small, the tow pilot, was using a Piper Super Cub and I flew a Skylark III, and together we spent an uncomfortable hour before we parted over Lees Valley some 30 miles upwind of the aerodrome.

This was my first flight in wave conditions, so I was pleased to have reached nearly 14,000 ft. on tow and to have released in a very promising area. After going up a few thousand feet I thought I would fly forward one wave-length to powerful lift which was shown by cloud formation a long way below. However, this was not as easy as it appeared and I got myself tangled up in the cloud, messed up my cloud flying and came out downwind in rough air. In this region the accelerometer (a sprung mass, friction-damped instrument) showed $+3g$ and $-2g$ with the A.S.I. varying from 60 to 80 kts. This was most uncomfortable as I could not prevent my legs flying up and hitting the instrument panel.*

*See note at end of article.



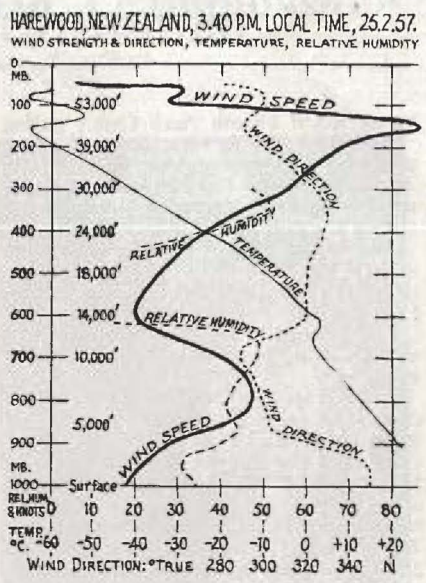
By this time I was down to 5,000 ft., 25 miles from Harewood, but I was able to keep aloft on very patchy lift until I encountered good wave lift at 3,600 ft. over the aerodrome. It took me an hour to reach 18,000 ft. although at times the lift exceeded 15 ft./sec. I had the feeling that the waves were arranged as peaks of lift distributed at random rather than as ridges of lift, though later on and closer to the mountains the ridge type of formation was most pronounced.

I dropped 5,000 ft. by going upwind a few miles and then spent nearly an hour and a half climbing to 28,000 ft., dodging about among these imaginary peaks, sometimes losing height, often finding lift at 15 ft./sec. and always keeping 20-25 miles downwind from the mountains. There was a layer of scud cloud at about 10,000 ft. and the best lift seemed to be found above these little cotton-woolly clouds. The great nor'-west arch was the only other cloud and this formed a sheet at perhaps 40,000 ft. with its leading edge over the mountains and its trailing edge miles out to sea. It obscured the sun throughout the flight.

The final lift from 24,000 to 28,000 was done in 11 minutes and this rate of climb could probably have been maintained for a long way, but I had doubts about the oxygen equipment, so decided to lose height by going upwind. I passed through at least one more good wave but did not pause until reaching the mountains at 21,000 ft. Here I turned across wind and flew north-east for 25 miles, keeping about 20,000-22,000 ft. in the first wave upwind of the foothills.

At 16.00 hrs. I turned back, feeling cold, as I only had nylon socks on under thin shoes. The cloud below had by this time formed itself into ridges with clear air in between, and there was no difficulty in changing to the wave just downwind at the foothills. In this wave I flew south-west for 50 miles then explored upwind for a short time before turning and diving towards Harewood.

However, the second wave downwind from the foothills seemed particularly strong, and I could not resist zooming up 2,500 ft. in an incredibly short time in it and then pulling the brakes out once more and heading for the aerodrome, which was still over 30 miles away to the east. A T.V. dive, a loop, and then a landing at 17.15



hrs. with cold feet completed a thoroughly enjoyable flight.

* * * *

[Mr. Hamilton's last three words throw some light on his outlook on life. It is reported that in the violent accelerations encountered, his shins were cut when they hit the instrument panel, and as each time this occurred the edge of the panel hit the same spot, in olden days this would have been called torture, and not thoroughly enjoyable at all. This turbulence shook off all surplus glue and wood-chips etc., left inside the wing and possibly stuck on with dope. During the flight Mr. Hamilton also in error allowed the speed at one moment to exceed maximum placard speed, possibly reaching 140 kts. This happened when he had no horizon. The aircraft flies so effortlessly at high speeds that he only noticed it when he saw the wing-tips bending down.

Subsequent careful examination has revealed no damage except that the loose chips inside the wing rattle when they are shaken.

Mr. Hamilton is obviously a pilot to watch, so we hope his hand will be a little more ready to the brake-lever next time!]

DANISH GLIDING IN 1956

by Per Weishaupt

THE Royal Danish Aero Club's gliding statistics for 1956 show all-round progress. Membership went up to 475 (in 25 civil clubs) plus 109 Air Force members and 218 passive. (Denmark has about 4.2 million inhabitants.)

The number of C certificates issued went up from 30 to 56, and of official government-issued S licences (permitting cross-countries) from 18 to 30. Ten Silver C's and two Gold C's were issued. There were 46 Silver, Gold and Diamond "legs" against 34 the year before.

The average number of flying days for the clubs went up from 23 to 37 (there are no permanent centres as in many other countries). The number of launches went up from 9,140 to 12,528 (it was higher just after the war), and the number of gliding hours from 1,247 to 1,636—the highest ever. There were 42 distance flights totalling 3,560 kilometres against 45 with 3,119 in 1955. For the first time triangular flights were done. The number of instructors functioning was 72 against 62 in 1955.

The number of gliders went up by one to 70, the new one being an L-Spatz. This fleet is composed of 21 open Primaries (of which four are two-seaters), 33 intermediate types (mostly Grunau Babies) and 16 sailplanes (of which five are two-seaters). Half of the training is still done on single-seater open Primaries, as the clubs have not money to buy two-seaters. Danish gliding is not subsidized.

For the first time the statistics include information about the gliding activities of the Danish Air Force (not included in the above). With 13 gliders, of which four are two-seaters, the Air Force performed 6,318 launches and 1,052 hours. These hours cannot be compared with the civil hours, which consist of pure gliding time, while the Air Force time is total time including towing time of 998 aeroplane tows.

The Danish Civil Air Department has just issued new regulations for gliding, worked out in co-operation with the Aero Club. These give the gliding people more freedom and "self-government" but added responsibility. All certificate of air-worthiness inspections will now be carried out by the club's own inspectors. New pupils must interview the doctor and must be entered with the Civil Air Department and obtain their S licence within four years.

F. Vicent Llorente

ALEX Aldott writes that the present Spanish gliding champion, Fernando Vicent Llorente (Vicent is his father's surname) unfortunately lost his life when flying in a Jodel light aeroplane in company with another pilot at Cuatro Vientos, Madrid, the aerodrome where the 1952 World Championships were held; they crashed into a wall on 11th March, when a high wind was blowing.

Vicent took part in the last three World Championships. In 1952 he came 9th out of 17 in the two-seater class; in 1954 at Camphill he was 21st out of 34, flying a Slingsby Sky, and last year he finished 8th among the two-seaters.

Mr. Aldott writes: "I knew him well and know that he was a fine and careful pilot, and as second in command at Cerro del Telegrafo, Madrid, he led the school most efficiently. He had 2,500 hours' flying. experience, and several notable distance and altitude flights."



The 1956-57 Australian Championships

by Commander Tony Goodhart

As I sit, wrapped in an overcoat I haven't worn for four years (the fuel promised for yesterday has not arrived), looking out on the March rain lashing the window and the already damp English landscape, it is difficult to get myself into the mood to write of the 1956-57 Australian Championships, during which the temperature went to the high 90s every day and the brilliant blue sky was lightened on only one day by a few, very few, fair-weather cumulus.

The New South Wales Gliding Association was charged with the responsibility of organising the championships, and chose Narromine as the site; but this choice was not popular with prospective entrants from Victoria and South Australia, due to its great distance over indifferent roads. Further discussion led to final agreement on Tocumwal Aerodrome as the site. This is a large (four 6,000 ft. runways) disused airfield, at one time populated by U.S. Super Fortresses. There is still one there, and the story goes that, when the Americans pulled out, this lone duck wouldn't start, so they just left it. Nearly all the buildings have been dismantled, except for a few behind barbed wire, where the R.A.A.F. store large numbers of aircraft more of antique than military value.



Tony Goodhart in the hangar at Tocumwal.

The writing of the Championship Rules fell to me as being the only person available who had attended other National Championships. As the competing aircraft were expected to be anything from high-performance sailplanes down to humble trainers, I felt that some handicapping would be essential, and accordingly a performance factor was allotted to each type varying (very roughly) inversely as best gliding ratio times speed for that ratio. Two classes were originally planned but, at the pilots' meeting, it was agreed to combine them so that any glider flown by two or more pilots would count in the Team Class and any pilot who flew three or more competition days would count his average points in the Individual Class. Marks were given for distance with bonuses for goal (20%) and completed return flights (50%) and, in the now accepted way, the top marker each day was credited with maximum points (in our case 100).

The Victorian Motorless Flight Group (V.M.F.G.) and associated syndicates had moved virtually all their facilities, including 6 aircraft, to Tocumwal for a whole month covering the Championship 10 days. They were thus in a position to produce 5 entries and would have had six but for the fact that Don Brown (who will no doubt be remembered by Surrey and Army Club members) had struck a thistle stump on landing at the end of a 300 km. goal flight—thistles grow big in Australia.

South Australia was rather sparsely represented because the dates chosen clashed with the apricot (or it may have been plum or orange) picking season.



Mal Williams (standing) and Frank Hudson, of New South Wales Gliding Association, who ran the contest.

However, an Olympia of distinctly orange hue arrived, as did also Ted Pascoe's self-designed and built "Spruce Goose." This very neat little 30 ft. spanner weighed appreciably less than its pilot.

New South Wales was, rather disappointingly, only represented by a Grunau, and the R.A.N. Gliding Association produced the LO 150 and a hastily modified T31b to replace their Schneider ES 56 which had spun in a week earlier.

There is no flying or gliding club at, or near, Tocumwal; but Bill Iggulden, president of the Gliding Federation of Australia, had, with his ever bubbling optimism and tact, convinced the local Chamber of Commerce that the Championships would put Tocumwal on The Map, and further he had encouraged the local R.A.A.F. Maintenance Unit to take a keen interest. As a result the pre-organisation was generally good, an excellent canteen was provided and manned by the ladies of the Golf Club, and most pilots arrived with their aircraft in time for the opening ceremony. Incidentally, the opening practice day turned on the best soaring weather of the whole meeting.

The day-to-day organisation was handled quite remarkably well by two members of the N.S.W. Gliding Association, Frank Hudson and Mal Williams, to whom the highest praise is due.

The only real shortcoming was the launching organisation which the official organisers, the N.S.W.G.A., had been unable to provide. It thus fell to the Victorian Motorless Flight Group to provide the winching; this they did most willingly, but their winches are old and there were unfortunate delays.

The Weather

Except on one day the inversion sat firmly on us and our activities, at times as low as 2,500 ft., though usually lifting towards 5,000 ft. by late afternoon.

The R.A.N. Gliding Association had brought an Auster, and this (with its R.A.A.F. pilot) was pressed into service to do a regular morning met. flight from which Derek Reid (known to many at Redhill and Lasham) was able to produce very good forecasts at briefing each day.

The Flying

The tasks for the day were announced by the organisers at the morning briefings; they tended to get discussed—and sometimes altered—during the briefing; this might seem somewhat unruly but in fact was probably as good a solution as any, considering the relative inexperience of many of the competitors, and of the task-setting committee.

I will not go through each day in detail—I don't have the necessary information, any way. The first day, 28th December, was a race to Narrandera (100 odd miles) in which only "Otto" Brand managed to complete the course, though several others got within a few miles. The second day was a race round a 45-mile triangle; great difficulty was experienced getting away and the LO 150 was the only aircraft to complete the course, or in fact to score any marks at all. At the next morning briefing the other pilots very sportingly voted to give me 100 points for the day while

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counting themselves a no contest day (by the rules 20% of competitors had to score for a contest day).

After that we had a succession of six poor days in which we tried progressively shorter tasks, ending in a forty-mile race which three pilots completed. Two of the days were so hot and airless that the pilots mutually agreed not to compete, and we all went swimming in the Murray River instead.

Then came the good day in which seven pilots flew 789 miles between them, including a first cross-country of 62 miles in the Naval modified T31b by Charlie Grose.

After that we tried an 80-mile out-and-return twice without anybody getting back, though the Spruce Goose made a valiant attempt on the last day.

The results are shown tabulated. The prizes were presented by the President of the G.F.A., Bill Iggulden, at a small ceremony the morning after a first-class farewell barbecue party.

INDIVIDUAL CHAMPION.—This honour deservedly and popularly fell to Derek Reid who flew consistently well on his only three days and spent most of the other days winch driving, or otherwise helping.

TEAM CHAMPIONS.—The team of three V.M.F.G. members, Otto Brand, Don Brown and Allan Patching, flying their Schneider Nymph, clearly won this trophy with a margin of 128 points over their nearest contender.

AGGREGATE TROPHY.—Although not originally intended, the organisers generously awarded this to me for having totted up the highest total score in the LO 150.

The Championships were a considerable success, despite disappointing weather and a certain amount of disorganisation due to launching delays, and just under 3,000 miles were flown. I would, however, like to make a few recommendations to future organisers:—

(i) Try to select a site near a large centre of population so that good publicity may be given; e.g. Wagga Wagga has a daily newspaper, a broadcasting station and a population of 12,000; Tocumwal has neither, and only 1,200 souls.



"LO-150", the winning sailplane in the team class, at the starting point.
Courtesy "Australian Gliding."



Charlie Grose, in the Navy's modified T31b, in which he made his first cross-country flight of 62 miles.

(ii) Aero-towing if possible—but if not, two *really efficient* winches can cope with a dozen competing aircraft adequately.

(iii) Get all the arrangements cut and dried and published several months beforehand.

I sincerely hope that sooner or later I may be privileged to compete again in a future Australian National Championships.

Team Class

Aircraft and performance factor	*Pilots*	*Points*
LO 150 (0.8)	A. Goodhart	6,099
Nymph (1.0)	O. Brand D. Brown A. Patching	5,122
Skylark 2 (0.9)	G. McDonald W. Burgess D. Reid	384.3
Spruce Goose (1.4)	E. Pascoe	364.1
Grunau (1.6)	B. Reid R. Lee G. Beckworth	341.4
Gull IV (1.0)	J. Iggulden W. Iggulden	139.4
T31b (1.8)	C. Grose W. Catchpoole M. Kokegei T. Toohey G. Strickland	136.2
Olympia (1.0)	D. Schultz C. Buckley	94.8
Grunau (1.6)	D. Johnson R. Ash	73.3
Kookaburra (1.3)	B. Cunningham O. Beckwith M. Morton J. Lilley	18.6

Individual Class

	Pilot	*Average Points*
1.	D. Reid	84.7
2.	R. Lee	78.7
3.	A. Goodhart	76.4
4.	E. Pascoe	72.8
5.	D. Brown	62.8
6.	O. Brand	59.2
7.	A. Patching	55.3
8.	J. Iggulden	42.5
9.	G. Beckwith	29.3
10.	W. Iggulden	27.3

followed by W. Burgess, C. Buckley, C. Grose, W. Catchpoole, G. McDonald, D. Johnson, D. Schultz, B. Reid, T. Toohey, R. Ash, M. Kokegei, J. Lilley, B. Cunningham, and M. Morton.

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L. I. S. Fraser	Derbyshire & Lancashire
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C. W. H. Knight	Bristol
V. L. Sweet	Surrey
R. W. Shaw	RAF Windrushers
F. A. Cooper	London

Correction to list in February issue, p. 36: R. P. Bateson obtained C Certificate at Aigen, Austria, not at No. 625 G.S.

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PHOTOGRAPHS suitable for reproduction in SAILPLANE & GLIDING would be welcome, especially for the front cover (if of the correct shape). It is regretted that no fee can be paid.—ED.

Long Mynd Easter Rally

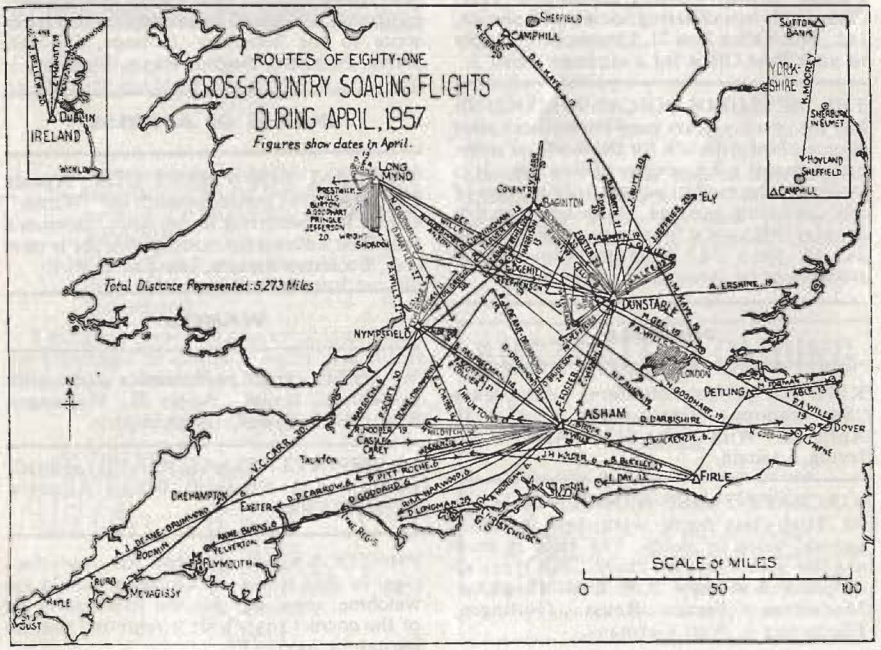
THE traditional Easter task-flying rally of the Midland Gliding Club attracted 14 entries this year, club-owned and private.

Friday, 19th April, a "practice day," brought the best flights, by four who gave Lympne (195 miles) as their goal. Nick Goodhart reached it, Philip Wills went beyond it to Dover, Mike Gee reached Hornchurch (148 miles), and Noel Anson landed at Betchworth, the Surrey Club's pre-war site. Wills, passing north of London, found excellent cloud streets from Dunstable on, but Goodhart struck a bad patch around Tunbridge Wells and thereby missed the 300 km. speed record by 20 minutes. Others tried a 22-mile triangle to the west, and Mr. and Mrs. Burns went round it in turn.

Saturday's task was a race to Shobdon near Leominster, and back, 45 miles in all. A frontal overcast all morning prevented it starting till the afternoon, when Ric Prestwich set off at 1.40 and got back 1 hr. 35 mins. later, the return journey having been made at 100 m.p.h. from the 8,500 ft. top of a large cumulus mass sitting over Shobdon. This cloud was still there an hour and a half later when Wills arrived; he took 1 hr. 3 mins. to do a climb to 8,000 ft. at the Mynd, a fast glide to Shobdon, a climb to 7,500 ft. there, and a fast glide back at 70 m.p.h.; but he landed in the wrong place and earned no speed points. Four others, George Burton, Tony Goodhart, John Pringle and Brian Jefferson, rounded the turning point and got a good part of the way back, and B. R. Wright landed there.

Easter Sunday was occluded.

Monday's task was a pilot-selected goal. The cumulus looked good as far as it could be seen, but that was not far, because of thick haze, which the pilots found rather



hampering, though it was clearer south of Ludlow. Wills and Nick Goodhart decided on an informal race to Inkpen, the Goodhart home; both landed in Gloucestershire. Martlew took the ancient Petrel nearly as far as the two Skylarks, landing only three miles short of his goal of Staverton, the Gloucester Club's former site, while Prestwich was the only pilot to reach his goal, a modest one at Newtown, 18 miles.

On Tuesday the upcurrents were so poor that the task, a race to Shobdon, was scrapped. At the final briefing, tribute was paid to the excellent met. briefing given throughout the Rally by "Jock" Findlater.

A.E.S.

Final Results

Sailplane	*Pilots*	*Club*	*Points*
Petrel (P)	D. Martlew, G. Burton	Lasham	167
Skylark 3 (P)	H. C. N. Goodhart, G. A. J. Goodhart	Lasham	163.5
Skylark 2 (P)	R. H. Prestwich	Midland	155.5
Skylark 3 (P)	P. A. Wills	Lasham	147.8
Skylark 2 (P)	B. Jefferson	Derby & Lancs.	68
Skylark 2 (C)	J. W. S. Pringle	Cambridge	67.4
Skylark 3 (P)	D. Burns, Anne Burns	Lasham	62.2
Skylark 2 (C)	B. R. Wright	Midland	40
Skylark 2 (P)	D. Lowe	Midland	24.8
Skylark 2 (P)	J. Knotts	Midland	19
Olympia (P)	N. P. Anson	London	—
Olympia (C)	B. H. Smith	Cambridge	—
MU-13 (C)	Seth Smith	R. Naval G.S.A.	—
T21b (C)	S. Neumann and others	Cambridge	—

(C) Club aircraft. (P) Privately owned.

A COURSE TO ATTEND

A WEEK's residential course on "Weather and Flight," to be held at Preston Montford Hall Field Centre, Montford, near Shrewsbury, from 3rd to 10th July 1957, is announced by the Field Studies Council.

The principal lecturers are Dr. R. S. Scorer (Imperial College Dept. of Meteorology), Mr. C. E. Wallington (Meteorological Office) and Mr. F. G. Irving (Imperial College Dept. of Aeronautics), which is as much as to say that the course will have a strong gliding bias.

Elementary meteorology (including cloud physics) and aerodynamics will form the basis of the course, for which a knowledge of advanced mathematics is not necessary, though any who wish to discuss mathematical aspects with the lecturers will have ample opportunity. The emphasis of the course is upon observation out of doors, with particular attention to weather photography and the recognition of clouds.

The fee for the course is 8 guineas (with possible extra transport charges), and further information can be obtained from The Warden, Preston Montford Field Centre, Montford Bridge, Near Shrewsbury.

Correspondence

Dear Sir,

With the arrival of what we fervently hope will be a cross-country season equal to that of last year, may I through your columns make a plea to the pilots who make use of the suitable farm fields on which they are fortunate enough to make their uninvited landing, to at least acknowledge their appreciation to the farmer concerned. Last year there were rumblings at certain National Farmers' Union meetings and in the farming Press, and it would be most unfortunate if the agricultural industry took the view that indiscriminate glider landings were detrimental to their interests through the thoughtless actions of a section of the gliding fraternity. It is not perhaps appreciated that a 10 to 12 acre field which is of a convenient size to use for a landing, would cost a farmer about £50 a year or nearly £1 per day or nearly 2s. per hour, and from the farmer's point of view there is no more reason for a glider pilot, or anyone else for that matter, to use his field without his permission, than for him to go into his next-door neighbour's house and use his telephone without first asking permission.

F. C. WORLEY.

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Detection and Location of Thermals

by Air Commodore L. P. Moore, C.B.E.

In one's limited experience of thermal flying, the first symptom almost invariably noticed on entering or leaving a thermal has been a quick change of airspeed. But only recently has one found that the nature of this change is related to direction of flight in relation to wind direction, as follows:—

(*a*) Entering thermal into wind or "falling out" downwind—sudden decrease in airspeed.

(b) Entering downwind or falling out upwind—sudden increase in airspeed.

(c) Falling out crosswind on downwind side of thermal—rapid airspeed changes up and down and burble.

The significant thing about these gusts is that they are usually the *first* indication of entering or leaving a thermal; the sequence being a sudden gust or lull followed by a sense of acceleration up or down followed by a variometer reading; the lag between them being the result of the sailplane's inertia. It seems therefore that gusts and lulls may be a good—if not the best—indication of the presence and location of thermals.

It occurs to me that the above experience may well be explained by the accompanying diagram if we agree the theory now widely accepted, that thermals drift downwind at a lesser speed than that of the wind; treating the thermal as an obstruction in the path of the airstream.

By reducing the ground speed of the thermal to zero and considering a horizontal cross-section of it and of its environment on the plane in which the sailplane is circling, we have the air around the thermal streaming downwind past it, producing eddies in the wake and a local increase of windspeed on the flanks. The diagram depicts and explains, I hope, adequately how I believe the phenomenon is caused.

If this explanation is right, a device that would measure airspeed differential between wingtips ought to go much further in providing a means for detecting and locating thermals, as follows (assuming steady level or circling flight):—

INTO WIND

Burble followed by decrease—no differential—centre straight ahead.

Decrease port or increase starboard—turn port.

Decrease starboard or increase port—turn starboard.

Steady increase—no differential—passing between two thermals—turn port or starboard.

DOWN WIND

Increase—no differential—centre straight ahead.

Increase port—turn port.

Increase starboard—turn starboard.

Steady decrease—no differential—passing between two thermals—turn port or starboard.

A pressure head at either wing-tip feeding to opposite sides of a diaphragm could be

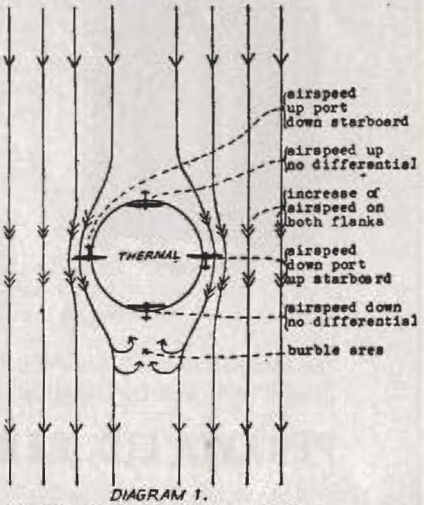


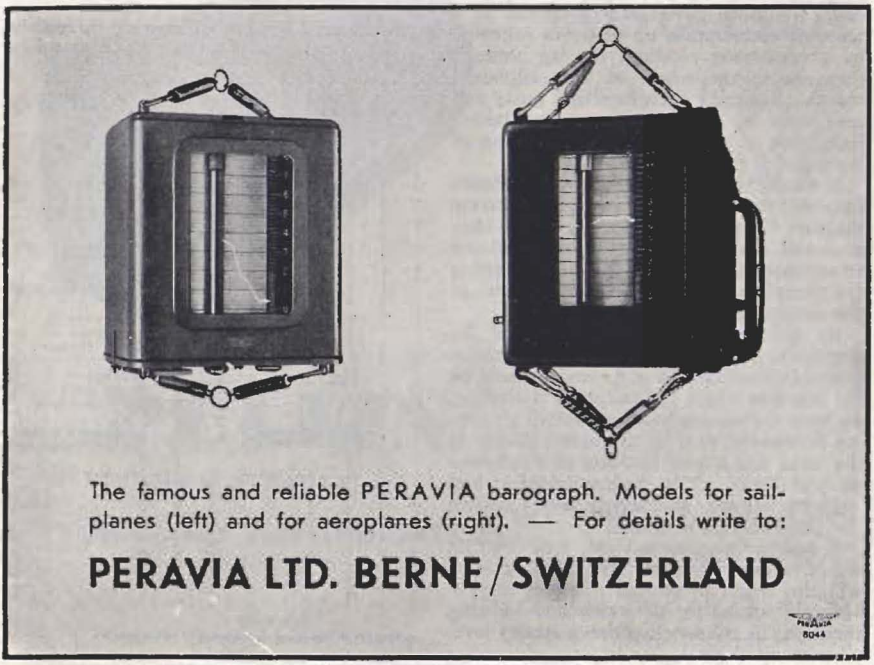
DIAGRAM 1.
AIRSPEED DIFFERENTIAL AROUND A THERMAL

made to show airspeed differential, and it would probably be fairly easy to differentiate between the differential related to circling flight and that arising from a sudden gust or lull. The above rules would be difficult to memorise at first, but with the aid of a ready reckoner and some practice, would soon become fairly instinctive. That "kick in the pants" may be held to be a more convincing indication, and so may the tilt of a wingtip, but they only indicate a *fait accompli*. Gust indication ought to give an appreciably earlier and longer distance indication of the presence and direction of a thermal centre.

It looks as though there should be appreciable variations in pressure around a thermal as a result of local changes in the speed of passage of surrounding air, a concentration of streamlines on either flank decreasing pressure while a high-pressure region builds up on the downwind side. Does this help to account for the ear plopping experienced in strong thermal conditions? And could that lead to false transient readings of the variometer?

Hitherto I had always associated sudden gusts and lulls with the sudden vectorial addition or subtraction arising from the change in vertical velocity of the sailplane's environment. No doubt this does contribute towards the phenomenon, but were it the only factor, we could expect an increase in airspeed on entering a thermal irrespective of direction of flight in relation to wind direction—which is not what actually happens.

Quick reaction to thermal indication is an important thing, especially when flying fast between thermals, lest we overshoot them. Is sudden change in airspeed in the sense I have suggested a reliable pointer? If so, is it the first pointer of the several different ones? If it is, it may be the best to go by.



THIS GLIDING

WHAT has happened to the Press? After all these years of cluelessness, has it suddenly dawned on them all what this gliding is really about? Since our last issue they have perpetrated nothing worthy of inclusion in this column. Not one ambulance, not one fire brigade, has rushed up to an "aircraft crashing in flames" after some sailplane has made a normal landing in a field. So, to fill the gap, here are some choice pieces from the club news in the pre-war SAILPLANE & GLIDER.

"One of our instructors was asked a number of questions by a sincerely interested bystander who finally observed: 'I suppose, when you turn down-wind, your controls are all reversed then?' "—*Yorkshire Club.*

"Circuit of the Kirby Kite, piloted by Kaye, whose head only just appears out of the cockpit. Old lady, seeing him for the first time as he comes in to land, remarks: 'Oh look, George, there's someone in it!' "—*Derbyshire & Lancashire Club.*

"Small daughter, aged three, helping enthusiastic glider pilot to carry his lunch to the car: 'Shall I carry the thermal flasks, Daddy?' "—*London Club.*

"Member of the public, to companion: 'I was out here on Wednesday and there was one glider up in the air for nearly half an hour trying to get down and couldn't; then another glider went up and showed it the way down.' "—*London Club.*

"An old lady took up a very prominent position on the site, one Sunday afternoon, to watch our activities. On being informed that it was rather dangerous on that particular spot, she replied: 'Oh, that is quite all right, I'm sitting on a newspaper.' " —*Derbyshire & Lancashire Club.*

"One of our members was tackled by an acquaintance who had read, in a newspaper, of a cross-country flight of forty miles. Like this:—'Did you say he was launched by catapult . . .?' 'Yes.' '. . . and he went forty miles?' 'Yes.' 'Gosh! What a catapult!' "—*Yorkshire Club.*

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French Government Aid to Soaring

by Walt H. Pratt

WHEN, on 23rd and 24th February, the French Soaring Association held its third annual assembly in the great amphitheatre of the French National School for Aeronautics, commonly called by its students "Sup Aero," M. Agesilas, director of the Sport Aviation Department of the Air Ministry and the French delegate to OSTIV, furnished some very interesting statistics of the aid that the French Government provides to the soaring movement.

The main purpose of his discourse was to refute rumours circulating among French soaring pilots to the effect that the government was letting them down as far as new material was concerned. M. Agesilas pointed out that for equipment alone the French government had, in the last six years, set aside very great credits, and he cited the following very eloquent figures*:

1951:	Nil.	
1952:	300	million francs.
1953:	350	,, ,,
1954:	400	,, ,,
1955:	380	,, ,,
1956:	795	,, ,,
1957:	740	,, ,,

To these credits, M. Agesilas continued, an annual allowance of 600 million francs has to be added for the functioning of the Sport Aviation Department.

* A million francs is approximately £1,000.



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M. Agesilas took special pride in the great increase in credits obtained since he occupied his present post from 1956 on. He also mentioned that he has prepared a four years' programme calling for a yearly budget of one milliard francs (£1,000,000) for equipment.

Passing to the results obtained in those years, M. Agesilas reviewed the construction programme and the utilisation of the above credits. Among many other figures, he cited the cost of some of the latest French sailplanes:

Prototypes:	*Million francs*
3 Breguet-901	60
1 AV-22 (two-seater Flying Wing)	24
1 Breguet-904	70
1 Breguet-902 (two-seater trainer now under construction)	40
2 WA-20 "Javelot" (single seater high-performance) ..	32

To these prototypes has to be added the stratospheric sailplane which is still in the stage of study and on which already more than 100 million francs have been spent.

From the prototypes, M. Agesilas passed to the cost of the series production machines which have been ordered by his department:

	Million francs
First series of 20 Breguet-901 ..	96
Second series of 10 Breguet-901..	47
Series of 15 Breguet-904 ..	100
Preliminary series of 6 WA-30 "Javelot"	15

A series of several Emouchets, a single-seater initial training plane, as well as several trailers, have also been constructed.

M. Agesilas finished his discourse with a general review of the actual status of French soaring activities, and he expressed his belief that the future of this great sport is not as black as some have painted it, and that he would continue to be one of its strongest supporters.

Club & Association News

ENTRIES are coming in for the competition for the best design for a new heading for this section of the magazine. One is shown at the head of this page, and others are to be found on pages 162 and 164. Letters of praise or condemnation are now awaited, together with further designs from any reader who may have any bright ideas.

L.J.H. of Barnet prefers the original design to the one published in the April issue, and we quote some remarks from a letter too long for reproduction in full—". . . the sailplane of the old heading had the virtue of forming an integral part of the design, as much cannot be said for the new heading in which the lines made by the admittedly beautifully drawn sailplane lead the eye away from the rather brittle and static italic wording which includes an ampersand of doubtful legitimacy . . . it is my contention that a sailplane is not a necessity in the heading . . . improvement should accrue from having the club names in a lighter face italic sans serif type."

Will Club Press Secretaries please note that for the August issue contributions should be sent in, typed *double-spaced on one side of the paper only*, so as to arrive at 33B, Eccleston Square, London, S.W.1, by 18th June.

GODFREY HARWOOD,
Club and Association News Editor.

CORNISH

SINCE our last report we have made a modest start. We aero-towed the Olympia from Culdrose to Perranporth, and over the Easter weekend carried out some 26 launches with a total flying time of 3 hrs. 27 mins.

Spectators with all known forms of vehicle percolated from the cliff road and the peri-tracks onto the three runways, and provided quite a problem of ground traffic control, which we must solve before the summer swarm of visitors to Cornwall sets in. There is, however, the consolation that the gospel of gliding is being propagated.

Our membership figures have risen to 60 active and 17 associates. By the time this issue is in print we hope that our fleet will include a T31, a Tutor and a T21b. The hangar should be finished by then, and Wally Teague, of Imperial Motors Ltd., Redruth, has promised us a second Ford V-8 on loan with a reconditioned engine.

Our programme at first covers site-familiarisation flying and refresher flights for Instructors, tuition for the many tow-car drivers, and general flying for members on Thursdays and at the weekends. Three or four Instructors are prepared each to devote a week of their annual holidays to giving instruction, and we therefore hope to arrange 3 or 4 courses of a week's duration before the autumn.

J.W.E.B.



Flying suits or bridal veils—anything goes for gliding! In this picture Mr. and Mrs. Gerry Harrison are about to be launched into married life in the Coventry Club's T21. (We hope she remembered to strap herself in).

COVENTRY

HOURS up until Easter weekend total 190 from 1,600 launches. On 31st March, we did 100 launches for the first time this year although 95 had been reached on several previous occasions. In the last two months Littlejohn, Bark, Farren, S. Haynes, Findon and Mary Neal have gone solo. The recent warm weather gained us a new batch of C pilots, namely Watts, Dobson, H. Greenway, Tyler, Joan Cunningham, A. Cunningham and R. Brown.

Sheila Gregg has now added a Silver height to the 5 hour leg she has already attained, thus furthering the honour of the Gregg family. Dr. Gregg, the club's chairman, seems to have taken his duties seriously by supplying us with four successful pilots, himself, daughters Sheila and Heather and son Richard, now taking pilot training with the R.A.F. in Canada.

Richard sends us the interesting news that on one flight in a Havard, he was intrigued by a superb looking lenticular cloud. He was unable to resist the temptation to find out if it worked and positioned himself below the windward side with power settings corresponding to 300 feet per minute descent. Sure enough the lift took him from 8,000 feet to 17,000 feet, at which height he broke off the climb for personal reasons. Oh, for a Skylark!

Speaking of Skylarks, we had a visit from a Dunstable pilot who landed at Baginton on 20th April and was later aero-towed home. Perhaps he was "returning the compliment" after Mike Hunt's trip from Baginton to Dunstable in an Olympia on the previous day.

Also on the 20th, Vic Carr did an out and return to Leicester, reaching 9,800 feet on the way. He says that's as near Gold height as he wants to be without getting it.

The Club Olympia was broken on a cross-country flight on 13th April and the following weekend the T21 was also put out of action for Easter.

The Tutors have had several good soaring flights recently to between 4,000 and 5,000 ft., one of which took Peter Berthelsen cross-country to Edgehill, a distance of 21 miles on 13th April.

Other cross-countries this year are Vic Carr, travelling 28 miles and R. Tarver 25 miles both on 6th April, in Olympias. On 7th April, D. Cunningham reached 27 miles and on 13th April, G. Harrison reached 25 miles also in Olympias.

The club certainly seems to have spring fever or tax rebatitis because we have had three more marriages lately. Bob Compton to Jean Kitley, John Graham to Gloria Naysmith and Gerry Harrison to Cathy Liquorish. Our best wishes to them all. Cathy and Gerry were foolish enough to have their reception at an hotel near the aerodrome. They paid the forfeit of a trip in the T21 in full regalia.

B.H.T.

CROWN AGENTS

OUR A.G.M. was held on 11th March, when the reports by the Chairman and Treasurer showed that the club is improving its position. It is now an associate member club of the B.G.A.

The first "Crown Agents' Monday" of the 1957 season was held at Lasham on 1st April, and was attended by three Flying members, two Associate members and one member from Kenya. The day was bright with a moderate E.S.E. wind, and there was a fair amount of thermal activity. The next "Crown Agents' Monday" will be on 3rd June.

The value of starting active club membership early in the season and pressing on with dual instruction is well exemplified by the rapid progress made by one member who joined in February, went solo on the 2-seater early in April and got his C, was converted to the Olympia at Easter, and so now has a good soaring season ahead of him.

J.E.G.H.

DUBLIN

WHAT had so far been a blank year put on a very different face over the Easter Weekend. Beginning on Good Friday, the first two launches both "connected," resulting in a flight of just on the hour by Mike Harty in the Kite II—terminated by a splitting headache rather than lack of lift—and a first cross-country by Con McNulty in the Grunau, which fell a little short of Silver distance.

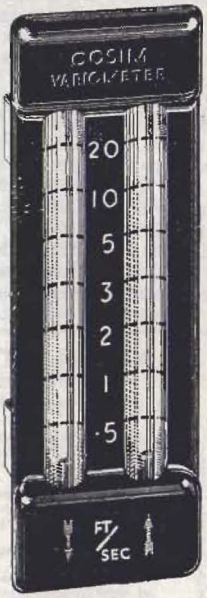
Saturday was very similar—first Jim Contostavlos, a "refugee" from the London Club, put in forty minutes in the Grunau. Launched soon after, Jim Bellewin the Kite made a successful goal flight to a friend's farm thirty miles away—a good goal to declare according to the retrieve party, who reported finding Jim trying to hide the bottle behind the hedge. In fact the flight could have been continued for some distance, there being quite a lot of height left in hand at the end.

Finally, but by no means least, Con McNulty had another attempt on his

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distance leg, again in the Grunau. Unfortunately this also just fell short, but to put in your first two cross-countries in two days is not bad going!

Sunday was a blank day, but on the Monday the weather cleared for long enough to enable a good proportion of the solo pilots to put in soaring flights of up to an hour's duration. Altogether a memorable weekend.

Plans for the future include a proposed Whit Weekend Rally of all the Irish Clubs at our home field of Baldonnel. This would be the first event of this kind ever held in this country, where the gliding movement is still largely in a very early stage. Let us hope that the next issue will record its success.

T.B.B.

HANDLEY PAGE

It seems at the time of writing that petrol rationing will be with us for a little longer. The usual efforts have been made to increase the launching rate, using a single cable and still maintaining strict petrol economy. A solo motor-cycle has been used for cable retrieving and appears to be a success. Some doubt was expressed initially about using this system over grass, but used away from the runways no incidents have occurred so far.

Quite a number of new members have been welcomed into the flying field recently, so the T31 is working overtime. The Tutor has yet to complete its "C. of A." Its arrival on the flying field is eagerly awaited by those solo pilots who are not yet converted to the Rhönbussard.

On the 23rd March Ron Janes qualified for his C while flying the T31. This was all the more creditable as the Rhönbussard couldn't stay up, but on the 13th April Mike Wilson managed to get this machine away on the fourth attempt. The first climb ended at 4,350 ft. over Elstree, being curtailed by the need to remain in VISUAL MET. CONDITIONS. The machine was soared for 1¼ hours, but conditions did not seem to be good enough to warrant setting off for Lasham.

The following day Alan Vincent climbed 600 ft. in the same machine but was unable to stay up. On both days, at Radlett at any rate, the thermals seemed tricky to centre below 2,000 ft.

Our C.F.I., Geoffrey Wass, is hoping to do a series of stability tests on one of our machines in the near future. This will be in order to obtain B.G.A. "Test Pilot" approval.

Paul Langston, who evaluated position errors and drag coefficients for the Skylark 2, has now joined our company, and we hope to force him into our gliding ranks soon.

A.E.

ISLE OF WIGHT

Final figures for 1956 flying were 1,701 launches and 112 hours. This shows very clearly our lack of cross-country and soaring flights. In an effort to remedy this situation every soarable ridge on the Island has been visited and the landowners approached. Our success to date has been rather limited, farmers treating us with a mixture of disbelief and incredulity. We have obtained permission to operate from a very promising ridge—but so far only during the winter. Previous permission to operate from Newbarn Down may now be in jeopardy due to the proposal to erect a T.V. mast in the neighbourhood. Other proposals are now in hand and we are at the moment awaiting decisions from two landowners.

Owing to the reduction of available hangar space we now have to rig and de-rig our T21b, a job at which we are rapidly becoming proficient. Among our other proficiencies of late we include the covering and doping of complete wings along with colour spraying—and consequently the Grunau is now resplendant in Turkey Red and Cream, a fact which will no doubt please visiting "throttle-benders." Several hundred man hours have gone into the recovering and Cofa work on this aircraft,

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Club and Association News

and among the many who have helped, Messrs. Adams, Dyer, Gavaghan, Morris, Richardson, Smith and Wilcocks are to be congratulated on their constant attendance. Whilst on the subject of maintenance, Eric Dyer and "Ricky" Richardson do deserve especial mention when it comes to vehicle maintenance, without them we should have lost quite a few more flying hours.

This year we are making every effort to increase our number of launches and more especially the hours flown. This will mean a really big effort from everyone, as we shall be using the airfield in conjunction with scheduled services.

P.W.

KENT

THE week prior to Easter has brought the best results to date in our flying with no less than four separate Silver C legs and seven C certificates in the good thermal conditions.

On Saturday 13th April, Ted Day in the Sky became the first member to complete all three legs of a Silver C at Detling. He gained his final leg with a distance flight of 64 miles from Detling to Tangmere.

The following Tuesday, 16th April, Ian Abel organised a day's flying for Prefect pilots trying for C's. This proved very fruitful as Bernard Kirby, John Bailey and "Jonah" Jones got their C's on half hour thermal flights. "Jonah" in fact got a thermal off the launch and reached 4,800 ft. Ian also had a good day as he was able to complete his Silver C with a distance flight of 35 miles in the Sky to Ramsgate.

Good Friday also brought three more C's. Phillipa Buckley, Sue Parkinson and "Nobby" Clark. Mike Foreman in the Sky got Silver C distance with a flight to Manston 33 miles and Bill Bridges in the Olympia thermalled for 5 hrs. 10 mins. at 5,200 ft. for his Silver C duration, but couldn't claim height as he lacked a barograph. Steve Green flying the Prefect got his C on Easter Sunday in thermals which were definitely few and far between.

Other flights which were of interest were Bernard Kirby's 1 hr. 10 mins. in the Prefect at 3,000 ft. on Easter Saturday and Roy Hubble's 1 hr. 13 mins. in the Sky at 4,000 ft. on Easter Monday.

Looking back over the first year of the Club's activities since last April, membership has steadily increased from the original 40 flying members to now over 100 and associates 50.

Launches have reached nearly 5,000 which we hope to exceed next year, the 2-drum winch being constructed by Ken O'Riley and Frank Tilley will help considerably to make this possible. A second tractor recently purchased is greatly needed as our old Fordson is beginning to feel the strain after such continued good service.

In March with the mild weather, the ground was firm enough (we have no runways) for auto-towing the Olympia and T31 which helped relieve a hard-pressed winch.

During March and early April with a north-easterly wind we had quite an amount of thermal flying. The Sky was flown on hourly and half-hourly flights in company with the Olympia at heights of 2-3,000 ft. The T21 also had its fair share of thermals

reaching 1,800 and 2,000 ft. on 20-minute flights.

C.M.

KENYA

FLYING has been continuing at Nakuru (100 miles N.N.W. of Nairobi), but exploration of the Nairobi area is going on apace with a view to finding a suitable site which will not interfere with the considerable international air traffic around Nairobi.

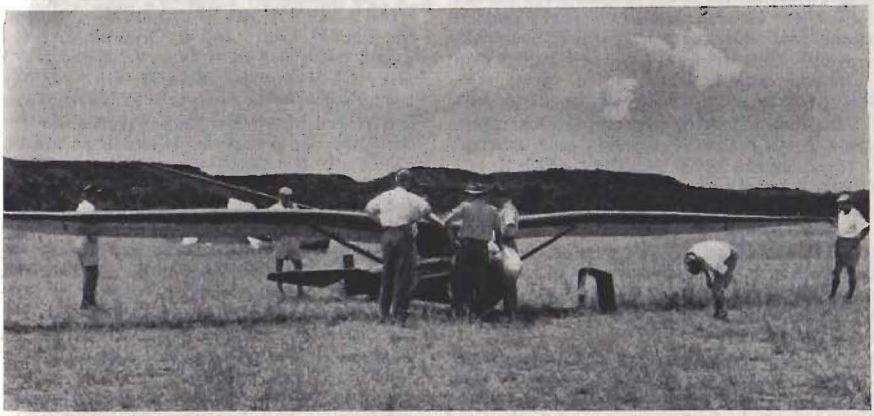
The first three months of the year were dry, hot and dusty, producing numerous dust-devils and occasional thermals in which the "Queen Mary" could be soared. In January Paul Thompson took young Allan Bernhardi (aged 12) for a quiet drive around the circuit in the T21b. They met one of these whoppers at 500 feet over the hangars, and eight minutes later were floating around 7,200 feet higher up (at an altitude of 13,900 ft. a.s.l.) still directly above the hangars. The opportunity was too good to be missed, so they set off for Nakuru Town, some eight miles away and achieved the distinction of being the first glider (and the first schoolboy!) in history to fly over Nakuru, incidentally making the first goal and return flight ever in East Africa.

Another first was recorded in February when Paul Thompson and Milly Visagie took off for a hangar flight just before dark and were whisked up 3,000 feet in a cold front. Going up was easy; coming down was a battle against the green, with the airfield rapidly disappearing in the darkness. The green ball persistently reared its pretty little head in spite of full spoilers and the steepest possible side slips but eventually height was lost by a series of screaming dives and tight circles in every odd scrap of down. A night landing was made well after dark in the lights of an improvised headlight flarepath.

Training is continuing in the T21b, and the standard of instruction is improving as the instructors gain experience. The instructors' latest fledgling at the time of writing is Norman Burbidge, who gained his A and B certificates after only 30 two-seater launches, having had no previous flying experience at all.

On the same day Tony Stocken obtained his B certificate, and Piet Visagie qualified for his C. Piet's C was most gratifying as it is only the third to be won in East Africa, and the first to be gained by a strictly *ab-initio* pupil. He was convinced that the Cadet would never soar carrying his 16½ stone, but he counted without the kindly local thermals. He bumped into one at 600 feet, rapidly gained 1,800 feet and then left it in a hurry when he was sure he had his C sewed up, because he was caught short by a "gippy tummy."

Our youngest pupil at present is Pat



Harry Mason, Chairman, and other members of the Bulawayo Gliding Club, handling his Kirby Kite before take-off at Denver airfield.



Neylan, aged 14, who is turning out to be a natural pilot. He has been promised his first solo on his 16th birthday, but he'll be pretty tired by then of carrying instructors around as ballast.

The response to gliding in East Africa has been most heartening, and there seems to be no doubt at present that the sport is here to stay.

P.B.E.T.

KRONFELD

As people will see from the list of talks, these are not being held every week in June and July as they are our slackest months, but the Club will still be open on all Wednesdays.

29TH MAY, 8 p.m.—"Aids to High Performance Soaring" by David Ince.

5TH JUNE, 8 p.m.—"Gliding in Australia" by Cdr. G. A. J. Goodhart, D.S.C.

19TH JUNE, 8 p.m.—Film Show.

26TH JUNE, 8 p.m.—"The R.A.F. Formation Squadron" by Sq. Ldr. Topp of R.A.F., North Weald.

10TH JULY, 8.30 p.m.—Film Show.

17TH JULY, 8 p.m.—"Meteorology for the National Championships" by Wally Wallington.

It is hoped that by the time these notes appear the wall between the bar and the lounge will have been taken down, making a large lecture room and the bar and coffee bar will now be in action in what was the old lecture room. This should give us quite a lot more space during our talks as it has been obvious for some time that the old lecture room was far too small.

Ideas are always welcome as to suitable speakers or topics for Wednesday evenings and any suggestions should be made to:

The Secretary, The Kronfeld Club, Basement, 74 Eccleston Square, S.W.1.

LONDON

Since our last notes we have been getting into our stride for the season and aerotowing is much in evidence; but on the 7th April a small group of private owners with the Scud II, Gull I and an Olympia reverted to old times and went flying from the north face of Ivinghoe Beacon with bungy launching. A new hazard to gliding was discovered when Norman Preston landed the Gull I in a nice field, and then read a notice on the fence saying, "Unexploded missiles keep out"!

On Saturday, 13th April, three members attempted a 100 kilometre triangle. Geoffrey Stephenson was the only one to manage it, flying to Buckingham-Chinnor-Dunstable, and then proceeded to do a 30 mile out-and-return flight. This was in his Skylark III. Charles Ellis in the Skylark II reached Ampthill and had to turn back, and Godfrey Lee in his Sky turned back at Royston.

Easter produced some really good weather on the first two days and much activity ensued. Sunday was not very good. Arthur Doughty however, reached 5,700 ft.

in his Kite II, and this was the best performance.

On Good Friday, John Jeffries was the first away off a winch launch in the veteran Scud II, and he reached Watlington 25 miles away. Two outstanding flights were made by Frank Foster, Skylark II, to Lasham and back, and by Geoffrey Stephenson, Skylark III to Malvern Beacon and back, the former 104 miles at 36 m.p.h. and the latter 158 miles at 37 m.p.h., within 8 miles of the British out-and-return record. Both Charles Ellis, Skylark II, and Godfrey Lee, Sky, found little difficulty in doing the 100 kilometre triangle, the former by Stoney Stratford and Chinnor, and the latter by Bedford and Royston at 30.9 m.p.h.

Dan Smith then took the Sky on a 60 mile triangle, via Olney and Sandy. Dr. Archie Erskine took his Olympia 72 miles to Colchester for his Silver C distance. Cedric Vernon flew the Gull I to Warfield, 31 miles, getting 4,300 ft. en route. Even the two-seaters were not to be outdone; and John Currie and Vic Pollard reached 4,400 ft. from a 500 foot winch launch and flew to Leighton Buzzard and back, finding one thermal of a genuine 15 ft. per second! Mike Russell flew a neat 39 mile square, Bletchley-Tring-Berkhamsted-Dunstable in Frank Foster's Skylark after he had got back from Lasham, and reached 5,500 ft. Roger Bradford reached 5,400 ft., and Jeff Butt the same. The total air miles for Good Friday were 632 miles. Godfrey Lee had got up to 7,400 ft.

On Saturday, Colin Richardson flew the Skylark II to Baginton, a 53 mile goal flight. John Jeffries in the Scud II went to Witchford near Ely, 49 miles, reaching some 6,000 ft. en route. Peter Dirs in the Prefect got to Bilsden, 55 miles, for his Silver C distance. Jeff Butt took the Blue Olympia to Newborough, 56 miles. Air mileage for Saturday, 213 miles.

Sunday was not nearly so good, but the Scud II with John Jeffries made a noble effort to get away three days running from a winch launch. However, he was forced down at Totternhoe after a good try! Dan Smith in his Olympia was aero-towed out of Luton Airport and reached Deenethorpe 8 miles N.N.E. of Kettering. Conditions were difficult in the extreme around Dunstable, and no one else got away in spite of many tries.

The total cross-country miles for the Easter period work out at 890, which is most encouraging.

Our Annual General Meeting takes place on 27th April, and will be reported in the next issue. P.F.

NEWCASTLE

THE shape of things to come became evident on 31st March when Andy Coulson in the Skylark, Hetty White in the black Tutor and Alan Pratt with a pupil in the T21 were all seen to be soaring in the same thermal, the times being as follows: Skylark 25 minutes, T21 45 minutes, and Tutor 32 minutes. Hetty was launched to 800 ft. and her maximum height was 1,600 ft. She is therefore the second lady member to gain her C certificate in the club's history.

After a fortnight of indifferent weather thermal flying started in earnest.

SUNDAY, 14TH APRIL

There were three noteworthy flights by the Kite II piloted by Ian Paul who reached a height of 4,200 ft. during the course of a flight of 2 hrs. 20 mins.; by Andy Coulson in the Skylark who reached 4,500 ft. and was airborne for 2 hrs. 17 mins. and by Dave Wilson in the Olympia, who got enough height to go prospecting over the Team valley in search of some waves which were visible from the field but unfortunately were too far away.

WEDNESDAY, 17TH APRIL

Thermals still going strong and were taken advantage of by Andy Coulson in the Skylark who logged 2 hrs. 40 mins. in a flight to 5,000 ft. and Doug Collinson who was airborne for 1 hr. in the Olympia.

THURSDAY, 18TH APRIL

One flight today could probably come under the heading of "Love's labour lost," as Syd Booth took the Kite I up to 4,000 ft. in the course of a 45 minute flight Silver C height was in the bag but—yes you've guessed it—no barograph!

FRIDAY, 19TH APRIL

There were outstanding flights by Andy Coulson, Ian Paul, Alan Pratt and Doug Collinson. Alan was launched at about midday in the Blue Kite I and stayed up for 2 hrs. 10 mins. During the flight he found the turn and slip indicator was not working so he landed and after rectifying the fault was launched again at 3.15. From an 800 ft. launch he gained height and later entered cloud still gaining height. Icing level was 8,000 ft. and all the usual places iced up including the pitot head which put the

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A.S.I. out of action, but Alan told me that he found it quite easy to fly by feel and sound only as apparently the lift was quite smooth. The maximum height gained was 11,400 ft. but unfortunately he hadn't a barograph and so his gain of height of 10,600 ft. cannot be confirmed for his Gold C.

The other flights were by Ian Paul, who took the Kite II to 5,600 ft. during a 1 hr. 50 min. flight, Andy Coulson who was launched at 3.39 for what turned out to be a three hour flight during which he wandered over the countryside and finally ended up over Woolsington airport before he returned to Usworth. Doug Collinson also got into the duration stakes by staying up in the Olympia for 1½ hours.

SATURDAY, 20TH APRIL

There were only two flights worthy of note, one by Leo Cullinan and Malcolm Sanderson in the T21 who reached 4,000 ft. and were airborne for 68 mins. and Doug Collinson again in the Olympia who stayed up for 1½ hours.

EASTER SUNDAY

This was the most miserable day we've had for quite a while and as there was nothing but rain (in spite of the T.V. weather man's prophecy) there was no flying at all.

L.A.C.

PERKINS

IT is only a few months since we threatened Club News with talk of barographs and other wonders. This was airy-fairy and light-hearted and then we wouldn't have known a barograph from an isobar.

Relentlessly our Club progresses. The writer has, with others, recently joined the sober ranks of B pilots, who take their flying seriously and their turn at the winch end. There, in splendid isolation, thoughts turn to one's abysmal ignorance of gliding. There are moments when not yanking the T21 off for what the irresponsible, uncertificated, and blasphemous call "rock 'n roll" sessions, when ambition is dismayed by the unending fields of study, concentration, sweat and frustration lying ahead.

With a fleeting nostalgic memory of past carefree days one contemplates the depressing effect of a C; and wonders how some of these Silver C people retain the appearance of sanity. Perhaps we'll still have fun.

Despite this philosophic depression, thermal lift over our runways at Polebrook is an established atmospheric fact. It was heralded on 31st March by much blowing of personal trumpets and climbs of over 1,500 feet from release. This was followed during Easter weekend by flights to 4,000 feet and 5,600 feet, the latter lasting 1 hr. 50 mins. in the T21, with Gordon Cornell in the chair.

We have decided to remove the V-8 engine from our winch and install a six-cylinder diesel.

We hope to give some results in the next issue.

F.I.W.

SCOTTISH G.U.

OUR days at Balado are now very numbered indeed, and by the time this appears we shall probably be unable to fly there. Negotiations for the purchase of our new site at Portmoak, however, are well advanced, and we expect to begin work on the site very soon.

A hangar of gigantic size has been purchased, dismantled, and transported to Balado for temporary storage, and an old school building which we were offered as Clubrooms has also been taken down and removed. Both these projects involved enormous toil, though opinion upon which required most work depends very largely on which of the two one was engaged on.

All that has gone before, of course, is as nothing to what faces us at Portmoak; but we hope to have enough of the essential work done to be able to run the Courses there. If this is not possible, an alternative airfield site will have to be used.

The two Easter courses at Balado yielded a total of ten A's and B's and produced several new members. The T21 overhaul was finished the night before the first Course began, and Williamson, Rae, Ross and Pinkerton, who had done most of the work, celebrated the end of their labours with a little party which continued until 7 a.m. and resulted in their absence from the airfield for most of the following day. Made collision-conscious by prospects of crowded soaring slopes at Portmoak, we have evolved a colour-scheme for the two-seater which should startle even the dreamiest birdman into brisk evasive action.

The Krajanek, which gave endless pleasure to those who flew it, has been sold to a group in the Derby & Lancs. Club. We

wish them as much success as we enjoyed with it at Balado.

So far this year the weather has been far from kind, and much of our flying has been done in definitely non-soaring conditions. Out of twenty-six flying days in 1957, we have soared on only seven. An outstanding day was 7th April, when after some puny thermals earlier on, fine wave conditions set in during the afternoon. Jimmy Rae and Charlie Ross contacted from aero-tows shortly before three o'clock, though the lift was poor. Jimmy eventually climbed to 3,200 ft., and, seeing Charlie some 500 ft. below, performed a derisive loop. In doing so he lost the lift and fuming with rage, sank earth, while Charlie rose slowly past him, and eventually, after using several waves, reached 14,400 ft.—without a barograph.

Later in the day the wave could be reached easily from a car-tow, and everything that was launched stayed up. Both Olympias reached over 6,000 ft. and the T21 and Tutor both reached 3,000 ft. before darkness forced them down.

D.B.

SOUTHDOWN

With security of site, a permanent hangar, and the addition of a second winch and tractor, flying hours and launches for 1957 show an increase so far of over 35 per cent.

Thermal conditions at Firle are proving better than had been expected, and a number of encouraging flights have recently been made.

North-easterlies have also provided hill-soaring along the Downs, and on 31st March in marginal conditions Ian Agutter completed a creditable 5-hours towards his Silver C.

The following weekend a brisk north-easterly gave John Holder a fine flight along the Downs to Petersfield, and thence cross wind in thermals to Coombe Bissett near Salisbury, a club distance record from Firle of 90 miles.

A week later Brian Buckley reached 3,200 ft., and Ray Marshall gained his Silver C height at 5,700 ft.

During Easter, Jim Lipscombe in the Olympia toured the surrounding countryside at 3,600 ft., later shivering up to 3,500 ft. in the T21 with Jim Hawkins. Brian Buckley proved what can be done at Firle by again climbing to over 3,000 ft. on Good Friday. He was joined over Newhaven by Jeremy Brock making a goal flight from Lasham in the Imperial College Skylark. Bill Wills was our second visitor from Lasham later in the day in an Olympia.

Our increased flying activities, and some of the less publicised results, have led us to look for a paid resident ground engineer. An added spur has been the sight of our hard-pressed ground engineers being dragged away gently sobbing from the disintegrated remains of our Tutors.

In June, we shall be very sorry to lose our C.F.I., David Parsey, but wish him the best of good luck in Canada. Brian Buckley will be taking over as C.F.I. at the beginning of May.

R.M.

WESSEX R.A.F.

After months of disconsolate circuits things are now warming up. On 7th April we took a T21b, four solo machines and a winch to Inkpen ridge where we joined forces with a party from Lasham with two aircraft. We put in 50 launches, and at times the ridge resembled Piccadilly Circus. Most flights were of 30 mins. duration, but P.O. Sanson and F/Sgt. A. Kilburn stayed aloft for 5½ hours. This completed Arthur's Silver C.

On Easter Sunday we scored our record number of launches for a single day—175. With longer daylight hours now we hope to top the 200 mark. Ron Sandford and Ian Banting have both completed Silver C legs—the former with height, and the latter with a goal flight to Christchurch. At the time of writing the Falcon has been granted a new C. of A. and we are all delighted to see it in the air again, as it is such a venerable old brute that we all have a specialaffection for it.

F.W.A.

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