# GLIDING

Vol. 6 No. 1. SPRING 1955



2/6 QUARTERLY

# GLIDING

**Edited by Alan E. Slater, M.A., F.R.Met.S.**
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**Cover Photograph.—Mr. Philip A. Wills,** who has just been awarded two international honours, the Lilienthal Medal and the Paul Tissandier Diploma, is here seen standing beside his Slingsby Sky sailplane.

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# After the Ball

At this year's British Gliding Association Ball, when the dancing had temporarily ceased and everyone had been fed, Mr. John Profumo, Parliamentary Secretary to the Ministry of Transport and Civil Aviation, mounted the stage to announce that our chairman, Philip Wills, had been awarded the Lilienthal Medal for 1954; also the Paul Tissandier Diploma for his work as chairman of the British Gliding Association, a position he has held continuously since 1948, after being on the Association's Council since 1933, the year when he started gliding. Both awards were made by the Fédération Aéronautique Internationale.

The Lilenthal Medal, the highest gliding honour in the world, was instituted in 1938 for rewarding "any particularly remarkable performance" in motorless flying during the preceding year. This time we can probably take it that the medal has gone to Mr. Wills not only for a single outstanding performance, such as his climb to 30,000 feet in New Zealand on December 29th last, but in recognition of the long list of his past gliding achievements, which began with obtaining the second British Silver C (No. 45 in the international list) in 1934, later to be followed in 1938 by the first British Gold C (No. 3 in the international list). He has held the British distance record four times, altitude six times, goal flight three times, goal-and-return once, and speed round a 100-km. triangle once, and has competed in each of the five international contests which have been held since 1937, winning that of 1952 and coming second in 1954. Further, in Britain he has won the Manio and De Havilland Cups six times each, the Wakefield Trophy five times and the Volk Cup twice; also two awards by the Royal Aero Club; the Britannia Trophy in 1951 and Gold Medal in 1952.

Another important ceremony at the Ball was the presentation to Mrs. Alex Orde of a mounted silver model sailplane and the inauguration of the "Alex Orde Fund for young soaring pilots", to which a great many people have contributed as a recognition of her work as secretary of the British Gliding Association for five years. The object of this Fund is to help young and promising pilots to reach the standard needed for participation in world gliding championships. To qualify for an award the pilot will have to satisfy the following conditions:—

1. He should be 25 years of age or under and of British nationality.
2. He can be flying any sailplane, club or privately owned.
3. He must have a Silver C certificate.
4. A maximum award of £15 will be given for any Gold or Diamond distance qualifying flight, £15 for any flight of over 200 miles in two-seaters where neither pilot has a Gold C, £10 for any distance over 150 miles by non-Gold C pilot (or pilots in the case of two-seaters.) Other awards may be granted as and when the Fund permits.

# B.G.A. News

### Royal Patronage

H.R.H. the Duke of Edinburgh has graciously consented to become the Patron of the British Gliding Association.

### National Championships

These will be organised by the Surrey Gliding Club, in conjunction with the Army and Imperial College Gliding Clubs, and held at Lasham aerodrome, near Alton, Hants., from July 24th to August 1st inclusive. The opening ceremony will be at 3 p.m. on Saturday, July 23rd.

### Annual Awards for 1954

DE HAVILLAND CUP for greatest height: 12,150 ft. by Lt.-Col. A. J. Deane-Drummond (Army Gliding Club) in an Olympia from Lasham, August 15th (described in GLIDING, Winter, 1954-5, p. 132).

MANIO CUP for best goal flight: 99 miles by D. A. Smith (London Gliding Club) in an Olympia from Luton to Christchurch, Hants., April 19th.

WAKEFIELD TROPHY for longest distance and SEAGER CUP for best two-seater performance: 151 miles by Mr. & Mrs. L. Welch (Surrey Gliding Club) in a Slingsby T-42 from Axford, Hants., to Hopton-on-Sea, Norfolk, June 27th (National Record).

Honourable Mention: 150 miles by B. Thomas (Derbyshire & Lancashire Gliding Club) in a Sky from Camphill, Derbyshire, to Holton, Suffolk, June 27th (described in this issue of GLIDING, p. 4).

VOLK CUP for best out-and-return: 95 miles by W. A. H. Kahn (Surrey and Army Gliding Clubs) in an Olympia from Lasham, Hants., to Kidlington, Oxford, and return, April 19th.

DOUGLAS TROPHY to the Club putting forward three flights by three different club members in club aircraft, aggregating the largest total cross-country mileage: Army Gliding Club, for flights by E. J. Meddings and D. C. Kerridge, 106 miles each, both from Lasham, Hants., to Halfpenny Green, Staffs., September 5th; and 95 miles by S. Morrison from Lasham, Hants., to Canterbury, Kent, September 12th; total 307 miles.

# Instruction Courses

NON-MEMBERS, as well as members of gliding clubs, may join the following gliding camps provided places are available. Particulars will be sent on application to the Course Secretary of the respective Club at the address given. Fees include board, accommodation, flying and instruction.

BRISTOL GLIDING CLUB.—Courses lasting one week, beginning on the following dates: June 6th, 13th, 20th and 27th; July 4th, 11th, 18th and 25th; August 1st, 8th, 15th, 22nd and 29th; September 5th, 12th, 19th and 26th; and October 3rd. Fees: 11½ gns. in June; 12½ gns. July, September and October; 13½ gns. in August. (18, Norley Road, Bristol, 7.)

DERBYSHIRE & LANCASHIRE GLIDING CLUB.—June 11th-19th, June 19th-26th, July 3rd-10th, July 10th-17th, July 24th-31st, August 7th-14th, August 14th-21st, August 21st-27th. Fee: £12 12s. (Camphill, Great Hucklow, Tideswell, Derbyshire.) Each course includes six days' flying instruction.

LONDON GLIDING CLUB.—April 18th-29th, May 16th-21st, June 13th-24th, July 18th-29th, August 15th-26th, September 5th-16th, September 26th-October 1st. (Tring Road, Dunstable, Beds.)

MIDLAND GLIDING CLUB.—Courses for B and C pilots and power pilots. June 11th-18th, July 2nd-9th, August 13th-20th, August 27th-September 3rd. Fee: £15. (37, Hugh Road, Smethwick, 41, Birmingham).

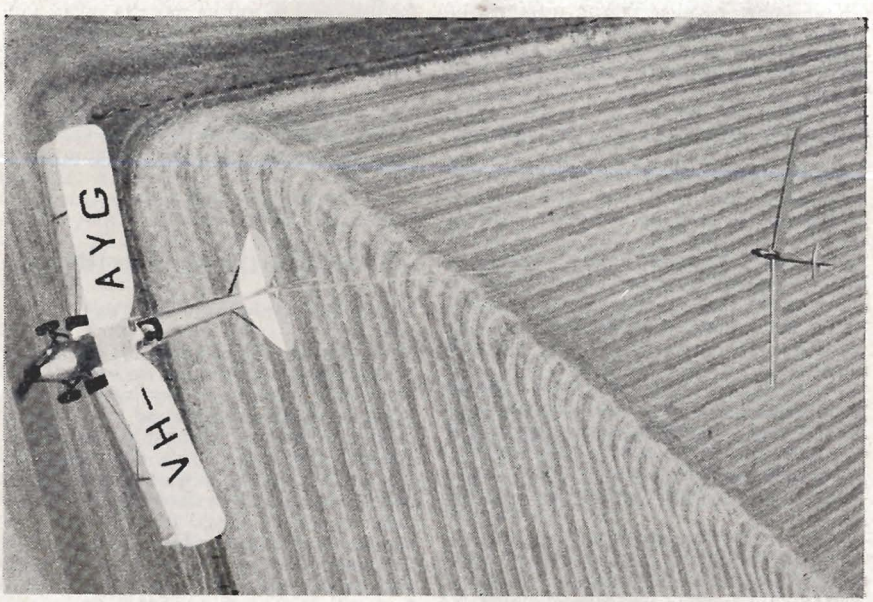
SCOTTISH GLIDING UNION.—April 9th-16th, July 2nd-9th, July 16th-23rd, July 30th-August 6th, August 13th-20th, August 27th-September 3rd. (Balado Airfield, Milnathort, Kinross-shire.) Fee: £14.

SURREY GLIDING CLUB.—Weekly courses between April 24th and May 28th, June 5th and 25th, July 3rd and 16th, August 14th and October 1st. (Lasham Aerodrome, near Alton, Hants.) Fee: £12 12s.

YORKSHIRE GLIDING CLUB.—May 1st-7th, May 15th-21st, June 12th-18th, June 26th-July 2nd, July 10th-16th, July 24th-30th, August 7th-13th, August 21st-27th, September 4th-10th. Fees: £12 12s. in May, remainder £14 14s. (Sutton Bank, Thirsk, N. Yorkshire.)

# A Tramp Abroad

by Philip Wills




**This photograph, brought back by Mr. Wills, shows the late Dr. Mervyn Hall on tow at Oakey airfield, Queensland, in his R-3 sailplane, a development of the Zanonia.**

*Courtesy of Dalblane Telegraph*

It is interesting to see, as one visits overseas clubs, the common problems which seem to afflict all democratic gliding movements. I am sure that, all over the world, gliding is now over the "top-dead-centre" and that we shall see in the next decade a continuing increase in the popularity of the sport.

The rate of progress will, of course, vary in each country, and in each individual club, and the main factor in my view will be how quickly each can reduce the damage rate to aircraft. The only thing which can destroy a club is to have its flying constantly suspended owing to its machines being broken: this means that only the fanatical few stick on to repair the aircraft, whilst the ordinary (or, if you like, sane) members drift away.

I need hardly tell the experienced readers of GLIDING that this means one thing above all others: the stability and growth of any movement or any single club will depend in the first place upon the competence of its Chief Instructor. And the Chief Instructor has not only to instruct in the cockpit; he has to set and encourage a sane and sensible outlook amongst the club members. This means that they will come to admire one thing above all else: self-discipline in all matters to do with flying; a stern discouragement of Showing-Off and Risk-Taking of all kinds. So we get as the formula for success:—

1. A competent Chief Instructor.
2. Good equipment on the ground and in the air.
3. Good maintenance.
4. Two-seater instruction.
5. Security of tenure of a gliding site.

Of course, all this means money, and this brings me to a very common fallacy. I was

surprised to find club organisers overseas often battling against the same extraordinary misapprehension as had dogged us here at home until quite recently, and even yet is not entirely dead.

For some peculiar reason members of gliding clubs often appear to believe that they have an inalienable right to get their fun at less than it costs. Sensible folk, who would not expect their golf clubs to run indefinitely at a loss—above all, who would not dream of starting a factory with worn-out or out-of-date equipment and a totally inexperienced manager—yet, when it comes to gliding, buy a twenty-year-old clapped-out Primary, appoint as their chief instructor someone who once got a B Certificate in Albania, decide to charge sixpence a launch, and expect it to work. And feel most ill-used when within a month or so the Primary is in bits, one of their members in hospital, and the club in liquidation.

As a rough measure in 1955, I would say a gliding club cannot be started on less than £1,500, and a winch launch should cost a minimum of 4s. To do it for less will cost more in the long run; in fact, you are very likely to lose the lot, and hurt someone in the bargain.

People say: "But some of our members could not afford so much!" To which I reply: "Some of your members can't afford a Rolls-Royce. Do you consider that in this hard capitalist world they should nevertheless have one? If so, who should pay for it?"

There are lots of people, and the right kind of people, who, once they realise the facts of life, will find ways of raising the dough to do what they really want to do. I found one club which had rented a field, planted it with potatoes, and were hoping to make some hundreds of pounds from the resultant crop. Another had hired a couple of boats and were giving trips to tourists. Raffles and their like are legion. But if some well-wisher *gives* a club some money, it should be a point of honour to use it for the purchase of some lasting piece of equipment and not dribble it away directly to subsidise the members' flying. If this is done, the money is soon gone with nothing to show for it, and the vital feeling of self-dependence is undermined.

I know one or two gliding clubs that have actually been known to make a profit. And I have heard people grumbling about it, as if it were an immoral thing to do, as if some individual as a result (presumably the Chairman) was going to have an orgy on the proceeds. What lunacy! The club which runs at a profit will soon build up its facilities and so attract more members in a benevolent spiral. In a few years it will be firmly established, and instead of all the devoted work put in by its members being wasted, there will be a permanent advance for the whole gliding movement. If this is a dull road over which one must travel to reach the clouds, I fear there is no other.

# Camphill to Holton

## by Bernard Thomas

THE Sky was rigged and ready in case the weather was as good as the forecast, but up to lunch time the cloud was down to 1,700 ft.—500 feet above the hill. At one o'clock there was a slight break in the clouds and a cu-nim was visible behind.

I was bungied off at 1.07 and contacted over the cement works chimney. I was in cloud almost at once. It was not a particularly good one, but I was lucky enough to run into lift again as soon as it petered out. I reached the top at 8,000 ft. a.s.l. and flew over strato-cu for about a quarter of an hour, somewhere over Mansfield. The wind was just north of west at about 20 m.p.h. when I took off, and I soon realised that I could not cope with the drift to the east (I was making for Lympne, of course).

The sky quickly cleared and there were a few small cumulus about, but I could get very little out of them. Over Lincolnshire there was a patch of blue sky with one little lenticular cloud in the middle. I flew under this and managed to find 1 ft. green for about 5 seconds; I then decided to skirt the blue patch via the east. I had little difficulty in keeping up, but I could not find any thermals worth more than 500 to 1,000 ft.

I arrived over Holton Aerodrome at 4.42 with about 2,000 ft., just enough to reach the coast, but it looked marshy and wet, so I decided to go down on the aerodrome. I thought it would be very smart to de-rig the Sky and park it at the side of the runway. The trailer arrived at 11 p.m. and—believe it or not—it took us over an hour to find the blasted thing.

# A Cheap Syndicate

THEY all sneered. They all swore we'd never do it. We hadn't any money, for a start. But determination won, and our Kirby Kite has done over 40 hours since its Certificate of Airworthiness last September!

It began early in 1954 when a certain group got together and decided that intensive flying in club gliders was not possible. As Jim put it: "The list looks like a telephone directory even before breakfast!" Hence the birth of the "Elevation Group". This name heads a bank book into which 10s. was put every week by each of the four members.

Thus formally established, we started casting about for an aircraft. Ted was working as aircraft engineer for the club, and the rest of us were conversant with Aerolite and dope, so we hoped that (with the help of a hammer), we might build or rejuvenate something. A Fauvel, for instance? This seemed ideal and we were all set to go, but the C. of A. situation was so involved (and still is) that it looked like years before Sling could provide us with parts. Meanwhile we were more interested in flying. A Prefect kit was considered, but our lazier selves deemed it too much work for the results we would get from that sort of machine.

So we gave up on "pieces of advanced aviable woodwork" and looked instead for a "priceless performanceless heap". In plain language, we hoped for an old machine, sound, but in need of some work before it could get a C. of A. Our good friend Colonel Benson showed us his Avia when we were at the Mynd at Whitsun and let Ted and Roy fly her. However, she was above our range, in quality as well as price.

We found a Kite II languishing in its trailer in the Lasham hangar. It had been there a couple of years and its ownership was somewhat of a mystery. We pulled it out to see what it was like. It had funny aerodynamic lumps on the wings and its fabric split if you blew on it. All very well if we worked on it and twisted the wings in the approved manner. However, the owner, when we found him, seemed to want real folding money, which was a pity . . .

Mutterings were heard on the grapevine about a part-worn Kite I somewhere in the wilds of Wales. Apparently it was going for a small fee. Forthwith an expedition was organized (?) to go to view it. The Army Club's V8 and old Olympia trailer were borrowed, on the principle that it would pay to take the trailer in case we bought a glider, thus saving two journeys. Expense was also decreased by persuading four unsuspecting friends that they would like to climb mountains in Wales for a weekend.

After the usual gliding expedition fumbles, an arrival was made unannounced at Bill Crease's hotel (The Clwyd Gate) at 0?.00 hours. The Kite could be seen protruding from Bill's garage. We viewed it by torchlight before retiring to sleep in the trailer. A large man was seen outside in the morning viewing the equipage. He was Bill, most indignant that we hadn't announced our arrival and requested tea and comfort—"The Cambridge Club wouldn't hesitate and they always turn up between midnight and dawn." So he gave us breakfast instead, and offered us his garden bungalow in which to erect our camp beds and primuses.

The Kite was dragged out in the pouring rain, inspected, and deemed reasonable. We were not sure of the condition of the casein glue, however, and wanted Don Campbell (the Glider Doctor) to come and give his opinion. Also we wanted to talk to Basil Meads, since the Kite belonged to the Kemsley Trust as part of the assets of the now defunct Deeside Gliding Club. They were both at the Internationals, 70 miles away. It would cost an awful lot to go over there in the V8, but a good deal less in Ann's "Octavia". Ann was duly telephoned at Camphill and told to come and fetch three of us, and we arrived there in the afternoon. Basil was offered £70 subject to Don pronouncing the glue sound, and accepted so fast we wished we'd offered less!

We viewed the International flying machines in the rain and retired to sleep in the barn of a friendly pub. Don took us to Clwyd next morning; the Kite was rigged in the hotel car park, much to the amazement of Bill's customers, and Don did his C. of A. inspection forthwith. His report was O.K., so we heaped her into the trailer and drove back to Farnborough, arriving 3.10 a.m. on Monday morning.

"Druid," after Bill Crease, and because it rhymed with Clwyd, was put in the workshop and worked on with phenomenal intensity for six weeks. Among other things the fuselage paint was stripped off to the wood and, since Madapolam was beyond our budget, covered with Modelspan tissue. Don signed her out and we dragged her onto the field, a rejuvenated machine, amid cries of amazement. Gleaming silver, with "Druid" transferred in gold on her nose, her B.G.A. numbers in red on the tail, a venturi for the turn-and-slip protruding from her centre section, she looked fit for an exhibition.

Amid more cries of amazement she flew! And has been flying ever since. Over 40 hours, including three 5-hour flights to date. We have high hopes for the summer. Two members of the group want their 5-hour legs, two their height, and all of us our 50 kilometres for the Silver C. Just imagine flying unhampered by instructors, club members and the thought of flying fees mounting every minute! Only the rest of the group to contend with when you reduce it to matchsticks in a field five miles down wind!

The cost is very low when you consider such advantages. We are five pilots, of whom four are shareholders. Capital on the Kite is assessed at £145. This is what it cost to put "Druid" in the air and provide her with transport—divided as follows:

£70 to the Kemsley Trust for the machine,
£30 to the Army G.C. for their old Olympia trailer,
£10 for transporting the Kite from Wales,
£7 10s. bill for repairs to club V8,
£7 10s. for C. of A. inspections,
£2 7s. for B.G.A. Group membership,
£10 for dope,
£1 for new skid,
10s. for Modelspan tissue,
£5 (approx.) for third-party insurance,
£1 3s. for miscellaneous oddments.

It does not include all our hard work.

Running costs are approximately 4s. per week per head. Invest the price of a depressed motor-car, smoke 20 less cigarettes a week, and you too can be a private owner!

ALAN CRONIN, TED HARGREAVES, JIM TORODE, ROY & ANN PROCTER.

# A Fifty-Mile Scrape

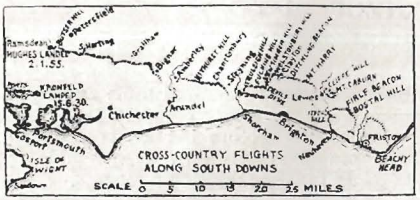
## by Chris Hughes

ALMOST since the beginning of soaring in this country, the hill-soaring flight along the South Downs has been considered a Silver C Milk Run, and yet it has been so rarely used. As far back as 1930, Robert Kronfeld flew fifty miles from Firle Beacon to Portsmouth, using most of the available Downs in the process, and several flights have been made along parts of them, though usually with the aid of thermic lift.

The great difficulty is the crossing of the five gaps between the ridges—distances of two to three miles—and, on this subject, many hours of slide-rule pushing have been put in to determine the minimum heights required for each gap. Calculations had been done for winds from the north or north-east, this being the general direction that the Downs face, so that when I found myself on the way in the Southdown Olympia, with a 25 m.p.h. wind, I was only partly prepared.

The first gap, from the Firle ridge to Mount Caburn, a distance of about 2½ liftless miles in a north-westerly direction, had been considered the most difficult gap—so much so that we had thought of launching on the ridge west of Lewes to avoid it. However, soon after receiving a bungy launch from Bostal Hill, just east of Firle Beacon, I managed to work up 1,000 feet. and, allowing myself to drift towards Caburn, arrived on the hill with 200 feet to spare. I had previously reckoned that, for the Lewes gap, 600 feet would be required for a safe crossing, so my spirits fell considerably when I found that I could just maintain the 200 feet I had arrived with, and I lowered my crossing height to 400 feet, more as a moral stimulant than anything.

The rising airs from Cliffe Hill were very reluctant, and after an hour's stick-pushing, I picked a field in the middle of the gap and set off with only 350 feet. It was here that I




realised the advantage of the easterliness of the wind, for only 300 feet were lost and we arrived at hill level at the other side.

The green ball appeared just before reaching Mount Harry, and my spirits rose accordingly, so that after a bit of beating in the Ditchling Beacon area, 650 feet appeared on the clock. This was the maximum I could make here, so the nose was turned westward, across the Clayton gap, over Woolstonbury Hill, the lift from which was disappointing, and then south-westwards, over Newtimber Hill and so to the ridge over Fulking. This lot proved the most difficult part of the flight, the green ball only showing itself again when we had got more than 100 feet below the top of the ridge. The green ball, however, showed willing and eventually after more hard work the mean total of 550 feet appeared. Doing a quick sum, I decided I might still make a go of the three-mile Shoreham gap, so, having again picked my field, I set off from Truleigh Hill over the middle of Bramber, arriving again at hill level. So high were my spirits at this point that I shouted down, or rather across, the compliments of the Season to a hardy hiking couple, and received a really heart-warming reply.

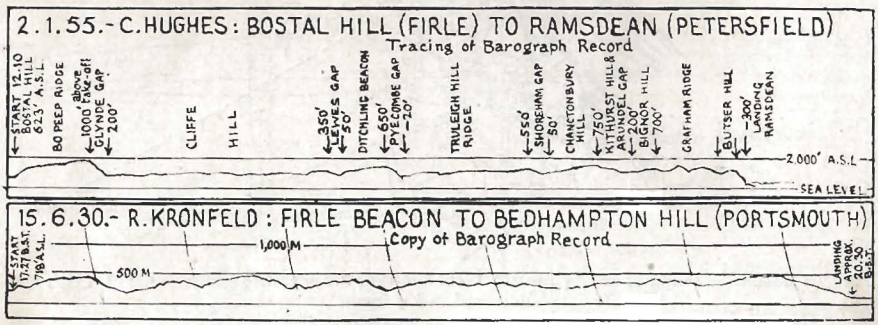
Chanctonbury proved quite good, and as I had already been airborne over three hours and had less than an hour's daylight to go, on reaching 750 feet I decided to press on westward. The Kithurst ridge provided some reduced sink and the Arundel gap was crossed with relative ease —in fact, at least a hundred feet to spare.

Having gained 700 over Bignor, I set off northwards along the slight step in the Downs and then westwards again. From this point on, it was very straightforward and became a case of regulating my air-speed to keep between about 400 to 600 feet.

Things were becoming rather cold and the light was just beginning to give out when I flew round the side of Butser Hill and found that I had run out of South Downs. A wide circuit for surveying and a quick nip back to the hill for considering, and then down we went into a field near the village of Ramsdean, a few miles south-west of Petersfield, 49½ miles from Bostal Hill. A grand reception by the local village was followed by a faultless retrieve by Bill Jordan and Mike Brett, making a pleasant end to a very exciting day's flying.

Considering all, I think I was lucky that each hill provided just enough lift to get me across the gaps. The tail wind was of considerable use in the gap-crossing, and had there been the slightest thermal activity, the gaps would have provided no trouble. An east-north-easterly wind eases the first gap, but does not allow for any return flight to be made, which is possible in a more northerly wind.

It is interesting to note that the new Southdown Club's site is close to Firle Beacon, so there should be several more like flights soon. If only the prevailing wind was from the north-east!



# The Schweizer 1-26

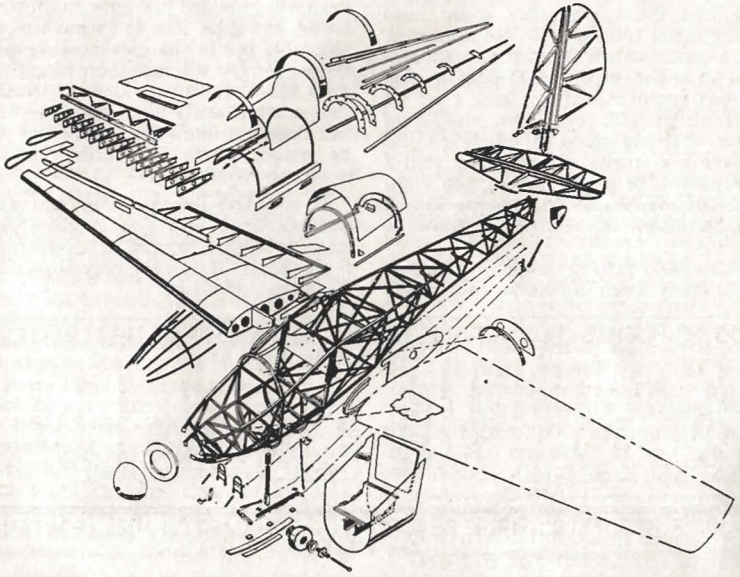
An Approved Type Certificate has been granted by the Civil Aeronautics Administration to a new metal sailplane which has been designed by Schweizer Aircraft Corporation, Elmira, New York, principally for kit construction, though it will also be available complete and ready to fly for those who so prefer.

Nearly 40 of the sailplane kits have already been ordered by pilots and clubs throughout the United States, and the two units already built have proved themselves with well over 100 flying hours, flown by more than 100 different pilots with varying soaring experience and ability.

The 1-26 sailplane can be built from the kit easily by using simple tools which almost every hobbyist has in his home workshop, plus a few inexpensive special tools. All the complicated alignments, welding and assemblies requiring specialized tools and equipment are already completed by the manufacturer before the kit is delivered. The purchaser has only to assemble the parts and make minor components.

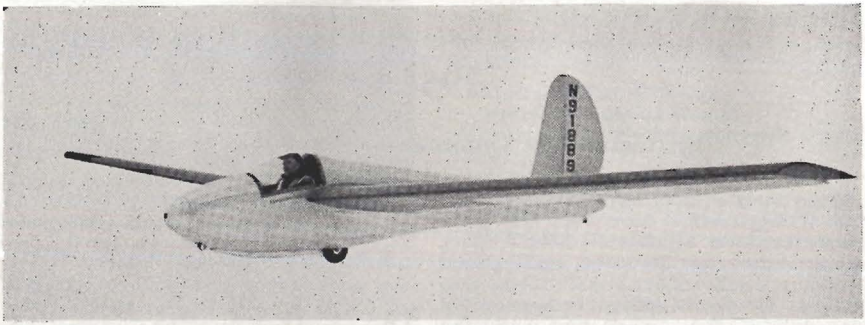
The kit includes a completely welded chrome-molybdenum steel tubing fuselage in oiled but unprimed condition. The wing carry-through member is attached and drilled ready for the wing assembly. All lugs are attached to the fuselage so that no further welding is required.

Control details are supplied as parts, but require cleaning and priming before they are assembled. A pre-formed aluminium nose, front bulkhead and moulded plexiglass canopy, as well as raw materials for making the fairing, instrument panel, floor and seat back, and the turtle-deck behind the cabin, are also furnished. Each kit is



**An "exploded" drawing of the Schweizer 1-26, showing the separate components in which it is delivered in kit form.**

*All three illustrations by courtesy of the "Aeroplane"*



**The new Schweizer 1-26 in flight.**

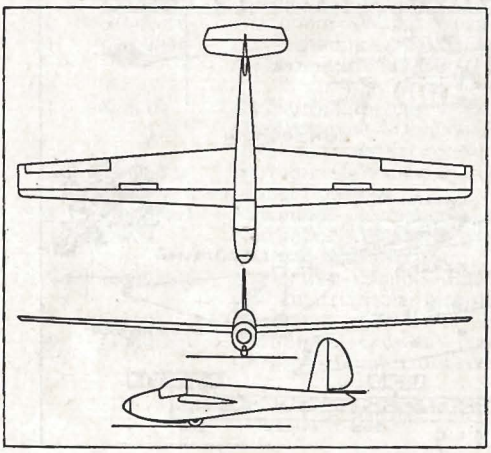
accompanied by a comprehensive manual and complete, easy-to-read blueprints.

The 1-26 can be completed in from 300 to 600 man-hours, depending on the experience and skill of the builder. This means that an individual can complete the sailplane in four to eight months in his spare time.

The all-metal structure simplifies and expedites the home-builder's work. All temperature, humidity, and kindred problems associated with wood working are thus avoided. With the exception of fabric covering on the fuselage and parts of the wings and tail, the 1-26 is entirely metal. Storage is simplified, since the kit has been designed so that no component is more than 20 feet long.

The sailplane's sinking speed is under 2½ ft. per sec., while the glide ratio is over 23 to 1. Already a flight of over 150 miles has been made in the prototype. Because of its minimum flying speed, the 1-26 is ideal for operating from smaller fields as well as for landing in cramped areas. An important flying characteristic is the very small radius turns which can be made because of its light wing-loading and high-lift wing. As a result, the pilot is able to make use of small thermals as well as getting the maximum climb out of the large ones.

The Schweizer 1-26, the makers say in conclusion, "opens the possibility of one-design competition in soaring, similar to that which has become so popular in sailboating."



**General Data**

| | |
|---|---|
| Wing area | 160 sq. ft. |
| Wing span | 40 feet |
| Dihedral | 3½° |
| Aspect ratio | 10 |
| Spoiler area | 1.39 sq. ft. each |
| Overall length | 21 ft. 3 ins. |

**Estimated Weights**

| | |
|---|---|
| Empty weight | 348 lbs. |
| Maximum gross weight | 575 lbs. |
| Normal wing loading | 3.13 lbs. per sq. ft. |
| Maximum wing loading | 3.59 lbs. per sq. ft. |

# The Australian National Championships 1954-5

by Lieutenant Commander Tony Goodhart

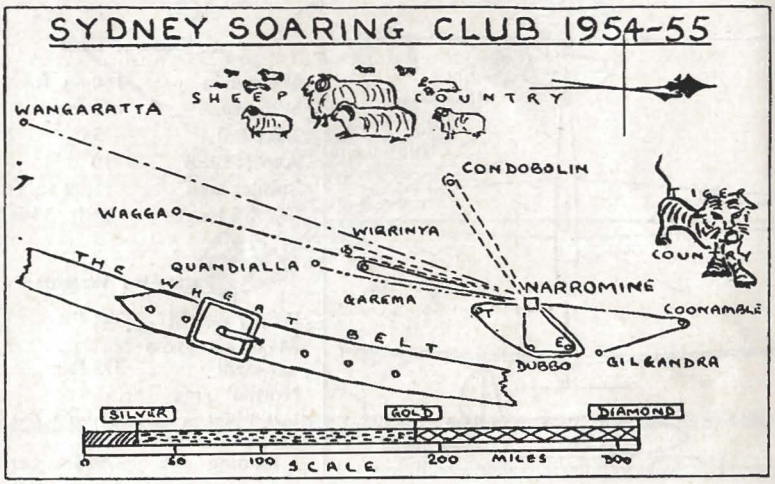
THIS summer, once again, the Australian Championships have been held on a State basis, in which each State Gliding Association runs its own meeting and submits details of each pilot's best two flights to the Gliding Federation of Australia (G.F.A.), which then works out and publishes the final results. There has been some talk of making the Championships last the whole year so that a pilot's best two flights in the year would count. I, amongst others, have come out strongly against this proposal and in favour instead of making a real effort to hold a centralised National Championship meeting. A committee has been formed by the G.F.A. to investigate the proposal and it seems possible that such a meeting may be held next summer.

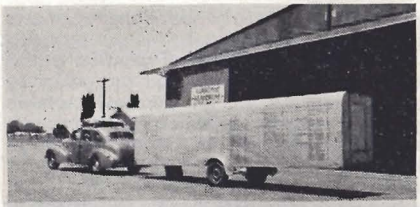
As I said last year, the present "so-called" Championships do, if nothing else, encourage pilots to go to the trouble of "getting organized" to make relatively long cross-countries (and get retrieved from them).

I was lucky enough again to be invited to fly with the Sydney Soaring Club (which recently suffered a grievous loss in the death after a protracted illness of Martin Warner, one of its founder members). We again set up our camp in the main hangar at Narromine a couple of days after Christmas. The Olympia was towed over from Sydney on Boxing Day by Mervyn Waghorn and Keith Colyer, 200 odd miles against a strong headwind, which even Doctor Heydon's canopied Tiger Moth with auxiliary tank could not make in one hop; while Len Schultz towed the trailer by road, laden with spares, oxygen, radio and camping equipment.

Keith could only stay two days so he flew on December 27th and 28th; on the first day he could do no better than local soaring, but went 125 miles on the 28th. From then on virtually every day was a good cross country day as the adjoining summary will show.

Thus, through 10 consecutive days (not counting the day spent retrieving Waghorn







**From left to right, the men in this photograph (the ladies are unidentifiable) are Mervyn Waghorn, Len Schultz, Tony Goodhart and Sel Owen. Upper photo: the Sydney Soaring Club's trailer on which all its retrieves have been painted, representing some 10,000 miles of cross-country flight since 1940.**

from Wangaratta) an average of 172½ cross-country miles was achieved and the following records were broken (subject to homologation):

Australian Free Distance,
Australian Out-and-Return,
Australian 100 km. Triangle Speed (twice),
British Out-and-Return.

I have been taken to task out here over my article last year, in that I gave the impression that conditions in Australia, New South Wales in particular, are so good that there is hardly any merit in good flights. The conditions are certainly not *that* easy and there are various difficulties to contend with; the main one at Narromine being that there are only two directions in which one can safely fly more than about 60 miles, and it so happens that the wind seldom blows in either direction. Another difficulty is the lack of cumulus cloud to indicate up-draughts; more often than not the inversion layer is below condensation level.

What *is* good, however, is the consistency of soarable conditions for days on end. I have checked back in the records of the Sydney Soaring Club (in which only flights of over 50 miles are recorded) and find that,

| *Dec.* | *Pilot* | *Route* | *Miles* |
|---|---|---|---|
| 28 | Colyer | Narromine—Quandialla | 125 |
| 29 | Schultz | Narromine—Tomingley—Eumungerie—Narromine | 105 |
| 30 | Waghorn | Narromine—Wagga Wagga (goal flight) | 207 |
| 31 | Goodhart | (1) Narromine—Peak Hill | 38 |
| | | (2) Narromine—Dubbo—Narromine | 40 |
| *Jan.* | | | |
| 1 | Schultz | (1) Narromine—near Peak Hill | 30 |
| | | (2) Narromine—Dubbo—Eumungerie—Narromine (100 km. triangular record 18.3 m.p.h.) | 68 |
| 2 | Waghorn | Narromine—Wangaratta (Distance record) | 303 |
| 3 | Day spent retrieving Waghorn. | | |
| 4 | Goodhart | Narromine—Coonamble—Gilgandra | 144 |
| 5 | Owen | Narromine—Wirrinya—Narromine (out-and-return record) | 207 |
| 6 | Goodhart | Narromine—Dubbo—Eumungerie—Narromine—Dubbo (100 km. triangular record 31.2 m.p.h.) | 97 |
| 7 | Owen | Narromine—Condoblin—Narromine | 174 |
| 8 | Goodhart | Narromine—Garema—Narromine (British out-and-return record) | 187 |
| | | | 1725 |

in the fortnight around Christmas, the average distance and number of flights have been:

| | | |
|---|---|---|
| 1945-46 | 118 miles | 5 flights |
| 1947-48 | 122 miles | 4 flights |
| 1948-49 | 102 miles | 10 flights |
| 1949-50 | 122 miles | 12 flights* |
| 1950-51 | 114 miles | 8 flights* |
| 1951-52 | 121 miles | 9 flights |
| 1952-53 | 137 miles | 10 flights |
| 1953-54 | 171 miles | 6 flights |
| 1954-55 | 166 miles | 9 flights |

* Two sailplanes.

It appears that the last four seasons have been particularly good, but I am assured that, had I been at Narromine during the several days of continuous rain in some of the earlier seasons, my ideas on conditions would be radically different.

It may be noticed that, in this year's flights from Narromine, out-and-returns and triangular flights predominated. As all the pilots had won their Gold C's and Goal Diamonds, it was felt that there was little point in making straight distance flights unless there was a good chance of reaching 500 kilometres.

Photographic marking of the turning points was employed and the results, even from 6,000 ft. and more with very ordinary cameras, are quite satisfactory; at any rate *I* can quite easily recognise *my* turning points (it remains to be seen if the organizers are similarly convinced).

Another point worthy of mention is that the two-way H/F radio and the policy of always landing in an aerotowoutofable paddock made for extremely quick retrieves from false starts; as an example, I was on tow behind the Tiger in well under an hour after landing 38 miles from base. We found a signalling mirror invaluable for attracting the attention of the Tiger.

I seem to remember, in an article some time back by Bob Swinn when he was in Egypt (GLIDING, Summer 1952, p. 119), that he claimed sometimes to be able to see thermals due to their dust content with the aid of dark glasses. At the time I found the statement hard to believe, but am now happy to say that I have had the same experience. While driving back from Narromine I saw, clearly, through my polaroid glasses, a willie-willie (or dust devil) extending several thousand feet up and about five miles away. The column of dust was completely invisible to my passenger until he borrowed my polaroid glasses.

All of which has taken me a long way from the subject of this article, the Australian Championships. It appears that only two pilots other than Sydney Soaring Club members have so far had flights sent in to the G.F.A. and the provisional results are:—

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| *Name and State* | *Flights* | | *Total* |
|---|---|---|---|
| | *Miles* | *Task* | *Points* |
| 1. M. Waghorn, N.S.W. | 303 | Distance | |
| | 207 | Goal | 983 |
| 2. S. Owen, N.S.W. | 207 | Out-and-Return | |
| | 174 | Out-and-Return | 764 |
| 3. A. Goodhart, N.S.W. | 144 | Attempted Out-and-Return | |
| | 187 | Out-and-Return | 549 |
| 4. J. Iggulden, Victoria | 178 | Distance | |
| | 58 | Distance | 300 |
| 5. L. Schultz, N.S.W. | 105 | Circuit | |
| | 70 | Triangle | 221 |
| 6. R. Barratt (aged 17), S. Australia | 86 | Attempted Out-and-Return | |
| | 70 | Distance | 167 |
| 7. K. Colyer, N.S.W. | 125 | Distance (one flight only) | 147 |

# Sites — Various

by "Alex"

THE field was about 100 yards long, and faced cross-wind. At the upwind end were trees, telegraph posts and other impedimenta. The scheme was to attach a length of bungy and 100 feet of wire to the Olympia, and drive the Bedford thirty-odd yards to the fence, so as to produce a sort of winch-bungy launch. "You must pull up steeply," said Bill, "or you won't clear the trees". Barbara looked a bit doubtful, but took his advice—there was really no alternative; for once all went well, and, having flown up the road, negotiated a forbidding gully, and scraped herself off the hillside by sheer will-power, she was soon set up for a comparatively comfortable morning. "She isn't using the lift properly", said Bill. He strapped himself into the Kite, I gave the Bedford the gun, stem-christied neatly into the fence, and looked up. Horror! The Kite dove at me with all the 60 knots of which it was capable, missed the trees by a coat of dope, plunged into the gully after the manner of the Light Brigade —"into the jaws of Death, into the mouth of Hell. . . ."—and eventually landed at the bottom, where the sheep fairly hooted with mirth. He had never pulled up on that launch. Bill had forgotten to take his own advice.

A visit to someone else's site is always a useful psychological study, resulting—if you have that type of mind—in an interesting array of Words with Capital Letters. Like the day we did an auto-tow at Bourn with a 28 h.p. Vauxhall. You've never heard of such an animal? Ah, but two 14 h.p. Vauxhalls in parallel, that's different. Improvisation.

At Pont-St.-Vincent, in France, they have an enormous hangar. At 10.30 a.m. precisely, they line up all the sailplanes, 20 or 30 of them, outside this hangar, start the tugs, and away they go, always taking off from the same place. What about wind direction? Complacency.

At a Site Somewhere in Southern England, they run two clubs, both having C.F.I.'s of experience and character. One favours the square circuit approach—"I used to do it that way with Dakotas"; the other prefers S-turns—"It was good enough for Orville Wright, it's good enough for you". Furthermore, both operate at the same time. Valour.

At Dunstable, they take a more sensible attitude, and there are two schools of thought. The problem concerns the necessity of fitting $n$ sailplanes into $n$-1 sailplane-volumes of available air, not to speak of other delights such as the Lynches, first solos, and the Zoo. The two solutions are: (1) to get away from the place as fast as possible—Steve, Dan, Frank and others whowouldbementionedifonlyihadthespace, and (2) to have tea—everyone else. Discretion.

In the Wild West, what could be more natural than that the club should conceive the idea of a horse bungy? Economy. It worked beautifully, until one day the bungy broke, and the horse was never seen again. Misfortune.

I know a site in the Midlands, where everything is run as a Gliding Club should be run. They actually make money; their instructors are beyond reproach; their aircraft—well! Highly-polished, gloriously maintained; not only that, but they actually get flown. Their mechanical equipment works, their bar never—well, hardly ever—runs out of drink. I investigated. One day, I was looking at their latest device, a car-bungy pulley. It swung, it lifted, it had bearings, it didn't stick—in fact, it looked like a product of a very, very famous motor organisation. It also bore a very, very famous monogram. Plutocracy.

Finally, back to France. St. Auban, where they do S-turns in the downdraught, home of the giant standing waves—so they say, I never saw one. Remember Pont-St.-Vincent? At St. Auban, they have not one hangar but two, at opposite ends of the airfield; they, too, believe in not moving aircraft on the ground. Also they have a tug at each end. At 10.30 a.m. precisely . . . Dice.

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EDITORIAL NOTE.—The author has adopted the name by which he is known at his club, and should not be confused with a former B.G.A. Secretary.

# The British Gliding Association Chairman's Report on 1954

NINETEEN-fifty-four was a momentous year for British Gliding in that for the first time the World Championships were held in this country. Nineteen nations competed with 43 gliders. Although the weather was extremely bad, the minimum conditions for a Championship Meeting were completed. The opportunity to get to know our other competitors was greater than ever before and many firm friendships resulted.

**Membership**

This is now: (1953 in brackets):

| | |
|---|---|
| Full Member Clubs .. .. | 16 (16) |
| Associate Member Clubs .. | 12 (12) |
| Private/Group Owner Members | 29 (31) |
| Individual Assoc. Members .. | 34 (32) |

Private/Group Owner membership now exceeds 25 and these members accordingly nominated their representative, who was elected to the Council at the 1954 Annual General Meeting.

**Operations**

At the time of writing, 24 Clubs have completed the Annual Questionnaire and report that from their club sites they have flown a total of 10,592 hours involving 60,203 launches. This shows an increase of 765 hours and 8,410 launches over 1953. The R.A.F. Gliding and Soaring Association Clubs (759 hours and 9,493 launches) and Royal Naval G.S.A. (106 hours, 1,234 launches) are included in these totals. These returns cover all active United Kingdom Clubs except the Yorkshire Gliding Club who were included in the 1953 totals.

Over and above these figures the Air Training Corps report 7,497 hours with 99,575 launches, against 7,346 hours and 96,649 launches in 1953. The 2nd Tactical Air Force Clubs in Germany report 1,027 hours and 15,037 launches.

In spite of the generally bad weather throughout the Summer, it has been an active year and the total number of certificates issued by the Association shows an increase of 241 compared with 1953.

Certificates were issued as follows: (1953 in brackets):—

A, 1,712 (1,591); B, 1,726 (1,662); C, 328 (272); Silver C, 34 (36); Gold C, 1 (3) and Diamond Legs 0 (2). These were made up as follows:

| | *A.T.C.* | *Civilian* | *Service* |
|---|---|---|---|
| A .. | 1,350 | 207 | 155 |
| B .. | 1,366 | 200 | 160 |
| C .. | 97 | 168 | 63 |

**Finance**

While the administration expenses have shown very little increase over those of the previous year, the income derived from the issue of certificates and other normal services provided by the Association has been well maintained and has shown a small profit. This profit has, however, been greatly added to by the sale of articles of equipment to members, the increased sales of GLIDING and other profitable activities of the Association. 110 Certificates of Airworthiness were issued or renewed and 28 Inspector Approvals were granted.

Great credit is due to the Secretariat for the efficient management of the financial affairs of the Association and for their constant attention to the need for economy. Without this care the satisfactory situation as revealed by the accounts would not have been possible.

I would like to take this opportunity of thanking our Hon. Treasurer, Mr. Basil Meads, for his continued and successful efforts to keep the finances of the Association on a sound foundation.

**Kemsley Flying Trust**

During the year 1954, five of the established Gliding Clubs received additional loans and two new clubs were approved for loans. Seven Private Owner Groups were also assisted in the purchase of sailplanes.

The need for the creation of new soaring sites is a matter in which the Trustees are particularly interested and negotiations at present in hand on behalf of two clubs give rise to hopes that 1955 will see the establishment of two more permanent sites equipped with the necessary hangars and buildings.

Such major items of expenditure have caused the Trustees to announce that in future they may not be able to approve loans for sailplanes and equipment as readily and on the same scale as they have done in the past. This does not mean, however, that they are in any way reluctant to give careful consideration to the circumstances in which applications are made.

I think it will be agreed that the need for permanent sites for the Gliding Clubs is very great, and we are most fortunate that through the generosity of our President, Lord Kemsley, assistance in this important matter is made possible.

**Work of the Council**

The Clubs are at present facing a problem of great importance, and that is the lack of adequate security of tenure. Most Clubs are without permanent sites and some are on a monthly lease, or are even under notice to quit. If the situation worsens, it is not beyond the bounds of possibility that by the end of the Summer there may be no Club in the South of England other than at Dunstable. Negotiations are going on with the Ministry of Transport and Civil Aviation and the Air Ministry to improve the situation and, if possible, to obtain an official policy of support for the proper establishment of gliding sites.

Also under discussion are amendments to the regulations governing Certificates of Airworthiness. At present commercially built gliders must have an Air Registration Board C. of A. even if they are one-off machines built only for development purposes. It is expected that the amendments will allow all gliders built in the United Kingdom to have British Gliding Association C's of A. unless otherwise required by the prospective purchasers.

During the year a small number of syndicates and groups have started flying without joining the Association. This makes it difficult for the B.G.A. to stick to the letter of the "gentlemen's agreement" made when the controls were removed from gliding. The Ministry of Transport and Civil Aviation give the B.G.A. no powers to enforce elementary safety precautions, and so beyond writing to these units and requesting them to join, the Association can hardly be held responsible for any accidents or dangerous practices which occur. This is a pity, as any such occurrences must reflect directly on all the other Clubs who guard their reputations with some care. It would be to everyone's benefit if members of the Association could help these clubs to get over the difficulties which prevent them joining, so that there will be no excuse for controls being reimposed from outside.

**Mrs. Orde**

Mrs. Orde, who has been with the Association as our most excellent Secretary "plus", left in September after five years' work, during which the office reached a pitch of efficiency not known before. We would like to thank her for all her efforts on our behalf and also because she is starting a fund for encouraging future British team pilots with part of her presentation. It will be known as the Alex Orde Fund for Young Soaring Pilots.

Mrs. Bonham has taken over the office and, with Anstace Goodhart and Janet Rutherford, is keeping up admirably with the large amount of work that pours in.

**The Future**

There is little doubt that plenty of people want to go gliding, and equally little doubt that the enthusiasm, ability and gliders are available to meet this demand. But there are three things missing:—

1. More Clubs are needed.
2. Security of tenure for both existing and new Clubs is vital, and
3. Launching equipment and retrieving vehicles of an equivalent standard to the aircraft are wanted to enable the Clubs to get the necessary utilisation to operate economically.

The problems of the new club in getting started seem almost insuperable. Sites are very difficult to find and the skilled people needed to get the club on its feet do not appear to be available in the area. They could be taken on professionally, but the new club has not the means and so it either fails to start or flickers into life for a brief moment only.

Proper security of tenure is absolutely necessary if the clubs are ever to become more than small voluntary groups flying largely at weekends.

In the absence of subsidy it is difficult for the clubs to negotiate and pay for commercial leases or freeholds. If the Government wants British gliding, which although small is extremely active, to hold and increase its reputation abroad, it will be necessary for it to help with the big problem of security of tenure, and in particular on state-owned aerodromes.

Lastly, launching equipment. In general the state of the winches, tow cars and field retrieving vehicles in the clubs is deplorable. With little money it is admittedly extremely difficult to remedy this position, but a tradition seems to have grown up that whereas the gliders must be excellent, any old bit of modified scrap-heap junk is good enough to launch them. If we are to get the clubs on to an economic and efficient footing, we cannot afford to have the delays and frustrations which are accepted at present. If 1955 can be a year of steady development and improvement in launching equipment, even if nothing else happens, it will be a year of achievement.

ANN WELCH,
*Vice-Chairman of the Council.*

## B.G.A. Committees

THE following are extracts only, taken either from the Chairman's report or from reports which some of the Committees circulated separately at the annual meeting.

**Flying Committee.**—In general this Committee examines any practical gliding problem not dealt with by other committees. The Kronfeld Barographs come under its jurisdiction and these are loaned for a small fee to pilots with certain qualifications.

**Instructors' Panel.**—Most Clubs now have categorised instructors and the time is almost approaching when instructional and examining centres might be set up in suitable clubs. An examiner is now stationed in Germany for the service units there.

**Equipment Committee.**—The Committee has this year purchased 25 parachutes which have been overhauled and fitted with new back-type harness and bag; these sell at £34 each and only six remain. There is still a fairly large stock of cheap cable. All the Madapolam has now been sold. It is interesting to note that a total of over 2,500 ties and over 1,000 blazer badges have now been sold throughout the world.

**Publications Committee.**—GLIDING has had another good year and we would like to thank Dr. Slater for his excellent work as Editor. Finances are sound and the circulation continues to expand.

**Publicity Committee.**—This Committee has recently been formed to encourage publicity through the press, films, television and radio, to improve press relations and to collect suitable articles and photographs.

**High Performance Two-Seater Progress Committee.**—The prototype of the K-1 was completed in May, 1954 and after some flying by the designer, handling trials were carried out by No. 1 Rest Group at Lasham. It was found that the handling, particularly the spinning, was not acceptable although qualitatively the performance appeared excellent. The spin behaviour was of a nature which precluded it from the World Championships but could not reasonably have been foreseen at the design stage.

The future of the machine is at present under consideration by the B.G.A., the Kemsley Fying Trust, the Ministry of Supply and Messrs. Elliotts, and performance trials and investigations of the cause of the spin characteristics are being carried out.

**World Championships Master Committee.**—The Committee met only once, after which all work was delegated to sub-committees, so that the work could proceed as fast as possible.

The 1954 World Championships was the largest contest ever organised by a country receiving no Government subsidy and, apart from the weather, has reflected great credit on the many volunteers who gave so much of their time to make it a success.

The total expenses of the organisation were £13,012 and the revenue from all sources was £10,329, thus leaving a deficiency of £2,683 to be met by the guarantee of the Kemsley Flying Trust.

The Public attendance during the period of the Championships is estimated to have been 18,500, which is considered good in the circumstances.

**Technical Committee.**—Six meetings of the Committee have been held during the year, 108 Certificates of Airworthiness have been issued (103 in 1953) of which 13 were initial applications, 8 new inspectors were approved and 17 inspectors and 8 firms renewed their approval. Mr. Pinniger,

Examiner of Inspectors, has visited three clubs to examine four inspectors and, in general, was favourably impressed by their work and the standard of maintenance in the clubs.

Early in 1954, the Committee was called upon to consider in detail the Airworthiness of the K-1. Checks of the calculations for the stressing of the primary structure and for the stability were carried out, and the Committee held a meeting at Messrs. Elliotts to inspect the aircraft. A permit to fly for testing purposes was granted after some small modifications had been made.

The set of drawings obtained for the Fauvel AV-36 has been examined, and it was felt to be generally satisfactory for private construction and the issue of a B.G.A. Certificate of Airworthiness. However, after the World Championships, M. Fauvel kindly allowed a machine to be flown at Lasham. As a result of these flights, it was felt that the landing characteristics were not acceptable, although otherwise it appeared to be quite docile and pleasant to fly. M. Fauvel has since informed the B.G.A. that he has altered the shape of the skid and the trim tab circuit.

**Design Requirements Sub-Committee.**—Proposals have now been drafted for those requirements which affect the fundamental layout of the structure (i.e. design diving speed, rough air gust case, etc.). The revision of these requirements has involved a large number of calculations, mostly carried out by Mr. Vernon.

Of the more important changes it is desired to make, it is likely that revised diving speeds will be agreed by the Air Registration Board at an early date, but further evidence requires to be gathered in respect of the rough gust case.

F. G. IRVING.

**Accidents Analysis Committee.**—During the year 15 accidents have been reported and the cost to the Gliding Clubs has been £1,862. This compares with 46 accidents reported in 1953 at a total cost of £3,783 and 46 accidents reported in 1952 at a cost of £3,719.

Only one of the accidents was in any way different or unique, and that was one in which the pilot dropped his launching carriage and then force-landed on top of it. This compares with the accident reported in 1950 in which a club member attempted to strangle himself with the launching cable. Very little can be learned from either accident. Apart from that, all the accidents reported are similar to many others that have occurred before.

The number of accidents reported suggest that either

(i) Accidents are stopping, in which case the Accident Analysis Committee has discharged the duties for which it was created and should be disbanded, or

(ii) Clubs have, for reasons not known at Londonderry House, not been reporting all accidents.

This latter probability will be discussed at the Instructors' Conference and it is thought possible that better results may be achieved by a modified form of reporting.

The accidents reported in 1954 are too few to form a basis for any useful statistical analysis and, in my own opinion, could well have been dealt with by the Instructors' Panel and the Technical Committee, as appropriate to the type of accident concerned.

G. J. C. PAUL,
*Chairman, Accident Analysis Committee.*

**O.S.T.I.V. Congress.**—Sixty delegates from 16 nations (including the Soviet Union) attended and were accommodated in the Conference House of the Derbyshire Education Committee and, later, of the British Electricity Authority. The good friendships and exchanges of views, which were notable results of the living together at Camphill, were also valuable to the O.S.T.I.V. delegates. The understanding between prominent glider pilots and meteorologists, which has been growing so profitably in Britain, prospered.

Apart from the contributions from Peter Temple and Frank Irving on instruments, which aroused great interest, there was no new British contribution on technical topics. Foreign designers came to describe and discuss the merits of the H.K.S. 1 and the Fauvel, but no designer from this country came, sent a paper or even a representative to speak about any of our products.

O.S.T.I.V. is a voluntary organisation and, having no paid staff, relies heavily on the services of President De Lange and Secretary Slikkerveer, both of the Netherlands. The turnover of the Buxton Congress was over £1,000 and profit of £40 was made.

At a General Conference of members the President and Secretary were re-elected and Alan Yates was elected to the Committee of nine. He is the only representative of the British Commonwealth on the Committee.

A. H. YATES,
*O.S.T.I.V. Co-Ordinator.*

# Women and Gliding

## by Peter Stickland

*Reproduced by courtesy of "Free Flight" (Canada)*

**I.—Wives not interested in Gliding**

THEY are never seen by the other club members, and one gets the impression that should they ever visit the field something terrible would happen to the gliders. The club member who has this type of wife appears to be horribly henpecked. He arrives late, after the machines have been assembled and the thermals are starting to pop ("Couldn't get away from the wife") and leaves early, before the gliders are put away ("Is *that* the time? Got to get back to the wife"). Closely followed by other members of the same ilk, he runs for his car and disappears in a swirl of dust, leaving a disconsolate band of three or four to fit three fuselages and six wings in a shoebox hangar.

**II.—Wives interested in Gliding**

Generally speaking, wives of this type are handier than those of Group I (they usually keep check on flying time, which is a job nobody else will tackle for longer than ten minutes). But they have their drawbacks, too. One is that they love to dilly-dally in the morning. With the car warming up outside, and a fretful hubby wearing a path in the lawn, young wifey has to spend an hour preparing a gigantic stack of sandwiches, most of which are eventually handed out to ravenous unmarried types at the field.

Only once has my wife been ready on time, and that was when I had to leave early to pick up a friend. Returning home, expecting the usual wait, I was startled to see an apparition of loveliness descending the steps clutching a large brown paper bag. Not only was wifey dolled up, she had fixed the fodder, too!

Half way to Kitchener, I began to feel peckish. "Pass me a sandwich, spouse," I said, lifting a grimy hand from the wheel.

"Sandwich? There are no sandwiches . . ," and catching my look of consternation, she went on quickly, "I had to put my face on, do my hair, change my clothes, sweep the floor, clear the table, wash the dishes, make the bed, mow the lawn . . ."

"But *that bag*!" I grated, cutting short the monologue.

"Oh, that" she said "was my knitting."

**III.—Girl friends**

They are the rare birds of gliding. They are always beautiful. Only a few of the unmarried members own them, and they are *never* introduced to the other club members for fear . . . well, you know what I mean. The proud boy friends show them around, using their presence for an excuse for dodging the work, and the others struggle dejectedly with the glider, drooling on the wing-root fittings, while eyes and control cables become crossed.

**IV.—Female glider pilots**

This type is practically non-existent. My one personal experience was at the 1953 National Meet, when I joined a crowd of sceptics to watch Maya Smodlibowska make a perfect landing on her first solo. And why not? I am quite willing to believe that a young lady can perform as well as a man (in a glider, I mean), but circumstances are against her. Before reaching Silver C standard she will meet and marry a rich handsome Gold C type, the owner of a 1-23D equipped with a total-energy variometer, blind flying instruments, oxygen, pressurized cabin, two-way radio, television and snack bar. Then she can bid farewell to soaring flight, for the rest of her days will be spent feverishly chasing the old man's sailplane, careering madly through the countryside in a gold-plated Cadillac.

# Design Specification for a Glider Launching Winch

*Prepared for the Technical Committee of the British Gliding Association by the Imperial College Gliding Club*

THE winch is required for the launching of gliders with 25 cwt. stranded steel cable.

The method of use is to position the winch at the upwind end of a grass runway and the gliders at the downwind end. The glider end of the cable is attached by means of a rope weak link to a ring, which is hooked into the nose of the glider. On the receipt of a signal by bats lights or telephone, the winch driver takes up the slack in the cable and on receipt of a second signal, winds it in at speed.

The glider pilot places his machine in a climbing attitude and gains height until he is nearly over the winch. He then releases the cable, which falls to the ground under the control of a stout canvas parachute, about 4 feet square, and permanently attached to the cable at the glider end. The actual launching takes about a minute and the height normally reached is of the order of 1,000 ft. above the point of take-off.

The cable is pulled back to the glider end of the runway by a vehicle, in readiness for the next launch. To prevent the winch drum overrunning the cable when the vehicle driver applies his brakes, a pay-out control brake on the drum is necessary, which is in operation continuously when the cable is being pulled out.

As the major operating cost of this launching method is the fuel consumed by the cable vehicle, a two-drum winch has been specified to enable two cables to be retrieved simultaneously.

The operating system with two drums is as follows:—

1. Engage one drum and launch No. 1 glider on that cable.
2. After the pilot has released, pull the end of the cable right up to the winch.
3. Disengage the first drum and engage the other.
4. Launch No. 2 glider on that cable, and after the pilot has released, pull the end of the cable right up to the winch as before.
5. The vehicle, which has been waiting at the winch, then pulls back both cables simultaneously to the glider end.

The equipment is operated and maintained by intelligent but comparatively unskilled personnel; simplicity and ease of operation are therefore vital.

For clarity this specification is divided into five sections:—General, Chassis, Engine, Drum units, Cab and Controls.

**1.—General**

The cable used will be 25 cwt. stranded steel cable, 0.20-0.25 ins. diameter, breaking load 30 cwt.

The winch must be capable of giving the glider an *airspeed* of approximately 50 m.p.h.

The cable speed required will:—

(a) Vary with windspeed.
(b) Fall during the launch by a factor of about 2 : 1 due to the variation of the cable angle.

Gear-changing during the launch is not permitted, but a choice of two gear ratios should be provided to deal with windspeeds of 0-18 m.p.h. and 15-28 m.p.h. A suitable design figure for selecting the gear ratios required is 55 m.p.h. cable speed, at zero windspeed, at the maximum engine operating r.p.m. The engine operating r.p.m. should not exceed 5/6ths of the r.p.m. at which peak power (B.H.P.) is obtained at full throttle.

The winch will carry out about 10,000 launches per year. During this time no replacements must be required.

The design should be based on an overhaul life of 50,000 launches. The operating cycle time per two launches will be about 6 minutes, made up of 3 minutes launching etc., and 3 minutes running back the cables. The maximum use must be made of commercial components, and all wearing parts must be commercially obtainable. All components should be as rugged as possible, and the whole unit should be kept as simple and small as the specification and maintenance accessibility will allow.

The whole unit should, where possible, be designed on a sub-assembly basis; i.e., the pay-on mechanism, cable guide unit, etc., for each drum should be made up as complete and independent units, which can, if necessary, be removed complete for overhaul purposes. With the exception of dipsticks, there must be no detachable parts at all; i.e. starting handle, jack handles, covers, filler caps, etc. All mechanism must be guarded.

The petrol tankage capacity should be at least 25 gallons and should be located as symmetrically as possible about the axle to reduce changes in winch tow-bar load with fuel contents.

As the engine may be re-started approximately every 6 minutes, batteries of at least 100 ampere/hours capacity, 12 volts, must be fitted. The battery must be firmly fixed in position, but must be arranged so that it can easily be removed for charging, etc. The engine must be fitted with an efficient silencer, and the exhaust pipes must blow out at the downwind side of the winch, i.e. at the side on which the cables leave.

As the winch has to operate in dirty and muddy conditions, the maximum use should be made of rubber bonded tyre bearings for transmission shaft universal joints, etc. All grease nipples must be either of the manual screw cup type, or Tecalemit universal nipples, which take both manual push on guns and high-pressure clip-on connections.

The winch must be finished with two good coats of red lead primer and then two coats of good quality durable finish. The drum unit casings and controls must be coloured as follows:—

Drum unit on winch driver's left side to be painted white.

Drum unit on winch driver's right side to be painted red.

The main body of the winch is to be painted chequered red and white.

**2.—Chassis**

The winch is to be constructed on a two-wheel trailer chassis. It should conform to the Road Traffic Acts with the exception that it should not have power brakes or road springs. The axle should be solid with the chassis and be fitted with balloon tyres on split wheels. The tyre pressure required must not exceed 50 p.s.i. Both wheels are to be fitted with mechanically operated brakes controlled by a hand lever and ratchet, adjacent to the tow bar, via a central compensator. The main chassis members must be at least 6 x 3 x $\frac{1}{4}$ in. channels.

The tow-bar is to be rigidly attached to the main members, the actual coupling being a 2 in. diameter hole with 1 in. of material all round and $1\frac{1}{2}$ in. thick. When in the towing position the coupling should be 16 ins. from the ground. The wheels are to be located in such a position relative to the c. of g. of the complete winch, with cable and full of all fluids, that there is a downward load of 50-100 lbs. on the drawbar of the towing vehicle.

The chassis must be fitted with stabilizing feet at each end worked by screw jacks. The minimum possible number of jacks should be used. If the road wheels are external to the main body, they must be fitted with very robust or rubber mudguards.

**3.—Engine**

The winch must be powered by a petrol engine capable of delivering 100-120 B.H.P. peak power on non-premium fuels. In the selection of an engine, preference should be given to those having the flattest torque curves. The engine must be fitted with 12-volt ignition, dynamo and starter, and must have an air cleaner. A mechanically driven fuel pump, with hand primer and external oil filter with replaceable element, is preferred.

The *engine* must have its own front and rear mountings, and if fitted with an integral gearbox, this must be readily removable without extracting the whole power unit, for clutch replacement. The adjacent chassis members must be arranged so that they do not interfere with the removal of the gearbox, and the clutch unit and adjustments, etc., must be reasonably accessible. The engine position and covers must be such as to allow ready access to units requiring frequent maintenance and inspection, such as oil filler cap, filter and dipstick, ignition system, petrol pump and carburettor.

The radiator air intake should face into wind, i.e. in a direction opposite to that in which the cables leave the winch. The radiator must be of ample size to deal with the cooling requirements of a stationary engine of this type. The air side should incorporate adjustable louvres or a blind to facilitate temperature control and should have a variable hot air outlet to the cab for heating purposes. A robust non-detachable starting handle must be fitted.

## 4.—Drum Units

The winch is to have two separate and complete drum units, of which either may be selected to be driven but never both. The drums must be mounted with their axes horizontal and as low down in the chassis as possible; the minimum permissible centre distance is 5 ft. There must be the greatest possible duplication of parts between the two drum units (i.e. there should be the smallest possible number of "handed" parts). The diameter of the actual drums must be at least 8-ins. and they,must each be capable of holding 5,000 ft. of cable. The overall diameter across the cable with the full length wound on to the drum must not exceed 20-ins., and when holding this amount, there must still be a 2-in. radial width of flange uncovered, to avoid any risk of the cable jumping over the ends of the drum.

The drum flanges must be at least $\frac{5}{16}$-in. steel plate or material of equivalent strength, and the drum core must be of adequate thickness to withstand the high compressive stress due to the winding on of successive layers of cable. Each drum unit must have its own system of cable guide rollers, cable paying-on mechanism, guillotine and automatically loaded pay-out brake. In addition, each drum unit must have its own stop brake, which is independent of the pay-out brake, or alternatively a stop brake must be fitted in the transmission system so that it will be effective on whichever drum is engaged. The cable guide rollers or pulleys and their supports and driving mechanism for paying on must be stressed to take the cable breaking load under the following conditions of cable entry angle:—

1. Cable entering the winch at any angle in a vertical plane from horizontally to vertically.
2. Cable entering the winch at any angle in a horizontal plane up to 30° on either side of the line joining the winch and the glider launching point.
3. Any combination of 1 and 2.

All cable guide rollers/pulleys must be at least 4-ins. diameter and must all be fitted with ball or roller bearings. The minimum number of rollers/pulleys should be used and this should in no circumstances exceed 4 per drum. To reduce roller/pulley and cable wear the inertia of the rollers/pulleys must be kept to a minimum. If rollers are used they must be positioned in such a way that the cable will always pass over them with pure tangential motion under all conditions, i.e. the cable must enter and leave any roller on a line at right angles to its axis. Rollers and/or pulleys must be installed so that they can allow the passage of knots up to $\frac{5}{8}$-in. in diameter.

The mechanism driving the guide rollers which pay the cable on and off the drum must provide them with *constant* velocity motion. A crank and connecting rod motion is not suitable.

In the design of the driving mechanism it should be assumed that it requires 1.25 H.P. to drive it. The cable guides and pay-on mechanism will have to operate in dirty and muddy conditions and this should be considered in the design.

The cable guillotines must be mechanically powered by springs or weights, etc. The operating mechanisms for the guillotines on each drum unit must be independent of each other and must not incorporate any hydraulics or Bowden cables. The cables will be stopped before the guillotines are operated but they must be capable of cutting three cables simultaneously in order to deal with knots.

The automatically loaded pay-out brakes must give a drag equivalent to 15-30 lbs. cable tension and, if of the friction type, must be loaded by a weight or spring. The shoe area must be at least 20 sq. ins. and the lining must be at least $\frac{1}{4}$-in. thick. The pay-out brake shoes and drums and the individual stop brakes, if fitted, must be mounted so that they can be readily replaced and adjusted, without removing the cable drums.

## 5.—Cab and Controls

The driver must face the gliders and must have an unobstructed view along the cables. He should be positioned as high as possible in a cab and should be able to see both drums. The cab should be surrounded by a strong wire cage of $1\frac{1}{2}$-in. to 2-in. mesh. If the cab is enclosed the door must *not* be positioned on the side where the cables enter the winch.

The following instruments should be provided:—cable speed indicator, engine oil pressure gauge, engine water temperature (°C), ammeter, ignition light, fuel tank dipstick.

The ignition switch must not be fitted with a key.

The starter switch should be of the direct mechanical type and should not be solenoid-operated.

The driver's controls will be different, depending on whether (1) a conventional automobile-type clutch or (2) a fluid flywheel or a centrifugal clutch is fitted. For this reason two different control layouts are specified:—

1.—CONVENTIONAL AUTOMATIC CLUTCH

*Left hand*

Throttle—push to open: at least 4-ins. movement.
Gear lever.
Drum selector lever.
L.H. drum guillotine release.
L.H. drum pay-out brake-application lever.

*Left foot*

One pedal which when depressed applies a stop brake to both drums or to whichever drum is selected by the selector lever and also disengages the clutch.

*Right hand*

Clutch *lever*—pull to declutch; at least 6-ins. total movement.
Choke.

R.H. drum guillotine release.
R.H. drum pay-out brake-application lever.

*Right foot*

Starter button.

2.—FLUID FLYWHEEL OR CENTRIFUGAL FRICTION CLUTCH

*Left hand*

Throttle—push to open at least 4-in. movement.
L.H. drum guillotine release.
L.H. drum pay-out brake-application lever.

*Left foot*

Stop brake pedal working on the gearbox input shaft so that it will:—

(a) stop whichever drum is selected by the selector lever.
(b) stop the rotation of the input shaft, caused by fluid flywheel drag, to permit gear engagement and drum selection.

*Right hand*

Gear lever.
Drum selector lever.

R.H. drum guillotine release.

R.H. drum pay-out brake-application lever.
Choke.

*Right foot*

Starter button.

All lever gates must be clearly labelled to show the purpose and position of the levers. Each guillotine release must be clearly labelled CABLE GUILLOTINE.

The drum selector lever must work in the correct sense, i.e. move to the right to engage the right drum and vice versa. The two halves of its gate must be painted in the appropriate colour for the drum concerned. All controls related to one drum only must be the appropriate colour, i.e. white for the L.H. drum and red for the R.H. drum. The gear lever must be placed in a two-position gate and the positions labelled and colour-coded blue and yellow; blue for 15-28 m.p.h. and yellow for 0-18 m.p.h. windspeed.

If it is necessary to have two scales on the cable speed indicator, these should have coloured sectors to correspond to the gear lever positions.

If a fluid flywheel or centrifugal friction clutch is fitted, the throttle should have an adjustable stop gate for the "take up slack" position.

M. S. NEALE.

# " . . . Gang Aft Agley"

## by Commander Nicholas Goodhart

*The author describes his flight to 30,500 feet in the famous Sierra Wave at Bishop in California on January 9th.*

EVERYTHING fitted in perfectly. Bill Ivans was taking his beautifully equipped Schweizer 1-23 up to Bishop for the Christmas holidays. He needed someone to crew for him. I had two weeks' leave and some work to do in California after my leave. As if all this was not enough, good skiing is to be had on Mammoth Mountain only 45 miles from Bishop. Naturally I was a strong volunteer for this wonderful opportunity to combine a gliding and skiing holiday, particularly since Bill was going to leave his 1-23 at Bishop during the second week when he had to go back to work, giving me a big chance to make an altitude flight if the Sierra Wave appeared.

December 23rd found me in a DC-7 on a non-stop flight to Los Angeles from Washington, D.C. I met Bill at San Diego, and the next day, Christmas Eve, we drove to Bishop (425 miles) towing the trailer. Cruising speed was 60-70 all the way with the trailer riding perfectly, as do all American trailers. As we got near to Bishop there was a superb lenticular which encouraged us enormously though we thought perhaps we had missed the Wave.

Christmas Day was magnificent: no wind, warm, and the snow-capped Sierras a scintillating spectacle in the brilliant sunshine. We wasted no time in setting up the ship as the forecast indicated a possibility of waves in the near future. In the afternoon we each took a tow up to about 10,000 ft. (the airport is about 4,100 ft.) and got in a little thermal soaring above the White Mountains, which are on the opposite side of the Valley from the Sierras.

In getting the ship ready I discovered the terrific amount of work that Bill has put in to it, to make it suitable for very high flying. The oxygen system has oxygen for at least 8 hours' flying and can be regulated to give pressure-breathing which is adequate up to 45,000 ft. (provided the pilot can stand it). There is a completely separate emergency oxygen system. Three separate sets of dry batteries power the radio, the turn-and-bank, and the electric socks. The whole of the cockpit area is completely lined with about an inch of insulation. The canopy has two double panels and one triple panel—even then it is significant that one of the pieces of equipment placed close at hand is a scraper to clear a peephole through the frost which accumulates on the inside of the canopy. As a further attempt to reduce frosting-over inside, the oxygen mask outlet is led through a false floor to keep the moisture out of the cockpit. This last item was an innovation under trial.

Boxing Day dawned with indications of a wave, but discussion with the weathermen at the airfield disclosed nothing doing, and so the morning was spent in getting everything 100% ready to go—special clothes all organised, barographs sealed, check lists checked, retrieving arrangements arranged and 101 other odd items. Bill was planning an attack on the world goal record, using waves, and to do this he had to make a reasonably early start; so the plan was that if the Wave showed up in the morning he would fly, and if in the afternoon I would.

With everything organised but no Wave, skiing was obviously the ploy for the afternoon, so off we went to the ski slopes for the rest of the day.

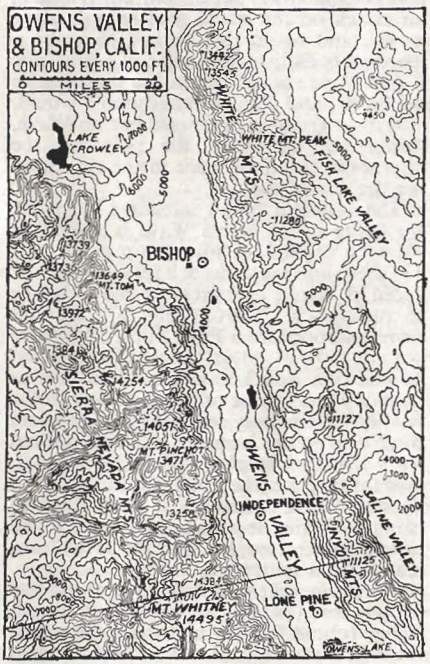
The problem of an adequate towplane for flying in the Sierra Wave is serious: it must be capable of towing up to at least 13,000 ft. and must tow at a reasonably slow speed to avoid overstressing the sailplane in turbulence. Fortunately Bob Symons owns and operates a Piper Supercub which, with its 150 h.p. motor, fills the bill perfectly. In addition Bob knows the Wave best of anybody and can be relied on to tow to the best spot. The only snag was that Bob had to go over to Las Vegas to catch the airlines for a trip East to pick up another aircraft, and the only way he could get there was to fly over in the Supercub. I went along to bring back the Supercub, and since I had not flown it before, Bob put me in the front seat to drive on the way over.

The route to Las Vegas lay over the White Mountains (14,000 ft. odd) and Death Valley (minus 282 ft.) and the scenery was majestic if desolate. As we cruised along at

13,000 ft., the cockpit slowly filled with a blue haze and suddenly the entire windscreen was covered in oil. It was clearly necessary to stop the engine and this was immediately done. Fortunately there was a highway in easy reach where we set down. A quick look disclosed that the oil cooler had burst, so we pushed the aircraft off the highway then thumbed a passing car and hitched the remaining 100 miles or so into Las Vegas and caught his airliner.

There did not appear to be any immediate way of fixing the oil cooler so I hitched into the nearby town of Beatty, which turned out to be an old mining town, complete with raised board sidewalks with a hitching rail for horses, saloons with swing doors and gambling in every one, even "one-armed bandits" (fruit machines) in the grocery store.

Next morning, after a successful night's gambling and with the aid of the town's junk merchant who lent me some tools and produced an extremely rusty piece of $\frac{3}{8}$ in. galvanised waterpipe, I replaced the oil cooler with the piece of pipe and set off back to Bishop, keeping a very wary eye open for forced landing spots.




At Bishop I was greeted by Bill Ivans with the cry "Come on, let's go! The wave is blowing." However, this was out of the question as, with no oil cooler, the Supercub would overheat; there was nothing for it but to order a new oil cooler and endure the tantalization of watching the wave and being unable to do anything about it. So instead we went skiing. The new oil cooler arrived by bus the following evening and did not take long to fit. Once fitted, it was a good excuse for a test flight cum exploration of the terrain where the wave waves (when it does).

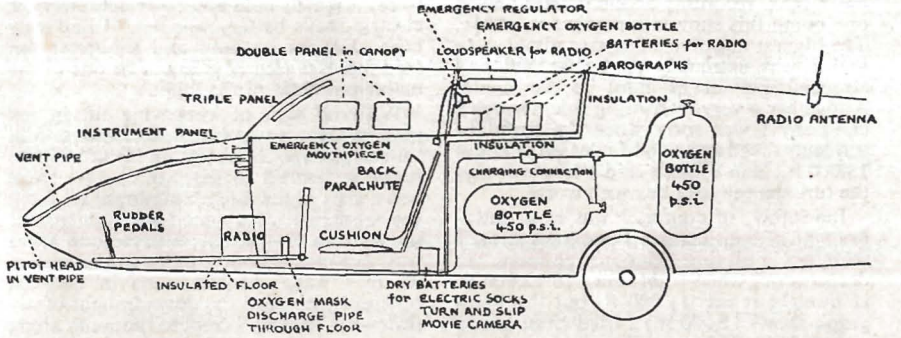
On Friday morning there were definite signs of the wave, though the cloud pattern was not ideal, so we rushed out to the airport and started getting ready to take off. Suddenly there was a noise like a series of distant but heavy explosions and the airport buildings shook considerably. It was an earthquake, but fortunately no damage occurred, and shortly afterwards we were off, with me driving the Supercub and Bill in the 1-23.

This was my first experience of the turbulence associated with the roll-cloud area and it certainly gave me a completely fresh outlook on what can be coped with on tow. The turbluence is such that the A.S.I. makes apparently instantaneous movements of up to 30 m.p.h. in either direction and full control movements are not sufficient to overcome the gusts. As far as I was concerned, it was a full-time job coping with the Supercub and the glider had to look after itself.

Despite lots of turbulence, we failed to find any wave, and eventually Bill released, while I dived back towards Bishop and out of the turbulence. The trip had been so interesting that I then proceeded to forget the towline and landed with it still on. It was some time later that we found that all the lights were out over a considerable area, as I had shorted out a 12,000-volt line by towing the cable across it and blown a couple of sub-station fuses.

Bill came back after about three-quarters of an hour, having failed to contact, so we had another go but still no joy—this time I was a good deal more careful in dropping the cable.

Next day, Saturday, all signs of the wave had gone, and a check with the airport met.




**Longitudinal cross-section of W. S. Ivans's Schweizer 1-23. The following points should be noted:—(1) Multiple panels on canopy are an attempt to reduce misting. (2) Oxygen mask discharge pipe goes through floor to keep breath moisture away from canopy. (3) Whole of inside fuselage compartment is lined with about one inch of insulation. (4) Vent pipe is kept open as long as possible to reduce misting. (5) Main oxygen will last about ten hours; regulator is of automatic-demand type and gives pressure-breathing up to 45,000 feet.**

office showed little prospect of its sudden appearance, but they did suggest that there was going to be a considerable snowfall. A blizzard dumped about 4-5 inches of snow on the area and was the beginning of a period of bitter cold with early morning temperatures as low as —10°F. Every day, when going out to the airport to check the morning pibal for evidence of westerlies of a reasonable strength, we checked the 1-23 over and everything was 100% ready to go; but nine days had gone by with no success, and today was Bill's last day. The fates were against him, and after a day's skiing he drove back to San Diego, very kindly leaving me with all his equipment to wait hopefully for a further seven days.

For the following five days there was no sign of the wave, though with Bob Symons' help there was plenty to do all the time.

On Friday night Bill Ivans reappeared bringing with him a spare ski he happened to have. There was only the weekend left before I had to start work in San Diego; fourteen days of my leave had gone by and still no chance to fly the wave, and Saturday dawned with the upper winds still in the north, so once again we went off to the ski slopes.

Early on Sunday we were up to look at the sky, but no sign of the wave was to be seen, and somewhat despondently we went off to breakfast.

After breakfast the picture was entirely different; several wave clouds were showing and we rushed out to the airfield and started preparations to fly. Bill very kindly gave me the chance, since there was too much snow on the ground for him to risk a cross-country flight.

By 09.15 I was dressed in all the anti-cold equipment I could get on—two suits of combinations, shirt, two trousers, three sweaters, scarf round my middle, scarf round my neck, flying overalls, four pairs socks (one pair electric), shoes, two pairs gloves. A few minutes later and Bill had strapped me into the 1-23, oxygen mask on, radio checked, barographs checked, canopy closed and taped up and I was ready for Bob Symons and the Supercub. By 09.25 we were off and heading east towards the White Mountains. Already my feet were beginning to feel a bit cold, so I plugged in the electric socks—nothing happened, but after some searching I found another plug out and plugged that in too—ah! a trace of warmth.

We left the White Mountains at about 7,500 ft. and headed back west towards the Sierra Nevada, and as we passed under the roll cloud at about 10,000 ft. the turbulence began to make itself felt. Bob headed straight in towards the mountain wall in search of the elusive wave, but all we found was more and more turbulence. The 1-23

has a max. recording accelerometer and in one bump this showed a maximum of 3½*g*. The highest negative value was about —1*g* and I was extremely glad that Bill had strapped me in as hard as he could. Altogether a very interesting ride, though I can't say I was sorry when the towplane suddenly dived away and I released at about 13,000 ft. Bob Symons said afterwards that the turbulence could be much worse.

Inevitably, of course, I was in a downdraught of considerable bumpiness while I searched in all directions for the wave. In desperation, when I got down to 12,000 ft. (I thought it was 11,000 ft. but the barograph shows 12,000 ft.) I tried circling in a patch of lift. This seemed to work a bit, but petered out at about 13,500 ft. and I tried flying upwind as I was back under the leading edge of the roll cloud. Suddenly and absolutely instantaneously I broke through into the wave, the variometer went up to +5 metres/sec. and the transition to perfectly smooth air from the extreme turbulence was uncanny.

Now it was only a question of holding position and letting the wave do the work; there was time to look around and get the general picture. The upper wind was actually too much south of west and the wave pattern was not too clearly defined. The piece of the valley in which I was flying is wider than the main valley south of Bishop, with a more broken wall, and the wave cloud system was only apparent in patches. I was climbing in front of a well-defined patch of roll cloud, while above that there was a thin patch of lenticular. To the west and as far as the eye could see there was a layer of stratocumulus with its top at about 17,000-18,000 ft. and this was pouring over the valley wall about 2 miles in front of me and disintegrating almost at once under the foehn influence.

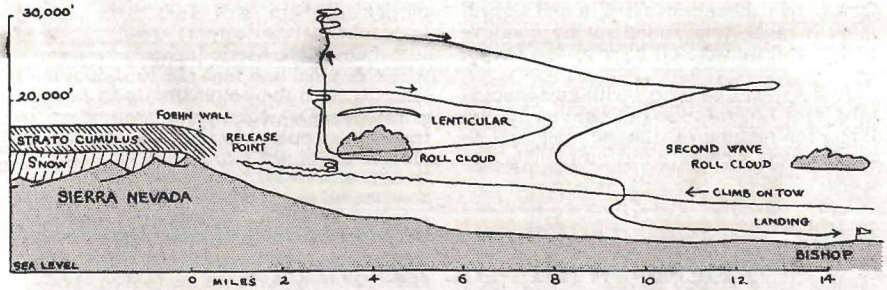
By this time I had passed up in front of the lenticular, which was at about 18,000 ft., but the rate of climb was dropping off steadily and soon I was suspended at about 21,000 ft., gaining nothing and losing nothing in the almost eerie smoothness of the wave. With an indicated airspeed of about 50-55 m.p.h. (say 65-70 true) I could make slow progress along the wave in the upwind direction, but the area of best lift was not large and restricted the beat to only about one mile or so.

By now one thing had made itself painfully apparent, and that was that my feet were extremely cold and quite definitely the electric socks battery was flat. I had only been aloft for an hour and a quarter but cold feet was clearly going to be one of the major problems of the flight.

With no sign of improving lift in my present area, it was obviously time to do a little exploring. To the south the wave I was flying in seemed to peter out where there was a kink in the mountain range, but there was a second wave which went on further south from this kink. This second wave was, however, about 7 miles to the east of where I was, and the arena in between obviously included the downdraught of my own wave. Slowly I crept to the south along my wave, losing a little height as I left the best area; I went on until I was losing height at about 1½ metres/sec.—i.e., I had very little wave activity, and then I turned crosswind and set off for the second wave. Almost at once the sink went up to 5 metres/sec. and when I was down to 17,000 ft. I realised it was hopeless and that I must go back to my old wave. With 5 metres/sec. down still showing, I started back again, wondering whether I should in fact be able to contact again, but all was well as I rushed through some turbulence and back in to the wave at about 14,000 ft. This time the lift was even better and carried me back to 20,000 ft. at an average of around 1,000 ft/min., but as before it fell off to zero at about 21,000 ft.; however, the beat seemed to be extending towards the south, and as I progressed in this direction the lift suddenly picked up, with my spirits picking up in direct proportion.

I had been airborne 2¼ hours by now and my feet were excruciatingly cold, but other than this everything was perfect; the problem of canopy icing had not appeared, thus vindicating Bill Ivans's belief that exhaled breath was the main source of the moisture. Presumably the oxygen mask exhaust pipe was slowly building up icicles under the seat instead. I had had the cockpit vent pipe open (slightly) as another method of lowering the moisture content of the cockpit air, but the incoming air at about —30°C was getting a bit too cold for comfort, and as height was beginning to increase steadily, I shut it nearly completely.

The radio was working perfectly, and about every 15 minutes I switched on and gave Bill a short bulletin. At 25,000 ft. I switched to 100% oxygen. There is no need to do this, as the demand regulator auto-




**Cross section of the Sierra Wave showing Commander Goodhart's track.**

matically provides 100% above about 25,000 ft., but it just seemed comforting to be sure. At 26,000 ft., still climbing steadily at about 1 metre/sec., the clock finally quit for good and no amount of tapping would make it go again. It seems the cold was too much for it—it was almost too much for me as my feet were approaching the numb stage.

By this time there was a continuous wave system stretching 50 miles to the south, and slowly I was sliding southwards in search of better lift, but little improvement appeared and at 30,000 ft. rate of climb had dropped to only 50 ft./min. at best.

By this time I had been airborne for 3½ hours and my feet were a big question mark. Was I or was I not getting frostbite? How does one tell anyway? My toes would not move, but maybe it was only that I could not feel them moving.

Somewhere around 13.10 I saw 30,500 ft. on the altimeter, but I did not realise that this was the highest I was to see. Had I done so, I would have slowed down and flown directly into wind, instead of sliding down along the wave in search of better lift. This might well have given me another 500 ft. or so, but I was "sitting fat, dumb and happy" (except for cold feet) firmly under the impression that I had enough height for the British Absolute Altitude as well as a Diamond C. It was not till I got back to Washington a week later that I heard of Philip Wills's terrific climb in New Zealand. It looks as if the Mount Cook wave has every chance of beating the Sierra Wave, at least in gain of height.

As I slid further south I began to lose height a little, but I was always spurred on by the appearance of the lenticular, which looked better and better towards the south. By 13.50 I had reached the end of the wave about 55 miles south of Bishop and was down to 28,800 ft. After discussion with Bill on the radio, I decided to move back to the second wave, but on checking the lift in it at 23,000 ft. I found only ½ metre/sec., and with my feet foremost in my mind I decided to return to Bishop and land.

The airbrakes on a 1-23 are spring loaded to shut and it is far too tedious to hold them open on descent; however, by flying in the downdraught areas and doing high *g* spirals, I managed to dispose of 19,000 ft. in 25 minutes and was very glad to land at 14.35 after a total flying time of 5 hours 10 minutes.

Priority one was the problem of getting my feet back again. This was an even more painful process than losing them, but of much shorter duration. While this was going on, Bill came in to tell me that both barographs had stopped due to the cold. By an extreme of good fortune both had restarted for a short period on the descent (while passing through the turbulent layer) and had then stopped again. But for this, the high point on the master barograph would have been lost.

We also discovered that the oxygen mask exhaust pipe had been steadily filling with ice and had reduced its diameter to less than ¼ inch. I had noticed slight difficulty in exhaling but had not thought much of it. The solution to this is not immediately obvious.

Bill had decided to leave the 1-23 at Bishop for a while, so he tucked it away in the hangar while I got all the necessary

forms and declarations filled in and signed. After a quick tour round saying goodbye and a meal we were off back to San Diego.

And so back to work, with an unrepayable debt of gratitude outstanding to Bill Ivans for making all this possible and to many others who gave unstinting help. In particular there was Bob Symons, Al Langenheim the airport manager, and Lloyd and Rose Marie Licher, who spent a whole day helping find the towline after I had lost it on the power lines, and last but not least, Dr. Klemperer who went to immense trouble to get the barograph records calibrated and read.

# Tricks with the Tephigram : II

by C. E. Wallington

INSTABILITY is probably the key word in many a gambit of elementary glidermanship, so, for the benefit of beginners at least, it may be as well to demonstrate what aviators usually mean by a stable or unstable air mass.

Suppose the variation of temperature with height in an air mass is represented by the T-$\phi$ curve TPQRS in Fig. 1, and that a small parcel of the surface air is suddenly warmed to 51°F so that its temperature and pressure are indicated by point T′. Since the parcel is now warmer and therefore lighter than the surrounding air it will rise and, assuming it neither gains nor loses any of its heat, its representative dot will trace out the straight line T′Q. If the parcel continued to move adiabatically upward, say to Q′, it would become cooler and denser than the surrounding air and so fall back again to Q.

Now let us complicate the process by introducing water vapour. If D represents the dew point of the surface air, the ascending parcel would now become saturated at Q, after which its temperature would fall at the saturated adiabatic lapse rate, i.e. the dot would trace out the curve QXS. Again it would be warmer and lighter than its environment up to S, but any further rise would make it relatively cold and heavy. As saturation is maintained throughout the curve QXS, the rising parcel would form cloud from 860 mbs. (about 4,500 ft.) to 700 mbs. (about 10,000 ft.). Of course, many such parcels, or bubbles, are required to build up a fair-sized cumulus cloud.

It needs little imagination to see that the more the T-$\phi$ curve leans towards the left the greater the chance of relatively warm bubbles of surface air rising to form cumulus. Such a T-$\phi$ curve is said to be unstable, whilst an almost vertical curve, or in fact any curve which prevents convection, is usually termed stable. These descriptions are not strictly complete, since the realisation of potential instability depends not only on the slope of the curve but also upon the amount of surface heating and moisture available.

### Insolation

By far the most effective agency for warming surface air is insolation, or sun's heating. The effect is indirect in that most heat rays from the sun pass through the lower atmosphere without warming the air itself. Instead, they warm the earth, which

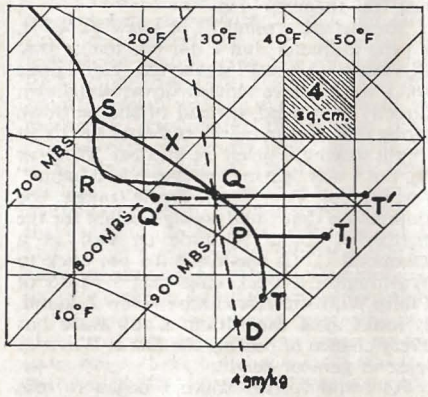



Fig. 1. Convection on the tephigram.

| Month / Time G.M.T. | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 08.00 | 0.0 | 0.1 | 0.4 | 1.2 | 2.4 | 2.8 | 2.4 | 1.6 | 1.2 | 0.4 | 0.1 | 0.0 |
| 10.00 | 0.4 | 1.0 | 1.8 | 2.8 | 4.0 | 4.8 | 4.0 | 3.2 | 2.0 | 1.6 | 0.8 | 0.4 |
| 12.00 | 1.2 | 1.5 | 3.2 | 4.8 | 6.0 | 7.2 | 6.0 | 4.8 | 3.6 | 2.8 | 1.6 | 1.2 |
| 14.00 | 1.6 | 2.8 | 4.4 | 6.0 | 7.2 | 8.0 | 7.2 | 6.0 | 4.8 | 3.6 | 2.8 | 1.6 |

**Fig. 2. The insolation table shows approximately how much effective heat energy is received in central England from the sun on a clear day. Values given are in terms of square centimetres on the Meteorological Office Tephigram (Form 2810). After about 14.00 G.M.T. heat radiation from the earth exceeds the incoming insolation so the surface temperature begins to fall.**

in turn emits heat rays on the long wavelengths more readily absorbed by air. Hence on a sunny day the surface air warms up before the air aloft. The rise in temperature is not uniform over a large area; there are variations due to the state of soil, type of country, topography and wind effects. Some very warm parcels of air rise and cool adiabatically; some cooler air descends to take the place of the rising air and warms adiabatically. Any wind, however light, adds to the general stirring up of the air close to the ground. A little reasoning on the lines already described indicates that all this vertical motion will eventually turn the lower part of the T-$\phi$ curve into a dry adiabatic. For example, an hour or two of sun's heating may change the curve TPQRS into curve $T_1$PQRS. After perhaps another hour or two, the surface temperature may be up to 51°F. and the curve would be T′QRS.

The usual problem is to determine whether in fact there will be enough effective insolation to attain the curve T′QRS so that cumulus forms; and if so, when?

This is a problem in which use of the tephigram has a special advantage, for the very nature of its design ensures that the energy involved in meteorological changes can be related to the corresponding areas indicated on the tephigram. Put into plain words this means that the amount of heat energy needed to change the T-$\phi$ curve from TPQRS to $T_1$PQRS is proportional to area $TPT_1T$; similarly area $T_1PQT'T_1$ is a measure of the heat required to effect the change from $T_1$PQRS to T′QRS.

Meteorologists have estimated approximately how much of the sun's heat is likely to warm the surface air and, although it is practically impossible to take all factors into account, the accompanying insolation table at least gives a guide to the heat available on clear days in central England in terms of areas on the tephigram. To illustrate the use of this table, let us suppose that the curve TPQRS prevails at dawn in May and we want to know when the surface temperature will reach 46°F. (at $T_1$). We would measure the area $TPT_1T$, which amounts to 2.4 sq. cm. Reference to the table shows that the required amount of heat will be received by 08.00 G.M.T. Further measurements would enable us to time the temperature rise to 51°F., which, in this example, is the minimum temperature necessary for the formation of cumulus. To speed up measurements of the necessary areas, some meteorologists use simple engraved transparent scales, but it may suffice to remember that on the Meteorological Office Tephigram (Form 2810) each approximate square* enclosed by the dry adiabatics and thickened isotherms at low levels covers about 4 sq. cms. (See Fig. 1).

It must be remembered that the insolation table gives the effective heat received only when the sky is completely clear. Reductions due to cloud cover cannot be accurately computed; they are usually made in the light of experience, but the usual working rule is to assume that only a quarter of the sun's heating gets through an 8/8 cover of stratocumulus or altostratus. Reductions also have to be made when snow covers the ground, but again the exact amount is uncertain; all that can be said is that up to 80% of insolation may be wasted by reflection from the snow surface.

### Showers and Thunderstorms

The idea of energy being related to area on the tephigram can be extended to include the mechanics of cumulus formation. In our example of cumulus formation the energy liberated by the process is proportional to area QRSXQ (Fig. 1). The precise disposal of this energy is not yet clear but it seems fairly safe to assume that the larger the area the more vigorous the associated vertical air currents are likely to be.

Observation also indicates that cloud amount bears some relationship to the area. This is illustrated by the cumulus likely to

* Usually called a "Gold" square after the pioneer of the method described.

be associated with the four types of unstable T-$\phi$ curves depicted in Fig. 3.

The next problem is to determine whether or not convection will be sufficient to produce showers or even thunderstorms. Once again we must admit that the processes involved are not completely known, but a very useful and fairly reliable criterion for showers is that, in temperate latitudes, they are likely only if the cumulus extends above the freezing level (32°F.). The thunderstorm criterion is rather vague, but if the cumulus has a depth of at least 10,000 ft. and the area proportional to the liberated energy is large, then thunderstorms would be predicted. Naturally, precipitation is likely to be in the form of snow or hail if the freezing level itself is very low.

### Ifs and Buts

Aggravating though they may be, the qualifications, approximations and confessions mentioned in the preceding paragraphs reveal some of the practical and theoretical limitations in cumulus prediction. Even if the theory outlined were absolutely valid, correct predictions would depend on the right choice of T-$\phi$ curve and dew point.

Selection of the appropriate T-$\phi$ curve depends mainly on timing changes of air mass characteristics and guessing the effect of subsidence or ascent of air over hills. The dew point was assumed constant during surface heating in our example, but usually it rises somewhat as moisture evaporates from the ground into the air.

It must also be confessed that the ascent of bubbles of air to form cumulus is not strictly adiabatic. In practice the rising air mixes with its surroundings so that its temperature is seldom more than 3 or 4°F. higher than that of the environment.

There are more "ifs", but nevertheless the method outlined can be extremely useful when coupled with experience. Used intelligently, it can often yield accurate forecasts; and even in failures it does at least promote a better appreciation of the problems involved.

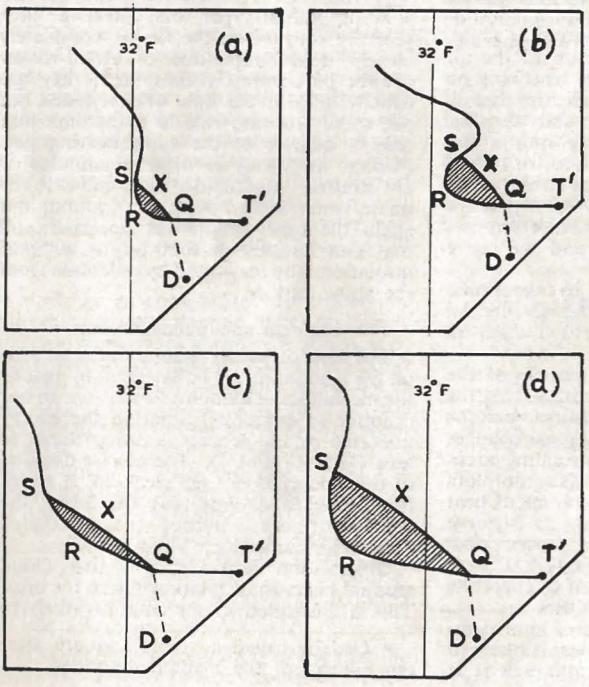



**Fig. 3. Cumulus likely to be associated with some T-$\phi$ curves provided the air mass is neither excessively moist or extremely dry. In a very moist air mass the amount of cloud would probably be large in all four cases, while an extremely dry air stream would limit the growth and persistence of cumulus.**

- **(a) Small amount of fair-weather cumulus. No showers.**
- **(b) Large amount of small cumulus. No showers.**
- **(c) Small amount of large cumulus. Isolated showers.**
- **(d) Much large cumulus or cumulo-nimbus. Frequent showers and risk of thunderstorms.**

# Reviews

**Come Gliding with me**: by ANN C. WELCH. Published by Frederick Muller, Ltd., London, 1955. Price 9s. 6d.

ANN Welch was set a goal task: to write a book for the twelve to sixteen-year-old age-bracket. She has completed it impeccably with a landing on the spot.

The book is much helped by her descriptive powers, which enable her to picture imaginary flights in a most graphic way, guaranteed to communicate her own enthusiasm to her reader.

I admire tremendously the sheer efficiency of the job: she has done exactly what she set out to do, competently, easily and apparently effortlessly. Here is a born instructor who knows that the basic requirement of competent instruction is to assess certain features of the character of the pupil. She has been asked to write a book for a certain type of person, and as you read the book you come to see the pupil she has in her mind as a real human being.

P.A.W.

**Deutsche Segelflugzeuge**: by HUBERT ZUERL. Published by Aero-Verlag, München 15, Hermann-Lingg-Strasse 9; 1954. Price DM.5.

This useful booklet, by the editor-owner of the monthly journal *Aero*, contains general arrangement drawings, short descriptions, data (including permissible speeds), and sometimes photographs, of 43 German glider and sailplane types, either new or, if not, with latest modifications. Most of the vocabulary is so restricted that anyone with a smattering of German should soon pick it up.

We cannot, of course, refer to the whole 43, but here are some points of interest:— The SG-38 Primary is credited with a gliding angle of 1 in 10 and sink of 1½ metres per sec. The latest form of H-17 has a span of 40 ft. The Olympia-51 is not passed for aerobatics or blind flight. The Vogt LO-150, with a span of 15 metres, has an aspect ratio of 20.6. The HKS-1 is, of course, included, as are also two tailless types, the Horten-15c, by Reimar Horten ("at present" in Argentina), and the HO-33 by Walter Horten, of Bonn.

Many of the machines may be entirely built by amateurs; in some, structures like the main spar and root fittings must be obtained from a manufacturer; and a few, such as the Zugvogel, may not be built by others at all.

A.E.S.

**Elementary Gliding**: A Manual for Pupil Glider Pilots. By PAUL BLANCHARD, M.A.; with a foreword by Philip A. Wills, C.B.E. Published by Thermal Equipment Ltd., 17 Hanover Square, London, W.1., 1955. Price 5s.

Paul Blanchard has been chief instructor at both the Cambridge University and Surrey Gliding Clubs, where most of the text of this book has been in circulation in duplicated form. Now that it has been printed as a booklet, it should get the increased circulation it deserves.

The first section describes the glider, how it flies, and preparations for take-off; the second is all about flying it—at least in the pre-soaring stage. There are appendices on Instruments, Thermals and Gusts, Lift and Drag, and on how to use the Polar Curve to find best gliding speed between thermals, or for crossing downcurrents, or for longest gliding descent in a given wind.

Many drawings of two completely contrasting sorts, informative by A. R. I. Austin, and enlivening by Pat Sullivan, contribute to making this the gliding pupil's indispensable compendium.

A.E.S.

## NEW C. OF A. REGULATIONS

IT is expected that the Ministry of Transport and Civil Aviation will shortly amend the necessary paragraphs of the Air Navigation Order to the effect that in future gliders flying in the United Kingdom will not have to possess an Air Registration Board Certificate of Airworthiness. While increasing the load on the B.G.A., this change should be welcome to all. A.R.B. Certificates of Airworthiness will still be available to those who want to get them.

# Second Tactical Air Force Gliding Competitions, 1954

by Flight Lieut. V. Willis

THE seventh annual competition of the Association of 2nd T.A.F. Gliding Clubs was held at Scharfoldendorf from May 21st to June 1st, 1954. Compared with the last competitions we were much more fortunate with the weather, and there were only three non-flying days.

Amongst the ten clubs which entered, we were very pleased to welcome members of the Belgian Military Gliding Club in Germany. This is the first time that an "outside" club has come along, and we look forward to seeing both them and other N.A.T.O. friends in the future. Altogether there were 41 competitors and their 21 aircraft were, as usual, entered in three classes: Class A was unlimited, Class B for all types other than Weihes or Rhonsperbers, and Class C limited to Grunaus, flown by pilots with less than 50 hours' gliding experience and who were not qualified power pilots. Most aircraft had two pilots, flying on alternate days.

The scoring system was quite straightforward. Each pilot gained one point per kilometre flown (providing he had exceeded the qualifying minimum) plus one point per 100 metres gain of height. For goal flights the points gained were 1¼ per km. if the goal was reached; one point per km. to the goal only, if it was overflown; and points based on kilometres actually covered and the proportion of the total distance to the goal, if it was not reached. The total points were scaled up so that the winner of each class each day scored 1,000 points.

**Friday, May 21st**: PRACTICE DAY.—Those who had not been to Scharfoldendorf before were taken up in the Kranich, and teams flew as they pleased. Unfortunately the Oldenburg Meise damaged a wingtip in the valley, and Wahn's Mü-17 was flown into the hillside and written off (the pilot was only shaken). Hameln generously replaced it with their Weihe.

**Saturday, May 22nd**: FREE DISTANCE.—Alto-stratus quickly spread over and cut off cumulus development; the resulting thin stratus broke up slowly in mid-afternoon. Only two people got away—Cpl. Prowse (Grunau) not far enough to qualify; but Fg. Off. Phil Fabesch (Meise) went 34 km. downwind to Pattensen, scoring an uncontested 1,000 points.

**Sunday, May 23rd**: FREE DISTANCE.—The qualifying distance for C Class competitors was lowered to 15 km. Weather was similar to the previous day's, and most of those who got away did so around lunchtime, north-east. Mr. Ian Gray and Flt. Lt. Scott, however, left a little later and were the only two to strike west with a wind change from S.W. to N.E. Mr. Gray's 71 km. to Bielefeld was the best distance of four Weihes. In the B class six got away but only three qualified: Fg. Off. Salmond went 34 km. N.E. to the police station at Sarstedt, but Sgt. Minter gained more height on his 32 km. trip to the Burgomeister's field at Koenigsdahlen, so they tied, winning 1,000 points each, and Cpl. Prowse (Grunau), whose private pilot's licence kept him out of the C Class, went 31 km. Fg. Off. Tim Jurdon (20 km.) was the only other Grunau pilot to qualify.

**Monday, May 24th.**—A non-competition day with the site in warm-sector cloud till the afternoon, when a clearance allowed club flying.

**Tuesday, May 25th**: FREE GOAL FLIGHT.—Many ambitious goals were declared, followed throughout the day by numerous and more realistic amendments as people found difficulty in reaching the distant cumulus by way of the small and very narrow dry thermals over Scharfoldendorf.

Five reached their goals. In the A class Cpl. Cowburn struck N.N.W. to Verden (110 km.) but was outpointed on height by Fg. Off. Sharman who went 109 km. N.E. to Fassberg—only the second cross-country he had ever done. He reached Fassberg at 5,000 feet, his maximum height, with 5 m/sec. "up" on the clock. Forgetting all about height points, he left it: those three cups of tea at breakfast meant he just had to land. Three more Weihes did not reach their goals.

In the B Class Fg. Off. Fabesch won his class for the second time by flying 78 km. upwind (S.W., 5-10 kts)—the only one to do so—to his goal at Wolfhagen, W. of Kassel, taking advantage of the orographic effects of the very hilly country on track. Cpl. Prowse made his goal at Lehrte, near Hanover, after recovering from an apparently hopeless position 200 feet over a small village, way down at the foot of our 800-ft. ridge. Lt. Mike Barwell (Meise) went 60 km., not quite making his goal at Celle.

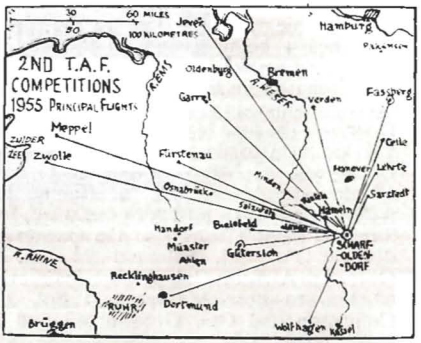
In the C Class Capt. Ruling nominated a village pub (40 km.) as his goal, and landed within 15 yards of it! Near the end of the day Brüggen snatched a crafty 87 points by lobbing Sgt. Blundell in desperation over the edge to a goal 7 kilometres away, which he just failed to make in a straight glide.

**Wednesday, May 26th**: FREE DISTANCE.—It was bright all the day with the wind S.E., 5-10 knots, but altostratus and altocumulus were in evidence early on. Only five people got away, mostly from straight off the launch. In one of the two Weihes Mr. Ian Gray went 212 km. to Jever, winning his class for the second time. Sgt. Simpson and Cpl. Prowse took their Meise and Grunau 40 and 31 km. the same way. Fg. Off. Jurdon won the C Class for the second time with an unopposed 22 km. trip just past the end of the ridge.

**Thursday, May 27th**: FREE DISTANCE.—A height and endurance test in a very light wind was changed to Free Distance as a 15-20 knot easterly wind sprang up. This involved soaring the tricky east ridge, and some clubs at first declared they would not compete in case their aircraft were damaged.

As the Fassberg and H.Q. Clubs' Weihes were slightly damaged, they flew their Grunaus in the A Class. Fassberg failed to qualify, but Cpl. Cowburn took his Grunau 61 km. N.W. to Minden on the best flight of the day. Fg. Off. Dave Brett took a Weihe 42 km. the same way to near Rinteln, and seeing Gütersloh's Weihe passing fairly low overhead, waved it in to land. Fg. Off. Jock Young obligingly did so in the same field, but as he had three fewer height points than Brett, paid for his gullibility.

Cpl. Prowse won the B Class with 53 km. to near Rinteln, and Fg. Off. Derek Ellis went 47 km. to the same district, causing some excitement by approaching beside a large hospital block to land on their soccer




pitch. He was soon surrounded by cripples! Four other B machines went away.

Lt. Peter Lucas won the Grunau class with 23 km. to near Hameln.

**Friday, May 28th**: FREE DISTANCE.—This proved to be our best flying day. The east-ridge wind was stronger than on Thursday, with scattered cloud streets. Clouds were small, only about 500 feet thick, with bases generally around 5,500 ft. Dry thermals abounded.

Two Weihes reached Holland, landing just east of the Zuyder Zee. Cpl. John Currie (Gütersloh) flew 251 km. in 4½ hours to Zwolle, reaching his maximum height of 1,800 metres over Gütersloh. Fg. Off. Jenkins landed in a potato field after 5¼ hours, having in fact carried out all three Silver C tests in the one flight, and climbing to 6,400 feet. On one 45 km. stage between Bielefeld and Osnabruck he was flying along one cloud street at 120 km., and had a net gain of 1,000 feet! The farmer was making elaborate calculation of alleged damage when he discovered Jenkins's nationality. At once it was found that, far from harming the Kartoffels, he had actually improved them! The Brüggen retrieving team under Fg. Off. Dickie Duke, who had set out shortly after the 10.57 a.m. launch, did a magnificent job in having the Weihe rigged ready to take its launch the next morning.

Sgt. George Hutt took his Weihe 172 km. to Recklinghausen (N. Ruhr) and for the last 50 km. had to rely on thermals generated by factory chimneys, never being at more than 500 metres. Ian Gray had boldly declared a goal at Rotterdam, but was forced down after 93 km. near Bielefeld.

Sgt. Rex Minter won the B Class for the second time with 150 km. to Dortmund after nearly being gassed on the way by nauseating smoke from a chemical works. Unfortunately his trailer tow-bar broke and his Meise missed the next day's flying. Cpl. Durr won the final leg of his Silver C on his 141 km. trip to near Fürstenau, N.W. of Osnabrück. Cpl. Prowse took his Grunau 122 km. to Ahlen, N.E. of Hamm, but unfortunately hit a post with one wing; Sgt. Simpson went 110 km. to the Osnabrück district; Fg. Off. Salmond 92 km. to Gütersloh Airfield; Cpl. Fitches (Minimoa) 69 km. to near Minden and Sgt. Bill Cumpston and Cpl. Greenall 42 and 34 kms. respectively to near Lemgo and Hameln.

No C Class aircraft got away at all—Sgt. Major Rikki Richard in the Belgian Grunau 3 had to land in a small clearing on the end of the ridge, where his wheel caught in a rut and the aircraft tipped over 135 degrees.



**A member of the winning Brüggen team, the late Flying Officer J. E. A. Jenkins.**

**Saturday, May 28th**: FIXED GOAL FOR A AND B; FREE DISTANCE FOR CLASS C.—A very unstable north-easterly airstream, 5-10 knots, with marked cloud streets. Class A had to reach Handorf (133 km.) near Münster, and class B Gütersloh Airfield (92 km.) Grunaus were free to wander where they willed. No one in fact reached their goal because of a very humid trough lying N.N.W. across Bielefeld.

Cpl. Cowburn won the Weihe class for the second time by reaching the B Class goal, Gütersloh; Fg. Off. Brett went 83 km. to beyond Bielefeld, missing his Gold C height by 300 metres, and Fg. Off. Sharman went 77 km. to just short of Gütersloh.

Fg. Off. Fabesch won his class for the third day by going 81 km. It is worth noting that both he and Brett were no more than half a kilometre off track after prolonged cloud-flying and despite extremely poor visibility in the latter stages. Fg. Off. John Ellis made a navigational error, landing well north of track near Salzuflen (61 km.). Fg. Off. Allsop fell out of cloud to find the straggling base enveloping thickly-wooded hilltops, so hastily landed in a convenient clearing. Two other Meises and a Minimoa fell short.

Capt. Ruhling won his class for the second time with a brilliant flight in his Grunau 3. After landing in the valley and being retrieved and re-launched, he had struck west and was losing height steadily when he recognised the approach of a line squall; he reached it at 200 feet near Bad Pyrmont and then rode it to Garrel (155 km.), near Oldenburg, in well under two hours. The local fire brigade de-rigged his machine and locked it in their garage. The next best trip was Fg. Off. Arkell's 49 km. to near Rinteln. Four other Grunaus also landed away. Gütersloh's Weihe was not back from Holland, its Minimoa had rudder cable trouble, and its Grunau wing was not yet repaired.

**May 30th and 31st** were non-competition days. On Sunday a warm sector plunged the site in cloud, Monday afternoon permitted a short period of club flying.

**Tuesday, June 1st**: FIXED GOAL.—With a 5-10 knot north-easterly wind, the task was a 55-km. flight to Bückeburg Airfield for all classes, with extra points for speed. But the cumulus build-up was choked by medium cloud, so flying was abandoned at lunch-time as no-one seemed likely to get away.

On Wednesday, June 2nd, Mrs. W. G. Cheshire, wife of the A.O.A. 2nd T.A.F., presented the prizes. These included the challenge shield, won by Brüggen, inscribed tankards for the winning team and for the winner and runner-up in each class, two special awards; to Capt. Ruhling for the most outstanding single flight in his 155 km. trip in the Grunau 3 and Cpl. Prowse for his

consistently good performances in class B, where he was competing with a Grunau against Meises and Minimoas.

Team placings, with total points, were:—

Brüggen, 9,238; Headquarters, 8,069; Gütersloh, 7,255; Fassberg, 4,255; Hameln, 3,724; Belgian Military, 2,581; Geilenkirchen, 2,137; Wahn, 1,271; Oldenburg, 1,053; Sylt, 364.

First and second prizewinners in each class, with their *average* points on the days on which they flew, were:—

Class A: Cpl. M. Cowburn (H.Q.), 748; Mr. I. Gray (H.Q.), 598.

Class B: Fg. Off. J. P. Fabesch (Brüggen), 718; Sgt. R. A. Minter (Hameln), 667.

Class C: Capt. A. E. Ruhling (Belgium), 516; Fg. Off. N. J. S. Jurdon (H.Q.), 500.

Two lessons have been vividly brought home. The first is the absolute necessity for having a really efficient retrieving organisation, especially for long-distance trips when the only answer is to set out soon after the aircraft, and phone back for news at intervals. The second is that the Weihe falls down badly when, as happened, narrow dry thermals prevail. It just cannot turn tightly enough and one class at least wished it had brought a Rhönsperber instead. It is interesting to see that on the 27th two Grunaus led the field, and on the 28th one was sixth—two days when there were just those conditions.

As might have been expected, when returning to base on Friday, June 4th, there was a spanking easterly blowing and "Gold C" cloud streets everywhere as far as you could see. The best day of the competitions!

# Correspondence

## STATISTICS

Sir,

Now that the New Year has well and truly begun, we realise with horror that the Season of Statistics is upon us. At the moment of writing, no doubt, the Chairman of the Accident Analysis Committee is taking years off the life of his slide rule in an attempt to prove that glucose tablets reduce the incidence of take-off accidents. In the B.G.A. office, that complex electronic computer ANN (Automatic Numerical Navigator) is hard at work digesting the tasteless mass of data furnished, by dint of much research and imagination, in reply to the Annual Questionnaire to Clubs. Slowly, surely, the information emerges which enables us to see whether We Did Better Than They Did. Or does it?

Before the vital data burst on an unsuspecting world, more "processing" takes place. In the palatial offices of GLIDING, another vast electronic machine DOC (Digital Oracular Computer) reduces the information to the size of half a page of GLIDING. And what happens? Let us take a hypothetical example.

The Oxbridge University Gliding Club is (let us assume) an enterprising Club. Not content with sitting at its home site, hemmed in on the one side by Chipmunks, Vampires and the like, and on the other by The Other Gliding Organisation, it roams far afield; sometimes new and curious sites are explored, sometimes a well-enjoyed fortnight is spent at the Long Bynd, the headquarters of the Mudland Gliding Club. Picture then the horror when the members of the Oxbridge Club read in last Spring's GLIDING—"Launches on site, 137". No mention of those hard-earned launches when the Olympia was carried up the hill in bits to the bungy point, taking four hours; not a fraction of a statistic to recall the adventure in Snowdonia when the Jeep petrol-feed blocked just before nightfall; no credit at all for the pioneers. Even the flying at the Bynd, after a week waiting for the clamp to clear, only appears lumped in with the Mudland Club's total!

Now, Mr. Editor, I have a boon to crave. Let your published statistics give a guide to the true activity of the *Club*. Let the launches and hours quoted be those flown by Club aircraft; let us see the number of Silver C's.

I await with trepidation your Spring issue, no doubt with the little note "Pressure of space makes it impossible to quote fuller statistics, etc." Then, crying in the wilderness, you will hear the voice of

K. E. MACHIN.

# Gliding Certificates

## Silver C

| *No.* | *Name* | *Date of completion* |
|---|---|---|
| 476 | E. J. Meddings | 5.9.54 |

## C Certificates

**October, 1954**

| | | |
|---|---|---|
| 18859 | F. Scott | H.Q. 2nd T.A.F. |
| 18862 | H. B. Chubb | London G.C. |
| 18887 | W. J. Simpson | Surrey G.C. |
| 18916 | E. Wright | Derby & Lancs. |
| 18975 | B. G. Dodd | No. 48 G.S. |
| 18979 | M. G. Foley | Perak F. C. |
| 694 | A. P. Goodfellow | London G.C. |
| 10501 | T. H. Sheppard | H.Q. 2nd T.A.F. |
| 11651 | M. F. Balchin | RAF Oldenburg |
| 11853 | E. H. Leggett | London G.C. |
| 13344 | R. M. I. Dare | No. 84 G.S. |
| 14305 | D. E. Lynch | No. 68 G.S. |
| 15000 | R. B. Newton | Surrey G.C. |
| 16322 | A. T. Crawford | Newcastle G.C. |
| 17060 | A. A. A. Wells | No. 80 G.S. |
| 17422 | P. Pozerskis | London G.C. |
| 17752 | R. J. Carter | Oxford G.C. |
| 17802 | J. E. Houghton | Bristol G.C. |
| 18046 | E. B. Noxon | No. 80 G.S. |
| 18134 | J. A. Drake | London G.C. |
| 18274 | I. R. Carter | RAF St. Athan |
| 18275 | J. Edwards | RAF St. Athan |
| 18415 | N. A. W. Haran | Midland G.C. |

**November, 1954**

| | | |
|---|---|---|
| 18998 | D. G. Kuyper | London G.C. |
| 19016 | P. W. Williams | RAF Oldenburg |
| 19026 | A. R. Jones | Midland G.C. |
| 19057 | D. O. Jones | London G.C. |
| 19075 | R. H. Gentry | London G.C. |
| 19076 | F. D. G. Gentry | London G.C. |
| 13094 | R. Way | RAF Brüggen |
| 15631 | R. Haddock | No. 87 G.S. |
| 16655 | D. S. Rennison | Yorkshire G.C. |
| 16943 | W. Parker | Avro G.C. |
| 17357 | F. M. Rigby | HCGIS Detling |
| 17432 | J. V. Ilott | Avro G. C. |
| 17572 | J. A. Abbott | RAF Brüggen |
| 18136 | D. G. N. Hunter | London G.C. |
| 18140 | R. H. H. Kemp | London G.C. |
| 18243 | J. K. Kidd | Oxford G. C. |
| 18636 | P. C. Walsh | Coventry G. C. |
| 18907 | A. F. Walker | London G.C. |

**December, 1954**

| | | |
|---|---|---|
| 19112 | E. T. Ware | RAF Feltwell |
| 19113 | Sheila A. Wagstaff | Perak F.C. |
| 19117 | J. W. Thornhill | Derby & Lancs. |
| 19139 | G. M. Lewis | Derby & Lancs. |
| 19143 | B. B. Rea | No. 5 G.S. |
| 19164 | T. M. C. Francis | Derby & Lancs. |
| 15312 | K. J. Willis | Oxford G.C. |
| 16113 | J. B. Shaw | No. 23 G.S. |
| 17346 | D. L. Smith | RAF Fassberg |

**January, 1955**

| | | |
|---|---|---|
| 19216 | R. A. Keyse | Midland G.C. |
| 19229 | P. S. Boston | London G.C. |
| 19242 | D. Winter | London G.C. |
| 16583 | D. B. R. Harris | No. 24 G.S. |
| 16465 | A. R. I. Cruickshank | No. 2 G.S. |
| 7332 | J. P. Fabesch | RAF Brüggen |
| 17355 | F. O. C. Hardy | HCGIS Detling |
| 17551 | J. W. J. Brotherston | No. 2 G.S. |
| 18158 | M. A. J. Brett | Southdown G.C. |

# Air Training Corps

FIGURES for 1954 are: 99,575 launches, 7,497 hours; Cadet certificates: 1,549 B, 37 C; total, 1,512.

We are quite satisfied with these results, which would have been much better but for the wet summer. The C Certificates are disappointing, but three soaring courses were ruined by weather. We increased our launches 2 per cent over last year, and our total B Certificates increased by 7 per cent. We consider this our best year since the change-over to two-seater training, and the average launches per B and C work out at 51. This is about the same as last year.

Several schools did very well. No. 31 G.S., Usworth, trained the most cadets—78. No. 89 G.S., Christchurch, trained 75, and Nos. 125, Langley, 143, Kenley, 104, Martlesham Heath and 22, Kirton Lindsey, all trained more than 60 each. The Home Command Gliding Instructors' School carried out 7,427 launches and 600 gliding hours, and trained 250 instructors and cadets on continuous courses.

R. H. S. BUTT,
*Squadron Leader.*

# Clubs and Associations

## Surrey, Army and Imperial College Gliding Clubs

ALTHOUGH last year did not seem to be a particularly outstanding one at Lasham, all but one of the trips that won National Awards started from there, and it is also pleasant to report that we exceeded our target for the year of 15,000 launches by a margin of 457. Of this total, 532 were aero-tows by the Club Tiger Moth, the rest being car tows and winch launches in the proportion of approximately 3 : 1. The Club did also successfully manage a few bungy launches during the year, but they were mostly at Inkpen over Easter.

The bungy has already been used this year, as on Sunday, February 13th, Daisy (T-21) and PedrO (Olympia) were aero-towed to Harting (just south of Petersfield) and landings and launches were possible on and from the top. At the end of the day's flying, Daisy was derigged and went home by road and PedrO was taken home by the Tiger. Other recent visits have included the usual Boxing Day one to Southdown and an expedition on Guy Fawkes weekend to Dunstable with Rudolph and RedO; unfortunately the weather couldn't have been more unhelpful, but everyone thoroughly enjoyed the outing. The Druid (Kite I) and its owners also came along.

Congratulations go to our C.F.I., Derek Piggott, on the Commendation he received in the New Year's Honours.

**Soaring Scheme.**—Derek has recently instituted a soaring scheme for the summer (full details appear in the March Lasham Newsletter). Fundamentally the main idea is that at weekends between 11 o'clock and 4 there will be no ab-initio training on the two-seaters, but they will be used to give soaring instruction to pilots who have gone solo but have not amassed a total of 1½ hours soaring. The sailplanes will, during the same period, only be flown by people who have done more than an hour and a half's soaring.

Another innovation, which actually started last summer, is that in future no-one will have his C certificate form signed until he can D.I. an Olympia and drive winches.

**National Contests.**—With the granting of the necessary permission by the Air Ministry, plans are well under way for the running of the Nationals, which are being held this year at Lasham during the last week in July and including Bank Holiday Monday. It is understood that all launching will be by aero-tow, and the number of entries may well be fixed by the number of tugs we can borrow or hire. So if anyone knows of any tug lurking in the back of a hangar, please let us know.

We are about half way through our C's of A. (this is written in February) and Rudolph has just emerged from the workshops looking brand new. The credit for this goes to Warren Storey, our ground engineer, who, although we don't see much of him at weekends, obviously works like a black during the week. The Silver Winch has been fitted with an automatic pay-on by John Jefferys and the second tow car is now back in service in tip top condition, thanks to our friends at Bordon. By the time these notes are published the two-drum winch should also be in operation. This coming summer it will be all the more necessary to keep this equipment serviceable, as we hope to run week courses during the whole of the summer, if we can get sufficient instructors for this, either from the Club or from outside

On the Social side, the Christmas party was a roaring success and included one or two dramatic sketches. The next weekend we welcomed to Lasham Mr. and Mrs. Rawlinson, who are our resident caterers, together with their son and daughter, Stuart and Leslie. Anyone who has been to the Club since Christmas can tell you of the great improvement in the food and general comfort, and we hope they will stay with us a long time. The Clubhouse itself is still being altered under the direction of Bunny Austin and Bill Gotch, and the blankets are now kept in a heated store (which will shake some of the elder members). We have had various entertainments on Saturday evenings and are grateful to Lawrence Wright and John Furlong for coming down and showing their films and slides and to Doc. Slater for playing the necessary musical accompaniment.

H.T.

## Royal Air Force Gliding and Soaring Association

### Biggin Hill Gliding Club

THERE have been various proposals to start a gliding club at Biggin Hill during the last two years, but until recently all attempts failed owing to lack of funds. This obstacle was removed towards the end of last year when the R.A.F. Gliding and Soaring Association made an initial grant to enable us to purchase four Mark 1 Kirby Cadets which it had for disposal.

Enthusiasm outran experience at this stage for there was no-one on the station with very much gliding experience, much less an instructor category. A club was nevertheless formed and members set to work servicing the aircraft. The departure of four of our most experienced pilots in rapid succession caused some delay, but the last of these, our Met. Officer, succeeded in almost completing the preparatory work before he left.

The first day's flying, on February 9th, was remarkably successful and augurs well for the future of the club. Our next aim is to acquire a training aircraft so that we can cater for our many members who have no previous gliding experience. We would welcome visits by experienced pilots from other clubs and we would like to see the soaring possibilities of the site thoroughly explored by high-performance machines. Unfortunately we are only able to fly mid-week, on Tuesdays and Wednesdays.

In conclusion, we are indebted to No. 143 (A.T.C.) Gliding School, Kenley, the A.T.C. Instructors' School, Detling, the R.A.F. Gliding and Soaring Association, and members of the London and Southdown clubs for the considerable advice and assistance which they have given us.

### St. Athan Gliding and Soaring Club

This Club was formed just over two years ago for the purpose of providing a means whereby the ground staff of the Station, so wishing, could fly at a reasonable cost to themselves.

To ensure that the club developed along the right lines, i.e. to cater for the many and not luxury-flying for the few, it is ruled that soaring is limited, and this only to the members of the operating staff, as some form of appreciation for voluntary services rendered. Cross-country flights are not permitted, and to act as a deterrent to the urge to keep going when conditions are favourable it is ruled that the individual making the flight would pay all retrieving costs; and as the club has no suitable equipment for this purpose, the cost could mount up to a very considerable amount in cash. Up to Press only one landing has been made away from base—more by accident than design.

The site used, which is the airfield, is ideal, plenty of space with good approaches and in the summer months, conditions are often favourable for soaring.

The club is well supported; in fact, during the good weather the enthusiasm is overwhelming.

Total of launches during the past 12 months was 2,308, and 27 airmen and one airwoman obtained B certificates and five airmen C certificates.

Launching is done mostly by an ex-balloon winch with occasional auto-tows, and the club owns the following equipment: Slingsby T-31 tandem two-seater (purchased new), Tutor, and Slingsby Kite Mk. 1.

### Middleton St. George

Activities of the R.A.F.G.S.A. Club situated at this unit have been rather limited over the past year, largely due to our lack of a qualified instructor during the summer months. However, we have been able to complete 49 hours and 770 launches since January, 1954.

Our fleet comprises one T-21b, two standard Grunau IIa's and two Cadet I's; one of the Grunaus is being rebuilt. At a recent committee meeting it was ruled that flying should cease until our equipment is brought up to the high standard required for efficient operation.

## Dublin Gliding Club

OUR last appearance in GLIDING was as far back as Autumn, 1952. Our lapse rates censure.

We were then flying only a Cadet, an all-purpose machine doing everything from ground-slides to circuits, and its write-off in January, 1954, left us without a trainer for some months. By the time a replacement was in the air, two sailplanes, with trailers, had appeared—a Club Grunau and a

syndicate Petrel, which were joined shortly afterwards by another syndicate machine, a Kite II. Taking account of three R.A.F. Cadets acquired last summer, we can therefore muster a fleet of six aircraft, of which four—the sailplanes and a trainer—have been flying regularly over the past year. Launches totalled 1,200.

It was our first year of full-scale operation and our activities were largely experimental. Since Weston Aerodrome, a privately owned field used also by a Flying Club, proved rather small for auto-tow (average launch about 700 feet) we applied successfully for the use of Baldonnel, the Air Corps field, where launches jumped to 1,500 feet. Construction of concrete runways, however, forced us to leave early in the summer, and we went to the Curragh 30 miles away in Kildare. There, with the aid of 2,300 feet of piano wire, we achieved maximum launches of 1,800 feet (Kite and Petrel) and 2,000 feet (Grunau). It was with more than passing interest, therefore, that we read the Deane Drummond-Dorman article on auto-tow in the Winter issue of GLIDING.

After leaving the Curragh we took the Grunau to a promising ridge at Kilbride, where John Byrne postponed the normal relationship between himself and gravity for half an hour. Take-off and landing facilities, however, were rather rudimentary, and before we experiment further we shall have to organise a bulldozer.

Aero-tow at Weston came next. Rather than haul a somewhat travel-weary trailer to the Curragh to bring back their machine, the Kite syndicate arranged for a Tiger Moth to do the job. Everything went smoothly and the Kite, Fred Heinzl up, duly appeared at 5,000 feet over Weston. Then cloud closed in and Fred spent most of an hour looking for a hole to drop through. When he finally found one and landed, he was exactly the same distance from Weston as he had been on the Curragh! So the trailer had to be brought out after all.

Other events during the year included the completion of a 16 x 36 ft. Nissen hangar; a trip to the Gliding School at Huesca, Spain, by four of our members at the invitation of the Spanish Government; a thermal flight of 70 minutes in the Petrel; the marriage of C.F.I. Ken Mellor; and an electric shock from the release knob of the Kite!

O'B.

## Nairobi Gliding Club

THE first successful launches in Kenya were made by the Nairobi Gliding Club on February 6th, 1955. Dick Kuyper, who got his C certificate at Dunstable last year, flew one of the two Kirby Cadets, just imported from the United Kingdom, on two low hops and a few circuits.

The Director of Civil Aviation kindly gave permission to use Nairobi West Airport during a slack spell, for auto-towing.

The Club has the use of a site adjacent to the airport suitable for winch launching. The winch is under construction and should be ready in three weeks' time. A Slingsby T-21b, bought in kit form, is also nearing completion and 'ab-initio' training is expected to start in earnest in April.

D.G.K.

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Slingsby T-31. Bought new April 1953, approx. 1,100 launches. Two sets instruments, 1 year's C. of A. Reason for sale standardisation on T-21 b's. Price £435 or near offer. Also Tutor, approx. 3,100 launches, carefully maintained £120. Apply The Secretary, Surrey Gliding Club, Lasham Aerodrome, Nr. Alton, Hants.

OLYMPIA I, very good condition, complete with basic flying instruments, large handling wheels, droppable launching wheels, plywood surfaces covered madapolam, well fitted trailer. £575. Apply Laurie, Roselands, Wrecclesham, Farnham, Surrey.

Motor Tutor (ultra-light) C. of A. till August. Would consider exchange for sailplane. Enquiries: J. G. Wright, 33 Beacon Avenue, Cleethorpes, Lincs.

## London Gliding Club

DURING 1954 1,882 hours 43 minutes flying was done from 7,651 launches. Members gained 36 A, 33 B and 34 C certificates and fulfilled 4 distance and 7 duration legs for Silver C. Aggregate cross-country distance was 1,083 miles in 25 flights.

A party from Surrey Club came over for Guy Fawkes celebrations on November 6th, bringing 3 sailplanes, but the weather refused to play up. One, a private Kirby Kite, stayed on till February to enable its owners to do their 5 hours for Silver C.

Waves in west winds were found on December 12th and again on December 18th, when John Furlong took up the Sky for the first wave flight of his life (afterwards proceeding to Derbyshire to make the second). He got up over 3,000 ft. and looked down upon a stratocumulus layer which, curiously enough, showed no waves on its surface. That night there was a party and dance to which a contingent again came from Lasham.

First good soaring day of 1955 was February 6th, when everybody soared who could, and three pilots actually found thermals and reached 3,000 feet; total flying for the day was about 40 hours.

The annual dinner on February 5th was held at the Sugar Loaf Hotel in Dunstable and followed by a dance in the clubhouse.

A programme of tidying up and improving the club buildings is getting under way. The two huts on the north side are to go, making room for the Tiger Moth to come round to the side entrance, which will be reopened by removing the bricks put there to keep war prisoners in. The brick "Ottley building" on the south-east side will be renovated to hold private owners' machines and serve as their workshop; there will be a sliding door in the east wall. A new building along the south wall of the hangar, 18 by 60 ft., is to be put up to house winches and transport. All this will allow the two huts on the south side to be turned into a "married quarter." These changes do not represent the full ambitions of the club, but only those which are immediately practicable.

A £10 prize awaits the first pilot to perform a 300-km. Gold C distance flight from Dunstable. In addition, anyone making such a flight will be excused his launching and flying fees and £5 of his retrieving costs. This year's competition for upwind cross-country flights was announced in the last issue. Special Club Competitions will be laid on at Easter, Whitsun, and August Bank Holiday weekend.

Dates of instruction camps, open to non-members, are:—April 18th-29th, May 16th-21st, June 13th-24th, July 18th-29th, August 15th-26th, September 5th-16th, Sept. 26th-October 1st. Applications to the Manager.

A.E.S.

## Oxford Gliding Club

VARIOUS adventures have befallen or been undertaken by the Oxford Gliding Club since the end of September, besides the usual routine of training, in which Sheila Taylor and Burgess have gained their A and B qualifications.

In November, Ernie Morgan embarked on an epic cross-country flight which ended at Oxford, a distance of four miles or so. The T-21b has had a couple of interesting flights: on one occasion it was kited to 2,500 ft. and on another, piloted by John Gibbons, it climbed to 2,100 ft. in wave lift. It remained airborne for 40 minutes. Investigations are being made to determine where this wave system originates.

Several sorties have been made to the pre-war ridge site at Aston Rowant. It was found to work very well indeed, though only a fraction of the territory was tried. Two people gained their C, Derrick Barratt and Geoff Woodford.

At the moment of writing, the Tutor fuselage longerons are being repaired by Ray Stafford-Allen, our ground engineer, and an able assistant.

Private ownership of aircraft has increased. There are now a Grunau Baby, Sky, Gull II, Gull III, and the orange Olympia. It is hoped that another Olympia may soon join us. Ye Olde Rhönbussard will shortly take the air after extensive renovation; its owner is shortly leaving for Southern Rhodesia to assist in the construction of a T-31, the kit for which was bought by a newly formed club near Salisbury.

Congratulations to our C.F.I., Professor George Varley, on his recent engagement.

P.J.S.

## Avro Gliding Club

SINCE we started operations in May, 1953, we have done just over 2,000 launches and gained 22 A and B and 5 C certificates. This has been achieved with one winch, a T-31b and a Tutor.

The club operates from the Company's airfield at Woodford in Cheshire. This is a flat site about three miles west of the Derbyshire foothills, and when certain east-wind conditions prevail we get quite a good wave. It hasn't worked this year so far, but in December, 1953, we contacted it at 500 ft. and climbed rapidly to 3,400 ft. and remained airborne for one hour. These figures still stand as club records. Cross-country flying has yet to be carried out.

The year 1954 was a very difficult one. We were plagued with more than our share of gliding club frustrations in the form of an unwilling winch and retrieving vehicle (a motor-cycle combination) as well as the weather. In addition we lost the services of the club's first Chief Flying Instructor, Peter Sharman, who left us to join the R.A.F. as a pilot, and Peter Rivers, who also put in a lot of hard work for the club in its early days.

However, thanks to the efforts of Mr. Verity, we now have a second winch nearly complete, and a Ferguson tractor is being purchased for retrieving. With this new equipment we hope to put up a better show during 1955.

C.C.


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## Midland Gliding Club

STATISTICS for 1954 are:—total hours, 2,351; club hours, 1,569; total launches, 6,287; club launches, 4,937. Number of flying days, 152; soaring days, 125. Most launches in one day, 111 (August 29th); most hours in one day, 77 (July 18th). Longest cross-country from Long Mynd was by Andy Coulson, 110 miles; best height, on the same flight, 12,000 ft. a.s.l. Certificates gained during the year: 11 B, 37 C, 2 Silver C (Tom Primrose and Teddy Briscoe); Silver C legs: 6 height, 38 duration, 2 distance. Gold C legs, 2.

Looking forward to the 1955 season, we will be in an even better position, because we are taking delivery of an additional high-performance aircraft, the Skylark II, in mid-summer. The club fleet will then consist of 2 Olympias, Skylark II, 2 Prefects (modified), 2 two-seaters for training (both with enclosed canopies), and a modified Tutor. The modifications to the Prefects and Tutor consist of additions to fin and rudder area. On one altered to date, markedly better directional characteristics have been reported.

Two of the three privately owned Skylark IIs have been delivered to date, one yellow, one blue and silver. There is already talk of organizing a triangular relay race over a course of about 100 kms.—who knows?

Extensive modifications to the winches are going on; the most important one will be the provision of a serviceable two-drum winch.

**Flying** during the latter end of 1954 was quite spectacular. Prestwich travelled for miles on different waves on December 19th while flying the Prefect II and managed to climb to 8,200 ft. near Lentwardine. The Tutor and others all reached about 5,000 ft., only nearer the site. The Christmas period was very good, with flying on the 26th, 27th and 28th. The 26th was the most eventful. Col. Benson reached 9,000 ft. in an Olympia somewhere near Bishops Castle after a patient struggle with cloud. Michael Wilson reached 5,500 ft. in the Prefect II, but on descending through the only available hole in the cloud sheet had to land near Much Wenlock. Pat Vaughan in the other Prefect and Owen Storey in the cream Olympia both landed a few miles east of the site! We think the 40-knot "breeze" had something to do with all this.

This year, so far, snow has lain deep and long for the best part of two months, except for a break in early February when, on the 6th, sun and light breezes from the west managed to support the whole club fleet, and a weak wave during the late afternoon raised the soaring height from 600 to 1,600 ft.

**Camps for 1955.**—These will be arranged as in previous years and will be mainly for pilots with experience on aeroplanes or gliders—the latter must possess a recent B certificate at least, but preferably a C:—June 11th to 18th. July 2nd to 9th, August 13th to 20th, all inclusive. A fourth camp in late August is already fully booked and vacancies are few on the others. Full details from H. W. G. Harnden, 37, Hugh Road, Smethwick, 41.

A rally for task-flying is arranged for the Easter holiday.

With the marriage of our secretary, Stan Jones, to Jean Mary Warren, his address will be changed to: 43, Meadow Brook Road, Halesowen, nr. Birmingham.

## Bristol Gliding Club

INTEREST in the possibilities of the Mendips for our new and permanent home waned when we discovered a farmer willing to sell land at the north end of the main ridge at Nympsfield on the Cotswolds. The field offered is about 1,400 yards long by 600 wide, and it runs along the top of the north ridge to butt onto the main westerly slope. Thus either ridge can be reached for soaring, and the only difficulty may occur in strong south winds when the south-east bowls cannot be reached from the launch heights possible. Nympsfield is a well-known beauty spot near Dursley, and from the top of the ridge there is an impressive view over the Severn Valley. West winds there will come across Wales instead of up the Severn as at Lulsgate, and the drier conditions should help to promote thermals. The site is also accessible from Gloucester, Cheltenham and Swindon, so that we may no longer be dependent on Bristol to supply our membership.

In planning to start at Nympsfield, we shall be aiming to establish the first major post-war gliding site in the country. As might be expected, finance is our major worry, as so much capital is required to buy the land that, in order to start to repay this,

*The Junior Sportsman's Library*

# Come Gliding with me

ANN C. WELCH

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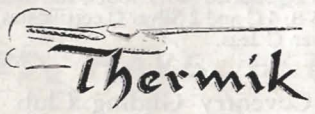
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we have to ensure that proper facilities are also immediately available to attract the members and the flying income. There is an existing long barn which can be converted into a clubhouse and workshop, but to house our fleet a new hangar is required. Inevitably this entails more expenditure and increased loan commitments.

As we write this, final negotiations with the farmer are in progress, the Kemsley Trust has agreed to back us, and once the approval of the various Ministries has been obtained, we plan to go right ahead with the intention of starting full-scale operations at Nympsfield early in 1956.

The ex-club Olympia, which was officially written off after spinning in at Roundway in 1952, has been rebuilt by a private syndicate comprising Doug Jones, Mike Hodgson and Mike Garnett. The work involved included joining the two halves of the port wing, splicing the fractured starboard wing, and building a new fuselage with the exception of the extreme rear end. Successful test flights were made on February 13th.

Flying statistics for 1954 show little difference from previous years, apart from a drop in the number of B.G.A. certificates. During the year, we did 5,362 launches which aggregated 507.5 hours, and obtained 4 A, 3 B, 4 C and 2 Silver C certificates, and 8 Silver C legs.

M.G.

## Coventry Gliding Club

THE first few weeks of our third year of existence have been some of the busiest yet. January 30th produced a few weak thermals and Ken Haynes managed to earn his C with a flight in the Tutor. A week later the club achieved a total of 69 launches in one day for a total flying time of just under 8 hours: this surpassed any previous day, summer or winter. There always seems a better attendance and enthusiasm in early spring than in midsummer, probably due to the shortness of daylight encouraging members to make the most of it.

The general standard of club flying is still improving and the circuit is considered short if lasting less than 6 minutes. Likewise launch heights as low as 1,000 ft. are viewed with sympathy.

Plans for the future now make additional launching equipment imperative; consequently all attention is turned to the conversion of our Ford V8 truck into a two-drum winch, though not, as our local Press quaintly expressed it, "for launching two gliders at once".

On the domestic side we are also expanding by building a Nissen hut type workshop, and it may serve the function of a club room as well.

At the annual general meeting on February 16th, "Wings for Pauline" and a colour film of the world championships in Switzerland were shown. C.F.I. George Thompson announced the winners of the trophies to be presented at the annual dinner-dance on March 24th: the Coventry Evening Telegraph trophy for progress by a pupil to Peter Walsh; the "Jimmick" trophy for the outstanding flight of the year to Ken Haynes and Lorne Daniell, who together soared the T-21 to 5,000 ft., and the "Founders' trophy," for progress by a member of the gentle sex, to Mary Carr, the wife of our Deputy C.F.I.

M.S.H.

## Isle of Wight Gliding Club

WE are pleased to report that our Club is at last operational, just over a year from the very first public meeting. One Cadet glider has been overhauled and has a C. of A., while a second machine has been assembled from the worst components of the four Cadets we purchased; this machine is condemned to ground-sliding and has had the fabric stripped from the centre section.

On January 30th, T. Beasley, our secretary, test-hopped the Cadet and followed this with five circuits to allow the winch driver to gain some experience. February 6th: rather strong wind and shortest run; J. Rees, our treasurer, and R. Stratton, our chairman (both power pilots with B gliding certificates) had a few flights and also tried their hand at winching. Ab-initios practised wing-balancing. February 13th: first real training day, mainly for power pilots and two ex-A.T.C. members who gained C certificates well over a year ago and had not flown since.

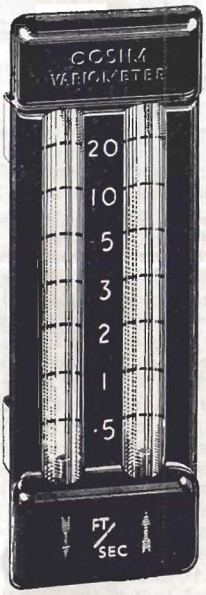
Modifications are in hand on our ex-fire engine; this is V-8 powered and has 1 : 1 power take-off that used to drive a centrifugal water-pump but will shortly drive a drum and the vehicle will become a self-propelling winch.

We are exceedingly fortunate in having the use of Sandown airfield, including hangarage and a really excellent clubhouse.

T.R.B.

# COSIM VARIOMETERS

were used by all countries competing in the **WORLD CHAMPIONSHIPS 1954** in England, and were also used on all British machines in the Championships in Spain which gained 1st, 3rd, 9th & 11th in a field of 39 single-seaters.



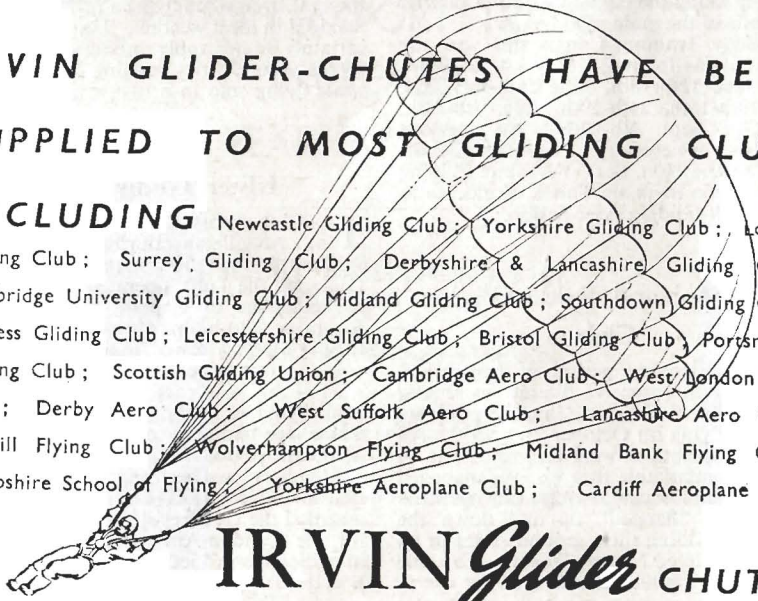

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# IRVIN *Glider* CHUTES

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## Yorkshire Gliding Club

SNOWBOUND as we write this, members still manage to get here each weekend to work on winches, walkie-talkies, the public address system and even to fly.

The Club dance and Christmas party were a great success and well attended. We congratulate members and friends of the club whose films and tape-recordings were greatly appreciated.

December 26th, 27th and 28th were good flying days, but, during January, weekend weather was poor until the 30th, when a good day's flying was enjoyed by more than 30 members. So far we have had two good weekends in February and some mid-week flying. Again it is the members who live furthest from the club who turn up regularly to get experience flying in all weather conditions. On February 13th, with tractor pushing and Beaver pulling, the winch was manoeuvred through the worst drifts and we were able to try out the newly developed long runway (four times the length of the old one), which gives good launches in N.W./S.E. winds. Thanks to the co-operation of the Forestry Commission, we now also have an emergency landing take-off strip along the edge to within a quarter of a mile of the main road.

Holiday Training Camps this year are being held as follows:—May 1st-7th, 15th-21st, June 12th-18th, June 26th-July 2nd, July 10th-16th, 24th-30th, Aug. 7th-13th, 21st-27th, Sept. 4th-10th. No previous experience is necessary. For further details apply to the Hon. Sec., Yorkshire Gliding Club, Sutton Bank, nr. Thirsk, Yorks., or to the British Gliding Association.

SUE.

## Blackpool and Fylde Gliding Club

AFTER a lengthy period of frustration, owing to extensive alterations to our gliding site at Squires Gate Airport, we resumed flying on October 2nd, 1954. All previous operations were very restricted, so it seems remarkable that we ever managed to foster enthusiasm amongst our members while they "flapped" up and down the aerodrome doing their ground slides in an old and battered Nacelle Dagling. Our one and only Kirby Cadet was used for everything else, by which is meant flying low and high hops; "S" turns were allowed by special permission, but definitely no circuits. We were eventually granted more freedom of operations on the airport, providing all pupils were trained on a two-seater.

October 2nd was our red-letter day, for Slingsbys delivered the T-21b that we have all worked so hard for during the last few years. From that day onward we have operated on every Sunday that was reasonably flyable. Since we resumed flying in October we have done 180 launches to the end of January. This does not seem impressive, but we have had to spend a good deal of time getting ourselves and our friends the Air Traffic Controllers *au fait* with an entirely new method of operation on busy Squires Gate Aerodrome. We use the grass alongside the runway in use.

Under good conditions we are getting very satisfactory launches with the T-21b; with about 1,200 yards of cable out, it is not difficult to exceed 1,500 feet. No thermal activity of value has been contacted, although we have every hope of some later in the spring. The writer was C.O. No. 181 G.S., Warton, near Preston, for several years, and during that period found the surrounding marshy ground extremely anti-thermal, even when flying a privately owned Scud III in ideal weather. These conditions certainly do not apply to Blackpool and the surrounding district, judging by tests made while flying solo in a two-seater Auster.

J.S.A.

## Ulster Gliding Club

THE Club reports a very successful season at Magilligan during 1954, when William Liddell flew many hours in his Gull, and the Tutor operated mainly under the guidance of Captain C. Nelson M. Rountree. Both aircraft have been laid up for the winter as usual, and are now undergoing annual inspection in readiness for the start of this year's activities at Easter. The Club provides gliding and soaring in the Tutor for suitably qualified glider and aeroplane pilots.

Members have been very pleased to know that Lieut. J. R. S. Overbury, R.N., was awarded the Geoffrey de Havilland Trophy for the London-Amsterdam speed record in a "Sea Hawk" jet; Lt. Overbury took his B in the Tutor at Magilligan in 1948.

C.A.B.




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## Newcastle Gliding Club

THE bare figures—536 launches for a total airborne time of 54 hours—for the club's operations at Usworth from September, 1954, to January 1st, 1955, don't give any idea of the conditions, which, to put it very mildly, were vile. Several week-ends members arrived at Usworth to find flying cancelled due to the field being water-logged and the hangar flooded to a depth of several inches, and at other times flying was only possible from the runways and perimeter tracks.

However, some good flights have been made, the most outstanding being Doug Collinson's flight of 1½ hrs. on September 5th in the Kite IIa, during which he visited his home in Sunderland; and in the same aircraft on the same day Andy Coulson's trip to the coast at Seaburn, lasting 50 minutes, during which he reached 2,500 ft. Another outstanding flight was made by Dr. A. De Redder in the Kite I which lasted 1 hour, during which he reached 3,000 ft.; and to complete the catalogue, Alan Pratt made two flights in the T-21 to 2,300 ft. with a passenger and to 3,400 ft. with Alan Tate, a pupil pilot.

The mainstays of our flying activities are still the T-21 and Tutor, but work has now finished on one of the three Cadets which were purchased from Air Ministry last year. The other two are still de-rigged; one is to be used as a spare and the third has been bought from the club by Jack Smith.

In the absence of a suitable site all the soaring done has been by members able to travel to other clubs, namely Andy Coulson and Doug Collinson to the Midland Club with the Kite IIa, and Dr. A. De Redder and Jack Anderson to Sutton Bank with the Kite I. It was at the Long Mynd that Andy gained the height leg of his Gold C with his flight to 14,000 ft. and also the Siam Trophy for the longest cross-country flight from the Mynd in 1954 (110 miles to Spalding).

An anniversary which occurs this month is the Silver Jubilee of the meeting of the founder members of the Club, and it is proposed to celebrate by holding a dinner at the Eldon Grill, Newcastle, on February 21st, when recorded reminiscences by some of the people who were present at the first meeting will be heard and messages from our president, Lord Runciman, and vice-president, Sir Claude D. Gibb, will be read.

L.A.C.

## Scottish Gliding Union

SNOW-BOUND runways have seriously hindered launching operations in the past few weeks, and recently only aero-tows have been possible. This has produced a number of dazzling aerobatic displays, and much enthusiasm is developing for this aspect of the sport. Nobody pays any attention to the vain protests of the Tiger pilots, who carry about minimum-reading thermometers which they produce at every opportunity as evidence of their suffering.

Our perennial hopes of big climbs in our winter wave so far remain unfulfilled. Several short soaring flights have been made, however, the best of these being a climb from 2,000 ft., following an aero-tow, to 5,200 ft. in the syndicated Kite II in a flight of nearly two hours. So far this year it has been very difficult to find the wave from a winch launch, but A. Sambale recently kept the Tutor up in no-sink for 28 minutes.

A very successful dinner-dance was held in the Bridgend Hotel, Kinross, on January 15th, when our new cross-country cup, presented by Robert Parker, was awarded for the first time to Andrew Thorburn for his Silver C flight from Balado to Crail. It has become almost traditional to break something at our annual orgies, and this year was no exception—a guest went through the floor.

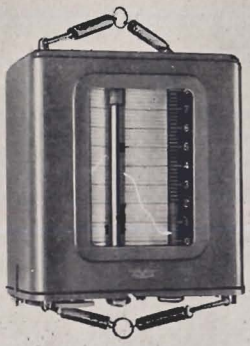
## Kettering and District Gliding Syndicate

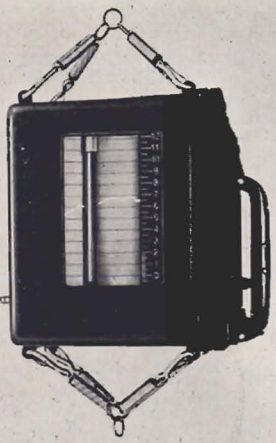
OUR four newest members, Reynolds, Chapman, Ravine and Britten, qualified for their A certificates flying the Nacelle Dagling on January 30th. The same day our Assistant Instructor, A. Clarkson, tried his hand at soaring over Sywell Wood.

Repairs to one Kirby Cadet have been taking place under the supervision of our Chief Flying Instructor, and there is some idea of modifying the existing winch into a two-drum winch, which we hope will soon materialize. We are also hoping to obtain an ex-R.A.F. hut to turn into a clubhouse.

In the last issue of GLIDING there was an error in the year our C.F.I. gained his C certificate: it was 1945, not 1954.

D.V.P.



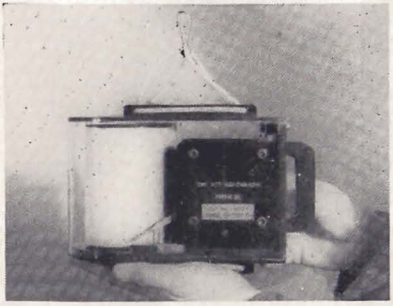


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