Sailplane and GLIDING

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SAILPLANE AND GLIDING

OFFICIAL ORGAN OF THE BRITISH GLIDING ASSOCIATION

Edited by Alan E. Slater, M.A., F.R.Met.S.
Published by The British Gliding Association, 19 Park Lane, London, W.1.

Magazine Committee: Anstace Gladstone, Godfrey Harwood, Rika Harwood, Walter Kahn, Peggy Mieville, Colin Moore, Veronica Platt, Ann Welch, Philip Wills

Volume IX, No. 2. Bi-monthly
April 1958

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COVER PHOTOGRAPH.—Nicholas Goodhart flying his Skylark IIIb at the 1957 National Championships.—Photo by courtesy of "Flight".

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AIRWAYS

At this time of year all good glider pilots are busy marking the Airways on their maps, and brushing up their legislation—or they should be, because only by strict obedience to the air law can Gliding keep its strong case for continued freedom.

The essence is that flight in Airways and Control Areas is totally prohibited unless the pilot can remain further from cloud than one nautical mile horizontally and 1,000 ft. vertically, and the visibility is better than 5 nautical miles. If he feels that there is any doubt about being able to meet these conditions, he should *not* enter them. If the conditions are clear, he should cross the Airway as quickly as possible, keeping a good look-out, and remembering that the law prohibits aerobatics!

The Airways are clearly marked on the appropriate maps, with the bottom limit—usually 3,000 ft.—clearly stated. It is a B.G.A. Operational Regulation that cross-country flights shall not be carried out unless the pilot has with him in the cockpit maps with the Airways marked on them. The Airway rules exist to increase safety by separating known aircraft in poor visibility, and the system is rendered useless by the intrusion of random traffic in I.M.C. (bad weather to you). There can be no excuses—not even navigational.

The British Gliding Association does all that it can to look after the interests of glider pilots, in what amounts to a very complex situation affecting all air users. The position will be made more satisfactory when the bases of the Airways are raised to 5,000 ft., because this would lead to an overall reduction of the collision hazard by decreasing overcrowding in the shallow, and often hazy, layer immediately above the ground. Little Airways traffic uses, or needs to use, the layer 3,000-5,000 ft., and this is, to a large extent, cut off at present from the many pilots who badly want to use it. This is particularly the case where hills restrict the shallow layer even more.

There is no valid reason why gliders should not continue to use the Airways in V.M.C. (clear weather), since they and their pilots have some unique advantages. Aeroplanes can be heard some distance away; glider cockpits have a superb view, and a great deal of the flight is spent by the pilot in searching the sky, frequently while circling round and round. Finally, glider pilots are constantly aware of the risk of other gliders creeping silently into their thermal anywhere over the countryside, and so their appreciation of the collision hazard is considerable. Our case is given strength by the fact that there has so far been no incident involving a glider in the Airways.

Let no one be the first.

A.W.

Late News.—The British team for the 1958 World Championships in Poland has been finally determined. The pilots are: Cdr. Nicholas Goodhart, R.N.; Col. Anthony Deane-Drummond; Mr. Philip Wills; Cdr. Anthony Goodhart, R.N. Mrs. Ann Welch will be Team Captain.

The British Gliding Association Chairman's Report on 1957

ALTHOUGH we live in a small island with only indifferent weather, in 1957 we flew in gliders over 56,500 miles, more than twice the distance round the world. The 1957 National Gliding Championships were the largest and possibly the best-run championships the world has yet seen. Although a considerable organisational achievement in themselves, such success would not have been possible without the enthusiastic support of a really flourishing gliding movement. Each year more new clubs are formed, and those clubs who run residential holiday courses for beginners find that they are filled almost as soon as announced; last year 127 of these courses were organised and over 1,200 pupils accommodated. Excellent and practical new gliders are being designed and built and exported all over the world, as also are British ideas and methods on every aspect of gliding. In the last three World Championships we have had two first and one second placing.

All this is not the result of money, or special protection, but of the energy, progressive outlook and the self-discipline which exists in the movement itself. In the gliding clubs today exists the greatest opportunity for the youth of the nation to get into the air, learn about the handling and airworthiness of aircraft, study meteorology in the most practical way, and develop the individual sense of responsibility which is so needed in the world today.

The year 1957 did not start without problems. We were rationed for petrol; there was the threat of new airways, particularly serious for Camphill.

Fortunately petrol restrictions were removed before the National Championships and we received the great honour of having the Opening Ceremony performed by our patron the Duke of Edinburgh, on 28th July. In the following nine days, seventy aircraft in two Leagues covered a total distance of 27,133 miles and flew 1,462 hrs., this performance putting all previous Championships completely in the shade. To anyone who was not there it is impossible to convey the enthusiasm and general atmosphere of this contest, for



The Duke of Edinburgh, Patron of the British Gliding Association, at the 1957 National Championships.

which we subsequently received many letters of praise, including one from Buckingham Palace, and another from The Royal Aero Club.

We can record a measure of success in the campaign to save Camphill from being stifled. Through the co-operation of the Ministry of Transport & Civil Aviation, the scheme by which a new airway integral with the Manchester Control Zone was planned over the site has been withdrawn and is to be so revised that there shall be no interference with gliding at Camphill.

I must repeat again, though it may be wearisome to do so, that our continued success in this vital battle lies largely in our own hands. In all the hundreds of cases of "Near-Misses" so far reported to the Ministry *not a single one has so far involved a glider*. This is indeed gratifying evidence of our standards of self-discipline, and so long as we retain this unblemished record we may expect to continue to receive sympathetic co-operation from the Ministry of Transport & Civil Aviation.

There is, however, always a tendency for the Ministries to impose restrictions which are both unreasonable and impracticable and give the impression that their sole aim is to protect the authorities from any risk

that they might themselves be blamed for an accident that might occur from sheer mischance. Such regulations we and all concerned with aviation must endeavour to resist, for by bringing the law into disrepute flying will become more dangerous, and not less so—the tendency would be for pilots to ignore not only the impracticable and unreasonable but also the essential regulations.

So long as numbers of vehicles are allowed to move about swiftly, either on land, air, or sea, there must be some risk of accident, which can only be totally abolished by total prohibition. Our duty, and the duty of all concerned, is to see that this risk is reduced to the absolute minimum and that no accident ever happens due to lack of discipline or foreseeable human error. If and when the "millionth chance" or "Act of God" accident happens, we shall then be able to prevent unnecessary panic measures following.

To return to more positive matters: 1957 has given us the best run of gliding weather in all history, far better than even 1937 and 1956. The result has been so much outstanding flying that I can only mention a very few particular peaks. Eleven U.K. and British National records were broken, no less than five of these by Lieutenant-Colonel A. J. Deane-Drummond, who also won the National Championships. His performances have been recognised by the award of the Bronze Medal of the Royal Aero Club.

Twenty-five Gold C and twelve Diamond leg flights were achieved. Two climbs to around 30,000 ft. were made in cumulonimbus cloud.

The Movement expanded and solidified in every direction; numbers of clubs, members and aircraft, both club and privately owned, increased. The Bristol Club, firmly established at Nympsfield with the financial aid of the Kemsley Flying Trust, is rapidly growing to full stature, and the Scottish Gliding Union, again with the aid of Kemsley Flying Trust support, has after many years in the wilderness come to rest on a secure site at Portmoak on the edge of Loch Leven. We may confidently assume that with security of tenure of a soaring site, the many years' work put in by Scottish enthusiasts will now come to full fruition.

Membership

During the year the following new Clubs were elected to Associate Membership:—

Cornish Gliding Club at Perranporth.
Crown Agents Gliding Club at Lasham.
The Lakes Gliding Club at Tebay Gill.
Taunton Vale Gliding Club at Dunkeswell.
Ghana Gliding Association.

Our membership is now (1956 in parentheses):

Full Member Clubs	18	(18)
U.K. Associate Member Clubs	14	(14)
Overseas Associate Member Clubs	4	
Private, Group Owner Members	51	(41)
Individual Associate Members	40	(28)

The Association is currently giving help to the following clubs that are in the process of formation:—B.E.A., Dorset, Halifax, Hertford, Ipswich and Plymouth Gliding Clubs.

Operations

All our U.K. Clubs have completed the Annual Questionnaire and they report that from their club sites they have flown a total of 20,344 hrs., involving 120,024 launches. This shows an increase of 5,618 hrs. and 20,595 launches. The R.A.F.G.S.A. Clubs (who reported 2,365 hrs. and 22,585 launches) and the R.N.G.S.A. Clubs (who reported 125 hrs. and 1,300 launches) are included in these totals.

In the United Kingdom 225 gliders are operated (this includes 50 two-seaters and 55 privately owned aircraft) by 2,992 pilots.

Over and above these totals the Air Training Corps report 64,659 launches and 4,538 hrs., and they trained 1,063 cadets to B certificate standard.

CERTIFICATES.—The total number of certificates issued by the Association shows a decrease of 579 compared with 1956, which is probably partly due to petrol rationing at the beginning of the year.

Certificates were issued as follows (1956 figures in parentheses):—A, 1,504 (1,815); B, 1,515 (1,836); C, 358 (315); Silver C, 94 (69); Gold C 10 (3); Diamond legs, 12 (5).

These were made up as follows.:—

Certificate	*A.T.C.*	*Service*	*Civilian*
A	1,064	170	270
B	1,063	174	278
C	60	101	197

Finance

The accounts for 1957 indicate a substantial surplus of income over expenditure, attributable in the main to surpluses on sales of the many items now offered to members—books, in fact, have proved the biggest sellers. It will be noted that staff salaries have substantially increased, not only for the reason that recognition has been made of our hard-working staff, but because there is now additionally employed a full time book-keeper.

Of the established items of income, each has been well maintained during 1957 except that there has been a further reduction in A, B and C certificates issued—actually 14.8% less than the previous year, although the loss in revenue is largely repaired by the increase in Silver C and Gold Badges. The surplus funds are invested and will thus earn a further item of income for the Association.

Kemsley Flying Trust

Loans advanced to eighteen gliding clubs and groups during the year 1957 totalled £5,896, and in addition further loans approved totalled £7,665, three of which involved the development of gliding sites. The development of the new site at Nympsfield with the assistance of the Trust has now been completed, and work on the site at Portmoak is well advanced and should be completed this year. Aware, as they are, of the urgency of establishing permanent sites for the gliding movement, the Trustees have placed the matter in the highest priority and are anxious that any project offering any possibility should be referred to them.

Work of the Council

The work of the Council covered an immense diversity of subjects during the year, and it is difficult to summarise twelve meetings each lasting three hours or more.

Much work arose in the B.G.A. side of the organisation of the National Championships, and a Royal Visit Committee was set up to handle the special work involved. It was a difficult assignment, but everyone expressed complete satisfaction with the outcome.

It became necessary to define more closely who may claim British National Gliding Records, since all Commonwealth citizens are U.K. citizens, but the reverse is not the case. After consultation with the Royal Aero Club, the definition was reached that such records may be claimed by pilots who are eligible to hold a U.K. passport and who are normally resident in the U.K.

In accordance with the recommendations of the last Annual General Meeting, an Airways Committee was set up to keep a watch on this complicated and vital problem, and the Council was thus kept briefed on all significant developments and enabled to protect our particular interests from time to time.

Through the initiative of the London Gliding Club, the first B.G.A. Aerobatic Contest was held at Dunstable on 22nd September. It was a great success, and it has now been decided to make it an annual National Event. The 1958 Contest will again be organised by the London Gliding Club at Dunstable.

Since we can hardly hope for another such year as 1957 for a long time, from the weather point of view, we may expect a much smaller crop of records for the next few years. A system of Annual Best Flights has been started to give all pilots a target to aim at in more normal conditions.

With the 1958 World Gliding Championships in Poland, to which we are sending four teams—two each in the Open and Standard Classes, it was not possible to organise full 1958 National Championships on the same scale as 1957. Instead, a most interesting proposal has been made for holding a National Gliding Week consisting of a number of small Championships, to be held simultaneously at clubs spread over the whole country, during the week 26th July-4th August. In my view, this may be an immensely useful development and enable many clubs and pilots to learn the techniques and values of contest flying who hitherto have not been able to do so.

With the increased standard of pilotage and of aircraft, the natural difficulties of the Channel barrier are getting less and less, and the best possibilities of breaking our present distance records and achieving distance flights of international standard lie in flights across the Channel and into Europe. But although by our skill and techniques the difficulties imposed by Nature are being overcome, those imposed by man are indeed formidable. Nevertheless, we have tackled such difficulties before and must do so again. The trouble is that a cross-

GLIDING CLUB STATISTICS FOR 1957

(as shown in annual returns sent to the British Gliding Association)

Gliding Club or Association	*Aircraft*		*Launches*		*Hours*		*Cross-country miles*		*Flying Members*
	Club	*Private*	*On club Site*	*By club Gliders*	*On club Site*	*By club Gliders*	*From Site*	*By club Gliders*	
AIR TRAINING CORPS ..	—	—	64659	64659	4538	4538	—	—	—
BRISTOL	7	6	6760	5523	1247	822	2068	1420	140
CAMBRIDGE UNIVERSITY ..	5	—	3012	3695	359	772	1315	2340	220
COVENTRY	6	2	7012	6357	1048	771	1116	295	100
DERBYSHIRE & LANCASHIRE	8	6	4610	3880	1242	1588	2065	233	182
KENT & ROYAL ENGINEERS	4	2	5331	5002	500	415	224	—	135
LASHAM CENTRE*	12	18	22297	20339	3352	2423	10307	3841	670
LONDON	12	12	10551	9886	2790	2132	4607	1700	300
MIDLAND	9	3	4988	3704	2655	1590	1895	217	150
NEWCASTLE	5	7	2271	1545	272	165	142	—	75
OXFORD	4	2	3738	3152	412	311	251	131	82
SCOTTISH G.U.	5	2	2451	2451	331	331	250	250	75
SOUTHDOWN	4	—	3076	3120	324	341	140	189	73
YORKSHIRE	13	3	3536	3381	750	658	220	117	82
ABERDEEN	5	—	1682	1682	83	83	—	—	30
AVRO	3	—	1634	1634	130	130	—	—	105
BLACKPOOL & FYLDE ..	3	—	991	991	No	Record	—	—	25
COLLEGE OF AERONAUTICS..	3	—	860	980	79	100	70	120	42
CORNISH	5	—	2860	2817	245	214	—	—	107
HANDLEY PAGE	3	—	801	806	62	63	6	6	20
ISLE OF WIGHT	3	—	1211	1211	80	80	—	—	20
LAKES	4	—	555	555	42	42	—	—	50
NORTHAMPTON	5	—	1592	1554	122	119	60	40	24
PERKINS	3	—	2320	2320	228	228	—	—	40
TAUNTON VALE	1	—	800	800	40	40	—	—	60
R.A.F.G.S.A.*	41	5	22585	22585	2365	2365	4542	4542	800
R. NAVAL G.S.A.* ..	—	—	1500	1500	125	125	500	500	—
NATIONAL CHAMPIONSHIPS	—	—	1000	—	1461	—	27132	—	—

* Lasham Gliding Centre includes the following Gliding Clubs: Surrey, Army, Imperial College, Polish Air Force Association, Crown Agents and B.E.A. The Royal Air Force and Royal Naval Gliding and Soaring Associations each operate a number of separate Gliding Clubs.

channel day cannot be foreseen in time to make it possible to conform with existing customs and other procedures—one is tempted to ask whether cross-channel swimmers are expected to clear customs and exchange control before entering the sea? Additional problems for us are associated with international requirements for airworthiness and air navigation. We have started to attack all these problems, involving negotiations with the Air Ministries and customs authorities of several nations. We are loading our pathetic slings with our tiny pebbles and hope eventually the Goliaths of Nationalism will agree some procedure to ensure that England and her European neighbours will not crash in financial ruin if fellow glider pilots occasionally attempt to visit each other on the wings of the air.

The most important single task undertaken in 1957 was the taking over, at the request of the clubs concerned, of negotiations for the acquisition of security of tenure at Lasham. The last time such a thing occurred was in 1933, when the British Gliding Association successfully negotiated a lease of Sutton Bank with the Ecclesiastical Commissioners. It is to be fervently hoped that we shall again be successful, and thus be able to bring stability to a group of clubs which currently represent about 20% of the whole civil movement.

Finally, I must record with deep regret the loss of John Parry-Jones in the Britannia crash in November. John had been one of the Council's stalwarts and, as much as anyone, was responsible for building up the Bristol Club to its present leading place in the British Gliding Movement.

Committees

During the year the following Committees and panels were set up and officials appointed:—

Flying Committee, Technical Committee, Equipment Committee, National Gliding

Week Organising Committee, Instructors' Panel, Publicity Panel, Accidents Analysis Officer, C.C.P.R. Representative, Magazine Committee, Design Requirements Sub-Committee, O.S.T.I.V. Representatives, Royal Visit Committee, Airways Committee, Lasham Site Negotiating Committee, World Championships Master, Pilot and Selection Committees, Help Yourself Society Organiser.

The Secretariat

Another splendid and devoted year. In October we had to take over all our book-keeping work from Mrs. Spence of the Royal Aero Club, who has done Trojan work for us for years. To do this we had to increase our staff by one; thus we now number four.

The Future

1958 may prove a crucial year for our movement, since in this year the Ministries are disposing of a large number of airfields, including some on which some of our most promising clubs are operating. This year will therefore decide their fate—whether they can obtain security of tenure or must be cast into the wilderness to try to find somewhere to settle or to die.

Apart from Lasham, clubs affected are the Kent Club at Detling, the Coventry Club at Edgehill, the Newcastle Club at Usworth and the Cornish Club at Perranporth. Each site is an immensely complex problem in itself, since Crichel Down procedure comes into the picture apart from the normal difficulties of site acquisition. It is not too much to say that by the time of our next Annual General Meeting the shape and size of our gliding movement will have been determined for the next generation.

If we fail to establish clubs on a firm foundation, literally thousands of men and women in future years will be frustrated in their desire to learn about the air. In this vital year, what is the utmost we can do? Your Association will continue to give all the help it can, but every club can do even more locally than we can centrally, for most of these negotiations will be with the eventual purchasers who, under Crichel Down procedure, are likely to be the pre-war owners. We have a right to expect, and do in fact get, sympathetic treatment with the Ministries, much helped by the fact that we do not ask for financial support. But we must also continue to do everything possible to keep political and public opinion favourable to us. Our "sport" has national values which must never be underestimated, and which we must lose no opportunity to underline. PHILIP WILLS.

Annual Best Flights

JANUARY and February are undoubtedly not the best months for outstanding soaring performances, but it may come as a shock to hear that only two flights have so far been reported for recording under the Annual Best Flights Scheme.

Absolute Altitude
2/2/58 E. Stark
Skylark II Long Mynd 11,000 ft.

Gain of Height
2/2/58 E. Stark
Skylark II Long Mynd 9,600 ft.

Distance
16/2/58 W. V. Menkevich
Olympia Cambridge 20 miles

Congratulations to these two for giving the scheme a start and setting the targets for the forthcoming March-April period. During these two months some of the best soaring conditions frequently occur, so there should soon be an avalanche of claim cards. If you do not remember how to claim, just re-read the December 1957 issue of SAILPLANE AND GLIDING, p.329.

H.C.N.G.

At the time of going to Press, news has been received of another good flight, but it cannot be recorded officially in the Annual Best Flights Scheme as no claim card has yet been sent in. The flight was made in a Kite II from Sutton Bank on the same day as Menkevich's cross-country; it started with a gain of height of some 10,000 ft., and finished about 40 miles away near Hull.

ALICE'S DREAM

or

North Wales as it so easily might have been!

(with apologies to Lewis Carroll)

THE wind was blowing up the hill, blowing with all its might;
It did its very best to make the Oly soar all right;
And this was well, because it was a very dicy site!

The sea was wet as wet could be; the sands were hardly dry.
You could not see a landing strip because the tide was high.
No birds were flying overhead. They had more sense than fly.

The pilot and his bungy crew were walking hand in hand.
They wept like anything to see the rocks upon the strand.
"If these were only cleared away", they said, "it would be grand".

"If seven men with seven picks worked hard for half a day,
Do you suppose", the pilot said, "they could clear these away?"
"We doubt it", said the bungy crew, "but, if you wish, you may!"

"Oh! David, go and soar the Kite", our Alex did implore.
"The wind is blowing up the hill. You canno' fail to soar.
The tide will clear the landing strip for sure by half past four."

Dave Clayton only looked at him and shook a cautious head.
Dave Clayton climbed within his jeep and over shoulder said,
"With your permission, Alex, I will wait until I've fed."

So poor old Crease was bungied off, all eager(?) for the fun.
His parachute was all awry, his safety straps undone,
And as for cockpit cover—well, the Kite, of course, has none.

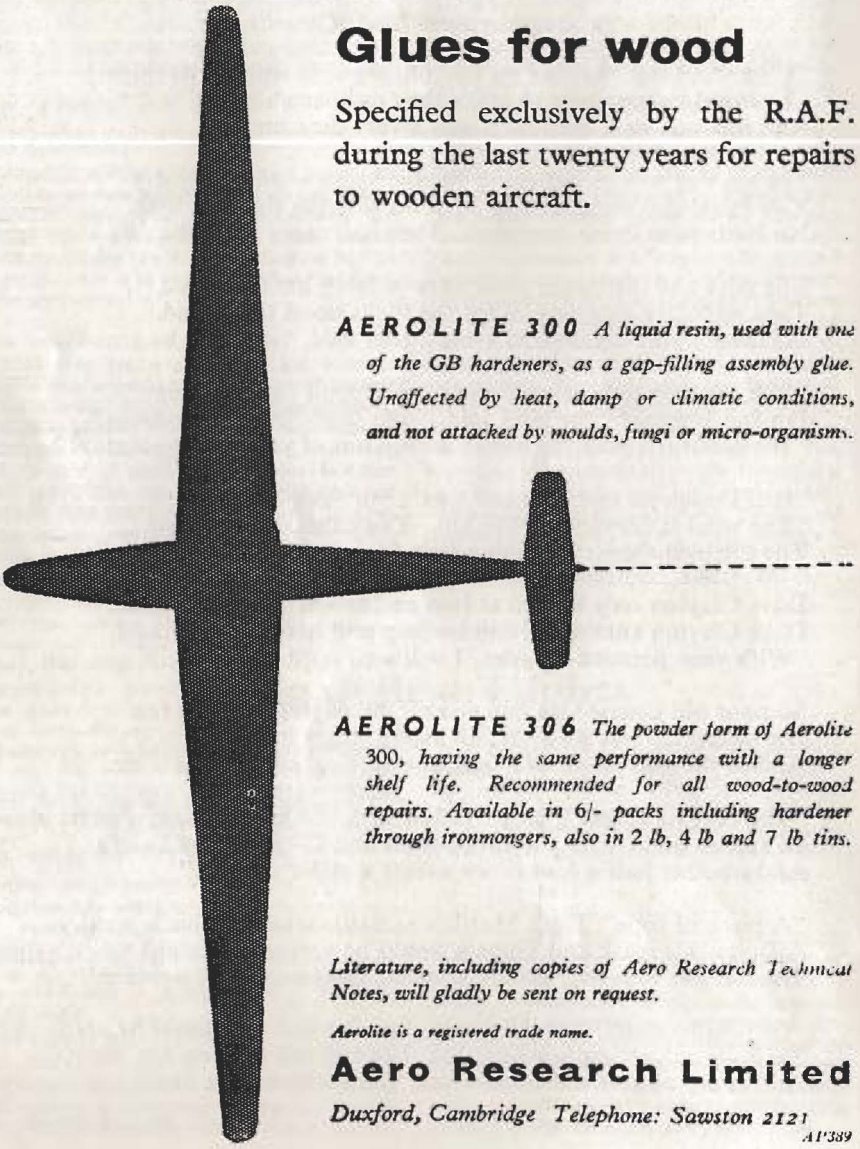
"The time has come", Ken Machin said, "to talk of many things:
Of storms and fronts and fat cu-nims and C. of A.'s by Sling's
And whether half a foot of ice affects a glider's wings."

"A piece of rope", Dave Martlew said, "is what we chiefly need.
A frogman's mask and flippers would be very good indeed.
Then, if you're ready, Cambridgemen, the rescue may proceed."

"Oh! Willie dear!" our Alex said, "you've had a pleasant fly.
Shall we be trotting home again? The run will get you dry.
And as for all this wreckage—well, you really need a Sky."

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Glider Maintenance—6

by R. C. Stafford-Allen

FABRIC AND DOPE

Most gliders have much of their wing, tail and control surfaces covered with fabric. The fabric contributes nothing to the strength of the structure, but it is very important nevertheless, because it maintains the aerodynamic shape of the glider. On wings, etc., it transfers the lifting forces to the ribs, which in turn transfer them to the spars and thus to the fuselage. The strength of the fabric is therefore important, since, if it should rip or split in the air, it would spoil the efficiency of the aerofoil and might even lead to loss of control.

Fabric is sometimes used to cover plywood surfaces. In these cases the fabric is purely and simply a protective covering and a vehicle, or filler, for the dope or paint.

For wings and other flying surfaces two types of fabric are commonly used. The first is Madapollam, which is a cotton fabric. It is very light, and takes dope very well though it is rather liable to rot in bad conditions. The second type is a cotton fabric such as D.T.D. 275. This is somewhat heavier than Madapollam, but seems to resist rot considerably better. It usually outlasts Madapollam by a very big margin, provided that it is properly doped. It is also stronger. For covering plywood surfaces Madapollam is used, since strength does not matter, and the fabric is lighter.

Before we discuss repairs and re-covering of components, we must first clear up a few points about dopes.

Dopes are not paints, though some cellulose paints look and smell very like dopes. The purpose of doping fabric is to tighten it, make it water and air proof, thus preventing rot, make it opaque to prevent deterioration from ultra-violet light, and to give it a good smooth aerodynamic finish. We are not concerned here with the chemical composition of dopes, but it may be as well to note that different makes of dope do differ in composition and frequently will not agree. If you redope a piece of fabric with a dope different from the original, you may find that "pickling" or blistering occurs. For this reason, keep to one make of dope throughout for each job.

All dope manufacturers publish Doping Schemes, and fabric should always be doped in accordance with an approved Doping Scheme. A typical scheme for a wing might be: Two stick-down coats of clear to attach the fabric to the timber, 3 or 4 coats of red tautening dope to tauten the fabric, build it up and fill the "grain" of the fibres: one or two coats aluminium dope, tautening or non-tautening, to make the surface opaque, followed by two coats of finishing colour, non-tautening, to produce the final high-gloss polished surface. The doping scheme used should always be quoted in the log book. This enables repairs to be made with the same scheme and thus eliminate the danger of using the wrong dopes with all the infuriating results, pickling etc.

Doping should be done in a warm, dry place, well ventilated. The first coat must be brushed on to get proper penetration of the fabric. Subsequent coats may be sprayed. Be careful not to inhale too much of the vapour. A mask is useful here and should be used when spraying. Drink some milk, the more the better, after doping, as this will neutralise any of the effects of the vapour. If you don't, you may find yourself with a lovely headache.

If the doping room is cold and damp, you may find a "bloom" forming on the doped fabric. This is a maddening trouble, and, while you can mitigate it somewhat by using Anti-Chill Thinners for the dope, there is no cure. You must stop and wait for warmer conditions, or stoke up the stove.

Lastly, do remember that dope is terribly inflammable. Carelessness in smoking, etc. can result in a beautiful bang, followed by a glorious bonfire! The doping of gliders and aeroplanes is virtually the same thing. The only real difference is that the degree of tautness aimed at in glider work is somewhat less, otherwise there is a danger of distorting trailing edges, etc. When it comes

to fabric work, however, there are quite a few differences. On gliders no sewing of fabric, patches, tears, etc. is necessary. The low wing loading permits us to stick the fabric down onto the structure with dope alone. Similarly, no stringing of ribs is needed, unless the underside of the wing is very deeply cambered, when the fabric is sometimes stitched to the bottom booms of the ribs. Even this can often be avoided by loading the fabric down onto the ribs with books, magazines, etc., and carefully doping it onto the ribs. This dope is allowed to dry before unloading the fabric. All these paints make fabric work on gliders far easier than on powered aircraft.

The most usual job in fabric work is to repair a hole, or tear, in a wing. When you are satisfied that there is no damage to the internal structure, or that any repairs to it have been satisfactorily completed, proceed as follows: remove all spanners, screwdrivers, bolts and nuts, etc. that have been left inside the wing, tear away the damaged fabric to a rectangular hole, and prepare a piece of fabric which will cover this hole with about an inch overlap for holes up to 4in. × 4in. or two inch overlap for longer patches. This patch must be of the same material as the wing fabric. With tautening dope, clear, and a brush, apply a coat of dope to one edge of the hole and dope down one edge of the patch, taking care that the overlap is correct. Allow this dope to dry, and then repeat the procedure along an adjacent edge. The other two edges can then be similarly treated and allowed to dry. The patch should then be redoped around the edges and allowed to dry again. The idea is to get all edges firmly doped down and stuck before doping the middle of the patch. The undoped middle portion should now look nicely taut and smooth, and you can stroke in the first coat of dope with the brush evenly all over it. This will nearly break your heart because the patch will now look a horrid, saggy mess. Fear not: press on with the doping scheme, allowing each coat to dry before the next is applied. You may have to apply a coat or two more, or less, than called for in the doping scheme. The aim is to get the patch to the same tension as the main fabric, and "built up" or "filled in" until it has the same texture. Use tautening, or non-tautening. dope, depending on whether tautness, or filling in, is required. Finish with the colour scheme. A high gloss can be obtained by rubbing over the patch with a rag moistened with dope thinners. Remember that doped fabric will go on tautening very slowly for a day or so after doping. Properly applied, a patch can be made almost invisible. It will help to this end if the patch can be cut with pinking shears, or if these are not available, the patch should have its edges frayed for about ⅛ in. all round.

Covering a main component, such as a wing, is basically the same process. The structure should first have two good coats of clear tautening dope applied all over where the fabric is to stick. Dope down the fabric on a long edge first and allow to dry. Now stretch the fabric over the whole surface and fix it in place. Drawing pins are very useful here. When you have it tight and smooth all over, dope all round the edges and along each rib to stick the fabric into place. Trim edges, redope all round again and over ribs, etc. and allow to dry. The edge should be lapped round the trailing edge and similar places. Now turn the wing over and repeat the procedure on the other side. You can then go ahead according to your approved doping scheme. All laps round trailing edges, etc. should be covered with a 2-in. strip of fabric with frayed or pinked edges. Tips to bear in mind: do make sure that all traces of old fabric are removed. If the old fabric was very rotten, this can be quite a long job, as it tends to stick to ribs, etc. and may have to be sanded off. If the old fabric was not too bad, it may tear off the ribs and trailing edges, etc. in strips, so don't let the fabric get too bad before you decide to re-cover. Do ensure your new fabric is really dry before you start. It is a good plan to put it out in the sun (if any) for an hour, while you are getting things ready, to allow

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it to air thoroughly. When brushing in the first coats of dope, don't press heavily but stroke the dope in with gentle, even strokes. Heavy pressure tends to stretch the fabric and makes the tautening process rather uneven. Each subsequent coat of dope will appear to relax the tension when applied, but don't worry about this as the tension will reappear again, tighter than before, as the coat dries off.

Applying fabric to ply-covered surfaces is little different. Dope all over the ply first and allow to dry. Now stretch the fabric as tightly as possible over the fuselage, or whatever it is that you are covering, and brush in the dope, following up with a rubbing pad of fabric to rub the dope through the fabric on to the ply. Use drawing pins if necessary and do the above jobs with clear tautening dope. Most manufacturers have approved doping schemes for ply-covered surfaces and one of these should be followed. All joins in the fabric should be trimmed to edge-to-edge butt joints and then covered with 2-in. frayed edge, or pinked strip. Once the fabric has been properly "filled in", the surface can be worked up to a really high-gloss finish. You can get liquid filler dopes which make the filling-in process much quicker. This process does give a magnificent protective covering to the plywood of a fuselage and it must also add a little to the strength. It is true that it is a little heavier than ordinary paint, but the lovely finish is a joy to behold.

Tips to remember when doping:—

Make sure that the initial "stick down" coats of clear dope really do stick. This is greatly helped if you rub the dope in with a small pad of fabric over all ribs, ply surfaces, etc. so that it is properly squeezed through the fabric onto the wood below. This also eliminates air bubbles under the fabric.

The first coats on a patch or a newly covered component may feel a little rough to the touch. If so, touch them down with a fine abrasive paper. This will make a vast difference to the final finish.

Brushes get into a horrid state if they are not properly cleaned in thinners. A very good plan is to keep brushes in one of those big sweet jars that confectioners use. Put a few inches of thinners in the bottom and drop the brushes in. They will stay soft and in good condition, and the thinners will not evaporate provided you keep the lid screwed down tight. As these jars are of glass, you can see at a glance where the particular brush you want is hiding.

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Perspex canopies sometimes develop cracks through mishandling or damage. To stop cracks from spreading, drill a small hole, about $\frac{1}{16}$ in. or so, at the extreme end of the crack. A patch should then be made and stuck over the crack, using one of the many proprietary brands of perspex cement. While on this subject, it might be as well to point out that you may come across canopies which are not made of perspex at all. There are now a variety of transparent plastics, and if in doubt, it is always worth while to refer to the manufacturers for advice. Any patches should of course have their edges chamfered down, and it is neater to fit them inside the canopy if this is possible.

A good perspex cement can be made up by dissolving some perspex chips in chloroform, or glacial acetic acid.

300 Kilometres from Nympsfield

by Derek Stowe

(With acknowledgements to the Bristol Gliding Club Bulletin)

To get away on a 300-kilometre flight in a club sailplane on a Sunday, cunning is needed on the ground as well as in the air, as the author shows in this account of the longest flight yet made from the Bristol Gliding Club's new site at Nympsfield. Although Land's End, which he overflew, was more than 300 km. from the start, his landing point at St. Just was less, besides being under 80 km. from the "turning point"; so the flight could not be recognised, even as a "dog-leg", for the Gold C certificate.

DATE: Sunday, 23rd June 1957.
AIRCRAFT: Club Olympia.
DISTANCE: Nympsfield to Lands End, 189 miles.

THE above is the happy ending to the story. You may like to hear what led up to it.

It all began three winters ago when I spent the long dark evenings reading articles about cross-country flying, written by some of the best egg-heads in the trade. Now if what they said was true, Gold C distance was easy: all one needed was a system, an aeroplane and the right weather.

The system the following summer was to get an aero-tow to 4,000 ft. over Sand Bay point, 10 miles west of Lulsgate, and then fly to the tip of Kent. It was a simple matter to be first on the Oly that year: all one had to do was sleep at the club—that is, Laurie used to sleep; the rest of us used to lie shivering behind some locked door, while rats went crashing to and fro in the hollow tin roof and horrible dragging noises came from the corridor outside. The weather that year was very good and people from other clubs went soaring across the Channel and did all sorts of other magnificent things. The only snag was the aero-tow. Whenever the weather was good the Whitchurch tugs had either no hooks or no engines. So winter came along, and with the club moving to Nympsfield we needed a new system.

That year England had shrunk a little, and 300 km. circles drawn about Nympsfield on an air map passed about three miles beyond Lands End.—So it had to be the Channel. This was a frightening thought, but we armed ourselves with glide charts and a Mae West and settled down to wait. There was a new snag this year. A lot of new lads had converted to the Olympia and their enthusiasm was frightening. On many a cold dawn, when a resident turned in his sleep, about six Oly drivers would leap out of bed and stumble towards the flying list, a practice which I for one found very tiring. Still, that year the weather was poor and even in other Clubs only the mid-week flyers did great things.

Last winter the revision of the airways gave me a welcomed excuse for giving up the Channel system. The remaining alternatives were not very rosy; 300 km. triangles are exceptionally difficult, and finding such distant places would reduce me to a nervous wreck. The northerly route is all right, but unstable southerly airstreams are very rare. New editions of the air map gave a 300 km. line passing between St. Just and Lands End, so photography of Lands End itself would be necessary to ensure getting the required distance.

During the latter part of the week preceding my lucky week-end, a Low over Norway and a High over Greenland had been drawing some very nice air down towards us, and though the cruel hand of fate usually pushes these things aside, I'd about reached my usual state of optimism. By the time I left a local dance on the Saturday night it had clearly arrived. Since it was past my bedtime, I popped smartly between the sheets and next day just beat Laurie to the flying list. I vowed not to get caught up in clubhouse chores or winching and by 8.30 the Olympia was D.I.'d and ready to go. At 9 a.m. cumulus was developing very nicely, and the local met. man confirmed that the cold front had cleared Lands End.

The stage was now set; all I had to do was hold back until conditions had developed enough to give me a chance of getting away on my one and only launch. This is where the real tactics come in, and I thought of all the smart lines used by others in the past: winch-line tangling, last-minute mods. to the aircraft, etc.; I finally decided to



disappear for a while and see how things developed. There were very few Oly drivers about and luckily they were playing the same game. At about ten o'clock Tom and Sam got a little restless and a little later appeared with a car and a tow rope. I reluctantly re-appeared and walked the wing-tip up to the launch point. I managed to gain a little time by checking the barograph, but was then bundled into the cockpit and hauled, loudly protesting, into the air. I circled as usual off the top of the launch, but the red ball came up; still, the air had seemed a little lively at the top, so I tried a little towards Stroud—that was it, the green ball worked its magic and at 10.45 a.m. I was at 3,500 ft. watching a procession of toy gliders crawl toward the launch point.

The rest of the flight followed the usual pattern of cross-country flying, alternating between elation and acute depression; the first 90 miles via Bath, Wells and Taunton to Exeter took a long time, averaging only 20 m.p.h. From Exeter around the north of Dartmoor to Padstow was over quite awe-inspiring terrain, so I buried my head in the clouds and covered the next sixty-five miles with four climbs to over 8,000 ft., averaging 43 m.p.h. for this part of the journey. From here on, the cloud base came down to 2,500 ft., and with so much sea about and with the whole peninsula to the south covered by a great dark mass of cloud I refrained from overtaxing my limited blind-flying ability and cut my climbs at 3,000 ft. However, the north coast slid quietly by, pushing up gentle 3-green thermals when they were required. I was down to 1,500 ft. over Hayle and was following the road to Penzance when a nice little thermal took me to 3,000 ft.; from there my goal could be reached in a straight glide. I cruised the rest of the way half in and half out of cloud and reached Lands End at 2,000 ft. to perform the necessary photography. I resisted a strong temptation to aerobat and made sure of returning to St. Just aerodrome, landing shortly after 6 p.m.

The retrieve crew had nearly reached Bodmin by the time they knew I'd made it, and reached me at 10 p.m. I would especially like to thank the crew for the competent manner in which they handled this part of the business.

I had thoroughly enjoyed my part of the ride, having been very comfortably installed on sorbo rubber blocks and having had none of my usual sickness. I want to know if this was due to the rum and orange the previous evening or the little white pill, so if anyone is prepared to finance a little experimental "aviation medicine", please ask for D. Stowe!

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Accidents Analysis for 1957

by G. J. C. Paul

Accidents Analysis Officer, British Gliding Association

THIS is the ninth annual analysis, and since these reports were initiated, sufficient information has been accumulated to permit good progress towards presenting the results as a statistical and factual analysis, and towards avoidance of mere expressions of opinion. This advance has been made possible solely by the trouble which has been taken by most clubs to prepare and send in their reports, many of which have been most interesting, and all of which are of great value. Reporting has been good this year and resulted in the B.G.A. receiving 103 reports for 1957. The increased number is a tribute to the interest of instructors and club officials on whom the work falls.

The figures which will cause concern relate to cost. The total cost of accidents this year has amounted to £7,151 (seven thousand, one hundred and fifty-one), which is the equivalent of a charge of one shilling and fivepence-halfpenny on every launch in 1957. This is twopence-halfpenny in excess of the average over the last five years. The principal figures for 1957, together with averages over the last five years, are shown in the Table attached to this report.

That there is much which can be done to eliminate this wasteful expenditure is demonstrated by these facts:

CABLE BREAKS.—In six cases in which pilots were unable to cope with cable breaks (or winch failures) in 1957 the resulting damage totalled £268, bringing the cost of this kind of accident since 1949 up to £2,977 in all.

ACCIDENTS ON THE APPROACH TO LAND.—These cost £3,590 in 1957 alone, and were all avoidable. For example, in four cases, pilots executed their final turn before landing so low that a wing tip hit the ground; the cost of these four was £1,080. Six other pilots clung on to failing lift too long to be able to make a safe approach to their subsequent inevitable landing; this cost £1,214. And three other pilots stretched their glides to reach their selected point of landing to such an extent that they stalled before they got there; they cost £755.

LANDING ACCIDENTS.—These cost £2,179 in 1957. A feature of 1957, as also 1955, was the high cross-country mileage compared with other years, and this seems to be reflected in the number of unsuccessful landings away from the home site. It is possible that more attention to the art of selecting, and getting into, small landing fields will pay dividends. This view seems to be supported by the fact that the most costly category of pilot in 1957 (and 1955) was the "over 5 hours". In 1957 they cost £4,092 of the total damage, and in 1955 they cost £2,908. This suggests that attention to the post-solo training of pilots deserves attention, particularly those who, having attained the "over 5 hours" status, are going on towards tests for their Silver C.

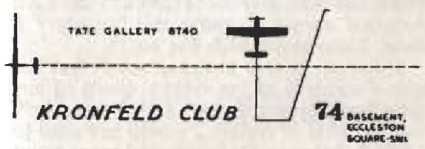
WIND.—Damage costing £230 was done in 1957 by wind taking charge on the ground of gliders not properly secured, or attended by inadequate ground crews. This brings the total from this cause since 1949 to £1,361. In every case the damage could have been avoided by care, forethought, or the attention of club members near at hand.

There were two unusual accidents in 1957. In the first, a pupil's hat blew off on the approach, distracting the instructor, with undesirable results. In another case, a pilot's spectacles were bumped off during the launch. We all need reminding from time to time that "all loose articles must be secured". And, for the record, the pilot whose rudder was eaten by a cow was not reporting a unique disaster. In 1955 a sailplane was attacked by a bull. It was, however, painted red.

To summarise, 1957 represents no improvement over previous years; and in particular, it seems desirable to give consideration to methods of improving the record of the "over 5 hours" pilots who are working up for their Silver C legs.

Description	1957	Average of last five years
Total Accidents/Incidents Reported	103	44
Total Cost	£7,151	£3,499
Fatalities..	Nil	1
Serious Injuries	Nil	2
Cost of Accidents per launch	17.5 pence	14.2 pence
Cost of Accidents on take-off	£474	£556
Cost of Accidents in flight	£602	£683
Cost of Accidents on the approach	£3,590	£1,713
Cost of Accidents in landing	£2,179	£327
Cost of Accidents unpiloted	£306	£150
Pilots with under 5 hours	£626	£664
Pilots with over 5 hours	£4,092	Information
Pilots with Silver C or better	£1,635	not available
Instructors (instructing)	£439	£842
Cost to high performance sailplanes	£4,165	£1,000
Cost to medium performance sailplanes ..	£1,434	£1,229
Cost to two-seater trainers	£426	£578
Cost to single-seat trainers	£1,087	£636

NOTE.—The above statistics do not include the R.A.F.G.S.A., A.T.C. or non-member clubs who do not report their accidents to the Association.



WITH the influx of subscriptions we have invested in two Vent Axias, one for the Bar and one for the lecture room, so this should improve the ventilation, which has been the subject of considerable criticism.

Wednesdays are now extremely popular and even the present lecture room is proving to be slightly too small, while the feature films on alternate Thursdays have also attracted regular customers.

On Saturday, 15th March, the British Gliding Association held their Instructors' Conference at the Club for the third time, and we hope this will be a regular fixture.

For the information of newcomers to gliding, the subscription for the Club is 15/- a year.

Lecture Programme

April	2nd	Gliding in New Zealand by Philip Wills.
„	9th	Talk by Air Racing Champion.
„	16th	Talk: War Flying and Escape from Stalag III by O. L. S. Philpot.
„	23rd	Talk or Film.
„	30th	Talk
May	7th	Talk or Film.
„	14th	1958 World Gliding Championships by Ann Welch
„	21st	Debate: "The Golden Age of Gliding has Now Passed"
„	28th	The Cambridge University Gliding Club by John Pringle.

Airways Committee Report

THE Airways Sub-Committee of the British Gliding Association was formed in June, 1957, in order to keep a watching brief on all matters concerning the airways and control zones as they may impinge on the interests of the gliding community, and to keep the Council informed on any important problems as they arise, with recommendations thereon. Members of the Committee are: G. H. Stephenson (Chairman), C. A. P. Ellis, D. H. G. Ince, H. C. N. Goodhart, O. W. Neumark, F. Foster.

The Committee, as at present constituted, is not able to anticipate all the moves of the Ministry of Transport & Civil Aviation, and usually finds itself in the position of discovering that a new regulation has already been promulgated and that very little effective action is then possible. However, despite the feeling that it is difficult to stem the tide of ever-increasing restrictions, the efforts of the British Gliding Association do have the effect of avoiding the imposition of unnecessary regulations, even though the Ministry of Transport & Civil Aviation are the final judges of what is necessary.

The class of regulations against which most effective action can be taken is that which, in order to be slightly simpler to administer, interferes drastically with the freedom of the gliding community. It is in this direction that most effort has been directed rather than towards the fundamental legal basis for the requisitioning of air space.

Flight in Airways

Perhaps the most frustrating proposal introduced was that promulgated in Information Circular No. 46/1957 and NOTAM 434/57 stated that "for flights along and across airways in VMC all aircraft will be required to conform to the same procedures as in IMC". This means in effect that gliders cannot enter airways at all, whatever the weather conditions.

Prompt action by the Council, in this connection, brought forth a statement from the Ministry of Transport & Civil Aviation that "gliders should continue to observe only those rules and procedures which were previously in force and that they are not expected to comply with the terms of Information Circular No. 46".

The *status quo* was thus restored and the position, as far as gliding is concerned, now appears satisfactory. However, the procedures under consideration were introduced for an experimental period only and, on 31st March 1958, the experimental period will terminate. It is likely that a new permanent regulation will then be announced, and the Committee is making every effort to ensure that gliders continue to be allowed to cross airways in VMC.

London Gliding Club

The London Gliding Club suffers greater restriction of its airspace than most clubs because, not only is it on the edge of the London Control Area, but it is also situated underneath Amber 2 Airway which allows barely 2,500 ft. of ground clearance. For this reason, and because it became known that certain procedural changes had taken place within the London Control Zone, the Airways Committee applied for the base of Amber 2 to be raised to 4,000 ft. It was explained, in reply, that this concession could not be granted without moving the boundary of the Control Area further out and so causing the London Gliding Club to lose the advantage it gained last March when the Ministry of Transport & Civil Aviation agreed to move this boundary a short distance towards the south.

However, it was also explained that the whole question of the vertical limits of airways was being reviewed and it was likely that the base of Amber 2 would be raised to 4,000 ft. between Daventry and some point probably near Leighton Buzzard. There is also the possibility of a horizontal re-siting of Amber 2 being made which would be slightly beneficial to the London Gliding Club.

Height of Airway Bases

Of considerable interest is the fact that the vertical siting of the airways is under review as a general problem, and it is important to keep the Ministry aware of our needs in this connection. Towards this end a request has been made that the difficulties of the Southdown Club be borne in mind

when Airway Amber 1 is under consideration. This request, even if it achieves nothing positive, may tend to mitigate any hardships which could be imposed when Gatwick Airport goes into operation.

Midland Gliding Club

An advisory Route known as ADR 160, which previously passed just to the east of the Midland Gliding Club's site at the Long Mynd, was in August moved so as to pass directly over the Mynd, and in this position the route becomes ADR 169. This change takes effect on weekdays only, and at weekends the original ADR 160 is used. This is in order that the civil traffic can avoid the R.A.F. training area which is centred on Ternhill on weekdays.

Since an advisory route carries no legal weight, the Council have decided that the only action necessary when an ADR is introduced is to notify the Ministry of Transport & Civil Aviation if the ADR passes over a gliding site. This was done in the case of ADR 169.

Aerodrome Traffic Zones

A further restriction was introduced on 15th June by the publication of NOTAM 482/1957. This amends rule 44, schedule 2 of the Air Navigation Order 1954, which defines procedures in or near aerodrome traffic zones. The amendment states in effect that a glider shall not enter a Traffic Zone of *any* aerodrome except for the purpose of landing.

In view of the fact that a Traffic Zone is pillbox-shaped, a volume of air 2,000 ft. high and about 4 to 5 miles in diameter, it will be realised that it is almost impossible to conform to the regulation when it applies to all aerodromes.

The Council have requested the Aviation Committee of the Royal Aero Club to approach the Ministry of Transport & Civil Aviation on the grounds that this is a regulation with which it is impossible to conform and must consequently be broken at all times. It was suggested that they should consider revising the rule to apply to certain continuously active airfields to be specified in the Air Pilot. The Ministry of Transport & Civil Aviation replied to the Aero Club to the effect that they agreed to our proposals in principle and would consider producing a list of aerodromes to which the regulation did *not* apply.

Derbyshire & Lancashire Club

A major triumph was the successful negotiation between the Derbyshire & Lancashire Gliding Club and the Ministry of Transport & Civil Aviation last July which led to the changing of a plan to route a section of Airway Amber 1 to pass directly over Camphill. This would have left so little vertical freedom for soaring flight that the club would have ceased to fulfil its function as a leading gliding centre. Now, however, thanks to the helpfulness of the Ministry of Transport & Civil Aviation, the Camphill site is likely to be well clear of the eastern boundary of the airway.

GEOFFREY STEPHENSON.

Gliding Certificates

SILVER C CERTIFICATE

No.	*Name*	*Club*	*Date of completion*
711	H. L. E. Wulff	Midland Gliding Club	29.12.57

C CERTIFICATES

Name	*Gliding Club or A.T.C. School*	*Name*	*Gliding Club or A.T.C. School*	*Name*	*Gliding Club or A.T.C. School*
I. M. Chalmers Watson	Cranwell	J. Clark	Yorkshire	K. E. Watson	London
C. E. Wallington	Surrey	J. R. Hodsman	Yorkshire	R. C. Barnett	Bristol
J. J. Sweed	621 G.S.	A. D. Timberlake	R.A.F. Nimbus	J. Pinkerton	Scottish G.U.
J. Kennedy	Scottish G.U.	T. A. McMullin	London	D. Rhodes	Northampton
H. E. Simpson	Windrushers	H. L. E. Wulff	In Germany	D. N. Ricketts	Bristol
J. M. Gibbons	Imperial Coll.	K. T. Blackmore	621 G.S.	R. J. Graves	Cornish
D. W. Eccleston	641 G.S.	G. E. Hagan	RAF Geilenkirchen	K. E. Panton	RAF Windrushers
				A. J. Lapham	Cornish

COMMITTEES

OF the various B.G.A. Committees, some presented separate reports and the work of others was described by the Chairman in his Annual Report. Space does not allow the full text of all of them to be reproduced here, and in the following accounts they are abbreviated. The reports of the Airways Committee and of the Accidents Analysis Officer are published as separate articles.

TECHNICAL COMMITTEE

Members of the Committee are: F. G. Irving (Chairman), R. Austin, C. Faulkner, D. Ince, J. Leach, K. R. Obee, R. C. Stafford-Allen, C. O. Vernon, B. Warner, L. Welch. Advisors to the Committee: M. J. Neale (motor transport), K. E. Machin (radio), K. G. Wilkinson.

During 1957, three meetings of the Committee and three meetings of the Design Requirements Sub-Committee were held. 182 Certificates of Airworthiness have been issued (154 in 1956) of which 43 were initial applications (45 in 1956). Six new Inspectors were approved and 23 Inspectors and 3 firms renewed their approval.

Due to ill-health, Mr. Pinniger has been unable to continue his duties as Examiner of Inspectors. Mr. Pinniger performed invaluable service to the Association in establishing the nucleus of an inspection system and we are greatly indebted to him.

Three privately designed and constructed gliders are under consideration for certification.

The increasing popularity of gliding, and the consequent growth in numbers of British Gliding Association certificated gliders, throws an increasing burden on the Association. An apparently simple service such as the provision of placards means even more work and complication, whilst the Minutes contain increasing quantities of algebra. The Committees again wish to thank the secretariat.

F. G. IRVING.

Design Requirements Sub-committee.—C. O. Vernon (Chairman), F. G. Irving, L. Welch, K. R. Obee, P. Bisgood (Independents), J. C. Reussner, N. MacCarroll.

In last year's report, it was hoped that the work of this Sub-Committee would be completed in 1957. This has almost been achieved, in that only a few details relating to landing cases remain to be tidied up and agreed with the Air Registration Board. This particular subject has proved to be one of some difficulty and we would like to thank the manufacturers for the amount of work they have carried out in producing data from their various designs.

F. G. IRVING.



(Photo by Sally Anne Thompson)

Like all chairmen of B.G.A. committees, Frank Irving flies regularly.

WORLD CHAMPIONSHIPS COMMITTEES

Master Committee.—E. J. Furlong (Chairman), B. A. G. Meads (Treasurer), Mrs. L. Welch (Team Manager), P. A. Wills (Pilots' Representative), H. C. N. Goodhart (Publicity).

This year will see both an Open and Standard Class in the Championships for the first time, and it has been agreed that Nicholas Goodhart and Tony Deane-Drummond will fly in the Open Class and Philip Wills and Tony Goodhart in the Standard Class, with David Ince as the first Reserve Pilot.

The Committee is greatly encouraged by the offers of help received from the manufacturers and individuals. The Standard Motor Company has again generously agreed to loan the Team five Estate cars, and both Elliotts and Messrs. Slingsbys have promised to help all they can.

An Appeal for Funds has been launched. The Society of British Aircraft Constructors have once again started off this appeal with a splendid donation of £1,000. The pilots and crews are also being asked to make a substantial contribution to the funds.

It has also been decided that one member of each pilot's crew shall form the Base Staff under the Team Manager. This will enable the team to have experts on meteorology, aircraft and vehicle repairs, radio and publicity.

Pilot Selection Committee.—This was made up of the Chairmen of all Full Member Clubs or their representatives, plus the last Team Manager. The final seeding was carried out in September. The Committee had before them full details of each pilot's achievements and qualifications and seeded lists made out by the pilots themselves. All this information was very carefully considered by the Committee and they recommended to the Council the following list which was approved:—1, H. C. N. Goodhart. 2, A. J. Deane-Drummond. 3, P. A. Wills. 4, G. A. J. Goodhart. 5, D. H. G. Ince. 6, G. H. Stephenson. 7, F. Foster. 8, J. S. Williamson. 9, A. Gough.

Pilots' Sub-Committee.—E. J. Furlong (Chairman), the Team Manager and the first seven seeded pilots. It has so far only met once, when Mrs. L. Welch was unanimously elected Team Manager, and general matters such as aircraft, trailers, towing cars, radio, oxygen, instruments and travelling arrangements were considered.

JOHN FURLONG.

Equipment Committee (Chairman, P. A. Wills).—We finally sold out of our stock of launching cable this year. We are trying sample lengths of a new cable specially woven for our purpose, although it will not be cheap it will be useful if it proves to have longer wear than standard cables. We have at last found a source for second-hand parachutes.

The newly designed gliding tie, scarf and choker were introduced and have proved very popular. Books also sold in larger numbers than ever before.

Flying Committee (Chairman, E. J. Furlong).—In 1957 a new ruling was agreed on the Nationality Qualifications of pilots eligible to claim British National Records. At the request of the Council the rules for Photographic Evidence were re-considered, but no suggestions for improvements were forthcoming.

The Flying Committee considered and approved claims to the Alex Orde Fund for Young Soaring Pilots. A proportion of the fund was generously donated by the Whitbread Sports Fund and the grants made were known as Whitbread Bursaries. Eight Bursaries amounting to £60 15s. were awarded during the year.

National Gliding Week Organising Committee (Chairman, Ann Welch).—The following clubs will be participating as regional centres: Bristol (West Region), Kent (S.E. Region), London (London Region), Scottish Gliding Union (Scottish Region), and Yorkshire (Northern Region). (Other details given in the Report have already appeared in SAILPLANE & GLIDING for February, p. 43.)

Instructors' Panel (Chairman, Ann Welch).—During the last year a qualification for renewal of 50 launches or five hours as Instructor in Charge has been introduced, although final responsibility for granting renewals has been left to the Chief Flying Instructor of the club concerned.

There are, unfortunately, still too many gliders damaged, both in club flying, and after all what is only an extension of club flying—local and national competitions. The increase in cross-country flying has brought an increase in the number of gliders, usually of the more expensive variety, that get damaged in fields. Increased training, both for the pupil and for many instructors who are expected to teach landing in fields, is desirable.

With regard to injury to pilots, this is fortunately very small and in the civilian clubs there has been no fatal injury for two years; 177,503 launches have been done in this period.

During 1957, 24 Instructors were examined by members of the Panel and granted categories.

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OVERSEAS REPRESENTATION THROUGHOUT THE WORLD

Help Yourself Society Scheme (Organiser, W. A. H. Kahn).—A proportion of the money received will be put to the World Championships and Alex Orde Funds and the remainder will be distributed as in the past.

Publicity Panel (Chairman, W. A. H. Kahn).—During the year we received very good coverage. It is still very important for clubs to contact their own local papers and to feed them with reports and news, as it is only in this way that we can help to maintain the flow of new members and course members.

Unfortunately the Chairman of the Panel felt that he was unable to continue with this work, and since July this office has been vacant. Commander Nicholas Goodhart and Mr. K. Owen have agreed to take on the publicity for the World Gliding Championships but we would welcome suggestions for a Chairman of the Panel to take charge of the general publicity.

Central Council of Physical Recreation (Representative, W. A. H. Kahn).—During the year the C.C.P.R. supported us again both by financial aid and organisational assistance with our courses. Next year it is hoped to run special courses at a number of clubs under the auspices of the Central Council.

Magazine Committee (Chairman, P. A. Wills).—The circulation of SAILPLANE & GLIDING continues to increase steadily both in this country and overseas, while the quality continues to improve. During the year a competition for a new heading for the Club News section was held; many entries were received and are now being judged. A new competition has now been announced for a redesign of the front cover name.

"Bonaventura": A New Italian Two-seater

by Giorgio Apostolo



Courtesy of "The Aeroplane"

JUST at the end of 1957 the new two-seater high-performance sailplane C.V.V.8 "Bonaventura", built by the Polytechnic School of Milan's University to the design of engineer Ermenegildo Preti, made its first flight with good success.

Construction is all wood with plywood and fabric covering. Laminar profiles are used for the wing; NACA 65 618 at the root and NACA 63 212 at the tips. The w ng span is 62 ft. 3 in.; length, 26 ft.; wing area, 220 sq. ft.; aspect ratio, 18; all-up weight, 1,058 lb. It has an estimated best gliding ratio of 38-40 and a minimum sink of 1 ft. 6 in. per second. The test pilot was the Italian champion Lt.-Col. Adriano Mantelli. The plane will be delivered to the National Gliding Centre at Rieti.

Another Italian sailplane was completed during the last months of 1957. This is the M.100, built at Turin by the Polytechnic School.

Christmas Camp at Waharoa

by G. A. Hookings

IT has become the tradition that the Auckland Gliding Club hold a Christmas-New Year camp at the site of the Piako Aero Club in North Island, New Zealand.

On Boxing Day most of the aircraft were ferried by road or air to Waharoa, although the official starting day was not until 27th December. When all the aircraft assembled there were two T-31's (Auckland and Tauranga club's), the Eon Baby, Olympia and Skylark II belonging to the Auckland Club and the privately owned Bergfalke and L-Spatz. Maurice Green's DH-82, ZK-ALK, was flagship of the tugs and J. D. Rees' ZK-ATC was pressed into service as often as necessary, with the Tauranga Aero Club's ZK-BCB doing a couple of tows on the last day of the camp.

A little site-familiarisation flying took place on 27th December, but the real programme commenced next day when 41½ hours' soaring were logged. Two Silver C's were completed, with distance legs by Jock Menzies in the L-Spatz and by Jim Boyd in the Olympia. The tug-pilots were kept busy, not only with normal launching duties, but also with aerial retrieves from the popular Mudford's terminal of the Silver C run. Altogether a successful start to the camp.

With an organisation of this size a proper briefing meeting of all pilots was essential, and at these meetings lessons from the previous day and suggestions for improvements were discussed, together with the met. forecast and programme for the day.

On Sunday, 29th, the weather favoured local flying at the airfield rather than ridge-soaring on the mountain ranges; there were some prolonged thermal flights—six, in fact, of over an hour's duration.

On Monday, 30th December, the sky was overcast, indicating the approach of a warm front, but the wind favoured ridge-soaring and the met. office rated the chances of rain as only slight. Five machines, therefore, were towed to the ridge either for five-hour attempts or for hill-soaring practice. Immediately after lunch, however, the approach of a rain front stretching from horizon to horizon made an immediate landing by all aircraft imperative. The recall system worked admirably and the behaviour of the pilots involved was most commendable, with the exception of one misguided individual who was prepared to risk the Club's Olympia in the clamp much longer than safety decreed and consequently had to be recalled by Tiger Moth. It was a very useful exercise for both the pilots and those on the ground.

The frontal system passed through during the night and gave very good soaring conditions again on New Year's Eve. The feature of this day's flying was a trip by John Hadlow in the Olympia, in which he completed all three legs of the Silver C in the one flight. As gain of height is the easiest leg to achieve at Ardmore, he will probably choose the distance and duration legs as the two he is permitted to claim from this magnificent effort—the first time, we think, that it has been done by a non-Silver C pilot in New Zealand.

It is only fair, however, to mention that John was allocated the Olympia rather than the Eon Baby simply because his frame would have been much more cramped in the Baby after 5 hours than Miss Rene Thomson's slim figure. Rene, no doubt, could have duplicated the trip, and in fact by doing so would have completed her Silver C two days earlier, since she had already qualified for height. As it was, she took the Baby to 10,300 ft. during the course of her duration flight, at the same time as John Hadlow was at 10,000 ft. in the Olympia beginning to worry about anoxia and not knowing that Gold C gain of height is a mere 10,000 ft. It was apparent that for a short period the waves triggered off by the Cambridge hills were overlapping and being reinforced by the hill lift in front of the Kaimai range. Later in the morning the wave-length changed and for a while it became difficult to remain on the ridge.

During the peak conditions Jim Boyd in the Skylark II realised that Gold C height and probably distance also were available, so left 3 ft./sec. lift at 9,000 ft. to return and try to borrow a barograph—an important lesson that each sailplane should be equipped with its own barograph. Of course, by the time the Skylark was airborne



(Photo by Jill Walker)

Gordon Hookings.

again, conditions had altered, so that our visions of an Auckland provincial Gold C distance flight were shattered. Garry Green completed a Silver C distance flight and Duncan Harkness Silver C duration.

A SEA BREEZE FRONT

At 17.27 Roy Kemp took off on what proved to be a very interesting flight, as he was able to soar the Skylark to 6,500 ft. under a sea breeze front. The wind had been westerly during the day, but towards evening the Pacific ocean made its presence felt when an easterly sea breeze came over the hills and argued with what remained of the westerly. A thin layer of strato-cumulus gradually thickened and spread westwards and provided excellent lift.

New Year's Day produced weather (and other) conditions best suited to local flying (9½ hours total), but on 2nd January another crop of Silver C legs was harvested. Rene Thomson completed her Silver C with a distance of 65 km. As she is the first woman pilot to complete all three legs in the Auckland area and is aged only 17 years, the Club is rather proud of her achievement.

However as far as age goes, Garry Green's Silver C, completed on the same day, is even more remarkable, as Garry is still 16 years of age—perhaps the youngest Silver C in the Commonwealth, if not in the world?

Duncan Harkness completed his distance leg in the L-Spatz, while Neil Grant took the Skylark II to Thames to investigate the Northern end of the Gold C distance run.

For the next ten days moderately good thermals were experienced under anti-cyclonic conditions, but as the number of pilots decreased the tempo became less hectic.

One ridge-soaring afternoon occurred on Monday, 6th January, so the opportunity was taken by Jack Williams in the Olympia and Mike Weir in the Eon Baby to complete Silver C duration flights.

Final flying figures gave a little over 246 hours during the period 26th December to 12th January inclusive. Special thanks are due to the tow pilots who hauled the sail-planes into the air so efficiently.

Waharoa has been described by one who should know as an excellent intermediate soaring site. It seems certain that it will be the scene of many more expeditions from the Auckland and Tauranga clubs. It has been inevitable that the Silver C flights have received most attention in this report, but it should be obvious from the total time logged that numerous first solos, C certificates, conversions to advanced sailplanes and general solid experience were achieved during this most satisfying and enjoyable camp.

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Search for Gold in the Wairarapa

by Ralph Court

SINCE time began, the west winds have been pouring over the Tararua and Ruahine ranges to sweep across the Wairarapa in a succession of lee waves which extend far beyond the shores of New Zealand and over the blue Pacific. The effect on the local climate is most marked, and at certain times of the year the farmers who live in the broad valley or in the hill country beyond must wonder at the rapid changes of weather and the odd behaviour of the winds which sweep off the snow-capped mountains and leapfrog across the land below to flatten trees in some areas, but leaving a series of calm air conditions between each bounce. Power pilots flying up and down the valley became aware of the forces at work, and at least one instructor at a local aero club drew up a leaflet for the guidance of his pupils on ways and means of using the lift in the course of their journeys.

Our interest in the area was awakened after Dick Georgeson's out-and-return Gold C in a lee wave off the Southern Alps, and a winter was spent poring over the relief maps of the area, planning imaginary flights with pots of gold at the end of each.

And so it was that we arrived into Masterton when the spring gales were due to be blowing, considerably unnerved by our trip down, one part of which had seen us towing between 4,000 ft. mountain peaks in a rainstorm. Little time was available for reflection, however, as the first wave was very much in evidence at dawn the next morning and I didn't spend much time out of one cockpit or another for the next six days.

It is not proposed to go into details of all the flights, but it is of interest to reflect that during that time I had at least four and probably five opportunities to complete Gold C distances. Those that failed were mainly a matter of timing, as weather conditions were changing remarkably quickly, but I must admit that on the first morning I fell from grace by thinking of my barograph for the first time at 7,000 ft. and then discovering that it was still in the hangar. At least on that occasion the radio worked.

Three mornings later, good wave conditions were again in evidence—namely, the 5,000 ft. peaks of the Tararuas were covered by a cap cloud, and a roll cloud with small fracto-cumulus forming below was running full length of the mountain range. It was decided to attempt an out-and-return to the north-east of at least 200 miles, the exact turning point not being nominated before take-off as we had no fixed ideas on possible release height. Gordon towed me off at 06.50 hrs. and we passed over the foothills and under the roll cloud at 6,000 ft. There was considerable turbulence and loss of height, but we soon ran into smooth lift on the other side and I released at 5,000 ft. and continued up at about ten ft./sec. Ahead of me the cap cloud was racing down the mountain side and dissolving, to re-form a little downwind of me as a vigorous roll cloud which went up like a wall for some five thousand feet. Although there were no signs of any lenticular clouds above, a few neat little eyebrows were seen forming to the north, and I turned the Skylark towards them, virtually ridge-soaring along the roll cloud and gaining height rapidly. I went onto oxygen at 10,000 ft. and reached the eyebrows at about 12-13,000 ft. about the time that they filled to form a neat "little lennie"



above the roll. In a few minutes I was able to sit a little above this cloud at 14,000 ft. and see downwind for the first time since release some fifteen minutes before. A series of rolls marked the lee waves to the east, and on pinpointing myself I was most surprised to find that I was already nearly thirty miles north-east of my point of release.

Below me the roll cloud was thinning out, and I ran into increasing sink as the gap in the ranges between the Tararuas and the Ruahines was approached. A magnificent dark-based cloud had formed over Dannevirke, but I was uncertain of my chances of transferring, as the effect of drift was becoming more noticeable and the new wave was a little upwind. I turned back and spent a fruitless period trying to improve my height before deciding to burn my boats, and raced north-east again. I reached the Ruahine wave at 7,000 ft. and was able to press on course, climbing rapidly. In no time I was at 15,000 ft., which proved to be top for the flight, and this was maintained until I had passed the highest snowy peaks up the range and began to think about a turning point. I considered that I would need at least two hundred miles to be sure of my Gold C distance, and a little map-reading placed me above Gwavas, which was ninety-five miles from point of release. Waipawa was not far downwind and Hastings a little to the north-east and beyond there lay the ocean and Cape Kidnappers. During this little diversion on map-reading I drifted out of the wave and lost about five thousand feet before I had what I considered to be a satisfactory photo of Gwavas as a turning point. Heading south-west I soon picked up the main wave again and ran back to Pahiatua in forty-five minutes.

Here I found every indication that the Tararua wave had folded up and only a shapeless cloud mass lay ahead with rain spreading from the hills. My days of plunging through the unknown on a compass course being somewhat past, I chose the dreary alternative of fighting a losing battle amongst the rain showers, and four hours after take-off I settled in a field at Eketahuna about twenty-five miles short of base. In due course Gordon Hookings arrived with a Tiger and towed me home.

That evening we analysed the details of the flight, and it was now obvious that under certain conditions it was going to be relatively easy to achieve greater distances than we had at first thought possible, and the high cruising speed possible in the wave made the attainment of a 500-kilometre flight a practicable proposition. I was still thinking of Gold C, but Gordon was planning for greater things. The main condition for success appeared to be the need for an early start, as the weather had been deteriorating rapidly by mid-morning and the waves, if they still existed, were not clear-cut but confused by rain and other types of cloud.

Dawn the next morning found us again in the toils of rigging, and I had lost ambition to the extent that my conscience pointed out that in all fairness Gordon should have his turn. My partner, however, had planned far into the night and produced the "task for the day" of a Gold C with three Diamonds in one flight, and I was to be the prominent part of the exercise.

Our maps were hurriedly consulted and it was established that a release at the south end of Lake Wairarapa with a first turning point at Gwavas, back track to Woodville Gorge and a final leg to Wairoa would just provide the necessary 500 kms.

We were airborne about 06.15 but found ourselves back on the aerodrome in about fifteen minutes after getting tangled between a low roll cloud and the foothills, which made me cut off and dive for home. After a hurried *tête-à-tête* with Gordon we again set off, and I steered the Tiger in the general direction I wanted by dragging to the opposite side. We passed under the roll cloud and between the foothills, where a river emerged between Greytown and Featherston, and ran into a smooth wave lift. As I didn't wish to incur the penalty for releasing above three thousand feet, I let go almost straight away and then made the mistake of turning back towards the roll. The altimeter unwound rapidly, and it took more than the usual amount of mind over matter to turn back into wind in the hope of picking up the wave again before my escape gap back through the gorge had time to exert its influence on me. Suffice to say that the wave returned when I was down to 2,100 ft. and the trees on the mountain face were far too close for my liking.

I climbed rapidly and started edging to the north, passing up a valley running parallel to the main mountain range, there being the usual clear gap between the cap and the roll cloud. It proved to be simple

to soar up the face of the roll, and within some twenty minutes I was able to sit above its highest crests at between 11-12,000 ft. I raced north-eastwards and scanned the sky above. At a great altitude there was a thin cloud following the bends of the mountain range, and higher again was a film of mother-of-pearl cloud following the same contours. Directly ahead and at about twice my height a classic-shaped lenticular was forming in the lee of the Ruahines, and as I watched a black-looking cigar commenced to form high up in the lee of the Tararua Range, a short distance downwind of me.

As it developed and grew in length for a hundred miles or more, I spent nearly forty minutes at about 11,000 ft. searching for the step to transfer from the peak of the roll into the influence of the main wave. The contour deceived me into seeking upwind of the crest of the roll, and my assumption appeared confirmed by the sink which was met downwind of the crest. In the end I decided to burn my boats and flew directly downwind, and after some minutes of steady down I went straight into lift which indicated maximum on both varios. As I had wasted considerable time, I set course almost parallel to the lenticular, finding remarkably little drift, and gaining height at an astonishing speed, although trimmed out to indicate nearly one hundred knots.

The thousands slipped by, and I mentally chalked up a height diamond as I passed eighteen thousand feet. The edge of the lenticular was reached about one thousand feet later, and as we rose above it the full splendour of the wave became apparent, stretching at least one hundred miles ahead and a further hundred miles behind me. To the south-west another huge yellow wave was in evidence over the South Island.



(Photo by Jill Walker)

2,000 ft. ridge at Waharoa

I was making grand progress along my chosen track, but after reaching 25,000 ft. several factors began to cause me increasing concern. Drift was now a major problem and was far more troublesome once I had passed the edge of the lenticular, probably due to the changing direction of the airflow. By turning more into wind I was able to maintain my track, but at a steadily decreasing ground speed, which did not suit my plan at all. I was also having trouble with the moisture content of my breath frosting the interior of the canopy, and in order to keep any vision at all it was essential to leave the air vent open. Finally I was getting mighty cold, being dressed for less rugged heights, so I gave up all ideas of climbing further and increased my airspeed accordingly.

Following the contour of the lenticular and sitting just above the edge, I could see the blue Pacific beyond the crest of the second wave, and as I sailed along the other two diamonds appeared to be "in the bag". I ran off a little movie film with some misgivings over the glare and the limited field of vision due to the frosting of the canopy, which was steadily building. Some minutes later I was astonished to see Cape Kidnappers well behind me through a small clear patch which remained in the lower right side of the canopy, and a little yawing of the nose gave a brief view of Napier showing a little ahead. I turned to locate Gwavas and soon afterwards was able to photograph it from a south-westerly heading to prove that I had passed beyond. A sprinkling of strato or alto-cu was forming some thousands of feet below me and this developed rapidly over the next twenty minutes as I raced back to my second turning-point at the Woodville Gorge. The lenticular was still easy to follow as it reared out of the increasing sea of tiny cu's, but by the time I reached the Gorge it was only just visible, and although I took a number of photographs I was most doubtful of their value. Another point which was worrying me was the fact that I had released some ten miles short of my intended starting point, and the way to compensate for this was to make the next town, Pahiatua, my second check before turning back to my goal at Wairoa.

By the time I reached the vicinity of Pahiatua the cloud cover was almost complete and put paid to any further photo-

graphs, although the wave cloud was still clearly defined and working to my satisfaction. It was an hour and a quarter since I had contacted the main wave, and I had experienced no trouble in maintaining between 24-25,000 ft. for the past hour. Wairoa appeared still attainable, but there did not appear to be much point in pressing back in that direction unless I could prove the 500 kilometres.

Regretfully I took a last look at "my wave cloud," then opened the brakes and did a maximum rate spiral descent down to 14,000 ft. before getting into clear air again. I still had 7,000 below me when I reached Masterton some thirty minutes later and I touched down after three hours fifty shortly after ten o'clock. The thermals were starting to pop, and being in no fit state to argue I was organised into the Bergfalke before lunch to do instructors' checks. One of these lasted a little over an hour, which proved that the flesh was still stronger than the spirit.

A few closing thoughts on our week's flying. This area is teeming with opportunity, and I was personally afforded every chance by the other members of our expedition—especially by Gordon, who simply ordered me into the air.

The Skylark III behaved beautifully and is a magnificent sailplane in every respect, being fully equipped for such scope of operations. Oxygen is an essential, and it is trusted that all gliding enthusiasts in the area are fully awake to the folly of pressing on above 15,000 ft. without proven oxygen equipment. The remarkably rapid changes in weather conditions which we experienced —up to four seasons in a day—will give glider pilots a lot to think about.

A great amount of research lies ahead and I envy the Wellington & Wairarapa Gliding Club in their site, which is potentially one of the best in the world. We really enjoyed our first taste, and you can rest assured we will be back for more. In fact, one member of our expedition is already seeking a rich widow in the area at the present time.

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Diamond C—New Zealand Style

by G. A. Hookings

It has become apparent that the only possible way of achieving 500 kilometres in New Zealand is by means of a "long slide" in standing waves. The country is too narrow across the prevailing wind direction for a thermal flight to be a possibility.*

Assuming, then, that waves must be used, what suitable routes exist? From the South Island, one could slide along the full length of the Southern Alps, either from south to north or *vice versa*. Alternatively, one could start midway, as did Keith Wakeman in his recent Cook Strait crossing, and fly two or three legs, or else head northwards, cross the Strait and continue in the lee of the Rimutakas, Tararuas and Ruahines. Thus from the South Island a wealth of possibilities exist; for the less fortunate North Islanders, the only practicable route would appear to be three legs along the southern mountain ranges of the Wellington Province. (The crossing of Cook Strait from north to south appears to be much more difficult than in the reverse direction, due to the westerly nature of the prevailing winds.)

Having analysed the situation in this manner, the next thing to do was to test its feasibility. The acquisition by our syndicate of the Skylark III, ZK-GAY, made the investigation more hopeful, and experience of the waves in the Wairarapa area was rapidly acquired due to a favourable season of "disturbed westerly airstreams". We all learnt a lot about the area from Ralph Court's flights in October. Then, for a short period in November, I was able to study conditions, not only from the ground, but also from the vantage point of the Skylark's cockpit. Although conditions did not favour the big attempt, I made two reconnaissance flights which helped considerably when "der Tag" arrived.

The first was a flight of 135 km. (84 miles) from Masterton to Waipukurau on 13th November. This trip underlined for me the hazard of the Manawatu Gorge "bunker". For 50 km. the hills are lower than 3,000 ft. between the end of the Tararua Range and the beginning of the Ruahine Range. Through this gap the winds pour with undisguised enthusiasm, and the waves are ruined for probably another 10 km., at least, on each side. Consequently, to jump this gap, one requires a big reserve of height, plus a full share of determination to press on regardless.

The second lesson was from a flight on 19th November, towards the south and back. That particular morning, the old Masterton faithfuls, Mount Holdsworth and Mitre, failed to co-operate and I was forced to chase the better-looking conditions arising from the much lower (less than 3,000 ft.) Rimutakas. Here the tell-tale roll clouds gave a certain indication of where the wave lift commenced—actually, over Lake Wairarapa. The lift was good to at least 15,000 ft., and probably a lot higher, but I wished to press northwards. This I managed to do, but only sufficiently to just make it back to base at Masterton.

The plan thus evolved was to set off from the Masterton area in a northerly direction, to the Ruahine wave, then return on a second leg to Lake Wairarapa, and finally northwards again on a third leg as far to the north as height would permit.

On the morning of Friday, 13th December, I failed dismally to recognise that the big day had arrived. I considered that such clouds as appeared overhead from time to time were normal convection cumulus, and the fact that none appeared further to the west than about two miles from Masterton, I attributed to the probable existence of an extensive area of downdraughts in the lee of the mountains. What must have been the cap cloud, I told myself was orographic cumulus. Consequently, after extremely leisurely preparation for flight, I took off at 11.30 for a pre-luncheon thermal reconnaissance. I released at a rather stupid 1,000 ft., and dropped to 800 ft. before centring on a strong but narrow thermal.

By 11.39 I had reached 3,500 ft. and the top of the thermal, so headed upwind. Because of the extremely rough nature of the turbulence, the most sickening I think I have ever encountered in free flight, I began to suspect that waves might be present in spite of the complete absence of

*See map on page 82.

any lenticulars up aloft to confirm the suspicion. Sure enough, by 11.52 I was at 10,000 ft. and hastily dressing myself in a pair of socks over the top of a scarf wrapped around the left foot, and a balaclava wrapped around the right foot. The left sandal would not fit over this unorthodox footwear, so I had to go shoeless, and it later became most surprising what a difference even an open sandal makes to the warmth of one's feet at 20,000 ft. Already I was regretting the folly of not wishing to appear foolish by dressing in sheepskin in mid-summer for a short thermal flight!

At 12.03, with 18,000 ft. on the altimeter, I changed course from 280°M to 320°M, 63 knots, with the sealed barograph ticking away merrily, and the sealed cameras ready for action. Away to the north I could see two most attractive-looking lenticulars, but my obvious course seemed to be along a corridor of roll cloud stretching for miles to the north-east. As soon as the influence of the higher part of the Tararua Range came to an end, I pushed the speed up to between 90 and 100 knots, and by 12.26 was down to 11,500 ft., abreast of Pahiatua, 60 km. out. By 12.39 I was down to 5,500 ft., 5 miles south of Dannevirke, and definitely scraping the bottom of the barrel. Fourteen minutes later I could breathe again at 10,000 ft., and by 13.08 had photographed my northern point, 110 km. out, and turned on to 240°M. Peak height of 21,500 ft. in this locality was reached at 13.18 hrs., and then the southwards dash across the "bunker" commenced.

Thinking I had possibly squandered some of my height at high speed on the northern leg, I flew slightly more slowly this time, with the result that my next low point was only 6,800 ft. at 13.52, when, 20 km. from Masterton, I struck lift again in the lee of Mt. Bruce. Of course, it may have been that there was a slight helping component on the south-western leg. High in the sky, in the lee of the Tararuas, was a lenticular, and certainly the rate of climb back up to 18,600 ft. by 14.17 was satisfactory. On therefore towards the southernmost turning point on the shores of Lake Wairarapa, photographed by 14.37.

Back at 65 kts., 300°M, with a useful 10 ft./sec. climb, towards the "refuelling" depot near Masterton. This time a peak of about 23,000 ft.—time and the desire to complete 500 km. decreed against lingering any longer as it was obvious that a world gain of height was out of the question in spite of the unusually favourable low point of 800 ft. after take off. By 15.40 I was definitely despairing, being down to 4,500 ft. two miles west of Dannevirke. By flying extremely careful figures of 8, and adjusting speed and heading with unusual delicacy, I managed to coax the altimeter back to 5,000 ft., and then slowly but with increasing enthusiasm to safer heights ("To him that hath, shall be given"). Next entry in my log says 10,000 ft. at 16.05, west of Norsewood, not far from the first turning point. Life was sweet again, and cameras clicked, and soon the oxygen mask donned for the final time.

At 16.31, being unable to squeeze any greater height than 18,200 ft. from the highest peaks of the Ruahines, I set course in a northerly direction. Ahead a sea of cumulus clouds, with only the faintest suggestion of possible waves from the lesser ranges to the north. The altimeter unwound rather too readily and the terrain below became more and more forbidding. Needs be, I must keep heading northwards, but where to land? Even in a car the topography is awe-inspiring to say the least.

Is that a lake ahead? Yes, according to the map its name is Tutira, its distance sufficient for 500 km., and its shores most probably adequately flat for a landing spot. But what about the surrounding hills? Can the Skylark clear them and cope with the intermediate downdraughts and the head-wind component? Our angle of glide chart is not much use as I really cannot estimate the strength of wind. The only alternate is on the coast and it doesn't look very inviting. I'll only use it as a desperate last resort. Howgozit? I think we can make it. But what about the hills on the western shore of the lake? Better go around them on the upwind side—bound to be downdraughts on the other side. Jove, the ground below looks close: of course it is—the map says the high point is 2,068—well, heaven be praised, we've cleared it. What a delightful looking village—shall we rest there for the night? Well it's only 17.10; we might hook on to a thermal, or some hill lift or even some wave lift. Yes, the spirit is willing, but the flesh is weak. After all we've made 500 km.; why go on for perhaps only a few more miles, and then to possibly less inviting terrain? Right: well, which field? The one near the main road? Rather small and festooned with power lines. What

about the one with the big barn? A little rougher, but just been used for hay, so must be reasonably smooth. Here goes—we've made it! And the first person to arrive is the sister of a member of the Napier Gliding Club, so she understands. And the barn makes an ideal nest for the Skylark with new season's hay—bales as cushions. Air-Sea Reserve can call off their search for us—our local thermal flight has turned out to be the first trip over 500 km. to be completed in British Commonwealth territory. Good old Sling, and his beautiful Skylark III. The next challenge is a similar trip in a lesser aircraft. Probably impossible.

Back down to earth, and the lessons from the trip. The next pilot must be briefed to go another 30 km. to the north on his first leg, and a few more kilometres to the south on his second leg, to avoid the necessity to fly over such formidable hills on the final glide. A landing at Napier airport would be much preferable to the worry of whether or not the flat ground around Tutira can be reached when conditions have required concentration during the whole of the trip. Of course, under certain conditions, it may be possible to reach Wairoa or even Gisborne or East Cape.

The distance accepted by the New Zealand Gliding Association Technical Committee is 530 km. (329.3 miles). The first leg was 119 km. (73.9 miles), the second 152 km. (94.4 miles) and the third 259 km. (160.9 miles).

I still claim that the Wairarapa is probably the best soaring centre in the world. Since the 500 km. flight, I have made a thermal flight for the radio test programme, in which the rate of climb from 1,000 to 3,000 ft. was 500 ft./min., and then, after a change of thermal, from 6,000 to 16,000 ft. at 1,000 ft./min.

THIS GLIDING

Dusty Answer

Lasham pilot, after a hill-soaring attempt: "The instructor asked me, 'Why did you keep so close to the ground?' So I said, 'Because I couldn't get any further away from it.' "

* * *

Only a Little One

"Detling aerodrome, former Battle of Britain station on the top of the Kentish Downs, is being pulled apart by raiders, says a retired naval officer living on the edge of the airfield. . . . Since the R.A.F. left the airfield, Kent Gliding Club has had the use of the station for its activities. A member of the club said: 'There are dozens of huts and buildings there going to waste, but the Air Ministry has refused to let us rent one for a clubhouse.' . . . Asked to comment, an Air Ministry official said he knew nothing about Detling. 'It must be quite a small airfield', he said. 'We have so many you know. It does not appear on our list of airfields to be given up, but it may well be that the buildings have already been sold to someone.' "—*Yorkshire Evening Post.*

Good Form

"You can keep your midgets! Sailplanes, like girls, are a matter of taste. The little ones may be cute, but you can't beat the tall, sleek type with loads of class. It's too bad such expensive tastes go with an empty pocket-book."—*Caption to photo of Skylark 3b in Australian Gliding.*

* * *

Spacemen

1. "When a competitor in the South African gliding championships had to land on a lonely farm, a woman rushed her servant off to the next farm some miles away for quick help. When the helpers arrived, however, the glider pilot found that the reason for the extreme haste was that the farmer's wife had sent a message saying that a Sputnik had landed on her farm."—*Manchester Evening Chronicle.*

2. "An Oamaru gliding enthusiast attempted to glide from Timaru to his home town. However, he was unable to get enough lift and brought the glider down at the Waimate racecourse. He was entertained to a turkey dinner by people nearby —who first became aware of his arrival when their small son raced into the house to tell them that a man from space had just landed."—*Prester John in Otago Daily Times, New Zealand.*

TWO NEW FRENCH SAILPLANES

by Walt H. Pratt

AFTER the World Championships of 1952, the Sport-Aviation Department of the French Air Ministry (S.A.L.S.), desirous to justify the already famous reputation of French soaring, and wishing to equip the French team at the 1954 Championships with a super-plane, requested the famous Bréguet firm to produce a single-seater surpassing all known sailplanes and which would ensure a French victory. As far as costs were concerned, the sky was the limit. Thus, from the able brain of Cayla, was born the Bréguet 901. Gérard Pierre won the 1954 world contest with it, and sailplane technicians from everywhere admired this new French triumph.

But the S.A.L.S., now called S.F.A.S.A., was faced with a problem. It was responsible for a creation produced just for an occasion, which was now clamoured for by all French soaring clubs and also asked for from abroad. No intention of series production had been in anyone's mind. A series was finally started, but the Bréguet 901 is still—and will probably always be—in the luxury class as far as its price is concerned.

For the 1956 World Championship in France another surprise was needed—this time, a super-production in the two-seater line. Bréguet, which had in the meantime opened its sailplane department, was charged with the job of producing a two-seater equal to the Bréguet 901. The prototype was ready for the contest in form of the Bréguet 904. Its cost was out of this world and its selling price will long be sor fo any average soaring club.

Even the S.F.A.S.A. had to admit this, and since its credits are being cut every year, and its policy is toward club-owned instead of state-owned machines, it had to do something if the glory of French soaring was to be maintained. So a request went out to French sailplane constructors to submit a sailplane which was robust and easily handled, and whose price was more accessible in the eyes of a club treasurer.

Bréguet came out with a two-seater, whose study had begun almost simultaneously with the study of the Bréguet 904, while the well-known aviation firm Wassmer provided the single-seater. One similarity between these two new sailplanes built by different firms should be emphasized right off: both have a metal fuselage structure—a feature new to France.

BREGUET 902

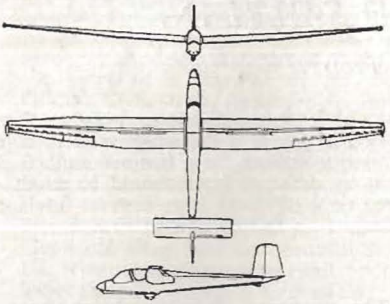
The two-seater Bréguet 902 was conceived with the idea of providing the French soaring clubs with a modern two-seater sailplane which is easily handled, enduring in its structure and capable of serving from *ab initio* training to Gold C level. Its construction was simplified to the utmost in order to keep its price as low as possible.

THE WINGS are of all-wood construction —single spar with D-type nose reinforced by nose-ribs; fabric-covering aft of main spar. The ailerons are of split type, built around a box spar, and are covered with plywood. The dive-brakes are mounted behind the main spar and open vertically on the lower and upper wing-surface. No camber-flaps have been installed; but to compensate for their absence, a slow-speed wing-profile has been chosen, no high performances at great speeds being required.

The system of attaching the wings is the same as the one which has shown its simplicity and speed in the Bréguet 901 and 904.

THE FUSELAGE is built in two parts, which are assembled near the wing main-spars. It is composed of four longitudinal girders of steel tube which are interconnected and welded together. The forepart carries the tow-hook, the cockpit installation with seats arranged in tandem, the winch-tow hook and the landing gear. Access to the fuselage nose is obtained by a removable nose-cowl. Two moulded plexiglass canopies, opening independently to the right, give access to the seats. The aft part of the fuselage supports mainly the fore and aft wing connections, the compartment for the battery, oxygen and radio, and the tail-unit attachments.

The landing gear consists of a fixed wheel with a hydraulic brake and a shock-



Breguet 902.

absorbing tail skid. All controls are rigid, moving on bearings or bronze rings, except for the rudder, which is moved by a cable.

TAIL UNIT: All rudders are fabric-covered. The stabilizer is of one piece and for test purposes, realized in form of a box and of sandwich material. The fin is of single-spar construction with D type Nose.

TECHNICAL DATA
Wing span, 18 m. (59 ft. ½ in.)
Wing area, 21.6 sq. m. (232.5 sq. ft.)
Aspect ratio, 15. Wing taper, 0.33.
Length, 9 m. (26 ft. 3 in.)
Equipped empty weight, 330 kg. (661 lb.)
All-up weight, 500 kg. (1,102 lb.)
Wing loading with standard equipment, 23 kg./sq. m. (4.7 lb./sq. ft.)

EQUIPMENT: all cloud-flying instruments, oxygen, radio, 12-volt battery. The series-produced machines will have their structure even more simplified and a standardization of main parts is foreseen to enable their rapid replacement in case of damage. No price has been announced yet, but it will certainly be over 2,000,000 francs (£1,710).

WASSMER WA-20 "JAVELOT"

The Wassmer firm is one of the most active French light aircraft constructors today. Situated at Issoire, in Central France, it employs some hundred people, mainly engaged with the series production (8 a month) of the famous light aeroplanes Jodel D112 and Jodel D120.

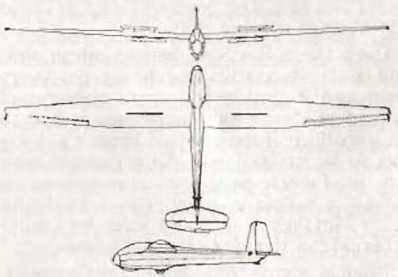
The single-seater sailplane WA-20 "Javelot" is this firm's first adventure in sailplane construction. It has been a successful venture, and already this firm is on the way to producing a two-seater, the Wassmer WA-30 "Bi-Jav.".

A series of ten WA-20's are under construction right now, while a more important order is expected from the S.F.A.S.A.

The origin of the WA-20 was the urgent need for a single-seater capable of replacing the outdated N-2000, Weihe and Air-100, as well as the desire for a standard sailplane which could be used from C standard up to Gold C level, and whose price would make it accessible to the average club. Hence this new plane had to ally many features: good performance, especially at speeds over 100 km./h., orthodox flying qualities, rugged yet simple construction. Combining all these features, it is well on the way to becoming the basic French single-seater.

The first flight of the Javelot was made in August, 1956. Altogether 58 flights, totalling more than 40 hours, were made by the test pilot P. Bonneau, in order to check all its qualities, before the plane was sent to the Official Test Centre of Bretigny to obtain its airworthiness certificate. During the official strength tests on 17th December, P. Bonneau obtained a maximum air-speed of 240 km./h. (149 m.p.h.) with dive-brakes closed. With dive-brakes opened, the sailplane dived vertically at only 150 km./h. (93 m.p.h.), proving that the Javelot possesses the most effective dive-brakes yet installed in a French sailplane. During the same flight tests, a positive load of 5.5*g* and a negative load of 2.5*g* were registered. No other French plane has yet officially attained these figures.

The following performances with maximum permissible weight were officially confirmed at the Test Centre of Bretigny:— Min. sink, 0.75 m./s. at 73 km/h. (2 ft. 6 in./sec. at 45 m.p.h.)



(*Courtesy "The Aeroplane"*)
Wassmer "Javelot."

Best gliding angle, 1 in 28 at 78 km./h. (48 m.p.h.)
Sink at 100 km./h., 1.20 m./s.
Sink at 150 km./h., 3.50 m./s.

To be noted are its longitudinal stability, allowing flights without ballast by pilots weighing from 57 to 95 kg. (126-209 lb.); its transverse manuœvrability which permits 180° changes of direction at 45° bank in less than 4 seconds at normal speeds; and the rapidity with which three persons can dismantle the sailplane, taking 5 minutes with the aid of only one wrench.

THE FUSELAGE is of steel tube construction; it consists of two parts which are connected by three bolts. This method permits easy repair by exchange of the damaged part. The after part is a triangular girder, while the more complex forepart consists of four girders with interconnecting tubes. The general cross-section of the fuselage is a polygon, obtained with the aid of wooden stringers. The forepart houses the aero-tow and winch-tow hook, as well as the cockpit. The latter has been arranged very spaciously, and the instrument board has been designed to receive two sets of instruments:—

(1) Standard, up to Silver C stage: airspeed indicator, altimeter, variometer, electric turn and bank, compass.

(2) High performance, Gold C and beyond: all the above, plus artificial horizon, V.H.F. radio, oxygen.

The seat can be adjusted for height and inclination. The pedals are adjustable in flight. Pilots ranging in height from 1.50 to 1.90 m. (4 ft. 11 in. to 6 ft. 3 in.) can thus fly in comfort. A ventilation system as well as sun protection take care of the pilot during long flights. The whole is covered by a plexiglass canopy that opens to the right and can be jettisoned when necessary; it forms an integral part of the fuselage when closed.

It is protected by a short skid with rubber shock absorbers. The main landing gear consists of a 330 × 130 wheel equipped with a brake, and a metal tail skid with a rubber shock absorber.

WINGS. Each wing panel has a central rectangular part and a trapezoidal outer-section. The wings terminate in streamlined tip shapes which serve only to protect the ailerons when the wing is resting on the ground.

The aerofoil sections are NACA 63618 at the root and NACA 63614 at the tip. The trapezoidal part has 5° twist and 3° dihedral. The wing chord is 1.5 m. (3 ft. 9¾ in.) at root and 0.49 m. (1 ft. 7¼ in.) at tip. Wing taper is 0.42.

The wings are of orthodox wood construction with a single box spar and D-type nose. Plywood covering from leading edge to main spar, which is at 37% of wing chord. The whole wing is fabric-covered, including the plywood parts. The ailerons are also of similar construction. The dive-brakes are of the Göppingen type and are in the rectangular part of the wing behind the main-spar; they are of wood and sandwich material, and are of large size.

The wing panels are fixed to the fuselage by four horizontal pins, while the main-spars are united by two cylindrical pins.

TAIL UNIT: The fin is of wood, plywood-covered; the rudder is fabric-covered.

The stabilizer is of wood with two spars, plywood-covered, and fixed at three points by two welded pins parallel to the axis of the fuselage and a bolt perpendicular to this axis. The elevator is in one piece, with fabric covering. The whole unit is set behind the rudder as with the Schweizer sailplanes. A tab is installed on the right half of the elevator; it is entirely of wood.

THE CONTROLS are partly rigid, partly cables. Dive-brakes act as brake on wheel when completely opened.

The rudder-pedals, nose-cowl, wheel well, lower fuselage fairing and the upper, removable fuselage fairing are all made of plastics.

TECHNICAL DATA

Span, 16.08 m. (52 ft. 9 in.).
Wing area, 15.50 sq. m. (167 sq. ft.).
Aspect ratio, 16.7.
Length, 7.06 m. (23 ft. 2 in.).
Empty weight, 227 kg. (500 lb.).
All-up weight with complete equipment, 324 kg. (714 lb.).
Wing loading, 20.9 kg./sq. m. (4.28 lb./ sq. ft.).
Load, factor, 10.

The Javelot, Bréguet 901 and 904, are the only French sailplanes authorized for cloud-flying.

The final price of the Javelot will depend on the number of planes ordered, but it will be in the neighbourhood of 1,750,000 francs (£1,500).

Accident Analysis in U.S.A.

IN *Soaring* for November-December 1957, Joseph M. Robertson, chairman of the Flying Safety Sub-committee of the Soaring Society of America, describes 16 sailplane accidents and incidents which occurred during 1956. Here is a short summary; no one was injured except where stated:—

1.—Pilot of a TG-3A, preparing to land from downwind of an airfield, encountered strong lift at 500 ft. and again at 350 ft., tried to use it, then ran into a strong downcurrent and undershot into brushwood. Experience: 83 hrs.

2.—Pilot of a Pratt Read, carrying a passenger on a cross-country flight, encountered "an extensive downcurrent, common in desert country"; could not reach a safe landing area, so deliberately stalled into "a large Palo Verde tree". Experience: 1,100 hrs.

3.—Pilot on a cross-country in Nimbus II, heard a creaking behind his head, looked round and saw "the two main wingspar-fuselage attach bolts were missing"; continued the flight cautiously and landed safely. The oversight was attributed to tiredness of himself and his crew after several days' contest flying in high temperatures.

4.—Pilot, in back seat of Cinema, had to rely on his passenger to call out the altitude. Winch cable broke at 150 ft., passenger failed to call out altitude when asked; pilot thought he had room for a complete turn but went downwind into a cornfield. Experience: 30 hrs.

5.—Pilot landed a 2-22 too close to a tree.

6.—Pilot of a Pratt Read came in to land very fast and struck a small clump of trees on edge of airfield. Error of judgment attributed to pilot being "emotionally upset"; also to his habitually following the example of more experienced pilots in landing as close to the end of the runway as possible. Experience: 31 hrs.

7.—Pilot of a 1-26 making his first ridge flight, let himself get too low to reach landing field 1½ miles away.

8.—Pilot of two-seater, not knowing the wind had shifted 180°, had a downwind winch launch and stalled at 40 ft. Passenger had not fastened his shoulder harness, and received three crushed vertebrae. Nobody concerned had much experience of glider launching.

9.—Ailerons not connected up; pilot of 1-23 took off without checking controls; glider "substantially damaged" on landing without aileron control.

10.—Pilot of a 1-19, to avoid landing far down the runway, started a turn when coming in over trees and hit the trees.

11.—Pilot had designed and built a very small flying-wing stunt glider, on which he lay prone. Disregarded advice to try low tows first and had a tow to 5,000 ft. after a take-off run of 3,000 ft. along the ground behind a Ryan PT-22; lost height rapidly in two turns, glided downwind into trees and was killed instantly. Estimated speed, 160-300 m.p.h.

12.—Pilot flying a TG-3A in a wind of 25 m.p.h.; at 300 ft. above downwind end of field on landing approach; thought he had enough height to reach upwind end, turn and land downwind, but hit the upwind fence while turning. Experience: 23 hrs.

13.—Pilot of TG-2 took up a photographer, who complained of lack of room, so the front canopy was removed. On turning at 300 ft. the machine went into a spin, hit some trees, and came to ground inverted. Passenger injured; pilot had slight scratches. Conclusions: absence of canopy caused a rush of air and buffeting, giving the pilot a false idea of speed, and may have caused a wrong A.S.I. reading due to reduced static pressure; passenger leaning out of cockpit set up turbulence over wing root and helped to stall the inner wing.

14.—Pilot of LK-10A encountered extreme turbulence on landing when only 2 ft. above the runway, and ground-looped. Attributed to an intense desert thermal. Pilot suffered a slight cut; had no shoulder harness. Experience: 174 hrs.

15.—Pilot of a Grunau Baby II got himself over middle of field, too high to land into wind; turned down wind and hit ground with wing-tip. Experience: 375 hrs. power plus gliders.

16.—Pilot of Bowlus BA-100 took off in the slipstream of a 220 h.p. Stearman; rudder flutter developed at 100 ft., pilot released, pulled stick hard back, dived to ground in a stall, and was severely injured. Experience: 210 hrs.

Correspondence

WHO DISCOVERED THERMALS?

ALTHOUGH meteorologists must have realised long ago that upcurrents would be found in front of hills, near lenticular clouds and under cumulus clouds, they appear to have kept their knowledge very much to themselves. There are almost no helpful remarks about upcurrents in books on meteorology. Hill-lift was used by the Wright Brothers in 1902-3 and 1911, but the other forms of lift were not used for some years.

In Eric Nessler's *Histoire du Vol à Voile de* 1506 *à nos jours* (Les Oeuvres Françaises, 1947), he writes of the first use of thermals:

"On the 7th July, 1914, Sergeant Grasset, flying a Voisin aeroplane with a Canton-Unné engine, took off from Buc and climbed 1,000 m. He flew from Buc to Issy les Moulineaux with the engine ticking over. Not only did he not lose height but he gained 300 m. with the help of the successive rising currents which he met when passing exactly underneath each little cumulus."

There were, of course, no gliders capable of thermal soaring in 1914, and the technique of throttling back to zero thrust which was used then in exploring upcurrents has often been used since: e.g., by P. G. Mallett in a Meteor to explore wave lift (GLIDING, Winter 1951-2, p. 164).

Nessler also records that a Bulgarian, Raoul Milkov, reported to his meteorological service in 1916 a strange phenomenon he had met while flying an Albatross biplane over the plateau near Sofia: "After a long flight in rough air, his aeroplane entered suddenly into a vast space, absolutely calm and seeming to rise in a single mass at a constant speed. Lt. Milkov met the wave on other flights and reported that it existed only in certain wind conditions." The meteorological service deduced that the wave was produced by a chain of mountains several kilometres away and that this report confirmed theories on the formation of lenticular clouds put forward in *Meteorologische Zeitschrift* in 1912 by Prof. Kassner.

We use hill-lift, thermals and waves today but no other source of lift has yet been used by sailplanes.

A. H. YATES.

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PARACHUTES

Dear Sir,

A benevolent Government provides a parachute, and in many cases an ejection seat also, for nearly all military pilots, as they represent a considerable training investment and potential for service. By far the most important result is that a pilot knows he stands an excellent chance of escaping should it ever be necessary, and it is because of this psychological effect (as well as the condition of some club aircraft I have seen!) that I must challenge the demand implied in R. B. Stratton's letter in the February issue for dispensing with glider parachutes.

In contrast with the airlines and flying clubs, whose activities consist entirely of routine bumbling, the glider pilot, whose aim must constantly be to soar, shares with the serviceman the need always to be ready—not necessarily at times of his own choosing—to fly to the limit if he is to come out on top. This, of course, needs practice and the willingness to seize every opportunity to gain experience. However, we need, not the reckless enthusiast likely both to endanger himself and to bring disrepute on all, but the man who will unhesitatingly take a considered risk to achieve his goal. I suggest that someone with a parachute is more likely to allow himself, for instance, to be sucked into the bowels of a vigorous cu-nim than one who is without.

Mr. Stratton asks whether "we in gliding are doing anything more to justify the carrying of parachutes than flying clubs or civil aircraft, which do not carry them?" If we cannot reply with an emphatic "Yes", then we might as well forswear gliding and take up crocheting.

Dishforth, Yorks. J. S. R. SALMOND.

ATTENTION TO DETAIL

Sir,

Could we have, at the head of every account of a cross-country flight, a little "box" containing the main particulars, in case the pilot-author should omit some interesting item such as the object of the flight, or the aircraft type, or the starting point? It is sometimes hard to know what a flight really amounts to, after reading the account. On a hasty check of 23 flights recounted in the odd issues on my shelf, I note that 5 omit the date, 2 omit the aircraft type, 2 omit the starting place and one omits the landing place. Among the distance flights, 5 omit the mileage, and although one of these gives a map, it has no scale; 6 give no take-off time and 6 no landing time, though one of these does give total time. Many ignore wind and weather as of no relevance. Many omit barograms which should have been interesting, and one barogram has no time scale. Nine state that their heights are "a.s.l."; the others are unspecified, although some hill sites are more than 1,000 ft. a.s.l. Few state any lessons learned. One pilot-author, in an account of 1½ pages, manages to omit date, pilot's name, place and time of take-off and of landing, mileage, definition of heights, barogram and map—but he does state the aircraft type! Only 5 of the 23 accounts seem to me complete in all respects. I do not include flights such as local height attempts where some of these points would be irrelevant.

This is, of course, up to your contributors, not to you, who do enough for them already. But if they would, as it were, "fill in the form", we should know whether it was from Camphill or from Cambridge that Jones flew to Newmarket, and whether he did it in a Skylark III or in an SG-38. I suggest the following items to precede every account, where applicable:

Date;
Pilot's name (and perhaps sex in the case of hermaphroditic christian names);
Object of flight (if any, and if decided before landing);
Weather;
Starting place, height a.s.l. and time;
Landing place, height a.s.l. and time;
Distance;
Aircraft type.
All heights to be a.s.l.

On occasions one might like to know the method of launching, and sometimes the average speed. Maps should include all places mentioned in the text, and there might be a standard method of indicating thermals on the map—I suggest a numbered circle.

If you print this letter I will assume that you agree more or less with its proposals and are bringing them to the notice of your pilot-authors.

LAWRENCE WRIGHT.

16 *Carlisle Street, London, W.*1.

[Approval of the idea of numbering thermals should not be taken to imply that every thermal must be mentioned; in fact, we can no longer find room for accounts of cross-countries which are virtually just a catalogue of thermals, and there must be some special additional features of interest if they are to merit publication. Regarding the author who omitted everything except the sailplane type, it is only fair to state that he had his reasons, and laziness was not one of them.—ED.]

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O.S.T.I.V. Congress in Poland

THE Seventh Congress of the Organisation Scientifique et Technique Internationale du Vol à Voile (OSTIV) will be held at Leszno, Poland, from Thursday, 12th June to Friday, 20th June, 1958. The Congress will thus begin during the practice period of the World Gliding Championships and end halfway through the Championships.

As well as theoretical papers that are of primary interest to the professional scientist, meteorologist and engineer there will be others of more general interest to the glider pilot. There will be ample opportunity for discussion and OSTIV hopes that pilots, meteorologists and designers will thus be able to exchange experience and proposals for the improvement of soaring flight.

OSTIV plans to present technical papers on the following subjects: profile drag, boundary layer control and new wing sections; construction methods in metal and plastics, airworthiness requirements in various countries, new developments in sailplane instruments, launching equipment, training methods, muscle powered flight, bird flight, aero-medicine, speed-flying and dynamic soaring. In addition there will be descriptions by designers of sailplanes entered in the Standard Class and papers on new designs in various countries.

The following topics are planned for the meteorological sessions: vertical motions in the stratosphere; structure and theory of thermal convection; wave motions of the atmosphere. There will also be discussions of squall lines and jet streams and there will be one or two joint sessions with outstanding glider pilots of the world.

OSTIV would like to receive offers of papers (in English, French or German) for the Congress as soon as possible. Will anyone offering a paper on one of the subjects mentioned above, or on an allied subject, please correspond with one of the following before 1st April (a one or two page summary of the proposed paper must be received before 1st May):—

Aerodynamics, Design and Construction: Mr. K. G. Wilkinson, Clonard Way, Hatch End, Middlesex.

General Technical: Mr. Alan Yates, Technical College, Bath.

Meteorology: Dr. Joachim Kuettner, 985 Metropolitan Avenue, Hyde Park, Massachusetts, U.S.A.

Anyone interested in the science and technics of soaring flight is invited to attend the Congress.

Individual Membership in OSTIV may be obtained by persons for £1 8s. ($4.00 or 17 Swiss Francs) per year. Members receive the Swiss *Aero Revue* monthly, which contains an OSTIV Section in which papers read at OSTIV Congresses and many others are published.

Subscriptions should be sent to me at: Dept. of Meteorology, Imperial College, London, S.W.7.

BETSY WOODWARD.



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B.G.A. NEWS

World Gliding Championships, 1958

We have heard from Sports-Tourist, Frascati 4, Warsaw 18, Poland, that they are organising the accommodation, etc., for spectators at the Championships, but they have not sent details. We have been in touch with a travel agency—Fregata Travel Ltd., of 122 Wardour Street, W.1 (who specialise in travel to Poland)—who are obtaining the details from Poland and hope in due course to be able to quote a special all-in rate if a number of persons wish to travel on the same date.

The Championships are to be held at Leszno, Poland, from 16th to 28th June. Practice period: 9th-14th June.

Annual Awards for 1957

De Havilland Cup for greatest gain in height: 26,500 ft. by Sgt. J. S. Williamson, R.A.F. (Army Gliding Club) on 19th July.

Manio Cup for best goal flight: 217 miles by Lt.-Col. A. J. Deane-Drummond (Army Gliding Club) from Lasham to Land's End on 6th April.

Wakefield Trophy for longest distance: 270 miles "dog-leg" flight by P. A. Wills from Lasham — Firle Beacon — Tarrant Rushton—St. Kews Highway on 23rd June.

Commendation: 268 miles by J. Hulme of Cambridge University Gliding Club on 27th May. U.K. Record.

Volk Cup for best out-and-return: 197½ miles by Lt.-Col. A. J. Deane-Drummond (Army Gliding Club) Lasham -Kidderminster—Lasham on 1st June. U.K. Record.

Seager Cup for best two-seater performance: 100 km. triangle at average speed of 35 m.p.h. by Dr. D. B. James and D. Marshall (Surrey Gliding Club) on 31st May.

California in England Trophy for longest distance by a woman pilot: 156 miles by Mrs. A. J. Deane-Drummond (Army & Surrey Gliding Club) from Lasham to Liskeard on 23rd June.

Douglas Trophy to the Club putting forward three flights by different members in club aircraft, aggregating the largest cross-country mileage: London Gliding Club: C. W. Benston, 189 miles; M. P. Garrod, 190 miles; D. A. Smith, 192 miles; aggregate 571 miles.



The first flight made by John Williamson, after returning from a year's spell of non-flying duty at Gibraltar, earned him the De Havilland Cup.

Awards for 1958

For 1958 the Council has also approved the Flying Committee's recommendations that the wording for a number of the awards should be changed as follows:

Wakefield Trophy & California in England Trophy (for women pilots).

For the longest distance flight made either

(1) in a straight line, or

(2) in a broken line of not more than three legs of which all but the last leg must be at least 80 kms.

Manio Cup for the longest goal flight made either

(1) in a straight line, or

(2) in a broken line of not more than three legs of which all but the last leg must be at least 80 kms.

The wording for the other Cups remains as previously.

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New Members welcomed — Particulars from
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The parents of the Deane-Drummond family have earned three trophies between them.

Second Federal Soaring Championships

FEDERATION OF RHODESIA AND NYASALAND

by Robert L. Mitchell

In a young and growing country it is only reasonable to expect change, and change we had at our Second Championship. The scene was the same—Thorn Park Gliderfield, near Salisbury, Southern Rhodesia, the home of the host club; some of the pilots were the same as before and even some of the aircraft, but there the similiarity ended. This time October was chosen, and the hot October sunshine poured down and the thermals up! Unfortunately anything can happen to the weather, and a cold front arrived and disappeared the day before the Champs, and left in its wake a steady wind of some ten knots which chopped the thermals. Added to this was a heavy haze which cut off the horizon.

Saturday, 28th September, was arrivals day, the arrivals consisting of Harry Mason, Tony Churcher and others with the Kirby Kite from Bulawayo, and Ted Pearson and Ossy Minfield from the Soaring Club of Northern Rhodesia, *sans* aircraft and *sans* trailer, this having been ditched several hundred miles away. However, they had been briefed to unpack and fly Chingola's new Lo-100, "Dwarf Heron". This was duly done, and a day spent making special hooks for the shoulder releases, not to mention borrowing instruments and translating the inadequate German instructions. The next day Ted ventured on his maiden flight, and we could swear that the Tiger dragged him off at below stalling speed! His arrival, with a jammed A.S.I., I judged to be 70 knots, having had a worm's eye view from halfway down the runway. He thought the machine difficult to handle. Ted nobly persevered with it and was just getting the hang of it a few days later when he ran out of lift and had the misfortune to hit an anthill in ploughed field and to somersault, breaking the fuselage in two. Luckily, he was only slightly scratched, and helped out by an ex-R.A.F. farmer who thought the incident very amusing.

One less serious forced landing was that of "Pantie" Dance in his Tutor. He selected a ploughed field in the Lake McIlwaine National Park and arrived uneventfully. Meanwhile, the African attendant at a nearby Service Station reported to the police, who subsequently arrived in force, that an aeroplane had crashed. Even a R.R.A.F. Dakota was sent to the scene. (Dance was, of course, Peter Dance, until mis-reported in the *Rhodesia Herald*!) Luckily, he said, the Tutor did not burn, so no fire engine was sent!

Other entries from Salisbury were Eric Burditt, last year's Champion, in Skylark 2, Gus Tattersal and Peter Bell in Bergfalke 2, Leslie Snowball and David Ryland in the Superspatz, Tony Ridout and Jimmy Harrold in H-17, and Ivor McCormick and Gerta Wolf in the Grunau Baby 3. This varied assortment caused a handicapping headache. Pearson reported at length on a three-class entry, and, when this was rejected, Basil Wordsworth and the author, representing the Central African Soaring Association, worked out a scheme of 500 points for each of distance and time, the Skylark, Spatz, Bergfalke and Dwarf Heron being Scratch, the Grunau carrying a bonus of 15 per cent and the remainder 25 per cent. This, in turn, was modified in detail but, after still continuing argument by the Pilots' Committee, the C.A.S.A., smarting from criticism, is resolved not to allow alteration by the Pilots' Committee next year—and even handicapping is now doubtful.

Throughout, the honour system was used, although nearly all pilots carried cameras, and some six Silver C distances were achieved on 50 km. triangles. Possibly due to inexperience, most pilots were cautious in the choice of task, the usual selection being races round 50 and 100-km. triangles. One pilot-nominated out-and-return was achieved, however, and this event was won by McCormick, who went to Norton, some 120 km. in all, in the Grunau. Due to wind, he was the only pilot to complete the task. Eric Burditt

selected Featherstone and back, but had to lob down after some 150 km. on his own farm. (Since he has a Skylark, there is little need to mention that he is a tobacco farmer!)

On another day, Ridout, who soloed only two months before, soared the Hütter along the Iron Mask range at only 500 ft.; this is the first known ridge-soaring effort on record in Rhodesia. Unfortunately he was 10 kilometres from base, a little below it in altitude, and in attempting to encircle the Mazoe Dam (where the oranges come from) lost his sense of wind direction and had to lob down.

The Bulawayo Team did well in their Kite, but, even with the handicap bonus, were unable to obtain a place with so obsolete a machine. Cross-country flying is more difficult in Matabeleland, which is generally bushed ranching country, and they have little experience of the art, whilst the open farms of the Salisbury area present only contour ridges and anthills as handicaps. In Northern Rhodesia it is only bush, and cross-country flying is very limited, so both Ted Pearson and Ossy Winfield had no chance to practise.

David Ryland in his Spatz was consistently flying very well against Burditt in his Skylark, and did a very good out-and-nearly-return to Sinois—some 250 km.

Final placings were:—

1. David Ryland —Super Spatz
2. Eric Burditt —Skylark 2
3. Ivor McCormick —Grunau Baby
4. Jimmy Harrold —Hütter 17

POSTSCRIPT.—Since the above was written, Burditt and Ryland went to South Africa for the S.A. Nationals, winning 2nd and 3rd places to Dommisse in the Open Championship. We are very proud of them, and hope that one of them, at least, will raise the Federal Flag in Poland.

Model Height Record

From an aerodrome near Moscow, a model aircraft owned by Ljubuschkin reached 16,742 ft., beating the previous model height record of 13,622 ft. In spite of its possessing a 5 c.c. motor, it presumably reached this altitude in soaring flight.

How to get "SAILPLANE AND GLIDING"

Owing to increased postal rates and rising publication costs, the Association regrets that postage must now be charged in full. From 1st October 1957, new and renewal subscriptions obtained through the Association will be 17s. ($3.00) per annum, both home and abroad. The price of the magazine remains unchanged at 2s. 6d.

"Sailplane and Gliding" can be obtained in the U.K. at all Gliding Clubs, or send 17s. (post free) for an Annual Subscription to:—The British Gliding Association, Londonderry House, 19 Park Lane, London, W.1. Single copies and most of the back issues are also available, price 2s. 10d. post free. Enquiries regarding bulk orders of 12 or more copies, at wholesale prices, should be made to The British Gliding Association.

OVERSEAS AGENTS

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SOUTH AFRICA:	The Aero Club of South Africa, P.O. Box 2312, Maritime House, Loveday Street, Johannesburg.
U.S.A., CANADA & OTHER COUNTRIES:	Please apply direct to British Gliding Association. Single copies 2s. 10d. or 17s. annually. (50 cents or $3.00 annually).
SCANDINAVIA:	Hans Ellerstrom, Gronalundsgatan 9B, Malmo, S.V., Sweden.

Green Leather Cloth Binder, taking 12 issues (2 years): 15s. 6d. post free from B.G.A. Will also bind your B.G.A. Personal Pilot Logbooks.

More Diamonds from Kimberley

by Eric Burditt

Salisbury Gliding Club, Southern Rhodesia

Taking part for the first time in the South African Gliding Championships, Eric Burditt made the first flight in the Commonwealth to exceed 500 kilometres.

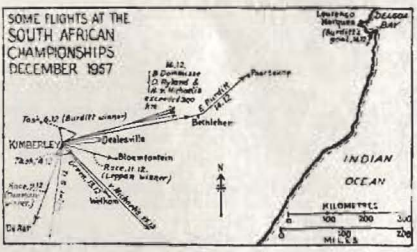
THE South African Gliding Championships were held in December 1957 at Kimberley Aerodrome to take advantage of the strong thermals arising from the arid veld, and the prevailing west winds which blow in a slight curve across the subcontinent, finishing as southerlies. This weather did not prevail for the whole period of ten days, except the last, when a free distance contest was declared by the organisers.

My turn to take off in the Skylark II arrived at 12.10 hrs., and though the lift was not good, I committed myself at once from a starting height of 700 metres (2,300 ft.). The wind had backed almost abeam of my track to goal, but better sky appeared to windward, so I held my course. For two hours I could not catch up with the small cumuli which grew and died a few miles ahead—and I was averaging 75 k.p.h. over the ground. Basutoland looked very impressive and rocky on my starboard beam, while I struggled in vain to open a tin of Old Fashioned Mint Humbugs with protractor, fingernail, harness pin and all manner of unsuitable things.

After four hours of this 2-3 metre lift I perceived, while over Bethlehem, an ugly mass of surface cloud sweeping inland from the S.E. about 40 miles away. It was coming in fast, so I changed course to N.N.E., abandoned my goal and flew parallel and some 30 miles in front of it. While over Warden in the late afternoon I passed over some 40 buckwagons drawn in a circular laager with people dancing inside —for this was near to Dingaan's Day.

The sky got murkier and rainy, with several levels of cloud and occasional very weak lift; I considered giving up, as to go on would mean crossing 60 miles of deserted plateau which looked quite formidable on the map. Then another bit of weak lift developed into high cu, which carried me upward with horizon humming to 6 kilometres a.s.l., and while struggling to fit the oxygen mask, I entered a tempestuous area which got me into trouble, showing a short vertical (downwards) line on the barogram. Extrication was by courtesy of Sling's dive brakes. Re-entering the evil black wall of cloud, I found only very bad sink, and I funked going further and further into it for fear of the whole sky closing in behind, as it threatened, and thus getting more lost than I already was. So pulling out just in time, course was set for N.N.E., with the invading low cloud now almost below and converging on me very fast.

The long glide down developed into a race between this greedy south-easterly, the fading light, and the urge to get as far as possible, or at least to some inhabited area. Passing through some big lumps of fast strato-cu at about 300 m. above ground-level, I was astonished to find some lift, which I used for a few circles, and then in the grey distance I espied a "dorp" or village. A stretched glide, and an approach and landing at almost zero ground-speed brought me a mile north of Perdekop. A



moment of relief—after 6½ hrs., and a glance at the map showed the flight to be just 511 kms. (316.52 miles) and the longest in Africa. My wooden pickets broke, and the wind and drizzle moaned in the telephone wires, but with some white-painted boulders from a dangerous bend in the road near by, the Skylark was snugly derigged for the night.

The indefatigable crewmen, Frank Dodd and Peter Dance, had just arrived at Bethlehem when my genial host phoned them from the pub, and there remained only the time-honoured question, "What kept you?" as they woke me from my bed at 04.30 hrs., and a fourteen-hour drive back to base.

Boet Dommisse, Dave Ryland (a fellow Rhodesian) and Von Michaelis also did Gold distances or Diamond goals on that day, though several other contestants fell down after a few miles.

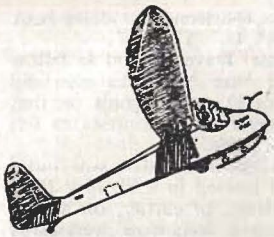
Something this flight showed me was that if an average pilot started in a Skylark II at 8.30 in the morning, or earlier, on a very good day, taking a long tow westwards from Kimberley before release, and if he got one good cloud in the late afternoon, then Dick Johnson would have to look to his laurels.

The Latest Lo-150



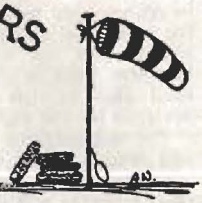
THIS photograph shows Wolf Hirth, the soaring pioneer, taking off in the 1958 model of the Lo-150, made by his firm. He has just been bungied off Mount Pfänder, 3,000 ft. high, near Bregenz on Lake Constance, in Austria. He writes that the machine has a pair of jettisonable wheels. A nose release for aero-towing is now fitted as standard, besides the centre-of-gravity hooks. The plexiglass canopy is now blown, and the wings have a thin protective surface of polished fibreglass, to ensure the lowest possible drag. The chord of the rudder fin has been increased by 7 ins., to facilitate blind flying.

This model has been test-flown for 35 hrs. by nine different pilots during last summer and autumn.



ITS - ALL - YOURS

For and About Instructors



THIS month the main article is by Derek Piggott, and he discusses one of those aspects of training that many pupils find difficult to get right, and some instructors find difficult to explain—the Final Turn.

The second section has been written following a recent incident in which a collision between two gliders was very nearly caused, not by a failure to look out, but solely from woolly thinking.

Finally, for the benefit of any new followers that Joe may have, I would like to repeat that it has all happened, somewhere, sometime. ANN WELCH.

THE FINAL TURN

by Derek Piggott

THE analysis and explanation of the faults in the final turn is one of the most important and interesting parts of a glider pilot's training. The cause of inconsistent approaches can usually be traced to bad positioning or flying during this turn, and an inexperienced instructor may quite easily confuse the pupil by failing to analyse the mistakes correctly.

The first essential is to commence the turn high enough to allow a reasonable length of straight approach. At this stage of the circuit the pilot should not refer to the altimeter. He should be made to learn to judge by comparing his height with near-by trees or buildings. Thinking of the height in feet is misleading and unnecessary and may easily lead to the pilot checking his height with the altimeter. This leads to lack of confidence and misjudgment when the altimeter is not able to give the exact height above the ground.

It is usually undesirable to have a very long approach because variations in the wind and the effects of turbulence, down-draughts, or the wind gradient may cause the glider to undershoot the field. If the approach is twice as long as normal, there is twice the time for these effects to occur and therefore twice the chance of them affecting the approach seriously. On the other hand, a very low final turn cannot be tolerated. The ideal at most gliding sites is to complete the turn by the height of very tall trees, or a little higher in windy conditions.

The pupil must learn to use his judgment as to how far it is safe and necessary to go beyond the downwind boundary to allow enough room for the final turn and approach. In windy weather, the final turn will need to be completed almost over the boundary of the landing area. However, on a calm day the turn will need to be some way behind it if the landing is to be made in the same position.

When the final turn is completed in the wrong place or height, an undershoot or overshoot of the desired landing point may be unavoidable. If undershooting, any attempt to stretch the glide by easing up the nose during the approach will result in a loss of speed, and subsequently a steeper glide path in a semi-stalled condition. This is particularly dangerous in turbulent air, when a gust or the wind gradient may stall the glider. In any case the glider will land heavily and undershoot more than if a normal approach had been made. If overshooting, diving off excess height fails to have the desired effect unless powerful airbrakes are fitted. Height and speed are more or less interchangeable, and diving results in extra speed. This has to be used up by floating level just above the ground and the glider floats almost the same distance as it would have glided at normal approach speed. Furthermore, it is difficult to judge how far the glider is going to float before landing.

Every pupil has some difficulty in making a well co-ordinated and steady final turn at first. This is due to the nearness of the ground distracting his attention from the handling of the controls. The stick and rudder movements are generally becoming co-ordinated after about a dozen flights, but during the final turn and approach the rudder is forgotten and the turn suffers accordingly. After further experience this problem tends to solve itself.

There is also a distinct tendency for the pupil to allow the nose to drop in the final turn. This is usually because the pilot has applied bank and rudder but has failed to hold the nose up. A backward pressure is needed for every turn; the greater the bank, the greater the backward movement for an accurate turn. The final turn is no exception, and this movement is essential or a slipping or diving turn will occur.

The cause of being too low after the final turn is frequently the use of a very shallow angle of bank. The radius of turn depends upon the angle of bank and on the speed of the glider. If the aim on a particular day is to start the straight approach immediately above the boundary fence, sufficient room must be allowed for the turn. More room will be needed for a gentle turn because the extra radius will take the glider farther up the field. Also, because a gentle turn takes much longer to complete, more height will be lost. It is particularly important to realise that if the glider is getting rather low on the crosswind leg, a well-banked turn should be made *immediately*. A gradual turn started at the same height would only result in the glider running out of height while still turning.

Excessive speed in the turn has a rather similar effect. The radius of turn is increased and more height is lost because of the higher rate of descent. In this case the glider is often very low as it crosses the boundary but it floats so far that it usually overshoots the landing place.

In a strong wind the drift will foreshorten the turn so that the glider does not gain much ground towards the landing area. The pilot must learn to assess the wind strength and how much room is needed for the turn. He must also try to plan the approach so that the glider is exactly lined up with the chosen part of the landing area as it completes the final turn. No further turns or adjustments in direction ought to be necessary before the landing.

If the glider is too close to the landing area on the crosswind leg, the landing will be an overshoot. The use of the airbrakes cannot correct this mistake and may result in the glider running out of height during the turn. Airbrakes should be used before or during the turn only if it is clear that the landing area is within easy reach and if the turn would otherwise be completed higher than necessary for a good straight approach.

The most common cause of approach accidents is the failure of the pilot to increase speed in time before the approach. If the glider is flying slowly and meets turbulent air, it will lose a considerable amount of height. The pilot may then attempt the final turn at low speed because there is not sufficient height left to pick up speed before the turn. Furthermore, because of the proximity of the ground, he may attempt to speed up the rate of turn by applying extra rudder. This creates high drag and causes a further loss of speed, and the glider may start to spin. The only certain precaution to avoid this disaster is to pick up the approach speed at about three or four hundred feet, and to maintain it until holding off for the landing.



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R. Stafford Allen, Manager, London Gliding Club
Dunstable Downs, Beds. Dunstable 419

Often it is not obvious to either pilot or onlooker exactly why a particular approach has gone wrong. The following summary may help you to analyse mistakes and to avoid repeating them:—

Causes of a low final turn

1.—Final turn started too low.

2.—Too much height used up with the airbrakes during the turn.

3.—Too little bank, so that the glider runs out of height before the turn is completed.

4.—Allowing the nose to drop during the turn.

Causes of undershooting

These are usually obvious, but the following are the most common causes of overshooting:—

1.—Crosswind leg made too close and/or too high in relation to the landing area.

2.—Too gentle a final turn.

3.—Diving in the turn so that the excessive speed results in a large radius of turn and a long float.

RULES, NOT RIGHTS

APART from all the aeroplanes in the sky, there are increasing numbers of gliders. Since these are trying to do much the same thing, and are often in close proximity to each other, the risk of collision is ever present.

Collisions are probably the most unpleasant form of glider accident; at least two aircraft and their pilots are involved, and quite apart from the severe risk of death or injury, there may be the struggle to get out of the shattered aircraft in the few seconds left, or the terror which faces the pilot who cannot. There is also the cost in plain cash.

In gliders there are only two safeguards against collision: keeping a really thorough look out, and knowing the rules of the air. It is with the latter that there appears to be some muddled thinking over hill-soaring. There are three rules which are vital, and the wording of the A.N.O.s is as follows:—

APPROACHING HEAD-ON.—When two aircraft are approaching head-on or approximately so, and there is danger of collision, each shall alter its course to the right.

CONVERGING.—When two aircraft of the same class (i.e. two gliders) are at approximately the same altitude, the aircraft which has the other on its right shall give way.

OVERTAKING.—An aircraft which is being overtaken has the right of way, and the overtaking aircraft, whether climbing, descending, or in horizontal flight, shall keep out of the way of the other aircraft by altering its course to the right, and no subsequent change in the relative positions shall absolve the overtaking aircraft from this obligation until it is entirely past and clear. Provided that, within the U.K., the requirements in this paragraph . . . shall not apply to a glider overtaking another glider if the person in command of the overtaking glider is satisfied that, having regard to all the circumstances, hazard would be caused by altering his course to the right.

It will be seen that *only* in the overtaking rule is any exception permitted. This is because it is always safer when hill-soaring to overtake between the slower glider and the hill.

The first two rules—meeting head-on, turn right; and converging, give way to the man on your right—are fixed and absolute, and apply in *all* circumstances. Infringement of the rule is infringement of the law of the land. A pilot hill-soaring has neither excuses or rights to absolve him.

A.W.

THE ADVENTURES OF JOE

JOE was sitting in the glider just about to have an aero-tow from outside the hangar, when it started to rain heavily. It was only a shower, and so, as there was no wind, Joe and the tug pilot got out and went back to the clubhouse, leaving everything ready for later.

Once in the clubhouse they got talking, and then discovered that lunch was ready. At about the time that they were tucking into the meat course another member went out to fly. The engine was started, the chocks removed, and the aeroplane took straight off.

Through the clubhouse window Joe watched idly. "Silly clot in the glider can't even keep his wings level," he thought, helping himself to more potatoes. When the glider disintegrated in the hedge his appetite faded abruptly, and he felt positively bilious as the aeroplane flew overhead towing a small black object and a minute yellow knob.

A. WELCH.

GEORGE COLLINS

C.F.I.—CORNISH GLIDING CLUB



(Photo by Ken Young)

IN 1927 the ten-year-old George Trehane Collins saw Lindbergh's "Spirit of St. Louis" fly over his Cornish home town. However, this failed to inspire him, and it was not, in fact, until after he had qualified as a pharmacist at London University and was unable to decide whether to make his career in that or in music, that he volunteered as an Observer in the R.A.F. January, 1941, found him, either as a result of his athletic prowess or the inspiration of a talent spotter, sitting in the rear seat of a Tiger—and his interest in flying suddenly became acute. After 1,500 hrs., from Tigers to Lancasters, and a six-month interlude for a cracked skull (better now, he swears), 1946 found him a partner in a Truro firm of pharmaceutical chemists—of which he is now the boss.

His resolve never to fly again lasted exactly three months, for then he met Sqn./Ldr. Jim Williams, O.C. of No. 82 Gliding School, A.T.C., at St. Eval, and that was that. Before long he had also joined Plymouth Aero Club and got his Private Pilot's Licence.

In 1948 he went with Jim to Germany, as he says, "to get some real gliding experience" and met Wolf Hirth, Hanna Reitsch, Meiklejohn and Jock Forbes. He flew the latter's Weihe on the Oerlinghausen ridge for 1½ hrs. in a snowstorm, being one of the few who got all the way back unscathed. By now the bug had bitten hard and deep—but, with 40 others, he had also caught paratyphoid fever, and it was not until after this that he was able to do his five hours at the Long Mynd. Then, in 1949, he joined the V.R. Squadron at Exeter where, he says, he really learned to fly properly, gaining his instrument rating and an "above average" category for aerobatics. Throughout he continued his gliding instruction with Jim Williams at Harrowbeer, St. Merryn, Culdrose, and at the Group Gliding Centre at Hales Land, being responsible for sending well over 300 pupils solo in his capacity of C.F.I.

Having the usual frustration in going for his Silver C distance leg in Britain, he went to Pont-St.-Vincent in France during 1953, but bad weather foiled him and it was not until he went back there in 1954 that he got it—and did an out-and-return which took over eight hours.

This difficulty in finding opportunities to do cross-countries much impressed him, and his great ambition is to enable members of his own Club now to have the chance at the earliest possible moment, though he admits that he also now appreciates more the snags involved.

In 1954 he bought a Tiger and in 1956 formed a syndicate to buy an Olympia. Then with two others he set about forming the Cornish Gliding and Flying Club, but it was not until after a year's frustration over an aerodrome and hangar, and being joined by some dozen other Instructors (including all his old A.T.C. friends plus some very welcome new ones), that the Club became airborne.

With him as C.F.I., the first six months' working produced a record worthy of the man: 4 courses—2,800 launches—26 solos—6 C's and two Silver C legs. For this year he and his Flying Sub-committee have a programme which includes eight courses and three weeks for various visitor groups.

George never talks about the heavy slog, with its emphasis on circuits and bumps

which has made this progress possible; but now, while in no way relaxing the effort for *ab initios*, he aims for much more concentration on soaring—especially thermal and wave soaring—and rather more personal pleasure-flying for his Instructors.

In addition to his duties as C.F.I. the Club has pushed on to him the office of Chairman, and he is one of the best members the Club has for producing notice boards, castor trolleys, chandelles and the like, for he is more than good as a handyman. When he is flying, his pupils in the T-21 or T-31 vow that he has "green fingers"—if there is anything about, George will find it and the little green cylinder of the vario will be on its way up.

But George has not only an enviable reputation in Cornish flying circles. He is no mean businessman, and defends his profession of pharmacist by pointing out that it was one of them who first classified the clouds. And, above all, he is still a musician, being Conductor of the Truro Orchestral Society and the Operatic Orchestra. It is typical of the man that before accepting the position he learned to play every instrument in the orchestra except the bassoon—and, we might add, his own trumpet. Some of us have heard his theme, in three movements, for a piano concerto, but he has very little time now to make much progress with it.

However, we are interested in his flying here. There is no doubt that he is the improved modern type of Instructor: he makes it easy—and not difficult—for members and visitors to fly. He is no fearsome wasp-tongued king-pin with a withering repertoire of cracks—wise, cheap or otherwise; he is quite a gentle critic of errors of judgment if you are inexperienced and has often been heard to murmur; "There, but for the grace of God . . ." He is, in fact, far too modest and always most chary of throwing his weight about. He is definitely a guide, philosopher and friend on whose leadership and example this Club very definitely depends.

He will not know about this article until he reads it—and it would have to be far too long to record all that everyone would wish—but we are sure that he would be furious if we did not mention that he pays tribute to our elder brethren at Lasham and Bristol for all the help he (and we) have received from them on various brain-picking visits, and the gratitude to "Old Basil", whose grip on the purse strings George is trying to loosen still further.

Si monumentum requiris veni et circumspice. T.B. and C.M-H.

UP AND DOWN

News from Austria

Hans Wolf, who led the Austrian team at the 1954 World Championships held at Camphill, became the first Austrian pilot to earn a diamond when he gained 3,500 m. (11,480 ft.) in a Foehn wave; he also became the fourth Austrian Gold C pilot. A trophy in memory of Alois Hasenknopf, who lost his life during the 1954 meeting, has been offered for the best goal flight each year, starting or ending at Kufstein.

The first Austrian cross-country of 1958 was made on 6th January by Toni Stadler with 70 km. from Salzburg to Pettenbach.—*Austroflug.*

France in 1957

The following figures for French soaring in 1957 concern 97 Soaring Centres now in use, at which the members of some 350 French Aero Clubs fly, but excluding the four National Soaring Centres Pont St. Vincent, St. Auban, Montagne Noire and Challes les Eaux, for which no figures are yet available. A total of 61,842 hrs. were flown in these Centres against 75,902 in 1956. The number of sailplanes was approximately the same as last year: 1,160. As always, the Paris Area was in the lead and I mention their figures in parentheses.—Walt H. Pratt.

CERTIFICATE B	..	1,142	(199)
" C	..	842	(168)
SILVER C			
Altitude ..	..	372	(81)
Duration ..	..	200	(36)
Distance ..	..	159	(61)
GOLD C			
Altitude ..	..	45	(—)
Distance ..	..	50	(28)
DIAMONDS			
Altitude ..	..	9	(2)
Goal Flight	..	40	(22)
Distance ..	..	12	(9)

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CLUB AND ASSOCIATION NEWS



The moment after being introduced to someone, many people cannot remember the name—or how to pronounce it. This state of affairs seems to affect gliding clubs as much as anybody, by what one Press Secretary has written. In this case it is because of the non-attendance during the winter months, of these members who I'm sure do not realise what opportunities they are missing, otherwise they would soon join the "hardy" annuals.

However with the approach of summer, the non-committal "Hey, you!" *nom de plume* of so many should cease and I hope that, as with many regular names, theirs will be one that Press Secretaries can write about, giving accounts of their gliding achievements during the coming months.

As you will see, the Club News winning design has been chosen and will now become the regular heading. This design was submitted by P. I. Dodds of Edinburgh, a member of S.G.U. and he will receive as first prize a £3 3s. 0d. gift voucher for goods from the B.G.A.

To all those who submitted designs, may I say thank you for your interest. To Press secretaries a reminder that club news for the June issue should reach me first post Thursday, 17th April, sent to S.E. Ambulance Station, New Cross Road, London, S.E.14. And the usual plea which hardly seems necessary—typed on foolscap double-spaced.

COLIN MOORE,
Club and Association News Editor.

ACCRA

SILENT in these columns for some time, but not inactive at the Accra Gliding Club: since flying started with our one and only machine—a Tandem Tutor—in August last year, 1,050 launches had been logged to the end of December, flying weekends only. Two ex-power pilots had made their first glider solo and the first C certificate was earned in November. Several *ab-initio* pupils are reaching the solo stage and consistently good conditions have enabled many soaring flights to be made. Unfortunately, at the time of writing, we are still restricted by the Civil Aviation Authorities to 1,500 ft. maximum height (!) and local soaring only, but now that a private syndicate has ordered a Spatz single seater, attempts are being made to get these restrictions lifted so that Silver C flights may be attempted.

The indications are that, provided the wind direction and strength is such as to ensure a 1,000 ft. launch by the tow car, it is usually possible in the middle of a normal

day to find enough lift to get away. Aero tows if available, would ensure a soaring flight each launch most days in the year. The launching site, which is 10 miles north of the Ghana Coast, usually underlies the edge of the cumulus which is drifting inland with the onshore breeze; the really towering cu-nims are usually 4 or 5 miles further inland. (The local radar station has alleged that these have reached 70,000 ft., but this is unconfirmed.)

Topography and road and telephone communications are such that it is unlikely that any distance flights would be willingly attempted and certainly for some time to come distance flights will be limited to 50 km. (preferably triangles) until we have learnt more about the very violent storms which sometimes sweep the Accra Plains. Unfortunately we do not have in the Club anyone who comes anywhere near to being a pundit, but we console ourselves by remembering that, by modern standards, the 1933 pilots were similarly placed. Meanwhile, awaiting delivery of the Spatz, we are soaking up as much of the written word as possible.

P.G.B.

ANDOVER

We have continued to operate in spite of the inclement weather. The usual "circuit and bumps" routine at Andover was forsaken when we explored the local ridges near Winchester and to everyone's delight some soaring took place.

Six new members have been taken on, which is a good start for the new year.

During Christmas we donated prizes to the various Christmas Draws in the Messes. The prizes consisted of free passenger trips which were eagerly snapped up by the lucky winners.

One of our lady members, Miss Daphne Lane, gained her well-earned C certificate. Flt. Lt. Salmon and Mr. Palmer both got their solos recently.

The Annual General Meeting went off successfully, followed by a pleasant social and a film show of the Nationals.

There has been intensive activity in the hangar getting things ready for some mobile operations which are soon to take place. We have a large amount of ground equipment to maintain and our "fleet" consists of a Primary, Mk. I, Mk. II, a T-31, Grunaus, a Falcon, a T-21, an Olympia and a Skylark. Quite enough to keep all hands busy.

We are looking forward to having another "field weekend" in the near future with our Naval Midshipmen friends—the last joint exercise went off very well.

J.D.

BLACKPOOL AND FYLDE

We held our Eighth Annual Dinner and Dance late in November and it proved to be a most successful evening indeed. We also hold a similar, but less formal, dinner and dance every year on the nearest Friday to St. Valentine's Day, so this year it fell on the actual day. Approximately eighty-five members sat down to dinner at our usual venue, the Clifton Hotel, St. Annes-on-Sea and the three piece dance band, known as "The Kite Kats" which plays for us at the Club every Friday and Saturday nights, helped to make the evening one of the most successful since the Club was formed. Mrs. Peggy Murdoch, the wife of our Hon. Treasurer, was a very excellent M.C. and kept everybody in the best of spirits. Our flying activities have been very uneventful of late. We have flown whenever conditions were even remotely suitable, but poor visibility, gale force winds or very wet ground since the middle of November has caused the flying hours to be the worst on record. We commenced to build a trailer last summer, and several of our members got well ahead with the work but unfortunately their enthusiasm was greater than their knowledge and all their work has had to be undone with the resultant loss of much expensive material. (A lesson to us in future.) We have started practically from scratch, this time under the expert guidance of Tony Kemsley who is a hardy sailing "type" with a sound knowledge of boat building. He is being ably assisted by our Hon. Chief Engineer, Ken Cooper, Don Cartwell. and several willing helpers.

Jack Aked has taken it upon himself to provide an additional winch which is nearing completion at his garage. It is small and infinitely lighter than the Club's two-drum, much modified, Wild winch which has proved so successful. It should be very handy when we commence flying on our new hill site in spring as it can be towed behind a private motor car without any difficulty (we hope).

Incidentally, we are using solid cable on one of the drums of our Wild winch, and, so far, it has been successful and economical. Time will tell—no doubt!

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We are hoping to be in a position to give a report, in the next issue of SAILPLANE & GLIDING, of soaring potentialities at our so far untried hill site. In the meantime, we are keeping our fingers and toes crossed.

J.A.

BRISTOL

OUR flying statistics for 1957 show that we aggregated 6,760 launches and 1,247 hrs. from Nympsfield, plus 97 hrs. and 69 launches at other sites. 2,068 cross-country miles were flown from the club site, plus 1,540 away from home. The overall average was 11.1 mins. per launch, although curiously, the best monthly average was 27.1 mins. in January, followed by 25.1 mins. in April and 21.9 mins. in September, February, March, November and December together aggregated less than 80 hrs. and 600 launches, which suggests that during those months we might have been better employed elsewhere.

For the first time we kept a record of duff launches, which averaged about 5%, the lowest percentages occurring during our peak operating period in the summer, with appreciable rises at the beginning and end of the year.

So far this year we have enjoyed a fair amount of soaring, and it is becoming increasingly evident that waves can affect our local conditions appreciably. On the last Sunday in 1957, a south-west wind all day restricted flying to circuits until the last flights of the day, when scouting a little further afield, Keith Aldridge in the Skylark II reached 6,200 ft. a.s.l. in a wave lying diagonally across the main wind direction. He was joined by John Cochrane and David Halsey in the T-21, and both flights were terminated only by the gathering darkness. Other wave effects in January raised the soaring level to 2,500 ft., and also made the west ridge work in a south-west wind and smoothed out the lift as well. In all, we had three consecutive soaring weekends in the month, and the total of 62 hrs. flown is a little better than the same period last year.

Our current ground activities include a major renovation of the T-21B, including fitting a second spoiler lever for the left-hand seat, and spoilers are also being added to our second pair of Tutor wings. The two single drum winches which were our mainstay last year, are having extensive overhauls, and the interest in the two-drum winch project has been revived. The field has had more levelling treatment, and the major bumps at each end no longer exist. No doubt it will take years before we achieve a really smooth field, but at least, we are on the way.

M.G.

CAMBRIDGE

OVER 1,000 launches have been logged since October, and the thermal soaring season started unusually early on 15th February with two long flights of the T-21 and Bill Menkevich's enterprising 20-mile cross-country flight to Clare.

This performance was no doubt inspired by the encouraging speeches by our diamond-studded guests, Nick Goodhart and Bill Bedford, at the Club's Annual Dinner on the night before. On the same occasion, the Brunt Trophy for the best climb of the year by a student member of a University Gliding Club was presented to our John Griffiths by Frank Irving (Imperial College G.C.) who somewhat sadly reflected on the "tedious monotony" in which "Cambridge" appeared on the silver plate of the trophy. After the formal presentation of the "Pot Pewter Pringle" to John Griffiths and the "Mug Metal Machin" to Peter Neilson, the Alexander family offered a new pot for the longest distance of the year, straight or crooked. Another new trophy in the shape of a gigantic goblet was offered by our American member, Big Bill Menkevich, who tried hard to fall in line with the usual alliterations and called it the "Measure Massive Menkevich". It will be awarded for the longest goal flight of the year by a pilot who has never done a cross-country flight before. On the following day, he bravely forfeited his own claim by setting out for the above-mentioned flight to Clare. The dinner was organised by Elisabeth Machin with the unexpected help of the Cambridge Fire Brigade, who put out the fire on the upper floor of the hotel building in good time and decorated the entrance with two big fire engines in Skylark red. Anthony Edwards printed a beautiful hexa-lingual menu starting with salmon in Gaelic and Wiener Schnitzel in Teutonic type.

The Club has now a roomy workshop. It was put up by Maurice Pleasance and Bryce Smith in the same manner in which they had previously extended the hangar—quietly, economically and without reducing half the membership to a chain gang. Unfortunately some heedless lad was rather

quick in providing the necessary material for Ted Warner to "test-fly" his new workshop.

This spring we have a rich programme of camps and expeditions. A party will take the Skylark to the Lake District to explore Cross Fell. This will be followed by the Mynd Camp. We also hope to enter the Skylark for the Easter Task Flying at the Mynd, and the Olympia will be flown in North Wales over Easter.

G.S.N.

CORNWALL

SINCE our last report the Club has been dogged by some pretty poor weather with the result that our launches total just less than 3,000 for 250 hrs., but we did have one very good day at the end of December when in perfect conditions four *ab initio* members obtained their C certificates. Our record in this line now is 27 A's, 25 B's, 6 C's and 2 Silver C legs. Our first woman member, Mrs. Jean Smith, to go solo got her B in February.

We have had a number of visitors, including some who flew over from Plymouth and asked our neighbourly help to make a start at Roborough by aero-towing, which we were very pleased to agree to.

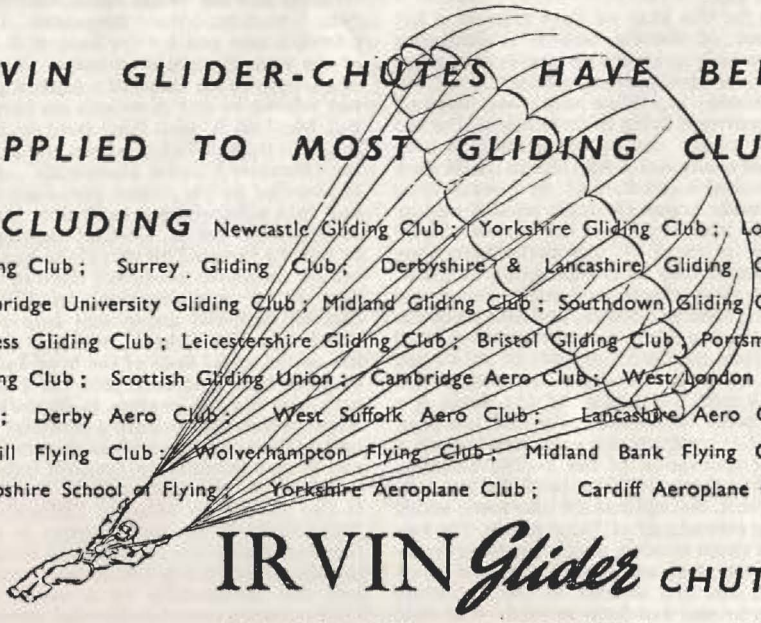
During this year we expect many more visitors, including the Imperial College team from London, the Experimental Flying Group from Croydon and two parties of ten in August from the Outward Bound movement.

We are, therefore, expecially pleased to have obtained the extra hangar space adjacent to our present one on the airfield, though initially our visitors will probably have to de-rig: to fit doors wide enough to avoid this last time cost us over £500.

Our C.F.I. and his Flying Sub-Committee have arranged a programme of eight courses for this year and a start was made in February with a series of weekly lectures which have been very well attended.

The Social Committee continues to improve the Bar and they have again booked the Memorial Hall in Perranporth for a Social which will be on the lines of an open meeting with a film show and refreshments.

C.M-H.



IRVIN GLIDER-CHUTES HAVE BEEN SUPPLIED TO MOST GLIDING CLUBS

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

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Write to the Secretary for details of Membership and Summer Courses.

COVENTRY

JANUARY saw a welcome return of hill-soaring at Edge Hill and a good tally of hours was notched up by the Olympias, together with a visiting Prefect from R.A.F. "Windrushers". Unhappily, on one wintery day the Club Olympia suffered extensive damage when it was forced down into a field, canopy iced up, by a sudden heavy snowstorm. It seems likely that the aircraft will have to be written off and we are having to think of a replacement.

The brighter side of the page is that January 1958 will go down in the Club's annals as a month of record cross-countries —not, we must admit, soaring ones, but forays to bring back new aircraft for our ever-growing fleet. We sent out raiding parties by car to snow and fog-covered Yorkshire and to a cloud-covered Isle of Wight; the former returned from "Sling's" with a spanking bright new cream-and-scarlet Prefect, now the pride of our fleet, while the latter team, after a variety of adventures en route via Lasham, brought our *second* T-21B safely back to Baginton. Our first T-21 bears the name of "Lady Godiva", so it has been suggested that the new one should be christened "Peeping Tom", but Committee approval of this cannot yet be confirmed! We hope soon to station one two-seater at each of our two sites.

Our T-31, which had given us very good service, has gone to the Isle of Wight Club at Sandown, in part exchange for the new T-21; Vic Carr and John Greenway, who flew both aircraft over the water behind a Lasham tug, still tell hair-raising stories of sub-zero altimeter readings as they crossed Spithead, though they have not yet produced any very convincing specimens of seaweed to substantiate these sub-mariner's tales!

Finally, we have to congratulate the following on promotion to the Olympia:— L. Watts, Joan Cunningham, Angus Cunningham, and Howard Greenway.

H.N.G.

DERBYSHIRE AND LANCASHIRE

THERE is little to report of flying activities since our last notes. Training has been carried on as usual but we have had no spectacular waves and the only records to be broken are in respect of rainfall and low cloud.

The Club party was held on 21st December and the annual Dinner Dance was held at Buxton on 11th January. Both events were highly successful and the dance was attended by 107 members and friends. The Annual General Meeting will be held at Camphill on 22nd March.

Flying activities ceased on 26th January to enable the members to get on with "Operation Refit". Flying recommences on Saturday, 1st March, and by that time we hope to have four vehicles, four winches and the bungey launching device completely overhauled and ready for action and the whole of the Club fleet serviceable. B.T.

DUBLIN

OUR sixth operational year has just ended with 1,046 launches for 159 hrs. on four aircraft. From our membership of 32 we have had 8 solos, 5 C certificates and 5 Silver C legs.

Dublin G.C. Statistics for 1957

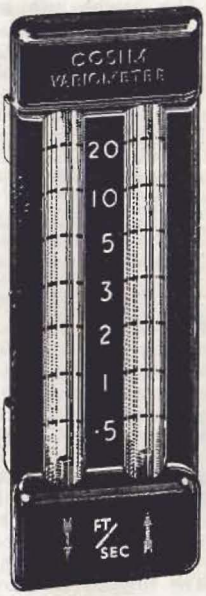
Aircraft	Launches		Hours	
	On site	Club Gliders	On site	Club Gliders
4	1,046	1,046	159	159

Cross-country Miles		Members	
From site	Club Gliders	Flying	Non-Flying
207	207	32	4

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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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Cross-country flights were ten in number. Distances were not great as soaring conditions seem to be best when the wind heads for the sea or the mountains. Jim Bellew and Con McNulty went north while John Byrne, Mike Harty, Fredi Heinzl made several sorties into, over and around the Wicklow mountains.

The "Wicklow wave" is usually beyond our reach at Baldonnel aerodrome with the prevailing winds. The spring easterlies should soon be here and it is then that we have the opportunity to ride the wave from the top of the launch. On 1st December Fredi Heinzl contacted wave lift and stayed for 3 hrs. until lighting-up time.

The best endurance during the year was 5¾ hrs. by John Byrne on a thermal day in May. Con McNulty gave up after 3¾ hrs. on the same day.

Our clear accident record was blotted by one heavy landing in the Grunau. One other incident deserves mention. The Kite II had been fitted with a new bubble canopy by Messrs. Heinzl and Mellor and was launched on its third flight with Ann Other in the cockpit. At 1,100 ft., after one cable break, the Kite left the cable and simultaneously the canopy left the Kite. A few seconds later the canopy made a perfect landing in grass 100 yds. from the take-off point—absolutely undamaged!! Moral—cockpit check even after a cable break.

The Grunau has just come out with a new look after its unofficial C. of A. and the Petrel and Kranich are now on the stocks awaiting theirs. Before the latter can operate again we have to build, borrow, or buy, a hangar, shed or trailer. Another headache has been and will be the installation of runway lights at Baldonnel during the last few months. The backroom boys in the club are however devising new revolutionary launching techniques for avoiding the lights, increasing the launch height and speeding up operations all at once. We are hoping we get results. K.M.

HALIFAX

EARLY in 1956 an advertisement in the local paper brought about thirty people with a common interest to a meeting at the Plummet Line Hotel, Halifax. The interest was gliding; the object to form a gliding club in Halifax.

The meeting was called by Mr. Geoffrey Crossley who had done most of his gliding in Scotland and felt that natural conditions around Halifax could prove suitable. At this meeting a working committee was formed, and very gradually our assets grew. An ex R.A.F. balloon winch was spotted in a wrecker's yard at Barnsley, a second-hand Tutor was bought from a private owner. Another handy purchase was a towing vehicle.

Finally the biggest problem. Many hours were spent in looking at scores of sites and a number of disappointments met with before a suitable one was found.

Then David Brown's, the tractor manufacturers at Meltham, near Huddersfield, were approached and the club received permission to use their private airstrip at Crossland Moor.

A T-31 was then bought for training. Flying commenced in September 1957. Naturally at this early stage no outstanding statistics can be quoted, but flying is quietly progressing.

At the moment all the spare time is being spent on overhauling the equipment, getting it into first class order for the coming summer.

A lot of very hard work by members has been put in and many hours have been spent by Geoffrey Crossley, Malcolm Lickess, Fred Lees, John Haigh, Donald Westersides, in getting the club on its feet, and on the engineering side by Gordon Hoyle, Denis Marshal, Jack Bland. The club is steadily growing and now has a flying membership of around 40 members.

R.M.

KENT

ON the Sunday following Christmas the wind was off the ridge and it was in these conditions with little cloud, that Bill Bridges found wave lift out over the valley towards Maidstone and reached 3,200 ft. Bill was flying the new blue and ivory Skylark IIIB of which he and Mick Howe had recently taken delivery.

During the rest of January most week-ends produced little or no flying except routine circuits, due to snow-rain-fog in various order. On 9th February, a strong wind was blowing too much for training flights and only the Olympia and Skylark II were flown. "Nobby" Clark managed to reach the ridge and stayed out for 33 mins. in the Olympia. His technique being to dive from the point of release—(into a head wind)—straight for the ridge which is about ¾ mile away at 60 knots, reaching it at 600 ft. after a 1,000 ft. launch.

The following Sunday on a lovely bright sunny morning a very impressive formation landing by 4 Tiger Moths from the Tiger Club, started off a full day's flying.



After a day's flying, Kent Club members relax in their newly decorated bar in the clubhouse at Detling.

Two of the Tigers proceeded to carry out aero-tows which went on throughout the day, towing the Olympia and T-21. The remaining aircraft were in the meantime using the usual winch launching.

Thermal possibilities seemed hopeful early on, but no soaring was possible; the aero-towing however, did enable a number of pilots to have check flights and practice for others.

The club ground equipment has now been supplemented by two 15 cwt. Fordson trucks, recently purchased at a Government sale. These now do all cable retrieving and have superseded the tractors which have been sold.

A Fordson 3-tonner was bought at the same time and has now been stripped of its bodywork prior to the fitting of a 2-drum winch as soon as existing winch servicing is completed.

C.M.

LASHAM

We thankfully report two half-hour thermal flights on 12th February, both in T-21s, by Derek Piggott and Brian Masters with their pupils, and the green ball continued to flicker encouragement throughout the following weekend. People who had not been seen since the Christmas party suddenly turned up at the launching point and everyone else called them "Hallo!" while trying to remember their names.

The testing of the T-45 is continuing but as we can discover nothing about the results, the security can be called first-class.

Until Easter a Skylark II (Mudlark) is being quartered at the Mynd to give hill-soaring to suitable Lasham members. People in need of "5 hours" are taking turns on weekend expeditions and so far Geoff Barrell and Daphne Poynter have been lucky. They both squeezed 5 hrs. out of the same day, 1st February, by starting early, although Daphne landed with some additional lighting from headlamps.

We are grateful to Lord Cowdray for permission to use his landing site at Cocking, on the South Downs, for another year.

B.H.

LONDON

Since our last notes there has not been a very great deal to report—the days being short and the weather unusually bad. However. Sunday 16th February, was a really remarkable day for winter soaring. We flew for approximately 85 hrs., while thermals were better than on many days in high summer. So many pilots got up to heights from 2,000 ft. to 3,000 ft. that a full catalogue of all the names would be tedious.

The club has now obtained the Skylark III which belonged to Colonel Deane-Drummond, and this machine is very much in demand amongst qualified pilots.

The Kite I which has been extensively rebuilt by Jeff Butt and his partners is now flying, as is the Scud III of Les Collins. Both these old gliders have been very fully rebuilt over the last year or so, and have been test flown by Cedric Vernon of our B.G.A. Test Group. This Group has been reformed at Dunstable under Dan Smith. Since construction and rebuilding is going on amongst private owner groups, and a very high performance two-seater is well under way, the Group is expected to be busy in the months to come.

We were very glad to welcome some members from the "hub" on the 16th February, who came to see gliding in "Comfort and Joy"! They picked our best day this winter. We do not always guarantee as much "Joy", but visitors are always welcome.

The club's Annual Dinner Dance will be held on Saturday, 22nd February, at the Clubhouse, and Mrs. Linney will organise the catering as usual. We anticipate it to be a great success, and look forward to hearing Maurice O. Imray, who will be our Guest of Honour.

P.F.

MIDLAND

On Sunday, 29th December, the club held a very successful Christmas lunch. Not only was the meal so enjoyable, but the day was quite exceptional from the flying point of view. In an outstanding west wind wave, John Holder reached 14,500 ft. a.s.l. in his Skylark, and Bruce Bowdler, with Ken Woolley, went up to 12,500 ft. a.s.l. in the Eagle. Many others had very good flights.

On Sunday, 1st February, there was a similar wave operating, when the visiting Army Skylark did two 5-hour flights, in the first of which Barrell almost attained Gold C height. At the same time, Ted Stark, in the Blue Skylark, reached a height which he

hopes will complete his Gold C. One of our young members, Bob Swift, flying the club Skylark, got 9,500 ft. above the Mynd, and the T-21B spent two hours at the same height. Sixty hours were flown during the day.

Due to unprecedented demand, there will be a considerable increase in the number of courses run in the coming season, and it is hoped that some of these will be *ab initio*.

We look forward to meeting many friends at the Easter Rally.

J.H.H.

NEWCASTLE

THE flying at Usworth has been severely limited by the weather we have been suffering recently, so there is very little to report in that line except routine training. Consequently most of the activity has been going on in the hangar where a positive orgy of trailer building is in progress. Two trailers are in course of erection, the first which is being built by Hetty White and Eric Vissenga for their Sky, has reached the half-way mark, while the other which is nearly complete, is intended for a Skylark II (of which a syndicate of members is still awaiting delivery) and is in an advanced stage as it only needs the "hardware" to finish it off.

The only other item of news is that further details of the courses which I mentioned in my last notes have come to hand. It is proposed to hold three courses each of one week duration, the dates being 20th July to 26th, 10th August to 16th, and 24th August to 30th (all dates inclusive). All the courses will be *ab initio* and as this is our first venture, the number of pupils will be limited to twelve.

D.H.

NORTHAMPTONSHIRE

THE two months' period which this report covers, opened unpromisingly with a water-logged aerodrome, but unexpectedly has turned out to be quite adventurous. On Boxing Day a party of four, led by Harvey Britten, took one of the Tutors down to the Long Mynd where they enjoyed the hospitality of the Midland Gliding Club. In spite of weather which was by no means ideal, everyone enjoyed some slope soaring and David Rhodes gained his C.

With flying limited to aero-tows (we still lack an amphibious winch), attention has been diverted to further modifications on the Club House and the C.F.I. now has (largely through his own efforts) an office, and now we have nowhere to keep the paint!

On 3rd January, Bill Sykes took delivery of a brand new Eagle from Slingsby. It was assembled and flight tested by Ken Pearson and many members have already been willing passengers.

The Club's most ambitious social event to date, a dinner and dance, took place on the 11th February at The Angel, Northampton. Over 120 members and guests sat down to dinner and we were particularly glad to welcome Eltham Turner of the C.C.P.R. to whom the Club is greatly indebted for assistance during its formative period. Ben Butler and Don Woodford who did the donkey work, must have felt themselves well rewarded by the success of the evening, and we all hope that it will indeed become an annual event.

B.C.H.

OXFORD

REVIEWING the past year's activities, we can say without fear of contradiction that it has been the most progressive year for some time.

On soaring days every available machine has been in the air, whilst the T-21 has been busy on training circuits. A total of 3,738 launches were made from the club's site at Weston-on-the-Green. This is a slight reduction on the previous year, but there is a considerable increase in flying time.

Our Annual General Meeting has been arranged for the 22nd March, when a new Committee is due for election and it will be their responsibility to further increase our utilisation of aircraft and a rota system for instructors, winch drivers, etc. will have to be drawn up so that every possible minute of the days available to us are utilised. With our increased membership, it should be possible to keep machines in the air almost from dawn to dusk.

The Gull syndicate report a good day's soaring on the ridge at Lewknor with each member having the best part of an hour each, although the wind direction was not quite right. It is hoped that next winter it will be possible to organise an expedition to this hill site by club members with the new T-45, which we have on order.

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PERKINS

WE have nothing exciting to report this time, but we would like to place on record our winter season of trouble-free flying.

With a single drum winch, using solid cable and a 500 c.c. motor cycle for cable retrieve, we can happily announce that during the short winter days now past, we could do 40 launches a day—starting from 10.00 or 10.30 a.m., as we do.

During this period the 16th February stands out, it gave us a day of small thermals. Many flights of 15 to 20 mins. were made, the most notable being 30 mins. by Aubrey Waltham, in our most advanced solo machine—The Red Tutor. This again is perhaps not exciting, but we think it shows willing and reflects favourably on John Hulme, our C.F.I., and our general flying Committee.

S.W.H.

SALISBURY: FEDERATION OF RHODESIA AND NYASALAND

IN its eight years of history, this club has now risen to claim at least second place in Africa. In 1957, 700 hrs. were flown on 1,500 launches from Thorn Park—and all this from one Tiger Moth! In the year Burditt flew Umtali-Salisbury (220 kms.) and Salisbury-Bulawayo (300 kms.) in his Skylark, to the envy of the Umtali and Bulawayo clubs!

Early in 1957 the Kirby Kite was written off after a wing tip caught a car roof, and the last week saw serious damage to the Super Spatz which had an argument with a contour ridge, a boulder, and a tree, when making a forced landing after a 150 km. out-and-return.

The club fleet still remains one T-31 (Special) with the Tiger. However, syndicates own the Tutor, Huetter, Grunau Baby III, Super Spatz, Bergfalke II, and Skylark II—and ownership usually graduates in this order. Cloud flying for the last four machines is now the order of the day—17,000 ft. now being quite a commonplace, with the few experts—Burditt, McCormick and Douglas Elliott, the C.F.I. Triangles and out-and-returns are now much in favour, and with the 50 km. triangle, Silver C's are being won fast and furious—it took up to six years to get our first!

The T-31 has performed Herculean tasks

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and still flies consistently, which speaks well for our instructors, but must soon be replaced. A bigger problem is the replacement for the Tiger—still going strong, but one never knows. A task, considered by many to be wasted effort, has been the commencement of work on a winch.

For private owners the big difficulty still remains—forming syndicates and finding cash for sailplanes—which cost us £200 more than in U.K.—and which take three months to come out. However, the time is coming when the Huetters and the Tutors must be gracefully retired and replaced with smoother stronger machines, so 1958 need not be the year of stagnation.

A welcome new arrival is "Rick" Prestwich, who made a name in England. He is, in fact, the first well-known sailplane pilot to emigrate, the rest of us being self taught.

It would not be fitting to conclude without saying how grateful we, in the Federation, are to the British Gliding movement, and particularly to the B.G.A. which fostered us from our days of swaddling clothes. Now we are 21, and the Central African Soaring Association has severed its link, but will always remain an obedient son! And likewise the Salisbury Gliding Club will always offer a home-from-home to all the emigrant fraternity, and will have plenty to offer.

R.L.M.

SCOTTISH G.U.

WE were very pleased to hear that the S.G.U.'s offer to be one of the host Clubs in the National Gliding Week had been accepted. We look forward to what we hope will be an enjoyable experience for competitors, and certainly a very valuable one for us. In our snowbound isolation, we see very little of what goes on down south and meet other pilots only occasionally. We were, however, greatly cheered to see, in the last SAILPLANE & GLIDING, that somebody had declared us as his goal. This is fame indeed, and if Mr. Kaye had reached us we would certainly have stood him his tea.

The first two months of the year have yielded nothing spectacular, though we have had some good hill-soaring, and some waves. Of the eight flying days this year, six have been hill-soaring days, though often in near-gale conditions, with members, in the air and on the ground, struggling to avoid being blown away. The best climb in wave was by Jimmy Rae in the Olympia to 7,600 ft., though several other flights around 6-7,000 ft. have been made. Jane Ross, our most recent gliding bride, achieved further fame on 5th January, by becoming the first *ab initio* pupil to solo at Portmoak. Ken Coughlan got his C on 1st February, reaching 4,600 ft. in the process. Jack Coker got his C the following day.

Work on the airfield still continues. A bulldozer spent nearly a week ironing out some of the more lunar stretches of our runways, and they will now be quite suitable for aero-towing once they get some grass on them again.

So far the Clubrooms exist only as plans lying about in Andrew Thorburn's car. We are hoping to have something up by the Gliding Week, but if not, we shall erect a temporary structure inside the hangar from tarpaulins and old sections of flooring.

An eagerly awaited event is the arrival of Bill Lawson's Eagle, due in March, and which he will be flying in the Gliding Week. The Lawson coffers have been drained to provide his machine with all sorts of fabulous equipment in order to ensure success. It would, after all, break our canny Scotch hearts to see *all* the prizes go south of the border.

W.S.A.

SOUTHDOWN

FLYING figures for 1957 exceeded the previous year despite the number of incidents to aircraft which affected flying during the first eight months. Comparative figures for 1956 and 1957 respectively, were: launches 2,513 and 3,126, hours 322 and 341.

1958 opened with the A.G.M., and we were very glad to have our President, Sqdn./Ldr. Furlong in the chair. The financial position was reported by our Treasurer, Joan Cloke to be balanced and satisfactory—but "balanced" was the operative word. The Committee were re-elected unchanged, with Morn Glassborow as Chairman and Brian Buckley as C.F.I.

Now that the club is firmly established at Firle, plans for the future have been discussed in lively fashion. The result is a policy of consolidation for 1958 to build up resources for expansion in 1959. Two items receiving consideration for 1959 are development of club house facilities and

improving the aircraft fleet. The accent at the moment is on a high performance two-seater.

Three courses are being offered to non-members this year: 8th-12th April, 5th-9th August, and 24th-30th August. Previous courses have been highly successful, and these should be even better now that we have our first permanent staff.

Flying recently has been restricted by low cloud and mist on the Downs, but Brian Buckley has been enthusiastically developing further new schemes. The latest project is mid-week flying from Mount Harry when the north-easterlies are blowing, by using a secret device for bungey launching. Secret because at the time of writing, its trials are not completed, but it should eventually enable launches to be made successfully by very few people, without contravening existing safety restrictions.

R.M.

TAUNTON VALE

SINCE our last report, there has been much activity in and around our buildings. The clubroom, which is part of an old M.T. section, is now ready for decoration and should prove very popular, a great change from the previous rather primitive conditions. As the buildings which we are using form a "U", we are considering using the three walls as a basis for a hangar; the big problem is—how to put up a cheap yet gale-proof roof?

We have just acquired two more V-8's in pretty good condition, so now feel that most of our launching worries are over. Our present tow-car will have its long-awaited overhaul.

Monty Dore recently completed his, and the club's first solo. We have about six more pupils awaiting solo checks so we are hoping for less blustery conditions during the next few weeks.

During the summer we are running a number of *ab initio* courses for club members and anyone else who is interested. The dates will be published in the next report.

P.E.B.

YORKSHIRE

DURING the last three months, a band of apparently frostproof enthusiasts have been week-ending at Sutton Bank, and quite a lot of flying has taken place. On many occasions, all the Club aircraft have been on the ridge. No outstanding flights have been made, but one or two keen types have stuck it out for their 5-hour leg. The Kite II has been down at Sling's for a rather extensive overhaul, and has now returned, looking very resplendent in red and yellow.

We had an unfortunate calamity with the winch in January, when the engine spat out most of its innards, together with a lot of black oil. Thanks to Peter Sheppard and his crew, a new engine was fitted in quick time, and very little flying was lost.

Incidentally, Peter is now I.C. winches and cars; Jack Lawson, who has done the job so well for so many years, is now having a well deserved rest.

Plans for holiday courses are well advanced, but dates had not been fixed when this was written. Also, we are taking part in the National Gliding Week.

At Sherburn, flying has been at a standstill for a few weeks to enable us to overhaul our equipment, to avoid delays when the rush starts. The T-21 has had a C. of A., and we did intend to paint it, but a breakdown of the hangar heating system has made this impossible, and we shall have to wait for warmer weather. Also, a few hardy characters have nearly frozen to death finishing our new "Dexion" tow car. It appears to be a great success, although at the time of writing we have not tested it thoroughly.

We resumed flying on the 16th of February, and were joined by a party from the Halifax club, including their President, John Haigh, and Fred Breeze. They were rather frustrated, having bent their T-31 a little, but we were able to console them by giving them a bit of flying. Arrangements are in progress to enable them to fly at Sherburn, as their own field is very difficult for training. The Leeds University Gliding group are to operate at Sherburn on Wednesday afternoons, under the care of Barry Goldsborough and Nick Gaunt. At present they will be using our aircraft and equipment. With all this activity, Sherburn looks like being very busy. Our relations with the Yorkshire Aeroplane Club are most cordial, and we are taking a full part in all the Club's social activities.

We are all looking forward to what looks like being a really progressive season—all we want is the right sort of weather!

E.H.

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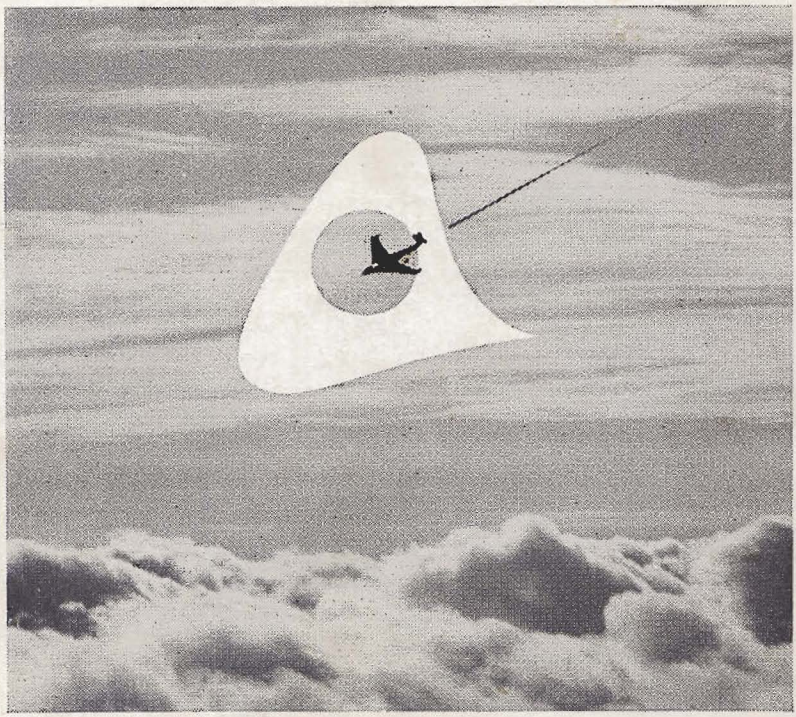
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