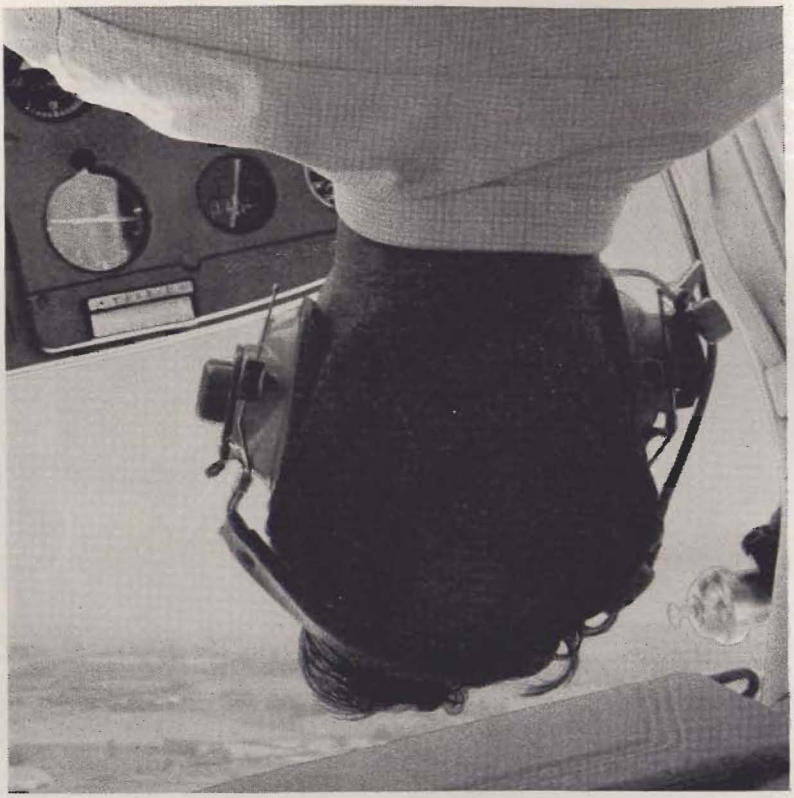
Sailplane and Gliding

3/-

April 1964



Looping on BP



and banking on BP



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AIR BP

SAILPLANE AND GLIDING

OFFICIAL ORGAN OF THE BRITISH GLIDING ASSOCIATION

Published by the British Gliding Association, 75 Victoria Street, London, S.W.1.
SULLIVAN 7548/9

Editor: ALAN E. SLATER, M.A., F.R.MET. S.
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REGent 5301
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VOL. XV. No. 2 APRIL 1964 BI-MONTHLY

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Cover photograph: Charles Brown took this aerial picture of Godfrey Harwood flying his Swallow, which has now been acquired by a syndicate at the Bath Club.

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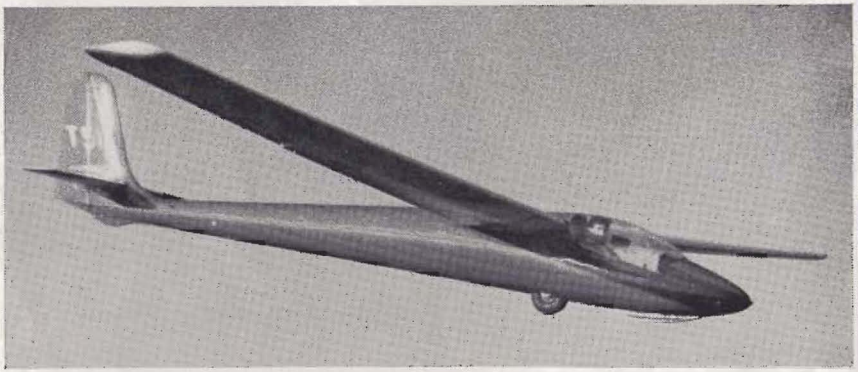
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The DART

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PIONEERS OF BRITISH GLIDING

CHAIRMAN'S REPORT ON 1963

1963 has been a year of progress on most fronts. The movement continues to grow in numbers of members and aircraft. There is still a large unsatisfied demand. The main limiting factor is the difficulty of acquiring sites and of obtaining adequate security of tenure for many existing Clubs.

The Ministry of Aviation has been most helpful in many fields: indeed its attitude towards Private and Sporting Flying as a whole has over the past 12 months seemed to be revolutionised.

In the field of Air Traffic Control, there is good progress to report. For some years we have been pressing for the adoption of a logical approach by the definition of agreed safety standards against the risk of aerial collision. As a result of our efforts the M. of A. has now been persuaded to accept the validity of this conception. If this eventually leads to this country being the first to adopt this rational conception of Air Traffic Control, it is not too much to hope that the force of reason must eventually cause other nations to follow suit.

Next, we are receiving increasing support from the Ministry of Education. Last year, with their assistance, we started the B.G.A. National Coach Scheme. The first year's operation will be reported elsewhere, but it marks a watershed in our development, in that we now have means to assist member clubs to maintain an adequate level of instruction. So valuable has this proved that we are now endeavouring to obtain a second coach, and also to apply a similar plan in the field of aircraft maintenance, by the appointment of a travelling inspector.

In addition, the Ministry of Education Single Activity Group Aid Scheme has been extended to cover gliding, so that financial assistance is now available to enable approved clubs to expand their activities. To cope with the complexities of the scheme, a new Committee, the Development Committee, has been created, whose report follows. It has done very valuable work.

Lastly, in 1963 the Fédération Aéronautique Internationale accepted our offer to hold the next World Gliding Championships in 1965 at South Cerney, an R.A.F. airfield generously put at our disposal by the Air Ministry. Unfortunately the Treasury has weighed in with a demand for payment (unprecedented by other nations previously holding the Championships, who have invariably heavily subsidised them), and unless this is revised, it will be necessary for us to ask for high entry fees. Signs are, however, that we shall have a large entry, and in 1965 the eyes of the world will be on us, for there is no doubt that the biennial World Gliding Championships have become the largest and most important sporting event in the calendar of world aviation. We are determined to show once again that we are amongst the leaders.

Committees, Panels and Officials

During the year the following Committees and Panels were set up under the Chairmen listed below:

AIRWAYS COMMITTEE:
H. C. N. Goodhart.

DEVELOPMENT COMMITTEE:
W. A. H. Kahn.

INSTRUCTORS' PANEL:
Ann Welch.

SAFETY PANEL:
E. J. Furlong.

TECHNICAL COMMITTEE:
F. G. Irving.

Reports from the above Committees and Panels are published separately.

B.G.A. BALL COMMITTEE:
Yvonne Bonham.

C.C.P.R. REPRESENTATIVE:
W. A. H. Kahn.

FLYING COMMITTEE:
E. J. Furlong.

INSTRUMENT DEVELOPMENT CO-ORDINATOR:
R. Brett-Knowles.

MAGAZINE COMMITTEE:
P. A. Wills.

MANAGEMENT COMMITTEE:
P. A. Wills.

M.C.A. STANDING JOINT COMMITTEE:
Representatives:
P. A. Wills, Ann Welch.

NATIONAL CHAMPIONSHIPS COMMITTEE:
Ann Welch.

OSTIV REPRESENTATIVE:
A. H. Yates.

PUBLIC RELATIONS OFFICER:
F. D. Storrs.

ROYAL AERO CLUB AVIATION COMMITTEE:
P. A. Wills, H. C. N. Goodhart.

SITES COMMITTEE:
A. L. L. Alexander.

WORLD CHAMPIONSHIPS COMMITTEE:
E. J. Furlong.

Finance

The difficulties foreseen in the Finance report last year have been experienced and overcome with the result that the accounts have been made to balance, if with a minute surplus.

In the year the full impact of the subscription increase made in 1962 as well as the rent increase have been felt, and to further complicate matters there has been some dropping off in sales surpluses with an increase in suppliers' charges. This situation was not entirely unexpected and its effect made less serious by savings in several items of administration expenses, and indeed but for them the situation would have been very different. If a slightly pessimistic note is struck it is as well remembered that the expenses of the Coach and Capstan over and above the Ministry of Education Grant, a detailed account of expenditure and income of which are included in the accounts, have been met from the general fund.

Having regard to the very substantial expenses involved in getting the World Championships team with their gliders and equipment to the Argentine it is not surprising that expenditure exceeded income by £190 which is, in fact, a rather better result than was anticipated when writing these notes last year.

To keep the accounts of the Association in balance calls for the full and constant attention of the Secretary and her staff to the urgency of promoting sales and economy of administration, and in these things they have not failed.

Society of British Aircraft Constructors' Private Flying Loan Fund

During 1963 12 gliding clubs had loans approved for gliders and site improvements to a total of nearly £14,000. This is a substantial and valuable contribution to the Gliding Movement whose clubs are constantly in need of funds for expansion and improvement of facilities.

Flying Committee

The Flying Committee examined and approved the Rules and Marking Systems for the National Championships and for ten Regional Competitions held by the Devon and Somerset, East Midlands (Leicester), London, Midland, Norfolk and Norwich, R.A.F.G.S.A. (2), R.A.F. Germany, Scottish Gliding Union and Yorkshire Gliding Clubs.

The Committee also did its usual work of scrutinising Silver, Gold and Diamond claims and also all record claims during the year.

As instructed at the Annual General Meeting, the Flying Committee collected, collated and examined all variations of the Rating System and from these, and in the light of the year's experience, evolved a scheme which was put before Council in November for approval. After long discussion and one minor variation, the scheme was approved and published. However, during December and January further discussion took place in Council with the result that the decision was reversed and the old scheme left in being for another year.

Council is meeting to discuss the subject fully in February and will instruct the Flying Committee on the scheme to be used to produce the 1965 list.

Magazine Committee

SAILPLANE AND GLIDING continues to be the largest and is generally accepted as the best publication exclusively devoted to motorless flight in the world.

Circulation, which is world-wide, goes on steadily increasing, and the magazine turns in a satisfactory profit to the Association. This is so largely due to the enthusiasm of our Editorial staff, our contributors, and indeed our readers that I feel I must thank them all. It is hard work, but it is fun.

Membership

During the year the Bath and Staffordshire Clubs were elected to Associate Membership. The Royal Engineers Club now flies with the Kent Club.

Membership is now: (1962 figures in brackets).

21 (21) Full Clubs.
30 (29) Associate Clubs.
3 (3) Overseas Associate Clubs.
123 (106) Private Owner Groups.
40 (37) Individual Members.

Operations (1962 figures in brackets)

Civilian Clubs flew a total of 27,523 hours (30,546) from club sites involving 152,676 launches (162,998).

Club owned gliders total 179 (176).
Privately-owned gliders total 193 (145).

The R.A.F.G.S.A. flew 7,306 hours (7,249), involving 49,914 launches (54,706), and the R.N.G.S.A. 1,130 hours (590) involving 7,416 launches (5,598).

Gliding Certificates were issued as follows:

A and B endorsements ...	744	(762)
C endorsements	368	(478)
Silver C	137	(105)
Gold C	11	(9)
Gold C plus 3 Diamonds	0	(3)

These were made up as follows: ...

Endorsements	*Civilian*	*Service*
A and B	408 (484)	336 (278)
C	215 (330)	153 (148)

OSTIV

The IXth Congress was held in Argentina in February 1963 and the papers read are being published in the monthly *Swiss Aero Review* (free to OSTIV Associate members: 28s. per annum to OSTIV, c/o London Gliding Club, 3 Cork Street, London, W.1). During the year OSTIV also published "World's Sailplanes II" under the leadership of OSTIV editor, "Bev" Shenstone.

OSTIV organised in September 1963 at Varese, Italy, a meeting of gliding instructors and their training gliders at which the B.G.A. was strongly represented. Fuller research and training sessions will follow at Varese if financial support can be organised.

B.G.A. has continued its membership of OSTIV (some 20 countries are full members) and B.G.A. members have continued to play a prominent part in this World Gliding Scientific and Technical Organisation. Our Board member is Alan Yates, Technical College, Bath, who would be pleased to answer enquiries.

Plans are already in hand for the next Congress at Royal Air Force Airfield, South Cerney, England, in 1965.

Public Relations

During the year a certain amount of progress was made on the Public Relations front, but there is little doubt that a major task still needs to be completed in informing and educating the authorities, both Local and National, who could ultimately influence the future of gliding generally.

In terms of national publicity the highlight of the year was the National Championships. These were handled by a member of the Public Relations Committee with most welcome and able assistance from various people in the movement. The amount of publicity and the general tenor of it set a completely new standard and the whole approach could be termed professional. This same sub-committee is already considering the arrangements for the 1964 Nationals and making basic decisions on the World Championships for 1965.

In addition to these items which achieve popular publicity already there are a number of questions covering local publicity for individual clubs, and the Public Relations requirements of the

various committees of the British Gliding Association which demand attention if the job is to be done properly.

With this in mind the original panel of three people was expanded into a committee towards the end of the year which is already involved in preparing plans for activities concerning these latter requirements.

As these come to fruition during the coming year and 1965 a complete start can be said to have been made on the whole business of Public Relations for not only the British Gliding Association, but the gliding movement generally.

Shaw Slingsby Trust

During the year the Trust has continued to support several Gliding Clubs, particularly in the acquisition of capital items such as hangars, buildings, and to a lesser extent training aircraft.

Loans totalling £2,750, and grants totalling £2,800 have been made.

Unfortunately further operations must, for the time being, be suspended pending some highly technical negotiations with the Revenue in which, I am glad to report, we have every possible support from our Ministry, who certainly wish our operations to be resumed as early as possible.

Sites Committee

The Committee's activities this year have been much concerned with legislation affecting gliding. It is pleasant to record that the Ministry of Transport have agreed in principle to the raising of the speed limit for glider trailers to 40 m.p.h. Valuable technical assistance in the negotiations was given by Mr. M. J. Neale.

Several clubs have established themselves on sites found by their own efforts, notably the Aberdeen Gliding Club, which now has its own site at Litterty.

The Committee has reason to believe a home has at last been found for the Perkins Club, now evicted to make a housing estate. A crisis is approaching in regard to the future of Dunkeswell, which is the only present or even possible aerodrome in civilian use in central Somerset.

P. A. WILLS, *Chairman.*

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MANUFACTURERS OF HIGH PERFORMANCE TWO-SEATERS

The PEAK 100 prototype has been operating for several months under club conditions and shown a very high degree of utilization and serviceability.

A certain amount of re-design work is now being carried out to facilitate production and it is expected that the first of these modified machines will be flying in the near future after which production machines will be available.

We also undertake :—

Repairs C. of A. overhauls Fibreglass work

Walking Backwards to Christmas

By Dmitri Zotov

A year ago we published an account of the first sailplane flight from Scotland to Ireland by Charles Ross of the Scottish Gliding Union. Now, nearly a year later, Flying Officer Zotov, a New Zealander with the R.A.F. at Ballykelly, has made the first flight from Ireland to Scotland, following almost exactly the same course in the opposite direction except at the beginning and end of his flight.

DECEMBER 28th looked quite promising. The wind was south-westerly, straight on to Binevenagh, and patches of low roll-cloud were forming. No time for breakfast—across to the hangar—no one in sight. Oh well, smoke barograph—no matches. Prime oxygen system—no spanner. Back to the billets to drag out bodies. Set them to work on barographs and things. Back for more bodies—go and D.I. cable and tow-car. Back for more bodies for ground handling (the wind was 25-30 knots). Shouldn't have had a party last night.

I was airborne in the Olympia at 11.30—a good, smooth tow to 1,600 ft. then straight down wind for Binevenagh, six miles away. The plan was to climb to three or four thousand feet in hill lift, fly forward into the wave above the roll cloud at about 2,000 ft., get as high as possible, and then turn down wind for Machrihanish, with Kinloss as the ultimate goal.

However, I didn't need the hill lift. About halfway there, over Limavady, I found my rate of sink falling off below the roll cloud. On turning into wind, I found myself in very weak lift (0.1 to 0.2 m/sec.) and, after 20 minutes or so, worked my way up to 2,000 ft. Then it started to increase, −0.5, 1, 2, 2.5 m/sec. I climbed past the low lenticular at 6,000 ft. and called up Ballykelly to tell them to get the EoN Baby out. On to oxygen at 10,000 ft., where the wind was dropping from 55 knots to 35, but with the rate of climb steady at 2 m/sec.

At 14,000 ft. my rate of climb fell to 0.5 m/sec., so I called up again to say that I would soon be going. At 15,000 ft. I was in the high lenticular which was just forming, and the climb fell to zero. So I turned and set off for the Giant's Causeway, my coasting-out point. I stopped over Coleraine at about 12.30 to regain height, and then cruised along a wave to the Giant's Causeway and turned down wind for Rathlin Island.

Rathlin came under the nose at 12,000 ft., dead on track, and at 9,000 ft. I coasted in over Machrihanish. A gentle climb back to 11,000 ft. with seldom more than 0.5 m/sec., and then northward to Loch Tarbert. Here I was able to use a feature which previously had been only a nuisance. There were two waves present, one from the Sperrins (in which I had made the early climbs) and one presumably from the Donegal Hills. These were at an angle of about 60° to each other, and were forming an interference pattern, with diamond-shaped gaps to make navigation difficult, and indeterminate humps (which moved every now and then) of cloud and lift. However, the north-south component of the pattern lay almost along the mountains of Kintyre, and appeared to be reinforced by them. I was able to hop from one hump to the next, losing very little height in the process, as I went northwards up the west coast.

At Loch Tarbert I was almost on track for Kinloss, so I turned up the Loch and crossed Kintyre to go up Loch Fyne. Auchenoish went under the port wing at about 15.15.

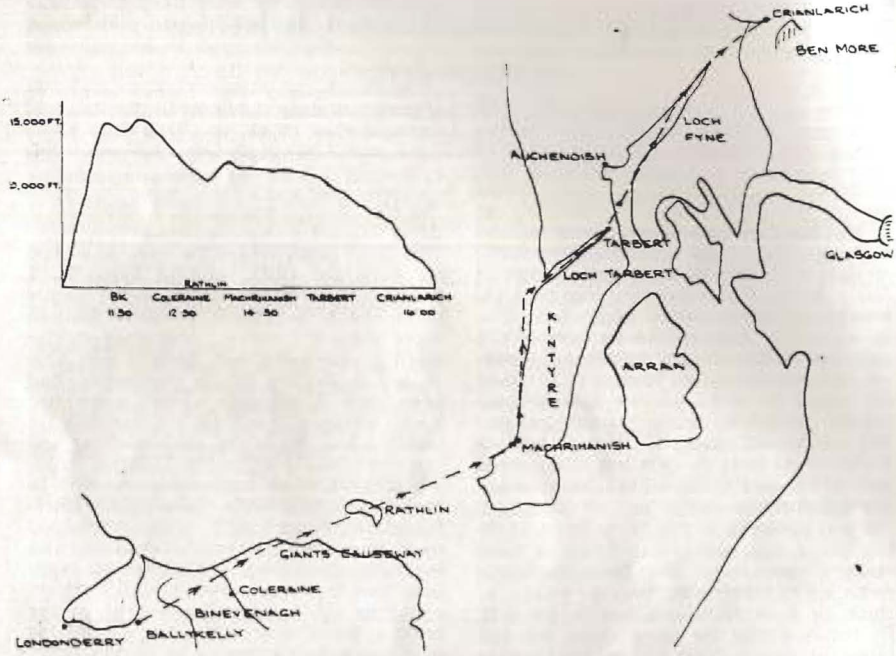
There was more weak lift on route, but I ignored it, as I could see a fine lenticular forming ahead — and time was running out.

Caravans delivered for renting and sel tow hire, for a gliding meeting from the Surrey Ca and Caravan Co. Ltd. Agents for all leading makes. All models are on display at our show site 7 days a week. Visit our show site or write for details

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I guessed, correctly as it turned out, that this lenticular was forming in the lee of Ben More, and set off for it. I arrived beneath it at 6,000 ft. and found —nothing. Looking down, I saw that the cloud was closing in below me. For some reason, the wave had collapsed.

I let down through the gap, with tentacles of cloud doing their best to grab me. The turbulence was extreme, and several times threw me several hundred feet upwards—one direction I did *not* want to go! Eventually I broke clear and looked around.

I was to the north of Ben More. At first I had thoughts of hill-soaring my way to somewhere further up the valley, where the wave might have re-formed, but I rapidly changed my mind. In the first place, the cloud came down on to the mountain tops even as I watched, and was obviously closing in. In the second place, it would be dusk in 30 minutes, and that country was no place for a night landing. Thirdly, there was civilization below—the first I had seen since Auchenoish, and probably the last for a long way. There was a good flat field beside the river, so I landed there at 16.00 and it was all over.

Gloop, it went. Then Gloop. And Gloop again: very curious. I undid my helmet and mask, shook off assorted straps, tubes, radio leads, and maps, placed the canopy to one side, and stepped out. Into eighteen inches of cold water. I made the aircraft as secure as I could and splashed off to ring for help from the village of Crianlarich.

Kinloss were helpful. They rang Ballykelly to tell them where I was, and dragged in Dave Innes. Yes, he thought they could help. He would rope in some bodies, and collect padding to make the Olympia go in a Skylark trailer. But it was a hell of a long way—why not try Portmoak?

Yes, said Portmoak, we'd be pleased to help; we've got an Olympia trailer but—no tow-car! Back to Kinloss. Dave had a brainwave. Why not try Pitreavie?

Delighted to help, said Pitreavie. The mountain rescue team will be with you at 00.30.

And so they were, grinding through the night with a three-tonner, Landrover and ambulance. I had managed to de-rig the Olympia with the help of some climbers from Stirling, and we had got it to dry ground, so it only remained to strap the bits into the three-tonner with climbing ropes (more out than in!), and after a night's sleep we were off to Leuchars.

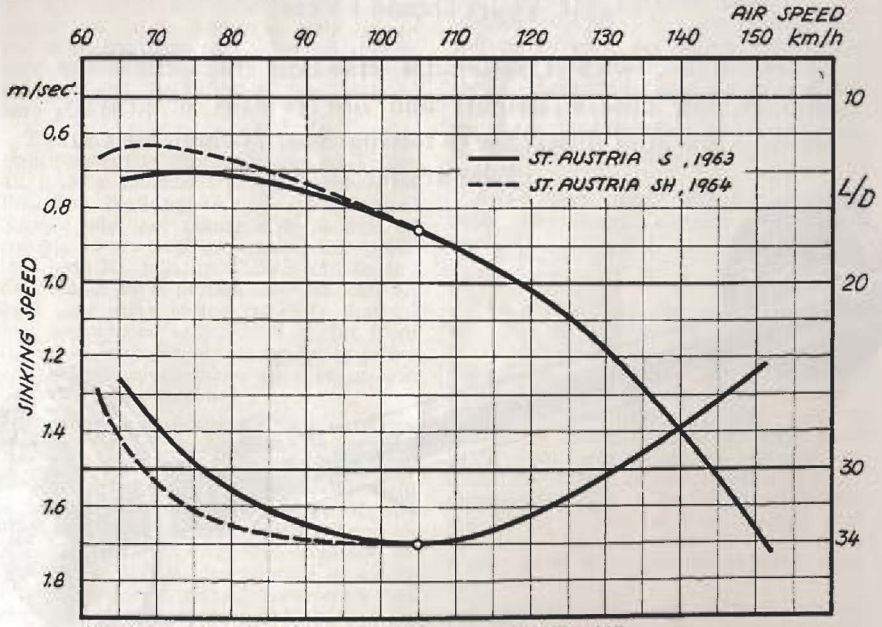
The weather at Leuchars clamped tight and there was no hope of a tow or air-lift back for some time, so I came back by rail and sea, getting some odd looks for my gliding clothes and luggage—one barograph!

What did it achieve? Well, the first west-east crossing of the Irish Sea; the Irish gain of height (13,500 ft.) and free distance (212 km.) records; and proof that Irish waves really do work.

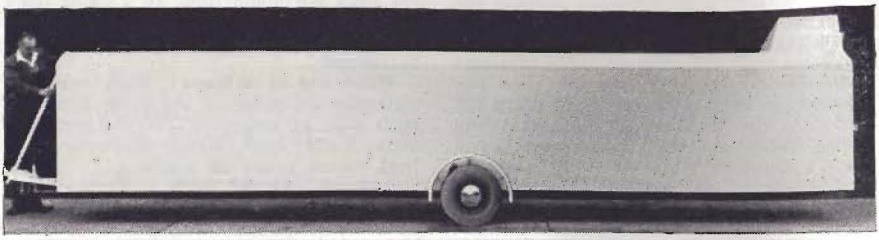
And the lessons? With an earlier start, 300 km. should have been possible.

Standard Austria Improved "U"

THE 1964 version of the Standard Austria has a new laminar-flow aerofoil, No. 266 of Dr. Eppler, and the accompanying polars, which have been calculated but also checked by a number of comparison flights with the Ka-6, show how much performance has been improved at speeds between 60 and 100 km./hr. (32-54 knots). The reason why no loss in performance was noticed at higher speeds, the makers state, is that a retractable landing wheel is used. The standard outfit is a fixed wheel, to conform to the Standard Class, but it can be easily replaced by the retractable wheel, which gives a ground clearance of 9½ ins., facilitating quicker take-offs and safer landings.



STANDARD AUSTRIA SH - AIRFOIL .... EPPLER 266
STALL SPEED ..... 38.5 MPH. - 62 km/h
MIN. SINK AT 42 MPH - 68 km/h .... 2.1 Ft./sec - 0.63 m/sec.

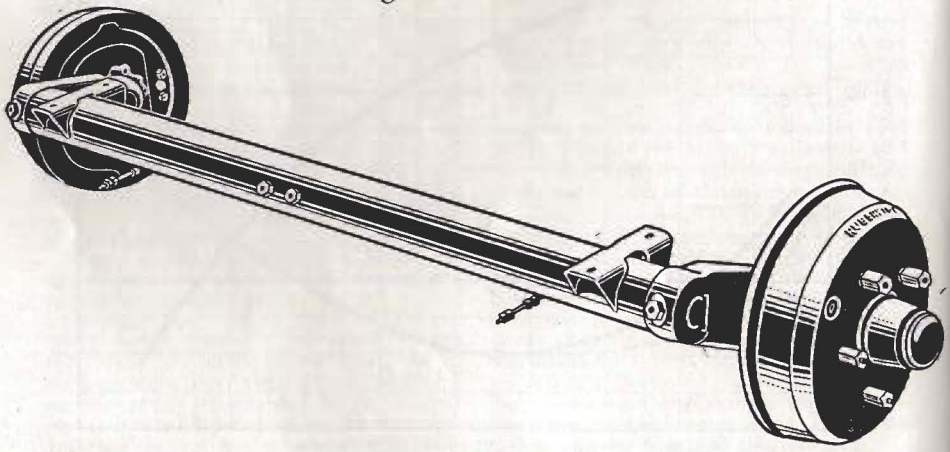


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The lightweight trailer above, specially built for the Slingsby T51, is fitted with a Rubery Owen independent suspension axle. Yours should be too!

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AIRWAYS COMMITTEE REPORT

MEMBERS of the Committee: H. C. N. Goodhart (Chairman), Miss P. L. M. Buckley, C. A. P. Ellis, D. H. G. Ince, P. Minton, O. W. Neumark, E. E. Reeves.

LAST year, referring to the Lyneham Control Zone, the Airways Committee Report contained the sentence: "Perhaps its worst feature is the indication it gives that the bureaucratic mind is still shut to the facts." This was the great stumbling block to any useful discussions with the Ministry of Aviation. Any decisions made with regard to the introduction of controlled airspace were based not on a conscious weighing of the pros and cons and a logical conclusion therefrom, but on a combination of emotion and the forces of various pressure groups.

The past year has seen an enormous improvement in this situation and we are all greatly indebted to the members of the new National Air Traffic Control Service who are taking a great deal of trouble to try and understand our problems and to help us. This is not to say that all is now perfect and we can sit back and relax in the certainty that all will be adjusted as we want it—far from it, but at least we are being fairly heard and any decisions taken do take us and our views into account.

The most significant step in discussions with the M. of A. has been an acceptance that a mathematical analysis of collision risk is a valid consideration in determining from which pieces of airspace gliders should be excluded and to what extent. The delicate question of what is an acceptable standard of safety from collision remains unanswered and may well so remain for a long time. This is not, however, the most serious problem from our point of view since, for the most part, the risk rates are so low that there is little argument that a more than adequate standard of safety is being achieved.

With this encouraging state of affairs, we feel that the outlook is more cheerful than for many years past. There will still be strong pressures against us but at least we have a weapon to fight with.

Turning now to the actual results during the past year the picture is again quite cheerful. There was, however, an unfortunate incident at the beginning of the year when the M. of A. introduced a Special Rules Area over Eastern Kent without any consultation with us or any other general aviation interests. There was considerable doubt as to the legal meaning of the order enforcing this; however, the M. of A. intention was to exclude gliders altogether from this area. Somewhat protracted negotiations have now led to agreement that gliders should be unrestricted in this area in V.M.C. but should be excluded in I.M.C. and this change will be made as soon as the law can be amended. There is a reasonable prospect that the revised law will be in force before the 1964 cross-country season starts. Meanwhile, a special exemption from the present law has been granted to gliders flying from the Kent Gliding Club site at Charing to enable them to use the area in V.M.C. now.

Apart from this, 1963 has seen no other significant airspace restrictions applied.

1964

The crystal ball for the forthcoming year has a number of items showing fairly clearly in it. On the credit side there is a reduction in the Manchester Control Zone; on the debit side the Westward extension of the London T.M.A. is going to rear its ugly head again and there is also a proposal to make the whole of the London T.M.A. permanent I.F.R. Control of all Upper Air Space is coming fast: indeed, but for the lack of adequate radars, it would have been introduced some time ago.

If nothing else, one thing is crystal clear, that your Airways Committee will not find time heavy on its hands in 1964.

H. C. N. GOODHART, *Chairman.*

B.G.A. News

ANNUAL AWARDS FOR 1963

THE British Gliding Association has pleasure in announcing the following awards:

DE HAVILLAND CUP for the greatest gain in height: to H. R. Dimock for a gain of height of 29,955 ft. at Lasham on the 7th June. Skylark 4.

MANIO CUP for the longest goal flight during the year: to C. C. Donald for a goal flight of 208 miles from Westwood Airfield to Withybush Airfield on 2nd June. Skylark 3B.

WAKEFIELD TROPHY for the longest distance during 1963: to A. D. Purnell for an out-and-return flight from Lasham-Long Mynd-Lasham, a distance of 242.8 miles on 27th July. Skylark 3F.

VOLK CUP for the longest pre-declared turning point and return flight: to A. D. Purnell for the flight under the Wakefield Trophy.

SEAGER CUP for the best two-seater performance: to W. A. H. Kahn and B. J. Davey for flight Lasham-Banbury-Lasham, a distance of 189 miles, speed 30.08 m.p.h.; on 27th July. Eagle.

DOUGLAS TROPHY to the club putting forward three flights by three different club members in club aircraft aggregating the largest total cross-country mileage: to Moonrakers Gliding Club, R.A.F.G.S.A., for the following flights: Fg. Off. D. H. Stubbings in an Olympia 2B on 12th April. Long Mynd-Gt. Yarmouth, 197 miles. Cpl. Tech. J. Chandler in an Olympia 2B on 5th May. Keevil-Gt. Yarmouth, 187 miles. Plt. Off. J. S. Williamson in Olympia 419 on 28th July. Upavon-Launceston-Upavon, 242 miles. Total 626 miles.

CALIFORNIA IN ENGLAND to a woman pilot of British nationality for the longest flight commencing in the United Kingdom: No award.

FRANK FOSTER TROPHY for fastest speed round a 100 km. Triangle: No award.

ROBERT PERFECT TROPHY to the club with the highest number of B.G.A. categorised instructors in proportion to its flying membership.

1. Trophy and £40 Award. Aberdeen Gliding Club.
2. £20 Award. Moonrakers Gliding Club (R.A.F.G.S.A.).
3. £10 Award. East Midlands Gliding Club (R.A.F.G.S.A.)

The Flying Committee extend their congratulations to pilots for three pioneering flights, details as follows:

To Charles Ross for his flight of 160 miles from Portmoak in Scotland across the Irish Sea to Toome in Northern Ireland in a Skylark 3 on 3rd February, 1963.

To. Fg. Off. D. Zotov for his flight from Ballykelly in Northern Ireland across the Irish Sea to Crianlarich in Scotland, a distance of 130 miles in an Olympia 2B, climbing to 14,000 ft. on the way, during the last week-end in 1963.

To J. V. Harris for his flight on 21st July, 1963, from Lossiemouth to Aberdeen, Ballater, Aberdeen, in a Skylark 2B, reaching 16,500 ft. on the first Grampian wave cross-country.

The Flying Committee regrets that it has not been possible to award trophies for these flights, but the terms of reference for award of cups and trophies do not cover these flights.

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Aero-Towing

THE following notes are issued for the guidance of all concerned in aero-towing operations.

1. Position of the Glider

Most aero-towing is done with the glider in the so-called high-tow position. The considerations which determine a satisfactory position of the glider are :

(a) The glider should be above the slip-stream of the tug; and,

(b) The tug pilot should be able to see the glider, either directly or in a mirror.

It will generally be satisfactory for the glider pilot to fly in such a position that he sees the wing of the tug just about on the horizon. The tug slipstream is then well below the glider and there is rarely any point in going higher.

2. Visibility

If the glider pilot loses sight of the tug for any reason whatsoever, he must release instantly. Possible reasons are : getting far too high, cloud, heavy rain or dazzle from the sun.

3. Speed

Towing too slowly may lead to difficulty in maintaining station and overheating of the tug engine. A comfortable speed is between 50 and 55 knots for most combinations of tugs and gliders, taking care not to exceed the limitations of cylinder head temperature or the maximum towing speed of the glider.

4. Length of Cable

Too short a tow-rope renders accurate station-keeping difficult and tiring, whilst a long rope can produce an unpleasant surging motion. Using 1,000 lb. breaking load nylon rope, a length of about 150 ft. seems satisfactory for general use.

5. Station Keeping

There are obvious dangers in allowing the glider to get too far out of station, particularly in getting too high shortly after take-off. As the glider gets high it will tend to make the tug go down. In the limiting case, when the glider is very high, the tug pilot will run out of elevator control and his aircraft will be forced into a sudden steep dive. This situation can develop very quickly. For this reason attempts to steer the tug (e.g. towards a thermal) must never be made, and instructors must restrain pupils in two-seaters from getting too far out of station before taking corrective action.

6. Towing Hooks

Many modern gliders are fitted with a single hook in a position which gives a good compromise between aero-towing and winch launching characteristics. Some gliders, particularly of foreign origin, are fitted with a front hook for aero-towing and a rear hook, situated well aft, for winching. Such machines should never be aero-towed by the rear hook.

F. G. IRVING.
ANN WELCH.

★ ★ ★

Second-hand Gliders

A NUMBER of second-hand gliders have been purchased by clubs from the R.A.F.G.S.A. and have been flown at B.G.A. sites up to the date of expiry of the Service Airworthiness document.

It should be noted that the clause in para. A.2 of Operational Regulations, under (c) Equivalent Service document, is not intended to permit this procedure, since it was inserted to cover the case of a glider belonging to a Service organization being flown at a B.G.A. site. The R.A.F.G.S.A. would confirm that their airworthiness documents cease to be valid when a glider is sold to a civilian body.

When a glider is bought second-hand from a Service organization which does not use the B.G.A. Airworthiness System, it must not be flown at a B.G.A. site until a B.G.A. Certificate of Airworthiness has been obtained. In general it will be necessary to carry out a full inspection and overhaul before the B.G.A. will grant a C. of A. In case of doubt, the Technical Committee should be consulted. It is naturally in the interest of the purchaser to obtain the fullest possible information and documentation relating to the prior history of such a machine.

F. G. IRVING, *Chairman,*
B.G.A. Technical Committee.

South African Nationals 1963-1964

by E. DOMMISSE

IT is impossible to give any but a condensed impression of this great event in a single article such as this. In order to explain much in a few words it would be best to start by giving an impression of the weather as it exists in Kimberley.

There are hot, windless and cloudless days, until the first high flat cu. appears at midday or later. These are the world record breaking days, providing you choose the right task and start at the right time with a fast sailplane. The day is killing with its heat, the air appears white and colourless but the clouds are high and the lift strong.

There are, however, other days with greater beauty and colour. This usually occurs when there is slightly more cloud with greater development. When the heat haze shimmers on the ground on such a day you will see a deeper blue sky above the blazing white clouds. Beneath the clouds lies a greyish haze which becomes tinged with blue. The red and brown earth below is also tinged with blue while the bases of the cumulus clouds become red with the reflected red of the shimmering earth below. Pillars of revolving dust sway their single tentacles between earth and cloud.

In this paradise, where the map by which you fly lies spread beneath you in all its detail from horizon to horizon, the sailplanes flash at high speed and the Austria perks its cocky little vee-tail. But the paradise has its limits. To the east the clouds mass against the central mountains; to the west lies a desert; to the south the great inner plateau or Great Karroo falls sharply to the Little Karroo. Here different air masses can and do battle with turbulent shear lines, causing lenticulars or great storms. Each boundary is hardly 200 miles away.

Great storms can sometimes grow in an unbelievably short time, or unbroken lines of storm will form along the rivers or predicted convergence lines. Lightning flashes and the thunder rolls with an unbroken double-bass while heavy rain and hail falls. This is where pilots become happy gamblers or nervous wrecks wondering if they should go early with poor lift or risk all with a later start and violently strong lift but with the risk that predicted over-development might occur where not wanted and yield them nought.

Our conditions have taught us that our greatest success lies with closed-circuit flying. On rare days we do succeed in flying beyond the boundaries of our paradise, but we have come to see that distance flying costs too much in all respects, including magnificent days spent on retrieves that could better have been spent in flying had we rather landed back home from an equally meritorious closed-circuit flight. This philosophy we have also applied to week-end flying at the various clubs, with astonishing results in respect of machine utilization and badges gained at low cost.

Anne, Denis, Cliff Hide, Rod Row and I, with various wives, dogs and lug-

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pilots, arrived at Kimberley on 23RD DECEMBER. Denis had some bad luck with his camera which robbed him of a good 300-km. triangle record. I succeeded in exceeding our existing record but with insufficient margin, though the flight did earn me the Kimberley Cup, which is awarded for the fastest 300-km. triangle of the year. My speed for this was 97.7 km./hr.

ON THE 25TH, Anne and I set off to fly the 500-km. triangle. Cliff said it was no way to spend Christmas Day, but he kindly agreed to be available as an independent additional observer.

This was a real blue and red day, though we did not know it when we started at 12.30. Cloud base rose to 13,000 ft. and the average rate of climb measured on the barograph went as high as 6¼ metres per second. Thermals of less than 5-7 m/sec. were rejected during the flight. There was almost no wind. (The lesser performances during the competition period were due to terrible and persistent winds that played havoc with our speeds.)

Anne had set off first but I soon caught up with her on the BJ-2. To my consternation I could not leave her behind. Still together at the second turning point, I got really desperate. Soon after this I found really strong lift and set off at 130 knots to reel off 10,000 ft. and 30 miles, going straight for a group of dust-devils dancing under a red cloud. This caper twice repeated put me in a position for the final glide home. A truly fast time was spoiled because the cover from a large storm to the west had spread over Kimberley, giving strong sink and a bad headwind at the last.

Distance 532.05 km.; time 4 hrs. 57 min. 15 sec.; speed 107.39 km./hr.

Anne became the first woman to complete this task with a speed of 103.33 km./hr. This record will not easily be taken from her again.

THE NEXT DAY was even better, but our high hopes for a quick out-and-return record were spoiled by an unbroken line of storm across our way. I landed back after completing 450 kms. in 4 hrs. Cliff also landed back after an abortive attempt at his 500-km. out-and-return.

Brian Stevens set off from Baragwanath on this day with his Austria to attempt a goal flight of 520 miles down south past Kimberley. Pat Beatty followed with the trailer. Brian went like a flash when in our paradise, but very poorly to the north and south of the area. He achieved a new South African distance record of 386 miles. This must be considered in the light of the fact that he was flying against a light S.W. wind.

DECEMBER 28TH.—First competition task — 107-km. triangle.

Bobby Clifford judged and flew it beautifully in 1 hr. 17 min. in a Ka-6.

Kevin Fourie, aged 15, went round in a Swallow. He flew back and forth in the storms on the base leg where there was good lift until his 5 hrs. duration was also completed before coming back to Kimberley, where there was less chance of remaining airborne. With this flight he completed his Silver C.

This standard of flying makes me think that we should award the Silver badge to flights round triangles or out-and-returns providing the distance is at least 100 kms. Out-landings are no part of such a badge and should be taught in an instruction course before a pilot is sent off to attempt his Silver C distance.

DECEMBER 29TH.—2nd task: 305-km. triangle, over bad country to the west and south.

There were truly magnificent storms along the outside of the first and last legs, but inside the area of the triangle was a blue and red paradise. The storms foxed most of us, but 7 out of 16 got round. The BJ-2 was first with a time of just over 4 hrs.

DECEMBER 30TH.—3rd task: 212-km. triangle. This is still a lovely task when the day is too good for a 100-km., but for various reasons, in this case a very strong wind, not good enough for a larger task.

Fourteen machines, plus many flying in the limited and two-seater class, got round, including Kevin in the Swallow. The BJ-2 was first with a time of 2 hrs. 10 min.

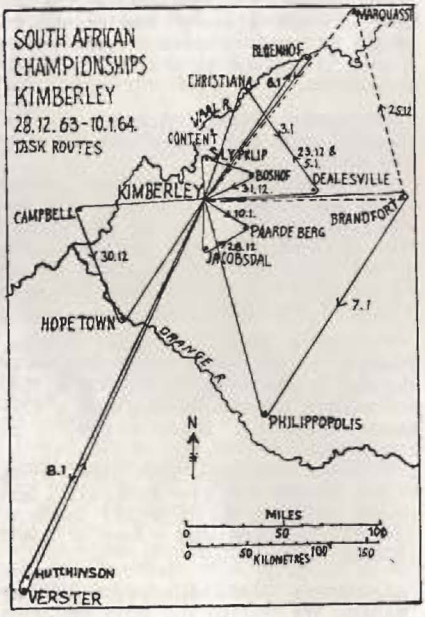
DECEMBER 31ST.—4th task: 109-km. triangle. We wanted the boys and girls

back in one piece for Old Year's Eve. Besides this, the whole area was overcast with alto-stratus and cirrus from a large early storm spreading fast over us with a strong N.W. wind.

Most pilots went too early. I could perhaps afford to wait upstairs and yet remain calm. Late in the day the sky was swept clear with the driving wind. Some cu. appeared in the blue area where the triangle lay, while a new and greater storm came driving in on the heels of the first, which had now passed entirely. It was time to go. The wind was too strong for records. What a pity, with such strong lift and high cloud base. The BJ-2 won again with 1 hr. 12 min.

JANUARY 1ST.—Rest day: New Year celebrations.

JANUARY 2ND.—5th task: 203-km. triangle on a cloudless, hot and windy day with thermals to 7,000 ft. This was perhaps a good free distance day, but we still believe that such capers do not pay. The best free distance day during a competition is a day that is so bad that no one can get very far and this day



was far too good for that. I will, however, admit that eternal triangles become monotonous. It was an interesting day nevertheless, which I succeeded in winning with a time of about 2½ hrs.

JANUARY 3RD.—6th task: 309-km. triangle. This was a real record-breaker, but we all came unstuck somewhere along the line, thus to lose time. I had my own horrifying experience. Pushing too hard for a possible record, I very nearly went down and out.

This was Anne's day, with Bomber Jackson a minute behind her; but she had some hitch with her claim for a record for this winning flight. However, on her next flight, which was 2½ minutes longer, she was still able to claim the record.

A word about Maurice Jackson. This is the character, as the legend goes, who earned his nickname during his training in the South African Air Force when he most embarrassingly and accidentally dropped a bomb from his Harvard trainer to the great consternation of those who had to duck. Bomber maintains that he was the only flying officer with the rank of private in the S.A.A.F. for many months thereafter. He is also the character who flew an airways Viscount with 60 passengers from Bloemfontein on the 25th and, seeing the weather, promptly radioed through to Kimberley control to ask how we were doing. He was thus one of the first on the outside to hear the great news. This episode at least favourably impressed the A.T.C. officer in Kimberley control tower, whose peace we so habitually disturb each year.

JANUARY 4TH.—We were ready at the starting line for the day's task when a storm struck Kimberley and we had to rush the gliders into the hangar. The wind increased to 60 m.p.h. as we watched helplessly how some of the trailers were overturned. An hour later everything was quiet again but the task was cancelled. We were lucky not to lose some of the machines.

JANUARY 5TH.—7th task: a 300-km. triangle. Almost a blue and red day. Anne regained her 300-km. Fem. World Record, which, unconfirmed reports had it, she had lost to another Fem. in Poland. Her verified speed submitted

to the F.A.I. is 86.66 km./hr. Edgar Habedank obtained his Gold C plus Diamond by going round in the S-18 to repeat what Wilhelm Boon had done on the 3rd January. This Swiss S-18 is something not quite in the class with a Swallow. Some two-seater records are also waiting for finalization.

We don't mean to fly records during our championships; it is just something that sometimes happens. So don't get any wrong impressions.

On this day I made no mistakes and placed the BJ-2 first again with a speed of about 90 km. per hr.

JANUARY 6TH.—8th task: Out-and-return to Bloemhof, distance 308 km. This was a most interesting day with a west wind of 25 knots gusting to 30 and large storms over the turn point. "Bomber" flew magnificently to win the day and force all the rest of us to take severe points-penalties. Only 8 machines completed the task. I was second, with only a slender lead left over Anne and "Bomber".

JANUARY 7TH.—9th task: 529.86-km. triangle. Strange how we all blew our tops when this task was first announced two years ago and how impatiently we had now been waiting to have it announced again. Hans Böttcher won the event by going around in fine style in 5 hrs. 15 min. for a very worthy German National record. Our visitor from Germany, Hans, flying an Austria in the place of the BS-1 which he had hoped to bring, had been lagging far behind up to now. We all felt very happy with this success of his. He had been the first one, two years ago, to achieve the 500-km. triangle task with the magnificent speed of 90 km./hr., but at this time it was not yet recognized as a record task. We all felt that the 90 km./hr. mark should at least remain as a standard first to be exceeded before a new claim was recognized, and at least I feel that honour has now been satisfied. His speed works out at 101.13 km. per hour.

Helmut Sorg and his brother, Heinz, went round in fine style with their Ka-7 to create yet another world record at 83.74 km./hr. This is also a German claim. Eleven of us got round. Anne was a close second and I had to be satisfied with 3rd place. Six of the eleven gained their Distance Diamonds with this task; the others already held this distinction. Herby Oberhofer became the seventh South African to complete his three Diamonds on this day.



Helmut Sorg after his two-seater world record for the 500-km. triangle.

JANUARY 8TH—10th task: an out-and-return in the direction south to Verster. Pilots could choose their own turn points according to what they believed possible or according to their needs. Points would be scored for distance completed. The total distance to Verster and return is 699 km. for a new world out-and-return record. As I was saying about not really intending to fly world records during our championships . . . but this was inspired task-setting on the part of our organizer, John Firmin.

We do not believe in free distance that takes us 440 miles from home, but if we can have all this and yet be home or nearly home again it becomes a different matter.

This was a really *bad* day. Towing was very slow and no lift could be found. "Bomber" was first on the take-off list. By 11.30 he was still in sight at about 4,000 ft. and not far away. Some fell down and I was last to take off. By 12.05 I was launched and by 12.30 I set off at 5,000 ft. My heart sank. Lift

was poor, being 3 to 4 m/sec. instead of the usual 5 to 7. Cloud base was 8,000 ft. At Hutchinson, about 15 miles short of Verster (which is only a tiny railway siding on the line to Cape Town), I found the last cloud. The air down south had that peculiar white, dead look. I edged out and took my turn point pictures at 4.30. The dust was kicking up in a peculiar fashion in the lee of the low hills to the west. The clouds to the north vanished and receded rapidly to the N.E.

It was now touch and go as to whether I would find lift again. Working every bit of turbulent air I gradually drifted north and at last struck a line of tremendous turbulence which literally threw me up and down. I had never met such air before. There were no clouds and no strong wind. Much shaken by this shear-line-lift, but with some height gained, I could just reach the nearest cloud. Here I found steady 7 m/sec. for the first time. The base of the cloud had risen to 18,000 ft. a.s.l. The wind had turned south and the clouds on track were melting away. In the clear air there was lift over every group of small hills. With the sun dipping below the horizon the air suddenly ceased to carry me. Twenty miles to go and 2,500 ft. left with the ground very rough and frightfully dark ahead. I turned away and landed on a field that looked safe, feeling happy — on the radio I had heard that "Bomber" was home. I also received and relayed back to Kimberley various reports from others who had landed about 40 miles further back.

Ted Pearson, from Rhodesia, and Bill Teague both landed back at Kimberley after rounding their shorter nominated turnpoints to give them their 500-km. Distance Diamonds. Wilhelm Boon had covered 400 km. on a similar caper on the S-18. This was a most meritorious flight which a few years ago we would not even have had the imagination to attempt.

The last task was flown on FRIDAY, 10TH JANUARY. Anne and "Bomber" were now a point or two ahead of me and I was truly worn down and finished after ten days of flying every day against teams of two who were flying on alternate days. But the day was made to my order and I felt very confident. A really strong 25 to 30 knot wind was blowing from the N.W. to W. with ever-increasing strength. The task was a 107-km. triangle. Torn cumulus lay over Kimberley and a huge storm was growing over the first turnpoint. I waited patiently, at times with my heart in my mouth, seeing conditions getting better and then apparently worse. When I did go I was over the first turnpoint with my pictures taken in 25 min. and with 13,000 ft. above ground. One day, somewhere, this will happen again and that 100-km. record will go with a time of about 46 mins. On this occasion I used all the height, at a speed suitable to put me round the next turnpoint into wind in one glide, with 4,000 feet left over. This meant flying at 90 to 140 knots, depending on the lift and sink found on the way. I needed a little more height to go in against the cross wind. I cursed the weak thermal in which I had to take it and then went in at 120 knots for a time of 1 hr. 6 min. and first place.

Daily Winners

In the following table, the flight times are accurate but the distances are only approximate, except those given for the 6th, 7th and 9th days, which are exact.

Comp. Day	*Pilot*	*Task and Distance*	*Winner's Time h.*	*m.*	*s.*
1.	R. Clifford	107-km. Triangle	1	16	48
2.	E. Dommisse	305-km. Triangle	4	02	33
3.	E. Dommisse	212-km. Triangle	2	10	20
4.	E. Dommisse	109-km. Triangle	1	12	07
5.	E. Domisse	203-km. Triangle	2	26	49
6.	Anne Burns	309.05-km. Triangle	3	32	45
7.	E. Dommisse	309.05-km. Triangle	3	17	00
8.	M. Jackson	308-km. Out-and-Return	3	25	05
9.	H. Böttcher	529.86-km. Triangle	5	15	00
10.	M. Jackson	699.04-km. Out-and-Return	8	08	30
11.	E. Dommisse	107-km. Triangle	1	06	57

Final Results

Pilot(s)	*S'plane*	*Average points (& no. of flights)*
1. E. Dommisse	BJ-2	948 (11)
2. M. Jackson	Austria	934 (5)
3. Anne Burns	Austria	913 (6)
4. R. Clifford	Ka-6	872 (6)
5. F. Brydges (M. Jackson)	Austria	866 (6)
6. H. Böttcher	Austria	798 (11)
7. H. Heiriss	Ka-6	776 (11)
8. H. Oberhofer	Ka-6	761 (6)
9. E. Mouat-Biggs (R. Clifford)	Ka-6	756 (5)
10. M. Neumeister	Ka-6	753 (6)
11. C. Allderman	Skl. 3	748 (5)
12. H. Morsbach (H. Oberhofer)	Ka-6	717 (5)
13. G. Lloyd	Skl. 4	707 (6)
14. E. J. Harold	Oly. 463	677 (11)
15. H. Winter (M. Neumeister)	Ka-6	672 (5)
16. E. Pearson	Skl. 3B	632 (5)
17. W. Teague	Schw. 123	630 (6)
18. C. Hide (W. Teague)	Schw. 123	616 (5)
19. G. Albu (G. Lloyd)	Skl. 4	605 (5)
20. J. Saunders (E. Pearson)	Skl. 3B	568 (6)
21. G. Marais (C. Allderman)	Skl. 3	506 (6)
22. J. Arnett	Vasama	434 (11)
23. G. Freeman	Skl. 1	411 (11)
24. D. Burns (A. Burns)	Austria	196 (5)

(The names in brackets denote pilots flying the same machine.)

The two-man team on the Cape Town S-18, W. Boon and E. Habedank, were placed 1st and 2nd in the Limited Class.

K. Goudriaan was first in the two-seater class on a Ka-7 with Brian Cole second on the Eagle. H. Sorg had sacrificed his first place by sportingly attempting the 500-km. triangle instead of the 300-km. triangle set for the two-seaters.

Kevin Fourie flew the Swallow home on the Sunday after the meeting to earn his Gold C and Goal Diamond.

All this we owe to the fact that we have complete freedom of our free skies. We go where and when we please without let or hindrance, and within certain limits we are able to make Kimberley Airport entirely our own. We are deeply grateful that in this corner of the earth this should still be so.

1965 World Championships Progress

THE British Gliding Association has received preliminary notice of intention to enter from 27 countries. Based on these, we are inviting each country to enter a maximum of four aircraft, two per class, which, on present information, should produce a total entry somewhat over 60 aircraft.

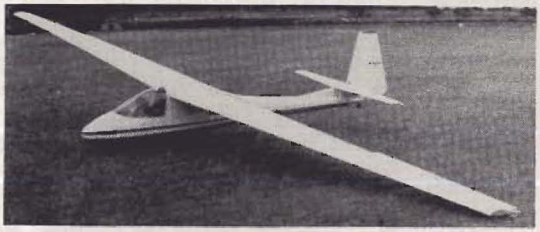
Official entries should be confirmed by 30th April, and final entries, each accompanied by £100 deposit per aircraft, by 30th September. Not until after this date will it be possible to estimate with a reasonable degree of accuracy the total number which will actually arrive, but indications so far are that we shall have a Championships at least as large as any previous ones.

The entry fee covers accommodation and meals on the airfield and all flying services, but not petrol and other retrieving costs. The cost of petrol at present is 4s. 3d. and 4s. 9d. per gallon. All retrieving will be by road.

We are still trying to reduce the entry fee, and if successful will immediately advise all concerned, but at the time of writing must ask everyone to plan on the present basis. Costs of hiring gliders, trailers and cars will be worked out as soon as possible.

The official dates have now been confirmed and are: Practice week 22nd-28th May; opening ceremony 29th May; Contests 30th May-12th June; Prize-giving 13th June.

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DEVELOPMENT COMMITTEE REPORT

THIS Committee was set up in June 1963. Its terms of reference were:

1. To investigate the possibilities of obtaining grant aid for gliding clubs from the Ministry of Education under the provision of the Physical Training and Recreation Act 1937 as amended in May 1963 to include single sport activities.
2. To advise clubs in making suitable applications if they were found to be eligible.

The Committee was further asked to liaise with the Ministry of Education and to determine whether any further help might be forthcoming under the provision of the Act for Headquarter activities. The object of the Act is to provide greater sporting facilities in this country. Grant aid can be given to clubs whose membership is without restrictions and open to the public. The clubs must conform with certain conditions as laid down by the Ministry of Education.

Thirty-two civilian clubs are eligible under the Act and can apply for grants to purchase the following items of equipment: Gliders and their ancillary equipment, winches, tow cars, tractors, hangars, changing-rooms and ablutions.

If an application is successful, half the cost price of the equipment is given by the Ministry of Education. The items must be required either as initial equipment, i.e. where no comparable equipment is owned by a new or established club, or to enable the club to expand its facilities thus allowing more people to take part in the sport. Grant aid for replacement is not permitted.

Quite obviously the scheme will take some time to produce results. Apart from the fact that each application is examined most carefully and "on site" investigations made by a Ministry Inspector, clubs can make application only every two years. This ensures that Club Committees must decide in which order they should apply for equipment. Furthermore, they must find the 50 per cent of the purchase price before applying for a grant.

In its first six months, the Development Committee has given advice to 30 clubs. 11 of these have completed their application forms and have sent them to the Ministry of Education department concerned with grant aid via their local County Education Officers. It is hoped that some of these applications will be approved by the end of March.

Very close contact was maintained with the Ministry officials concerned with grant aid and each application was fully discussed with them. I would like to pay a special tribute to them for their help and advice. A paper was written setting out the case for grant aid for sleeping accommodation as it was felt that this was an urgent requirement if clubs were to run courses and operate on a seven day a week basis.

Following the successful application for a coaching grant which resulted in the employment of the National Coach, the Ministry have been asked to approve the employment of a Technical Officer.

As the initial work of the Committee was entirely one of personal contact, no members were appointed to serve although in the New Year this will be changed. Andrew Thorburn of the Scottish Gliding Union has agreed to serve on the Committee and to act as Chairman of the Scottish Regional Committee. As Scotland has its own Department of Education which administers that country quite separately, it is necessary to have a Committee to deal with the Scottish office. Other members of the Development Committee will be the Treasurer of the B.G.A. who will be able to advise clubs on the financial problems involved; the Chairman of the Instructors' Panel who will advise clubs which gliders might best suit their needs.

The Chairmen of the Technical and Sites Committees will be invited to give technical assistance where required. Thus clubs will be able to seek advice and assistance from the specialists.

There is much still to be done but I am sure that by the end of the current year real progress will have been made. It is most encouraging to see that the Government are at last helping minority sporting activities and are implementing some of the recommendations of the Wolfenden Report on Sport.

W. A. H. KAHN, *Chairman.*

Polar Assessment

Mr. Doetsch and Mr. Lampard have kindly undertaken the work involved in categorising Polar Curves to be published in future in SAILPLANE AND GLIDING. *These three categories A, B and C were broadly outlined on page 41 of our February issue. We expect to be publishing other curves which may reach us from time to time, possibly as illustrations to articles or news, but these we will mark "U" (uncategorised).*

POLAR curves have become widely accepted as a practical method of comparing glider performances. For these comparisons to be fair and reliable, all measurements must be made under known, reproducible conditions.

Atmospheric conditions seldom comply with such a description, and may thus constitute a major source of error in the determination of polar curves.

Methods of Obtaining Polars

There are two possible direct methods:

(1) a series of partial glides at various constant speeds; and

(2) decelerating level runs.

The former is usually employed, since attempts to use the latter, first by V. Pokorny in 1956 and then by B. Davey and D. Ashford in 1960, gave unsatisfactory results due to the difficulties of maintaining level flight. The method has, however, great development potentiality.

In this article we shall only deal with partial glides. For this method, time, height and speed are observed over runs of 1 to 2 minutes. The speeds selected for the runs should be well distributed throughout the speed range of the glider.

Test Parameters

In addition to the importance of having still air conditions when evaluating polars, it is essential for the following to be accurately determined :

(1) All-up weight of the glider;

(2) Position of the centre of gravity;

(3) Errors in the indicated air speed.

The first two can be measured quite simply, but the third requires calibration of the air speed indicator and the measurement of position errors. The position errors are due to the difference between the pressure in the static vents of the air speed indicator and the atmospheric pressure. This pressure difference varies with the forward speed of the glider. Corrections are obtained in flight with the aid of a trailing static head.

Systematic errors may be introduced by large-scale air movements (e.g. waves). These should be minimised by a suitable choice of both the location of the testing area and the weather conditions.

As in all experimental work, random errors, due to small-scale air disturbances, accumulation of dust and of insects on the leading edge of the wings, etc., occur and give rise to the scatter of points about a mean polar.

In the next few issues of SAILPLANE AND GLIDING we are hoping to publish polars of various sailplanes.

We intend to adhere to the classification scheme proposed in the last issue of S. & G. with one or two minor modifications.

For the "A" category curves we will, wherever possible, delineate the limits between which there is a 95% certainty

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that the true values of sink speed lie (the uncertainty being due to random errors leading to scatter of points about the mean curve).

We are also proposing to subdivide the "B" category, since it is possible to achieve different degrees of accuracy depending on whether height separations are estimated directly by the pilots or by photographic techniques.

We will be pleased to receive any data readers may have which they believe will be of assistance in compiling polar curves. For such information to be useful, it is essential that the following details be included:

(1) Glider type and number.
(2) All-up weight, centre of gravity position and details of any modifications.
(3) Where and when tests were made and by whom.
(4) Atmospheric conditions.
(5) Technique employed.
(6) Full details of instrumentation, and calibration curves where required.
(7) Complete set of readings obtained from the tests. If the readings have been corrected for air speed indicator errors, position errors and static lag errors, this should be indicated.

K-H. DOETSCH.
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Pilots' Rating Scheme

THE B.G.A. Council eventually decided not to put into force this year the revised pilots' rating scheme published in the last issue of SAILPLANE AND GLIDING, since to change the scheme prior to the 1964 Nationals would have been entirely unfair to those pilots who, flying against the scheme in force during the 1963 Nationals, would have been adversely affected. Instead, the Council held a special meeting on 5th February to consider the Flying Committee's proposed new scheme in the light of papers prepared by various members. Two of these are published below.

The aim of the scheme was defined as follows:

> "The Rating Scheme is required to produce an ordered list of competitors most likely to do well in competition flying, based on pilots' achievements in competitions, which may be used to decide who can and who cannot fly in the National Championships."

It is vital to keep this definition very clearly in mind, because it is most important to be clear what the rating scheme does *not* do: for instance, it is *not* a mechanism whereby the British International team is automatically selected.

After their discussion, the Council laid down the following outlines, and have asked the Flying Committee to produce a final scheme based on these proposals, which will be circularised in April, so that pilots in the 1964 Nationals may fly to it for rating for following Nationals.

The scheme is in general broadly similar to that of the Flying Committee published in the last issue, the main change being that it is based on a wider sample.

1. The scheme should ensure a rate of flow throughout the list which can be adjusted in the light of experience to prevent stagnation, by (a) devaluing competitions from the 100% basis of League 1 for the different classes of competition, and (b) by devaluing for previous years.
2. Before a pilot may have a rating he must have at least five competition days.
3. A pilot's rating must be obtained from at least two competitions.
4. In competitions which need to be considered, the scores of all the days on which a pilot flew must be counted.
5. The competitions to be taken from the highest valued to the lowest.
6. *Team Entries.* All pilots must have a rating. The rating of the team will be taken to be the mean of the individual ratings of its members.
7. A competition is one as defined in the B.G.A. Rules.

8. Any devalued day during a competition will be revalued to 100% for the purpose of the Rating Scheme. The Council agreed at a later meeting to suggest as an alternative: "The rating shall be the aggregate of all scores (devalued as appropriate) from the two relevant competitions divided by the maximum possible score for all those days involved, expressed as a percentage."

* * *

The Pilot Rating Scheme

By K. G. WILKINSON

1. From the discussions that have taken place so far, it seems clear that the practical solution will have to be compounded from:

(i) Definition of objectives (now done);
(ii) Rationalisation of the basis, so far as this is possible;
(iii) An arbitrary selection of sample size and to certain parameters;
(iv) A numerical check on the basis of past statistics that the rates of movement of pilots between Leagues are acceptable to Council.

Colin Pennycuick is putting down some ideas about (iv). I should like to suggest the following approach to (ii) and (iii).

2. We must keep in mind that we have said quite clearly that our objective is to assess competition ability from past performance. Factors influencing this performance include, more importantly:

(a) Skill, including the effect of experience;
(b) Luck;
(c) Opportunity.

(a) will be a relatively slowly-changing factor with time, but its variation prevents one using a sample spreading over too many years. (b) is a random variation which one would like to eliminate by taking a sufficiently large sample for each pilot. (c) we would ideally like to eliminate, although its effect in improving skill will have to be allowed. (a) and (b) to a certain extent conflict, and the luck element means that the present system of taking the best six flights in an almost unlimited sample is statistically indefensible. It would be equivalent to assessing tipsters or meteorological forecasters by considering only the six best forecasts.

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Even a bad forecaster or selection with a pin would get near the top of the table if enough shots were allowed. Certainly, when set against the objective, it comes nowhere near to meeting it because it introduces a definite bias into the result. This bias arises from a tendency to include only the "good luck" cases whilst eliminating the bad. Competition performance is bound to include good and bad luck elements.

3. I conclude from this argument that an unbiased sample should be used. The Flying Committee proposal of 15th November, which is based on an average of all scores in the highest-valued competition, is a much sounder suggestion and avoids bias. The feature which has caused argument is really an objection to a sample size which could be as small as five being liable to be upset by bad luck (which could include temporary bad health or condition). The cure for this is to make the sample larger.

In increasing the sample size, we have to avoid spreading it too far so as to conceal trends in average performance (item (a) above). This we wish to dis-

cover and take account of. Likewise, we do not wish to prevent people getting a rating who have completed the minimum of five flights considered necessary.

4. This leads to the following suggestions based on the unbiased sample and including features most of which have already been suggested at various times.

4.1 The normal minimum sample should be ten flights. The minimum should be reached by including all scores in the highest-valued competition in which the pilot has flown, together with all scores in the next highest competition or competitions until the minimum of ten (including zeros) has been reached.

4.2 If a later year's scores in a lower-value competition give a better figure, they may be used, providing all are taken.

4.3 From these scores, the average score per flight should be calculated.

4.4 If a pilot has completed only five flights or so but less than ten, he should be entitled to a rating but because of the smaller size of the sample the limits in predicting his performance are wider. This should be allowed for by permitting the missing flights up to the required number of ten to be calculated on the average of the completed flights discounted by 25%. An overall average should then be calculated.

4.5 Only flights carried out during the past three years should be included in the sample. This gives reasonable assurance that trends in pilot development will show.

4.6 The normal 10% per annum discount on past years should be continued to ensure that the top men do not automatically stay at the top without flying.

4.7 To allow for team entry, the team should be allowed to arrive at its sample of ten as though it had been a single individual, provided that this was requested before the rating list was produced for the year in question. The minimum of five flights per individual should be required and the rating should be based on an equal number of flights from each individual.

To give flexibility to this part of the proposal, it is suggested that individual pilot cards should be kept, and the team cards amalgamated when the rating list was being produced. This would enable re-arrangements of team ratings in subsequent years should teams break up or be varied. In a year when individuals elected to fly as a team, their ratings would appear as a group and they would not be given an individual rating.

5. It is hoped that the above approach to the rating problem steers between the major objections to the existing proposals and for sound basic reasons; it also fits in teams in the only way which seems logical.

The problem remains of discovering whether mobility from year to year in the rating list is acceptable. This can be varied by altering the value (which is purely arbitrary) of the League 2 and Regionals relative to League 1. In order to enable judgment to be used on this matter, I suggest it should be settled by calculating the movement between Leagues and Regionals for a range of values for the various competitions, and asking the Council to pick the degree of mobility that it wants. The pilot names would not be involved here, the result being expressed possibly in a tabular form as follows :

Movement	*Competition Values*				
	Case A	*Case B*	*Case C*	*Case D*	*Case E*
Regionals ——→ League 2	N_1				
Regionals ——→ League 1	N_2				
League 2 ——→ League 1	N_3				
League 1 ——→ League 2	N_4				
League 1 ——→ Regionals	N_5				
League 2 ——→ Regionals	N_6				

We can examine the N_1 to N_6 numbers for several selections of competitive value.

Some remarks on the analysis of Rating Systems

By C. J. PENNYCUICK

1. INTRODUCTION

It seems generally agreed that a pilot's rating should be a measure of his success in competitions, and should therefore be based on his scoring record. Before the detailed effects of a particular system can be predicted, the basic principle whereby the rating is to be related to the scores must be given.

To date two basic principles have been proposed :

(a) The rating is the average of all scores in the m highest-valued competitions in which the pilot flew;

(b) The rating is the sum of the best n scores.

The numbers m and n are not fixed parts of the basic principles: once a principle has been selected, the effects of varying m or n over a reasonable range can be predicted and compared, and the most suitable value can be selected on this basis.

In addition to the above, a further basic principle has been generally accepted to date, viz., that competitions shall be divided into grades which are supposed to represent different levels of skill. The grades are segregated, i.e., a pilot may compete only in his own grade except for the lowest, which is open to all, and promotion between grades is controlled by the rating system, in which devaluing factors are applied to the scores obtained in different grades. For a pilot of any particular level of skill, the values chosen for these devaluing factors determine his chances of being allowed to compete in a higher grade next year.

If it is accepted as impracticable to fly all pilots against one another directly in one enormous contest, then we are obliged to assess their relative ability on the basis of scores obtained in different competitions; in other words, we are placing pilots in order, although they have not competed against one another directly. If the competitions are then arranged in a hierarchy as at present, the system can only produce a realistic order if there is sufficient interchange between the different grades to allow the level of skill in one grade to be related to that in the grades above and below. If a pilot finds himself trapped under an inversion, as it were, at the top of one grade, he is unable to pit his skill directly against the bottom pilot of the next higher grade, and thus find out who really is better.

Thus, if the existence of different—and segregated—grades of competition is admitted, and it is proposed to construct a list in order of skill covering all grades, it is vital to secure adequate interchange between different grades. As the interchange becomes less and less, so we become less and less sure that the bottom man in one grade really is better than the top man of the one below. In a later paragraph methods of predicting and controlling the annual interchange between different grades will be considered, and it will also be shown more explicitly how a rating system which neglects this feature can trap a good pilot below one of lesser ability, so that the order of the list no longer reflects the order of ability.

2. COMPARISON OF BASIC PRINCIPLES

I will now briefly examine the main statistical properties of the two principles mentioned above. It will be assumed in each case that a hierarchy of competitions exists, to which different devaluing factors are applied, and that promotion from grade to grade will be decided by the rating system. If this is not assumed, different properties will emerge, and one cannot analyse the effects of a system without specifying whether this or another principle is used.

Average-of-all-scores Principle

First, consider a pilot whose rating is based entirely on a single competition, in the highest grade, as would generally have been the case for League 1 pilots under the recent fleeting system. His rating is then his average score in that competition—for the sake of illustration, say his score is 600.

Now suppose he is obliged to base his rating on two competitions, and further, that there is only one Nationals, and hence the other competition will be a Regional, valued at, say, 60%. To simplify matters let us assume that his average score is again 600 (bad assumption—see below). His devalued average is then 60% of 600=360, and his rating

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is the average of this and the 600 he got in League 1. His average is now halfway between 360 and 600, i.e. he gets 80% of what he would have got on the basis of League 1 alone. More generally, if the rating is based on two competitions valued at x% and y%, and the pilot gets an average score of S irrespective of the grade of the competition, then his rating will be $\frac{1}{2}S(x+y)$.

The assumption that a given pilot's average score is independent of the grade of competition is a bad one, since it seems likely that the opposition is less hot in the lower-grade competitions. The scoring system results in the scoring level being set by the best pilot in the competition, whom faith requires one to assume is also the highest rated pilot. Hence it is reasonable to suppose that the average score of a given pilot will rise as the rating of his highest-rated rival falls.

It would appear that the system of devaluing factors was originally introduced mainly to compensate for this effect Accurate compensation would require a knowledge of the dependence of a given pilot's average score on the rating of the highest-rated pilot competing, according to the rating system ultimately decided upon. It might be possible to extract such a correlation from competition records, with much labour, but there would certainly be a wide scatter, as the scoring level in Regionals can be strongly influenced by all sorts of erratic effects. If we *could* get this information, and if it proved sufficiently coherent to be usable, then we could choose the devaluing factors x and y of the competitions in such a way that if the pilot's average score were S_1 in the x% competition, and S_2 in the y% competition then :

$$xS_1 = yS_2$$

The requirement to include a second competition would then not affect the rating, on average. There are grounds for supposing that exact compensation for different scoring levels cannot be obtained by the use of devaluing factors, even in principle, however good or voluminous the data. Owing to the erratic nature of the processes we are trying to measure, it is very doubtful whether even reasonably good compensation could be achieved, and just guessing the devaluing factors necessary for this end seems an unpromising procedure. Furthermore, it is possible to arrange that lack of compensation shall not affect the relative ratings of different pilots in the same grade, and it then becomes unnecessary to bother about the effect at all. We are then free to use the devaluing factors for another purpose altogether, discussed in a later paragraph.

Following the earlier argument, if a pilot's rating is to be based on the averages of a top-grade and a lower-grade contest, and if there is no compensation for the higher scoring level in the lower-grade contest, then his rating will be higher than that of another pilot who gets the same average score but is rated on the top-grade competition only — conversely, if the difference in scoring levels is over-compensated, by excessive devaluation of the lower-grade contest, then the two-contest man gets less rating.

It is (isn't it?) our hope that two pilots who get the same average score in the same conditions will end up with the same rating. The condition for arranging this seems sufficiently obvious — if one pilot is obliged to take a second com-

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petition into account, then the other must be too. Provided that all League 1 pilots have the same chance of being obliged to include a second competition, then all will be helped or penalised to roughly the same extent by under- or over-compensation of scoring levels in the Regionals.

Of course, in practice a previous year's Nationals' or Regional's average would be acceptable as a second competition. We might, for instance, decide that we want League 1 pilots to compete in the Regionals if they can, but not to be too hard on them if they cannot, and have to use last year's League 1 average. In this case we would fix the devaluation factor for last year's scores at a level which would make it slightly more advantageous on average to fly in this year's Regionals. I suggest that it is most important to choose such values as the devaluing factors for old scores on definite grounds such as these, i.e. design them to produce some specified effect, and tell people what the intention is.

From the above it will be seen that the *number* of competitions to be included in the rating affects the result, on account of the effects of devaluing factors, and must be specified. Under the recent system this was done by saying that a pilot must have at least five days, which in effect means one competition for individual pilots and two for teams. It would be more logical just to specify the number of competitions, since the number of days as such has no effect on a rating computed on this basis — the average should be about the same however many days are included. Of course, if the number of days is too small, the effect of a chance high or low score due to unusually good or bad luck (N.B. both occur!) is unduly prominent.

The standard deviations of most pilots' scores in the 1962 and 1963 Nationals fall between 200 and 300, and 250 is a representative figure. The standard deviation of the means of sampes of n scores is then inversely proportional to $\sqrt{n}$. Thus averaging four scores will bring the standard deviation down to 125, 5 scores would give 112, 6 gives 102, 10 gives 78. The standard deviation would still be 50 even with samples of 25 scores. From the point of view of accuracy, it is thus not

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worth averaging more than about 5 or 6 scores.

Duff Days

The inclusion of days marked out of less than 1,000 of course makes a nonsense of average scores, and might even encourage bad habits. The reason these days are devalued is presumably because it is felt that conditions were too chancy to provide a fair comparison between pilots; so why include them in the rating? Alternatively, a pilot's average score for a competition could be computed, not as the average of his daily scores, but as his total marks divided by the maximum possible marks, times 1,000.

General Effect of Principle

It has been suggested that the averaging principle will favour the steady plodders, but one must remember that there are pilots in our midst who can keep up an average of over 900 in the Nationals: since consistent very high scorers exist, it is they who will be selected. A pilot who scores 0 and 1,000 alternately would not be distinguished from one who scores 500 every day, but to get to the top on this system it is essential to get a high score *every* day!

Best *n* Scores Principle

The analysis of the working of this principle is a little more complicated. What one is using here is the best n out of the total number N of competition scores which the pilot has. n is constant, but N is variable. To see how variations in N affect a pilot's chance of getting a given rating, one has to estimate his score distribution.

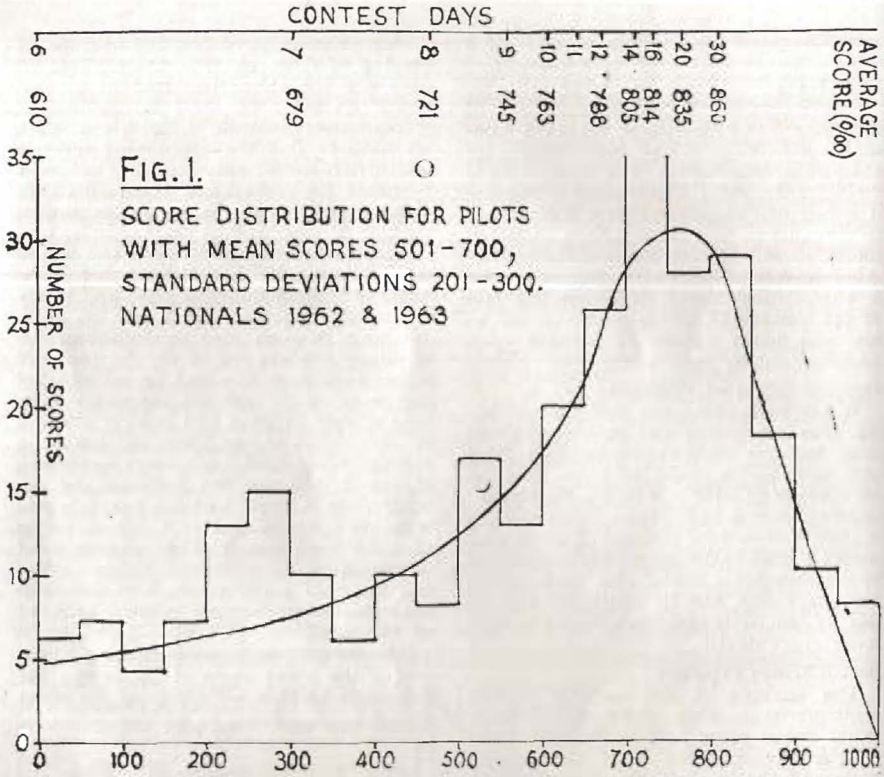
Fig. 1 shows a score distribution for a group of similar medium-scoring pilots lumped together, taken from the Nationals of 1962 and 1963. The graph is constructed by plotting the *number* of scores falling between 0—50, between 51—100, and so on. The peak comes at the score which these pilots get most often, and in this case is higher than the mean. The area under the curve is proportional to the total number of scores represented. If vertical lines are drawn at, say, 400 and 600, then the area between these lines, and under the curve, is proportional to the number of scores falling between these values. This area divided by the total area under the curve is then equal to the *proportion* of scores falling between these values.

Our problem is to find the average of the top n/N scores. If n, the number of days for the rating, is fixed at 6, say, and if we make N, the total number of scores, successively 6, 7, 8, 9, etc., then we have to find the average of the top 6/6, 6/7, 6/8, 6/9, etc., scores. The result is shown for N between 6 and 30 scores along the top of the figure, and is plotted in Fig. 2. This is just an example, and to analyse this system properly one would need to prepare distributions for high- and low-scoring pilots as well, and to try out several different values of n on each.

It can be seen that if the score distribution remains the same, the top n/N scores constitute in effect an estimate of the mean score, but the estimate varies over a wide range if this ratio is allowed to vary. Thus if two pilots get the same average score, and both score according to Fig. 1, but one has 7 scores and the other only 6, then he who has 7 scores will, on average, get 11% more rating than he who has 6. The advantage of accumulating more scores is greatest when one has only a few scores, and diminishing returns are setting in by about 12 or 14 scores.

The method only ceases to be a measure of the mean score of the pilot if he is able to modify the shape of his score

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distribution, in such a way as to get more high scores in the top *n*, at the expense of some very low ones which are disregarded, thus leaving the mean unaffected. Philip Wills has suggested that this can be achieved by bold flying, and there is indeed some suggestion in the histogram of Fig. 1 that something of the kind may actually have happened. Of course, if everybody did this, we should have two-humped distributions for all, and the method would once again estimate the mean score. Any gains achieved by this expedient seem likely to be small in comparison with the capricious fluctuations in the rating due to differences in the number of scores from which the choice is made.

Team pilots, under the old scheme, had the same *n* as the others, although they only flew on half as many days. Thus if an individual pilot flew on 14 days in the year, say, a team pilot who went to the same competitions would have only 7 days. If both pilots scored according to Fig. 1, and thus had the same average score, the team pilot's rating would be 20% less than the individual pilot's. Evidently, to be assessed by the same criterion, the two pilots must contribute the same *proportion* of their scores to the rating: thus a team pilot, who flies on half as many days, should contribute only three days to a composite rating, his partner contributing the other three.

General Effects

There is a continuing advantage under this system in amassing more and more scores, but diminishing returns probably make it unprofitable to do this beyond about 2*n* days. If the system were chosen again, this point would have to be investigated further, and *n* chosen with this in mind, having regard also to the in-

creased scatter of ratings if n is made too small. In contrast to the average-of-all system, number and valuation of competitions attended does not, as such, affect the possibility of one pilot gaining an advantage over another of equal ability. This depends mainly on the proportion of scores contributed to the rating, and hence on the number of scores if n is fixed.

3. Interchange Between Grades of Competition

I shall now suggest that the tariff of devaluation factors should be drawn up for the sole purpose of controlling the flow of pilots up and down between different grades of competitions. To those who consider that these factors should be used to compensate for different scoring levels in the different grades, I would point out that a roughly similar tariff will emerge whichever purpose we have in mind. There is, however, a good prospect of controlling the vertical flow effectively, whereas compensation for different scoring levels is very difficult if not impossible to achieve, for the reasons already given. Therefore we might as well forget about the scoring levels, and concentrate on the interchange between grades.

I shall now assume that the rating is based on the average-of-all principle, that the present League structure is in force, and that we are to estimate the proportion of pilots falling out of League 1 and being replaced from League 2 each year. One has to be as specific as this about the system under discussion in order to make this sort of calculation.

First, let us construct a linear scale, numbered 0—100, representing average score (left-hand column of Fig. 3). Next beside it (middle of Fig. 3), mark off the percentage of pilots falling *below* various scores in League 1 — 10% below 45% average score, 20% below 65% and so on. Next (right) plot the percentage of League 2 pilots *above* various scores. Then, reading across (dotted line), we find that the bottom 40% approximately of League 1 are below the top 40% of League 2, and thus if League 2 is not devalued at all, this percentage of pilots will change Leagues.

To find what happens if League 2 scores are devalued to 50%, say, we just shrink the League 2 column to half its height, leaving the League 1 column the same size as before. It will now be found that 25% or so of pilots change over. These diagrams should really be plotted in terms of numbers rather than percentages of pilots, and this is essential if the numbers in the two grades under consideration are unequal.

Fig. 4 is a diagram based on the Nationals scores of 1962 and 1963, from which the expected interchange can be read off for League 2 devaluation factors between 100% (no devaluation) and 50%.

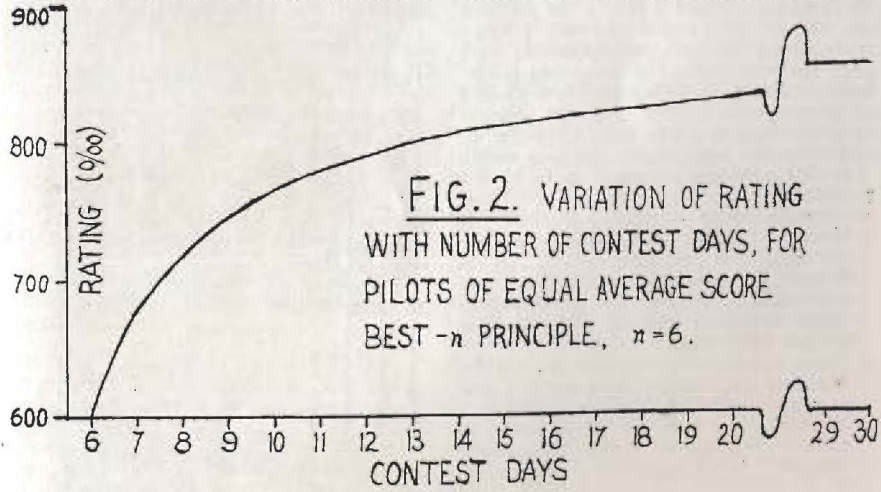
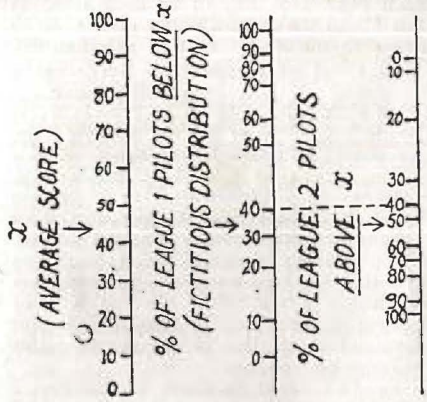


FIG. 2. VARIATION OF RATING WITH NUMBER OF CONTEST DAYS, FOR PILOTS OF EQUAL AVERAGE SCORE BEST-n PRINCIPLE, $n=6$.

FIG. 3. PRINCIPLE OF INTERCHANGE DIAGRAM



The proportion of pilots changing Leagues drops from 43% to 12% over this range: at 80% devaluation, 30% of pilots (12 per League) change Leagues—this is still based on the average-of-all principle, and assumes that only the current year's Nationals is included in the rating.

Prospects of Promotion

If the numbers of pilots in adjacent grades are unequal the chance of dropping down is not the same as the chance of promotion—for instance, if there are 40 in League 2 and 2,000 in the Regionals, and 20 drop out of League 2 to be replaced by 20 from the Regionals each year, then the chance of dropping out of League 2 is 1 in 2, whereas the chance of getting in is 1 in 100. If the chances of promotion are too low, or those of demotion too high, discontent will result.

If this problem is found to be giving trouble already, I can suggest two possible methods of alleviating it:

1. Insert an intermediate grade between the Regionals and League 2—heats, as it were, for getting into League 2. We may ultimately be forced to adopt this rather desperate measure if the Regionals get very large.
2. Taper the structure towards the top, by reducing the number in League 1 and increasing the number in League 2 (retaining the total of 80 in both) in such a way as to make the ratio—Number in League 1 : Number in League 2—approximately equal to the ratio—Number in League 2 : Number in Regionals—who are not already in Nationals. I imagine this expedient should suffice for the next few years, and there may prove to be a case for taking this step forthwith.

Selection of Regionals devaluing factors

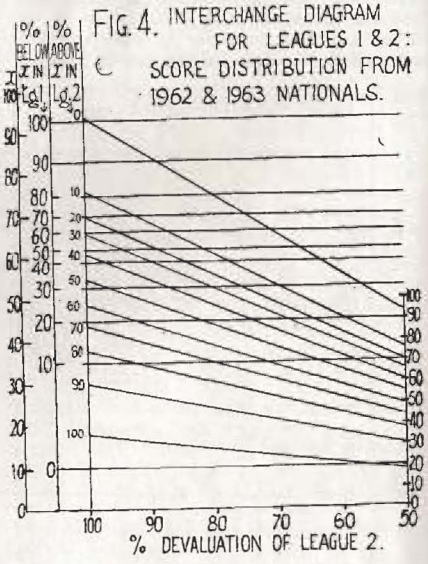
If the number of pilots likely to fly in Regionals can be estimated in advance, and also the proportion of these having League 1 or League 2 ratings already, then the chances of getting into, and dropping out of League 2 can be estimated for various values of Regionals' devaluing factors. If these possibilities cannot be made respectively high enough and low enough then some remedy such as those suggested above will have to be administered.

One consequence of this line of argument is that the League structure of the 1966 Nationals will have to be known before the devaluing factors for the 1964 and 1965 Regionals can be worked out.

4. TEAMS

It has been seen that under the best-*n* principle, a pilot is rated on the top *n*/*N*

FIG. 4. INTERCHANGE DIAGRAM FOR LEAGUES 1 & 2: SCORE DISTRIBUTION FROM 1962 & 1963 NATIONALS.



of his scores, and differences in this ratio affect the relative ratings of two pilots of equal ability. Thus if team pilots are to be given an equal chance with individual pilots of reaching a given rating, one has to ensure that n/N is the same whether a pilot enters alone or in a team. N is halved for each pilot in a team, hence n must be halved also.

Under the average-of-all principle, n/N is unity for everyone, and we merely have to ensure that team and individual pilots get the same treatment under the tariff structure.

If the basic principles on which the rating is based are given, the conditions for an equal chance for teams are easily found, and can be put into effect without administrative difficulty under either of the two basic principles discussed above. The Council need only decide whether or not it wants to discourage team flying in League 1 or elsewhere—if it does, it should say so (in print), and a method for applying a suitable penalty could then be worked out.

If the chances of team pilots were equalised along the lines suggested, it would be necessary to abolish the anomaly whereby a team is placed on the rating of the higher-rated partner only—this would otherwise give teams an unfair advantage.

5. Possibility of Gradeless Society

It has been assumed so far that the present vertically segregated structure, or something like it, is to be retained, in which case a mechanism for regulating movement up and down is indispensable. It is possible that competitions could be run in parallel, each containing pilots of all levels of skill, with no vertical segregation, i.e. replace the Nationals with a set of enlarged and glorified Regionals. This would probably be feasible, and would greatly simplify the rating system, but would deny us the spectacle of the top pundits battling against each other, and is, for that reason, unlikely to be acceptable.

6. Major Changes in the Structure

From the above discussion it can be seen that in order to fix the devaluation tariff to secure a certain rate of flow between grades we must have information on (1) the numbers competing in the different grades, and (2) the scoring habits of competitors in the different grades.

If the structure of the hierarchy were radically changed, as for instance by amalgamating Leagues 1 and 2 and instituting Open and Standard Classes, or by substantially altering the numbers in either League, then the rates of interchange would break down unless the tariff were correspondingly changed. The changes required should be calculable with sufficient accuracy, especially after a year or two's experience. More insidious changes may be brought about by an increase (let us hope) in the numbers competing in Regionals, or by changes in scoring habits. If the tariff is to fulfil the function here proposed, it is essential that it is reviewed annually and amended as necessary, and that it is changed to allow for any changes in the structure, without waiting for its operation to break down.

7. Summary of Conclusions

(1) An objective such as "to produce a list of pilots in order of competition achievement" implies other conditions, which depend on the structure of the

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system from which the information is to be extracted.

(2) For instance, if the system to be used involves vertical segregation, then the right amount of vertical flow must be arranged if the different grades are to be related into a single list, which really is in order of achievement.

(3) Any system is likely to be divisible into basic principles, which are immutable, and adjustable controls, such as the devaluation tariff. The purposes for which the controls are to be used should be clearly stated in advance, and they should be adjusted as necessary (a year in advance) to take account of changes in conditions.

(4) There is no practical difficulty in arranging that team and individual pilots who get the same average score shall get the same rating.

(5) The "average-of-all" and "best-*n*" principles are both, in effect, methods of estimating average score, but the "best-*n*" method is more complicated and less reliable.

(6) In any system it is likely to be found that a pilot of given ability can get more rating by adopting one procedure rather than another — e.g. by entering alone and going to many competitions under the old system. It is essential to consider right from the start what, if any, practices we consider desirable and undesirable, to decide on the size of the bait or penalties to be offered, and design the system accordingly, saying in print what we are trying to persuade people to do and why.

(7) The method of assessing a proposed rating system, by preparing a list of pilots and seeing what it looks like, is unlikely to be informative and can be highly misleading, because of unpredictable fluctuations in scores. Furthermore, it gives no indication of how the scheme will operate over a number of years.

It Feels Good to get your C

by DAVE HOOPER

Dublin Gliding Club

STRAPPED in the Tutor for my third trip that day, I hoped that my next landing would be an improvement on the last two, as overshoot retrievers seemed to be getting either scarce or just worn out. This next landing has got to be better.

"Take up slack", "all out", correct to the right on the climb . . . 600 . . . 700 . . . tailplane buffeting, so ease off a bit — oh well, I didn't mean to back-release at 800 feet, but carry on — nose down, check release knob anyway, wait for vario to settle down — it seems to be stuck at 1.5 up, "CRIKEY, IT'S LIFT!" 150 feet per minute — what do I do now, circle? No, I'll fly straight and slow so I don't race through it. A.S.I. shows 32, hold that. Altimeter actually going up, 850, 900, Vario dropped to 1 up — let's turn now back into it. 2 up . . . 2.5 dropping to 1 round this side . . . and now at 1,050 ft., just "No sink", so turn again; 1 up and increasing; straighten and fly into it. Oh, I've just remembered to look out for other aircraft! There's two gliders on the ground, can't see any in the air — Hello! Bumps and 5 up, and it feels like someone is shakily lifting my seat. So this is flying by the seat of your pants, gosh, my flying has gone all scrappy in the excitement . . . now I know why they don't fit a "turn and slip" — the needles would get bent. Ah, that's better, a gentle turn and 3 up all round . . . that wing shadow is useful moving over the instrument panel — gives you an idea of rate of turn . . . creeping past 2,000. There's the Kite coming off the launch and making for *my* thermal, and now I see the Petrel circling below — where did he come from? Must keep a better lookout now.

Vario dropped back to "no sink" at 2,680 feet, let's do a search — that's funny, sink all round . . . but the

Petrel is still rising, or is it just my sink? Can't see the Kite anywhere . . . 1,500 feet now and here's 1 up . . . 50 feet gained but can't find it again, steady sink, so let's make back to the airfield.

There's quite a crowd of "little dots" down at the launch point; wonder if they want their Tutor back, they seem to be looking up here; well it's 3 down now so they'll get it. Wish I'd timed the take-off; I hope someone has.

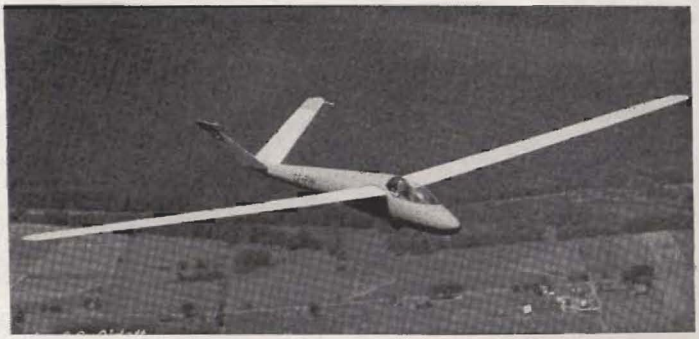
600 feet and turning downwind; reduced sink here, I suppose I'll be high at finals now . . . oh no, not another overshoot . . . hello, they're clearing the runway for me, they really do want their Tutor back.

Long final to lose that extra height . . . keep lined up, those dots are quite big now, and have faces . . . keep straight . . . they're getting well back, courtesy or fear? Keep straight, touch down and rolling on past the faces who are actually cheering, still rolling but not too far this time, and there seems to be plenty of smiling retrievers.

A handshake, a pat on the back, "Great flight, you've got your C", shouts someone. Yes! Somebody kept the log — 35 minutes — the best flight I've had. Thank you, retrievers and log-keeper. I'll be helping and encouraging *you* next time. And thank *you*, Instructors; it feels good to get your C.

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TECHNICAL COMMITTEE REPORT

Work of the Committee	1963	1962
Numbers of Meetings	11	7
New Certificates of Airworthiness issued	54	62
Certificate of Airworthiness renewals	269	276
Major Overhauls (included in renewals)	30	44
Duplicate Cs. of A. issued	9	7
New Glider Types certificated	4	5
Renewals of Inspection Approval	57	61
Renewals of Senior Inspection Approval	16	17
Renewals of Firms Approval	5	4
New Inspectors Approved	13	6
New Senior Inspectors Approved	1	1

MEMBERS of the Committee: F. G. Irving (Chairman), J. B. B. Johnston, J. D. Jones, J. Leach, H. U. Midwood, K. R. Obee, R. C. Stafford-Allen, C. O. Vernon, B. E. Warner, L. Welch, R. B. Stratton, P. Bisgood. Advisor to the Committee: Lt.-Cdr. R. Brett-Knowles (Instrument Development Co-ordinator).

Terms of Reference:

To advise the Council on technical matters, in particular to supervise the Airworthiness Scheme.

1. Supervision of the issue of Certificates of Airworthiness.
2. Supervision of The Approval of Inspectors.
3. Consideration of all technical problems.

THE number of Certificates of Airworthiness issued or renewed decreased slightly compared with 1962. This is explained by an appreciable proportion of the 1962 new Cs. of A. being for aircraft being exported (a gratifying indication of the respect which overseas countries have for the B.G.A. C. of A.), and the effect of the major overhaul policy which is tending to encourage the scrapping of old machines. The long term trend is undoubtedly upwards, particularly when the Ministry of Education scheme becomes "run-in".

As the number of gliders in the U.K. increases, so does the work of the Technical Committee. "The total amount of technical effort involved at the present time is just about as much as can be handled on a spare-time basis by members of the Committee and by the present office staff. By any normal standards, many members of the Committee are grossly overburdened. To maintain satisfactory standards, many matters require prompt consideration in great detail. It is becoming increasingly difficult to do so on the present basis and full-time professional assistance is essential if standards are to be maintained in future." This is a quotation from a paper making out a case to the Ministry of Education for contributing to the cost of employing a Technical Officer, on much the same basis as the instructors' Coach. It is envisaged that such a Technical Officer would conduct courses and visit clubs in addition to relieving the office and Committee members of some work.

The Committee has been strengthened by the co-option of Mr. Bisgood, who, it is hoped, will eventually be responsible, with a small sub-committee, for the complete procedure of certificating new types. To some extent, the activities of the Technical Officer have been anticipated by the initiative of the Yorkshire Gliding Club and Slingsby Sailplanes Ltd., in arranging two Inspectors' Courses in early 1964. The Design Requirements Sub-Committee, under Mr. Vernon, has been revived and is starting to consider further proposals for modi-

fications to British Civil Airworthiness Requirements as a consequence of experience in the certification of several modern British and foreign types, together with the discussions which took place at Varese. The Chairman and Mr. Vernon took part in the meeting of the OSTIV Glider Design Committee in September 1963, which considered the extension of OSTIV Design Requirements to cover all types of glider, in addition to the Standard Class. One significant consequence of this meeting is that the proposed international standard colour for release knobs is yellow!

The Committee has had occasion to establish a close liaison with the Accident Investigation Branch, as a consequence of the technical aspects of two fatal accidents in 1963. Sad though the occasions have been, it is pleasant to record that the sympathy and assistance of A.I.B. have been quite outstanding: we hope that they feel that the Committee's contributions have been helpful to their investigations.

Arising from actions of the Australian Directorate of Civil Aviation, a certain amount of official doubt has arisen over the longevity of some types of glue. The Committee has been in close touch with the Aviation Committee of the Royal Aero Club, the Air Registration Board, glue and glider manufacturers and interested parties in Australia and New Zealand. A very large amount of information has been gathered and a report has been prepared which should be of considerable general interest. It is gratifying to find that nearly all post-war British-built gliders, maintained under reasonable conditions, can be given a clean bill of health from this point of view.

Ultimately, the maintenance of high standards of airworthiness depends on the conscientious work of the Inspectors and Senior Inspectors. Of these, by far the greater number are club members working in their spare time on maintenance, repairs and overhauls, often with minimal workshop facilities. Generally, they do an excellent job, and the work of the Committee would be impossible without their patient assistance.

The total number with current approval is 87, and it would be surprising if the occasional lapse did not occur amongst a group of this size. Such lapses are rarely culpable and, from the Committee's point of view, usually involve explanation rather than expostulation. But this last year has seen a few examples of inferior practice being condoned by inspectors, and the Committee —only too aware that, in flying, the consequences of poor practice are almost inevitable—has found it necessary to issue one or two sharp reprimands and, in two cases, to withdraw inspection approval.

As a consequence of suggestions from some inspectors, the procedure for applying for renewal of Cs. of A. has been somewhat modified, with the intention of improving the records in log books, the office and the inspectors' files. An unusually and, we trust, exceptionally large proportion of the Committee's time has been concerned with modifications to existing types of glider. We are, more than ever before, indebted to the manufacturers for their ready assistance on this and other matters: they do a remarkable amount of work on technical aspects of gliding, much of which is singularly unrewarding from the immediate commercial point of view.

The annual report traditionally ends with a tribute to the Senior Inspectors, Inspectors, Approved Firms and members of the B.G.A. staff who have made our work possible. It is difficult to avoid making this look like part of the annual routine: our thanks are no less heartfelt when coming at yearly intervals and are meant even more sincerely as we survey the increasing burdens we place upon them.

F. G. IRVING, *Chairman.*

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Kimberley for the Third Time

by DENIS BURNS

SINCE selling our old Skylark 3 to the Cape Town Club, Anne and I had done much research into polar curves and, remembering sundry odd performances in the Argentine and previously in South Africa, we concluded that an Austria would be a good ship to buy both for "South African" type weather and also for the really good day in England. So to start off with we shipped one out to South Africa this winter.

Boet and Debbie Dommisse, Cliff Hide and wife (with Schweizer's latest product), Anne and myself arrived several days before the South African Championships at Kimberley. This was a good move as far as we were concerned, as we had hardly thermalled the Austria at all.

Practising with Boet (in the BJ-2) on my first flight I felt slightly terrified. I was putting the inter-thermal speed up to 100 knots and he was still getting away quite fast! Coming from the zephir-like thermal breezes of England, these rough, tough Kimberley thermals take a bit of getting used to.

On the third practice day Boet and Anne essayed a 500-km. triangle out over the Free State farmland. The fantastic result you already know, namely two world records at 66 and 64 m.p.h. approximately.

Boet split his head on the canopy, and the instrument panel came adrift at the base in the Austria! The thermals were very strong but not very high by South African "best" standards, being mainly about 12,000 feet a.s.l. on average.

The day before the competition proper started, I essayed a 300-km. triangle, got shockingly low on the second leg, nearly gave up in disgust, decided to persevere, and after rounding the last turning point immediately got a corker to 16,000 ft. a.s.l. and belted in the whole seventy miles to base at 90 to 100 knots! The time, at 3 hrs. 20 minutes odd, was sufficient to beat the British record handsomely.

Boet essayed the world out-and-return but was cut off by a big storm.

The championships started with a bang. Immediately it was evident that the Austrias flown by such exponents as "Bomber" Jackson, "Chick" Bridges, Hans Böttcher and Anne were going to press Boet in the BJ-2 very hard. In fact, right up to the final day it was touch and go who would win, Boet, "Bomber" or Anne.

On the last day Anne broke her skid and could not get away till late, and Boet was able to clinch the matter with a 1 hour 6 minutes 100-km. triangle. A worthy winner indeed.

The most outstanding flight of the championships was indubitably "Bomber" Jackson's World out-and-return of some 440 miles due south over somewhat unpromising terrain for "snap" landings in conditions that were only "medium" for South Africa.

As far as gliders were concerned, it was clear that the Austria is extremely good value for its price. The Ka-6 pilots, including such able ones as Bobbie Clifford, Tim Biggs and the "young" Heinie, started off with high hopes but soon realised that unless poorer conditions set in they could not hope to get near the Austria "Staffel" and Boet. Similarly the Rhodesians, Jimmy Harrold and Ted Pearson, able pilots as they are, were outclassed in an Elliotts 463 and Skylark 3 respectively. The Finnish Vasama, also, did not seem to be quite the ship for the conditions, and the latest Schweizer, flown very ably

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by Bill Teague and Cliff Hide, while a superb "thermaller", obviously was at a discount compared to the Austria and BJ-2 inter-thermally. I seem to recollect passing Cliff *four* times on the 200-km. triangle day!

Kudos is due to:—

Hannalore Denk, who did *all* the timing for *all* twelve tasks under extremely trying conditions and remained sane and charming to the end.



Some of the participants at the South African Championships.

John Firman, who set the tasks, coped with turning-point evidence *and* worked out the points every night. A real *tour de force.*

And lastly but not least, the tug pilots, who included Heinie von Michaelis and Brian Rhodes from New Zealand, and, most worthy of all, the four Tigers of the Defence Force Club. The conditions were really frightening at times, especially low down, and not once did any tug-pilot slip his charge.

Altogether a very successful championships. Anne and I are looking forward to seeing Boet and Debbie with the BJ-2 at the World Championships. It will be interesting to see how this compares with the "hot" ships from other lands.

Incidentally, I forgot to mention it, but Anne, after the championships, beat the world ladies' 100-km. triangle record at 60-odd m.p.h. Her fly-in at 90 knots was so low that only the man in the control tower, some 200 feet high, could see her coming!

Anne also beat the world ladies' record for the 300-km. triangle, at about 58 m.p.h. This was on the day she won during the championships.

Club Statistics for 1963

Gliding Club	Aircraft Club owned 2S	Sec	HP	CO	PO	UC	Launches On Club site	Launches By Club gliders	Hours On Club site	Hours By Club gliders
Aberdeen	2	1	1	—	1	1	2,365	2,274	178	157
Avro	1	2	1	—	—	—	2,370	2,406	194	194
Bath	2	1	—	1	—	—	1,185	1,132	84	81
B.E.A. Silver Wing	2	—	2	—	3	—	2,584	2,454	377	302
Blackpool & Fylde	1	1	1	—	1	—	893	883	109	102
Bristol	2	1	3	1	7	—	7,375	7,375	1,532	1,532
Cambridge University	1	—	2	3	4	1	3,190	3,510	1,140	990
College of Aeronautics	1	1	2	—	—	—	1,444	1,444	230	230
Cornish	2	3	2	—	4	1	5,098	5,050	627	542
Coventry	2	1	2	—	8	—	5,032	4,606	831	644
Derbyshire & Lancashire	2	6	2	1	13	1	4,904	3,914	1,576	784
Devon & Somerset	2	2	3	—	4	2	6,782	6,301	1,319	1,002
Doncaster & District	2	2	1	—	6	—	5,250	4,218	709	452
*Dorset	1	1	1	1	3	—	1,779	1,712	132	108
Dumfries & District	1	1	—	—	2	—	1,540	1,404	101	82
East Midlands (Leicester)	1	—	1	—	4	—	3,062	2,568	838	463
Essex	1	1	1	—	—	—	4,427	4,427	377	377
Glasgow & West Scotland	1	1	—	—	—	—	386	386	42	42
Halifax	1	1	—	—	—	—	237	205	13	11
Handley Page	1	1	1	—	—	—	842	844	87	87
Kent & Royal Engineers	2	1	1	—	5	2	5,480	5,380	507	433
Lasham Centre	6	—	1	1	43	—	23,310	9,500	2,900	800
(Nationals, 1963)							686		1,550	
Army, Air Scouts										
Crown Agents										
Imperial College										
Lasham Society										
Leighton Park School										
Surrey										
Polish Air Force Assoc.										
University College G.C.										
*Lakes	1	2	1	1	2	—	1,791	1,491	152	152
London	3	6	5	—	30	—	12,030	10,915	2,787	1,863
Midland	3	1	5	—	5	1	7,043	6,423	2,381	1,865
Newcastle	2	1	1	—	6	—	1,980	1,758	464	293
Norfolk	1	1	—	2	—	—	3,078	2,656	192	128
Norfolk & Norwich	1	—	—	—	5	—	345	—	265	—
Northamptonshire	1	2	1	—	2	—	2,015	771	236	96
Northumbria	1	1	—	—	2	—	1,580	1,236	145	100
Ouse	1	1	—	—	—	1	3,145	3,126	211	211
Oxford	1	—	3	—	4	—	2,609	2,293	583	389
Perkins Sports Association	1	1	1	—	1	—	3,497	3,345	386	325
Royal Aircraft Establishment	2	—	1	—	1	—	1,140	1,160	273	273
Scottish Gliding Union	2	2	3	—	3	2	4,161	3,825	990	653
Staffordshire	1	1	1	1	—	—	1,605	1,596	88	86
Southdown	1	1	2	—	1	—	2,358	2,408	314	237
*South Wales	1	2	—	—	—	—	558	558	47	47
**Swansea	1	1	—	—	—	—	1,740	1,740	124	124
Swindon	1	—	2	—	—	—	2,986	2,860	330	315
Ulster & Shorts	1	1	—	2	1	1	1,680	1,664	134	132
West Wales	1	—	3	—	—	1	3,457	3,415	425	425
Yorkshire	2	2	2	—	8	1	4,550	4,150	1,543	1,193
Total Civilian	66	54	59	14	179	15	152,676	129,383	27,523	18,322

Club Statistics for 1963 (continued)

Flying days		Cross-country miles		Courses		Certificates					Membership		
Total	soaring	From site	By club gliders	No.	Pupils	A	B	C	(Legs in brackets) Silver	Gold	Flying	Non-flying	Potential
92	45	40	—	9	70	10	10	1	—(1)	—	52	—	100
93	32	60	60	—	—	10	10	3	1 (3)	—	95	25	150
52	10	—	—	—	—	4	4	—	—	—	82	—	120
104	50	797	144	—	—	14	14	6	1 (9)	—	92	4	100
44	N/K	22	22	—	—	3	3	4	—(1)	—	44	200	250
191	96	194	194	21	168	15	15	12	—(10)	—	250	25	300
164	107	3,281	2,531	5	46	17	17	6	8(18)	1 (4)	248	6	400
71	19	250	250	—	—	10	10	—	1 (3)	— (1)	45	—	50
187	57	1,595	90	18	122	11	11	4	—(6)	—	98	30	150
110	53	3,360	577	—	—	20	20	10	3 (9)	—	152	25	200
156	110	N/K	N/K	10	95	7	7	6	3(23)	—	220	110	350
190	121	4,029	319	23	157	18	18	11	3(14)	1 (1)	141	—	200
161	84	1,412	477	2	16	13	13	8	4(14)	— (1)	117	71	150
68	29	—	—	2	17	6	6	5	2 (5)	—	78	22	200
75	6	7	1	1	9	5	5	—	1 (1)	—	63	23	80
91	36	2,821	795	—	—	10	10	6	3 (9)	—	91	4	150
100	40	45	45	—	—	27	27	5	1 (5)	—	132	20	150
24	15	—	—	—	—	—	—	—	—	—	39	—	60
17	5	—	—	—	—	—	—	1	—	—	30	2	80
40	14	135	135	—	—	4	4	3	1 (4)	—	20	—	50
126	60	918	219	9	108	7	7	7	2(13)	— (1)	179	26	200
292	129	11,250 28,040	—	75	375	16	16	31	20(78)	3(15)	785	50	no limit
74	33	—	—	4	36	3	3	1	— (3)	—	41	14	N/K
254	123	3,967	2,405	11	80	55	55	23	10(25)	— (2)	356	144	600
180	121	4,321	938	20	304	25	25	21	—(24)	1 (2)	200	70	320
86	65	555	—	—	—	3	1	3	— (6)	—	100	—	200
72	46	180	—	1	8	7	7	5	2 (4)	—	74	16	120
40	25	2,842	—	—	—	—	—	—	1 (1)	—	20	10	N/K
102	32	—	190	—	—	6	6	3	1 (6)	—	60	9	100
82	10	145	100	—	—	7	7	5	— (3)	—	59	5	100
75	10	—	—	—	—	9	9	6	—	—	90	—	N/K
85	43	690	188	—	—	3	3	8	—(11)	— (1)	78	—	100
102	N/K	352	112	—	—	5	5	6	3(11)	— (1)	40	—	N/K
80	53	1,043	1,043	—	—	—	—	1	— (8)	—	55	—	100
154	83	2,390	585	13	93	19	19	8	7(22)	— (2)	150	60	300
65	6	—	—	4	24	18	18	1	1 (2)	1 (1)	52	5	100
67	24	71	67	1	10	7	7	3	1 (3)	—	80	25	N/K
33	16	—	—	—	—	—	—	1	—	—	50	9	130
84	12	—	—	1	20	19	18	—	—	—	50	—	100
130	53	120	120	—	—	16	16	6	— (3)	—	92	17	120
70	20	—	—	—	—	10	10	1	— (1)	—	35	5	100
114	20	207	207	—	—	3	3	3	— (3)	—	80	40	150
210	132	6,315	488	10	87	17	17	17	6(36)	— (2)	180	60	400
4.607	2,045	81,444	12,302	240	1,845	459	456	251	86(398)	7(34)	4,995	1,132	6,530

Club Statistics for 1963 (continued)

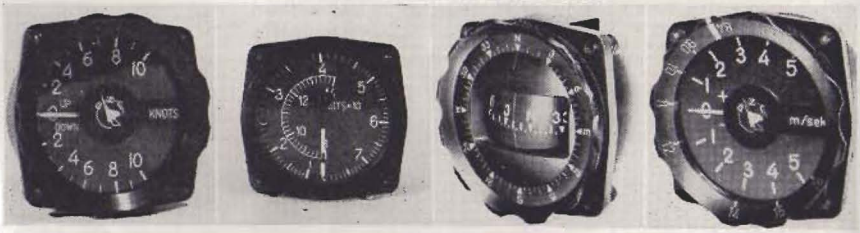
Gliding Club	Aircraft Club owned 2S	Sec	HP	CO	PO	UC	Launches On Club site	By Club gliders	Hours On Club site	By Club gliders
ROYAL AIR FORCE										
BANNERDOWN	2	2	2	—	—	1	2,366	2,466	358	358
CHEVIOTS	2	2	1	—	—	—	1,433	1,433	125	125
CHILTERNS	2	2	2	—	—	—	3,467	3,467	296	296
CLEVELANDS	2	2	2	—	2	—	4,652	4,507	648	633
*EAST ANGLIAN	2	2	2	—	—	—	6,159	6,159	898	898
EAST MIDLAND	3	3	3	1	—	—	6,528	6,722	754	754
FENLAND	2	3	1	—	—	—	1,910	1,910	223	223
FOUR COUNTIES	2	2	1	—	—	—	2,200	2,243	400	400
MOONRAKERS	2	2	4	—	1	—	4,459	4,780	853	842
R.A.F.G.S.A. CENTRE ..	3	1	6	2	—	—	14,360	14,360	2,400	2,400
RED HAND	2	1	—	—	—	—	1,200	1,286	177	177
WHITE ROSE	1	1	1	—	—	—	1,180	1,186	174	174
ROYAL NAVAL G.S.A.										
CONDOR	2	1	1	—	—	—	1,340	1,340	149	149
FULMAR	—	1	—	4	—	—	2,651	2,678	511	511
HERON	2	1	1	—	1	—	1,370	1,280	250	160
PORTSMOUTH	1	2	2	—	1	—	2,055	1,987	220	205
SERVICE TOTAL	30	28	29	7	5	1	57,330	57,804	8,436	8,305
SERVICE AND CIVILIAN TOTAL ..	96	82	88	21	184	16	210,006	187,187	35,959	26,627
AIR TRAINING CORPS							136,345			

Notes: *Only available figures are for 1962. **Only available figures are for 1960. These figures shown for purposes of analysis total and comparison with 1962 total.

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Club Statistics for 1963 (continued)

Flying days		Cross-country miles		Courses		Certificates			(Legs in brackets)		Membership		
Total	soaring	From site	By club gliders	No.	Pupils	A	B	C	Silver	Gold	Flying	Non-flying	Potential
78	22	600	600	c.t.	—	8	8	6	2(10)	—	128	10	180
65	18	—	—	c.t.	—	7	7	3	—	—	30	6	70
67	23	180	180	c.t.	—	10	10	10	2(10)	—	80	—	90
96	35	300	300	—	—	14	14	8	3(10)	— (1)	88	—	150
165	98	1,095	1,095	c.t.	—	23	22	19	1(11)	1 (3)	75	1	100
110	40	722	722	—	—	26	26	20	4(21)	— (2)	93	—	120
78	36	255	255	—	—	—	—	1	— (1)	—	110	—	150
66	25	200	200	—	—	6	5	4	— (2)	—	55	—	100
156	100	3,095	2,875	—	—	16	16	11	7(12)	2 (4)	79	—	130
226	N/K	5,505	5,505	15	200	68	68	18	N/K(30)	N/K(1)	160	—	200
62	N/K	140	140	2	8	8	7	1	1 (7)	— (1)	58	—	60
65	N/K	N/K	N/K	—	—	8	8	14	3 (3)	1 (1)	40	—	N/K
55	18	243	243	—	—	8	8	—	—	—	57	—	80
94	30	1,186	1,186	—	—	10	10	11	4(18)	— (6)	40	—	60
71	30	250	125	—	—	9	9	7	2 (8)	1 (1)	40	—	N/K
71	12	250	100	—	—	1	1	5	1 (4)	—	60	—	70
1,525	487	14,021	13,526	17	208	222	219	138	30(147)	5(20)	1,193	17	1,560
6,132	2,532	95,465	25,828	257	2,053	681	675	389	116(545)	12(54)	6,188	1,149	8,090
						2,231	2,231	67					

Key to aircraft categories: 2S = two-seater; Sec. = secondary; HP = high performance; CO = club operated; PO = privately owned; UC = under construction; N/K = not known; C.T. = continuous training.





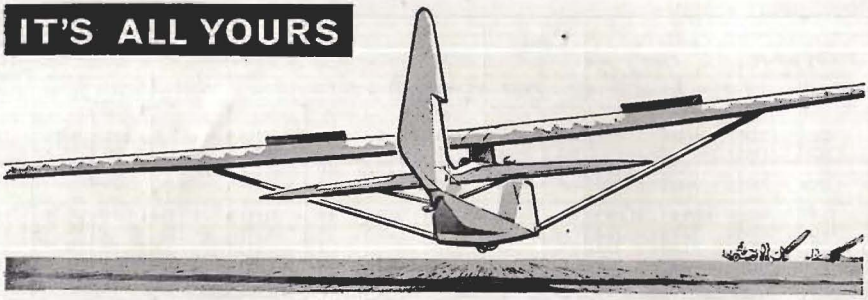
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". . . And there was a parked car just where I was going to land."—Accident Report.

ANY worthwhile sport carries some risk of accident. In gliding the objective of the pilot is to succeed in doing the flying he wants, understanding the risks, and overcoming them by competence and intelligence. If, occasionally, he loses out at the end of a flight in which he has really achieved something well, better luck next time. Not wanted are the accidents compounded from inexperience, lack of skill, poor instruction, and no common sense.

A big factor in many of these accidents is the absence of real experience—the experience which will enable a pilot to cope with a situation. It is too often assumed that because he has "done" some exercise, he will remain competent at it. If a pilot of 10 hours stalls off a cable break at 50 ft., it is useless to say that he should not have broken the glider because he had done seven cable breaks before he went solo. Seven breaks add up to a total experience of, at most, 10 minutes, spread probably over a period of several months. How valuable is this experience to him when three months later, in a new type of glider, on a gusty day, in a different wind direction, he has a cable break at an awkward height? How many hours are considered reasonable before a person could be *relied* on to carry out a safe emergency stop in a car on a damp road, or beach a sailing dinghy in only moderate surf without upsetting it? Ten minutes' beaching practice? Ten hours' car driving?

The French, who have few accidents among inexperienced pilots, say that 10-15 hours dual with an experienced instructor are needed to produce a safe basic pilot. Do we do enough?

This is just one thought. Some excellent ones follow.

ANN WELCH.

ACCIDENTS WILL HAPPEN



Paul Minton

THERE is no doubt that while all accidents are avoidable they cannot always be avoided, even by the most careful and conscientious. An accident may provide a chance to find a fault which can be rectified before it causes other more serious events, and it would be prudent for every club to have an instructor responsible for accident investigation and reporting. The appointment of an instructor for this task is appropriate, for while a few accidents are caused by technical faults (which should be reported to the technical pundits), the majority can be traced to faulty instruction.

Accident Investigation

The investigator will probably find it best to do the work personally and



. . . do the work personally

not become the chairman of a formal committee. His object will be to assemble the facts, draw conclusions, and make recommendations aimed at preventing a repeat performance. These recommendations must *not* be concerned with disciplinary action, club politics, or policies, etc.

When an accident occurs the investigation should start as soon as the hubbub has died down; at the latest, enquiries should be complete within a week. Remember most gliding folk tend to be pretty busy and so are liable to forget many things!

It is worth looking at the B.G.A. accident report form first (making sure that a copy has been sent to the B.G.A.) and then at the flying log. While the log is rarely accurate with regard to time, it does fix the sequence of events at the launch point and give the names of pilots in the vicinity. Often more information is required and it is then better to go and talk informally to



. . . and talk informally

people rather than have them come to the "court martial" atmosphere of an office.

Usually it pays to get an accurate picture of the conditions by asking people who were not directly involved. For example, an instructor who had just come on to the field will give a better description of the wind than one who had been out all the morning and become used to, say, a howling gale. Similarly, tug-pilots and tractor drivers will give a better description of the chaos at the launch point than those on the spot.



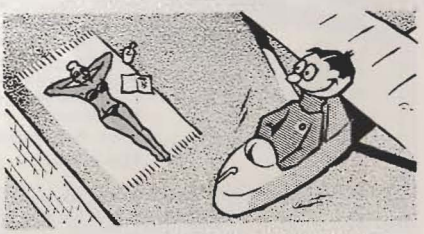
. . . better description of the chaos

After this initial survey, it is possible to put the accounts of those directly involved into context and not waste time on trivial details. A lot can be learnt from the way the facts are presented, particularly by the pilot involved. For example, even instructors have sometimes produced statements such as:

"I turned cross wind at my normal height of 200 ft. and, on turning into wind to land, noticed that the tractor had been parked on the landing area. While turning to avoid the tractor . . ."

Having the story reasonably clear, and with some rough notes made at the end of each interview, it is possible to look for the cause of the accident. This is the point where the investigator must do some really hard thinking and be prepared to accept the obvious solution. Taking the statement above as an example, it would be easy to say that the cause of the accident was the stupid parking of the tractor. However, looking more closely at the statement there are two questions which should be asked:

(a) Why did the pilot not notice the obstruction before?



. . . not notice the obstruction

(b) Having noticed the obstruction at the beginning of his final approach, why did the pilot not have enough height to take avoiding action?

The answer to the first question is obviously that he did not look. This may have been due to laziness, or he may never have been taught to keep an eye on the landing area while on circuit!



. . . a circuit with the pilot

Before answering the second question, notice the emphasis placed on the "normal height of 200 ft.". This could be a pilot who has been taught to fly by rote and not to use his judgment. Hence all his attention was probably fixed on doing a "good (i.e. stereotyped) circuit" with a low approach for a "spot landing" near the launch point.

In this particular case the suggested answers could be checked by having a circuit with the pilot in a two-seater. This should confirm the conclusion that, *owing to poor instruction*, the pilot had never been made to use his judgment while planning a circuit, and in particular had not been taught to be aware of changing conditions which might affect his circuit.

Once satisfied with his conclusions, the investigator should submit a short report to the club. If there is any chance of the lessons learned being of use to other clubs, a copy or summary of the report would be appreciated by the B.G.A.



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ON REDUCING PRANGS

John Everitt
Roger Neaves

IN recent years there has been a tremendous increase in the amount of gliding done in this country and, with it, a significant amount of prangery. Fortunately, most of this is of a minor nature, but it is nevertheless expensive. In some places it is regarded as funny.

The type of prang resulting from a fully experienced pilot taking a carefully calculated risk which has not come off is regarded by some as acceptable. Very few of our prangs, however, are in this category. Most of them occur as a result of the pilot's inability to cope with the existing circumstances and these are the ones which instructors can do something about. Before going any further we must face the fact that when an accident occurs, only fortune decides whether it is fatal or not, and that every accident has lethal potentialities. Prangs, then, are not so funny.

Among the facts to be considered are the large numbers of people learning to glide these days, and our pretty thin ranks of competent and experienced instructors. Further, modern gliders and equipment make measurable achievement much more rapid than in the "Old Days" and, because of this, the



. . . the "Old Days"

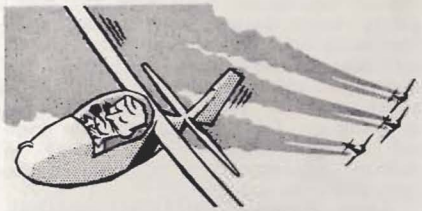
modern pilot tends to acquire a veneer of skill and airmanship which may be hiding basic inexperience. Achievement took so long in days gone by that most people developed the necessary qualities without perhaps realising it. The more rapid path of the true rewards of gliding is what we are all aiming for, and it is the instructor's job to ensure that the necessary skills, and airmanship, are learned thoroughly (though much quicker than of old) and safely.

When comparatively inexperienced pupils are flying in modern gliders, it is extremely easy to mistake achievement for ability and to assume, for instance, that because the pilot has his Silver C height he no longer needs briefing.

The subject of accident prevention in its entirety is, of course, vast, and would easily fill many volumes. Indeed, if it were possible for us to cover it fully, the Royal Society for the Prevention of Accidents would be very pleased. The trouble is, we are dealing with people and it is they who need to be studied, as well as the physical facts involved. The writers feel that a brief look at the more popular types of accident might inspire a little thought and perhaps some constructive argument applicable to all types.

All too often we have prangs resulting from cable breaks and poor approach procedure. In fact these are often given as the basic cause of the incidents in question. It is very easy on these occasions to blame the pilot. However, blaming the pilot is not good enough.

In difficult circumstances or when taken by surprise, only cool reasoning or good fortune can avert disaster. The latter is unreliable. Cool reasoning will



. . . cool reasoning

only be possible after thorough training. If, for example, after a cable break, too much of the pilot's mental capacity is devoted to preventing the wretched

thing from stalling, there may be insufficient left to plan a sensible approach, particularly on awkward sites or with difficult weather conditions. If, on the other hand, too much effort is spent on planning the approach, then the rotten thing may well stall! In either case a prang is pretty likely, and it is no help at all merely to state that the pilot could not cope with a cable break. It is far more likely that he could not cope confidently with straight-and-level, did not know whether he was stalled or not, and consequently was in no fit state to set about planning an approach, allowing for drift, wind gradient, and — etc., etc., etc.

If we are not certain that a pupil has thoroughly absorbed all the basic exercises, we must expect him (or her) to get into trouble when moments of great anxiety crop up. The quality and quantity of a pilot's initial training then become far more fundamental factors concerning an accident than, say, the strength of the wind or even the strength of the cable. Where basic instruction is concerned, going once through all the exercises, a quick check and first solo



. . . first solo

as soon as possible (on a calm evening of course) thereafter leaving the pupil pretty much to his own devices will inevitably lead to accidents later on. At all stages the instructor must be thorough and methodical. He should check that the pupil understands what is going on, for if he doesn't, the logical thought necessary for safety in difficult circumstances might well be impossible to achieve.

When the more frequent problems, such as approaches, take-off and climbs, or cable breaks are concerned, certain standard procedures have been adopted to minimise the risk of confusion. There are plenty of indications that at times these procedures have degenerated into a rigid drill and have become a substitute for skill and thinking ability. They are not. It is quite wrong, for example, to teach pupils that when the altimeter indicates a certain height so-and-so should be done, or that at such-and-such a position fixed brake settings should be used. Even the term "Airmanship" for some means a token nod just before the turn to please the instructor and adhere to the drill. Cases have occurred where pilots have struck quite large and stationary objects such as parked vehicles, aircraft and even buildings through not seeing them in time. Recently there have even been three cases of harmless pedestrians being smitten! And oh! how often are



. . . being smitten

stalls, spins, and aerobatics practised without a good look round, up and down.

Some slight consideration of the objects of instruction and of the prangs we have will show the folly of such mediaeval practices.

It is essential that instructors make sure that they themselves are fully conversant with all aspects of the exercises when they have to deal with so many pupils, have so many other jobs about the club, have no communal room for discussions, and sometimes have to devote a little time to wives and families.

Even with the best basic instruction in the world, there will be a tendency for a post-solo pupil to wander from the paths of righteousness; this is fundamental to the nature of people who glide and is brought about by their individualist and progressive temperament. The progressive spirit is, we hope, to be encouraged, but in order to progress without prangs the inexperienced pilot

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requires frequent reminders of the things he has learned. This is where sensible post-solo instruction is essential and good solo briefings are as important as basic instruction. Apart from briefings on how best to use each flight, pupils require constant reminders of



. . . constant reminders

emergencies to avoid being taken by surprise and to enable them to plan ahead. These should not be long-winded, and care must be taken to encourage the pupil to make his own pre-flight decisions as soon as he is able to assess correctly all the relevant factors involved.

In the case of training prangery, there is no doubt that if it were possible to report the full details of training, checking and briefing, we would be in a much better position to reduce the number of incidents. We hope that although it is not possible to go into greater detail here, these notes will serve to stimulate further thoughts on the importance of the instructor's influence on gliding safety. After all, who else can do something about it?



INSTRUCTORS' PANEL REPORT

EXECUTIVE Committee: Ann Welch (Chairman), Flt. Lt. R. A. E. Dunn, J. C. Everitt, D. G. Goddard, P. Minton, R. A. Neaves, Plt. Off. J. S. Williamson. PANEL (in addition to above): G. Collins, Wing Commander J. G. Croshaw, D. Darbishire, T. Davidson, Sgt. A. Gough, J. Hands, Air Commodore, N. W. Kearon, Sqn. Ldr. E. W. J. Morris, A. D. Piggott, A. O. Sutcliffe, B. Thomas.

THE full operation of the Coach and Capstan scheme was the most important part of the Panel activities in 1963. This is a scheme, in which a National Coach, paid for by the Ministry of Education, combined with a Capstan two-seater, donated by W. D. & H. O. Wills, is available to all clubs at a nominal charge to help them with instructor and advanced training. Following a voluntarily run pilot programme in 1962 in which valuable lessons were learnt, the National Coach John Everitt was appointed.

The response from clubs to the scheme was excellent and the Coach and Capstan was on tour from March until November. The following statistics give an idea of the work done. The Coach is to be congratulated on the success of the year's operations.

The Coach flew with a total of 129 instructors and about 50 pupils or solo pilots. 117 of the instructors were able to get type familiarisation on the Capstan and most of them were able to carry out some soaring. 20 of these flew on cross-country flights.

The flying details of the year were:

	hours	*l'nchs.*
Coach and Capstan	226	431
Panel members and Capstan	28	69
Coach and Club two-seater	39	240
Solo flying on coach courses	24	20
Total	317	760
Number of cross-country flights, including competitions		26
Number of miles flown		760
Number of field landings		18

Two disadvantages showed up, apart from the poor weather throughout the summer: the very large amount of travelling necessary and the inability of a few clubs to organise their equipment well enough to obtain full value from the course. This has led to an effort in the 1964 programme to keep the Capstan longer at some bigger "host" clubs, and to encourage instructors from smaller clubs, or those with especially difficult sites, to visit for their training. It is accepted that it is important to be available to all clubs who would like the Coach and Capstan facilities on their own sites, and the policy will be reverted to in 1965 if there is a demand. The main purpose of the "host" club modification is to enable all pilots to get more flying in the time available.

In addition to instructional courses, the Capstan was entered in the National Championships *hors concours*, and the Northerns, for instructors who would not otherwise get competition or soaring experience. It is felt that this flying, even as P2, is of value and it is proposed to continue with it in 1964.

During the last few years there has been a steady increase in the standards required for instructor categories. The Silver C has become a necessary part of the basic qualifications (because an instructor cannot properly give pupils an adequate background to becoming future soaring pilots if he has never done any himself), and it is now necessary for an instructor to have completed a formal course of training before applying for an instructor category. This increase in the qualifications required has naturally led to a reduction in the number of applications for category. The increased standard of the examination itself has led also to a higher proportion of failures among those tested.

With new, faster and heavier gliders getting into the hands of pilots with relatively little experience, it is obviously important that the instructor should be as good as possible. The problem is to keep the requirements high, without, at the same time, making them impossible of achievement in some of the smaller or more remote clubs. The following figures are compared with 1962 in which the old lower qualification and standards were

still acceptable during the change over period of grace.

	1962	1963
Applications for category	116	66
Categories granted	68	27

The total volume of work of the Instructors' Panel having increased in recent years, a small Executive Committee of Panel Members was formed in the autumn, in order both to distribute the work, and to keep a continuous effort towards improved standards, and the consideration of new methods, etc. The existence of the Executive Committee does not affect the status of Panel Examiners.

The Panel continues to wage war on the stupid accidents. Most of those involving instructors are due to lack of adequate understanding of the problems of modern gliding, or to insufficient training as an instructor. The very real problem facing gliding today is that the voluntary instructor working in his limited spare time is trying to do a professional standard job. There are some really first-class instructors in the clubs, but the difficulty everyone is facing is to get enough who possess sufficient experience and ability. The importance of the Coach and Capstan scheme in helping to overcome this problem cannot be over-estimated.

ANN WELCH, *Chairman.*

SAFETY PANEL

CROSS-COUNTRY landings are still the most expensive item, after which inability to cope with faulty launches is a bad weakness in our training. The greatest number of accidents of one type were 20 approach mishaps, still the most difficult part of gliding and therefore warranting more attention.

There were four cases of flying in unsuitable weather conditions: high winds and thunderstorms. Instructors should watch this tendency.

There were the usual crop of stupid and careless accidents and incidents which remind us continually that we cannot relax on drill or discipline.

And most important of all were a number of accidents, some of which had serious results, and incidents which fortunately resulted in little damage or injury but which could so easily have been serious.

(a) Loose articles fell out of previous pilot's pocket and jammed the controls.
(b) A supposedly clued-up club member jumped up from long grass to take a photo—hit by wingtip.
(c) Aero-tow starting downhill, glider ran over rope—glider not held back.
(d) Pilot landing hit man walking away and injured his neck.
(e) Tow out weak link in wrong place caught on bolt in skid—could have been fatal.
(f) Pilot disobeyed briefing and tried to hill soar on second solo flight—wrote-off glider and left the movement.
(g) Faulty launch — re-started — cable caught tail—inverted dive from 300 ft. By a miracle neither occupant injured.
(h) Spins off launch, 4 pilots injured.
(i) 2 pilots injured on cross-countries.
(j) Away landing due to thermalling too low, pilot's face cut.
(k) 2 structural failures of wings, pilot killed in each case.

Accident Analysis 1963

Costs of accidents

No. of Cases	*Circumstances*	£
20	Approach	1,760
11	Cross-countries	2,895
11	Launch	2,100
9	Landing	1,140
4	Unsuitable met. conditions	670
4	Faultry drill—Ground ...	50
5	Faulty drill—Air ...	180
5	Canopy accidents ...	90
9	More or less unavoidable accidents and incidents...	264
1	Blow over—due to ignoring approaching storm ...	730
		£9,879

The costs of the accidents are shown primarily to draw attention to the seriousness in each class of accident.

E. J. FURLONG, *Chairman.*

CORRESPONDENCE

THOSE TEN FEET

Dear Sir,

May I add a footnote to Godfrey Lee's letter on "Those Ten Feet"? Experience in World Championships has shown that the average percentage advantage of Open over Standard Class in practice appears to be not more than about 5%. This may mean that designers in all countries have met snags in handling and performance as a result of adding 10 feet to the span. World Championship tasks are set on all sorts of days, some of which might qualify for the 35% advantage quoted in the letter. The ultimate in glider refinement and pilotage is usually present on such occasions, which makes the practical result even more surprising.

It is interesting to look into why there should be so great a disparity between theoretical and practical results in the 1963 World Championships held in the Argentine. Both classes included a mixture of "hot ships", as well as the well-tried but slower varieties. Daily results did not demonstrate that fast gliders had a complete monopoly, although those with really top-rank pilots gained considerable additional advantage from flying them.

The Free Distance day started in very marginal conditions. Re-lights were common. Weak dry thermals went to a maximum of 2,500 ft. and the top 500 ft. was hardly worth using, but for the low height above ground. A strong south wind was blowing and the forecasters predicted better and more unstable conditions 150 miles to the north. The cross-country speed of all gliders was about the same. The 463, Skylark 4's and countless Ka-6's kept in company with the Fokas, Austrias, Zephirs and the Sisu. As soon as the better weather was reached, however, the fast gliders were lost to sight.

My experience on many other occasions is similar. In practice, the average advantage of the Open over the Standard does not seem to be much more than 5%. Maybe the pilots have some influence on the results or 18-m. gliders could be made a lot better.

Camberley, Surrey. TONY DEANE-DRUMMOND.

THE "DELICATE" WORLD GLIDING CHAMPIONSHIPS

Dear Sir,

Can you suggest what level of experience or ability a World Championship pilot should have to ensure he will not lose his way and transgress your regulations? Your problems are very real, and pilots around the world must now be contemplating the dilemma.

If a navigational error is made, how will the violator be spotted and brought to jail — by other competitors, A.T.C. radar, or flying Bobbies? Perhaps the best solution would be to identify your airways and control zones positively. Could you colour the sides and bottoms pink or, alternatively, outline them with balloons?

Organizers of the contest in Argentina requested that only a team's most skilful driver be allowed to operate a team vehicle. Is there any similarity between air traffic over Britain and driving conditions in Argentina?

Beaconsfield, Quebec, Canada. CHAS. YEATES.

P.S.—Are you serious, or is the English team subtly practising Gamesmanship?—C.Y.

COMMENT.—Oh dear! Mr. Ames has in one fell swoop bared our base plot. We had been hoping to avoid defeat at the hands of a hitherto unknown pilot from Ruritania. And our airways *are* coloured pink—they are tinged with the blood of thousands of fare-paying passengers of airliners which have collided in airways with sailplanes flown by pilots unable to steer. But whenever a careless pilot does this, we ground him for at least three months; hence our warning.

But, to be serious, we are stricter than some other countries because our Air Traffic Control is reasonable, and we intend to keep it that way; this involves knowing

exactly where you are almost all the time, which is neither necessary nor even possible in large comparatively featureless tracts of country encountered in various parts of the world. We don't want to create ill-feeling with our guests, but infractions of A.T.C. in previous Championships have occurred without the pilot being grounded, and we will not be able to avoid doing so.—P.W.

SAILPLANE FLIGHTS INTO FRANCE

Dear Sir,

I am astonished by Mr. Battarel's letter in the February issue on the above subject. Obviously Mr. Battarel did not check the facts before writing to you, as this is in complete contradiction with what happened.

On Saturday, 27th July, 1963, Mr. C. Guldemond landed near Cambrai and was taken into custody by French Customs officials. He was not even allowed to de-rig the glider or put it under cover, and had to remain in custody until the following Monday morning unless he paid a fine of 500 N.Francs. Because of the glider lying in a field and not wanting to spend two nights in a French village jail, Mr. Guldemond agreed to pay. As the banks were closed, and no other help available, he accepted an exchange rate of 1 N.Franc to the Guilder, so he actually paid 500 Guilders (approximately £50).

The following day Mr. Hartkamp landed at Bettignis, and received similar, though less severe, treatment. Similarly, on 3rd August Mr. Werschkull and Mr. Frijters both landed at other places in Northern France, but without sufficient money with them, and were not released for some days, and then had to leave their gliders with Customs.

Following these incidents, and the situation still being unsettled at present, the Dutch Foreign Office has asked that all flights into France be suspended, and in fact our Aero Club has forbidden all Dutch glider pilots to undertake such flights.

Meanwhile, the Dutch Foreign Office and the F.A.I. took some action, and the gliders were returned without charge after a fortnight, and Messrs. Guldemond and Hartkamp received back their 500 Francs each via the French Embassy about five months after this happened.

So far, negotiations tend to the necessity of carnets and declarations from the managers of the airfield of departure, involving a lot of paper work, but we hope to be able to get easier terms, although this, at the time of writing, is still rather uncertain.

I hope I have convinced Mr. Battarel that flying into France nowadays is not as simple as he thinks (apart from the weather conditions). We also hope that when this has been sorted out, we may find the same hearty welcome we were so lucky to find when we landed in France before 27th July, 1963.

Nijmegen, Holland. J. TH. VAN ECK.

DOWN WITH THE TREADMILL (I)

Dear Sir,

The article "Down with the Treadmill" by Ann Welch in the February issue is timely. Mrs. Welch's concise article serves to collate all the various rambling thoughts on the subject very ably.

The solution? As we see it, we have to do two things with the present instructional force: (1) reduce the intake of pupils so that we can efficiently train a high percentage of those we do take, and (2) remain solvent.

We suggest that the basis of financing most Gliding Clubs is unsound in that the launch rate must be high to satisfy (2). To stay solvent while not relying on launch rate would be possible if the annual subscription was raised to a value high enough to cover fixed annual costs, i.e., insurance, rent, B.G.A. fees, staff salaries, proportion of C. of A. costs, etc., etc. The launch fee then reduces itself to cover fuel, oil, cable wear, tyres and maintenance. Thus the club's financial stability is assured, even if there was no flying at all.

The resulting annual subscription would be high, but would be offset by lower launch fees. The "average member" would therefore pay about the same for his

gliding on a per year basis.

The increased subscription would have the effect of ratifying (1) also. The number of people prepared to put down £30 or £40 "to see if they like gliding" being less than those who can find £10. We would go further and say that clubs should also charge a non-returnable entrance fee which would be, in effect, payment in advance for the first *x* launches. This would ensure that the intending pupil attended regularly and hence his instruction would be more efficient. A time limit could be put on the period in which he could claim these "free" launches. The value of *x*, and hence the entrance fee, could be raised for people requiring less than the full "ab initio" instruction, i.e., power pilots, people trained at other clubs, etc.

Lest there be cries of "unfair", then let us say that the various one-week courses for the public are ideally suited for those who wish to "have a go" before investing a fair sum of money.

Learning to glide *is* expensive, and we delude ourselves, and potential members, if we pretend otherwise. Let us all stop pretending!

ROY G. PROCTER.
P. MINTON.

DOWN WITH THE TREADMILL (II)

Dear Sir,

May I be permitted to offer my congratulations to Mrs. Ann Welch on her splendid article in the February issue. Having had the privilege (or misfortune, depending how you look at it) of responsibility for B.G.A. accident analysis and statistics over a period covering nearly thirteen years, I can claim some knowledge of the subject, and heartily endorse her statement that "To get this expensive equipment used safely, economically, and in a satisfying way, requires skilled, experienced and trained instructors". This seems to me to sum up more concisely than I have ever previously heard the principal conclusion of nearly every annual accident summary during my term of office.

Referring more directly to the "Treadmill" and the launch-rate mania responsible for it, is it not time that numbers of launches were omitted from published statistics? Launches are little more than a measure of effort expended, not always profitably—for example, when the cable breaks. The achievements which matter are flying time and cross-country mileage. British Gliding Association clubs are long past the tobogganning stage where every launch was an achievement, so perhaps their omission from statistics published would be no loss, and would help, not only to focus attention on the achievements which matter, but also to diminish the evils which spring from too much concern with piling up huge numbers of launches.

Sloane Street, S.W.1. CHRISTOPHER PAUL.

CONDORS IN A CLOUD

Dear Sir,

I was as intrigued as most by the references to birds flying into cloud that have appeared in recent issues of SAILPLANE AND GLIDING. Perhaps more than most, for these and other bits of information, added to some material I already had on hand, suddenly turned into an article and seems very likely to turn into a book if much more bird lore comes to light.

Suffice to say that the subject sent me to the library, where I promptly got my nose stuck in some big and weighty books. One of them, the monumental four-volume *Birds of California* by Wm. Leon Dawson, turned up the following paragraphs:

"What the bird does in such an emergency (head wind) is best told by Brown, who was present on a quite critical occasion. Telescope in hand, the bird-watcher was nesting upon a certain low crest about a mile north-east of the Condor cliffs, which here furnish a portion of the main crest of the San Juan range. Presently he descried four Condors approaching from the far north-east, but before they came up a smart breeze sprang up from the south-west, and presently it whistled over the peaks with increasing fury. The birds were baffled on the very last mile of their approach. They tacked back and forth, down wind, or struggled valiantly in

the teeth of the gale, only to be swept away again and again. The cold sea breeze had it in for them, and though it was only mid-afternoon, it began to look to the observer like a case of sleeping out that night. But off to the south-eastward some 20 or 30 miles, the Carisso plain lay baking in the sun. The focal point of this great oven was sending up a huge column of heated air, as evidenced by the clouds slowly revolving at the height of a mile or so above the plain.

"Now Mr. Brown speaks: 'Presently one of the Condors gave up the flight, sailed a mile or so to the eastward, and, after circling to gain elevation, made away in a bee-line for the south-east. In a short time the other three went through the same manoeuvre and followed after their companion. I now brought my telescope into action and I never took the glass off the birds although they became mere specks in the sky. The Condors did not swerve from their course until they entered the spiral cloud. Upon striking that ascending column of air they rose rapidly, apparently without effort, as a balloon might rise, being now and again lost to view in the fleecy folds of ascending vapour, until within an incredibly short space of time they emerged above the clouds, into a higher region of absolute clearness, say three miles above the earth. Here they must have found themselves well above and quite free from the lower currents of air which had plagued them, for now they sailed straight (and) glided triumphantly homeward on the wings of their ancient enemy, the south-west gale!

"'I do not think that more than 30 minutes had elapsed from the time the Condors gave up the fight till they were safely on the roost in their rookery; yet . . . the whole process took place without the flap of a wing'."

Dilemma of deviation from course! Prestidigitation with the penetration polar! Tactical talent! All hail the mighty Condor!

It is, unfortunately, impossible to pin down the date of the above occurrence, but it was definitely prior to the year 1911, for by that time Mr. Claude C. L. Brown had quit bird-watching and had placed in Mr. Dawson's hands the manuscript in which the above was contained. Mr. Dawson published his work in 1923.

RICHARD MILLER, *Soaring Editor, "Air Progress".*
420 *Lexington Ave., New York* 17, *N.Y., U.S.A.*

P.S.—I would be delighted to correspond with anyone having a strong interest in the soaring flight of birds or in related material.

TRANSISTORISED TWO-WAY RADIOS: A WARNING

Dear Sir,

May I ask you to bring to the notice of fellow pilots that there are being marketed in this country transistorised two-way radios which are imported from Japan and America.

These radios transmit and receive in the so-called "Citizens Band", and there is an impression that they may be used without a licence being necessary. I have spoken to our local G.P.O. engineer, who kindly told me that these receivers operate in the 27 megacycle band and their use in this country is strictly illegal, and no licence for their use would be granted. Owing to their extreme compactness and their low cost, 25 gns., some of our members may be tempted to turn a "blind eye" to the licensing requirements and use them. It would be a pity should they do so, as the G.P.O. are very much aware of the existence of these radios and they assure me that they would not hesitate to prosecute anyone found using them.

K. D. DAVIES.
Coventry Gliding Club.

NOT THE IRISH SEA

Dear Sir,

I do not wish to disparage the flights between Scotland and Ireland made by Mr. Ross and Flying Officer Zotov in 1963, but neither flight crossed the Irish Sea. In both cases the North Channel was crossed, which involved a maximum overwater crossing of 20 miles.

The Irish Sea proper lies further south and its shortest sea crossing, between

Wicklow Head and Braich-y-Pwll, is 55 statute miles. This has yet to be traversed by any glider.

Trinity College, Dublin. B. N. O'BRIEN

[Of interest in this connection is Dr. R. S. Scorer's article "Waves across the Irish Sea" and succeeding articles, published in GLIDING for Spring, 1953, pp. 24-28. Four examples are given of wave clouds stretching right across the Irish Sea "proper"; on one occasion they were continuous from Co. Londonderry to Kent. —ED.]

REPORTING OF INCIDENTS

Dear Sir,

Like many of my colleagues, I occasionally read a national newspaper. I have been, therefore, deeply distressed to read of two fatal accidents during the recent months. On reading several different newspapers to try to find out the truth I am baffled—they contradict each other and I am no further forward.

Surely, SAILPLANE AND GLIDING, being the "Official Journal of the British Gliding Association", should report the incident formally and as soon as possible so that the gliding fraternity have some idea of what happened, the type of aircraft, whether the pilot was observed to be doing aerobatics, etc. I appreciate that this recording in SAILPLANE AND GLIDING could only be a report from an eye witness(es) and that the official report could only come after the enquiry is complete.

Following one of these incidents a *major* mandatory modification was ordered for all aircraft of the same type. Is this modification liable to apply to all aircraft of a similar construction? If not, why not? What are the symptoms? I hardly think I know the answers, but it would be reassuring to see the official verdict in SAILPLANE AND GLIDING (if only a statement saying that the modification is required, it would be better than nothing).

Every year the Technical Flying Committee evaluate various gliders. Some are British but many are of foreign origin. I am sure that some report is made about each type flown, be it *favourable* or *unfavourable*. Could not the extracts from the report of *each* type be published in SAILPLANE AND GLIDING, and the report be published in full and a small charge be levied?

I hope that you will find my comments of some use and interest.

Bristol Gliding Club. ROGER C. BARNETT.

FRANK IRVING comments: Both of the accidents to which Mr. Barnett presumably refers (involving an Eagle and a Swift) are under investigation by the Accident Investigation Branch of the Ministry of Aviation. In due course, their findings will be published, and the reports will be available to anyone who cares to buy them from H.M.S.O.

No doubt SAILPLANE AND GLIDING will seek permission to publish extracts, as was done in the case of a previous fatal accident. In the case of accidents which are the subject of official enquiries, it might be very imprudent of the B.G.A. to anticipate the Ministry of Aviation reports, since it would be extraordinarily difficult to achieve accuracy, to respect the confidences of the A.I.B. inspectors, to avoid giving an unbalanced impression, and perhaps in some cases to avoid getting involved in legal aspects of the matter. We appreciate that, in the absence of a formal statement, rumours may be rife: but on the balance it seems best to wait until a really authoritative account is available. Members of the B.G.A. Council are kept as fully informed as possible, on a confidential basis.

If a particular accident indicates the need for modification action, the Technical Committee will put it in hand at the earliest possible date. However, it is important not to jump to conclusions about the precise significance of a modification: an accident may reveal a need for a modification without necessarily having been caused directly by a defect which the modification is intended to remedy. At this stage, I would prefer not to comment in detail on Mr. Barnett's third paragraph, except to say that if the need for a modification to a particular type of glider becomes apparent,

the Technical Committee do take into account the implications as they may affect other types.

Flight Test reports submitted to the Technical Committee as part of an application for a Certificate of Airworthiness are generally confidential, as between the manufacturer, the B.G.A. and the Flight Test Group concerned. We are convinced that this principle must be observed, and in all fairness it must be applied to all types, both British and foreign. A report on a prototype might give a very misleading impression if published, since many of its adverse criticisms will not apply to subsequent production aircraft. On the other hand, there is nothing to prevent the publication of fair criticism and assessment of any glider by anybody, provided that the Editor thinks it to be newsworthy, competent and interesting. All I am saying is that those concerned with flight testing in an official capacity must be careful not to indulge in breaches of confidence on the one hand, nor to be regarded as propagandists for one particular manufacturer on the other.

The Technical Committee has no desire to indulge in secrecy for its own sake, but there are occasions when we must be very circumspect if we are to continue the present close liaison with official bodies.

F. G. IRVING,
Chairman, B.G.A. Technical Committee.

The Chairman of the B.G.A. Safety Panel, E. J. Furlong, associates himself with Frank Irving's comments.

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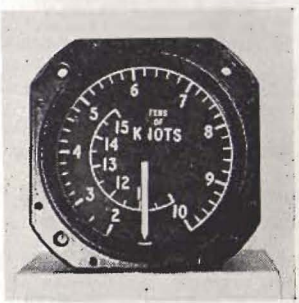
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OBITUARY

WE regret to record the death of David E. Cooke, chief instructor of Ulster and Shorts Gliding Club; J. B. Weiss; A. F. Houlberg; Hans Kellner and Karl Baur. Obituary notices will appear in our next issue.

Correction. In the obituary notice on DR. G. A. M. HEYDON (Feb. 1964, p. 69), 4th paragraph, the second sentence should read: "Lame ducks were especially invented so that he could help them over stiles."

GLIDING CERTIFICATES

DIAMOND FOR GOAL FLIGHT

No.	*Name*	*Club*	*Date*
3/38	A. Somerville	Phoenix R.A.F. Gliding Club	5.11.63

GOLD C CERTIFICATE

No.	*Name*	*Club*	*Completed*
112	A. Somerville	Phoenix R.A.F. Gliding Club	5.11.63
113	R. Rutherford	Midland Gliding Club	13.10.63
114	D. F. Holding	Heron R.N. Gliding Club	20.8.63

GOLD C HEIGHT LEGS

Name	*Club*	*Date*
R. Rutherford	Midland Gliding Club	13.10.63
A. Somerville	Phoenix R.A.F. Gliding Club	5.11.63
B. G. Gunter	Fulmar Gliding Club	28.12.63
C. R. Newnes	Fulmar Gliding Club	28.12.63

SILVER C CERTIFICATES

No.	*Name*	*Club*	*Completed*
1385	K. P. Brissenden	Kent Gliding Club	31.8.63
1386	S. R. Tomlin	London Gliding Club	25.7.63
1387	J. C. W. Marshall	Fenland R.A.F. Gliding Club	20.7.63

C CERTIFICATES

Name	*Gliding Club or School*	*Name*	*Gliding Club or School*	*Name*	*Gliding Club or School*
T. Hicks	Aden Services	A. Kitching	641 G.S.	T. A. Johnston	Scottish
C. J. Gill	R.A.F.G.S.A. Centre	R. S. Newby	Aden Services	R. D. Noonan	Cornish
R. H. Hearn	614 G.S.	S. V. Golds-brough (Mrs.)	Yorkshire	D. G. Lee	R.A.F.G.S.A. Centre
J. W. Park	Ouse	B. M. Shadbolt	Cheviots	K. J. Nurcombe	Coventry
M. J. Bullock	633 G.S.	E. A. Stokes	Dayton U.S.A.	W. D. Butter-worth	Phoenix
M. M. McKinnon	B.E.A. Silver Wing	A. P. Bell	Aden Services	J. H. West	London
A. A. Simpson	Dorset	M. W. Tinkler	615 G.S.	B. D. Holloway	London
A. J. Titcombe	611 G.S.	M. C. Lovegrove	613 G.S.	J. L. Weston-Allwork	Moonrakers
M. J. East	614 G.S.	W. S. Waugh	631 G.S.	R. W. Baldwin	West Wales
W. J. Gladney	Essex	C. E. Rust-D'Eye	613 G.S.	L. J. Monk	Aden Services
A. Fox	Clevelands	R. W. B. Swallow	Nimbus	M. A. Gale	Fulmar
M. A. With-ington (Miss)	Doncaster	D. J. Park	Ouse	M. S. Cox	645 G.S.
F. W. Butler	Heron	G. E. Drury	Nimbus	R. K. Gulliver	East Anglian
R. C. Burfield	Yorkshire	G. J. Tobias	621 G.S.	Christine Chapman	Southdown
K. J. Spooner	Derbyshire & Lancashire	G. B. Lannie	Norfolk		
		A. O. Barber	Laarbruch		

DUNSTABLE REGIONALS

THIS year's Regional Contests at the London Gliding Club, Dunstable, will be held from Saturday, 25th July to Monday, 3rd August, inclusive. The number of entries will be limited. Prospective entrants should write to The Manager, London Gliding Club, Tring Road, Dunstable, Beds.

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THE KRONFELD CLUB

ON Wednesday, 29th April the grand official opening of the renovated club will take place. At 6 p.m. in the evening there will be cocktails for the donors to the appeal, V.I.P's. and the Press. This party will be followed at 8 p.m. by an open evening for members and their friends. There will be dancing and a bar extension until 1 a.m.

An exciting era for the club is about to begin. Expansion leading to better utilization of the premises on every night of the week is essential for covering increased overheads.

The objects of the club have always been to provide facilities for all sporting flying enthusiasts, and we hope to increase our membership, particularly in this sphere.

The premises are available for members' private parties, and for committee meetings and the like. The lecture room will seat 60 and has a long table available for meetings; enquiries should be addressed to the Secretary, Cliff Tippett, at the club.

The 1964 Aviation Art Exhibition will take place from the 4th-28th November.

The Dinner Dance is fixed for Friday, 16th October.

A lecture worth special mention has been booked for 6th May, when John Oram comes along. He is a full-time inventor — a real boffin — who has had a hand in inventing many mechanical and engineering aids. The film on 8th April should also not be missed.

Visitors are welcome any Wednesday evening. Y. C. B.

DAIRY OF LECTURES AND FILM SHOWS

Wednesdays at 8 p.m.

Mar. 25. "Rigid Airships", by Peter Brooks.
Apr. 1. "Whither Woomera and why should I worry?", by Ken Owen, of FLIGHT.
„ 8. "The Crescent Wing." Film.
„ 15. "Some more Aeronautical Reminiscences", by Lt. Cdr. John Sproule — postponed from January.
„ 22. "Light Aviation", by David Campbell, C.F.I. Luton Flying Club.
„ 29. GRAND OPENING of renovated premises.
May 6. "Thoughts on being an Inventor", by full-time inventor John Oram.

CORRECTIONS TO CLUB SITES

The following changes in R.A.F. Gliding Club sites were not sent to us in time for incorporation in the table published in the February issue on page 77.

1. The Suffolk club at R.A.F. Wattisham no longer exists.
2. The Four Counties club site is at Spitalgate in the position and lat. and long. given.
3. The White Rose club is believed to operate from R.A.F. Church Fenton, position 6 miles N.W. of Selby, Yorks. lat. 53° 50′ N., long. 01° 12′ W.

The Norfolk and Norwich Gliding Club was omitted from the table owing to a misunderstanding. Details are as in the previous year: Site, Swanton Morley (52.45 N., 00.55 E.); Tel. Swanton Morley 274; civil grass aerodrome; no slopes; aero-tows; flying weekends and some weekdays.

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PUBLICATIONS

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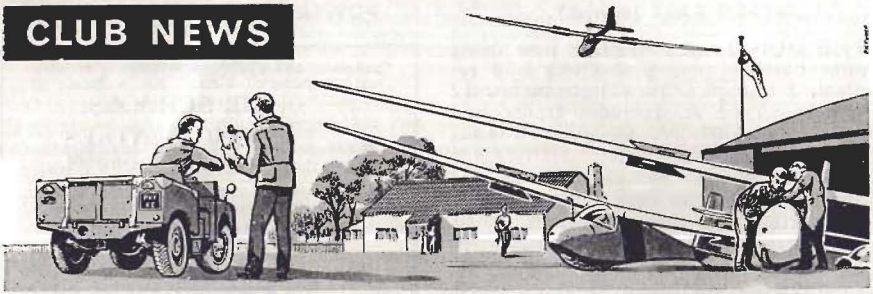
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CLUB NEWS



IN this issue we welcome for the first time the Bath Gliding Club, who operate from Keevil.

The Devon and Somerset club's new car badge is shown in this issue. How about some photos of more of these?

Copy for inclusion in the June issue must reach me at 14 Little Brownings, London, S.E.23, not later than 25th March (owing to the Nationals the June issue will be published three weeks early) typed double-spaced on foolscap please.

YVONNE BONHAM,
Club News Editor.

ABERDEEN

ONE year has now elapsed since we moved from Dyce to Litterty, and all things considered a great deal has been accomplished. Plans are afoot to widen the ends of the grass runways so that landing aircraft and those ready to be launched are well separated, thus cutting down the delays and increasing the launch rate.

Our Swallow was at the Fulmar Club site at Milltown over the New Year holidays, and we would take this opportunity of thanking our Naval hosts for their hospitality.

By the time this is in print, the Tiger Moth will be back in service and aerotows in full swing, despite information to the contrary in the February issue under "Gliding Sites in the U.K.".

The T-21 has arrived, thanks to John Whitehead and Alan Middleton, who did the fetching and carrying. It was pressed into service right away. In the hangar, C. of A.s are in progress with our Senior Inspector, John Milne, at the helm.

The next arrival at the site should be a syndicated Skylark 3B, and this event is being eagerly awaited by all.

F.C.M.

AVRO

FLYING at Woodford started with a flourish in the New Year with 40 launches on New Year's Day and Pete Woods' (famed for his five-hour stints on the retrieve tractor) first solo flights at 1500 hours. We believe this to be the first A and B certificate for 1964. Any offers? Congratulations to Pete and to Ernie Knowles, who has also obtained his A and B.

Bill Scull, our new Assistant C.F.I., who has done, and, indeed, is still doing, a great amount of work repairing and maintaining club aircraft, has been granted B.G.A. inspection approval. He has also made plans to attend an instructors' course at Lasham. We wish him the best of luck in this venture.

The soaring season has also started at Woodford. Roger Skitt, on landing after his C flight of 20 minutes duration on 8th February was heard raving about three up in thermal.

We are hoping to improve the club fleet by the addition of a T-21. This should give us better training facilities, with longer flights for the dual pilots and some advanced training for the solo pilots.

J. E.

BATH (Keevil)

HAVING now received official recognition we feel that the time is ripe to introduce ourselves to the gliding fraternity as a whole.

Our story is probably very similar to that of most new clubs, but just for the record . . .

It all started in September, 1962, with the formation of a small steering committee which spent its week-ends searching for a suitable site and seeking out and scrounging the necessary basic equipment.

In February of '63 the inaugural public meeting was held and the nucleus of a club formed. A small band of about 30 enthusiasts parted with a year's subscription and enrolment fee, in order to get things moving, with little more than a vague promise that they should be able to fly from somewhere at some future date.

Eventually, with the invaluable assistance of Viscount Long of Wraxall, we obtained permission to use the R.A.F. satellite airfield at Keevil.

Gordon Mealing, who was instructing with the Bristol Club, joined us as C.F.I. and with a T-31B and Grunau, and a V.8 as the motive power, we started flying in May, '63.

Such has been our progress that we now have 83 members, the ex-Dunstable T-21c (which although apparently not too popular there is proving excellent on our big flat airfield), a winch and additional towing vehicles.

Our first syndicate was formed with the ex-Godfrey Harwood Swallow and its members have used the winter months to really get the feel of the aircraft in preparation for the coming season.

The three flying instructors have worked hard to give us five A and B certificates since we started and amongst the non-hibernating circuit bashers it looks as though we shall have some more in the not too distant future.

Unfortunately aero-tows from the site are not permitted, but with Westbury ridge only four miles away we hope to run some expeditions during the coming months.

At present we are without a clubhouse but a lot of hard work is being put in on the derelict control tower. Readers will no doubt be able to guess which item is receiving immediate attention in order of priorities now that the structure has been made wind- and waterproof.

K. N. S.

BRISTOL

READERS will have noted from the last report that the bunkhouse floor had been tilted. We would like to assure them it has now been tilted back to horizontal and for good measure we have tiled it!

In contrast to last year's freeze-up, 1964 has been a complete reversal so far and a fair amount of flying has been done. On 1st February the Nympsfield



L. to r. Roy Jeffreys, Bob Copeland, Dick Sanderson, Gordon Fisher and Peter Etheridge (dressed to fly the tug) with the Bristol Club's T-49

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wave reappeared and people soaring the west ridge were elevated to heights of up to 11,000 ft. above the site, alas without barographs because there was a clear blue sky with no lenticulars in sight. Two big waves contacted a few months apart (the last was October, 1963) indicate that their frequency of occurrence must be higher than previously thought. Achievements so far this year include C's by Thelma Barrett, Keith Penny and Mike Harper, and five hours by Barbara Webster in the aforesaid wave. Incidentally, there are now eight solo pilots of the fair sex.

We are holding another competition at Nympsfield this spring so that people can practise for the Nationals as well as gain a few valuable points. It will take place on the week-ends of 25th-26th April and 2nd-3rd May and we hope to see many of our friends from other clubs there.

Work around the site has included a complete overhaul of the hangar door rolling gear, so that it no longer takes several strong members to shift them. In the workshop the T-21 is having its C. of A. and the Eagle syndicate is busy with its spar boom mods.

Legal difficulties have at last been settled over the piped water supply and things are all set for the digging of the trench down the hillside.

There is yet another engagement to announce; that of Ann Wales and Mark Westwood, to whom we offer our congratulations. A. L. S.

CAMBRIDGE UNIVERSITY

AFTER about 13 years' hard labour, the Brute, our old two-drum winch, has now been retired. The winching gear, however, which was built by David Clayton and David Martlew, has been reconditioned and married to the Beast, the new two-drum winch. During the marriage ceremony — a regrettably lengthy process in this case — the Club had to resort to a single-drum winch. The situation was saved by the Tiger Moth; since October almost a third of all our launches has been by aero-tow.

During the winter months the new clubroom has been particularly welcome. Created last year by Doug and Ann Heyhurst from the store-room at the back of the club's workshop, the clubroom now offers warmth and refreshment (and an audience) to the frustrated aviator.

Another centre of confabulation has sprung up at Rory O'Sullivan's rooms, where new members are infected with the gliding bug by weekly lectures and incensed to beat the pundits — given time.

The club acknowledges with gratitude the services of R. L. Fortescue, who was Chairman for two years and resigned at the beginning of the year. The new Chairman is S. W. H. W. Falloon, another Senior Member of the University, who joined the club more than 17 years ago. G. S. N.

CORNISH

WE feel no guilt at commencing our news by discussing the weather, as usual. After all, gliding is just a matter of becoming part of the weather — perhaps.

This winter has been, on the whole, quite good with not very much soaring of any kind. What has been poison for

the soaring pilots has been meat to the ab-initio circuit bashers.

Several keen members are now very near to flying solo and we congratulate the Rev. Brian Measures on his B and Joe Ratcliffe and Arthur Webb on their A's and B's. Arthur is a real example to us of the meaning of the word enthusiasm. He frequently drives the fifty odd miles from Plymouth three times a week.

Now as the days lengthen a little, quite a few hearts are fluttering with the thought, "This season I shall fly cross-country". J. E. K.

COVENTRY

THE annual statistics for 1963 came out much better than we were fearing 12 months back; this is just as well as the impending move to our new site will be quite enough struggle without depression from a bad year to make things harder for us.

Anyway we have started this year with a good boost. Three first solos, by Nibblet, Mathews and Davis, have already been flown. The first week in February had the T-21 thermalling over Coventry and the Ka-2B slope soaring at Edgehill, whilst Ken Davis completed his Silver C with a long-awaited 5-hour leg in a private Olympia at Camphill.

At the moment the principal interest in the club is the move to our site at Husbands Bosworth. Part of the preparation for this is the design of a hangar door to be built in sections and erected on site. The construction will call for quite a lot of effort but it should be under way by the time this appears in print.

Several of our members are planning to take club machines into competitions in the coming year and are busy preparing the aircraft in the hope that they will be able to get entries. Alongside this activity there has been a spate of work on our reserve winch, which had buckled a drum. It is now back in service with the trouble sorted (and a large number of mods. made), so that it can supplement our main winch to boost the launch rate or go on stand-by when required. C. D. D.-J.

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DEVON AND SOMERSET



The new car badge of the Devon and Somerset Gliding Club. Presumably it shows the arms of the two counties — or does the upper symbol represent altocumulus castellatus which the lower aviator hopes to reach?

DERBYSHIRE & LANCASHIRE

AFTER a rousing Christmas party we bade farewell to 1963, a year which saw improved results from the higher performance aircraft but with an unfortunate decline in the training programme.

To encourage inter-club cross-countries several tankards will shortly be available for collection from, or for bringing back to, Camphill. It is hoped there will be as much interest shown in these "Pots" as is enjoyed by the Dunstable-Lasham Awards.

This year in one windy blast, the weather spoiled an otherwise mild mannered record. We had soaring in January but on 1st February an 80 m.p.h. gale roused soaring instincts in two parked trailers. Three trailers, a glider and a recently renovated length of the electricity supply line all suffered damage. Later in the day the Peak 100 put some of this surplus energy to good use, reaching 13,500 ft. a.s.l. in wave, leaving 6 ft. per second lift it was back on the ground in 58 minutes.

D. M. K.

DONCASTER

THIS is the time of year when, with less time for flying, we get down to repairs, maintenance and new construction. The current task is a new control van based on a former ambulance. John Johnson and Brian Fox are I/C work. It will provide some comfort for the Timekeeper and, of course, the electronic signalling system essential on a field as large as ours.

We have been promised security on the site and can now continue with the modernisation of our fleet.

Mike Usherwood has resigned as C.F.I. and John Stirk has taken over. Our thanks are due to Mike for the hard work and long hours he has put in.

The social side of the club booms in the winter. The Wild West Night was the expected success. This was followed by the Christmas Party and, in the New Year, the annual dinner and dance.

Jack Bower has completed the redecoration of the clubhouse and has also improved the heating and insulation. The winter programme of film shows is under way and members of other clubs are always welcome to join us — the clubhouse is open every night.

J. B.

EAST MIDLANDS

SINCE our last report our club has undergone a complete change. In October we took delivery of our new Capstan, which was aero-towed down from Slingsby's, thanks to the Auster Beagle Company. This coincided with the club's new policy of launching by aero-tow only. We have the use of a Tiger Moth and an Auster for this purpose and up to now things are really going with a swing.

We have been reasonably lucky with the weather this winter and a lot of flying hours have been logged up. We would like to congratulate Heather

Atkinson on her C flight, which was done at Lasham, and we have many others who are just waiting for the thermals to appear. Peter Martin and Ray Swinfield contacted wave over the site at the end of January in the T-49 and got to 5,100 ft. Unfortunately it was late evening and they had to terminate the flight when still in 400 ft. a minute lift.

We held a very successful Christmas dance at the King's Head in Loughborough and a good time was had by all.

We welcome Fred Fitchett and son Brian to the club, who arrived complete with their own Swallow, and this brings the total aircraft on the site to six, and a new syndicate T-51 hopes to be on the site soon.

Roll on the summer. J. R. F.

KENT

LET us not talk of the foulness of the weather, let us not mention the number of week-ends when the site was lost in cloud and driving rain. Rather let us talk of the work we have done on the site. In spite of the depth and viscosity of the mud we now have a set of brand new doors to the hangar that slide to and fro with amazing smoothness, a commodious workshop in the back of the hangar where work can proceed on aircraft, and a hut in which to dispense tea and buns and lectures pending the arrival of the clubhouse.

Summer courses are booking up steadily and an S.O.S. has had to be sent to the printers for more application forms.

The Charlie Dance Clubhouse Fund has triumphantly reached its £1,000 mark and the foundations and the shell of the building have been ordered. The bar will be opened as quickly as possible, gentlemen. How did we get £1,000 for a clubhouse? Well, we badgered 100 members into donating £10 each. Or rather Charlie Dance did. It appears that the redoubtable Charles met Wally Kahn in the Kronfeld Club one evening, and the sight of these two stalwarts trying to touch each other for £1 for their respective clubs will be long remembered. ANON.

LAKES

THE club's annual Fancy Dress at Warton Grange on 7th February turned out the highlight of the social season. A pleasing feature of the competition was the number of party entries. Matthew Hall's harem headed the awards, but history does not record how they overcame the difficulty of sharing the first prize. The Beatles, animated, but on this occasion strangely silent, also caught the eye of the judges.

In the last issue we mentioned our Chairman's views on the launch rate, and it is pleasing to report that improvement continues. Furthermore it is showing results, and we congratulate Ron Hawkes, Sid Wearing, Bill Parr and Harvey Jackson on reaching solo status. There are still more in the pipeline so the club Tutors will have a busy time ahead. A small but steady trickle of new recruits keeps the T-21 as active as ever.

Gerry Wilson and Howard Woods have been promoted instructors, bringing the club's strength up to eight. This accords with the C.F.I.'s plan to provide facilities for every member to reach standards up to the maximum of his or her ability. The arrival of the club's J1.N Auster on 2nd February brought another twinkle to his eye and no doubt fired the ambition of many capable of taking advantage of aero-tows.

This year six courses will be run from Walney. Satisfactory catering and dormitory accommodation has been arranged, and Edna Hall has set about the tasks of Course Secretary with the knowledge and enthusiasm which ensures success. The beaches provide opportunities for swimming for those energetic enough to enjoy it, but the use of gliders in furtherance of this attraction will be discouraged! F. G. R.

LASHAM

WE are delighted to see that Derek Piggott, our Chief Flying Instructor, has been awarded the Bronze Medal by the Royal Aero Club. Derek came to us as C.F.I. in March, 1954, from the Home Command Gliding Instructor's School, where he had held a similar position. His whole life has been spent in the world of aviation — he was a

member of the British Team which competed for the Wakefield Trophy in the Model Aircraft Competitions held in Ohio, U.S.A., in 1948. During his R.A.F. career he was an A.1 Flying Instructor. He was also the first man in the world to fly a man-powered aircraft. Since coming to Lasham he has carried out more than 20,000 instructional launches and more than 2,000 hours gliding.

The success of Lasham owes a tremendous amount to Derek and we hope that he can "stand" us for many more years to come.

Our new clubhouse is nearly finished (at last) and should be fully operational by the Championships. As soon as we get some more money, we can start on the bunkhouse and other improvements so that we can offer our visitors not only superb instruction and flying but also a higher degree of comfort. Having been granted a lease largely on the strength of being a large gliding centre and wishing to cater for pilots from abroad who want to be taught our instructional methods and techniques, we must try to improve our facilities as best we can.

This year we will be running a regular "week-end" competition for our pilots as well as many more advanced courses for members. A number of Instructor Courses are being arranged for any interested pilots from all over the world. Our No. 3 instructor, Peter Vaughan, is leaving us later this year for New Zealand and we wish him all the best for the future.

Unhappily, due to pressure of non-gliding work, David Carrow has resigned as Chairman of the Lasham Gliding Society and his place has been taken by Alan Freeman. W. K.

LONDON

OUR ridge has provided us with unusually little hill-soaring this winter, and the spirit of competition so prevalent amongst glider pilots seems at Dunstable to have been directed more at bar-billiards and ten-pin bowling than gliding; nevertheless interesting flying has been achieved on one or two occasions.

On Saturday morning 18th January an east wind wave was standing, and instructor Rod Dodd in one of the Prefects climbed to 2,600 feet, whilst John Cardiff and Stuart Beck, flying the T-21B "Butterfly" reached 3,000 feet. It's ironical for John and Stuart, who are shareholders in the fabulous Standard Austria, that their best flight for many months should have been in a T-21B! On 30th January John Cardiff again, together with meteorologist Mike Garrod, established an early start to the thermalling season when they contacted a series of thermals off the ridge; John reached 2,500 feet in the Club Three and Mike Garrod's 463 found a five-knot thermal which took him as high as 3,000 feet.

In our contribution to the February edition of Club News we remarked how many glider pilots were flying with the Luton Flying Club. Since then a power-flying group has been formed at Dunstable under Dick Green and Peter Fletcher, who arranged the purchase of the unique (literally) 90 h.p. Spartan Arrow.

In June, probably on Sunday the 21st, we are holding a Gliding Carnival along the same lines as the one that was so successful last summer, and we shall also organise another Regional Contest during the week preceding August Bank Holiday, both for those who currently suffer under the rating system and also for pilots who "fly for fun".

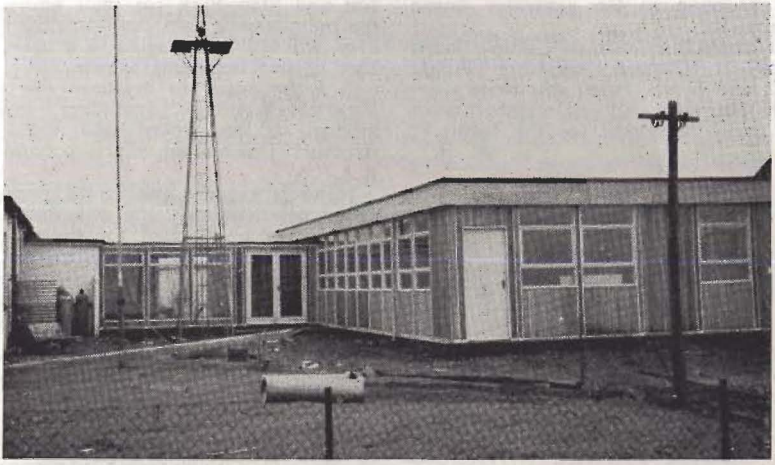
A novel idea scheduled for September is a Glider Fair, at which both manufacturers and private individuals will be invited to exhibit their sailplanes or gliding equipment, and where prospective customers will be able to inspect and perhaps purchase. More details of the Fair will appear in the June "S. & G.". Meanwhile, we wish other clubs good soaring this summer!

G. C.

MIDLAND

THE club's first T-49 arrived at the Mynd on the 22nd December, which was Christmas Party day. At first the aircraft was flown only by instructors, but it is now being used as part of the training fleet.

Our new bunkhouses have been in use for some months and there seems to be no doubt that the greater comfort has resulted in more members staying over-



This new dormitory has replaced the Midland Gliding Club's old bunkhouse on the Long Mynd, 1,500 feet above sea level.

night.

Saturday, 1st February was another good wave day. Several pilots climbed above 10,000 ft. a.s.l. and John Brenner completed his Gold C with a gain of height of 12,500 ft.

The Annual Dance was held at Berrow Court on the 28th February. The occasion was well supported by members, who owe their thanks to Marjorie Hobby for organising a very enjoyable evening.

Shelly Curtis has been appointed Secretary and we are grateful to him for taking on a job which will involve a considerable amount of his spare time.

This year's Easter Rally is being organised by Peter O'Donald. We look forward to meeting the visiting competitors and can only hope that the event will enjoy favourable weather.

K. R. M.

NEWCASTLE

CONTRARY to our bitter experience last year, the mild winter has enabled us to keep flying at Carlton. What little snow there has been was not sufficient to deter our more enthusiastic members, and a reasonable supply of north-west winds enabled us to get in quite a lot of soaring on the ridge, often assisted by wave conditions. So mild has been the weather in fact that we have continued to recruit new members — a quite unusual occurrence at this time of the year.

C's of A. have been going ahead on several machines, and some of the private machines have appeared resplendent in new paintwork, thanks to the efforts of Messrs. Don Harker and Pete Lloyd.

A number of members' courses have been arranged for the summer months, and naturally enough those members booked on the courses are hoping for good conditions and are making plans accordingly. At least the summer can't be worse than last year — or can it? We are all hoping that cross-country flying will receive a good deal more attention this year from our solo pilots. This is an aspect of gliding which has not received anything like enough support from our members for some time, but with so many pilots trying for Silver C, or better, surely this year will produce something of note.

One of our latest acquisitions has been a diesel electric generator, and when this report appears in print the generator house should be almost completed and we should be well on the way to getting "lit up". Further site development work is planned and the erection of new workshops is due to

begin as soon as the generator house is completed.

Our congratulations to Cupid's latest victims at Carlton, treasurer Adam Dodds and Sylvia Pratt, who were married in February. All our members wish them every happiness for the future.

B. W. B.

NORTHUMBRIA

NEW Year's Day brought us a change for the better in weather conditions and proved itself to be a good flying day. These conditions have been maintained ever since then and during the first January week-end, the T-31 enjoyed a few soaring flights in wave conditions. We now all hope that the difficulty which has recently caused the grounding of this type will soon be overcome.

The Swallow has now arrived and been flown consistently each week-end by every member of the syndicate. It has already demonstrated its capabilities.

On Tuesday, 7th January Basil Meads visited the site and met the club's officials and committee members. We had the opportunity to seek his advice and have the benefit of his great experience in club management.

Dave Wilson's ingenuity has produced a system of signalling by landline and lamp which is proving very reliable and successful. It is also the joy of those who no longer have to act as intermediate signallers: this seemed to be the least popular of duties. Ground handling efficiency has been continually improving and we have managed fast turn-rounds in the short winter days.

The hangar-workshop is now complete except for a touch of paint. Members, old and new, are already making their plans for the coming soaring season.

OUSE (Rufforth)

SINCE our last report, we have added the ex-Doncaster two-drum diesel winch to our equipment, which regularly gives launches around 1,500-1,800 feet. Our thanks are due to Dick Boddy, David Park and Norman Worthy, the club's best winch operators, also to Jim and Stan Park for their efforts on the maintenance side. Auto-towing, however, will still continue to be a necessary part of our launching system.

It is proposed to decorate our temporary clubhouse, including lounge, kitchen, lecture room and C.F.I./Instructors' Office upon sanction from the R.A.F.

News is eagerly awaited of our proposed new Swallow, and although aerobatics may be banned for most pilots, several Silver height legs are anticipated. Instructors also are hoping for some much-needed soaring and cross-countries in contrast to "back-seat driving" in the T-31B.

Two of our members, Major Alan Simpson and Keith Massey, should be back from a press visit to Borneo and Malaya. Their experiences should be worth listening to. Keith, incidentally, can be seen running round the clubhouse muttering something about a "Frying Club". Wonder what he means?

Finally, congratulations to David Park and Keith Massey, joint holders of the Anthony Forester Memorial Trophy and to Derek Moore on being the first pupil to solo in 1964.

G. L. B.

SCOTTISH

FLYING records for the first two months of '64 have shown considerable improvement over previous years and it is hoped that this will continue.

Our earliest visitors in the New Year were our old friends from Cambridge with a Ka-6, but unfortunately conditions did not permit fullest demonstration of flight capabilities but what was seen of it was quite remarkable. One of our regular visitors, John Goddard (Army Gliding Club), in a Skylark 3F, has been making considerable use of our waves and raised our local height record to 17,000 ft. a.s.l. on the 28th January and later in the week reached 16,400 ft.

Seasonal activity in the engineering area is now bearing fruit with the introduction of a new design in roller boxes, one winch having been modified to accept these and a second one to be similarly treated. A diesel bus winch is under construction and should appear early in April, this being our first ven-

ture into what appears to be a very fashionable and functional winch.

Noting the activity of the Derby & Lancs. Club (as reported in February issue), the S.G.U. is ready to take up the challenge, whether it be Tiddley Winks or Country Dancing, on a home and away basis.

I have to report an extraordinary activity by the S.G.U. Marriage Bureau, and to offer congratulations and best wishes to Christine and Brian Cole-Hamilton, married in January; Tom Docherty and Ann Simpson, to marry in March; Maurice Berry and Avril Tees, to marry in June; and Ian Dandie and Anne Lawson, to marry in September.

W. A. S.

STAFFORDSHIRE

THE weather has been very kind to us at Meir so far this year and only one week-end has failed to allow some flying. The following members have gained A and B certificates :— R. Cameron, M. Hurst, R. Larkinson, D. Johnson and E. Snow. Several others have converted to the Tutor, which the club acquired in December. The grounding of our T-31 has come as a great blow, especially to a club like ours so dependent on two-seater training. Emergency measures have been put into force and ensure continuity of flying practice for all Olympia and Tutor pilots. This period of "solo only" activity will be a testing time for the club.

Our A.G.M. was a lively affair and very well attended. The reports from retiring Chairman Barry Gilman, Treasurer John Kaye and C.F.I. W. C. Hutchinson all told of a successful year for the club in the air and on the ground. Following the election of new officers the Chairman is now W. C. Hutchinson; Treasurer, John Kaye; Secretary, John Marshjones and Technical Officer, Ray Johnson. The committee has had a transfusion of new enthusiasts for chairborne activity, including Doctor Bradwell and Walter Harvey, by election, and Maurice Hurst and Alistair Wright, by co-option. Maurice Hurst recently raised a superb £58 by some kind of licensed swindle and this money has been applied to good causes, including the winch.

With about half our ab-initio's now solo the arrival of the soaring season is eagerly awaited by many A and B's who aspire to C badge. We are proud to report the first Silver C to be gained by the club. Doctor Bradwell sat out his five hours at the Mynd on 2nd February, having previously gained two legs of this badge at Meir. He was congratulated on the spot by several club members who visited the Mynd on that day.

Some resignations allowed us to open the membership list for a minute or two recently and among those to join was our first lady member, Gillian Wilkinson. Gillian has been helping the club unofficially in the newsletter publishing department and has been a regular attender at Meir since flying started.

A. W. H. L. W.

SWINDON

DURING the last couple of months membership figures have again increased, so this year looks like being a bumper year, our membership now stands around the hundred mark. The new clubhouse is now in its fitting-out stage and a few more weeks' work should see it finished.

Thanks to Bev Hill and his team of ardent workers the new tow car, which has been custom built for the purpose, is now with us. David Bailey organised a car rally one dark evening a few weeks ago, needless to say we ended up at a wayside inn.

Our fifth annual dinner and dance was held during March. Next year we hope to award trophies for best flights during the coming year. Flying is getting well under way, the Olympia has had its C. of A. This year should see more task flying than ever before.

D. E. S.

WEST WALES

OUR A.G.M. was held at Withybush on Wednesday, 4th February, with David George, who was re-elected for a second year, in the Chair. Gil. Phillips and Arthur Lalley were re-elected C.F.I. and Treasurer respectively, whilst Jimmy Grey and Bill Shepherd jointly took over the job of Secretary from Arthur Squibbs, who has held this

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onerous post since our beginnings. Indeed, as Gil. pointed out, Arthur was mainly responsible for organising the first trials at Withybush and the subsequent two-year negotiations with the various authorities before the club was formed. By the time this appears, he and Nora will be the proud parents of their first child and we give our warmest congratulations and best wishes.

Launches were down on last year, mainly due to the Big Freeze and an incident involving the Swallow wing and the Auster prop., which put both aircraft out of action for several weeks. We have 106 members and recruiting will be one of the issues of the year for the new committee. In this respect we are pleased to be able to offer our facilities to those members of the Swansea club who are able to join us, although we are far from happy that this should occur through the closing of their club; "ask not to know for whom the bell tolls . . ."

Gains and losses: Well, we didn't do all the cross-country's and record-breaking flights that we were planning, but no matter, we'll do them this year instead. On the credit side we do have a clubhouse to be proud of and to show our gratitude the entire House Committee were re-elected *en bloc*, with Gomer Phillips taking over from Idris Morgan as Chairman. We also have the "top civilian" glider aerobatic pilot Bill Nicholas as a regular feature, of whom we're also very proud. H. J.

WORCESTERSHIRE

THE cementing of the hangar floor has been completed and the windows fitted, the whole structure now awaits the painting party. We still have to deal with a drainage ditch approximately 300 yards from the end of the runway, however plans have been made and materials acquired to overcome this hazard.

A recent new arrival to the fold is a second T-31 (mildly damaged) which now means that with luck and a lot of hard work we shall have three two-seaters operating this summer, plus a single-seater still awaited.

Our site is in proximity to the point where three counties join, so we can boast that our circuits take us over parts of Worcestershire, Warwickshire and Gloucestershire, this, of course, cuts both ways, as it is possible to under- or overshoot into the next county. T. M.

YORKSHIRE

THE late Autumn was particularly disappointing for flying members. The complete absence of soaring winds gave us no flying of any value. The turn came on Boxing Day and January has been quite rewarding. We have had several waves over the site, the best was on 1st February, when Jack Tarr and a passenger ascended to 8,500 ft. The following day gave us the first thermals of 1964, and Barry Goldsborough took advantage of them in his Sky, recently transferred from Cambridge.

Red Allen, who has been our Clubhouse Chairman in recent months, is leaving the district, and his considerable ability will be missed by everybody. Red was the quiet unflappable voice on the Northerns control, and since then he has produced a very well run barbecue and, on 4th January, a Wine and Cheese party. We hear that Red Allen is going south and we hope he won't be lost to gliding.

Ron Hellewell has been Acting Manager during the Autumn, and worked out the catering side, in addition to a number of improvements in the office and the new clubhouse. Toon Ghoose is our Steward until April, when he will take up the place of Assistant Instructor for the Courses. The position of Steward and Stewardess is yet to be filled, but we have some good prospects.

The Tiger Moth is having a subtle influence on our senior pilots and instructors. It has just returned from Yeadon, very much cleaner and fitted with a new engine. Tony Smallwood has just completed his P.P.L. Ralph Stothard and David Hill are taking steps to get their licences as well. Dr. Waugh, from Hull University, has also joined the elusive band of tug pilots.

The presence of the Tiger Moth has given rise to a new approach to aerobatics. As a result of recent happenings, the C.F.I., Chris Riddell, has

banned aerobatics in gliders on the site unless the pilot has 100 hrs. solo and been passed to do so after a dual check. This will be carried out in the Tiger Moth, and then in an advanced two-seater.

This year we look forward to a number of visits to Sutton by private owners and groups and with the facilities that we can offer we are prompted to say:

You can be dewey-eyed about the Mynd,
Complimentary about Lasham,
But you will be ecstatic about the BANK.

J. C. R.

SERVICE NEWS

BANNERDOWN (R.A.F. Colerne)

SHORT winter days, power flying and runway resurfacing have between them taken toll of available flying time but no opportunity has been lost to get in the air and our total of 223 launches for 21 hours is reasonable in the circumstances. Two members, Ben Binfield and Bob Gordon, have soloed, gaining their A and B certs. 26th January was a real red-letter day for the club, when our first ever aero-tows were organised. Enthusiasm seemed to double, the Chipmunk was up and down all day, the winch line also did good business and in all 67 launches were flown for 8.49.

Your scribe managed to escape on business to Kenya for a week to enjoy for a day a warm welcome and friendly hospitality from the East African G.C. at Lanet. Here 20 up is interspersed with 20 down, local hawks mark local thermals and accompany their Sedbergh in steady spirals to 10,000 feet. A tale was told of a Sedbergh leaving at 11,000 because a flight of flamingo were thermalling overhead at 13,000!

At home when the gliders have sat in the hangar our hard core have been on their feet pressing on with many projects which will prove their value in the coming season. The mobile bus/clubroom is already affording shelter, refreshments and "office" accommodation at the launch point; winches, trailers and aircraft are being fettled and readied for the months ahead, while the Sedbergh is scheduled for a canopy — expected to be a popular mod. In the static clubroom another popular mod. has appeared in the shape of a delicately decorated vitreous china "head" which, with due decorum, dispenses keg bitter to thirsty toilers.

P. H.

CHILTERNS (R.A.F. Benson)

CLUB activity has continued undiminished since our last report. Winter is now well upon us, and our canvas hangar looks a sorry sight at the moment with its extensive covering of snow. Our facilities for maintenance at Benson are somewhat limited. The equipment is stored in a large "tent", more correctly called a Besseneau Hangar. Naturally there is no heating, and what lighting we have is inefficient and unreliable. Any odd corner on the airfield has to be used for major work, and at present we are installed in the woodwork room covering our Grunau. This is a much bigger job than we had anticipated, and other clubs are not advised to tackle a similar task lightly. Our Olympia has already had a major and been resprayed. Next is a respray on our old faithful T-21. Following this, work is required on the Skylark and trailer. Not to mention the winches.

Anyway, enough of winter. Flying has continued on a limited scale, and there was a breath of Spring on 29th December, when Dave Seamark got his C in thermals. Some other soaring was done on this day immediately after the passage of a cold front. Dave was also one of the first to soar successfully on our new ridge site back in November, and was, in fact, airborne for 20 minutes. However, he had not submitted a claim for this, and preferred to claim a thermal soaring C flight in December.

A quick word about our ridge. A local farmer has kindly offered us a large 50 acre field for winch launching. Unfortunately the Chiltern ridge faces north-west and only on one day since October have we been able to make use

of it, and even then the wind was only 8 knots. The last real soaring of the year was done on 13th October, when Bob Lyndon made a 5-hour attempt. The wind was north-west and thermals weak. Bob tried to thermal soar to the ridge (we did not have the use of our field then) but failed to make it, landing some 15 miles downwind 1½ hours later.

We regret that we have to amend the invitation to join our club which we gave in our last report. The R.A.F.G.S.A. has imposed a limitation on civilian membership at 5%; reservists and the like counting as civilians. So while servicemen and their families from all three services are welcome, we regret that we can accept no more civilians at present. K. A. H.

CRANWELL

DESPITE prolonged absence from these columns the club has been by no means inactive. During the last year members have been quite successful. One complete Silver C and several other legs as well as many C's and solos.

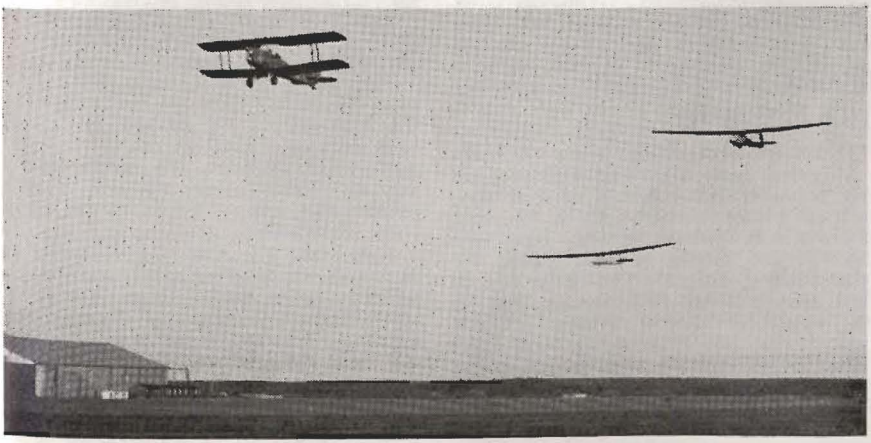
In August we visited the Moonrakers at Upavon, and although the Olympia was unserviceable for the first week after a field landing, it was put to good use in the second, when it climbed to 12,500 ft. Unfortunately the barograph pen stuck on the paper clip at 10,000 ft. and the pilot was not able to claim a well deserved Gold height.

In the last few months consolidation for our less experienced pilots and the training of new members has kept us busy, although we found time to recondition a caravan so that it has wind direction and speed indicators, signal lights and a raised dome and control position. The rest of the inside is fitted out to hold our equipment, so that now we virtually have a mobile clubroom. A possible ridge soaring site near Caistor is receiving great attention at the moment and we have great hopes for it.

Finally there is a welcome for anyone who cares to drop in here on a Wednesday, Saturday or Sunday afternoon. M. C. R.

FULMAR NAVAL (R.N.A.S. Lossiemouth)

WHILE most of Scotland's population were soothing aching brows we managed to bring in the New Year by recording 27 minutes of soaring on 1st January. This was by David Innes in our Grunau, which has recently been extensively overhauled. Immediately prior to this we had a period of very



A twin aero-tow from the Fulmar Club at Lossiemouth.

active wave conditions. Robin Bremner and Henry Dyce notched up their Silver C height gains and Brian Pritchard, Colin Newnes and Jim Gunter managed Gold heights, the last two doing it in style with climbs to over 16,000 feet. Brian Pritchard spent some four and a half hours in one wave and another, but due to daylight fading did not quite manage his five hours.

Some members of the Aberdeen Club visited Fulmar for a few days at the New Year. We were able to provide facilities for them to sample Moray airspace and a few of our own members enjoyed the experience of flying their Swallow. Jim Gunter has arrived from Portsmouth and his first flights coincided with strong wave lift; a chilly beginning, but he was soon warmed with a touch of gold. John Goddard has been with us for a few weeks (complete with an Army 3F) and recently during a visit to Portmoak he attained a Diamond Height with just 100 feet to spare. Very well done, John. Congratulations to Alister Raffan, who has now converted to the Skylark.

As the photograph depicts, we have experimented with double aero-tows. Taking off from the runways and under smooth conditions it proved to be a very successful way of getting two gliders aloft quickly.

1963 proved to be a year of advancement for Fulmar and we are looking forward to 1964. P. G. C.

R.A.F.G.S.A. CENTRE (R.A.F. Bicester)

THIS winter training flying has continued every week-end and recently we did over 200 launches on one day, a local winter record. A. C. W. Shipton, from R.A.F. Bicester, recently went solo and so she should be well placed for the soaring season. The Tiger Moth has been sold by Jack Benson, but he is rebuilding another Auster. Double aero-towing has been shown to cut the cost of aero-towing and should prove useful in the summer. The visibility recently has been very poor and this has caused two pilots to land out, due to misidentifying landmarks in the haze.

R. P. S.

RED HAND (Ballykelly)

OUR best news at Ballykelly is the arrival of our new C.F.I., Tim Bradbury. His enthusiasm is already making itself felt at 08.30 in various billets to get people down to the hangar before they realize what is happening. The airfield is now a hive of activity with an intensive training programme of new pupils and U/T instructors to compensate for the effects of postings. One of the more interesting postings has taken "Spider Webb" to Australia, from whence we hope to hear great things in the future.

The Christmas wave project started off with the now familiar lack of Chipmunks, which was all the more disappointing since the sky was covered with well defined lenticulars for almost three weeks. In spite of this we were able to contact on three occasions from auto-tow.

Barry Atkinson soared the EoN Baby for half an hour on Christmas Eve, followed by a field landing on Ben Twitch on Christmas Day when wave effect had clamped hill lift. 28th December was the best day with contactable wave three miles downwind of B.K. Following accurate radio reports from "Zot" at 7,000 ft. in the Olympia, Grenville Hill achieved Silver Height in the EoN at 5,500 ft. where there was still good lift which he had to leave due to the lack of penetration of the EoN.

This same wave system which had been located earlier in the day for the highlight of the project by "Zot", took him to 15,000 ft. before his departure for Scotland. His report should appear elsewhere so we will simply congratulate him on the first away flight from Ballykelly.

Now that the Olympia is back in Northern Ireland majors are being carried out on both this and the T-31, which latter may be out of action for a longer period, depending on what we hear has to be done. Campbell Donaghy is doing splendid work on our two tow-cars to ensure that in accordance with Carrow's law we can keep one actually serviceable.

G. M. H.

EAGLE

(Detmold, Germany)

WE are pleased to record that two of our members have had their first flights with "Freddie" in the T-21 and have gained their B certificates, they are Mike Maguire and Harvey Barker. Treasurer Mac Barlass has also flown with "Freddie" after a long absence from gliding. "Freddie", I should explain, consists of an assortment of tank track plates and other heavy objects wrapped up in an old Army kit-bag, he serves a useful purpose in the club as ballast for the T-21.

We were pleased to welcome Steve Warwick-Flemming up from Laarbruch recently, during his visit he passed out Peter Williams and James Adair as temporary instructors and Wally Lombard and Bryan Middleton as U/T instructors.

One of our great problems is that the airfield becomes so wet that it is impossible to retrieve the winch cable, however the local German club have come to the rescue and made their Piper Cub available for aero-tows. We are very grateful to them for providing this service.

Several members of the German club have flown our T-21 and Swallow and all of them have been impressed. They seem to enjoy the fresh open air of the T-21 cockpit in mid-winter after the stuffy atmosphere of their own Ka-7.

There are plans afoot to aero-tow pilots to the ridge at Oerlinghausen, where they may sit out their five hours, land at Oerlinghausen airfield and then be aero-towed back to Detmold. The club bar should show a handsome profit the first time this is successfully done.

It has been decided that the first pilot to stay up more than fifteen minutes off a winch launch shall have free beer that evening. When this was first announced somebody was heard to be muttering something about purchasing a supply of canned thermals.

On several occasions wave clouds have been seen over the site and our C.F.I., Ted Shephard, has reported quite strong lift whilst in the circuit in a Beaver. So far nobody has contacted these waves in a glider, but we live in hope. H. B. E. M.

PHOENIX

(Brüggen, Germany)

UNLIKE this time last year, we have been able to keep on flying through the "black months", although, like every other club at this time of year, overhauls and servicing of all club equipment have been taking priority. By the time this is read we shall have our eight aircraft (with one exception) airborne, our second winch re-engined with a vast V-8, our second cable retriever operational, and an extremely smooth rebuilt-and-sprayed B.M.W. trailer-retrieve vehicle on the road, thanks to Arthur Dicker.

The one exception on the aircraft list is a very ancient Grunau which has been carried off by the gliding members of a nearby Army unit, who are now tearing it to pieces with the ultimate intention of making it safely airworthy again; the earliest date found stamped on the airframe is 1943 — A.D. 1943, we hope. This job should take us easily into May. We have also made a temporary swop for this year of our Olympia 2B for the Geilenkirchen club's Standard Ka-6; the theory being that we can put their Ka-6 to better use, and they will benefit by having an aircraft of Olympia standard.

With a Ka-6 and a Skylark 3F we are in a pretty powerful position to take good advantage of continental conditions this season; already, certain gentlemen, gold- and diamond-eyed, are drawing lines to all corners of Europe. Unfortunately, the wave project to Issoire had to be cancelled due to a number of good reasons, so we had to strike one source of diamonds off our club achievements lists.

Alan Sommerville has taken over the reins of C.F.I. from Pete Lane; the object of this one is so that Pete can devote more of his time in his capacity as Air Member for R.A.F. Germany Gliding Association; however, he will still wield some power in the club in his capacity as chairman.

We are having a determined drive this year to improve our results at the top end of the scale — Silver C's and above, that is — so just watch this space for further details as the soaring season goes on! L. S. H.

OVERSEAS NEWS

FRANCE

TO justify its name, the Fournier "Avion-Planeur" (type RF-3) made its first wave flight on January 31st, when the first Mistral of the winter blew. Bernard Chauvreau, the pilot, took off under power from Gap-Tarrard aerodrome at 8.56. Passing the Montagne de Lure at 9.10, he got 5 m/s. down then 5 m/s. up. At 9.14 he reached wave lift at 2,200 m. (7,220 ft.), stopped the motor, and climbed at 2.7 m/s. average to 4,800 m. (15,750 ft.). Having no oxygen, he then put out the brakes, descended to 1,000 m., re-started the engine at 9.37 by "a light dive and the decompressor system" (after some misfires he used the starter), and flew back to base. Total time: 57 minutes with motor, 23 minutes without.

Chauvreau then took off again in another RF-3 and soared without power for 3 hr. 30 min. over a local slope, finding 2 m/s. lift and reaching 2,100 m. (6,890 ft.) above take-off.



The Fournier "Avion-Planeur" has been justifying the second half of its name.

In 1963, French C certificates exceeded 1,000 for the first time, totalling 1,104. Of these, 650 went to pupils of under 21 years, 59 to women, and 21 were gained overseas. Of 179 Silver C's during 1963, 50 went to pilots under 21, and of 30 new Gold C pilots 5 were under 21. Full Diamonds numbered 2, the smallest figure for 10 years; the weather was considered responsible.—*Air et Cosmos.*

HOLLAND

BY the end of 1963 the renewal of the Dutch glider fleet was nearly completed. The Ka-8 became the standard trainer, and nearly all clubs now have a performance two-seater (Ka-7) for follow-up training. All this has resulted in better performances, so the average flight duration increased from 9.7 in 1962 to 11.1 min., and 55 Silver C's were completed, the total now being 300.

Due to the very little wave in Issoire in 1963 only 6 Gold C's were completed. As cloud flying is prohibited in Holland, wave safaris are the only possibilities for Gold or Diamond heights.

The annual contest prizes were won by: Rijk Breunissen for the best average of three flights, and the Dat Zit Cup for the best Triangle, Ed van Bree for the best flight, Aart Dekkers and Frans Kroonder for the best two-seater flight (Pa Rood Cup), Jacques Bernsen for the best flight on a Grunau or Prefect, Jaap Steinfoorn for the best duration flight by an under 21 pilot (Junior Cup), Dick Reparon for the best goal flight from Terlet (Silver Sky Cup).

Private ownership is developing at last in this country. This has taken long because normal club flying is much cheaper, due to our subsidy system. We hope it will have a good influence on our performance standards. Privately owned are at present 1 Grunau 8 (two-seater), 4 Ka-6's, 1 T-10, 2 Sagitta's and 1 Minimoa.

The 1963-64 wave safari to Issoire has been a washout so far. At the moment of writing five parties of six who went there for two weeks each since 1st December came back without any success.

We look forward to a busy season. Apart from the Nationals, from 16th-

30th May, an Easter Rally (four days) will be organised by the A.K.U. Gliding Club. Teuge Flying Club has to organise this year's Victor Boin Contest, and several clubs will hold one-day contests. J. Th. v. E.

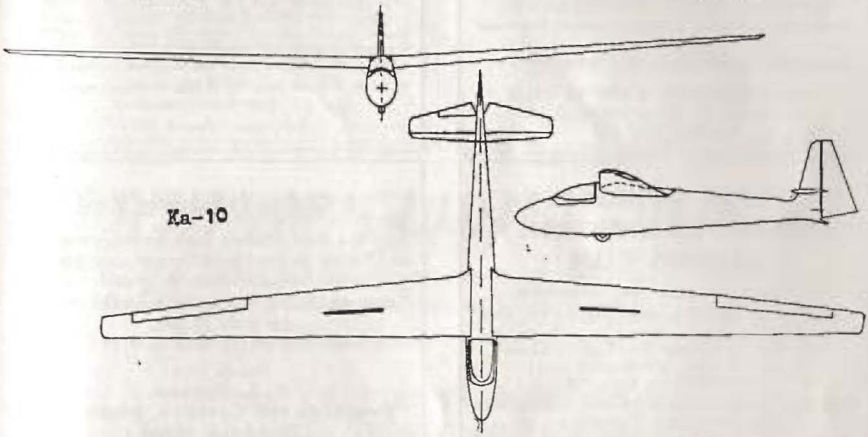
SOVIET UNION

THE line-up of the new Soviet gliding team has been determined following a special contest and last year's national and international meets. The 12-man team includes absolute champion glider pilot of the U.S.S.R. Iosas Yarushavichus, twice champion of the country Alexei Durnov, national record-holder Mikhail Veretennikov, and others. Leonid Petryanov has been appointed coach.—*Soviet Information Service.* (The "international meet" referred to is a contest between teams from Eastern European countries.—ED.)

for the 300-km. and 500-km. triangles. The 500th Ka-6, the most-flown sailplane type in the world, has been delivered. HANS GRAWE

The 15-metre Ka-10 is an improved version of the Ka-6. The principal changes are:—

The elevator is shifted somewhat forwards and upwards. The rudder and fin are somewhat longer, giving a better aspect ratio. The wing is placed somewhat lower. The canopy is somewhat longer. Rigging is quicker. The whole machine is more robust. Above all, new wing sections designed by F. X. Wortmann, with the lowest possible drag coefficient and highest possible maximum lift coefficient, have been used; and the leading-edge ply has been thickened to 2.5 mm. and extends back over 65% of the wing chord, to give greater accuracy and extend the laminar-flow region. — *Flug Revue.*



WEST GERMANY

HEINZ Huth, twice World Champion in the Standard Class, has been elected to 12th place among all Germany's sportsmen by Germany's sports journalists, and to 8th place by readers of the leading Bavarian newspaper *Münchner Merkur.* First places in these elections were taken by a swimmer and a skating pair respectively.

Rudolf Kaiser's newest design, the Ka-10, has been delivered to Hans Böttcher, who holds the German records

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