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April — May 1965 3s 6d





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Assistant Editor and Production Manager: Rika Harwood

Club News Editor: Yvonne Bonham

Advertisement Manager: Peggy Mieville

Committee: Philip Wills Chairman, G. Harwood, W. Kahn, M. Bird

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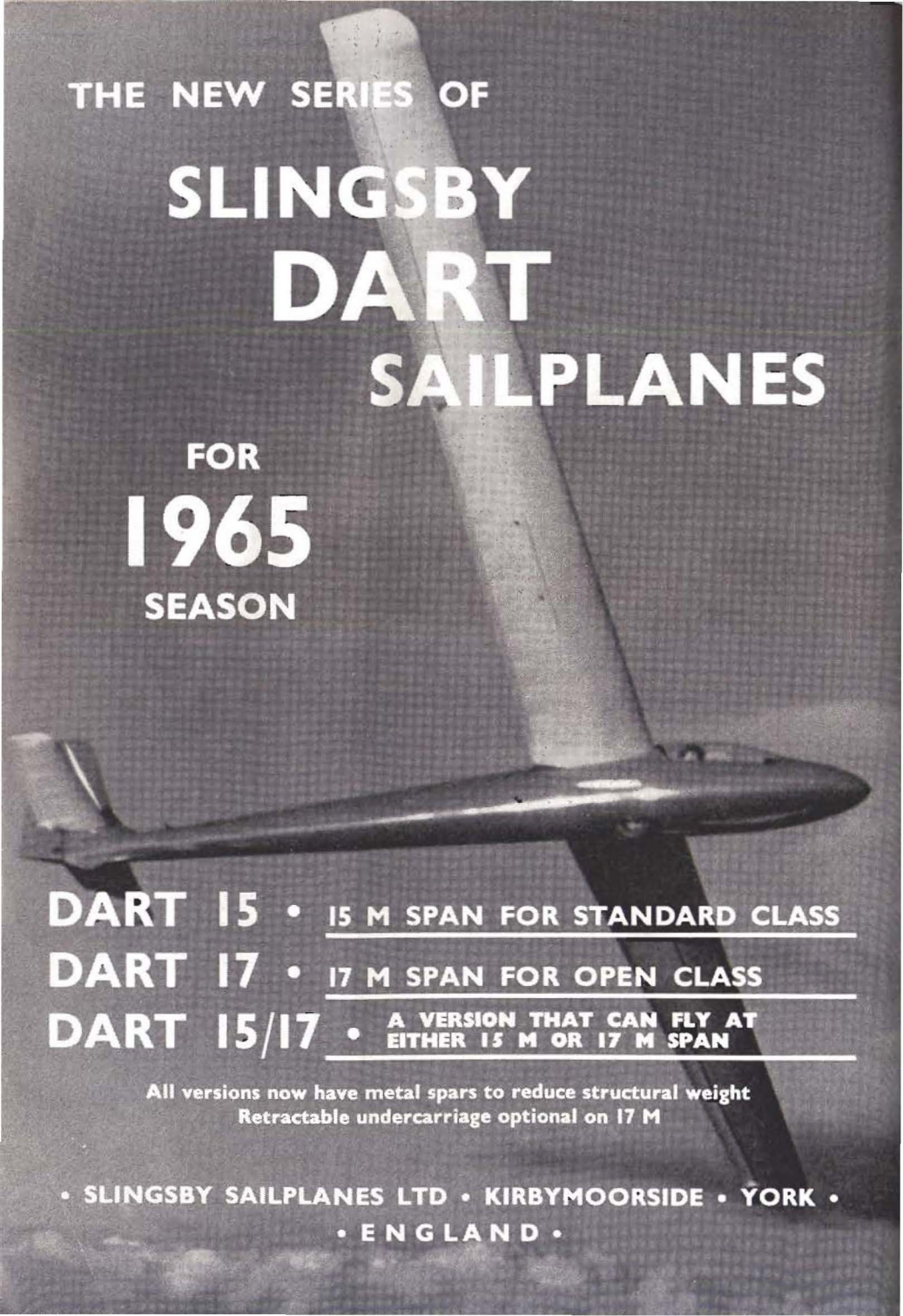
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Cover photograph: "Alex" Aldott flying the Prue Super Standard over Texas. *Photographed by Dita Aldott (All rights reserved).*

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CHAIRMAN'S REPORT ON 1964

1964 has marked a steady advance in our movement, but its main feature has been one of preparation for the gigantic task of organising the 1965 World Gliding Championships at R.A.F. South Cerney from 29th May to 13th June next.

A report from the Chairman of the Organising Committee follows, so here I would only like to express my admiration and gratitude to all concerned, both in the civil and service side of the movement, for the efficiency and enthusiasm with which they are pursuing this enormous task. We shall be hosts to the entire world of gliding at what will be the largest international sporting flying meeting the world has ever seen — the best scientists, the best pilots and the most advanced aircraft and equipment of upward of thirty nations will be at South Cerney, and amongst other things we shall be bringing much foreign currency into the country. This has been primed by an exceptionally generous donation from private enterprise — for the financial assistance from Messrs. W. D. & H. O. Wills enabled us to reduce the entry fees to a level which has undoubtedly increased the number of entries we have received.

For three weeks our guests from upward of thirty nations will be flying over and motoring around the length and breadth of our country, and meeting a cross-section of the entire population. It is up to us all to ensure that they will carry with them back to their countries a picture of a progressive, kindly people. So one of our main tasks is in the field of Public Relations, so that, if a Cornish farmer suddenly meets a Russian pilot, or a Yorkshire miner is asked for help by an Argentinian, both will know what it is all about, and realise that they may for ever after be thought of as the typical Englishman.

Coming back to 1964, a most important development is the increasing financial assistance we are receiving from the Department of Education and Science. This is described in more detail in the report from the Chairman of the Development Committee which follows, which has done splendid work and to which I would draw particular attention.

In many countries wise government is showing a realisation that, with the spread of automation and increasing leisure, it is vital to support those sports which give expression to the more creative and positive sides of the human character. In this aspect, the sport of gliding is surely pre-eminent, for more than any other does it encourage initiative, enterprise, inventiveness, and many admirable scientific and social qualities.

In this connection, the latest ruling by the Revenue in relation to the Shaw Slingsby Trust, which means that it will no longer be able to give financial support to gliding clubs, surely indicates that the existing law regarding Charities requires revision. If the State considers it desirable to support, from Public funds, creative and educational sports such as gliding, surely it should encourage support from private sources also.

Perhaps the most permanent monuments to the Trust will be the Coventry Club's new airfield at Husbands Bosworth, the Yorkshire Club's beautiful new Clubhouse at Sutton Bank, and the new Clubhouse and hangar at Lasham, although many other developments elsewhere will not, I am certain, be forgotten.

In the meantime, the sterling assistance of the S.B.A.C. Loan Fund continues. Since it was created in 1961 the Fund has approved forty loans to gliding clubs and syndicates to a total of £37,090. Of this substantial sum, £22,920 remains for repayment by the borrowers. The loans, repayable over extended periods with low rate of interest, have helped several clubs with site development and replacement of obsolete operational equipment while others have been able to add to their fleet to meet expanding activities, as well as to replace old gliders with new with the aid of loans. The Fund has thus made a big contribution to the modernisation and progress of the gliding clubs.

After eighteen years as Secretary, first with the Kemsley Flying Trust, then

of the S.B.A.C. Fund, Basil Meads is retiring in March, and though, of course, he will go on for many years helping the gliding movement in other capacities, you will not want me to let this moment pass without expressing, on behalf of all of us, our grateful thanks to him. That the financial assistance we have received has been so wisely applied is due to his clear understanding of, and sympathy with, us and our affairs.

Finally, to complete this extraordinary picture of Snakes and Ladders, the Treasury has announced the withdrawal of the Petrol Rebate scheme, which, by permitting a partial reduction of tax on petrol used for private flying and gliding, undoubtedly increased the rate of expansion of the movement. It is important to stress that this scheme was not a subsidy, but a partial reduction of tax, and the facts show that the amount of flying increased so rapidly after it came into effect that the total revenue paid to the Treasury was substantially increased.

This year the support we have gained from the Department of Education and Science is just about equal to what we shall lose from the cessation of the petrol rebate and the frustration of the Shaw Slingsby Trust. Public funds have been provided, private funds driven away.

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:
P. Minton.

TECHNICAL COMMITTEE:
F. G. Irving.

WORLD CHAMPIONSHIPS ORGANISING COMMITTEE:
Ann Welch.

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.

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

OSTIV REPRESENTATIVE:
A. H. Yates.

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

SITES COMMITTEE:
A. L. L. Alexander.

WORLD GLIDING CHAMPIONSHIPS PUBLIC RELATIONS OFFICER:
Caroline McQuade.

Finance

To be able to record a small surplus in the 1964 accounts is pleasing. This has been possible because of cost savings in most of the routine items of administration expenses and by the cumulative effect of small but welcome increased incomes from almost all of the revenue bearing facilities provided by the Association, together sufficient to cover the inevitable deficit in the operation of the Coach and Capstan. Worthy of particular note is the substantial increase in the subscription value of *Sailplane and Gliding*.

The expenses of the appointment of the Chief Technical Officer are part-way met by a substantial contribution by Grant afforded by the Department of Education and Science, and it is hoped that by an increase in the charges now made for technical services and in the belief that the demand for those services will continue to increase, the full cost will be covered. The impending increase in postal charges and foreseen increases on other costs are accounted for in the budget for 1965, and it is confidently anticipated that these will be absorbed

by the increased sales of publications and other sales receipts resulting from the upsurge of interest in gliding in the U.K., which must result from the World Championships.

Sales continue to increase while costs of administration are minimised. These are facts which make possible a successful financial year, and for which very great credit is due to the B.G.A.s competent staff.

Flying Committee

The Flying Committee's biggest task during the year was finalising, after much discussion and arguments, the rules for the new Rating List, followed by the task of sorting out the performances of over 450 pilots, and working out the figures for the 200 odd who finally appeared on that Rating List for 1965. However, the job seems to have been well worth while, as there have been far fewer adverse comments than on any previous occasion. In fact, there have been a few congratulations.

Other work consists of sorting out, examining and making recommendations to the Council for the following:

1. Annual Awards.
2. The "penalty system" for the National Competitions.
3. Changes in the Championship rules.

The Committee is also responsible for all claims for badges and records, some of which require careful and detailed examination in cases of doubt or when the claim is marginal.

Magazine Committee

The increasing work involved in the publication of our thriving journal made it necessary to increase our permanent staff by 100%. Rika Harwood is now assisted by Miss Osborne, and "Doc." Slater, Editor for 33 years, must certainly feel that his life's work has not been in vain.

Membership

During the year the Devon and Somerset Club became a Full Member. At the end of the year the Crown Agents' Club amalgamated with the R.A.E. Club and will become part of the Civil Service Aviation Association (Cisavia).

Membership is now (1963 figures in brackets):

22 (21) Full Clubs.
28 (30) Associate Clubs.
3 (3) Overseas Associate Clubs.
148 (123) Private Owner Groups.
28 (40) Individual Members.

Operations (1963 figures in brackets):

Civilian Clubs flew a total of 33,121 hours (27,523) from club sites involving 170,535 launches (152,676).

Club owned gliders total 183 (179).
Privately-owned gliders total 206 (193).

The R.A.F.G.S.A. flew 9,822 hours (7,306), involving 62,058 launches (49,914), and the R.N.G.S.A. 1,494 hours (1,130) involving 9,623 launches (7,416).

Gliding Certificates were issued as follows:

A and B endorsements ...	788	(744)
C endorsements	452	(368)
Silver C complete	179	(137)
Gold C complete	20	(11)
Gold C distance	13	
Gold C height	19	
Diamond for goal	14	
Diamond for height ...	3	

Ostiv

In September, 1964, OSTIV held at its Research Centre at Varese, Italy, a course to assess the flying qualities of several standard class sailplanes. This was most successful and 10 sailplanes were evaluated. The results of the 1963 assessment of two-seater sailplanes have now been published. Further courses are planned.

The papers read at the 9th Congress at Junin, Argentina, are still being published in the OSTIV section of the *Swiss Aero Revue*, which Associate Members receive (28s. per annum to London Gliding Club, Dunstable Downs, Tring Road, Dunstable, Beds.) and plans are now nearing completion for the 10th Congress at R.A.F. South Cerney from 3rd to 12th June, 1965. It is hoped that we shall be well represented both in the papers presented and in the discussions which follow.

In 1954 while the championships were

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going on at Camphill, OSTIV met in Buxton. This time we are doing better; OSTIV and the championships will both be at South Cerney and we hope for an excellent Congress.

Sites Committee

The charming little aerodrome at Land's End is likely to come into use in the near future. Further east, however, the future of Dunkeswell is still uncertain, though it is hoped that on disposal the Devon and Somerset Club will be able to buy enough to make a viable permanent site.

The Committee has had an increasing number of legal problems to deal with, not least that of the monthly member who flies as a passenger with a club. It is most important that all clubs, especially new ones, acquaint themselves with the B.G.A. circulars before they operate and apply for exemption in good time from the legislation relating to carriage by air.

Secretariat

Our Secretariat has always been one to be proud of, but this year has excelled itself. The amount of work involved increases by geometrical progression, but the size of our Secretariat does not — they seem to be able to tackle their constantly increasing task by ever harder work and more efficient methods.

P. A. WILLS, *Chairman.*

O.S.T.I.V. NEWS

THE Board of OSTIV met in Zurich from 9th to 11th February under the chairmanship of L. A. de Lange.

CONGRESS AT SOUTH CERNEY.—The programme for the 10th Congress, announced in SAILPLANE & GLIDING for February, p. 11, has been slightly altered. The Official Opening is on Friday, 4th June, at 10.30 a.m. Technical Sessions take place that afternoon, on Saturday and Monday, and on Tuesday morning, 7th June, followed by joint Technical and Meteorological Sessions on Tuesday afternoon. The Excursion is on Wednesday, 9th. Meteorological Sessions are on Thursday and Friday, and the General Conference and Closing Party on Saturday, 12th June.

The Jury for the evaluation of the best Standard Class Sailplane entered for the OSTIV Competition will be presided over by Lorne Welch.

It was decided, for technical reasons, to postpone the meteorological course, originally proposed for autumn, 1965, at Varese, to May, 1966. Details will be fixed at South Cerney. (The course was announced in SAILPLANE & GLIDING last December, p. 492.)

The new OSTIV Publication VII will be available from the beginning of the Congress, where also other OSTIV Publications and "The World's Sailplanes" can be obtained.

OSTIV hopes that all those interested in the technical and scientific aspects of gliding will attend the Congress and contribute to the development of the work.

O·S·T·I·V·

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Individual Associate Membership of O.S.T.I.V. is open to gliding clubs, libraries and individuals.

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HOW TO VISIT THE WORLD GLIDING CHAMPIONSHIPS

AS the Championships approach, more and more people tell us that they will be coming. This is wonderful, but so that visitors can enjoy their time at South Cerney, with the least frustration to themselves or the competitors, the following information may be helpful.

Competitors will be accommodated and have their meals on the airfield, as will the helpers who have applied and are on the *official register*. It will *not* be possible to provide beds or regular meals to anyone else, except B.G.A. invited guests. This is not through unwillingness, but simply that accommodation and mess rooms are already full. Unrestricted numbers of people wanting to eat can do little except make life difficult for the competitors, who are our guests.

For those who wish to come and visit the Championships, either for a day or for a longer period, these are the arrangements.

1. CAMPING.—There will be a field opposite the airfield where people associated with the Championships, or who are members of gliding clubs, can put their own tents or caravans. On arrival they will have to produce evidence that they are connected with the Championships, or show their club membership card. The site charges will be £1 for a caravan, 10s. for a tent, and 5s. for a one-man tent, for a stay of any length between 22nd May and 13th June. The field will not be open outside these dates except for the siting of vans. To enter the airfield itself, campers must possess a Visitor's Badge. Campers must leave their cars on the camp site, or in the Public Enclosure, and *not* bring them on to the airfield.

2. VISITORS' BADGES.—Visitors' Badges will entitle the holder to enter the central operations area but not go inside the perimeter track without special permission. They are available only to people connected with gliding or their friends. Club membership cards, or equivalent evidence, should be carried. Badges will cost 2s. 6d. a day, or £1 for the period. A number of season ticket Badges will be supplied free in advance to gliding clubs, exhibitors and others. They cannot be bought from the B.G.A. office. Campers can buy them when checking in with the Camp Warden on arrival, or they can be obtained via the Public Enclosure after 29th May.

3. PUBLIC ENCLOSURE.—This will be open from 29th May-13th June. Entry charges will be 2s. 6d. for a day ticket, and £1 for a season ticket. Gliding people turning up for the day who do not possess a Visitor's Badge must enter through the public enclosure, and then go to the Transfer desk, where they will be provided with a free one, and shown through to the Central Area. Their cars must remain in the public enclosure.

4. VISITORS BY AIR.—Visitors flying in, whether by powered aircraft or glider, must telephone South Cerney Tower (Cirencester 502) beforehand for permission to land. This will not normally be given between 09.00 and 18.00 hours. Immediately on arrival they must book in at the Tower and buy Visitors' Badges at 2s. 6d. each. There will be no landing fee. R.A.F. Kemble (Cirencester 650) will be available p.p.o. Monday to Friday for pilots coming to the Championships who are not permitted to land at South Cerney.

5. In the public enclosure and central

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area it will be possible to buy snacks and refreshments, but there will not be a restaurant. There will be a shop for campers.

Gliding people who wish to camp at the Championships are asked to inform the B.G.A. in advance so that a place can be reserved for them. If they wish to help, they should apply to the B.G.A. without delay, as there are now practically no jobs left unfilled. It will not be possible to arrange jobs for people turning up at weekends; and those without Official, Guest or Visitor badges will not be allowed in the central operations area. Gliding visitors are asked, if possible, to avoid coming early in the practice week, as not only the competitors, but the organisation itself is settling in.

Hotel accommodation can be arranged through Thos. Cook, Berkeley Square, London, W.1., who are in touch with local hotels.

ANN WELCH

Acknowledgments.—The following further donations and offers of equipment are gratefully acknowledged:—

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FLYING IN ENGLAND

By DEREK PIGGOTT

I have been invited to write a few notes for the help of those pilots visiting England for the first time.

The most striking and interesting feature about flying over this country is the great variation in both the countryside below and the soaring conditions which occur in the course of any long flight.

The Weather

Besides the possibilities of rather rapid changes in the general weather situation and the local effects of the clouds over-developing and causing a temporary lull in the soaring conditions, it is necessary to bear in mind the probable influence of the coastlines and the effects of sea breezes.

If the prevailing wind is blowing from the sea, the soaring conditions within 30 miles of the coast are usually poor with a low cloud base, and only weak thermals. On these days, gradual improvement occurs towards mid-day, but then the sea breeze begins to blow and this reinforces the prevailing wind and brings cooler and more stable air inland. Fortunately there is generally a marked improvement in the thermal strength and cloud base further inland, and after a difficult start in conditions which look almost hopeless, very long flights are frequently made.

Helpful sea-breeze effects usually occur when the general wind is blowing off-shore or has a slight off-shore component. However, they are only useful if they are recognised or if they lie along the path of the flight. It is very easy to fly through the front into the sea air without realising what has happened. This usually ends the flight.

When there is no cloud, the sea air can often be detected by the marked and sudden drop in the visibility and by indications on the ground of the change in wind direction and strength. Sometimes the boundary of the sea air can be clearly seen as a bank of haze against the sunlight and then it can be treated like a hillside for slope-soaring.

The line of the front(s) is usually marked by the much lower cloud base and the characteristic wispy appearance of the cloud. Often the lift is too narrow for circling but it is possible to cruise along the lift at high speed.

Although the sea-breeze front may be some miles out to sea if the prevailing off-shore wind is strong, on most days it moves slowly inland during the afternoon. Distance flights towards a coastline (for example South Cerney to Great Yarmouth), or in particular along peninsulas like Cornwall or Kent, may, therefore, be stopped by the sea-breeze front. On these occasions the distance covered will depend almost entirely on how far the sea air has had time to advance before the glider reaches it. Useful lift may be found at the sea-breeze front up to dark, particularly if the air is moist enough to form a cloud street along it.

Flying from South Cerney, a sea-breeze effect may move up the River Severn valley eastwards, so that, towards the evening, a final glide back to the airfield from the east will be against an unexpectedly strong headwind.

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Soaring Conditions

On most good days in May, the thermals would start about 10 a.m., and become strong enough for continuous soaring by about 11 a.m. The base of the cumulus rises from about 2,000 feet at first to about 3,500 feet by mid-day. Conditions may continue to improve until about 4.30 p.m. The cloud base may reach 4,500 or 5,000 feet. Usually a gradual deterioration sets in, until by 6.30 or 7 p.m., there are very few, if any, thermals left.

Over hills and in the lee of the mountain areas, wave lift is common and there are many small ridges and slopes which can be used for slope-soaring if the thermal conditions let you down.

Poor conditions are frequently to be found in the lee of the large industrial cities like Birmingham and Sheffield, where the smoke reduces the visibility and cuts off the sun's heating. Otherwise the conditions are much as you would expect anywhere in the world, poor in the damp low-lying areas and river valleys, and best over well-drained, high ground.

Field Landings

Pilots coming from countries where the winds are always light will need to pay much more attention to the wind strength and direction for field landings.

Most of our fields are too small to allow for a safe downwind landing, and since the winds may vary considerably during a flight, it is not good enough just to remember the wind direction at take-off. In particular, the wind direction may be completely reversed at the sea-breeze front or near larger cumulus or cumulo-nimbus clouds. Of course, approach speeds need to be considerably faster landing against a strong wind to allow for the effects of the wind gradient.

It is impossible to generalise about the size and suitability of the fields for landings. Most of the country is not flat, and special care is essential to assess the slope of the ground before selecting a field. It is vital not to attempt to land down even a slight slope. Slopes are easiest to detect by flying well to one side of the field to see the whole lie of the land. Any slope which is obvious from directly above is probably dangerously steep for any landing. Large numbers of small fields are usually an indication of rough or hilly ground.

(Further advice on landing in fields in this country is included in both my own book, "Gliding", and in "The Soaring Pilot", by A. and L. Welch and F. G. Irving.)

At the time of the Championships, the main cereal crops should be about 10-18 inches high (25-46 cm.). Although landing in growing crops should be avoided, there is not likely to be serious damage to either the crop or the glider if a landing has to be made. Usually there are plenty of grass fields where no damage or inconvenience will be caused by your landing.

Most farms have several grass fields for their cattle and it is wise to avoid landing in a field with animals in it. English animals behave quite normally. Cows eat wing-tips and tails, horses panic, and sheep always manage to be in the way for a landing. Look very carefully for signs of electric fencing, which can cause considerable damage to a glider. Sometimes the line of a fence can be detected by the difference in the colour of the grass where the cattle have fed, but since these fences usually consist of thin steel posts and

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a single strand of wire, they are very difficult to see until the final stages of the approach. Many of the grass fields are cut for hay at this time of year and these can be easily identified from the air by the streaky lines of hay left in the sun to dry. They are good landing areas.

There are very very few fields which do not have some proper form of gate and access to a road, so the choice of a field is seldom dictated by retrieving problems. Almost all English roads have telephone or light power wires along them, creating a high obstruction on the approach, and in many parts of the country these cables run across fields and are difficult to see from the air.

Another rather unique hazard is "ridge and furrow". This is a relic of mediaeval times when the land was farmed in narrow strips with ditches in between. These fields have a series of smooth undulations pitched about 20 feet apart and about 2 feet high. Particularly, if the grass or crop is long, the ridges may be almost invisible until the final approach, and a safe landing can be made only along the line of the ridges.

There are large numbers of deserted and disused airfields which are no longer marked on the air maps. These can be very confusing for map-reading, particularly when flying over the Midlands and Eastern England. In many cases these airfields have long runways which may be obstructed with fences or ditches. It is unwise to make a landing on them without taking a careful look at the chosen area first.

British Gliders

The types of gliders on loan to competitors are perfectly straightforward to fly in all respects. Most of them will have British instruments, and these are calibrated in knots for airspeed and feet for height.

The stalling speeds of the Skylark 2, 3 and 4 and the Olympia 463 are between 30 and 33 knots, and this gives a comfortable circling speed of between 38 and 45 knots. There is a clear stall-warning buffet and no vicious tendency to drop a wing at the stall.

However, they all have very powerful airbrakes and, if you have been used to spoilers, you will need to take care to maintain ample speed for the approach, particularly in a high wind. A minimum of 50 knots is needed in all these types of glider in a light wind, and at least 55 knots if the wind is more than about 15 knots.

The handling and performance characteristics of the Olympia 463 are rather similar to the Ka-6. Care is needed taking off and landing in crosswinds because the wheel is well forward and there is a tendency for the glider to swing into wind.

All these gliders are Semi-Aerobatic Category and are cleared for cloud flying and spinning.

None of these gliders is equipped for Static-line Parachutes.

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WORLD OUT-AND-RETURN

Omarama—Dillon Cone and Back—460 miles

By S. H. GEORGESON

The following account of the longest wave flight yet carried out in a glider brings out vividly two points especially worthy of note. The first is the extremely specialised knowledge needed, not only of wave flying, but of the particular wave-system which the pilot is using. The second point is the invaluable use of radio, not only between the pilot and the ground, but also between him and other pilots flying the same system on the same day. Without in the least detracting from Dick Georgeson's extraordinary feat, he would I am sure agree that his success was a truly co-operative one, and the skill and encouragement of several others both in the air and on the ground was an essential part of it.—PHILIP WILLS.

ON the night of 5th January the weather forecast appeared to offer promise for the 6th, and with this in mind, five pilots prepared themselves and their aircraft for the following day. Eric Meredith in Skylark 3F, Errol Carr in Skylark 2, Geoff Ferner in Sagitta, were trying for declared Gold Distance. Bruce Gillies had at the back of his mind an out-and-return flight of 360 miles, but was down country back at his office in Oamaru, and for the moment was out of the running, and myself 460-mile out-and-return with the hope of securing a World Record.

The next day the forecast was for westerly conditions prevailing over the whole country and as far north as Gisborne, but with a cold front approaching North Otago late afternoon from the south-west.

The plan for Bruce and myself (if the cold front was to arrive in daylight) was to abandon our turning-points and try for free distance, which, if we reached the East Cape beyond Gisborne, would give us a World Distance Record by a very small margin. After my poor decision-making at the New Zealand Championships at Masterton, I began to wonder if I could ever make correct decisions again, and when I took off at 10 o'clock I made a mental note that each move must be considered carefully before it was executed, and I think this action saved the day for me. The Dart was fully laden to maximum permissible weight, with two cylinders of oxygen, food and water, sleeping bag, and warm clothing to cover an emergency should one be forced down in inhospitable country.

Since taking delivery of my Dart in September, I had completed nearly 100 hours' flying, so felt completely at home in the aircraft.



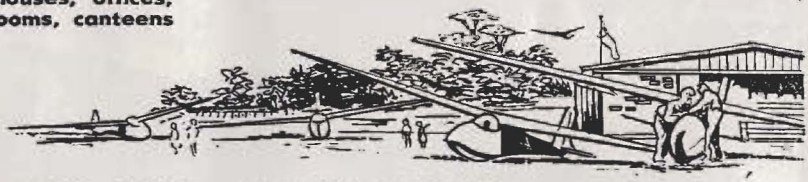
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Our club Piper towed me to the Lindis Road turn-off about 10 miles west of the camp, where I released at 3,500 ft. above the field. This tow west would give me a few more extra miles in the event of trying for free distance, but put me in a tricky position to catch the wave. An hour and 20 minutes after release the wave was reached just as the valley became filled with cloud. Errol Carr, who had been towed off to the same place, managed to get clear and was also on his way. The Omarama Basin was rapidly filling up with cloud, but on calling up over the radio for a witness, club members were able to see me pass over the field at 12,000 ft.

About this time. Bruce Gillies was seen to arrive, immaculately dressed from his office and looking completely out of place in the dust and heat of Omarama. His Skylark 4 was dragged through the creek at such speed as to produce a bow wave. With shaking hands he was observed to take his official photographs and within a few minutes was piled in his glider, complete with cameras, food, sleeping bag, emergency rations and heavy, warm clothing, and as he shut his canopy he shouted: "Drag me into wave . . . !" and was launched. It was a great morale boost from my point of view to have Bruce in the party. Being an expert mountaineer and with terrific knowledge of westerly weather, his radio comments would be invaluable to us all.

The next half hour found five sailplanes in the area between Benmore and Lake Tekapo, but with Bruce Gillies further to the west and a bit further north. Lenticulars were producing about 4/8 cloud cover, and the rate of climb was not as high or as broad as normally expected in good wave conditions, and this feature lasted throughout the day.

Eric Meredith and myself met each other for a few minutes and then lost each other and again met over Tekapo, and this time we lost each other for good.

At about 12.30 Bruce Gillies announced over the radio that he was leaving the western area near Mount Cook (which was now almost 8/8 cloud cover) and coming back down wind. At this stage I was over the Two Thumbs and suddenly saw, 1,000 ft. below, a blue sailplane, which I recognised to be Bruce. It is amazing how one meets gliders for a few seconds in the remoteness and vastness of the mountain and wave panorama. Here we agreed that the correct thing to do was to build up as

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Leaving the last of the big lenticulars: 19.00 *hrs. and* 50 *miles to go.*

much height as possible. Bruce decided to keep to his western track inland and I push down-wind and try and work the Nor'-West Arch itself, which I could see running up the Canterbury Plains for probably 150 miles. Eric Meredith had reached 20,000 ft., which I estimated the lowest height needed to contact the Nor'-West Arch itself. Errol Carr was coming along quietly and steadily, but Geoff Ferner — our wonderful camp doctor — was having trouble in getting sufficient altitude — probably through the narrowness of the wave.

An hour later found us all creeping north, Bruce still to the west and myself at 18,000 ft. over the Ashburton River. Progress was disappointingly slow and it looked as though the distance attempt would be out. 14.40 found me at the Balmoral Forest, Bruce's turning point. The radio chatter showed that Errol Carr was making good progress and felt he would reach his goal and that Eric Meredith had lost contact with the wave and was going to have a struggle. Geoff Ferner, in the Sagitta "Charlie Whiskey", was no longer to be heard, which made us rather fear he may also have lost the wave and was probably down. Bruce was still to the west and getting ready to run in and take his turning-point photograph.

At 15.00 I was over Hanmer and preparing to make my run in to Dillon Cone and take the photograph. It appeared as though the Nor'-West Arch broke off and went out to sea and that the lenticulars between Hanmer and Blenheim were almost non-existent. I was now in radio range with the North Island boys, who were busy flying in the Wairarapa waves. They tried to persuade me to continue on, but my progress to date had been far too slow to have any hope of being able to try for the World Distance Record. Apart from this, there appeared to be a gap of 100 miles where conditions did not look particularly good, including the crossing

of Cook Strait. I therefore decided to gamble on being able to get back to Omarama before dark or before the cold front arrived.

I decided to climb to 25,000 ft. before making my run in. Here I remember saying to myself . . . "One mistake now and you will ruin the whole thing . . .", and it is just as well I did climb to this height, as it cost me 15,000 ft. to get myself into position, take the photograph and get re-established in the wave. These great heights don't really mean a thing in wave, as thousands of feet can be lost in a few moments. As a reminder of this, I heard Eric's comments over the radio that he was hill-soaring at about 500 ft. about 10 miles south of his goal, having lost his whole 18,000 ft. some 30 miles south of his goal. It was most exciting hearing of his struggle, thinking he had lost his goal and declared distance, when he suddenly caught a thermal and realised he was going to make it.

Errol Carr in the little Skylark 2 had flown carefully and steadily the whole way and arrived about 10 minutes earlier than Eric at his destination.

Having taken the photograph of Dillon Cone after an awful struggle with the camera and aircraft, I started trying to re-establish myself in the wave system. The country to the west was most inhospitable and therefore I chose to try and pick up lee waves to the south. Little wisps of cloud, which indicated wave, were not effective, and I had a horrible feeling I was going to have to land with Eric and Errol. However, after returning as far as Hanmer, I then proceeded west and over the cap cloud and obtained my first indication of lift at 10,000 ft. I was fortunate enough to recognise it as jumping wave and kept pressing forward. I eventually arrived about 15 miles west of Hanmer and was able to establish myself in good wave under a cirrus lenticular. By this time Bruce had photographed his turning-point and was 50 miles ahead of me on the way home.

After about an hour I was as far back as Lees Valley, but making very slow progress. Bruce had pressed well inland and arrived at the head of Lake Tekapo and he said he felt, given reasonable luck, he would get home, but was very

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worried about the approaching high cloud from the south-west. I, too, had seen this and felt that the front was going to reach Omarama before I could return. Phil Howell, who had been on the radio in Christchurch receiving all our messages and getting us cleared through the air lanes, rang the weather office, and our good forecasting friend, Ray Smith, advised that the cold front could reach Omarama by 18.00 hours. As the time was about 17.00 hours, I realised there was no hope of doing this and began to think I could consider abandoning the flight and landing at "Camla", Gerald Westenra's farm, and indulge in a few drinks and exciting yarns of gliding, which suddenly felt more desirable than sweating out where I was. However, Bruce and Phil would hear nothing of this and told me to keep it up. I had been on oxygen altogether for 6 hours and was beginning to feel that a cup of tea would go well. Anyway, I followed Phil's advice and kept pressing south.

Suddenly, away in the distance under the cloud, I could see dimly the profile of Burke's Pass and, away beyond, the sun was shining through a gap in the cloud which reflected the new lake of Benmore produced by the Benmore Hydro-Electric Scheme. This gave me a terrific thrill, as it was only about 10 miles down wind from Omarama, and although it was still 80-odd miles away, it gave me hope and encouragement.

At this stage there were three paramount factors which absorbed my full attention. One was the approaching darkness, the second the approaching front and the third was the concentration on flying, which was devoted to the A.S.I., vario and altimeter. The procedure was to try and guess where lee waves would lie and then, by altering course slightly into wind, try and increase the lift, and if this didn't work, alter course to allow the aircraft to drift back into where one imagined the wave was lying. This gave a snake-like course, but for a number of hours helped to reduce sink from time to time and allow one to keep pressing forward. During the last 1¼ hours of the flight I had to abandon this technique and resort to climbing when one found good lift and then pressing off at 80-90-100 knots to the next anticipated wave.

At 19.00 hours Bruce called up to say he was over the airfield at Omarama, and that although there was extensive cloud, I had every chance of getting in, and to keep it up, as the front had not yet reached the field. By this time I was creeping across the Fairlie Basin and getting desperate, owing to the slow speed. It was here that I concentrated on the climbing and diving technique.

The excitment of the flight was reaching a peak and I noted in my flight log that the "strain was hell". The sky looked reasonable, but the approaching front and darkness were giving me concern as the forward speed was inadequate. However, climbing and diving improved the situation. I eventually arrived over Lake Benmore at 19.30 hours, managed to climb up the face of a lenticular and peer over the next wave into the Omarama Basin. I called Helen on the radio and she advised me that, although the Basin itself was 8/8 cloud,

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Photo taken by Dick Georgeson at 19.50 *hrs. over Lake Benmore. The final glide has started and the Omarama Basin can just be seen over the cloud to the left of the picture.*

there was a break in the clouds in front of the Benmore Range. I put the speed of the Dart up to 100 knots, sailed across the top of the next lenticular, but before reaching the hole, I sank into the cloud. I knew it was just a matter of time before I reached the gap and, sure enough, the road to Omarama showed up beneath. A few minutes later and I was over the field.

All the strain gone, I began to appreciate the thrill of having arrived and felt fit enough to indulge in some aerobatics. It is on these occasions, when a pilot is tired, that trouble can happen, and caution made me stop the spin earlier than I normally would have, which was just as well, as my clumsy flying boot got jammed under the rudder pedals and it just took a second or two to get the situation sorted out.

On landing, the whole camp turned out, complete with Bruce Gillies, and we really felt that we had done something worth while. As we put the wonderful little Dart into the trailer, darkness began to close in and the first few spots of rain began to fall.

Comparing this flight with the previous out-and-return record done in the Skylark 3F, it is interesting to note that, from the pilot-fatigue point of view, the last flight was by far the more comfortable. I was in the air 8 hours 45 minutes for the first flight and 10 hours 2 minutes for the Dart. On the first occasion I was completely exhausted, absolutely frozen stiff and barely able to walk. This occasion I was relatively fresh, was warm the whole flight, although the outside temperature at times was down to −32°C., and was physically in very good shape. The average speed for the first flight was 50 m.p.h. from crossing the starting line to landing, and on this occasion 55 miles per hour. Bruce Gillies in his Skylark 4 averaged 50 m.p.h. for the 360 miles. We both felt that the Dart was the machine for these conditions.

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1948, Switzerland, 7 contest days 37 entries, one class Won by SWEDEN Per-Axel Persson in Weihe	**1950, Sweden, 6 contest days** 29 entries, one class Won by SWEDEN Billy Nilsson in Weihe
1952, Spain, 5 contest days 39 Single-seaters won by GREAT BRITAIN Philip Wills in Sky 17 Two-seaters won by SPAIN Juez/Ara in Kranich	**1954, Great Britain, 4 contest days** 34 Single-seaters won by FRANCE G. Pierre in Breguet 901 9 Two-seaters won by YUGOSLAVIA Z. Rain/B. Komac in Kosava
1956, France, 6 contest days 45 Single-seaters won by U.S.A. Paul MacCready in Breguet 901 13 Two-seaters won by GREAT BRITAIN Nicholas Goodhart/F. Foster in T-42	**1958, Poland, 6 contest days** 37 Open class won by GERMANY E. Haase in HKS-3 24 Standard class won by POLAND Adam Witek in Mucha Standard
1960, Germany, 6 contest days 20 Open class won by ARGENTINA Rudolf Hossinger in Skylark 3 35 Standard class won by GERMANY Heinz Huth in Ka-6	**1963, Argentina, 7 contest days** 25 Open class won by POLAND Edward Makula in Zefir 38 Standard class won by GERMANY Heinz Huth in Ka-6

PLACINGS IN PREVIOUS WORLD CHAMPIONSHIPS

	Pilot	*Country*	1963	1960	1958	1956	1954	1952	1950	1948
1	Makula	Poland	1–O	2–O	5–O					
4	Harrold	Rhodesia	32–S	10–S						
5	Dommisse	South Africa	–	–	35–O	Ss–14				
6	Rodling	Sweden	18–S							
7	Nietlispach	Switzerland	19–O	–	–	Ss–8	Ts–4			
10	Johnson	U.S.A.	4–O	15–O	–	–	–	Ss–24		
12	Veretennikov	U.S.S.R.	–	–	26–O					
15	Hossinger	Argentina	5–O	1–O	33–O					
16	Reid	Australia	20–S							
18	Ulbing	Austria	12–O							
20	Stoufls	Belgium	27–S							
21	Yeates	Canada	9–S							
22	Webb	Canada	9–O							
23		Czechoslovakia								
24	Jensen	Denmark	14–O	7–O	–	–	Ss–18	Ts–12	16	
28	Weiss	France	–	–	21–S					
29	Spänig	Germany West	7–O							
30	Kuntz	Germany West	17–O							
31	Williamson	Great Britain	8–O							
32	Goodhart	Great Britain	11–O	4–O	2–O	Ts–1				
37	Bar	Israel	18–O	12–O	–	Ss–13	Ss–12			
38	Arber	Israel	28–S	25–S						
39	Vergani	Italy	24–S							
41	Ordelman	Netherlands	–	–	–	–	–	Ss–7		
42	Georgeson	New Zealand	–	–	–	Ss–34				
51	Huth	Germany West	1–S	1–S	3–S					
54	Deane-Drummond	Great Britain	15–S	13–O	7–O					
57	Filuppusson	Iceland	–	28–S						
60	Pronzati	Italy	16–O							
61	Brigliadori	Italy	4–S	21–S	–	Ts–11	Ss–32	Ss–29		
63	van Bree	Netherlands	31–S	20–S						
67	Johannessen	Norway	23–S	18–S						
69	Popiel	Poland	2–O	3–O						
72	Persson	Sweden	–	22–S	2–S	Ss–12	Ss–6	–	6	1
73	Silesmo	Sweden	–	26–S	14–S	Ss–30				
74	Ritzi	Switzerland	15–O							
76	Schreder	U.S.A.	3–O	16–O						
81	Stepanovic	Yugoslavia	–	–	8–S	Ts–2				
83	Rowe	Australia	20–O	20–O						
85	Wödl	Austria	5–S							
86	Fritz	Austria	8–S	9–S						
87	Cartigny	Belgium	16–S	–	–	–	Ss–25			
88	Baeke	Belgium	21–S							
90	Mix	Canada	21–S							
	Mestan	Czechoslovakia	–	–	3–O					
91	Marecek	Czechoslovakia	–	–	12–O					
92	Sejstrup	Denmark	10–S	4–S	17–S					
93	Braes	Denmark	22–S							
94	Horma	Finland	3–S							
95	Wiitanen	Finland	14–S							
96	Lacheny	France	2–S	19–S	–	Ss–27				
97	Henry	France	6–O							

O = Open class; S = Standard class; Ss = Single-seater; Ts = Two-seaters.
Only pilots who have flown before 1965 in World Championships have been listed; the first column gives the contest numbers for 1965.

NOTE.—Each country has the right to change any of its pilots before 29th May.

Table by Rika Harwood

PILOTS FLYING IN THE OPEN CLASS

1. Edward Makula, 35, Poland, Zefir 3.

1650 gliding hours since 1946, 7th 1964 nationals.

Makula is defending his title as Open class champion. He came to England in 1964 to crew in the British nationals for a Polish team. He has been a national record holder ten times and world record holder once. He has an engineering degree and teaches at a technical college. He also flies aeroplanes and helicopters.

2. Jan Wroblewski, 24, Poland, Zefir 3.

980 gliding hours since 1956, 3rd 1964 and 1st 1963 nationals. First entry.

Jan is one of the younger pilots to fly and has various national and world records to his credit. He studies at a Technical College.

3. Raymond P. Smith, 46, Rhodesia, Skylark 3F

250 gliding hours since 1960, 6th 1964 nationals. First entry.

He has one national record to his credit. He also instructs and is a power pilot. His interests include photography. Company Director.

4. E. Jim Harrold, 47, Rhodesia, Skylark 4.

750 gliding hours since 1937, 2nd 1964 nationals.

Jim came to England in 1960 before going on to the 1960 World Championships in Germany. He is an instructor and power pilot. His hobbies include hockey, tennis and shooting. Farmer.

5. E. "Boet" Domisse, South Africa, BJ-2.

Started gliding in 1937, 1st 1963/64 nationals.

Boet has held most South African records, and also two world records. He is a motor engineer. His hobbies include singing.

8. M. "Bomber" Jackson, 32, South Africa, Olympia 419.

200 gliding hours since 1950, 2nd 1963/4 nationals.

This is the pilot, as the legend goes, who earned his nickname during his training in the South African Air Force when he most embarrassingly and accidently dropped a bomb from his Harvard trainer to the great consternation of those who had to duck. He has one national and one world record to his credit; he also enjoys athletics.

6. Sture Rodling, 30, Sweden, PIK-16C.

550 gliding hours since 1955, 5th 1964 nationals. First entry.

Has two national records to his credit and is an aeronautical engineer.

7. Hans Nietlispach, 41, Switzerland, Skylark 4.

1,400 gliding hours since 1945, 2nd 1964 nationals, 1st Belgian nationals.

Hans is one of six pilots who also flew in England in 1954. He has been national champion several times and also has various national records to his credit. He is a Dentist.

9. Turkey. No details available.

10. Richard H. Johnson, 42, U.S.A., Skylark 4.

3,500 gliding hours since 1938, 1st Open 1963 and 1964 nationals.

"Dick" is a pre-war pilot and has more hours than anybody else. He has various national and world records to his credit. Has also designed and built his own gliders known as the RJ series. He is an aeronautical engineer and also enjoys hunting, boating and tennis.

11. A. Jimmy Smith, 41, U.S.A., Sisu-1 (modified).

1,500 gliding hours since 1937, 3rd 1964 nationals. First entry.

He came 1st in the 1961 nationals, is also a power pilot. Architect.

12. Mikhail Veretennikov, 36, U.S.S.R., A-15.

2,500 gliding hours since 1945, 3rd 1963 nationals.

Veretennikov will also act as team manager. He has five national and two world records to his credit. He is a keen radio amateur and full-time gliding instructor.

13. Vladimir I. Chuvikov, 35, U.S.S.R., KAI-19.

1,300 gliding hours since 1955, 2nd 1963 nationals. First entry.

He broke a world two-seater record during 1964, is also an instructor and is the pilot who tested the Discoplane which he wrote up for SAILPLANE AND GLIDING, February issue. He likes motor cycling and is a lathe operator.

14. Ciril Kriznar, Yugoslavia, Meteor.

No further details available.

15. Rolf Hossinger, 35, Argentina, Standard Austria SH.

690 gliding hours since 1945, 1st Open 1965 nationals.

Rolf was the 1960 World Champion Open class. National champion in 1961, 1964 and we have just heard that he also won this year's nationals. He has one national record to his credit and is an instructor and commercial pilot.

19. Rafael Frene, 36, Argentina, Standard Austria SH.

400 gliding hours since 1953, 3rd Standard 1965 nationals. First entry.

He came 2nd in a "selective contest", which we assume was held in order to choose the pilots for the world championships. Agricultural engineer.

16. Derek Reid, 44, Australia, Skylark 4.

1,000 gliding hours since 1946, 1st 1964 nationals. First entry.

He is an instructor and enjoys photography. He is a technical officer with the Commonwealth Scientific and Industrial Research Organisation.

17. John Blackwell, 33, Australia, Standard Austria.

400 gliding hours since 1958. First entry.

He has two national records to his credit. Is also an instructor and power pilot. Sports goods shop proprietor.

18. Franz Ulbing, 40, Austria, Ka-6.

950 gliding hours since 1939, equal 3rd 1964 nationals.

Has two national records to his credit. Also enjoys skiing. Businessman.

20. Henri Stouffs, 31, Belgium, Ka-6CR.

650 gliding hours since 1958.

Has one national record to his credit; he works for Sabena Airways and is also an instructor. He is a very keen aeromodeller and won the 1954 World Championships aerobatic class.

21. Charles M. Yeates, 38, Canada, 17-m. Dart.

850 gliding hours since 1951, 3rd 1964 and 1963 nationals.

Has two national records to his credit; also instructs and is a power pilot. He is a manufacturer operations manager.

22. David Webb, 35, Canada, Skylark 4.

800 gliding hours since 1956, 1st 1963 and 1964 nationals.

He has one national record to his credit. Is an instructor and power pilot; David is a Flight Test engineer.

23. Milan Svoboda, 31, Czechoslovakia, L-21 Spartak.

1,300 gliding hours since 1951, 5th 1964 nationals. First entry.

Has three national records to his credit, he is an instructor and power pilot and has entered national competitions five times. Also flew in Poland in 1962 finishing 9th. Works-technician.

24. Harald W. Jensen, 48, Denmark. (Glider not known.)

1,500 gliding hours since 1934.

"Cowboy" is also one of the pilots who flew in England in 1954; this will be the sixth time he has been entered. He has various national records to his credit, and is a manufacturer of stainless steel sinks.

25. Ejvind E. Nielsen, 53, Denmark, Vasama.

630 gliding hours since 1947, 3rd 1964 nationals. First entry.

Has not yet completed his Gold C, is an instructor, two of his family will be crewing for him. Cinema owner.

26. Seppo Hamalainen, 29, Finland, Skylark 4.

350 gliding hours since 1953, 3rd 1964 nationals. First entry.

Works as an aircraft inspector. No further details available.

27. Jean-Pierre Cartry, 26, France, Edelweiss.

1,250 gliding hours since 1955, 5th 1964 nationals. First entry.
He has one national record to his credit; is also a power pilot. Engineer.

28. Jean-Paul Weiss, 34, France, Edelweiss.

1,800 gliding hours since 1947, 5th in his last nationals.
Has a two-seater height record to his credit and is an instructor and a professional pilot.

29. Rolf Spänig, 28, Germany West, D-36.

1,100 gliding hours since 1954, 2nd 1964 and 1st Italian nationals.

He has various national records to his credit. Student.

30. Rolf Kuntz, 38, Germany West, HKS-3.

850 gliding hours since 1943, 4th 1964 nationals.

Has various national records to his credit is an instructor and power pilot. Engineer.

31. John Williamson, 36, Great Britain, Olympia 419.

1,300 gliding hours since 1948, 17th League 1, 2nd Standard 1964 nationals.

John was reserve pilot in 1958 in Poland, and was 1st in the 1961 nationals. He does a tremendous amount of instructing and has various national records to his credit. He is a Flight Lieutenant in the Royal Air Force.

32. Nicholas Goodhart, 45, Great Britain, 17m Dart.

600 gliding hours since 1938, 1st 1962 nationals.

Nicholas did not compete in 1963 or 1964 in our nationals, but he will be flying for the fifth time in World Championships. He and Frank Foster won the World Championships two-seater class in France in 1956. He has various national records to his credit. He is a Captain in the Royal Navy.

33. Kornel Thuri, Hungary. No further details available.

34. Gyorgi Petroczy, Hungary.

He was 1st in the 1964 Eastern European Competitions, and came 9th in the Polish nationals.

35. N. W. "Paddy" Kearon, 52, Ireland, Olympia 419.

1,200 gliding hours since 1954, 12th League 1, 1964 nationals. First entry.

This is the first time Ireland has entered for World Championships. Paddy was a runner in his young days and ran in international events for Ireland. He is an experienced competition pilot, also instructs and is an Air Commodore in the Royal Air Force.

36. Michael Slazenger, 24, Ireland, Olympia 419.

135 gliding hours since 1959. First entry.

Mike has not yet completed his Gold C. He is interested in most outdoor sports, is also an instructor and power pilot. Medical Student.

37. Menahem Bar, 38, Israel, Skylark 3F or HP-9.

1,075 gliding hours since 1940.

This pilot will be flying for the fifth time in World Championships; his first appearance was in England in 1954. He is also an instructor and power pilot. He is a Lieut.-Colonel in the Army.

38. Daniel Arber, 35, Israel, Skylark 4.

900 gliding hours since 1953.

This championships Daniel is changing from the Standard to the Open class. He has one national record to his credit, is also an instructor and is an airline Captain flying Boeing 707s.

39. Walter Vergani, 36, Italy, Skylark 4.

850 gliding hours since 1954, 2nd 1964 nationals.

Vergani is also changing from the Standard to the Open class. He is a skins merchant.

40. Fiorenzo Lamera, 39, Italy, M-100S.

800 gliding hours since 1959, 6th 1964 nationals. First entry.

His hobbies include skiing and skin-diving.

41. Gerrit Jan Ordelman, 53, Netherlands, Sagitta.

660 gliding hours since 1936, 4th 1964 nationals.

This pilot was entered after the reduction in the entry fee became known. He flew his last World Championships in Spain in 1952. He has various national records to his credit, also instructs and is a power pilot. He enjoys bridge and chess. Director of industrial clothing factory.

42. S. H. "Dick" Georgeson, New Zealand, Skylark 4.

9th 1964 nationals.

Dick has held most New Zealand records and various world records. In January he broke the goal-and-return world record with a flight of 460 miles in a Dart which he had built from kit. (see page 101).

43. Gerald Westenra, New Zealand, Skylark 3.

5th 1964 nationals. No further details available..

NOTE: We hope to give similar details of the Standard Class pilots in the next issue.

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FLYING FOR SPEED

By IAN STRACHAN, Fenland Gliding Club

This article is composed of extracts from a lecture given at the Kronfeld Club

THERE are many British pilots of wider competition experience than myself who are greater authorities on this subject. However, the following techniques that are known to most League 1 pilots may also prove interesting to others.

PRE-FLIGHT PLANNING.—Estimate the time needed to complete the task and decide on the best start time. Take off 30-45 minutes before this (if you can). Any longer may make you fatigued at the end of the flight, and any shorter will not allow adequate time to assess the thermal conditions before starting. For short tasks in good weather, do not cross the start line too early (unless you wish to go round twice). Make doubly sure that your barograph is on, or you may be sorry later if you do a fast time. The "half million" map is usually adequate for cruising flight, but the "quarter million" is often useful for turning-points and final glide. Mark 5-mile radii from the goal up to a maximum of 30 miles. The heights of turning points and goal a.s.l. should be noted on your maps or knee pad.

THE START LINE.—Cross in a straight line from the "gate", at 3,200 ft. a.g.l. and at the maximum rough-air speed for the glider. Make a note of the exact time on your knee pad. Try and arrange the crossing so that you can enter a strong thermal reasonably soon afterwards — this being especially valuable in short races. If possible, let some of the field cross first in order to mark lift ahead of you, this being of even greater advantage in dry thermal conditions.

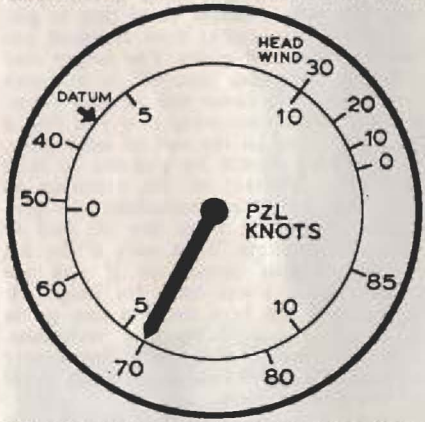
THE CROSS-COUNTRY.—The most important single factor is the average strength of thermal used throughout the flight. Even on a good day there will be weak lift about, but it must be rejected unless you are in danger of landing. *It is vital to use only the strongest thermals, extracting the maximum rate of climb from each, and leaving as soon as the lift weakens.* Use only the height band which gives the best rate of climb. It will often not pay to use cloud because even the best pilot's flying suffers a bit "on instruments", and there are always the problems of navigation and icing. After a while, when you have the measure of conditions along your route, you should be quite ruthlessly rejecting all thermals which do not come close to the maximum lift found earlier.

The glides between thermals are also most important. Use long glides spanning the whole height band that is giving strong lift, rather than frequent but small climbs and glides. *The longer that you can discipline yourself to fly with wings level, the faster will be your cross-country speed, assuming that you find a strong thermal at the end of each glide.* Your glides should be planned to take you through areas of lift, reducing to min. sink speed or thereabouts to gain maximum benefit from the lift and to assess its strength. Turn only if the lift is exceptionally strong, or if you are nearing your lower limit for height. It is amazing just how far you can go in a straight glide using this technique. Thermal streets also help immensely and should be flown with wings level unless you are low.

Make sure, however, that you do not go too far off track. *A good general rule is not to go for lift that is more than* 30° *from the planned route.* It is obvious that navigation has to be good and that you should stick closely to track, except perhaps on a long leg where up to five miles would not matter very much as long as the lift was better in that area. Sometimes it pays to use a glide calculator and plan to arrive at a known thermal source (e.g. a town) at, say, 1,000 ft. a.g.l. This technique can work well in dry thermal conditions and also in crossing soggy valleys and other dead areas. "Gaggling" is a phenomenon that occurs quite often when lift is dry or weak, or if the task is short. Although thermalling in a crowded gaggle can be inconvenient, the next one or two groups can often be seen ahead and so one can leave early

and perhaps by-pass one and go on to the next, thus saving time.

Another major factor is the speed flown between thermals. It is well known that for maximum overall cross-country speed there is a definite OPTIMUM speed to fly between thermals which depends on the previous thermal's AVERAGE strength, and the downdraughts encountered on the glide. *It certainly pays to fly within five knots or so of this speed, and by far the best way is to follow a setting on a "Speed-To-Fly" ring* mounted on the outside of a linearly scaled Horn or PZL variometer. The speed to fly at any given time is read on the ring opposite the value of sink at that time.



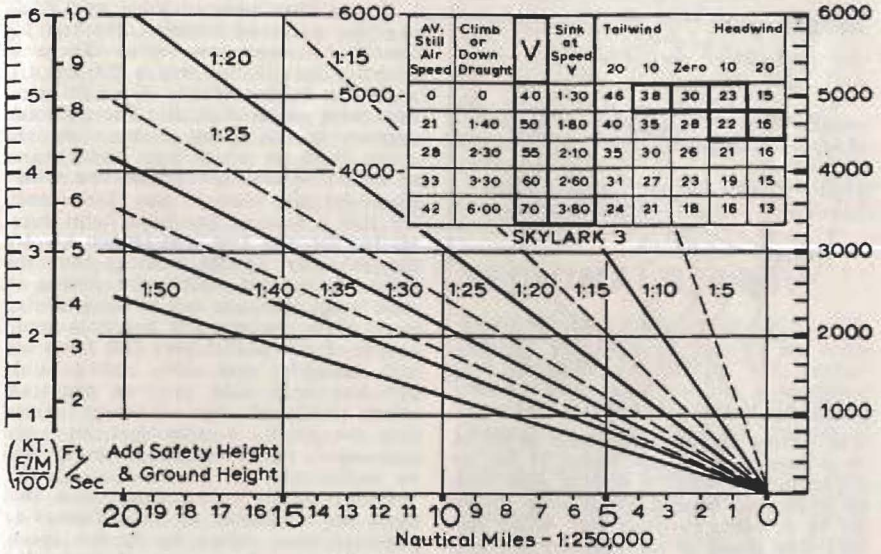
This Speed-to-fly rtng is set for either *a 3-kt. (300 f./m.) thermal (for best cross-country speed)* or *a 30-kt. head-wind component (for best range). The best speed for either of these conditions, allowing for the prevailing sink, is 70 kt.*

The datum arrow should be rotated clockwise until it is set on the previous thermal's strength (include time lost in centring). This will give a high inter-thermal speed which will correspond to the lift value to which the ring is set. It is prudent to reduce this setting as the ground comes closer. For example, if you leave a six-knot (600 ft./min.) thermal as it slackened off at 4,500 ft., you could well fly to a setting of six knots down to 3,000 ft., 3 kt. down to 2,000 ft. and zero (i.e. Best Range Speeds) below this. The settings would depend on your confidence (or otherwise) in conditions ahead. Wind can also be allowed for, but all that is normally required is to know the thermal strength above which you will make headway along track.

A final point of interest is that on short races, the benefit of the 3,200 ft. start height should theoretically enable you to increase your speed between lift to a value above that derived from thermal strength only. In practice this increase is usually ignored.

TURNING POINTS.—In light winds, turning height makes no difference to speed, except that it is wasteful to have to dive off height in order to conform to any maximum height. Try and *plan* a glide to arrive at the point at, say, 3,000 ft., although 2,000 or lower is quite acceptable as long as you find another thermal. Make sure that you are vertically over the markers, note their shape and the time on your knee-pad and waste no time in unnecessary manœuvres. If the wind strength is significant, however, your tactics should depend on whether the point is upwind or downwind relative to the two tracks that form it. If it is downwind, then make sure that you turn at *maximum altitude* (3,200 ft. a.g.l. in Competitions —unlimited if photographic evidence is being used). If upwind, turn at the *lowest safe altitude* that will put you in a moderate thermal on the next leg. A safe altitude here might be 2,000 ft., but if there are other gliders about marking thermals you might stretch it to 1,500 ft.

THE FINAL GLIDE.—Frequently, the final glide will prove to be the most exciting (even nerve-wracking) part of a speed flight. A good glide-in can save at least 5-10 minutes, and it is amazing how far the modern glider will go. All pilots of any experience will have done glides which for one reason or another have become somewhat marginal, and the last thousand feet is not soon forgotten, as one sits with knees knocking, one eye on the goal (which is alarmingly high on the horizon), and the other on likely fields. One consolation is that such a glide, if successful, almost always signifies a fast time. One could say that the best glides always involve qualms at



Climb and sink are in knots (ft./min./100). The figures below the wind values are glide ratios. The scales at the edges are for half and quarter million maps. The "av. still air speed" is the overall cross-country speed corresponding to the thermal strength and other conditions on the same line.

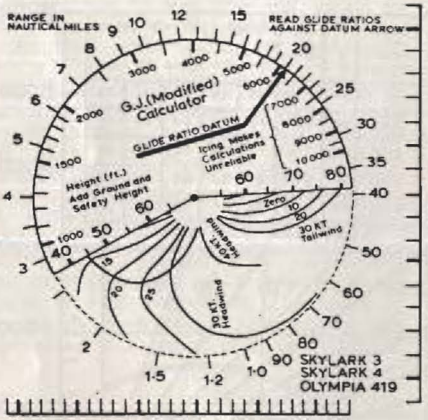
some stage. In all this, a calculator of some sort is essential.

There are two main ways of constructing a Distance/Height scale, the Graphical and the Logarithmic. The latter is more difficult to construct but is much easier to use in the air, and has the tremendous advantage that the glider performance can be incorporated directly in the scales. The Graphical glide diagram, however, needs a separate tabular form of performance information. It pays to be pessimistic in your estimates of performance in making up a calculator. A max L/D of 1:30 will do for most high-performance machines nowadays. Don't be ashamed of using a low value — at least it is safer and shouldn't put you in that field just short of the goal!

The classic procedure for final glide calculations is to estimate the rate of climb in your last thermal and read off the appropriate speed to fly. Then, still climbing, use the calculator to give the height needed to glide in safely at this speed.

In theory this speed should be higher than that derived from thermal strength only, due to the height difference between the base of the last thermal, and the goal. This effect is similar to that mentioned before regarding short races, and is normally ignored.

An audio variometer is now most useful for keeping well in the thermal while map-reading and calculating. In thermic conditions you can start with no extra margin because more height is available if necessary, and in any case you can always slow down to best range speed, provided this is done early enough. If you require a safety margin, a good method is to allow five knots more headwind than forecast. Sometimes it is not necessary to do these calcula-



The setting shown is for flight at 45 kt. in a headwind of just under 15 kt., or 67 kt. in zero wind. It gives a glide ratio of 1:20 and from 5,000 ft. one should go 16 n. miles (without any safety factor). The scales at the edge are for half and quarter million maps.

tions while in lift. If you use the "Long Glide" technique mentioned earlier (i.e. just slowing up in lift rather than circling), you may well find yourself starting a final glide as an extension of this. Navigation has to be "spot on", with height and accurate position checks at least every 5 miles. Your five-mile radii from the goal should be a great help. With a logarithmic calculator it is easy to reassess speed-to-fly in the light of each distance and height check. The height of the goal a.s.l. must not be forgotten in any calculation. The biggest danger in any well-planned final glide is the downdraught. A Speed-to-Fly Ring (set on zero) is again useful to ensure that you fly at the best speed through any descending air. When the airfield comes into view, its change of position through the canopy will tell you whether or not you are gaining. Aim the aircraft at the finishing line and cross at 100 ft. and max. rough-air speed. Having done this, try and curb the natural desire for "showing off" manœuvres, and in your jubilation try and remember to note the finish time on your knee-pad for comparison with the official figures.

If you have planned your own route (e.g. for a record attempt), the last leg should be done into wind. There is evidence that in this way a 100-km. triangle can be done faster in a light wind than with no wind at all. The optimum appears to be about 5 kts. and the upper limit (at which your time begins to be worse than the classic "no wind" situation) just over 10 kts. The reason for this is because the wind helps overall for the first two legs (which involve the majority of thermalling) and the third leg is used mainly for gliding in with wings level and not in being drifted back while circling. The practical application of this is that very fast times are still possible over 100 and possibly 200 km. with light or even moderate winds. Although the advantage gained may be small, if your last leg were *downwind*, the disadvantage might well be significant.

CONCLUSION.—It has been seen that there are a number of extra factors to consider when trying to fly for speed, as well as the basic ones of navigation and staying airborne. *There is no doubt whatever that a thorough study and*

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understanding of the theory involved will help considerably in the air. It is really worth while drawing up performance curves for your glider and constructing a calculator and Speed-To-Fly Ring. You should also draw up routes for different tasks in varying wind conditions. At the same time, calibrate your instruments and apply corrections to the calculators as necessary. The more time that you spend studying these problems, the better you are likely to do in practice. To a certain extent, knowledge of theory can replace experience, but the latter is, of course, essential, as is a certain flair for "pushing one's luck", albeit in a calculated manner. This article does not go into detail about a number of points. The best way to clear up ones such as the construction and uses of Speed-To-Fly Rings and calculators is to get a club pundit to explain with a practical demonstration.

The fastest pilot is one who is prepared to take well-calculated operational risks in prolonging glides and sacrificing lift, coupled with good navigation and assessment of weather conditions ahead. *A natural impatience seems to work wonders on a good day and this and a confident mental attitude are probably the keys to successful speed flying.* One hazard is that it is incredibly difficult to know when to mentally "change gear" and start to scratch for lift. Only too often one chances one's arm too far and ends up in a lonely field to prove it. On the other hand, there are some flights which go according to plan, and there is nothing in the whole field of aviation that is more exhilarating than finishing a successful final glide after a fast flight during which great risks (operational, not material) have been taken. Such pleasure comes all too infrequently, but matches that experienced by the long-distance pilot, and has the additional merit of ending at a friendly airfield with a Club and BAR.

NOTE.—More comprehensive notes and diagrams of calculators, etc., may be had from the author by sending a stamped addressed envelope (9 in. × 4 in., 6d. stamp) c/o British Gliding Association.

Other References

The Soaring Pilot, by A. and L. Welch and Frank Irving, pp. 34-47.

Gliding, by Derek Piggott, pp. 239-249.

The G.J. Calculator, by George Burton, SAILPLANE & GLIDING, Feb. 1960, pp. 14-15.

Gliding to a Goal, by Tony Deane-Drummond, SAILPLANE & GLIDING, Apr. 1957, pp. 92-93.

Best Flying Speeds, by Nicholas Goodhart, GLIDING, Winter 1951-2, pp. 150-151.

REGIONALS, 1965

Bristol Gliding Club.—Nympsfield, 26th June-4th July. Fee £8 plus £1 per aerotow. Maximum 20 entries, with preference to pilots with previous competition experience. Write D. W. Corrick, 30 Caernarvon Road, Redland, Bristol 4, before 13th June.

Coventry Gliding Club.—Husbands Bosworth, 10th-18th July. Fee £25 includes aerotows. Maximum 30 entries. Write M. S. Hunt, 17 Anchorway Road, Green Lane, Coventry.

Devon and Somerset Gliding Club.—Dunkeswell. Task Weeks 10th-17th April. 5th-12th June and 28th Aug.-4th Sept. Fee £5 5s. plus launch fees. Competition Rally 24th July-1st Aug. Fee £6 6s. plus launch fees. Write J. S. Fielden, Millers Lea, Branscombe, nr. Seaton, Devon.

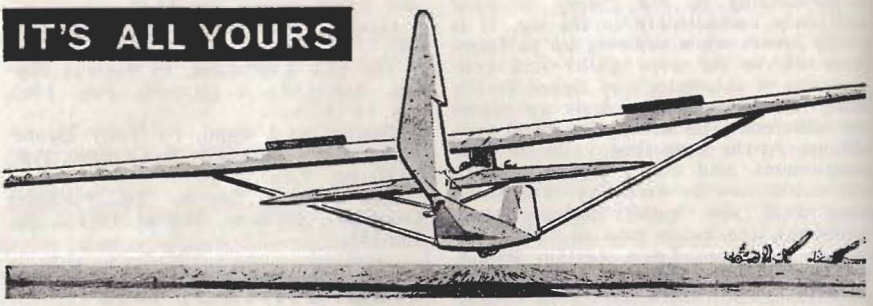
Doncaster and District Gliding Club.—Northern Gliding Competitions at Doncaster Airport, 4th-10th July. Write H. Keeble, D. and D. Gliding Club, Ellers Road, Doncaster, Yorks.

London Gliding Club.—Dunstable, 31st July-8th Aug. Fee £20 includes 10 aerotows. Write M. Fairman, L.G.C., Tring Road, Dunstable, Beds, before 30th June (late entries, £2 extra, before 9 a.m. 31st July).

Midland Gliding Club.—Long Mynd. Church Stretton, 16th-20th April. Fee £5 plus launching fees. Write P. O. Donald, 3 Fron Ogwen, Tregarth, Bangor, Caernarvonshire.

NOTE.—These competitions will not count towards the Pilots' Rating List. At the Bristol and London Clubs, marking will be by C. E. Wallington's system proposed in his article "Throw Away the Slide Rule" (SAILPLANE AND GLIDING, Dec., 1964, p. 432).

IT'S ALL YOURS



THE second instalment of Fl. Lt. Bridson's excellent article on cloud flying follows. If any readers think that it would be a good idea to produce this, and perhaps similar instructional articles, in leaflet form, they should write to the Editor.

ANN WELCH

CLOUD FLYING IN GLIDERS
Part 2 (Advanced)

TACKLING a large, heap type, cloud has its own special problems. The meteorological problems can be all or some of the following; with varying severity.

1. Turbulence
2. Icing
3. Precipitation
4. Static-Electric Discharge

It therefore follows that a certain amount of instrument flying competence and confidence is necessary before entering one of these clouds if luck is not to be strained to breaking point. Derek Piggott wrote an excellent article in the October, 1963, issue of SAILPLANE AND GLIDING entitled "Just Another Case of Fools Rush In". To quote from it:

"One or two short climbs during which no difficulties are experienced are not enough to prove the ability of the pilot to cope with the longer periods of concentration and more varied conditions in larger clouds."

TURBULENCE.—Severe turbulence may be encountered in large cumulus and cumulo-nimbus clouds. It is often most severe near the top of a cumulus and in the middle third of a cu-nimb. It should also be remembered that a pilot's evaluation of the severity of the turbulence will be influenced by his experience under these conditions and also by the time spent in the turbulence. Lengthy exposure tends to increase the apparent severity.

Flying in severe turbulence may lead to over-controlling and/or loss of control ("Dice with a Cumulo-Nimbus", by B. Carroll, SAILPLANE AND GLIDING, December 1960).

ICING.—This can cause considerable embarrassment. It increases the stalling speed, freezes the elevator trim tab, may cause the flying controls to stick, freezes the airbrakes in/out and may affect the glider's stability. Because of the risk of airbrakes freezing, it is vital for a pilot to be able to recover from any loss-of-control situation without *having* to use them.

PRECIPITATION.—The amount of noise produced by flying through heavy rain may be alarming when first experienced. Speed estimation by sound becomes virtually impossible. Wet snow packing on leading edges to the point where it noticeably affects the flying characteristics of the glider is rare. Hail may be encountered at any time within a cu-nimb and sometimes in the clear under the anvil.

Hail reaches its maximum size at, or near, the freezing level and can cause expensive damage (sample photograph SAILPLANE AND GLIDING, August, 1959, page 238).

STATIC-ELECTRIC DISCHARGES.—These are not confined to flight in thunderstorms but most do occur under these conditions. A static charge in a glider is induced by flight through solid par-

ticles such as ice crystals. The rate of this charge is proportional to the square of the airspeed. Most discharges seem to occur where temperatures are between 0° and −10°C. St. Elmo's fire sometimes warns of the imminence of a discharge.

Strong electrostatic gradients are built up within thunderstorms and lightning is the electrical spark discharge which takes place between oppositely charged regions of cloud or between cloud and ground. How these gradients are built up is not yet fully understood although there are several theories. Lightning damage can be severe. ("Lightning Strike", by M. Gee. SAILPLANE AND GLIDING, October, 1961).

Unusual Attitudes — Recovery Techniques

It is always possible for things to go wrong while flying in a large cloud. Poor instrument interpretation, faulty control technique or severe turbulence can cause the glider to assume an unusual attitude. Consideration must be given to recovery technique.

ARTIFICIAL HORIZON.—With a functioning artificial horizon there should be little difficulty in correcting an unusual attitude. Generally speaking the wings should be levelled, or nearly so, before the elevator is used to correct the glider's attitude. Interpreting the indications of the artificial horizon is fairly natural and easy.

TURN AND SLIP INDICATOR.—This instrument is less easy to interpret and sometimes appears to have a mind of its own. Recovery from unusual positions (excluding spinning) should be made as follows:—

1. Centre the slip needle with rudder (this balances the glider and prevents confusing indications because of yaw).
2. Simultaneously, centre the turn needle with aileron (the turn needle must be centred, or nearly so, before making large attitude corrections with the elevators).
3. Adjust the attitude with elevator (the primary and secondary instruments for finding the horizon are the A.S.I. and the altimeter. The altimeter is the secondary instrument because of its lag.)
4. Ignore physiological sensations during the recovery (trust the instruments).

FINDING THE HORIZON.—Turn and slip only.

INCREASING AIRSPEED.—If the airspeed is increasing *rapidly*, the airbrakes should be opened. Control any tendency for them to suck open (see Part 1). Turn needle centred, *ease* the control column back. Watch the A.S.I. As the rate of speed change decreases, start relaxing the back pressure on the control column. When the A.S.I. needle stops moving, the glider will be *approximately* level and, ideally, the control column will be central. Airbrakes, if used, may then be closed and further *small* corrections made, as necessary, to resume normal flight. WARNING.—It is necessary to anticipate level, or near level flight. The altimeter will confirm level flight in its own good time. Be aware of the decrease in the rate of airspeed change. It is easy to overshoot the horizon and finish up in a steep climb with a rapidly decreasing airspeed.

DECREASING AIRSPEED.—Ensure the airbrakes are closed. Turn needle centred, ease the control column forward. Note the rate of speed decrease. When the A.S.I. needle stops moving, centralise the control column. If the needle stops moving because it is against the stop, centralise all controls. If the airspeed stabilises within the "normal" range (i.e. above stalling speed), make any small adjustments as necessary and resume normal flight. If the I.A.S. is very low, allow the nose to drop of its own accord, controls centralised, and adjust gradually as the speed begins to increase, endeavouring to check it by the method detailed in the preceding paragraph. If the speed builds up rapidly, back to square one and don't be so HAM next time.

SPINNING.—The spinning characteristics of various gliders differ. The same glider with a change in its C. of G. position (e.g. different pilot weight) may have its spinning characteristics altered. In the unlikely event of finding oneself in a fully developed spin, the instrument indications will be as follows:—

1. The A.S.I. reading will normally be low and may be fluctuating.

2. The turn needle will indicate a high rate of turn.
3. The slip indicator will probably point in the opposite direction to the turn needle.
4. Unless in a colossal updraught, the altimeter and variometers will indicate a high rate of descent.
5. If an artificial horizon is fitted, it will indicate a steep, diving turn. (But remember the low airspeed reading and note that "*g*" loadings will not be excessive.)

The standard recovery action is:—

1. Full opposite rudder (opposite to the indicated direction of turn).
2. Slight pause during which the ailerons are checked to be neutral (aileron position is important).
3. *Ease* the control column forward and *keep it going forward* until the spin stops (by decreasing the angle of attack, the lift will increase, causing a momentary increase in the rate or rotation). Spin stops in a glider can be recognised through "seat of pants" by the experienced pilot, but the instrument indications are as follows:—
   (a) A.S.I.—The indications depend on the type of installation, e.g., pot pitot and static vents or combined pitot/static system. These indications can be determined quite easily for any particular glider by watching the A.S.I. during the practice spin and recovery. With some gliders, the I.A.S. *jumps* from a low reading to about 40/45 kts. and then continues to increase. Others have a fluctuating I.A.S., usually low, which *suddenly* stabilises and then commences to increase.
   (b) TURN AND SLIP.—A brief interval after the A.S.I. indications, the turn needle will move rapidly to about the central position.
4. When the spin stops, centralise the controls, then level the wings and ease out of the dive.

Most modern gliders, of U.K. origin anyway, will not remain in a spin unless full pro-spin control is applied and maintained. It is for this reason that to find oneself *inadvertently* in a full spin would be unlikely. An incipient spin is more likely to occur, and the recovery action is simply to release the back pressure on the control column, followed, most probably, by a recovery from a diving turn.

Effect of Aileron on Spinning Characteristics

Aileron position has a marked effect on a glider's spinning characteristics. This is due to the relationship between the inertia yawing moments of wing and fuselage. Gliders, which usually have fairly long and heavy wings and short fuselages (e.g. Skylark 2: wingspan is double the fuselage length) generally display the following characteristics when aileron is applied during a spin:—

1. In-spin aileron (aileron applied in direction of spin). This will increase the rate of rotation, reduce any oscillatory tendency and delay recovery.
2. Out-spin aileron (aileron applied in opposite direction to spin). Although this *may* promote an initial wing drop, it will prevent the glider from remaining in a full spin and will assist the recovery. This characteristic, if not understood, could be disquieting to a pilot intending to, let's say, spin out of cloud.

If the standard recovery action fails and the glider remains in a spin, check the airbrakes are closed and then apply full outspin aileron. Be ready to centralise the controls immediately the spin stops. CAUTION: The foregoing is not intended as a substitute for practical spinning experience. Know the spinning characteristics of the glider you fly.

Spiral Dive

A spiral dive is usually caused by endeavouring to recover from a diving turn without first levelling the wings. It is characterised by a rapidly increasing airspeed (noise) and "*g*" loading. The instrument indications are as follows:—

1. The I.A.S. will be increasing rapidly.
2. The turn needle will indicate a high rate of turn.
3. The slip indicator will probably be neutral, but it all depends on the pilot's big, flat, feet.
4. Unless in a colossal updraught, the altimeter and variometers will indicate a high rate of descent.
5. If an artificial horizon is fitted, it will indicate a steep diving turn.

A glider will not normally hold itself in a spiral dive without the pilot's assistance. To recover, open the airbrakes (watch for the suck), relax the back pressure on the control column, centre the slip needle with rudder and the turn needle with aileron and ease out of the dive; and not forgetting to close the airbrakes after recovery. If the glider is left to its own devices (i.e. controls centralised) it will normally finish up doing a series of harmless but possibly alarming phugoids.

Emergency Exit from Cloud

This may be forced upon one for a variety of reasons. One of the better reasons is loss of the gyro instruments. Spinning out is often advocated, and it works, but with certain reservations. It certainly is not the universal panacea for all cloud flying ills ("Cloud+Kite+Plight=Fright" by Bill Longley. SAILPLANE AND GLIDING, October, 1958. A tribute to the structural integrity of the Kite 1).

The following points are relevant when considering this method of let down:—

PILOT EXPERIENCE.—Spinning out should not be attempted by a pilot inexperienced in spinning. For example, the tyro, in cloud, in trouble, with the airspeed fluctuating between 30 and 100 knots remembers the spin technique and applies full pro-spin control. Unfortunately, the speed is 100 knots and the aircraft falls apart. The inexperienced pilot is also more likely to suffer from disorientation induced by prolonged spinning, a condition which can be aggravated by anoxia, or hypoxia to be modern, if flying high without oxygen or with a faulty oxygen system.

SPINNING CHARACTERISTICS OF GLIDER.—Some gliders are reluctant to spin, particularly with a forward c. of g. (heavy pilot). The method of entry can also be important. Spinning a standard Olympia 2B produced the following results:—

(a) Normal entry from level flight, full pro-spin control applied, ailerons neutral. Normal spin developed, recovery normal.

(b) Entry as above but with in-spin aileron applied. Normal spin developed but with a higher rate of rotation. Recovery delayed slightly by

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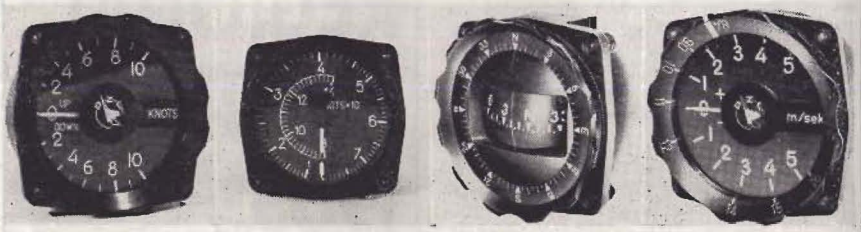
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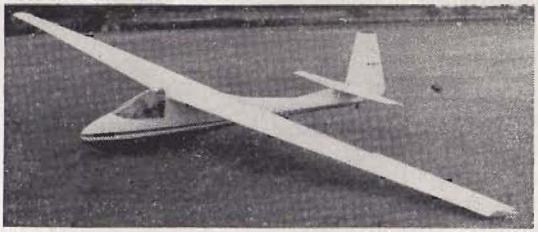
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higher rate of rotation but otherwise normal.

(c) Entry as in (a) but with out-spin aileron applied. Incipient spin initially followed by yawing turn with wings almost level and airspeed increasing rapidly. Recovery effected by centralising controls, and easing out of dive.

(d) Entry from a 45° (approx.) climb at an airspeed of 30 knots. Full pro-spin control applied, ailerons neutral. Spiral dive developed, recovery as for spiral dive.

(e) Entry from a steep turn with decreasing airspeed. Full pro-spin control applied at the stall and in the direction of the turn. Spiral dive developed, recovery as for spiral dive.

This aircraft would not spin unless the entry was initiated as in the preceding sub-paragraphs (a) and (b), and this could be disconcerting if a spin was resorted to in an emergency.

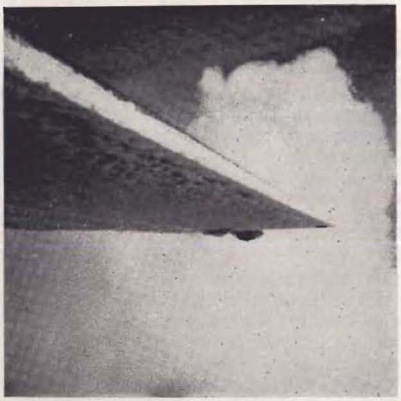
SITUATION.—It would be foolish to spin down from near the top of a cu-nimb into the storm below. The possibility of other gliders at lower levels should be considered. It should be remembered that the base of a cu-nimb can lower rapidly and/or one could be above high ground.

ICING.—Ice will alter the shape of the aerofoil and may affect the c. of g. position. A heavily iced-up glider may possess unique spinning characteristics. It's *just* possible that flying controls could become frozen if held stationary for a long period as during a prolonged spin.

An alternative method to spinning is to allow the glider to fly itself out of cloud with the controls centralised and airbrakes extended. Several tests of this method have proved quite successful, the glider phugoiding itself into the clear. During these tests the maximum/minimum accelerations recorded were +1.8 and +0.5 "*g*".

Navigation

This has been mentioned in Part 1. Height climbs in large clouds can lift the unsuspecting pilot out of a 5-kt. wind into a 50-kt. wind. I include myself in the ranks of pilots caught out in this fashion. Some years ago I was charging about inside a cumulo-nimbus and decided to quit at just over 26,000 ft.





Upper photo: Opaque Rime Ice. This photograph was taken at 15,000 ft. and shows a fairly typical deposit of rime ice after a climb in a large cumulus. Note that the ice is confined principally to the leading edge of the wing.

Lower photo: Glaze or Clear Ice. This photograph was taken at 28,000 ft. This type of icing tends to spread back from the leading edges, as can be seen, and causes freezing of airbrakes and flying controls. It is almost always encountered during a flight in a cumulo-nimbus.

because I was unhappy about the amount of oxygen that I had in reserve. Mental D.R. placed me in the neighbourhood of Lincoln, and between gaps in the

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considerable layers of cloud beneath it was possible to discern the flat Lincolnshire fields. A large ship steaming through one of these fields convinced me that my D.R. was faulty. A straight glide on a westerly heading from 26,000 ft. brought me in over the coast at 5,800 ft. I now pay considerable attention to winds at altitude on days when high climbs seem possible.

Centring

Centring on lift, like spinning, is a subject in itself. However, faulty centring is less likely to be lethal than a faulty spin recovery technique. Briefly, large clouds usually have large cores of lift within which it is possible to stay without too much difficulty.

In a cumulo-nimbus particularly, precipitation is often encountered in the area of lift and it is possible to centre on the lift by centring on the maximum noise.

Caution: Continual exposure to hail, even small hailstones, will eventually cause considerable pitting of soft plywood leading edges.

I.A.S./T.A.S. Relationship

The difference between the I.A.S. and the T.A.S. starts to become noticeable at heights above 10,000 ft. by the requirement for the angle of bank to be increased to maintain the same rate of turn. This naturally leads to a requirement for increased back pressure on the control column and, depending on the aircraft, the trim is probably set fully nose-up by about 15,000 ft. This can be an embarrassment later should the trim tab freeze, but out-of-trim loads in a glider, although undesirable, are easily held unless one is possessed of a delicate constitution.

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Effect of Ice on Flying Controls

Freezing of the flying controls is possible, particularly when flying in smooth lift at high altitude in a cumulo-nimbus. One can find that if the controls are not moved for a short period of time a considerable break-out force is necessary to overcome the icing. It then becomes essential to "stir the pudding" frequently to prevent the controls becoming completely iced up.

Conclusion

I hope you have not been put off cloud flying, but there is more to it than charging into the nearest cloud and trusting to luck. A successful cloud climb is an enjoyable experience with various fringe benefits, e.g. "Diamond" height.

What is it like "up there"? Ian Strachan described it rather dramatically, but albeit accurately, in the August, 1960, issue of SAILPLANE & GLIDING. To quote:—

"The final part of the climb was quite uncanny and awe-inspiring. The Olympia seemed effortlessly to ascend while the powerful forces of nature vented their wrath underneath and meanwhile gripped her in a crypt-like coldness. A similar experience would be that of walking on a hot and sticky afternoon from a busy street into a cool, deserted and very beautiful cathedral."

It's great fun; but remember, if you go high, keep enough oxygen in reserve for the descent. It takes a long time coming down.

DOUGLAS BRIDSON

NOTE *re* REFERENCES.—SAILPLANE & GLIDING for Oct., 1958, Dec., 1960 and Oct., 1961, still available; issues for Aug., 1959, and Aug., 1960, sold out.

The Peak

Written for a school exercise after soaring in the Peak 100 at Camphill.

Up and up and up so high,
We meet the blue and shining sky,
Floating slowly on the air
Above the fields away down there:
High, as high as you can see,
That is where I like to be.

CHRISTOPHER A. J. BECKETT
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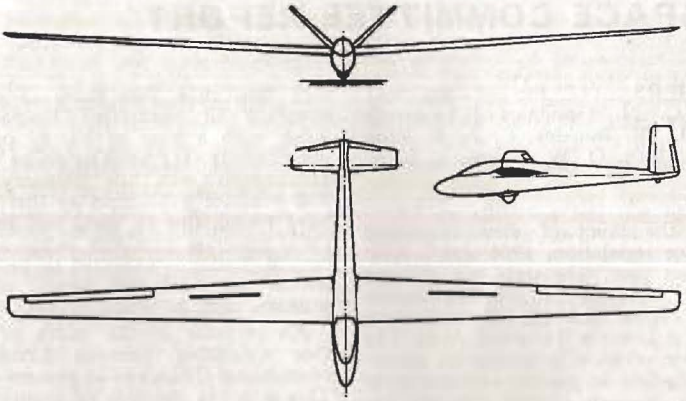
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have been made yet, but comparison flights with a number of other types have shown very promising results.

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The new design has been achieved in close co-operation with the famous Akaflieg Darmstadt (Academic Flying Group), which can look back on a tradition of 40 years of successful design and experimental work in sailplane construction.

Schempp-Hirth is offering the "SHK" as a sailplane with a wide range of performance and excellent penetration. The proposed selling price is approx. £1,900 ex-works.

RATING LIST AMENDMENTS

THESE additions and alterations to the Rating List have been caused in a few cases by errors in calculation but the majority are due to difficulty in identification due to lack of initials or wrong initials. It is recommended that in all future competitions pilots' competition licence number be given against his name.

Pilot	*Old*	*New*
Adam, J.	156	310
Baynes, A. H.	109	111
Blackmore, J. H. ...	176	178
Brown, K. R.	95	97
Browning, H.	256	260
Caiger, M. T.	191	195
Crabb, D. J.	165	169
Donald, C. C.	366	426
Duthy-James, C. ...	257	262
Gee, M. I.	128	146
Goddard, J. J.	213	218
Glennie, G.	161	207
Hill, A. D.	254	261
Inglesby, J. V.	127	90
Lowe, D.	222	246
Martin, P. A.	413	496
Neep, R.	—	71
O'Riley, K.	49	56
Paul, I.	315	326
Ramsden, J. B.	—	230
Robinson, ...	—	207
Scallon, D.	303	428
Shepard, F. W. L. ...	449	459
Simpson, C.	—	295
Smith, M. J.	527	575
Tarnow, A.	224	242
Watson, A.	—	63
Wilson, M. J. C. ...	350	359

If pilots do not agree or do not understand their rating, please write to John Furlong, C/o B.G.A. Office.

AIRSPACE COMMITTEE REPORT

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

FROM the point of view of actual airspace legislation, 1964 was a relatively quiet year. The only big changes were the revisions of the Manchester Terminal Area and the South-Eastern side of the London Terminal Area. The Manchester revision produced an appreciable reduction in the Manchester Control Zone, though it still remains unnecessarily large for the job it has to perform; the continued imposition of permanent IFR in this Control Zone shows that there is still a long way to go before it can be said with any assurance that controlled airspace is based on logic rather than emotion.

The changes to controlled airspace in South-East England produced a slight easement for the Kent Gliding Club by raising the base of Green One in their area; other than that it had little effect on gliding. Also mainly affecting the Kent Club was the formal change in the law referred to in last year's report which allows gliders into the Cross-Channel Special Rules Area in V.M.C.

Permanent IFR has now been introduced in the London TMA above 5,000 ft. but we were able to get gliders excluded from this. Of course, this exclusion, like the one which permits the crossing of Airways in VMC, can very easily be withdrawn and almost certainly will be if anyone is reported for infringing the rules. Thus responsibility for the future freedom of British gliding rests firmly on each individual pilot on every cross-country flight. Let it not be you who breaks this trust.

Until recently, despite the increase in controlled airspace in south-east England, there was a possibility of making a record breaking flight in a north-west wind by crossing the Channel and going on into Europe. To make this flight a climb (almost inevitably IMC) in the Dover area to 8,000 ft. or so is necessary but, now that there is complete coverage of controlled airspace over Kent, with a base of FL 45 or below, the climb is very unlikely to be possible. Discussions with the Ministry to try and produce a solution to this problem have failed, due to there not being any radar coverage available in the area concerned. Radar is expected to be installed within the next two years, when the problem will be re-examined.

An increase in the width of Amber One extending between London and Manchester TMA's is at present on trial. This is a big increase of controlled airspace in an area of much concern to glider pilots on cross-country flights. It can, however, be a major advantage to us if it results in the operation of Amber One as a "dual carriageway".

In an ordinary airway the amount of traffic that can be fed along it is seriously limited by the climbing and descending traffic which "occupies" all the levels it climbs or descends through. The only solution is to hold outbound traffic low until inbound traffic has cleared the block the outbound is in. This results in the low level extension of controlled airspace far beyond the points at which a free climbing aircraft could exceed the heights concerned. But if an airway is "dual carriageway" the problem disappears and aircraft can be allowed to climb to operating height as fast as they are able. There is, however, considerable doubt whether Amber One can be operated in this way with the extension at present under trial. It was for this reason that we objected to Ministry proposals to make the extension permanent and further talks are to be held in the new year.

A preliminary meeting has been held by the Ministry to propose the introduction of controlled airspace to provide protection for aircraft operating into and out of Bristol (Lulsgate) and Cardiff (Rhoose). In view of the extremely low traffic levels in the area and the fact that Cardiff already has a Special Rules Zone, we (and several others) have opposed this increase of controlled airspace. A further meeting

will be held in the new year.

With regard to the establishment of new gliding sites, we have undertaken to let the Ministry know as soon as the B.G.A. is notified. It is important that this be done as early as possible as, apart from the basic problems of present and future controlled airspace, there are also problems associated with the Services and their special and low flying routes. Military low flying routes have already caused some difficulty at three of our existing sites.

While strictly now an Airspace matter, we have taken on the task of dealing with the Ministry on the question of the provision of frequencies for gliders within the aeronautical band. During the year 129.9 mcs. has been allotted in addition to 130.4 mcs. for normal glider use and 121.65 mcs. has been allotted for ground-to-ground use at gliding sites.

All in all, 1964 has not been a dull year on the Airspace front and there is every indication that 1965 will be even less so.

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

DEVELOPMENT COMMITTEE REPORT

THIS Committee's function is to liaise with the Department of Education and Science (formerly called the Ministry of Education) and to help clubs obtain grant aid under the provision of the Physical Training and Recreation Act of 1937. It also makes applications for grant aid for the Association's specialist officers.

These grants are made in order to encourage the people of this country to take part in various sporting activities and are available to clubs whose membership is open to all. Grants can be made for new or second-hand equipment, land and buildings where the purchase of these items will increase the facilities offered to the public. Aid is not given for replacement of equipment under any circumstances.

The Committee's first full year has been moderately successful and at the time of writing this report (31st January, 1965), eleven clubs have been successful in obtaining grant aid. Grants amounting to £16,532 have been made, this figure being 50% of the total cost price of the various items.

A further five clubs have submitted applications for grant aid for equipment costing £10,165 and these applications are being examined at the present time. Quite obviously a great deal of investigation and checking has to be carried out by the Department before the Taxpayer's money is given to clubs. It is vital that Club Secretaries check their applications most carefully before submitting them to the Department, as a great deal of time can be wasted if repeated queries must be cleared up before a grant is allowed. Clubs are strongly advised to contact this Committee before making an application. Grants have taken from three to twelve months to process depending on the manner in which the various forms were completed.

The grant of £1,500 for the National Coach was renewed during the year under review. In November, 1964, our application for a grant towards the employment of the Chief Technical Officer was approved and £1,500 was made available to this Association. These two grants for our Specialist Officers will not only help to make our sport safer but will also make gliding available to many more people in this country.

Close contact was maintained with the officials of the Department of Education and Science and I would like to pay a warm tribute to their ceaseless endeavours on our behalf. They deal with many different sporting activities, few of which can be as complex as gliding, yet their grasp of our peculiar problems is very heartening to see.

Our paper submitted setting out a

case for grant aid for sleeping accommodation was favourably received, although, unhappily, too late to help one club's major building scheme. Our first application for a Tug aircraft was successful and two more are in the pipeline.

It is my firm belief that greater financial help will be forthcoming for sport in the years that lie ahead. We are constantly reading of shorter working hours which must result in many more hours being made available to people for leisure and, one hopes, sporting pursuits. The long term future of some gliding clubs may well lie in multi-sport centres where the main administration and social facilities are shared by different sporting clubs. In these cases, through grants obtainable under the Physical Training and Recreation Act, it is possible for new gliding clubs to buy land which would otherwise be far beyond their means and by so organising their site that they are no longer utterly dependant on our fickle weather for their revenue. I would strongly advise existing clubs to re-examine their sites in order to see whether they can not make some land available to another sport. If they can increase the utilisation of their site without interfering with flying activities, their costs will be reduced, which is surely the aim of every Committee.

Most local County Authorities arrange lectures on many subjects for adults under the heading of "Further Education". Lectures on gliding have been arranged by some County Councils and in each case the lecturer is paid a very fair sum for his labours. This is one way in which clubs can augment the often meagre salary they can only just afford to pay their permanent staff. In addition, these lectures can be enhanced by providing practical lessons in gliding thus also increasing utilisation of club equipment. The County Further Education Officer should be contacted if clubs are eager to take part in this scheme.

I believe that the present Grant scheme operated by the Department of Education and Science is a very good one which other countries would do well to copy. It makes monies available to clubs which are soundly based and able to conduct their affairs in a proper manner. As clubs can now apply for grant aid as often and as soon as they like whenever equipment is required without the earlier two year period, it does mean that a gradual growth can be achieved. Care must obviously be taken that clubs do not over-stretch their financial resources but try to pay off their outstanding commitments before embarking on further expansion plans.

It is entirely right and proper that taxpayers' money should be made available to amateur sport and I am certain that this scheme is the best that has been devised to date. We welcome the formation of the Government Sports Council and are certain that this body will help amateur sport.

WALTER A. H. KAHN, *Chairman.*

SAFETY PANEL REPORT

THE safety position for 1964 cannot be regarded as a satisfactory one. The number of accidents notified to the B.G.A. during the year was over ninety with an estimated cost of £15,000. This compares unfavourably with the 1963 cost of £10,000. Three of the accidents were fatal to glider pilots and six others resulted in serious injuries.

It would be comforting to find some type or phase of flight which would account for a significant number of the accidents. Although many do occur in the final phases of a flight they are generally the inevitable consequences of errors made earlier in the flight. While a reasonable amount is known about how gliders have accidents, very little is known about why glider pilots cause them to happen.

To give some indication of those who are liable to have accidents the

1964 figures have been grouped in the analysed table. One feature is the remarkable safety record of solo pilots under training and in organised competitions. This contrasts with the record of solo pilots between these two degrees of excellence, whose accidents cost nearly two-thirds of the total.

To find why these accidents are happening will require more "on the spot" investigation and more information to analyse. With this in mind three changes are to be introduced during 1965. Firstly, the present reporting forms will be replaced with a new form which it is hoped will be of more help in investigating accidents. Secondly, after the paperwork has been re-organised, Clubs will be asked to appoint Safety Officers who will be able to apply their personal and local knowledge to the investigation of accidents when necessary. Thirdly, with the agreement of those concerned, it is hoped to publish anonymous accounts of accidents and incidents which will be of interest to the movement in general.

Finally, I must thank all those who have investigated and reported accidents and incidents: the staff of the B.G.A. office who have borne the brunt of collecting the information: the members of the Ministry of Aviation who have always been co-operative and forbearing, and, most important of all, the great majority of glider pilots whose care and self-discipline have prevented them from having an accident in 1964.

PAUL MINTON, *Chairman.*

1964 *Accidents*

Type of flying	*No. of accidents and incidents*	*Serious or fatal injuries*	*Approx. cost of damage to gliders*
Two-seater	29	3	£4,800
Solo pilots training	10	1	£900
General solo flying	21	3	£6,400
Solo cross-country	12	1	£2,500
Competition flying	1	—	£600
Aero-tow	5	1	—
Ground incidents ..	14	1	£800

WORLD CHAMPIONSHIPS ORGANISING COMMITTEE REPORT

ORGANISATION of the 1965 World Gliding Championships started in the Spring of 1964. The Royal Air Force aerodrome at South Cerney was made available, including support facilities, and aero-towing. For this the Treasury made a charge of £9,000. This charge meant that the entry fees would have to be much higher than ever before; however, owing to the generosity of W. D. & H. O. Wills, the B.G.A. has been able to bring this down to an acceptable figure.

The Organisation itself is complex, being a combined exercise by B.G.A. and some one hundred and fifty voluntary helpers, R.A.F. South Cerney, and sections of the Ministry of Defence, within the framework of the Féderation Aéronautique Internationale. So far no insuperable problems have arisen, co-ordination is good and co-operation excellent.

The provisional entry list consists of ninety-one gliders from thirty nations. This will involve a camp of nearly a thousand people, including some four hundred foreign competitors and technicians. It is expected that in addition there will be a considerable number of unofficial foreign visitors. The public will be admitted to a special enclosure.

The opening ceremony will take place on Saturday, 29th May, following a week of practice flying. The championships themselves will continue until 12th June, with the prizegiving and closing banquet on 13th June. During the period there will also be the international OSTIV technical and meteorological congress.

The Chairman would like to take this opportunity to thank everyone who is doing so much to make the championships the best ever.

ANN WELCH, *Chairman.*

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THE KRONFELD CLUB

WEDNESDAY, 5th May is the tenth anniversary of the inaugural meeting of the Kronfeld Club.

The occasion will be marked by a wine and cheese party from 7-9.30 p.m. — eat and drink as much as you like — tickets 7s. 6d. at the door. We hope we shall see all those who were at that original meeting. This took place in the conference room in Londonderry House, Park Lane, which was then the Royal Aero Club's Aviation Centre.

The instructional lectures which have been held in the club on Monday evenings since January have been the most successful ever. Between 60 and 80 people have attended each lecture.

We extend a warm welcome to any members of teams to the World Championships who are passing through London. The Club is open 5.30-11 p.m. Monday-Friday.

We are now holding regular Bridge evenings the last Thursday in the month. Anyone interested should contact Jill Walker.

Further improvements to the Club recently are new heaters in the lounge and lecture rooms and vinyl tiles in the entrance hall and lecture room. It is planned also to extend the bar.

Y. C. B.

DIARY OF LECTURES

and Film Shows, Wednesdays at 8 p..m

Mar. 31. Gliding in Iceland, by Ludwig Caarlsson.
April 7. Aviation Films.
„ 14. Glider Retrieves, by B. Jefferson, Derbyshire and Lancashire Gliding Club.
„ 21. The latest U.S. Fighters, by U.S.A.F.
„ 28. Making use of Light Aeroplanes, by Peter Brooks.
May 5. 10th Anniversary Party. 7 p.m.
„ 12. Aviation Photography, by Ian Macdonald.
„ 19. Thoughts on Meteorology for the World Championships.

INSTRUCTIONAL LECTURES

Mondays at 8 p.m. Admission 5s.

(Special terms for four or more lectures booked in advance.)

April 5. Advanced Meteorology, by C. E. Wallington, National and World Gliding Championships forecaster.
„ 12. Part II of the above.
„ 28. Wave Soaring, by an expert.

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Lecture to Attend

READERS of SAILPLANE & GLIDING are invited to attend a lecture by Philip Wills on "Air Transport Auxiliary —Its Place in Aviation History", to be given at the Royal Aeronautical Society, 4 Hamilton Place, London, W.1., on Monday, 5th April, at 7 p.m. No tickets are required.

Mr.Wills became second in command of this wartime ferry pilots' organization, and many pre-war glider pilots, including Ann Welch, flew in it.

ANOTHER DEAD SEA SCROLL

By GODFREY LEE

DURING the course of a recent debate at the Kronfeld Club on the subject of the Regulations for Standard Class Sailplanes, I had occasion to quote what I believe to be the earliest known form of these Regulations and to describe the circumstances of their discovery. This document aroused considerable interest and it was suggested to me that your readers might be interested in the matter; accordingly, I give the information in question below, so that you may publish it if you think fit.

When, a few years ago, in a cave in Palestine, the Dead Sea Scrolls were discovered in earthenware jars, there was also found a chipped white enamel vessel, bowl-shaped and with a handle to one side, that contained a few pages of an ancient manuscript, subsequently identified as part of the Book of the Prophet Effgeei.* Fortunately for us, among those pages was a very early set of rules that clearly define an ancient type of motorless aircraft. The translation of the relevant part that follows is due to my old friend, the learned scholar Dr. Yerfdog Eel.

"And Effgeei went up into an high mountain and the Lorn spake unto him, saying: Hear, O Effgeei, my Commandments which shall be to you and to all people. And understand well, O Effgeei, that I the Lorn am a jealous Lorn and will visit the spins of the fathers upon the children, even unto the 3rd and 4th rotation; but to them that keep my Commandments will I show thermals, even unto hundreds of feet per second straight up.

"The span of thy wings shall be not more than 15 metres, nay not even by so much as the breadth of thy little finger.†

"Thou shalt not make unto thyself any kind of flap, neither in the likeness of anything that is in heaven above, nor in the earth beneath, nor in the waters that are under the earth.

"Thou shalt not change the camber of thy wings, for after such things do the ungodly lust.

"Thine underparts shall be a wheel, for if thou hast but a skid, then shall the oxen labour in vain to launch thee.

"Thine underparts shall be fixed, even as with nails of brass in the Rock of Pisgah, for a retractable underpart is an abomination in the sight of the Lorn.

"Thou shalt not cause to fall from thy glider any offering or sacrifice upon the earth beneath: neither iron nor rock, nay not even the dew of heaven nor the sands of the desert.

"Thou shalt not use a sail to retard thy landing, not even if it meanest that thou joinest the swine at Gaderene.

"Thy glider must receive the blessing of the Lorn, or thou shalt not enter into the Competition nor in any wise aviate."

That is really the end of the "Regulations", but Effgeei was a religious leader and so followed up the rules with a few moral precepts, which may be of interest even today.

"Thou shalt not stall.

"Thou shalt not commit autorotation.

"Thou shalt not covet thy neighbour's glider, nor his barograph, nor his instruments, nor his trailer, nor his towing camels, nor his retrieving crew nor anything that is his."

That is all the Prophet has to tell us; I find it a fascinating side-light on the thinking of primitive people.

* Believed to have been pronounced "Eff-gee-eye".

† Is this, I wonder, the real origin of the expression "Finger Trouble"?

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CLUB STATISTICS FOR 1964

Gliding Club	Aircraft Club owned or op. 2S	Sec	HP	PO	TUG	Launches On Club site	By Club gliders	Hours Total	Club gliders
ABERDEEN	1	1	1	2	—	2,404	2,299	150	140
AVRO	2	2	1	1	—	3,026	3,157	327	327
BATH	2	1	—	3	—	2,950	2,428	297	207
B.E.A. SILVER WING	2	—	2	2	2	3,437	3,310	527	450
BLACKPOOL & FYLDE	1	1	1	1	—	1,358	1,358	N/K	N/K
BRISTOL	2	1	3	12	1	7,619	6,404	2,127	1,145
CAMBRIDGE UNIVERSITY	1	—	—	5	1	3,450	3,976	1,500	1,050
*COLLEGE OF AERONAUTICS	2	1	1	1	—	1,444	1,444	230	230
CORNISH	2	3	2	2	1	5,427	5,177	749	556
COVENTRY	2	1	2	6	2	5,404	4,939	1,205	753
DERBYSHIRE & LANCASHIRE	3	4	2	17	—	6,043*	4,695	2,101	845
*DEVON & SOMERSET	2	2	3	4	—	6,782	6,301	1,319	1,002
DONCASTER & DISTRICT	1	2	2	7	—	6,392	5,549	948	615
DORSET	—	1	1	4	1	1,380*	1,116	497	344
DUMFRIES & DISTRICT	1	2	—	2	—	1,374	1,163	130	89
ESSEX	1	1	1	1	—	4,083	4,029	406	393
GLASGOW & WEST SCOTLAND	1	1	—	—	—	300	300	26	26
HALIFAX	1	1	—	—	—	105	105	7	7
HANDLEY PAGE	1	1	1	—	—	1,536	1,377	154	140
KENT	2	1	1	8	—	5,540	5,089	759	388
LASHAM CENTRE	4	—	4	43*	4	26,057	16,501	2,118	2,118
(NATIONALS 1964)						490		1,280	
AIR SCOUTS									
ARMY									
CROWN AGENTS									
IMPERIAL COLLEGE									
LASHAM SOCIETY									
LEIGHTON PARK SCHOOL									
SURREY									
POLISH AIR FORCE ASSOC.									
UNIVERSITY COLLEGE G.C.									
LAKES	1	2	2	2	1	3,106	3,034	334	285
LEICESTERSHIRE	1	—	2	4	4	1,410	1,204	1,007	556
LONDON	3	4	3	29	2	11,635	9,713	3,190	1,791
MIDLAND	3	1	5	6	—	8,074	6,703	3,042	1,790
NEWCASTLE	2	1	1	5	—	3,006	2,731	730	468
NORFOLK	1	1	1	—	—	2,897	2,789	343	300
NORFOLK & NORWICH	—	—	—	6	1	219	—	269	—
NORTHAMPTONSHIRE	1	2	1	—	—	2,494	2,494	250	250
NORTHUMBRIA	1	1	—	2	—				
OUSE	1	2	1	1	—	3,804	3,902	384	374
OXFORD	1	—	3	4	—	3,080	2,751	707	441
PERKINS SPORTS ASSOCIATION	1	1	1	1	—	2,140	2,000	310	240
R.A.E. FARNBOROUGH	2	—	1	—	—	1,592	1,632	292	292
SCOTTISH GLIDING UNION	2	2	5	7	—	5,840	4,717	1,643	1,219
SOUTHDOWN	1	1	2	2	—	3,247	3,299	656	379
SOUTH WALES	1	1	1	1	—	884	824	70	55
STAFFORDSHIRE	1	1	1	2	1	3,247	3,143	273	250
SWANSEA	1	—	—	—	—	469	469	20	20
SWINDON	1	1	1	1	—	4,300	4,326	N/K	N/K
ULSTER & SHORTS	1	1	2	1	—	758	748	82	81
WEST WALES	2	1	2	—	1	4,076	3,996	490	490
YORKSHIRE	2	2	3	11	1	5,639	4,800	2,110	1,360
TOTAL CIVILIAN	64	52	67	205	21	170,535	146,608	33,121	21,549

CLUB STATISTICS FOR 1964 (continued)

Flying days		Cross-country		Courses		Certificates				Membership		
Total	soaring	Total miles	By club gliders	No.	Pupils	AB	C	S	G	Flying	Non-flying	Potential
92	47	N/K	N/K	10	65	5	1	—	—	52	—	N/K
115	40	198	198	—	—	9	8	5	—	81	36	100
85	24	100	—	—	—	16	8	4	—	90	7	120
100	59	1,565	465	—	—	16	8	9	—	115	4	150
54	N/K	N/K	N/K	—	—	6	5	3	—	42	190	N/K
209	117	5,962	762	20	100	19	12	40	3	247	54	350
170	110	4,470	750	7	60	23	3	5	3	250	6	300
N/K	N/K	250	250	—	—	N/K	N/K	N/K	—	45	—	50
178	59	1,165	130	16	118	20	12	14	—	103	8	150
127	63	2,289	486	—	—	16	11	19	—	156	35	200
139	104	7,755	219	11	186	20	18	19	1	225	100	250
N/K	N/K	4,029	319	N/K	N/K	N/K	N/K	N/K	—	141	—	200
183	69	2,400	479	5	40	14	7	10	2	135	51	150
67	29	169	28	—	—	7	5	8	—	76	17	100
65	21	40	7	1	10	6	7	1	—	40	25	80
110	50	70	60	—	—	10	9	2	—	139	19	150
23	5	—	—	—	—	—	—	3	—	36	—	60
14	N/K	—	—	—	—	—	—	—	—	36	6	N/K
55	18	400	400	—	—	6	4	2	—	32	—	50
129	30	1,192	10	9	108	14	8	9	—	147	32	200
319	N/K	N/K 23,757	125	42	140	69	31	—	—	800	76	no limit
104	54	895	320	6	54	8	3	2	—	57	11	80
85	63	2,850	N/K	—	—	9	11	13	3	87	12	150
258	160	N/K	N/K	Ews	87	20	N/K	10	3	300	113	N/K
205	158	1,794	314	22	361	26	25	26	1	190	70	250
120	88	897	118	—	—	5	3	15	—	100	—	200
142	46	760	420	2	16	7	9	3	—	64	11	120
30	30	3,227	—	—	—	—	—	1	—	12	—	N/K
86	38	100	100	—	—	8	6	4	—	50	3	100
								—	—	57	—	100
131	25	195	195	—	—	17	6	5	—	100	1	150
87	44	1,776	186	—	—	4	4	11	2	75	—	80
73	N/K	300	50	—	—	7	6	4	—	40	—	50
98	50	260	260	—	—	6	6	8	—	65	—	100
204	129	1,182	526	21	149	8	10	21	4	155	60	250
80	45	433	103	1	10	6	3	4	—	80	20	N/K
51	26	160	—	—	—	—	—	—	—	40	—	100
90	32	116	75	—	—	11	9	2		72	—	100
40	23	—	—	—	—	7	7	—	—	40	—	100
N/K	N/K	412	412	1	15	12	8	8	—	95	6	150
38	12	25	25	—	—	2	3	3	—	30	—	80
130	40	240	240	—	—	5						
180	125	2,270	850	15	120	14						
—	—	73,865	8,894	191	1,699	459	305	340	24	4,940	1,031	5,470

CLUB STATISTICS FOR 1964 (continued)

Gliding Club	Aircraft Club owned or op. 2S	Sec	HP	PO	TUG	Launches On Club site	By Club gliders	Hours Total	Club gliders
R.A.F.G.S.A.									
Bicester	3	1	7	—	2	19,963	19,963	4,057	4,057
East Anglian	2	2	2	—	—	4,199	4,254	581	581
Four Counties	1	3	1	—	—	2,014	2,014	240	240
White Rose	1	2	—	—	—	1,220	1,237	162	162
Mendips	2	2	—	1	—	1,758	1,758	133	133
Cheviots	2	1	2	—	—	2,300	2,453	259	259
East Midland	1	2	3	—	—	5,650	5,730	858	858
Chilterns	2	1	2	—	—	4,169	4,169	456	456
Bannerdown	2	2	2	2	—	4,244	4,176	526	513
Fenland	2	2	2	—	—	4,211	4,258	564	554
Moonrakers	2	1	4	1	—	4,250	4,700	980	950
Clevelands	2	1	2	1	—	2,893	2,917	279	193
Royal Naval G.S.A.									
Heron	2	—	1	2	—	1,565	1,250	383	224
Portsmouth	1	1	2	1	1	3,477	3,439	532	387
Fulmar	2	1	—	1	—	3,241	3,241	430	430
*Condor	2	1	1			1,340	1,340	149	149
Army G.S.A. (Army Soaring Club included in Lasham)									
Aldershot and District ..	1	1	2	—	—	1,517	1,510	199	199
Southern Command	1	2	3	—	—	3,670	3,691	528	528
Service Total	31	26	36	9	3	71,681	72,100	11,316	10,873
Service and Civilian Total ..	95	78	103	215	24	242,216	220,429	44,437	32,422
Air Training Corps	160		5			183,693	183,693		

Notes: *Only available figures are for 1963. These figures shown for purposes of analysis total and comparison with 1963 total.

B.G.A. NEWS

1964 ANNUAL AWARDS

THE British Gliding Association has pleasure in announcing the following awards for 1964:

De Havilland Cup for the greatest gain in height: to J. J. Goddard for a gain of height of 16,500 ft. at Portmoak on 28th January. Skylark 3F.

Manio Cup for the longest goal flight during the year: No award.

Wakefield Trophy for the longest distance during 1964: to J. S. Williamson for a flight Upavon-Swinderby-Upavon, a distance of 274 miles, on 30th August. Olympia 419. (U.K. Goal and Return Record.)

Volk Cup for the longest pre-declared turning point and return flight: to J. S. Williamson for the flight under the Wakefield Trophy.

Seager Cup for the best two-seater performance: to R. P. Saundby and B. Roberts for a gain of height of 17,750 ft. (Absolute Altitude 19,050 ft.) at Bicester on 7th June. Blanik. (U.K. Gain of Height and Absolute Altitude records for two-seaters.)

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 the Surrey Gliding Club, for the following flights:

D. B. James, Lasham-South Shields on 22nd May. Skylark 3 ... ... 265 miles

A. D. Purnell, Lasham-Kidderminster-Lasham on 22nd

CLUB STATISTICS FOR 1964 (continued)

Flying days		Cross-country		Courses		Certificates				Membership		
Total	soaring	Total miles	By club gliders	No.	Pupils	AB	C	S	G	Flying	Non-flying	Potential
239	N/K	3,178	3,178	16	175	92	37	49	1	162	—	200
101	49	265	265	—	—	5	4	—	—	81	—	100
109	30	N/K	N/K	—	—	4	2	4	—	129	—	N/K
60	20	250	250	—	—	9	4	11	—	61	—	100
100	6	—	—	—	—	18	2	1	—	30	20	N/K
70	20	1,600	1,600	—	—	12	6	3	—	60	5	100
111	49	4,000	4,000	—	—	8	8	15	1	73	—	120
82	38	1,400	1,400	—	—	8	4	18	—	114	2	150
103	73	340	340	—	—	14	7	2	—	115	—	—
92	21	1,390	1,390	—	—	17	4	4	—	101	—	150
150	95	2,875	2,475	—	—	14	7	16	3	103	—	N/K
93	31	525	525	—	—	18	6	10	4	85	—	125
88	40	930	480	1	6	6	5	8	1	60	—	100
114	25	1,963	190	—	—	11	6	9	1	83	—	90
103	N/K	614	614	2	21	12	2	4	1	40	—	60
N/K	N/K	243	243	—	—	N/K	N/K	N/K	—	57	—	80
52	29	N/K	N/K	—	—	—	—	3	—	83	—	120
107	50	3,200	3,200	5	50	9	4	11	—	157	6	200
		22,773	20,150	24	252	257	108	168	12	1,594	33	1,695
		96,638	29,044	215	1,951	716	413	508	36	6,534	1,064	7,165
				cont	inuous	2,465	91					

Key to aircraft categories: 2S = two-seater; Scc. = secondary; HP = high performance; PO = privately owned; S = Silver; G = Gold; ws = weeks.

August. Skylark 4 ... ... 198 miles
H. V. Howitt, Salisbury-Grimsby on 7th August.
Skylark 4 ... ... 192 miles

655 miles

CALIFORNIA IN ENGLAND to a woman pilot of British nationality for the longest flight commencing in the United Kingdom: to Anne Burns for a flight Lasham-Pontefract, 174 miles, on 22nd May. Ka-6.

FRANK FOSTER TROPHY for the fastest speed round a 100 km. Triangle: to Anne Burns for a speed of 43.4 m.p.h. Lasham-Thruxton-Welford-Lasham on 26th June. Standard Austria.

ROBERT PERFECT TROPHY to the Club with the highest number of B.G.A. categorised instructors in proportion to its flying membership:
1st Trophy and £40 Award — Aberdeen Gliding Club.
2nd £20 Award — Norfolk G.C.
3rd £10 Award — Cornish G.C.

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TECHNICAL COMMITTEE REPORT

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.

Work of the Committee

	1963	1964
Number of Meetings	11	10
New Certificates of Airworthiness issued	54	64
Certificate of Airworthiness renewals	269	343
Major Overhauls (included in renewals)	30	19
New Glider Types certificated	4	1
Renewals of Inspection Approval	57	69
Renewals of Senior Inspection Approval	16	16
Renewals of Firms' Approvals	5	5
New Inspectors Approved	13	20
New Senior Inspectors Approved	1	1

READ in conjunction with those of previous years, the above table shows a steady increase in the work of the Committee to an extent which made it imperative to appoint a full-time member of the B.G.A. staff to deal with technical matters. There were a number of very highly-qualified applicants for the post, and the eventual choice was Mr. R. C. Stafford-Allen. Thanks to an increased grant from the Department of Education and Science, it was possible to appoint him from 1st December, 1964, and he is now pursuing his duties with characteristic energy. To the unsuccessful candidates, the Committee extends its thanks: it was most gratifying to find such an array of talent so deeply interested in the future well-being of gliding.

Ray Stafford-Allen's duties have been fully explained elsewhere: they include dealing with the routine technical paperwork, examining applicants for inspection approval, visiting clubs to advise on technical matters and arranging inspectors' courses. To encourage clubs to make full use of his services, no charge will be made for his visits, but, in order to spread some of the costs over those who ultimately benefit, it has been necessary to make a small increase in the cost of C. of A. renewals. We hope that Clubs will not hesitate to invite him to visit them: the aim is to put technical matters on a more personal basis than has previously been possible and to establish contacts where they really matter — in the Club workshops and hangars.

In the context of club maintenance, the revised inspection report forms have been generally well received, but it is worth reminding inspectors that the copies destined for glider logbooks should be permanently attached to them. Regrettably, instances of poorly-kept logbooks still come to our notice from time to time. The least effects of such inattention are increased overhaul costs and lowered re-sale values: at the worst, it can lead to serious trouble in the event of an accident. A certain amount of paperwork is a necessity of airworthiness, but good records can save endless bother. A recent example concerned a somewhat non-standard used glider of foreign origin imported into this country and requiring certification. The owner produced documentation which can only be described as perfect. It was being given check test-flights the week-end

after landing in the U.K. and only required a brief inspection of the calculations and other papers prior to formal approval by the Committee. Admittedly, it was a modification to a type already approved, but it is gratifying to be able to match an efficient application with efficient results.

It is hoped that the certification of new types will eventually be handled by a new sub-committee under Mr. P. L. Bisgood. The Design Requirements Sub-Committee, under Mr. C. O. Vernon, has been revived and is considering further proposals for alterations to Section E of British Civil Airworthiness Requirements, for eventual discussion with the Air Registration Board. The consideration of these proposals has been stimulated and assisted by the parallel deliberations of the OSTIV Sailplane Development Panel, which has now drawn up requirements applicable to gliders in general, not only those in the Standard Class. The Chairman and Mr. Vernon attended a meeting of the Panel in The Hague in November. It is worth saying here that our initial misgivings of a few years ago have been dispelled: we like to think that we have contributed something to the OSTIV Requirements and in exchange we have been exposed to the stimulus of international discussions, often supported by the results of unique research.

A report on "The Durability of Glues used in Glider Construction" has been completed and circulated to interested parties. This should largely allay the fear that glues such as Aerolite deteriorated with the passage of time to such an extent that they became unsafe after about ten years. The picture is obviously complicated, but well-built gliders, properly maintained in temperate climates, seem to be in the clear.

It is again sad to tell of the need to liaise with the Accidents Investigation Branch of the Ministry of Aviation, both by discussion and by causing Test Groups to carry out experiments. The discussion of matters of mutual interest was greatly facilitated by a luncheon at Imperial College attended by various members of the A.I.B. and the Directorate of Air Safety, together with the Chairmen of the B.G.A. Technical Committee, Instructors' Panel and Safety Panel. We find this collaboration most fruitful and pleasant, regrettable though the circumstances may be.

In view of the major dislocations to club training programmes caused by the mandatory modification to T.31 main spars, some statement of the present situation seems to be required, particularly in view of misgivings which seem to have arisen from the knowledge that the Committee and the manufacturers were continuing to consider these aircraft. The best information we have indicates that if the mainspar has been thoroughly inspected and found to be free from cracks (or if repairs have been carried out to eliminate cracked regions) and if Mod. 80 has been incorporated in accordance with the manufacturers' instructions, then the stress levels in the mainspar are satisfactory provided that the machine is operated within the placarded limitations. As with any type of glider, excessive speeds, excessive weak-link strengths, unauthorised aerobatics or heavy landings can all cause structural damage.

As gliders become more sophisticated (and I make no excuse for using that word), so do their airworthiness problems become more esoteric. There is little prospect of the Committee's communal thinking becoming stagnant and current or foreseeable problems include more detailed investigations of airbrake characteristics, consideration of handling characteristics from the dynamic point of view, and fatigue of metal and glass-fibre structures.

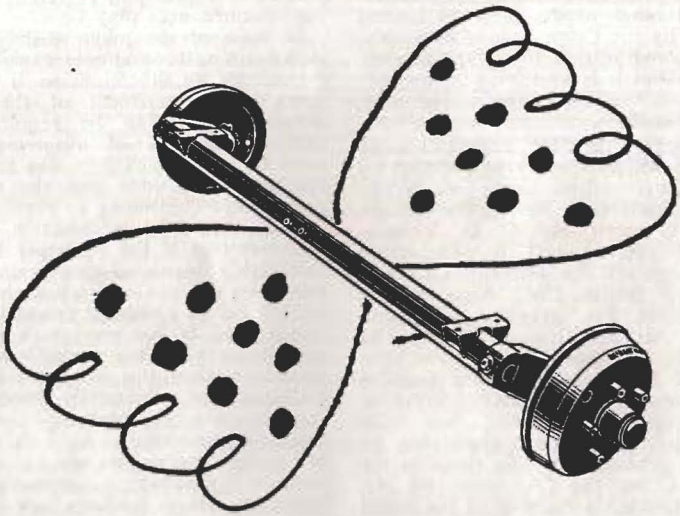
Meanwhile, the routine of C. of A. renewals, approving modifications and replying to the "how do I build a glider in my back garden" letter continues, nobly supported by the inspectors, manufacturers and office staff. We thank them all.

F. G. IRVING, *Chairman.*

H.F. RADIO CHANNEL

NEGOTIATIONS with the G.P.O. have now been completed. H.F. allocation is 3425.5 kc., with either double sideband or upper sideband suppressed carrier. Power limitations: ground, 50 watts; glider, 10 watts.

R. BRETT-KNOWLES,
B.G.A. Radio Co-ordinator



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It is a Rubery Owen trailer axle. Haul it round tight corners, drag it over bumpy roads —the wheels stay firmly on the ground. This is independent suspension by torsion bars at its best.

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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, Flt. 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 National Coach, John Everitt, with the Capstan, ran 26 instructors' courses at 14 different sites, for instructors from 23 clubs. 16 of these instructors gained Wills Scholarships towards the cost of the course. The National Coach also ran the following special courses during the year: Under 20's advanced course at Dunkeswell, Ab Initio school course at Portmoak, entry into Nationals and Northerns for soaring and competition instruction. The following excerpt is from his Annual Report:

"The visits showed that grants made under the Physical Training and Recreation Act are very much appreciated as there is a need throughout the country for modern gliders and equipment, and many clubs and instructors, particularly the newer ones, do need help to avoid some of the pitfalls of gliding. With a subject such as instruction with many varied approaches to its problems there has been a need to avoid pontification. Therefore progress in order to be sure, must inevitably be slow, particularly with only one National Coach. If the funds were available there is no doubt that several National Coaches working together would make an appreciable difference to the general standard of gliding in this country."

The general instructor position is only barely satisfactory, since too few club members are becoming instructors. The reasons for this are:

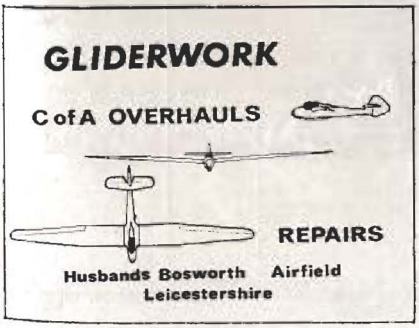
1. The attractions of private ownership and soaring.
2. The risk of getting stuck as an instructor, and not having time for solo flying.
3. The higher standard required of an instructor today, before he can work on his own, or obtain a category.
4. The difficulty of finding spare time to go on a course or be trained.
5. The common difficulty, through cost or lack of facilities, to get enough pilot experience to become an instructor in less than four or five years' gliding.

It will be difficult to overcome this situation unless Clubs can make the job of an instructor less onerous, and more enjoyable: proper rota systems, and better performance two-seaters which give more satisfactory flying will help. It is, however, important that every effort is made to encourage more pilots to become instructors before the shortage results in reduction in club operations. In the interests of future pupils, club pilots likely to become good instructors should be given priority in getting flying experience more quickly, and existing instructors should have time to get in solo soaring as well as being tied to the two-seaters.

On the plus side, the higher standards now required of the qualified instructor is resulting in better trained pilots, and pilots who are becoming competent at soaring in an early stage in their career. It is also resulting in fewer training accidents.

ANN WELCH, *Chairman.*

* * *



GLIDING SITES IN

Club	*Name of Site*	*Tel. No.*	*Position*	*Height ft. a.s.l.*	*Lat. and Long.*
ABERDEEN	North Litterty	—	4 m. N.E. of Turriff	560	57.34 N. 02.22 W.
AVRO	Woodford	Bramhall 1291	5 m. N. Macclesfield	300	53.20 N. 02.09 W.
BATH	Keevil Aerodrome	—	4 m. S.S.E. Melksham	200	51.19 N. 02.08 W.
B.E.A. SILVER WING	Booker	H. Wycombe 6053	3 m. S.W. High Wycombe	520	51.37 N. 00.48 W.
BLACKPOOL & FYLDE	Squires Gate	Blackpool 41526	S. boundary of Blackpool	34	53.46 N. 03.02 W.
BLACKPOOL & FYLDE	Salmesbury Aerodrome	—	Between Preston & Blackburn	250	52.45 N. 02.35 W.
BRISTOL	Nympsfield	Uley 342	3½ m. S.W. Stroud	700	51.43 N. 02.17 W.
CAMBRIDGE UNIVERSITY	Cambridge Airport	Cambridge 56291	3 m. N.E. City Centre	50	52.12 N. 00.11 E.
COLLEGE OF AERONAUTICS	Cranfield	Cranfield 212	8 m. S.W. Bedford	360	52.04 N. 00.37 W.
CORNISH	Perranporth Aerodrome	Perranporth 2124	¼ m. S.W. of Town	320	50.20 N. 05.11 W.
CORNISH (additional sites)	Newlyn Downs	—	5 m. E. Perranporth	370	50.40 N. 05.08 W.
	Davidstow Moor	—	3 m. N.E. Camelford	950	50.40 N. 04.40 W.
COVENTRY	Husbands Bosworth Aerodrome	Kenilworth 52552	20 m. E. Coventry	505	52.26 N. 01.02 W.
DERBYSHIRE & LANCASHIRE	Camphill	Tideswell 207	8 m. N.E. Buxton	1,350	53.18 N. 01.43 W.
DEVON & SOMERSET	Dunkeswell Aerodrome	—	5 m. N. Honiton	800	50.52 N. 03.14 W.
DONCASTER & DISTRICT	Doncaster Aerodrome	Doncaster 56066	1½ m. S. of Town	20	53.30 N. 01.10 W.
DORSET	SITE UNDER NEGOTIATION				
DUMFRIES & DISTRICT	Tinwald Downs	—	3 m. E.N.E. Dumfries	50	55.05 N. 03.03 W.
(Additional site)	Townfoot Hill	Dumfries 5568	3 m. E. Thornhill		55.15 N. 03.42 W.
EDINBURGH UNIV.	East Fortune Aerodrome (*provisional*)	Newington (Edinburgh) 2091	4 m. S. N. Berwick	95	56.00 N. 02.43 W.
ESSEX	North Weald Aerodrome	North Weald 222	2½ m. N.E. Epping	329	51.44 N. 00.20 E.
GLASGOW & WEST OF SCOTLAND	Balgair Moor	Bearsden 1026	16 m. N. Glasgow	600	56.06 N. 04.14 W.
HALIFAX	Ringstone Edge	Halifax 62197	5 m. S.W. Halifax	1,050	53.40 N. 01.56 W.
HANDLEY PAGE	Radlett Aerodrome	Park Street 2266	2 m. S. St. Albans	260	51.41 N. 00.11 W.
KENT	Challock	Challock 307	5 m. N.N.W. Ashford	625	51.12 N. 00.51 E.
LAKES	Tebay Ghyll	Orton 280	15 m. S. Penrith	1,000	54.27 N. 02.35 W.
LAKES	Walney Island Aerodrome	—	25 m. S.W. Kendal	10	
LASHAM GLIDING SOCIETY; ARMY; BOY SCOUTS; IMPERIAL COLLEGE; LEIGHTON PARK SCHOOL; POLISH A.F.A.; SURREY; UNIVERSITY COLL., LONDON	Lasham Aerodrome	Herriard 270	Between Alton and Basingstoke	600	51.11 N. 01.02 W.
LEICESTERSHIRE	Rearsby Aerodrome	Osgathorpe 260	8 m. N.E. Leicester	220	52.43 N. 01.02 W.

THE UNITED KINGDOM

Description	*Aero-tows*	*Service or Civil*	*Days operating*	*Slopes*
2 grass runways and heather	No	Civil	Weekends	None
Used for testing	—	Civil	Weekends	None
R.A.F. satellite aerodrome runways no power flying	No	R.A.F. Satellite	Weekends	None
Disused aerodrome	Yes	Civil	Weekends & some weekdays	None
4-runway aerodrome, other aircraft	Yes	Civil	Weekends, Thursday evenings	
3-runway aerodrome	No	Civil	Sundays, also many Sats.; Spring & Summer only	
Grass strip, N.E.-S.W. on hill top, N. and W. slopes, Cotswolds	Yes	Civil	Every day	W., N.N.W.
Grass aerodrome, one runway; heavy powered traffic	Yes	Civil	Weekends, Summer weekdays	None
Runway aerodrome, training flying	Yes	Civil	Weekends	None
3 runways; plateau on top of cliffs	Yes	Civil	Winter, weekends; Summer, weekdays	W & N.N.W.
Farmland	No	Civil	Weekends	None
Disused aerodrome	Yes	Civil	Weekends	None
Grass strip only	Yes	Civil	Weekends	None
Grass strip N.S.	No	Civil	Weekends, Summer weekdays	W. & S.
Disused aerodrome	Yes	Civil	Winter, weekends; Summer, weekdays	S., S.W. & W.
Grass aerodrome	No	Civil	Weekdays, evenings, most days summer	None
Aerodrome with runways	No	Civil	Weekends	
Heath	No	Civil	Weekends	
Disused aerodrome	No	Civil	Weekends	None
R.A.F. emergency aerodrome	No	Civil	Weekends	None
Moorland	No	Civil	Weekends	
Smooth moorland	No	Civil	Weekends	S.W. to N.W.
Firm's aerodrome, runways	No	Civil	Weekends	None
Grass	Occasional	Civil	Weekends, courses on weekdays	
Hillside Moorland	No	Civil	Weekends	S.S.W.
Aerodrome with runways	Yes	Civil	Winter only	None
3 runways, some aeroplanes, land on grass	Yes	Civil	Every day	None
Grass	Yes	Civil	Weekends, public holidays	None

LINCOLNSHIRE	SITE UNDER NEGOTIATION				
LONDON	Dunstable Downs	Dunstable 63419	2 m. S.W. Dunstable	500	51.52 N. 00.32 W.
MIDLAND	Long Mynd	Linley 206	4 m. S.W. Church Stretton	1,500	52.31 N. 02.53 W.
NEWCASTLE	Carlton Moor	Wainstones 434	10 m. S. Middlesborough	1,200	54.25 N. 01.12 W.
NORFOLK	Tibenham Aerodrome	Tivershall 207	15 m. S.W. Norwich	186	52.28 N. 01.05 E.
NORTHAMPTONSHIRE	Cranfield Aerodrome	Cranfield 212	8 m. S.W. Bedford	360	52.04 N. 00.37 W.
NORTHUMBRIA	Currock Hill	—	Nr. Hedley-on-the-Hill	800	54.56 N. 01.50 W.
OUSE	Rufforth Aerodrome	York 55045	4 m. W. York	65	53.57 N. 01.11 W.
OXFORD	Weston on the Green Aerodrome	—	7 m. N. Oxford	260	51.53 N. 01.14 W.
PERKINS SPORTS ASSOCIATION	Spanhoe Aerodrome	Peterborough 67474	23 m. W. Peterborough	340	52.34 N. 00.38 W.
ROYAL AIRCRAFT ESTABLISHMENT	R.A.E., Farnborough	Aldershot 24461	Farnborough	233	51.16 N. 00.46 W.
SCOTTISH GLIDING UNION	Portmoak	Scotlandwell 43	1 m. S.E. Loch Leven	360	56.12 N. 03.20 W.
SOUTHDOWN	Bo-peep, Firle	—	4 m. N.E. Newhaven	500	50.50 N. 00.07 E.
SOUTH WALES	Mynydd Mayo	Cardiff 2648	3 m. E. Caerphilly	1,056	51.35 N. 03.15 W.
STAFFORDSHIRE	Meir Airport	—	Nr. Longton, Staffs.	620	52.58 N. 02.06 W.
SWANSEA	Fairwood Airport	Swansea 24063	Nr. Swansea	301	51.38 N. 04.05 W.
SWINDON	South Marston Aerodrome	Swindon 6538	Nr. Swindon	360	54.35 N. 01.45 W.
ULSTER & SHORTS	Newtownards Airfield	—	3 m. W. Lisburn, Co. Antrim	330	54.31 N. 06.11 W.
(Additional sites)	Long Kesh	Hillsborough 284	10 m. Belfast	120	54.30 N. 06.06 W.
	Magilligan Strand	—	8 m. Coleraine	6	55.10 N. 06.50 W.
WEST WALES	Withybush Aerodrome	—	2 m. N. by E. Haverfordwest	250	51.45 N. 04.45 W.
YORKSHIRE	Sutton Bank	Sutton Thirsk 237	5 m. E. Thirsk	920	54.15 N. 01.13 W.

ROYAL NAVAL GLIDING AND SOARING ASSOCIATION CLUBS

Every one of these is based on an R.N.A. Station. All operate at weekends, and aero-tows are laid on at Fulmar and Heron.

Club	*Name of Site*	*Tel. No.*	*Position*	*Lat. and Long.*
CONDOR	R.N.A.S. Arbroath	Arbroath 2201	2 m. N.W. Arbroath	56.35 N. 02.37 W.
FULMAR	R.N.A.S. Milltown	Lossiemouth 2121 Extn. 250	3½ m. N.E. Elgin	57.41 N. 03.14 W.
HERON	R.N.A.S. Yeovilton	Ilchester 333	4½ m. N. Yeovil	51.02 N. 02.38 W.
PORTSMOUTH	Lee-on-Solent Aerodrome	Lee-on-Solent 79143, Extn. 113	3 m. Gosport	50.49 N. 01.12 W.

ROYAL AIR FORCE GLIDING & SOARING ASSOCIATION CLUBS

Every one of these is based on an R.A.F. Station. All operate at weekends, and aero-tows are laid on.

Club	*Name of Site*	*Tel. No.*	*Position*	*Lat. and Long.*
BANNERDOWN	R.A.F. Colerne	Hawthorn 283	7 m. W. Chippenham	51.26 N. 02.14 W.
CHEVIOTS	R.A.F. Acklington	Red Row 261, Extn. 118	19 m. N. Newcastle	55.19 N. 01.39 W.

UNITED KINGDOM (contd.)

Undulating grass field at foot of Downs. W. slope.	Yes	Civil	Every day	W.&S.W. N.W. to S.W.
Heather-covered hill top	No	Civil	Every day	W. & E.
Heather	No	Civil	Weekends	N.W. & N.E.
Runway aerodrome	No	Civil	Weekends	None
Runway aerodrome, training flying	Yes	Civil	Weekends	None
Site of old drift mine	No	Civil	Weekends	None
3 runways, grass strips each side	No	Civil	Weekends	None
Grass, R.A.F. dropping zone	Yes	Civil	Weekends, public holidays	None
Disused aerodrome	No	Civil	Weekends	None
Large aerodrome	Yes	Works	Weekends, summer evenings	None
2 grass strips, N.W.-S.E., W.-E.	No	Civil	Weekends, some weekdays	W., N. & S.
Grass field on hill top	No	Civil	Weekends, public holidays	N. & N.E.
Rough mountain grass	No	Civil	Weekends	S.W., W.N.W. & E.
Aerodrome	Yes	Civil	Weekends	None
Active airport	Yes	Civil	Weekends, Weds. evenings in summer	
Active aerodrome, test flying	Yes	Civil	Weekends	None
Active airfield	Yes	Civil	Weekends	None
Aerodrome, runway	Yes		Weekends	
Sand: low tide only	No		Weekends	
3 runways	Yes	Civil	Weekends and Wednesdays	
Unpaved runways on heather moor, grass strip. W. and S.	Yes	Civil	Weekends, most days in Summer	S., S.W., W. & N.W

ROYAL AIR FORCE GLIDING & SOARING ASSOCIATION CLUBS (contd.)

CHILTERNS	R.A.F. Benson	Wallingford 2292	3 m. E.N.E. Wallingford	51.37 N. 01.05 W.
CLEVELANDS	R.A.F. Leeming	Northallerton 440	Nr. Northallerton	54.20 N. 01.30 W.
EAST ANGLIAN	R.A.F. Waterbeach	Waterbeach 301	6 m. N.E. Cambridge	52.17 N. 00.11 E.
EAST MIDLANDS	R.A.F. Swinderby	Swinderby 241	7 m. S.W. Lincoln	53.09 N. 00.41 W.
FENLAND	R.A.F. Feltwell	Feltwell 205	12 m. N.E. Ely	52.29 N. 00.32 E.
FOUR COUNTIES	R.A.F. Spitalgate	Stamford 2251	1 m. N.E. Grantham	52.54 N. 01.06 W.
MENDIPS	R.A.F. Locking	Banwell 470	1½ m. E. by S. Weston-super-Mare	51.20 N. 02.56 W.
MOONRAKERS	R.A.F. Upavon	Upavon 7	8 m. N. Amesbury	51.18 N. 01.47 W.
R.A.F. G. & S. CENTRE	R.A.F. Bicester	Bicester 501, Extn. 36	1½ m. N.N.E. Bicester	51.55 N. 01.08 W.
RED HAND	R.A.F. Ballykelly	Limavady 2201, Extn. 210	15 m. E. Londonderry	55.03 N. 07.01 W.
SUFFOLK	R.A.F. Wattisham	Needham Mkt. 234	5 m. S.W. Stowmarket	52.08 N. 01.25 E.
WHITE ROSE	R.A.F. Rufforth	York 77133	4 m. W. York	53.57 N. 01.11 W.

CORRESPONDENCE

THROW AWAY THE SLIDE RULE. 1

Dear Sir.

In his article Mr. Wallington states a few truths regarding our points system for sailplane competitors with which I am in full agreement. I cannot, however, agree with his solution, which although very tempting is no solution at all but a lottery. To illustrate this clearly it would be best to give the following hypothetical but extremely likely case:

	Pilot A		*Pilot B*	
Task	*Points*	*Place*	*Points*	*Place*
1st ...	1000	1	920	2
2nd ...	900	10	870	11
3rd ...	950	4	900	2
4th ...	1000	1	750	15
5th ...	780	14	950	3
6th ...	890	9	800	4
7th ...	970	3	900	4
Total	6490	42	6290	41

Providing the points system was acceptable in the above case, pilot A has a clear win on points but loses to pilot B on a placing score. When analysing the result, it is clear that pilot B came second on the first task despite the loss of 80 points and that pilot A had the misfortune to come tenth for a loss of only 100 points on the second task. In close competition this can *sometimes* easily happen. This is the snag to upset Mr. Wallington's very fine idea. It is only too likely that in applying his placing score system there will almost immediately be bitter disappointment and dissatisfaction.

What, then, is the solution to satisfy the pilots, task-setters, manufacturers of sailplanes and the qualms of the met. man? The answer is to take an average.

Let us consider the following.

(1) We demand that in a competition it should be attempted to fly at least eight tasks. This is already for the purpose of finding an average.

(2) Technically each sailplane is a compromise. The designer or manufacturer hopes that his sailplane will strike a good average score on both weak and strong days.

(3) The task-setters are also trying to strike an average as regards the needs of the pilots and the machines they fly, the possible uncertainties of the weather and many other factors. Quite rightly, as Mr. Wallington points out, they have enough troubles not to be influenced also by a fear of the dire consequences their choice of a task might have, due to a faulty points-system.

(4) Points for distance are based on the average distance flown by all competitors. We will come back to this and prove it at the conclusion to this letter.

(5) The speed-point formula should be solved by taking the sum of points for distance and speed based on average distance and average speed. The suggested formula is that published in the June, 1964, issue of SAILPLANE AND GLIDING under my name (p. 197).

CONCLUSION.—If the above is accepted, all qualms on the part of the task-setter and met. forecaster should disappear. I hold no special brief for these indispensable good people; my concern is for the competing pilot, who can now also have fewer qualms.

Let us now consider the formulas in use.

(i) For distance $P=\frac{D \times 1000}{d}$ where d is the winner's distance and D the distance of each pilot whose points are being calculated. (If we do not equate the winner's points to 1000, then the $\times 1000$ can be left out.)

(ii) We can also use $P=\frac{D}{d}$ where D is the distance of the pilot whose points are being calculated and d is the average distance; average distance being the sum

of the distances flown by each pilot divided by the total number of pilots who start (or compete).

We now wish to prove that $P=\frac{D \times 1000}{d}$ is exactly the same as relating each pilot's performance to the average performance for the day.

If pilot A does the best distance of, say, 100 miles and pilot B flies only 50 miles, then by (i)

Pilot A receives $\frac{100 \times 1000}{100} = 1000$ points

Pilot B receives $\frac{50 \times 100}{100} = 500$ points

By (ii) if the average distance is, say, 90 miles, then:

Pilot A receives $\frac{100}{90} = 1.111$ points

Pilot B receives $\frac{50}{90} = 0.555$ points,

or exactly half of the winner's points as in case (i). It makes no difference what the average distance may have been, the answer will remain the same.

When comparing the performances of pilots x and y, Mr. Wallington was on the right track. He only has to go a little further and compare the performance of *all* pilots — in other words, find the average, to arrive at a true assessment of the day, the task, the weather, the comparative performance of each pilot and the true basis on which to calculate the points for each competitor.

The formula for distance points $P=\frac{D \times 1000}{d}$ is generally accepted and used and, I hope, even fairer than we suspected and the same as $P=\frac{D}{d}$ as just proved. If this is accepted, then taking the sum of average distance and average speed on a speed task is also the best and final solution.

Allow me to restate my formula for speed points as presented in the June issue again, in its simplest form: $P=\frac{D}{d}+\frac{t}{T}$ (where D=distance of competitor, d=average distance, T=time of competitor, t=average time).

For an elaboration of this, the reader had best look it up, as there is hardly space or time to go into it all again. I admit that in its final form:

$$p=\frac{D_1 \times 1000}{d\left(\frac{D}{d}+\frac{t}{T}\right)}+\frac{t \times 1000}{T_1\left(\frac{D}{d}+\frac{t}{T}\right)}$$

the calculation for each competitor can be quite formidable. *But* we as pilots have our own little troubles to fly our sailplanes and can have little sympathy left for the troubles of the boys who calculate our points or have to do the whole shoot over again because some distance or time figure was incorrect in the first set of calculations. (See article by R. M. D. Harper in August, 1964, SAILPLANE AND GLIDING, p. 302.) All we demand is that the system or formula used shall give the fairest possible answer.

17*th Avenue* 479, *Rietfontein, Pretoria.* E. DOMMISSE

THROW AWAY THE SLIDE RULE. 2

Dear Sir,

I would like to congratulate Wally Wallington on his "Throw Away the Slide Rule".

Most all sports in this country are scored by wins and losses, not the number of runs or points scored in a series of games. The World Series is decided by

the team that wins the first 4 of 7 games. A win by a score of 1 to 0 counts as much as a win of a 10 to 0 score. The winner of each league is decided by the team that has the best percentage of wins; the same of the Football leagues. Golf is different: the game is scored similar to what Wally has suggested for Soaring Contests; the one with the lowest score would win. Then there is one which is scored similar to our present system in Soaring — Bowling. Bowling is determined by the total number of pins, not by the number of games won. But since bowling is far less influenced by luck than Soaring contests or Golf matches, let's take a look and see if our scoring shouldn't be more toward the Golfing type.

Most everyone in Soaring agrees that the best flight on a poor day is equal to the best score on a super day, providing luck hasn't had any effect. What I want to know is, who decides what is luck and what is superior planning, thinking and flying? It is all too easy to say a relative newcomer to the sport is "just lucky", when in fact later on it becomes well known that it was pilot skill and/or planning. Luck is in having the right wing-loaded ship for weak conditions in a contest that turns out to have a majority of weak days, or a heavy wing-loaded aircraft for a contest that eventually has all very strong soaring conditions throughout. I might cite for example Dick Schreder at Odessa and Dick Johnson with the Weihe in Elmira. Both are top pilots, and with the right weather for the sailplane they were flying at the time, they were unbeatable. One of the other major "luck" problems was eliminated by the establishment of the starting gate. In years past, the luck in getting the right take-off time was very important; thank goodness this has been corrected. The decision on going off course *vs.* staying on course is very important in task flying, yet no one can say whether it was the pilot's good luck or his good judgment that enabled him to do the correct thing. Sometimes luck is better "than a licence to steal", but who decides the difference in a case of one pilot electing to stay on course and winning when another went around at a different time and was forced or elected to detour and he didn't make it? Enough for the "luck" factor, let's forget it.

If the best performance on a good day and the best performance on a poor day are equal, then why aren't the 5th places equal, the 10th places equal, etc., provided the number of contestants is the same? This is where the present system bogs down. If the pilot on the first day won 5th place and 1st on the second day, and another pilot 1st on the first day and 5th on the second day, then they should be tied at the end of two days. The reason for bringing in the number of contestants is that, very obviously, the pilot who finished 5th out of 30 entrants deserves more credit than the pilot who finished 5th out of 10 entrants. Wally's system takes care of this. By his proposed system, any withdrawals are taken into consideration.

The best reason I have heard in this country when a similar type of scoring system was proposed was that the public liked to read big scores in the newspaper. Now *if* it is necessary to satisfy the public with big figure scores, it is quite simple. With 31 contestants, the No. 1 pilot gets 1.000 points. No. 2 pilot lost to 1 and he beat 29 others so has 29 divided by 30 or 96.67% or 967 points. No. 3 lost to 2 pilots and won over 28, so 28 divided by 30 gives him 93.3% or 933 points. Should there be any ties, say two pilots tied for 4th place, both would get the same score — half-way between 3rd and 6th. 6th would get 5 lost and 25 won or 83 3% which is 833 points. The difference of 100 points between 3rd and 6th would be divided by the number tied (2), so 4th and 5th places would each have 883 points. I can't figure any fairer way to resolve ties.

It is interesting to note that in our past Championships, Johnson and Scott would have wound up in a tie, had this system been used. Since in the nine days of Contest, Johnson beat Scott four out of nine and Scott beat Johnson four out of nine and they tied the other day, certainly a one-day fly-off task would seem to be required to determine the true winner. Normally in this country, if the minimum number of days have already taken place, the day of the Banquet and Prizegiving is a day of rest. This could easily be used because the odds that

a tie — and it would be needed in order to have an official contest — would be remote indeed.

This also brings in that the shorter the contest, the greater the luck factor influences the outcome. The contest must be planned so as to keep the number of contest days at a maximum. I do not believe that a National Championship should be decided on any task of less than 100 km. and also that the Contest Day should be one during which 10% of the Contest Flights exceed 100 km. With 30 entries, if 3 pilots don't exceed 100 km. and all contestants have had an opportunity for a launch, it should be "No Contest". However, if 10% or more (to the nearest full number — 31 entries would require 4 to go 100 km. if all made or were afforded an opportunity to fly) exceeded 100 km., the scores would be as Wally stated, except that under my suggestion they would get only half what they would with his if the percentages were used. With the modern high-performance sailplanes of today, it only takes three or four thermals to 3,000 ft. above ground to reach 100 km., including the tow. Therefore, I doubt seriously if we should use any shorter distance than 100 km.

I agreed most heartily to his pilot "A" and pilot "B" example, as I have actually had the experience of beating another pilot four out of five days in one of our Nationals and yet he finished ahead of me. No matter what anyone says, I'm convinced if I can beat him four out of five times and yet finish lower in the standings, something is wrong with the scoring; not math-wise but system-wise. This certainly should indicate that the proposed new system is an improvement over the present one.

Comes next the problem of how fine a tolerance to score to. I have seen cases where two of our pilots landed in the same field, within 200 feet of each other, yet had different scores in the next morning when posted. You say it can't happen? Well, it did because two different people measured the distances as the cards were turned in and did not cross-check one against the other. From now on I'll simply state on my landing card "in the same field with —'s so and so" to call attention to the fact that all should have the same score. The point is, with the speed task being timed to the second, then in all fairness the distance should be measured to the nearest 200 feet which gets "sticky". Let's keep the distance and time measurements equal and realistic. One contestant could well be in the same field with another and yet be a mile away, either a shorter or longer distance from the course.

I think I could sum up by saying that Wally has come up with an idea that is long overdue. Let's try it out on some Regional Contests and see if it doesn't work better than our present complicated systems.

ROBERT B. SMITH

Bay Shore, N.Y., U.S.A.

THROW AWAY THE SLIDE RULE. 3

Dear Sir.

As a sufferer of the present official scoring system chiefly because I have to spend the nights of each competition waving my slide rule hopefully in the direction of the maps and irate competitors, hoping it will come out right in the end — may I congratulate my forever friend "Wally" Wallington for bringing sanity back to the nights of competitions.

Having spent a lot of dark non-soarable winter evenings studying the Competition Records in SAILPLANE & GLIDING, I can merely confirm that the complicated mathematics in general make a negligible difference to the final order.

There is, however, one circumstance where a slight modification has been found desirable. On a marginal day — or a day when a line of clamp crosses the competition track — all the competitors tend to be very close together. Their landing position is often determined by the launch time or the amount of dice they are prepared to put up with in picking a field. In these circumstances there is a vast and unrealistic penalty for being even a mile or two back from the leader.

As an example, 40 competitors set off on a 200-km. out-and-return down wind and then up wind of, say, 10 km. A clamp crosses the site two hours before the

winner is expected back. The distribution of landings will show a marked concentration at a distance equivalent to about 1 hour short of the goal. The penalty for being at the back of this group is closely related to take-off time, i.e., the "best" pilot could easily be 25th and only five miles behind the day leader because he had a late take-off. This has happened with sufficient frequency to modify and simplify the scoring still further.

Thus I propose that if two gliders land within 1 n.m. of each other they should be regarded as one, i.e., in the above example there would be, say: 5 gliders with 1 point. 5 with 2 points, 5 with 3 points, 5 with 4 points and 5 with 5 points.

The rest scattered back from the clamp point would, of course, be 6—7—8, etc., points according to their positions.

The effect of this is to devalue the day, which is, of course, correct.

I shall be using this modification at Dunkeswell in our 1965 competitions.

Branscombe, Devon. JOHN FIELDEN

LOGWALLYMARKS

Dear Sir,

I think Wallington's proposed marking system ("Throw away the Slide Rule") is brilliant. If I have understood him correctly, he says that the rate of change of marks with distance should be proportional to the "difficulty", and that since the "difficulty" of a region is best estimated by the density of landings in that region, the rate of change of marks should be proportional to this density. Integrating, the marks awarded for a given distance should be proportional to some linear function of the placing only.

However, this argument does contain a fallacy: the "difficulty" of a region should be taken as proportional to the landing density in the region expressed not as the fraction of all the gliders, but as the fraction of those gliders that reached the region. Thus, if one hundred gliders set out, of which fifty landed in the first eighty miles and fifty in the next eighty, then the second eighty miles was more difficult than the first, because all the gliders that entered the region landed in it, whilst of the hundred gliders that entered the first region, only half landed in it.

This defect can be remedied. Let the gliders that have landed in the first x miles be a fraction $F(x)$ of the total. Then the landing density at x is $f(x)=F^1(x)$, and the "difficulty", as I have defined it, is

$$h(x)=H^1(x)=F^1(x)/(1-F(x)) \quad \ldots\ldots\ldots\ldots (1)$$

Integrating, $H(x)=-\log(1-F(x))$. But $H(x)$ gives the marks for distance x, since its differential is the "difficulty" $h(x)$, following Wallington's principle; indeed, $H(x)$ is the "accumulated difficulty" overcome by a glider that flies x miles, so it is a sensible, additive, marking function. $(1-F(x))$ is the fraction of gliders passing x, and for "technical" reasons associated with the fact that whilst our data are discrete our theoretical functions are continuous, it is to be interpreted as the glider's placing, r, divided by one more than the number of gliders, $N+1$. The r^{th} glider should therefore earn marks $\log[(N+1)/r]=\log(N+1)-\log(r)$, and again the marks are dependent only on the placings.

There is, alas, no room to continue this discussion in a letter. Suffice it to say that equation (1) is, not surprisingly, also the equation giving the expected distribution of landings, $f(x)$, when the chance of someone at x landing before $(x+dx)$ is $h(x)dx$. The solution is $f(x)=h(x)\exp[-H(x)]$. When the "difficulty", $h(x)$, is constant, say h, then $f(x)=h.\exp[-hx]$, the negative exponential distribution function (please —no letters about the Poisson distribution this time). The only major criticism I have is that we are effectively assuming all pilots to be equally competent in order to derive the "difficulty" function, and then gaily awarding marks on the assumption that all pilots are *not* equally competent: we must be underestimating the "difficulty" far from the start, where it will be measured against the best pilots, who have gone furthest. Notwithstanding this, I feel sure that in the end the "logwallymark" $\log(N+1)-\log(r)$ will prove to be the basis of the best marking system to be had.

Stanford University, California. ANTHONY EDWARDS

LEFT HAND, RIGHT HAND

Dear Sir,

If I had only known! All these years making up alibis for premature landings and poor performance in my Sisu when the answer was right at hand — my left hand, to be exact. That is where the canopy hinges for all Sisus are located! (SAILPLANE AND GLIDING, February-March, 1965, page 9).

However, we are desperately trying to keep this information from Al Parker — I'm certain if he had been aware that Len Niemi's design forced him to mount his steed from the port side rather than the correct starboard, that he would never have accomplished his distance record! The psychological problems involved are just overwhelming!

Now, the thought strikes me that perhaps this is why I always find it easier to circle to the left — obviously, the canopy being hinged on the left side insures that I am always flying in the opposite direction to my companions whose sailplanes permit them entry on the "approved" port side. Also, this is undoubtedly why my variometer reads "down" when everyone else is going "up".

So, about the only justification I can see for the Sisu design is political — is a pilot's canopy hinge related to his voting record? What about our thermals — left-handed, right-handed, Northern Hemisphere vs. Southern — now I'm really confused!

Scottsdale, Arizona. JOHN D. RYAN

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RETIREMENT OF "SAILPLANE'S" FOUNDER

ON 6th September, 1930, the first issue of THE SAILPLANE AND GLIDER was published; a reduced reproduction of its first page will be found in SAILPLANE & GLIDING for October, 1960, p. 319. The magazine was founded by Thurstan James, then on the editorial staff of *The Aeroplane*, of which he later became editor. On 22nd February this year, to mark his retirement both from the editorship of *The Aeroplane* and 40 years' service in British aviation, a dinner was given in his honour by a number of those who had contributed regularly to *The Aeroplane* since he became its editor in 1945. He had expected to see only the present office staff, and was delighted when more and more friends kept rolling up out of the past.

I first met Thurstan James at the inaugural public meeting of the London Gliding Club in Bloomsbury on 14th February, 1930, when he signed my entry form and added the words: "I collected this money at the meeting and gave him a temporary receipt. Get him to sign this form or we shall be liable for injury, etc."

Thurstan James was a regular attendant at the London Club's early flying meetings, first near Tring and later on Ivinghoe Beacon. Then, in September that year, he started THE SAILPLANE AND GLIDER as a weekly of eight pages (double the size of the present page), costing 3d., doing all the editorial work in addition to his full-time job on *The Aeroplane*, from whose office the magazine was published. It became a fortnightly of 12 pages in July, 1931. At the end of that year Thurstan James had to give it up; its ownership was transferred to the B.G.A. and Frank Entwistle edited it throughout 1932 in addition to doing a full-time job at the Meteorological Office. He, in turn, found the work too much by January, 1933, when I took it over in addition to a full-time job in the London Fever Hospitals service, eventually giving up the full-time job instead of the editorship in September 1936. The magazine had become a monthly in October, 1933.

Thurstan James started his aviation career at Short Bros. at Rochester, then joined *The Aeroplane's* editorial staff under its editor and founder, C. G. Grey. They both left that magazine shortly before the war, during which T. J. worked in the Ministry of Aircraft Production and finished up as Director of Aircraft Production (B). In 1945 he asked me to lunch, disclosed that he was about to become editor of *The Aeroplane*, and suggested a regular feature on Gliding, which I began in February 1947 and continued for just over 15 years until the magazine went over exclusively to commercial aviation. Any interview with him in his office was always stimulating, because of his especial interest in unconventional forms of flying, such as man-powered flight, airships, space travel, and, above all, soaring.

A. E. SLATER

OBITUARY

LOUIS SLATER

THERE must be many people in the gliding world of today who do not know the name of Albert Louis Slater, who died on 16th December, 1964, at the age of 69. Spare a few moments, however, to consider this man and his works, for it is to him and others like him that you owe the flourishing gliding movement you enjoy today.

Louis Slater started gliding in Derbyshire in 1930, inspired by Kronfeld's and Magersuppe's visit to this country and to this county. He formed and ran one of the mushroom clubs that sprang up at that time, and on its demise was left with an even stronger conviction that gliding was "Real Flying" — a conclusion by no means so obvious then as it is now.

His next step was to join the newly formed club at Dunstable and continue his flying there, although he lived and worked in Matlock, Derbyshire. It could truthfully be said of Louis that no one taught him to fly; he taught himself, and

I am sure the few remaining Dunstable "instructors" of that day will not quibble at this statement.

After obtaining his C at Dunstable in 1933, it soon became apparent that private ownership was the only way ahead, and with two friends he therefore set about building his own machine, the "Golden Wren". This machine first flew at Sutton Bank late in 1934, and subsequently all over the north of Derbyshire, according to the wind. It was with this machine that Louis and his associates discovered the site of the present Derbyshire and Lancashire Club at Camphill, Great Hucklow; and Louis was, of course, one of the founder members and guiding lights of the present Club in its early days before the war, obtaining his Silver C (No. 291 in the world, and No. 10 in this country) in his own machine from Camphill in 1936.

He was the originator and manufacturer of the Cobb-Slater Variometer, for 20 years the most indispensable single instrument of the sailplane pilot.

He was in truth a Pioneer of British Gliding, and long may his memory continue.

G. O. S.

* * *

SIR DAVID BRUNT

SIR DAVID BRUNT, K.B.E., F.R.S., who died on 5th February, was one of the first scientists to recognize that the experiences of the behaviour of the air achieved by pilots of sporting gliders could be of the utmost value to meteorological research. In 1934 he came to a Council Meeting of the British Gliding Association, and the mutual impact of personalities was such that at the end of the meeting he was offered, and accepted, the position of Chairman. He arrived at a crucial moment, when the B.G.A. was just settling down after a horrid spell of internecine warfare, and what it needed above all else was a new man from outside, non-partisan, firm and fair. Prof. Brunt fitted this need exactly. He held the Chair until 1946, when he retired and accepted a Vice-Presidency, and Dudley Hiscox took over.

In 1937 he led the British team at the first international gliding contests held in Germany. Even during the war his interest continued, and in 1942, when President of the Royal Meteorological Society, he organized a lecture meeting in London, which turned out to be a kind of gliding reunion. As much as any man, Prof. Brunt welded the gliding movement into a single responsible whole. We are individualists, and have our arguments, but continue to preserve a united front to the world.

P. A. W.

* * *

Sir David Brunt's scientific work included many laboratory experiments on the pattern of convection currents in fluids. Some simple experiments had already been done by the late Sir Gilbert Walker, who was Prof. Brunt's predecessor as (a) Professor of Meteorology at Imperial College, (b) the Royal Meteorological Society's representative on the B.G.A. Council and (c) president of Imperial College Gliding Club.

Sir Gilbert had made a large shallow trough, roofed in with glass, and into this closed cavity he blew tobacco smoke, while the bottom of the trough was heated to produce an unstable layer. The result was a pattern of smoke "cells" resembling miniature strato-cumulus, and when he moved the glass roof to produce "wind shear", the smoke arranged itself into miniature cloud streets, lying across wind if the shear was small, and parallel to wind if it was large.

Sir David Brunt used suspensions of bright particles in liquids and investigated the fundamental laws of cell motion by other devices such as producing cells in a highly compressed gas. A favourite demonstration of his was to produce convection cells in a watch-glass by pouring in some cheap gold paint. The surface of the liquid would cool by evaporation, producing instability and a pretty pattern of convection cells in the gold particles, which rose to the top in the middle of each cell and fell at the edges.

During the war Prof. Brunt applied this knowledge to predicting the probable rate of spread of poison gas, but fortunately his estimates were never put to the test. He was elected a Fellow of the Royal Society in 1939 and was knighted in 1949.

A. E. S.

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No.	Name	Club	1964
131	J. C. Everitt	National Coach	30.6
132	A. D. Purnell	Surrey	9.9
133	H. J. Shaw	Laarbruch	4.9

DIAMOND FOR HEIGHT

No.	Name	Club	1964
3/41	P. Hanneman	R.A.F.G.S.A.	9.10

DIAMOND FOR GOAL

No.	Name	Club	1964
2/173	C. J. Wride	Moonrakers	23.8

GOLD C DISTANCE LEGS

Name	Club	1964
C. J. Wride	Moonrakers	23.8
D. Innes	Fulmar	22.5

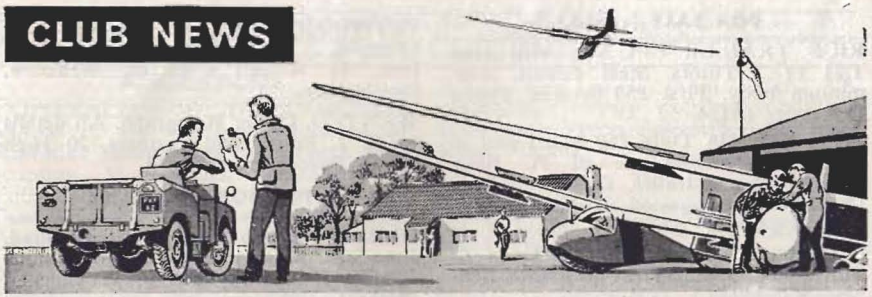
GOLD C HEIGHT LEGS

Name	Club	1964
A. D. Purnell	Surrey	9.9
H. J. Shaw	Laarbruch	4.9

SILVER C CERTIFICATES

No.	Name	Club	1964
1556	M. Bailey	Imperial College	11.8
1557	D. Hatch	Derby & Lancs.	28.6
1558	D. G. Hayhurst	R.A.E. Farnborough	15.5
1559	W. I. Lewandowski	Polish A.F.A.G.C.	20.9
1560	K. M. Pearson	Doncaster	30.8
1561	S. M. Johnson	Polish A.F.A.G.C.	27.9
1562	R. J. Martin	Imperial College	20.9
1563	F. Darkins	Surrey	26.6
1564	C. L. Withall	London	6.7
1565	H. Jefferies	Bristol	20.9
1566	D. F. Erskine	Surrey	29.8
1567	A. C. Wordsworth	Southdown	3.1.1965

CLUB NEWS



WITH several reports of thermalling in mid-February let us hope this is a foretaste of the good season to come.

Please note that the June issue will be published a fortnight earlier in time for the World Championships. Copy for inclusion in the June issue should therefore reach me not later than Wednesday, 7th April, at 14 Little Brownings, London, S.E.23

17*th February*, 1965

YVONNE BONHAM (MRS.),
Club News Editor

AVRO

WE can regard our activities during 1964 with a reasonable amount of satisfaction. Our aircraft flew 3,157 launches, and a number of sites were visited. Nine members flew their first solos and we gained eight C Certificates at Woodford; considering these were gained below our height limit of 1,000 ft. — soaring conditions must have been extremely good.

New Year's Day coincided with a highly unstable airstream enabling the T-21 to soar between the hailstorms; it would be nice to think that this points to an even better soaring season.

Our youngest pupil, Tim Brocklehurst, already has 200 flights recorded in his log book with four years to go to his 16th birthday; before then he hopes to do dual cross-country flights, and already advises some of our more senior members on their soaring technique.

Members are looking forward to visiting other clubs again, having been made very welcome in the past, our main regret is that we cannot offer the same hospitality.

J. A. K.

BRISTOL

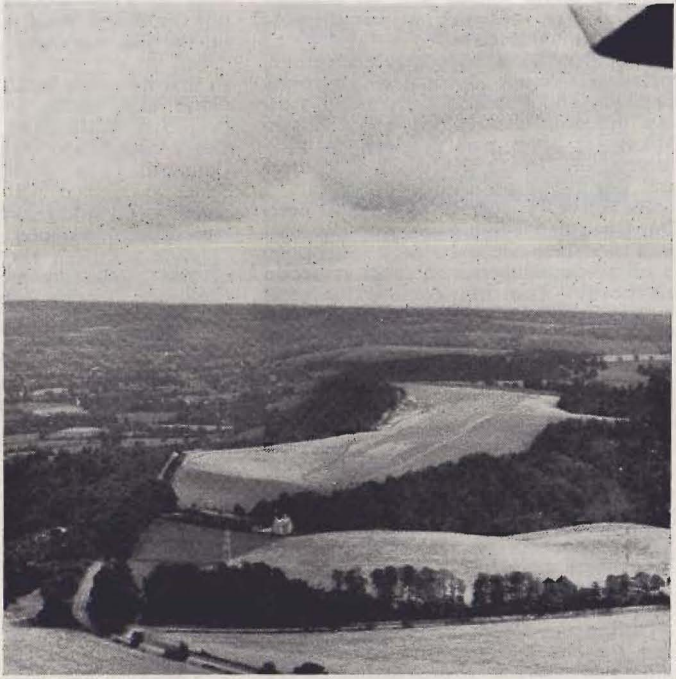
THE first two months of the year have brought kinder weather than usual and training has been pursued most week-ends. Ex-course winch driver, Peter Jeeves, soloed in the Prefect in January.

On 14th February, in a cracking northerly, Silver duration was achieved by Mike Harper (Olympia 460), Wilf Harper (Club Olympia) and R. Butler (Moonrakers' Olympia). On the same day Roy Gunner gained his C with a flight of over two hours. In the previous day's gale Jim Stuart-Menteth (Olympia 460) threw away Gold height by scorning the use of a barograph and explored the Nympsfield wave at 10,500 ft. for many miles.

There have been other soarable days, but 14th February was notable for long periods of thermal lift taking pilots to cloudbase at 4,500 ft. The log shows we had over 53 hours' flying from 52 launches. Some of this was shared by R.A.F. Moonrakers, whom we were pleased to welcome with their Olympia and Ka-7. Nice also to see "John Willy".

After the annual drinking comps. at Bicester, Rudolph was retrieved and is back again presiding over the various club improvements. Piped water is one step nearer, we have the pump and tank. Aircraft are queueing up for C's. of A. and de-gribbling in the workshop and the eternal cry goes up "where do pilots go when aircraft need fettling?" However, with a new winch in the offing and the soaring season already here we look forward with renewed enthusiasm.

R. G.



Bristol Club's site, looking east, photographed by remote control from a radio-controlled model glider soaring the west ridge; its wing tip is also seen.

CAMBRIDGE UNIVERSITY

WE started the year with an improvement of the Club fleet. A Tugmaster has been acquired as a towing plane. This step was very necessary since our winching facilities at Cambridge Airport have become more and more restricted over the years. Arrangements are now in progress to obtain a high-performance two-seater, another urgent need.

For reasons of economy we restricted regular flying to three days of the week during the winter months. This proved a sound measure. It reduced frustration and, if anything, brought us a little more flying. In March, however, we revert to the traditional target of flying every day and all day — if there is a demand and the weather doesn't stop us.

There is no lack of plans for the summer. We shall again have two camps at the Long Mynd and at least four aero-towing courses at Cambridge. A group of members will help at the World Championships and provide crew for the New Zealand team.

Our intake of undergraduates, which had been low in the two preceding years, was particularly good at the beginning of the current academic year. We are looking forward to a very active season.

G. S. N.

COVENTRY

FLYING at our new site at Husbands Bosworth has been rather limited this year due to the weather. However, this has enabled us to work on the site. The temporary Clubhouse is almost finished, after lots of hard work, altogether a grand combined effort from everyone. An even finer effort, however, was the massive hangar door. This was designed and built entirely by Club members. Our thanks are due to those mainly concerned; Mike Hunt, Chris Duthy-James, Doug Cunningham and Lou Glover. We must not forget either Messrs. Ciba, Newark's, of Coventry,

and Mr. Smith senior, who all supplied material free, although at considerable expense to themselves.

Several officials have recently retired, including our Treasurer, Ground Engineer and Publicity Officer. We convey our thanks to Chris and the two Mikes for their past services; to their successors, Dereck Harris, Lou Glover and Reg Neep, we wish every success.

We close, I regret, on a sad note. Our Chairman, Mike Hunt, who has been with the Club since its very beginning, is off to South Africa in order to retain his health. This has come as a great surprise to us all, I am certain that Mike would not wish to leave us in this year of great promise. He will carry with him our thoughts and best wishes and, I hope, memories of a wonderful farewell party, which is to be held in March.

R. N. N.

CROWN AGENTS

IN consequence of a resolution of the members the club is being dissolved on amalgamation with the R.A.E. Gliding Club, Farnborough.

During the eleven years of our existence the club has provided facilities for gliding at moderate cost to a total of 172 members — 121 home based and 52 from overseas. Many of them had never flown before, and most of them were enabled to achieve the solo stage.

Our thanks have been tendered to our Patrons for their support, and to the Crown Agents for financial help from their Special Fund. We now wish to all our members, who automatically become transferred to the new R.A.E. Gliding Club (1965), continued happiness and success in their gliding.

J. E. G. H.

DERBYSHIRE & LANCASHIRE

DESPITE difficulties experienced with our training aircraft, the returns for 1964 were encouraging. It is to be hoped that the weather was not the only factor that enabled us to complete a thousand more launches than in 1963. An enthusiastic approach to some varied weather this year has produced 50 hours of flying in January. The north, west, east and south soaring slopes have all been used successfully with wave and hill lift. Pilots even had to use thermals on the last week-end in January!

Sad to say our club has lost two of its first members with the deaths of Louis Slater and Eileen Smith. Louis soared over the Derbyshire hills before he, Gerry Smith and Robertson discovered Camphill. The world famous Cobb-Slater variometer will undoubtedly have given us all many happy hours of soaring. Eileen, as one of the Camphill "gliding widows", shared in the exploits of this pioneering group. Recently our Chairman, having gone solo on a ciné projector, has been busy entertaining the Saturday nighters with film shows.

A welcome new arrival at Camphill is the new white and red Capstan, thanks to a very generous offer by Peter Street. After three week-ends in operation there are already sixteen qualified drivers and more on the way. Being as yet without trailer, the first away landing called for a retrieve, partly performed with pedestrian accompaniment. Thankfully all returned home safely in the twilight.

D. M. K.

DONCASTER

OUR second T-21 arrived in mid-January and immediately went into service. It has made a vast difference to the speed of getting through the two-seater list, and training members now find it possible to have a second turn later in the day. The launch rate in January has been quite good, averaging over 100 per week.

Due to the expected pressure this season on our normal three wire winch launch system, plans are afoot to operate

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four wires in two separate units. The fourth Diesel Bus is about to be bought and converted into a winch and the question of a fourth Diesel Tractor is also being discussed. The Committee are also exploring the costs, etc., of ground to ground radio communication for more efficient control and operation.

Stan Armstrong and Brian Jefferson came over from Camphill and talked to us on Competition Organisation in relation to the Northerns which we are holding this year in July, and we have also had Mr. Dalton of the Bawtry Met. Office to talk to us on Met. He brought with him some very excellent slides on cloud formations. Our thanks to all three.

January has also brought first solo's by Brian Cordon and Bob McLean. (Bob went solo the day after his 16th birthday.)

Our Mobile Canteen, which is getting quite well known in the Gliding world, continues manfully on. Our grateful thanks go to Jean Westerside and the other lady members. Last year, with the able management of Jack Bowers, they made a profit of £190. Jack also squeezed £210 profit out of the bar.

G. C.

DORSET

GALLOW'S HILL is now alone with its ghosts and feathered fowl but, at the time of writing, plenty of "preening" is in progress elsewhere in preparation for the next soaring season at a new site.

C's. of A. are being done, the Caravan gleams inside and out in a new coat of paint, trailers spring up like mushrooms from heaps of timber and hardboard and the Land Rover is transformed into a red and silver Fire Tender. Not to be outdone, the Tiger Moth sports, among other improvements, a burnished cowling.

Our Annual Do was a Buffet Dance on 27th November at the home of our ever-generous President, Commander Kidston. During this very successful evening the "pots" were presented. Geoff Warwick received the John Garrod Trophy for flying the highest and the farthest during the year: Ron Tarling received the Johnny Hanks Trophy for his five-hour flight tacking to and fro along Kimmeridge and Commander Kidston accepted the Wooden Spoon for his mammoth stirrings on the Club's behalf.

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Last summer we enjoyed the company of a few young Swiss pilots from the Schaffhausen Segelflug-Gruppe and we have had an invitation for our members to join them on their home ground and skies for a gliding and camping holiday next summer. We hope for a long and happy association between our two Clubs.

J. H.

HANDLEY PAGE

AFTER a year of keen competition Alan Dowsett wins the Soaring League, followed by Sandy Ing in second place. This is a well deserved victory, but nevertheless, doesn't detract from excellent results achieved by other members.

Many hours spent quietly and determinedly on our gliders have provided us with two immaculate aircraft. Although we have sold the T-31, we have a very smart Tutor, and high hopes of a higher performance trainer very soon.

Our first flying day this year incorporated the christening of our new Clubhouse, which is proving a pleasant refuge from the rude winds of the airfield.

F. E. V.

LAKES

IT is intended to run six courses during the summer months. Once again Edna Hall, as Course Secretary, will be responsible for arrangements and at the time of writing applications are already

coming in. We hope to have our own clubroom with dormitory accommodation ready at Walney, and if things go as well as they did last year, we are in for a busy time. We look forward to renewing old friendships as well as making new ones, so if you are interested, drop a card to "The Willows", Kentrigg, Kendal.

Two years ago we made our first flights from Walney, and it is not to be wondered at that some of our more experienced pilots have explored the Furness skies. What has surprised us is the propensity shown by some pilots to stay aloft without obvious means of support and, to be quite frank, we are beginning to explore possibilities which were unexpected hitherto. What, for instance, were the mechanics of Derek Sandford's effort on 20th December when he latched on to a skyhook at 3,000 feet, and stayed with it for over an hour? While the Club gaped from ground level the only remark which seemed to strike a chord came from one of the recent solo boys who muttered something about it being "too ruddy cold for a thermal!" Seriously though, Walney has a lot to teach us, and we are going to have some fun in the process of learning.

"O wad some Pow'r the giftie gie us to see oursel's as others see us!" has been the wish of many before and after Robert Burns. It came true at the Lakes when Mr. G. Dawson brought his cameras and spent a lot of time (and money) in our company recording what made us tick. The result won high award in a national film competition and deserves our hearty congratulations. We are indebted to him for a private viewing.

F. G. R.

LONDON

WE welcome two *more* flying staff to the club. Ian Burgin, an Australian (having a little look around the world) who has spent the last four years in Texas, has already settled in as if he had been here for years. He was Al Parker's right-hand man and helped him with the 1,000 km. record. Also Jan Mikulski, an experienced power pilot, formerly a gliding instructor with the Pakistan Air Force. Jan is here with his wife occupying a big dormy.

The face of the club is slowly changing as great lorry-loads of earth are being dumped in the gully.

There is an idea afoot of wiring the field with a telephone system for communication between winch, launch, and aero-tow point. It is a great help to the winch driver to know if there is Scud 2 or an Eagle on the line.

We hope to see some new syndicate-owned gliders at Dunstable this year, a Dart, Ka-6, and 463, and maybe also a club Capstan. One of the new empty trailers nearly went cross-country one windy night when it ended up in a vertical position.

In January the Tull brothers announced that they will complete their Skylark 3 for this season.

We bestow special thanks to John Argent and Jeff Nixon for the fantastic amount of work they are putting into yet another winch. Every week-end bits of metal grow on the large lorry chassis being used; this one already has a driving cabin.

This season Jim Wingett has outlined a flying programme that should provide good results and more enthusiasm.

We still mean to have our two-week courses but during the peak season the number of pupils per course will be five instead of ten. In this way, one professional instructor is free to devote more time to club members.

A performance ladder will soon be displayed in the clubhouse and pilots will be awarded points for all cross-country flights.

A Silver C week is scheduled fairly early in the season and is filling up nicely with future pundits. There is also our Regional competition in July.

Good luck and happy soaring to everyone.

J. C.

MIDLAND

ON the 13th February a strong westerly wind brought good wave conditions to the Mynd. Several members enjoyed good climbs, the best being of 9,000 ft.

The Club's Trophies were awarded for 1964 as follows: Siam (longest flight) to Ray Stafford-Allen and Janet Hilton (T-49); Hardwick (out-and-return) to Ric

Prestwich; Sheffield (gain of height) jointly to Ric Prestwich and John Brenner; Neill (ab initio) to Fred Kinchin and Maxam (Club effort) to Christine Mansell. The Trophies were presented on the 12th March at the Dinner Dance. This year's event, differing from the dances held in previous years by the inclusion of a dinner, was organised by Marjorie Hobby and enjoyed by everyone present.

By now two more new Olympia 463's should have appeared on the Mynd. One a Club aircraft, complete with a splendid trailer built by Ken Rylands and Tony Caveen. The other owned by Tony Adams' syndicate and replacing their old Olympia 2.

We look forward to the Easter Rally, which has been well supported despite the freezing of the rating list.

K. R. M.

NEWCASTLE

FLYING has continued at Carlton throughout the winter months, thanks to a relatively mild winter (up to the time of writing) and a very welcome supply of soaring winds. In fact the occasions on which we have been unable to fly have been caused more by excessively strong winds than the snow and low clouds which we expect at this time of the year. Our more hardy members have been putting these soaring winds to good use, in spite of the cold, and a good number of hours have been logged, even though the total number of launches has increased rather slowly.

Our main problem at the moment seems to be a shortage of two-seater pilots, due to either a reduced intake of new members or to the attractions of a warm fireside! Steps are being taken to put matters right in this connection.

When this appears in print our Annual General Meeting will have been held and chairman Ian Paul will have reported on the best ever year at Carlton.

As always, there is a tremendous amount of work to be done this year, both on the actual site and on the club buildings. Plans for the improvement of the clubhouse are in hand, a workshop is to be built, the road improved, and a further attack made on the enormous problem of grassing the site. With all this work waiting to be done, we'll be lucky to get much flying at all in 1965!

Finally, our sincere congratulations to June Barker and George Rowden on the recent announcement of their engagement.

B. W. B.

NORTHAMPTONSHIRE

THIS is our first winter operating from Cranfield. Flying has taken place whenever weather permitted and soaring existed as early as mid-February.

John King, Ted Barton and Derek Wilcox are now assisting as instructors.

Although the period under review is not normally a very active one we are agreeably surprised to find that membership has continued to grow, even in the winter months.

The possibility of purchasing a second Swallow is still seriously being considered and it is hoped to have one in time for the soaring season.

The Club's first social occasion in the year was a dance in February organised by Jom France.

R. N. W. K.

OUSE

THE start to the new year has not been too impressive, but nevertheless, the usual crop of hardy types have continued to keep their hand in with a few circuits. The postponement of an aero-towing programme was a disappointment, but we are taking steps to include aero-towing in the future.

Technical Officer, Geoff Bailey-Woods, has completed C's. of A. on the T-31B and Swallow. A modified Skylark 4 canopy has been fitted to the Swallow and, apart from the advantage of improved all-round visibility, now appears to have a slightly increased rate of acceleration. Since polar curves are all the rage now, it would be interesting to test this "super Swallow".

Our new winch has undergone satisfactory trials on one drum and should be in operation by the time this is published. Together with the existing winch, which will be out of commission for a short period for servicing, we'll soon have a four cable launching system. Our appreciation to Jim, David and Stan Park who have spent many cold

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hours in the hangar to make this possible.

A welcome addition to the Club committee is Fred Lees, who has been co-opted to take care of site development. Fred, incidentally, has now "settled-in" on the instructing staff. Our Flying committee have ordained that we should endeavour to increase our fleet to the tune of a Skylark 3F and T-21B for the soaring season.

Another promotion for Richard Boddy now brings him to Instructor U/T. Welcome aboard Richard and best of luck. Dennis Yeates also deserves a mention for his fine first solo flights — the first of 1965.

Finally, on behalf of all members, many congratulations and best wishes to our C.F.I. Wilf Coulsey and his bride Yvonne Thistle, who were married in January.

G. L. B.

OXFORD

WHILST the winter months have brought little of note so far as flying is concerned, much has been happening on the ground.

Negotiations for a different workshop have been completed and clubroom, stores and workshop are now under one roof.

The work of producing two large holes in two very tough walls was undertaken by a small team headed by Bob Collisson and Trevor Moss and it is now possible to wheel a T-21B fuselage straight in without difficulty.

Fresh and fit after its "major" the T-21B is already working hard and giving an enhanced performance, and by Easter the whole fleet should be active.

Skylark 3F has had its super many-coloured finish restored by its enthusiastic syndicate and Skylark 4 No. 169 is being prepared for the World Championships where it is to fly for Israel.

The past two years, which have produced mainly poor flying weather, have clearly demonstrated that a small club should not look to flying fees to produce too much of its income and the Committee's recommendation may bring about a major change in the club's financial policy.

Some increase must obviously be made to compensate for recent increases in running costs, but it is hoped that by substantially increasing the annual subscription and reducing the launch fee, most members will only have to make a small additional contribution annually for a full season's flying.

The enthusiast should therefore be encouraged and we look forward to a season of more and better flying.

The "Simpson Cup" awarded annually for the most meritorious performance under the aegis of club operations, passes to John Adams of the 168 syndicate. Of the many excellent flights made by this syndicate the award was made for John's Oxford-Dunkeswell flight, which from start to finish was a "low-level" affair.

A. S.

R.A.E.

THE expensive looking firewood that arrived on a trailer behind the Chairman's car one week-end emerged during October in the form of a sparkling T-21. The value of side-by-side training is now being appreciated by even the most adamant tandem riders. The sale of the Kranich equates the acquisition of the T-21 and the Club fleet now consists of the T-21 and Olympia. It might be worth noting that the Olympia flew for 134 hours and the two-seaters did 165 hours between them. Only one two-seater was serviceable at any one time (Murphy's Law), therefore the addition to their flying times is reasonable. These figures compare very favourably with the average of 99.7 hours per glider from the Annual Statistics for Civilian Gliding Clubs, especially as we operate only at week-ends.

The amalgamation of the Crown Agents G.C. and ourselves, which is now completed, led to the formation of the Civil Service Aviation Association (CISAVIA), the inaugural meeting of which was held on 5th October, 1964. This Association, it is intended, will be the governing body of all private flying in the Civil Service.

A pre-payment scheme has been introduced this year, whereby, for a fixed outlay at the beginning of the year, a member can now fly as much as he likes for 12 months without making any extra payment. With this arrangement, some

of the Club's income is assured and also available at the beginning of the year.

Jim Torode was unanimously elected as vice-president at the beginning of February. This is a small measure of the Club's appreciation for all the almost impossible tasks that he has managed to do. It is undoubtedly true to say that, but for Jim, the Club would not be in existence today.

K. R. T.

SCOTTISH

IT is with deep regret that we have to report the death of Tom Johnston in an accident to one of the Swallows on 2nd January. In the two years he had been with us, Tom had become one of the most popular of our members, a keen pilot, always cheerful and harder working than any of us. We extend our sympathies to his sister, Betty.

The C.F.I.'s report for the last year shows that 1964 has been a record-breaking one for the S.G.U., with total launches and flying hours both above our previous best. Winter weather has not been severe enough to affect flying, and wave conditions were frequent during the Christmas and New Year period. Several climbs were made to between six and nine thousand feet, but the best day was 20th December, when Jimmy Rae took the Skylark 3 to near Prestwick (65 miles), reaching 10,000 ft., and our chairman, Andrew Thorburn, made a 100 km. out-and-return to Lake of Menteith, with a best height of 14,000 ft. This flight was made by courtesy of Roger Mann, who is at present with us, and has very kindly given several of our instructors the chance to fly his Skylark 4. Low-altitude wave was found on 3rd January by Eric Higgins, who took the Weihe to Balloch, on Loch Lomond-side, a distance of 50 miles, and seldom climbing above 3,000 ft. He hopes to claim this flight as the year's first Silver C distance.

The club awards for 1964 were presented at one of our informal Saturday evening parties, held in the clubhouse. The club championship was won by Charlie Ross, who also collected the Sutherland Trophy for the best out-and-return flight of the year. The awards for gain of height and distance went to John Goddard and John McLauchlan, while the Service Salver was presented to John Henry, for valiant service in the T-21.

Activity on the ground has also been noteworthy. Our resident instructor, Anskar Sambale, has been prominent on the winches, bringing about a marked reduction in the fumble rate, and his observations on cable wear are expected to bear fruit shortly. A programme of bulldozing has been carried out, with a view to removing the "dog-leg" in the field.

SOUTHDOWN

THE last week-end of January and the first week-end of February brought some good north-east hill soaring winds. Alan Wordsworth, Dave Bryant and Alan Boyle endured the cold for their five hours and Alan Boyle's flight in the syndicate Olympia completed his Silver C. 31st January also brought the first of this year's thermal activity — weak but sufficient to ferry the syndicate 463 backwards and forwards across the Alfriston gap in the Downs to explore the seven-mile length of Downs to Coombe Hill and then round on to the splendid east-facing slope behind Eastbourne which stretches almost as far as Beachy Head lighthouse. This is a really exhilarating extension to the Club's hill soaring possibilities and we now await the chance of getting the Olympia across. Needless to say this is a route pioneered by Chris Hughes, who several years ago took the Club Olympia along this same route.

We welcome any visiting aircraft and pilots who would like to come along when a north-easter blows.

Our congratulations to Ron Walker, our Deputy C.F.I., and Jeanie Swinhoe on their recent marriage.

P. W.

SOUTH WALES

LAST year was not a good one generally, but we did start cross-countries, one of which was 200 km. and another raised the altitude record to 5,800 ft.

This year we hope that real progress will be made, we are going ahead with the purchase of a Swallow previously owned by Bill Smart's syndicate. This syndicate has bought a Skylark 2. John Hughes, Ieuan Lewis, Alf Williams and

Danny Roberts hope soon to finish the rebuilding of the ex-London Gliding Club Kite.

Members are already developing a taste for soaring in the Swallow and on the 14th February 3,500 ft. was achieved in a thermal set off by a fern fire at the side of the mountain. Later the same day Danny Roberts had nearly an hour in our elusive wave.

D. E. F.

STAFFORDSHIRE

CHANGES in officers took place at the A.G.M. due to resignations and Gordon Hudson is now Secretary, Walter Harvey is Treasurer, with Hutch retaining his seat as Chairman. A newcomer to the committee is Boris Clare. The retiring Secretary, John Marsh-jones, and Treasurer, John Kaye, have served the club since the outset and are due a vote of thanks for their untiring efforts.

The total of launches last year was just over 3,000 and club membership now stands at about 70 with a fairly steady flow of new members. Our aero-towing facilities are now operational after an initial set-back due to a heavy landing on the Tiger. However, it was only out of service for about two weeks and pilots have now been checked out and towing started on 31st January. Our 1964 soaring season closed on 20th December when some lift was contacted by one of the syndicate Olympias and used to sustain a 15 minute flight. The season for 1965 opened on 7th February when the same patch of lift reappeared in a northerly wind and was soared by several pilots, including Derek Longland, who stayed up for 30 minutes in the Tutor thereby claiming his C. This phenomenon is now regular in northerly winds and may be a type of wave, since wave clouds have been seen over the field in this wind direction.

Pete Galvin's Silver C cross-country to Gotham near Long Eaton has been ratified — congratulations Pete.

A. W. H. L. W.

SURREY

THERMAL soaring started early this year. On Sunday morning, 14th February the atmosphere round the Club was reminiscent of high summer; people were even muttering about five hours. In the event, Bill Dean stayed aloft 3½ hours and several others had flights of an hour or two all using thermals only. Prior to this, there were a few slightly thermic days but the main activities of the Club centred on the usual Winter fettling jobs. Aircraft, trailers and retrieve car were brought up to scratch, and we look forward in the coming months to using the audio attachments which have now been fitted to the Cook varios in the Skylark 3's and 4's.

The Club is lending one of its Skylark 4's to the Rhodesian team for the World Championships and providing crewing help. We wish them the best of luck in the contest.

Pat Garnett gave up the chairmanship of the Club at Christmas after a three-year stint, and the job has been taken on by Alan Purnell.

P. S. G.

THE TIGER CLUB (Redhill)

THE strong contingent of Tiger Club tug pilots beat all records in 1964 for towing with the Club's Tiger Moths both with the "cooking" and "super" versions. The number of launches achieved was 1,160, and gliding clubs visited numbered 12. A good proportion of these were organized by Dennis and Gordon Crabb, whose new Slingsby Dart has replaced the Skylark 4 as the resident glider on Redhill aerodrome and recently, as an experiment, the Dart was towed off Redhill aerodrome by a Rollason 1500 Turbulent.

The Club's Glider Towing medal for 1964 has been awarded to Mr. Charles Mackenzie, who only joined the Club early in the year.

D. M. J. J.

WEST WALES

OUR annual Dinner Dance went east this year and a very good night was enjoyed by all at the Royal Ivy Bush, Carmarthen, at least the tail-enders did not retire until after 4 a.m.

Both the Green Ball soaring pot and the magnificent President's Trophy were won by young Dicky Baldwin, and the trophy for the longest cross-country by Bill Shepherd. A surprise trophy was a

beautiful miniature of a Tugmaster towing Skylark, made and presented to the club by John Thomas, awarded to David George for his services to the club as Chairman, Instructor and Tug-pilot.

At our A.G.M. we were delighted to see Liz Kemp take over as Club secretary and Mavis Devonald as holiday course secretary, we are all now looking forward to finishing committee meetings before midnight.

The decision to sell our Skylark 3F No. 66 has alas been confirmed. There is no other way of clearing our obligations to the Shaw Slingsby Trust and affecting the fewest number of club members. We all appreciate that the purchase of Skylark was made possible by the S.S.T. in the first place and, indeed, the very existence of the Club. We would like to take this opportunity of expressing our appreciation of the responsibilities and services given by Philip Wills, Basil Meads and the Council of the S.S.T. to the whole of British Gliding. It is incredible that faceless men of bureaucracy can break faith with men of honour and integrity. In domestic as well as international affairs the confidence and faith in Britain's honour and justice is being lost.

T. G. P.

SERVICE NEWS

BANNERDOWN (R.A.F. Colerne)

IT is inevitable that December and January see the nadir of flying activity when disinclination, celebration and precipitation all take their toll, but this year ventilation has been added in the form of gale-force westerlies, although our 96 launches for 5 hrs. 30 min. is better than the achievement in last year's deep freeze.

The Grunau has gone away for refitting and the T-31 to the Centre for sale. A second T-21B with canopy has arrived and we are looking forward to this addition. A second Olympia 2B has also been asked for and this is now under consideration. We are also fortunate that Fl. Lt. P. Lane will permit selected pilots to fly his Ka-6 and Harry Daniels has ordered a Blanik in which some members may be offered dual flights. In the meantime our Olympia 2B has had its major and is brilliantly resprayed green and white by Rod Tew and Pat Sassi.

The Bannerdown Trophy was awarded to the Rev. Sq. Ldr. G. M. McKenzie and the Colerne Cup for the best cross-country to Fl. Sgt. R. Gaunt.

P. H.

CHILTERNS (R.A.F. Benson)

THE Bicester Cup has at last found a home in the club room of the Chilterns Gliding Club.

With 4,169 launches giving us 456 flying hours, we gained a full 1,000 points over our nearest rivals. It should be pointed out that this could not have been possible had it not been for the excellent attendance of our hard core of members



Members of the Chilterns Gliding Club. Jim Blundel, C.F.I., holding the Bicester Cup.

throughout the year.

Bill Maltby and Barry Nowells made splendid use of strong north westerly winds during February — both getting their five hours' duration on Chinnor Ridge. Another early success was Andy Anderson's A and B in the Grunau.

All three of our winches are now back in service. The latest addition to our M.T. fleet is a Trojan pick-up, for general airfield work.

Tony Perris has recently acquired his tug rating, so now we hope for more aero-towing.

Finally we are very sorry to lose John Raeburn who, after converting to the Olympia, has been posted to Borneo.

G. H.

CISAVIA

THE Civil Service Aviation Association Limited was incorporated in July of 1964 and is the governing body for all forms of sporting aviation within the Civil Service.

It has been accepted as a member of the B.G.A. and will have affiliated clubs attached to it. The R.A.E. Gliding Club with which the Crown Agents' Gliding Club is now amalgamated, has, of course, been in existence for some years, but a new club is in process of becoming affiliated, namely the Post Office Flying Club, and a power flying group will follow shortly.

Cisavia has placed orders for a Beagle Terrier with glider towing hook and a medium performance two-seater glider. These aircraft will, as a matter of policy, remain the property of the governing body and will be hired out for operation by the affiliated clubs at the lowest possible charges.

The Association is open to any member of the Civil Service, and details may be obtained from the Interim Secretary, Godfrey Harwood, 8 Prima Road, London, S.W.9.

J. E. G. H.

FENLAND (R.A.F. Feltwell)

MAJOR inspections, and C. of A.s have been completed on our T-21, Olympia 2B, Ka-6 and Gull 1, and all are now ready for the approaching season. One of our two "wild" winches will be fully "Dieselised", and the other well on its way, by the time this is read. During the time that one winch is away, we are using the retrieve winch system, which has been known to produce 26 launches per hour.

Our Slingsby Gull 1, which is the oldest aircraft still flying with the R.A.F.G.S.A. has recently undergone an extensive major and recovering programme, and has now reappeared, resplendent in Flame Orange and Cream. This aircraft will be made available at the World Championships this year, as a flying showpiece.

Some committee changes have been forced upon us, as a result of postings, and it is with deep regret that we bid farewell to our Secretary — Fl. Lt. Dennis Stubbings, whose vocabulary, official and unofficial, will be hard to emulate; our former Aircraft Member, Fl. Lt. Ken Fitzroy, whose genius with aircraft is a joy to see; our C.F.I. Fl. Off. "Stu" Mead, whose interest and ability has been a stimulus to all, and our Treasurer, Squadron Ldr. Derek Holland, whose sterling work with our accounts has resulted in clarity — a worthwhile achievement.

C. R. E.

FOUR COUNTIES (R.A.F. Spitalgate)

WE have hopes of really doing some good this year, and if the efforts of the club members during the winter months are anything to go by our hopes will not be unfounded. They have been very busy refurbishing all our ground equipment and repainting everything as well. While some of our girls had paint brushes in their hands it was very unwise to stand still for more than a few seconds!

Before soaring really starts, we should have a new tractor and a new winch. These will, we hope, almost double our launch rate. We managed 2,500 launches last year, but we are not satisfied, our target being 5,000 this year.

We have, at the moment, two pilots in the R.A.F.G.S.A. Easter Competitions. Geoff Barrell who should be flying Pete Lane's Ka-6 and Fred Slater who is flying the club Olympia 2B in League 2. Dick Barrett is also first reserve in League 2. We hope for the Club's sake

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that all three pilots will fly in the comps and we wish them all the very best of luck.

We wish to welcome to the club Air Commodore Lyne, Sqn. Ldr. Roy Salmon and Chris Williams who has arrived from Cyprus. We hope these new members will enjoy their stay with us.

Congratulations to Dick Barrett on coming 2nd in the Bomber Command Novices' Competition last year and "Dinga" Bell on being awarded the Club Tutor Pewter. This is given by the club committee for the most meritorious flight by a novice solo pilot. "Dinga" Bell soared the T-31 (Solo) for ten minutes without a vario. This, on a day when most other pilots were flying circuits. Our Grunau list is also growing rapidly with conversions to this aircraft by "Dinga" Bell, Wint Smart, Bernie Morris and Paddy Maher.

I. G. A.

MOONRAKERS (R,A,F. Upavon)

WE begin on rather a sad note this time by announcing the departure of one of our longest serving members, Bill Owens. On this his second tour with Moonrakers, Bill has put in a great amount of hard work and his enthusiasm and encouragement will be sadly missed when he parts company with the Service and takes his place in civilian life.

New members to the club since we last wrote are Tony Morris, Pete Hanneman, Taff Thomas, Andy Whitaker, Rupert Butler and Steve Warwick-Flemming, who takes over from Bill Owens as Deputy CFI.

On the gliding side our first mention goes to Andy Whitaker who gained a Silver C height in his ejection seat while his Lightning did the first field landing of the season. Congratulations go to Derek Bridson, Roy Johnston and Rupert Butler who gained their Silver C durations during December and January.

It was with some consternation that we received a spanking new Ka-7 a couple of weekends ago but it shouldn't be long before our pundits are convinced of its great possibilities. Since it arrived it has earned its keep to the full and should make a good training aircraft once our instructors are checked out in it.

Work is progressing in the hangar at present with major inspections well under way and the respray of the Olympia now completed. We were all very pleased when our new club room was ready for use at the beginning of last month; cups of coffee and hot pies going down extremely well on cold weekends.

J. S. W.

Scottish Wave Project

ON Friday, 5th February, a party from the Moonrakers set out for the Scottish Gliding Union at Portmoak. Benarty ridge was soarable on the first flying day, and on 8th February Neil Swanton in the Olympia 460, Roy Johnston in the 2B and Geoff Halls in the S.G.U. Swallow soared Bishop Hill, Geoff qualifying for his C with 2½ hours. After two days of hill-scratching, Neil and Roy left with the 2B, and three more members arrived.

The second week brought two good wave days, which S. A. C. John Martin thus describes:—

On Sunday 14th the wind had decreased to about 15 knots on the surface from W.N.W. and we launched Ian Smith in the 460 at 08.00 hrs. Little did we

know what a successful day this would be, both for two of our party and for members of the S.G.U. We watched the 460 gradually working its way up to about 2,500 ft. on the Benarty ridge, then at 09.45 Ian headed out north-west across Loch Leven into a clear patch of sky between some lenticular clouds.

The rest of the story was obtained when he landed, but apparently when crossing Loch Leven he was in negative sink which slowly became 2 knots up, then 4 knots; tacking in this lift he climbed through the leading edge of a lenticular cloud, experiencing moderate icing on the way up. He reached 9,000 ft. and then lost the lift, descended in heavy sink and arrived back at the ridge at 2,000 ft., where he again contacted the wave lift. This time he climbed to 4,000 ft. before flying out of the lift again, and Benarty was once more his salvation where the wave gave him another chance. The result was a climb to 6,000 ft. in 10 knots lift. At this height the lift decreased and in his own words Ian made "yet another fumble", by turning downwind and sinking to 3,500 ft. Now he searched forward of the Loch, contacted again, and at between 4 and 6 knots climbed to 9,000 ft. Here the lift decreased to about 2 knots and the climb continued to 12,000 ft., where it was broken off for a quick return to Portmoak and hot coffee. Not the most straightforward of flights for a Gold C height, but a fair reward for his tenacity.

The next person to scramble into the 460 was Steve Warwick-Fleming. He was aero-towed to about 2,000 ft. and contacted wave immediately after release 4 miles north of Portmoak. Climbing at between 1 and 4 knots he passed through the first layer of lenticular clouds at 6,500 ft., emerging in the clear at about 7,000 ft. On the way up he also experienced icing, though this was no great problem. His climb was terminated at 12,700 ft. and he reported a second layer of lenticular clouds above at about 13,000 ft. After descending through cloud, Steve found himself over the Firth of Forth at 4,000 ft. and used more wave lift to fly upwind back to base.

By this time daylight was getting short, so we had to content ourselves with two Gold C height climbs for the day.

The next day, Monday 15th, the lenticulars were still clearly marked with about $\frac{5}{8}$ cover compared with Sunday's $\frac{7}{8}$. John Weston-Allwork contacted wave lift in the Swallow after soaring Benarty ridge from a winch launch, and climbed to 7,000 ft. to gain his Silver height. Bob Wishart was then aero-towed to 2,000 ft. again in the Swallow, and climbed to 8,000 ft. to notch the second Silver height of the day.

I then took off in the 460 and climbed up to 7,000 ft. after release, and here I showed lack of experience in wave flying, common to most of our party, lost the lift, and dropped rapidly down to 3,000 ft. Here I again made contact and climbed up through the leading edge of a lenticular. At 6,500 ft. in cloud the turn needle moved, I folowed it, and the result was a most undignified hell-for-leather descent which robbed me of a "certain" Gold C height!

Hugh Campbell then flew the 460 and from a 4,000-ft. aero-tow climbed into wind in 2 to 3 knots lift. This increased to 4 to 5 knots in cloud and once through the lenticular he turned parallel to it and climbed at about 6 knots up to 9,000 ft. where he was above the first wave system. From there the lift decreased to 2 knots until at 10,200 ft. he lost it. There was a further wave system much higher, though this one was ill-defined. Visibility was very good and Loch Leven, between the Firth of Tay and the Firth of Forth, gave a perfect fix on the airfield.

Out of a fortnight spent in Scotland with a party of 12, two of our own aircraft and a borrowed Swallow, we came away with a total of 40 launches, 40.16 hours, one C, two Silver C heights, and two Gold C heights. Finally, on Saturday 20th we bade farewell to our hosts at the S.G.U. taking away with us happy memories of a holiday during which we all learned a great deal.

JOHN MARTIN

PORTSMOUTH (R.N.A.S.)

WE have once more had a fairly quiet period due mainly to the poor weather and high winds being experienced at Lee. We fly, of course, whenever possible and the Tiger Syndicate continues to provide splendid service.

Rear Admiral Law, who is Flag Officer Submarines and one of the Vice-Presidents of the R.N.G.S.A., has recently

obtained his A and B Certificates. Our congratulations to him.

We were pleased to learn, at the recent Annual General Meeting of the R.N.G.S.A., that Portsmouth had regained the Home Air Command Trophy. This is due to the enthusiasm of our members and the untiring efforts of our C.F.I. and his instructors. We hope that the Fulmar Club will unearth the trophy which they have, for the time being, mislaid.

Our congratulations to Maralyn Stead and Keith Morton, who have announced their engagement and also to Humphry Dimock, who has been selected to fly in the Swiss Championships.

L. D. V.

CRUSADERS (Cyprus)

OUR new T-21 has at last arrived thanks to a Transport Command Argosy, and had its maiden flight.

The 30th January was a remarkable day for Akrotiri with a steady 3 metres all over the peninsula. Terry Carpenter took the Swallow up for an hour and the C.F.I. took the T-21 to 4,000 ft. on two consecutive flights, one of these with Paul Gibson. Paul, who is waiting to go solo when he is 16, has now done 160 launches. 30th January saw "Cobb" Ball off for his A and B.

Our membership is increasing rapidly now and the two-seater list resembles an electoral roll. John Hollingshead, one new member who has gained the spirit of dedication rather early has taken to arriving at 5 a.m., so as we now have lights in our hangar (a welcome refinement) we have cleared him for D.I.s. With Akrotiri now a 24-hour, 7-days-a-week open airfield, powered flying is interfering with our operation.

J. D. B.

EAGLE (Detmold, Germany)

THE letter about Oerlinghausen (R. L. S. Butler, Feb.-Mar. issue) prompts us to point out that our location is the small military airfield at Hobart Barracks, Detmold, which is only 15 km. east of Oerlinghausen (as the Swallow flies) on the other side of the Teutoburgerwald ridge. We enjoy very close relations with the local German Club (Detmold Luftsportverein) and in fact rely on their Oerlinghausen-based Piper Super Cub for aerotows.

We do not fly during the week, but would be very pleased to see any Oerlinghausen visitors who care to come across to Detmold at the weekend, either with or without gliders.

Although there has been no local flying since Christmas we have not been idle. John Welsh spent the first fortnight of January at the R.A.F. Wave Camp at Issoire. In common with many others he suffered the usual frustration of waiting for the combination of right conditions and turn to fly (five were sharing a Ka-6). When his turn did come he sat at 10,500 ft. A.G.L. waiting for a layer of high cloud to clear away. After an hour the wave collapsed and John had to land at Clermont Ferrand airfield.

Ted Shephard also made a valiant attempt to get into the act by snatching a Wednesday to Saturday break and driving 700 miles in one day, but he too had no luck. This is gliding!

The aspiring pundits have not been idle. A five-hour expedition to Scharfoldendorf in conjunction with the Laarbruch Club is planned for early April and in the meantime equipment and aircraft (including the recently arrived Ka-6) are being fettled like mad, ready for what we hope will be a bumper season.

W. C. L.

LAARBRUCH (Goch, Germany)

THE highlight of the period was undoubtedly the visit of H.R.H. Prince Philip the Duke of Edinburgh to Laarbruch. The Gliding Club was on his itinerary and he showed great interest in both our equipment and achievements.

Due to fettling of gliders for the coming season, most of our news is "social". Knight Boyer and Chris Collier announced their engagement. Sqdn. Ldr. Mike Hampson and Wendy have returned to England after being mainstays in the operation of the club for almost three years; Sqdn. Ldr. Dave Edwards has taken over as Chairman. Tony Barber has also left us and amazed us all by travelling back from the U.K. with Rowly Rowlands for a weekend. Steve Warwick-Fleming returned to the U.K. early in December and George Ross has been pressed into service as temporary C.F.I. Harry Orme and Ken Newholm savoured

the delights of the Issoire wave during January to their complete satisfaction, although Ken's wife, Jean, almost upset everything by producing a brother for Paul at very short notice.

Our next expedition will be to Scharfoldendorf for a week in April in search of Silver C durations on their magnificent ridge. K. V. N.

R.A.F. GERMANY, Wave Project

FROM 8th December, 1964, to 22nd January, 1965, the Ka-6 from Laarbruch was based at the airfield of the Aero Club Issoire as part of the Wave Project organised on behalf of the R.A.F. Germany Gliding Association by John Prince of Rheindahlen, the Association Air Member. During the seven weeks of the Project, Gold C gains of height were made by George Ross and Harry Orme, both from Laarbruch, the latter well deserving his success for the amount of work he had put into the preparation of the Ka-6 prior to its departure for France. Derek Twigg of Wildenrath and Ken Newholm from Laarbruch both qualified for Diamond C gain-of-height awards with flights in excess of 20,000 ft., while Andy Price of Geilenkirchen took advantage of the Le Broc ridge to fly his Silver C duration with a flight of 5 hrs. 15 mins. On the same day as Spike Jarred from Brüggen narrowly missed his Gold C gain, climbing to 14,000 ft. from a 4,400 ft. launch, John Prince and Terry Slack, representing Butzweilerhof, reached 10,700 ft. in a borrowed Ka-7. Other good trips were had by John Welsh from Detmold, who climbed to 10,000 ft., and John Prince, this time flying solo, who climbed to 9,200 ft. on the last day of our stay.

Wave, ridge and thermals were utilised during the Wave Project, and flying was possible on 21 days, enabling 19 visiting pilots from R.A.F. Germany to make 64 launches totalling 55 hrs. 29 mins.

Our thanks are due to M. Herbeau, the Chef de Centre, and his staff for making the expedition so successful, and we have now put away the excellent "Issoire" folders produced by John Prince until next year when we will be back again.

K. V. N.

OVERSEAS NEWS



We would be pleased to receive news for this section from every country in the world where soaring is done.—A. E. SLATER, *Overseas News Editor.*

AUSTRALIA

MANUFACTURERS of sailplanes in Australia, which means Edmund Schneider Ltd., are protected by a 7½% tariff on foreign gliders, but there is no duty on British-built gliders. Bill Iggulden, President of the Gliding Federation of Australia, said in his Annual Report that Schneiders could almost certainly get increased tariff protection if they applied for it, but they had not done so "in deference to our own requirements and desires" (i.e. to keep prices of foreign gliders down). However, there had been increasing imports from a particular Eastern European source "the prices of which have not been set by normal economic considerations". The Annual General Meeting, *Australian Gliding* reports, "was satisfied that unfair competition existed and unanimously voted to sup-

port the manufacturer provided that the tariff was selectively applied and did not interfere with normal fair competition and the import of gliders from other sources."

NATIONALS.—The A.G.M. approved a South Australian suggestion that National Championships should be held every year for a trial period.

INTERNATIONAL TEAM.—The meeting narrowly defeated a motion that a form of automatic selection, uninfluenced by opinion, should be used for selecting the World Champs. Team, and approved the Selection Committee's suggestion that the first 10 pilots in the Nationals should "give some guidance" on team selection.

BOOMERANG.—This 15-metre sailplane is to be built in two versions. The ES-60A, intended for syndicates and individual owners, will have a single fixed forward wheel. The ES-60B, for club use, will have a central wheel, foamed rubber nose skid and spring tail skid. That is, the "A" will have less drag but the "B" better ground-handling qualities.

YOUNGEST PILOT.—"Probably the youngest girl in Australia learning to fly", Kerry Smith, of Tamworth and District G.C., started in spring, 1963, at the age of eleven. She has had 26 flights up till last autumn.

ACCIDENT REPORT.—There were 10 major crashes last year, compared with 17 in 1963 and 8 in 1962. A fatality was due to neglect of inspection of control cables; fatigue failure of an aileron cable led to catastrophic wing-aileron flutter. Another incident was due to slack control cables causing mild aileron flutter. Two pilot injuries on winch launches were due to stalling in a very steep climb and failure to recover from a cable break.

LONG SPANS PREFERRED.—Newcastle G.C., newly-formed in January, 1964, has adopted the policy of using only long-span sailplanes, as they spend more time in the air in relation to time spent being manhandled on the ground.

Australian Gliding

AUSTRIA

SIEGFRIED KIER won the 1964 decentralised contest with 44,164 points, of which 20,260 were earned for the best Austrian flight of the year, 521 km. from near Innsbruck to Engelberg in Switzerland and back via Tirano in a Ka-6 on 12th June. He took 8 hrs. 20 mins., from 10.10 to 18.30. Nearly all the flight was caried out between 8.000 and 13,000 ft. a.s.l.

Next best was Alf Schubert, total 38,432 points, of which 14,790 were for a 517-km. out-and-return in an L-Spatz from Zell am See to the Maloja Pass, beyond Samedan, and back via Innsbruck, also on 18h June. He started at 08.29 and landed a 16.45.

Altogether 258 pilots took part, contributing 635 flights totalling 129,820 km. and averaging 204 km. Respective figures for 1963 were 260 pilots, 533 flights, 87,361 km. total, 164 km. average.

Austroflug

BELGIUM

HENRY STOUFFS, of the Belgian "Equipe Nationale" has won the "Coupe Pierre Charron" for the third time (1961-62-64). This competition awards points to the pilot who performs the best three flights during the year (five points per km. for triangle, four for out-and-return, three for goal flight, two for free distance). Total points for the three best flights of each pilot are divided by three.

Results: H. Stouffs, 1,220 pts.; J. Pissoort, 1,123; H. Drory, 1,020; A. Goethals, 896; M. Cartigny, 880. Over 200 pilots took part.

During 1964 two pilots have at last been able to do a 300-km. triangle in Belgium: J. Pissoort and H. Stouffs. Stouffs had tried 8 times before, landing each time after having covered between 275 km. and 290 km. The ninth time, in a Foka on 30th August, his triangle of 316 km. was covered doing 66 km./h. (cloud base was 5,000 ft.); this is now the Belgian national record. In the World Championships our best glider for the English weather, a Ka-6CR-pe with a modified wing section, will be flown by Henry Stouffs in the open class. It is being lent to him by the Baron Louis de Dorlodot. J. D.

The above record for the 300-km. Triangle appears to be the Belgian local record. *La Conquête de l'Air* gives the national record as 81.29 km./h. set up in Argentina by Marcel Cartigny in a Foka on 19th February, 1963. Henry

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Stouffs holds the Goal-flight national record with 543.9 km. in a Ka-6B from Temploux-Poitiers, on 1st June, 1962. The national Distance record is held by M. Baeke with 607 km. in a Skylark 3 from Junin, Argentina, on 20th February, 1963.

Michel Doutreloux holds the national gain-of-height (7,320 m.) and Absolute Altitude (8,120 m.) records with a flight in a Breguet 901 at St. Auban on 8th June, 1964.—ED.

BULGARIA

A new practice sailplane was recently tested in Bulgaria. This single-seater, named "Bisser", was built in a Michailograd factory. Gliding ratio 20 at 75 km./h. (40.5 knots); optimal speed 90 km./h. (48.6 kt.); minimum speed 55 km./h. (29.7 kt.). Empty weight 180 kg. (397 lb.); flying weight 258 kg. (569 lb.). No other details known.

Aerosport

(The word for "practice sailplane" (*Uebungssegelflugzeug*) has always been applied to machines in the Grunau Baby class.)

CANADA

A Distance Diamond has been earned by Willi Deleurant, Toronto, in a Standard Austria; Goal Diamonds by Ed Laenen, Ottawa, in Skylark 4; Michael Stoten, St. Lambert, in Skylark 2; Victor A. Shobridge, Vancouver, in BG-12; and Willi Deleurant; Gold Badge completed by Garth Scheib, Montreal, in L-Spatz 55; Ed Laenen, Ottawa, in Skylark 4; John Chesbrough, Ottawa, in Ka-6; A. O. ("Shorty") Boudreault, Ottawa (who has Canadian C badge No. 1), in Skylark 4.

Roy Gray, of Brantford, Ont., set up a Canadian Goal-and-Return record of 214 miles in a Ka-6CR on 12th September last, flying to Chatham, Ont., and back (previous record by Julien Audette, 200 miles). Earlier in the year he had raised the Goal record to 347 miles.

Soaring

GATINEAU

Louis Bisson has donated a trophy "for airmanship" which will be awarded to the student pilot making the best progress each season. Mr. Bisson, manager of the Hull bus system, flies the Cessna 180 on amphibious floats that hibernates in our hangar. He used to be a bush pilot and was in the Ferry Command, and was the first Canadian pilot to fly the Atlantic one hundred times "in command". He is in the OX-5 Club and holds a Commendation from the King.

The Louis Bisson Trophy and the President's Trophy for cross-country flying will both be presented shortly.

A new type of tow hook, the Ottfur release, will be installed on both our tow planes. It's new to our tugs, that is, though standard in England. It is considered safer. D. K.

CHILE

ALEJO WILLIAMSON has flown across the Andes from Santiago to Mendoza (Argentina), reaching 5,000 metres (16,400 ft.) on the way.

Aero Revue

In the 1963 World Championships in Argentina, Alejo Williamson — known to the British team as "Chile Wille" to distinguish him from our own John Willie — finished 19th in the Open Class. He, the two other Chilean pilots and the team manager were aero-towed to the

meeting in two Blaniks, crossing the Andes at 5,000 metres. Their first leg was 115 miles from Santiago to Mendoza.—ED.

CHINA

GLIDING was introduced into the Chinese Republic in 1952. The first clubs were started at Loyang and Peking with imported gliders after a training course for beginners. Today there are 39 clubs in the country and several glider types are being made in China. Gliding is available for all. The clubs are subsidized by the state and all the facilities are free for all the members. Many members are students, workers and functionaries. The only qualifications needed are a medical examination and a recommendation from their syndicates, local sporting committees or their schools.

The latest national gliding records, all done from Anyang in the province of Honan, are:—

Distance, 412.9 km. (256.6 miles) by Lin Lien-Chang on 3rd June, 1964.

Feminine Distance, 345.9 km. (214.9 miles) by Chiang Yi-Jung on 4th June, 1964.

Feminine Speed, 70.64 km./h. (43.9 m.p.h.) by Yan Hui-Mai on 19th June, 1964.

Aviasport

The above was written by Chang Shou-Yi. It was announced in 1956 that, the previous summer, Poland had presented two gliders to China. A party of Chinese gliding instructors had then done a course of training in Poland, and Polish blue-prints were being supplied to a Chinese glider factory.—ED.

DENMARK

THE National Championships will be held at Arnborg from 4th to 18th July. Arnborg will also hold a week-end rally each week-end in June, the first extending over Whit-Monday. This national centre has recently installed oil heating in the living rooms and dormitories.

Aage Dyhr Thomsen has become chairman of the Gliding Council in place of Kaj V. Pedersen, who has been chairman since 1959.

Flyv

FINLAND

FORTY examples of the 15-metre Vasama, winner of the 1963 OSTIV Prize, have been sold to various countries, and the production rate is one per week. Dieter Schmitt reports on a test flight in Germany. He found extraordinarily little airflow noise, so that one cannot estimate the speed from it, but at 120 km./h. the noise increases sharply and remains the same high level to 250 km./h. Thus it gives a useful warning of excessive speed in cloud flying. He found the rudder control to be remarkably good — better than be expected because of the "modish" sweep-back of the rudder and fin.

Flug-Revue

DESIGN FOR TOWING.—The PIK-15 has been specially designed as a tug, with 3.5 to 4 m./s. climb when towing (690-790 ft./min.), moderate flying speed, and rapid sink after casting off the cable. It has a Lycoming 150 h.p. motor, with a metal propeller of 2.05 m. (6 ft. 9 in.) diameter, and 100 litres (22 gallons) tank capacity. Span is 10 m. (32 ft. 10 in.) and empty weight 492 kg. (1,085 lb.); side-by-side seating in an enclosed cabin with good rear view.

Der Adler

FRANCE

DURING 1964, 114,000 hours' flying in gliders was done, according to M. Mudry, president of the Federal Commission for motorless flight. The number of qualifying flights for badges were: 64 for Diamond Goal, 23 Gold Distance, 62 Gold Altitude, 319 Silver Distance, 410 Silver Duration, 636 Silver Altitude, 1,156 C Certificates.

Volo a Vela

SAINT AUBAN.—In the course of its history 100,171 hours of motorless flying has been done at the St. Auban centre, up to 31st October last, when flying stopped for the year. During this period 726 Gold C Altitude (3,000 m.) and 449 Diamond Altitudes (5,000 m.) were flown; also 30 national records for altitude or speed round a closed course. There were no fatalities and only 5 accidents causing fractures; of these 3 were due to faulty pilotage, one to failure to obey flying instructions, and one to illness. This good record is

attributed to intensive use of radio-telephony and to careful instruction.

On 14th January, five pupils attained Gold C height, including a German, and on 8th February three attained Gold and Diamond Altitudes. This year St. Auban will close from 31st August to 2nd November.

HUIT JOURS D'ANGERS.—This annual competition will be held from 14th to 25th July this year instead of at the beginning of the month. This is to enable students to participate after taking their examinations.

EDELWEISS.—This 15-metre sailplane is to go into production, several firm orders having been received. Six have been ordered for the national centres, where the type will progressively replace the Breguet 901. Other orders are from Aero Clubs. The sweep-forward has been removed, and the V-tail surfaces now hinge at 25% chord instead of 20%. The machine has done well in competitions since it first appeared in the World Championships in Argentina.

Owing to increased official interest in two-seaters, Jean Cayla, the designer, is ready to evolve a two-seater version of the Edelweiss.

Air et Cosmos

GERMANY EAST

THE Libelle-Laminar is an improvement on the original Libelle of 1957 which had a min. sink of 0.66 m./sec. and gliding ratio of 31.5. The Laminar, which most competitors flew at last year's Championships, has a gliding ratio of 36 at 88 km./h. (47.5 kt.) and min. sink of 0.65 m./sec. at 78 km./h. (42 kt.). It stalls at 70 km./h. (38 kt.) and, if stalled in a turn with up to 30° bank, does not go into a spin. Max. speed 200 km./h. with or without brakes. The span is 16.5 m. (54 ft. 3 in.), aspect ratio 18.35. Empty weight 270 kg. (595 lb.). Ailerons and flaps have a very small chord (dimension not given) with the brakes just in front of the flaps. The tail is conventional.

DECENTRALIZED CONTEST.—Winner of the 1964 contest was Horst Rakokski, of Frankfurt, with 18,445 points. Klaus König, Dresden, had 18,105; Bernd Nolte, Frankfurt, 17,970; Manfred Blauert, Berlin, 17,590. Nolte, aged 24, with 3 Diamonds, and Blauert, 40, 2 Diamonds, are entered for the World Championships. This year's decentralised contest will run from 15th March to 30th September.

The National Championships will be held from 22nd May to 6th June, 1965, at the Neustadt-Glewe Flying Club's site. A junior contest will take place at Laucha, near Halle, from 4th to 17th July.

At Roitschjora a speed-flying rally for "jungen Leistungssegelfliegerinnen" — young high-performance female sailplane pilots — will be held from 12th to 26th June.

Aerosport

GERMANY WEST

THE Wolf Hirth Memorial Foundation, which for four years has given prizes and medals for the best flights of each year starting, ending or turning at Klippeneck (except last year when this restriction was lifted), has now decided also to reward outstanding scientific and technical work for the progress of soaring and has asked for increased funds. Donations should be sent to:— Praesidium der Wolf-Hirth-Gedächtnisstiftung e.V., Rathaus, Spaichingen, W. Germany.

SCHEIBE SF-27.—This Standard Class laminar-flow sailplane is now going into production at a price of DM 13,900 (£1,260). It is designed to replace the SF-26, itself a development from the L-Spatz-55. The fuselage structure is of welded steel tube, with at the front end a covering of stratified plastic. Aspect ratio 18.7, empty weight 205 kg. (452 lb.), max. wing loading 26.5 kg. per sq. m. (5.43 lb./sq. ft.), min. sink 0.65 m./s. at 70 km./h. (38 kt.), best gliding ratio 32 at 85 km./h. (46 kt.).

Air et Cosmos

LINK WITH LILIENTHAL.—Paul Beylich, who assisted Otto Lilienthal with his gliding trials from 1893-96, celebrated his 90th birthday on 4th December last.

Der Flieger

HOLLAND

IT is with the deepest regret that we have to report the death of our chairman, Pieter de Waard, who died on 30th December after a long illness. Pieter, who had only just reached the age of 40, took up gliding in 1949. Already after a short time he proved to be one of those hard workers the gliding movement needs so badly. Via



Pieter de Waard

different jobs in club committees, he became a member of the Council of the Gliding Section of the Royal Netherlands Aero Club in 1957. In 1959 he became our chairman. In the meantime he served his own club as chairman and C.F.I.

On his many business trips abroad he always tried to visit gliding sites in order to get new ideas, see new gliders, etc. and thus he was also well-known beyond our boundaries. His valuable services and good comradeship will not easily be forgotten.

This winter's wave safari to Issoire (France) was not very successful. Only two days produced wave. On 15th January W. Disma got his Gold C height; on the 17th, when conditions were extremely rough, Chr. Rab and H. Fernhout got Diamond heights. Hans Fernhout had to do it twice because his barograph froze up the first time and didn't record.

The Council decided to stop the national organized safaris and to leave it to the clubs to send some of their members. J. Th. v. E.

IRELAND (Dublin)

SINCE the last issue, a concerted attack has been made on the sea of red tape to be traversed before we get official permission to use our tug aircraft at Baldonnel. Fortunately, agreement has now been reached in principle.

It has been found that the cable-knots used in our pulley-launch system were failing at 1,000 lb. The designer of the system, John Byrne, has now evolved a cable-knot guaranteed to 1,700 lb. breaking strain for the 13-gauge piano-wire now in use.

Congratulations are due to John Byrne for the first Irish triangle, Baldonnel-Naas-Kilcock-Baldonnel (34 miles) in 3 hrs. 39 mins. This flight, in a pre-war Petrel, was almost abandoned halfway, and was really flown as a double out-and-return.

Honours are also due to Michael Slazenger for an out-and-return to the Sugar Loaf Mountain (32 miles); also to Martin Mulhall for Gold Height, and ridge-soaring to Kippure Mountain and back (56 miles); to Gerry Connolly for Silver Height and Distance to Moynalty, Co. Meath; also to Nick O'Brien for Silver Height and to David Abrahamson, David Cowan and Noel Cranny for C Certificates. Condolences to Peter Kilkelly on running out of lift while trying hard for Silver Duration.

O. G.

ITALY

ADELE Orsi, who flew *hors concours* in last year's British Nationals, has beaten two national feminine records. Flying a Skylark 4 at Varese on 18th November last, she reached an absolute altitude of 6,250 m. (20,505 ft.) with a height gain of 5,050 m. (16,568 ft.). This completes her Gold C with two Diamonds, and she lacks only the Distance Diamond. *Volo*

E.C.40 EVENTUALE.—This tandem two-seater, produced by Edgardo Ciani, was commissioned by the Italian Aero Club and is probably destined to replace the "ancient, beloved and glorious" Canguro. There is no sweep-forward. The rear pilot's head is above and a little behind the leading edge of the wings and he has a special window, not part of the canopy, for looking out sideways. Span 17.7 m. (58 ft. 1 in.), dihedral 3°; empty weight 210 kg. (463 lb.), all-up weight 530 kg. (1,168 lb.); wing loading, 25 kg./sq. m. (5.12 lb./sq. ft.).

Ali Nuove

CORRECTION.—February issue, p. 85: Uribel C sinks at 1 m./sec. at 100 km./h., not 2 m./sec.

NEW ZEALAND (Otago)

GOLD C height at the age of 17 was achieved by Hank Vourtenay, of Upper Valley G.C., who took an Olympia 463 to 13,000 ft. in a wave last autumn. Another member, Jim Berkett, reached 12,500 ft. in a Skylark 4.

Australian Gliding

"OMARAMA this year was absolutely fantastic. I think it is the best holiday I have had for years. A humorous incident arose when one of our instructors, Stewart Cain, landed in a valley which was completely inaccessible. By the Grace of God we heard his bleats for help over the radio and Gerald Westenra eventually found him from his glider. He radioed back to camp and an aeroplane with tent and food was sent out and reached him before dark. The terrain was not safe for landing an aircraft, so these things had to be dropped. A party of us left at 4 o'clock the next morning and, after a drive of about six miles, abandoned the Land Rover and started on a 12-mile walk over a 4,000-ft. range to find him. He and his aircraft were safe, but we might have had to abandon it if it had not been for a helicopter which made itself available and flew him out for £87. We estimated that it would take three days of good weather for a bulldozer to reach him, build a strip and get out again, by which time wind, deer or cattle could have ruined the machine; so we were most fortunate . . .

"A gigantic standing wave formed over this valley and we nearly had a practical demonstration of how an aeroplane can be lost in these conditions.



Lenticular cloud over the inaccessible valley in which the sailplane landed.

An Auster came in to see how the landing party was getting on and inadvertently flew into the down of the wave. The pilot, having little experience of this type of thing, had no idea what was producing his loss of height. Luckily, however, in desperation he flew out over the valley, and by so doing struck the rising air which promptly carried him out over the summit of the mountains down wind."

S. H. GEORGESON

(From a letter to Philip Wills.)

NORWAY

VALDRES Flying Club is holding a wave-flying camp at Fagernes, Valdres, between 10th March and 10th April. Visitors can bring their own aircraft or use Norwegian ones. Skiing is also laid on.

Flyv

POLAND

A WORLD two-seater record of 109 km./h. round a 100-km. triangle, set up in a Bocian on 2nd September last by two Stalowa Wola pilots, Stanislaw Kluk and Antonin Wyrzanowski, is described by the former in *Aerosport*. Launched from Turbia airfield at 12.09 hrs., they crossed the start line three times, at 12.27, 13.15 and 13.30, before finding conditions satisfactory, though cumulus had been abundant at 10 a.m.

The final crossing was made at 13.54, and they then flew at 250 km./h. to a promising collection of dark cumulus. There they found lift up to 5 m./sec., reached cloud base in 2 minutes, and then rounded the first turning-point at Janow at 14.11, making 17 minutes for the first leg. On the way to the second turning-point at Krzeszow was a big, dark cloud bank; they found lift on the sunny side of it and flew along at speeds varying from 100 to 120 km./h. according to the strength of the lift, and completed the second leg in 21 minutes without circling, reaching Krzeszow at 1,200 m. (4,000 ft.).

Along the third leg were only dispersing cumulus clouds, so they returned to the big one they had used on the second leg, and found it still working on the sunny side. Another good cloud was growing inside the triangle, but they could not wait for it to build up strong lift. So they set out hopefully for the goal at 100km./h. from 1,200 m. and were lucky to find two more thermals. The final glide of 4½ km. from a height of 350 m. passed through a bit of weak lift and they crossed the finishing line a few metres above ground at 150 km./h. The time was 14.50, making 18 minutes for the last leg and 56 minutes for the whole flight.

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RHODESIA (Bulawayo)

FRIENDS throughout the world will be pleased to learn that, despite a dearth of reports from Rhodesia, the Gliding movement is still going on from strength to strength.

Salisbury is the hub of gliding activity and quarters the Central African Soaring Association, to which Rhodesian clubs are affiliated. Radiating from Salisbury, clubs are located at Umtali, Bindura, Marandellas, Gwelo and Bulawayo.

This report is concerned, in the main, with news of the Bulawayo and Gwelo clubs, and although they are situated

100 miles apart, a high degree of co-operation exists.

In this regard, a cross-country flight from Gwelo to Bulawayo by Harvey Qual in a recently acquired S-18 was reciprocated when Joe Birtle flew the Bulawayo Grunau to Gwelo. The Grunau was flown back a fortnight later but landed on the outskirts of Bulawayo due to a "clamp down" in the weather. The "milk run" has been established and it is expected that a number of pilots will obtain their Silver C qualification along the 100 mile route.

Apart from the S-18, Gwelo club has acquired Ted Pearson's record-breaking Skylark 3 and Gold C flights are being planned by Tony Churcher and other pilots.

These developments, together with a new hangar and winch at Gwelo, a new hangar roof at Bulawayo and a galaxy of exotic machines acquired at Salisbury over the past year, are indicative that the sport is still being actively pursued by enthusiasts in Rhodesia. Every club has a training programme and the pupils being passed out for solo flight augur well for the future. J. K. B.

SOUTH AFRICA

BECAUSE of the World Champs there were no South African Nationals as such, merely a rally of those interested, at the Goldfields Gliding Club site Odendaarlsrus, about 160 miles to the S.W. of Johannesburg. The camp started shortly after Christmas, but I did not go out until the 8th January. Present were Boet Dommisse, Bomber Jackson, Brian Stevens, all on the warpath for records (particularly the world O. and R., which had just been taken from South Africa by the New Zealanders). Chris Linton flew in a Swallow, Ian Leitch with partners in a Swiss Moswey and a German team from West Berlin in a Ka-6. Most of these folk were after Gold and Diamond legs, consequently no competition tasks as such took place.

In Boet's words the weather was "crazy"; it had been a wet November, December and through into January, consequently the real gliding conditions never materialised as temperatures did not climb high enough. On my first trip round the 100-km. triangle my speed was 51 m.p.h., then we had three days with lots of rain which settled the dust once more. During the twelve days at Odendaarlsrus I got in 22 hours' gliding in the BJ-2, plus a fair amount of power flying and tugging.

On the day I arrived Boet Dommisse tried for the O. and R. but returned from Bloemfontein because of heavy overcast skies and thunderstorms. The next day Bomber tried the same task but came down on the return leg at Jagersfontein after covering 320 miles. Herr Steiner of the W. Berlin Syndicate did his 300-km. O. and R. later in the week; on that day too Chris Linton tried the same task in his Swallow, but had to return 20 miles short of his turning-point because of slow progress.

A. H. WARMINGER

SWITZERLAND

THE National Championships will be held at Grenchen from 1st to 9th May. A British pilot has been invited and Humphry Dimock has accepted.

UNITED STATES

THE Soaring Society of America is co-operating with the U.S. Air Force and the F.A.A. in a high-altitude indoctrination programme. Trainees, if glider pilots, should have a private glider rating or Silver C or their combined equivalents. Training will be available at many Air Force bases and will last a day and a half. Trainees will be taken to a simulated 29,000 ft. and, if physically fit, to a simulated 40,000 ft.

Soaring

WOLFGANG KLEMPERER HONOURED.—The Warren Eaton Memorial Trophy has been awarded to Dr. W. B. Klemperer "for his outstanding contributions to the art, sport and science of soaring flight", and was due to be presented to him at the Southern California Association's "Gold C Banquet" at Disneyland on 12th February. Wolfgang Klemperer took a leading part in the development of soaring in Germany and in 1921 set up a world's gliding record of 13 minutes. In 1924 he emigrated to the U.S.A., where he has had a successful career as an aeronautical engineer, always retaining his interest in soaring.

GROUND SCHOOL.—Vic Saudek holds

regular informal meetings at his home in Los Angeles, to which all soaring pilots within reach are invited, there to absorb soaring lore and advice of "the kind not found in books but found in real life", from experts such as Ray Parker, Bill Hoverman, etc.

The Thermal

S.S.A. CALENDAR.—The 1965 calendar is in colour, twice as large as previously, with 12 photos of sailplanes in flight, 7 × 10 ins. The price is 1 dollar, from Soaring Society of America, Box 66071, Los Angeles 66, Calif.—LLOYD LICHER.

U.S.S.R.

We are indebted to Christopher Wills for the following translations and abridgements from "Krilya Rodiny" (Wings of the Homeland), organ of D.O.S.A.A.F., the national physical culture organization, which includes gliding.

THE sportsmen of the DOSAAF organization have just concluded the first year of a Spartakiad (a two-year national sporting drive). Among those who have done well is Miss Eina Salovyei (Nightingale), a well-known glider pilot and master of sport from Kiev. Previously, her name had been connected with national records. This year she set up two world records.

Another was Victor Goncharenko, also from Kiev (he represented Russia during the World Championships in Poland, 1958). He has often been Champion of the Ukraine and the Soviet Union. During 1964, he became "Absolute Champion of the country". Their achievements, among many others, carried the banner of aviation sport to still greater heights.

GLIDERS OF TOMORROW.—At the second National Gathering of Gliding Technology, many delegates representing DOSAAF, the state committee for aviation technology, the Ministry of Physical Culture, the head of the Geophysical Observatory and the Aviation Institutes of Moscow, Kazan, Karkov and Kuibishev met to discuss in what directions gliding should develop in the Soviet Union, and 20 papers were submitted. Characteristically, almost all of those who submitted reports were young engineers, many of whom were glider pilots. Of special interest was the paper of the Novosibersk engineer Y. Temlyakov: "A means of longitudinal stabilization for a tailless glider". He first explained his idea of "transcompensating the wings with the angle of attack". It seemed that his system was of practical interest not only to gliding but to flying in general.

General approval greeted the papers of the Designers' Bureau, especially that of O. K. Antonov and the report of V. Orexov: "Motor gliders — the most economic means of training glider pilots". In a second report A. Kovalskov, in "A glider with boundary-layer control", put forward schemes and calculations which gave special hope that in the near future our glider pilots will receive a sailplane with a calculated L/D of better than 1 in 50. The head of the Geophysical Laboratory, P. Voronzov, showed in his report how gliding could help research into the lower airstreams and how it could help science, aviation and the national economy. Everyone said that during the last years, excellent gliders of metal construction had been produced — the A-15 bis, the KAI-14, the KAI-19, the KAI-19-2 and the Vega. These high-performance sailplanes are among the very best of contemporary designs. However, few of them are in the Aero Clubs. Why? Unfortunately, their serial production was held up. How strange! Their cost has gone up, quality has deteriorated and their production time has lengthened. Long ago, it was time to think about founding a sound production line of good, quick-to-produce gliders.

The Council recommended the constructors to work on improved, standard single-seater record-breaking types, and also to design the following new types: a two-seat school training glider, cheap to produce; a two-seat aerobatic glider; a single-seat light high-performance machine; a two-seat training motor glider to bring down the cost of training elementary glider pilots.

Already at this stage there were some at the meeting who doubted whether motor gliders should take the leading rôle in the elementary training of glider pilots. However, we are still unable to begin their construction and mass production as, so far, the question of power for them has not yet been decided.

The Committee suggested that work should be started on low-powered piston and turbo-jet engines for motor gliders. Up till now, glider pilots have only been interested in the pure sport of gliding. However, it begins to be evident that gliding can be of great service to science. Therefore the Committee wished to organize, in a few Aero Clubs, special flying groups, to investigate the air in the lower air streams, who would work under the scientific direction of the Central Aeronautical and chief Geophysical Observatory. Almost a third of the papers read at the meeting will be sent to the next OSTIV Congress, in England.

YUGOSLAVIA

CIRRUS HS-62 and HS-64 are two similar tandem two-seaters whose main obvious difference is in the shape of the canopy. The wings, of 17 m. span (55 ft. 9 in.) and 15.73 aspect ratio, are swept forward and have small "shapes" on the tips. Weight empty, 350 kg. (772 lb.); maximum all-up, 592 kg. (1,305 lb.); wing loading 28.8 kg./sqm. (5.90 lb./sq. ft.). Gliding ratio 30.7 at 90 km./h. (49 kt.); minimum sink 0.76 m./sec. at 76 km./h. (2 ft. 6 in./sec. at 41 kt.); min. speed 66 km./h. (36 kt.). (This is evidently the machine referred to here last August, p. 339.)

Another new single-seater is the Libis-18, designed by Mladen Berkovic and Valter Kucera and built at Ljubljana. Span is 15 metres, min. sink 0.63 m./s. at 64 km./h.; best gliding ratio, 32 at 78 km./h. The rudder and fin are swept back.

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