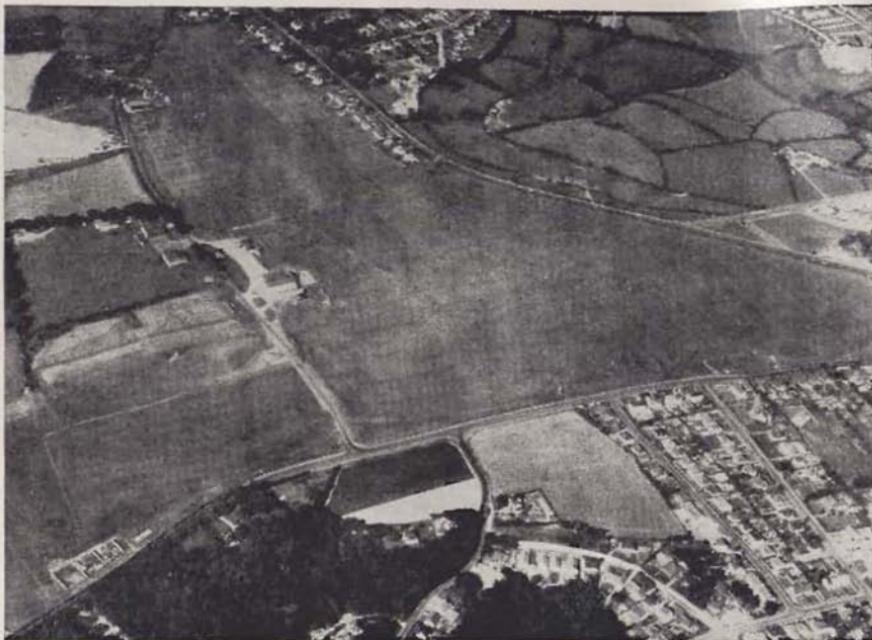


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April—May 1966

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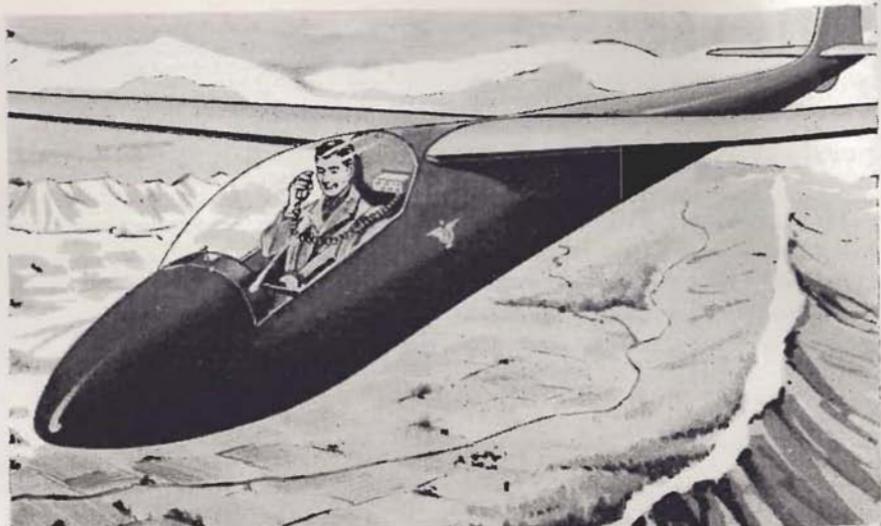
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Published by the British Gliding Association, 75 Victoria Street, London, S.W.1 Sullivan 7548/9

Printed by The Amberley Press, Farnham, Surrey.

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CHAIRMAN'S REPORT ON 1965

THE crucial years in the development of British gliding have been 1935, when the British Gliding Association's structure, which has lasted to the present day, was created; 1952, when after our success at the World Gliding Championships we finally emerged as one of the leading gliding nations in the world; and now 1965, when the outstanding success of the World Championships at R.A.F. South Cerney created enormous public interest.

I can well remember the first International Competitions in Germany in 1937. We were then astounded at the result: 27 gliders from seven nations flew a total of 8,200 miles in ten flying days. The development of the sport which has since taken place is well exemplified by the results at South Cerney, when in six flying days 86 gliders from 28 nations flew a total of 48,500 miles. While they were flying about half the air traffic over the British Isles consisted of gliders, and there were nearly three times as many gliders flying in uncontrolled airspace as there were powered civil aircraft flying in controlled airspace. By common consent these were the best organised, as they were by far the largest, of the series, and an outstanding feature was the fusion of effort between Service and Civil enthusiasts which produced such remarkable results.

Our movement is growing rapidly: the number of affiliated clubs and their total membership are recorded later in this report. But now the foundation has been laid for a large further expansion.

If...

Two old "ifs" remain: if we can acquire the necessary sites for the new clubs to operate from; if we can retain sufficient freedom in the air. And a new one: if we can expand the safety services provided by our Association so that growth can be achieved within the necessary limits of safety, the responsibility for which is ours under delegation from the Ministry of Aviation.

This last is a task which is unique to us, as apart from the controlling bodies of other sports, and one requiring a very high degree of technical and administrative skill. Fortunately we have over the

past 30 years acquired a great deal of experience in this field, and within the last two years, with financial assistance from the Department of Education and Science, have been able to establish the positions of National Coach, training and checking Club Instructors, and Chief Technical Officer, carrying out the same services for aircraft Inspectors and assisting clubs in the correct maintenance and repair of their gliders. We shall certainly over the coming years need to expand these services.

I have no doubt that we shall succeed in this task, heavy as it is, because it is one entirely within our control, but unfortunately this is not the case with the other two problems, which are the constant battle-ground of conflicting interests.

Our own Sites Committee continue their valiant work, mainly in support of local efforts; their report follows.

But in 1965 only a comparative few

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of our clubs have secure tenure of their sites, enabling them to build adequate facilities for large-scale operations. It is of the most fundamental importance to obtain freehold or long leases for the rest, and to find new sites to meet the demand for a sport giving opportunities for initiative and adventure which are all too few in our crowded country.

In this connection we are being given continued financial support by the Department of Education and Science and by the S.B.A.C. Fund, which is recorded in more detail below.

In the battle for airspace, we continue to press for the rational approach, occasional successes are followed by other failures. Our Airspace Committee has demonstrated by mathematical means which have been checked and approved by R.A.E. Farnborough, that under the present regulations the collision risk between gliders and commercial aircraft is negligible, yet further restrictions are from time to time applied, purely on subjective grounds, and existing ones, although demonstrably unnecessary, are retained. A glaring case occurred last year when the Commandant of a new small Municipal Airport at Castle Donington vetoed the establishment of a gliding club 11½ miles away. If a circle of this radius was to be sterilised round every operational airfield in this country — or indeed in the world — gliding and most other forms of sporting aviation would practically cease. The point is that the officer in question was not obliged to base his veto on any rational grounds, but his subjective decision proved final. In continuing our fight for freedom and reason in this field I am sure we are fighting, not only for our own sport, but for the whole future of our country in the air. There is a growing public realisation of the dangers of restrictive practices: in the air they could well prove fatal to our national development.

I cannot conclude this first section of my report without offering our congratulations to Slingsby Sailplanes on the award of the 1965 OSTIV prize for the best Standard Class glider to their Dart. Without doubt this glider, and its various developments, will prove a worthy successor to their Skylarks and give great pleasure and many victories to future pilots all over the world.

Committees, Panels and Officials

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

AIRSPACE 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:
Lorna Minton.

B.G.A. STUDY GROUP:
D. D. Carrow.

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

COMPETITIONS COMMITTEE:
Ann Welch.

FLYING COMMITTEE:
J. Furlong.

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

MAGAZINE COMMITTEE:
P. A. Wills.

MoA STANDING JOINT COMMITTEE:
REPRESENTATIVES:

P. A. Wills, D. D. Carrow.

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

The accounts for 1965 presented unusual problems because of the difficulties involved in the final settlement of the World Championships Accounts. At the time of going to press these accounts are not yet in final form, and it is therefore thought suitable for the Chairman's main comments to be deferred until the A.G.M., when final accounts will as usual be presented.

It is, however, possible to say that the results will be very satisfactory. In particular, the accounts will show a large increase in the Sales surplus which is due not only to the continued efforts of the B.G.A. Sales staff, but also this year to the efforts of those responsible for the Gliding Shop at R.A.F. South Cerney, and a further increase in the magazine surplus which is due almost wholly to increased circulation, the price increase roughly speaking covering increased costs.

Flying Committee

The Flying Committee vetted claims which resulted in 178 complete Silver C's and 38 Gold C's. In addition a greatly increased number of Silver and Gold "legs" were vetted, which should lead to more completed Silver and Gold C's during 1966.

Magazine Committee

Every year I have to report that the size and circulation of SAILPLANE & GLIDING has increased again, and that it remains by common consent the best gliding magazine in the world. If this sounds smug, I cannot help it. It is not achieved without exacting its due meed of toil, sweat and tears.

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In addition the Sailplane and Gliding office this year did an immense work in the editing and production of the dozens of different forms and multilingual documents required for the World Championships.

Membership

During 1965 CISAVIA, Aberdeen, Doncaster & District, Lasham and Staffordshire became Full Member Clubs.

The following Clubs became Associate Members:

Burton & Derby, Cotswold, Edinburgh University, Essex & Suffolk, Land's End, Lincolnshire, Thames Valley, and Worcestershire.

Membership is now (1964 figures in brackets):

26	(22)	Full Clubs
32	(28)	Associate Clubs
2	(3)	Overseas Associate Clubs
165	(148)	Private Owner Groups
31	(28)	Individual Members

Operations

Operations (1964 figures in brackets): Civilian Clubs flew a total of 37,617 hours (33,121) from club sites from 183,527 launches (170,535).

Club owned gliders total 209 (183).

Privately-owned gliders total 226 (206).

The R.A.F.G.S.A. and R.N.G.S.A. flew 10,567 hours (11,316) from 60,305 launches (71,681).

Gliding Certificates were issued as follows:

A and B endorsements	...	791	(788)
C endorsements	...	455	(452)
Silver C complete	...	178	(179)
Gold C complete	...	24	(20)
Gold C distance	...	37	(13)
Gold C height	...	36	(19)
Diamond for goal	...	37	(14)
Diamond for height	...	4	(3)

Ostiv

The OSTIV Congress was held, as usual, during the World Gliding Championships this year at R.A.F. South Cerney. Many of the delegates who read papers or took part in discussions

were pilots or crew members but many others came from more than twenty countries and stayed in hotels or at South Cerney. The wide range of contributions can be judged when they are published in the official OSTIV organ, *Swiss Aero Revue* (details from OSTIV London Gliding Club).

The OSTIV Jury awarded the OSTIV Prize for the best standard class glider to the Slingsby Dart and the OSTIV Plaque for the most noteworthy contribution to gliding science went to C. E. Wallington for his work for gliding meteorology. A fine double for the U.K.!

S.B.A.C.

During the year, eight more loans were approved by the Private Flying Loan Fund to Gliding Clubs and Syndicates. The loans totalling £5,085 were all in contribution to cost of gliders and the total amount advanced to Member Clubs and Syndicates since the inception of the Fund in 1961 is £42,175 in respect of glider purchase and site development — a greatly valued contribution which has substantially aided the Movement's expansion.

Sites

The hopes that had been entertained last year for the preservation of Duneswell as a permanent gliding site have, alas, not been realised. The West Wales Gliding Club may also be in difficulties arising from the disposal of Withybush. It would seem that Government surplus

aerodromes are likely to assume diminishing importance in the future scheme of things.

Some interesting legislative problems have cropped up in the past year, in particular a proposal by the Ministry of Transport to forbid the use of mobile radio on the move by the driver. The Ministry reacted quickly and wholeheartedly to representations from the B.G.A. and other bodies and the proposal has been dropped. At long last, it is possible that the proposed increase in the speed limit for towing glider trailers will be implemented this year.

The whole future of the Sites Committee is now under review as the result of the appointment of the Study Group, and in future it may be possible to tackle local problems more directly from local bases.

Secretariat

In addition to the usual increase in the normal work of the Association, this year our Secretariat had also to cope, with only the smallest additional temporary staff, with the central administration of the World Championships. I spent half an hour at South Cerney failing to persuade some members of the Embassy of one of the super powers, who were asking how we had done it, that our only permanent offices consisted of four small rooms at Artillery Mansions, staffed by five young ladies and a book-keeper. They went away unconvinced.

P. A. WILLS, Chairman.

"GUINEA PIG" PERFORMANCE TRIALS

By DAVID CARROW

WE were all hoping that by now Tom Coldwell and his merry men at Cranfield would have produced for the world a Grade A, all-singing, all-dancing, Polar for our Dart 17R. Unfortunately they haven't. What we do have, after a thorough sift of the data, are twelve points and a somewhat questionable Position Error Curve. These points are pretty close at the low speed end but are inadequate in number and with perceptible scatter at the higher speeds.

For the future, the Cranfield team hopes to secure improved facilities for

its work and meanwhile Tom has very kindly loaned some of its equipment to Chris Riddell and Mike Wilson in Yorkshire. Various Lashamites are also known to be muttering in corners; we do indeed need to recapture our skill at performance testing, as exemplified by the Cambridge Sky results and the Dunstable Skylark 2 results some years ago. It is also quite essential — and Bill Slater of Slingsby's is as keen on this as anyone — that such tests should be thoroughly "independent"; only thus can we truly rate our progress and im-

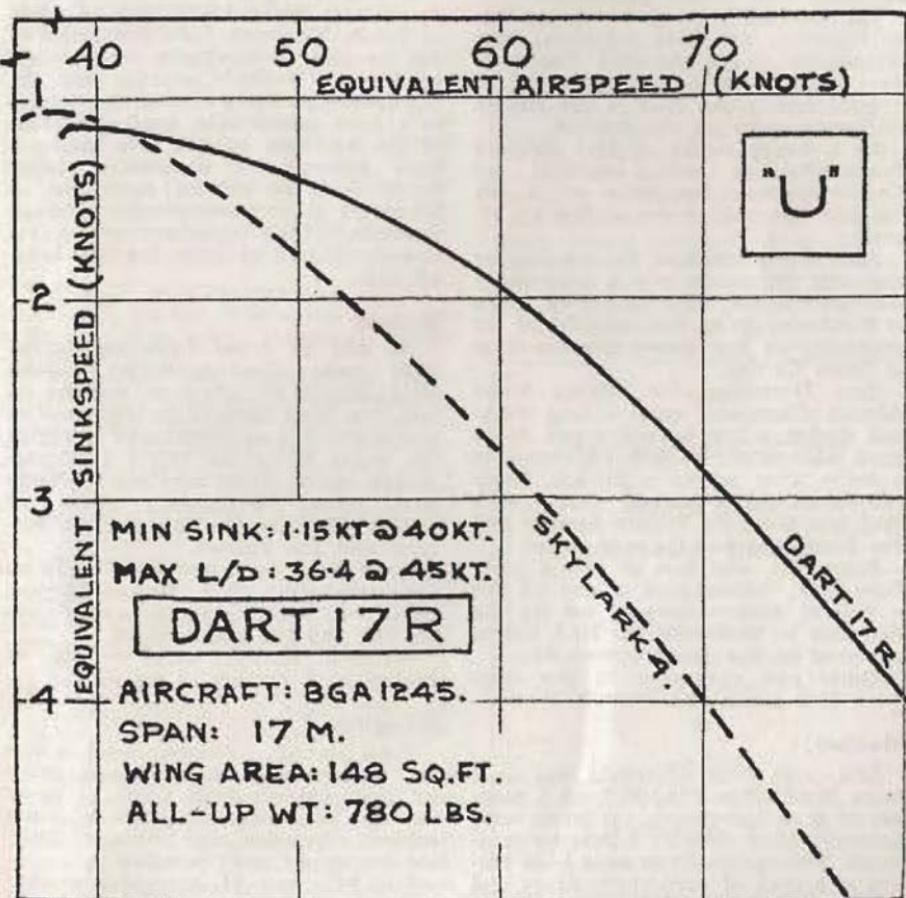
prove and compare our various indigenous breeds.

Meanwhile, I have used the Cranfield points, adjusted to an earlier Dart 15 P.E. curve, together with certain rather qualitative comparison runs at Lasham last Autumn with a Skylark 4, an Austria SHK and an early Dart 15, to construct a provisional Polar which, whilst it can only be given a "U" till the P.E. uncertainty is removed, does try to summarise as fairly as possible our present knowledge. On the same graph I have plotted for comparison the Skylark 4 Polar from SAILPLANE & GLIDING, February, 1965.

For the tests our Dart 17R was in the

"As received by customer and fettled condition", i.e. with all surfaces polished and surface imperfections smoothed but with no microballooning. The glider was not taped. Our aircraft has certain small non-standard items, viz: external air entry nostrils on canopy, air exhaust fairings around rudder cables and a fully buried Ottfur with flush rubber diaphragm.

One would like to end this brief note by thanking the Cranfield team for all their hard work, particularly John Blackmore, who did most of the flying, David McQue, who computerised the data, and, of course, Tom Coldwell himself.



SOUTH AFRICAN NATIONALS

KIMBERLEY—29th December, 1965—14th January, 1966

The following account has been compiled from notes and press cuttings received from Ted Rudnick, and the flying details may be subject to correction.

SIXTY-TWO pilots and 37 sailplanes assembled at Kimberley, South Africans from Pretoria, Johannesburg, Cape Town, Port Elizabeth and the Free State Goldfields as well as visitors from Germany, Great Britain, Rhodesia and Zambia gathered for what might almost be called their annual pilgrimage.

The German contingent was particularly strong, and nine machines were shipped out. Four glassfibre Phoebuses were subject to a concentrated spell of tropical testing. An Austria and sundry Zugvogels made up the balance.

By a happy stroke of luck Barbara Franken-Schage was available as English/German interpreter — a job she had also carried out at South Cerney.

Anne Burns was back for yet another visit. Alf Warminger was a particularly welcome visitor, his Springbok hosts at Kimberley being ever mindful of the generosity he had shown towards them at South Cerney.

Boet Dommisse, the retiring South African Champion, spent a long weekend during which he was roped in as guest task-setter; he left the town in a hurry after setting a 516-km. Goal-and-Return as a parting shot. Boet's BJ-2 was flown by Yvonne Leeman and Pat Beatty and won the team award.

Fritz Johl, who flew in with a party from S.W. Africa, took a day off for a visit to Johannesburg to see for the first time his brainchild, the BJ-3, almost complete in Pat Beatty's workshop.

Other past champions to pay visits were Heli Lasch and Herman Winter.

Weather

Met. man John Olszewski was once more in attendance. Apart from a number of grim dust-storms, conditions were generally good, even by Kimberley standards. Timing could not have been better, as a spell of particularly heavy and sustained summer rains arrived just a

few days after the end of the championships.

Timekeeping facilities were available also on non-competition days for badge and record attempts.

Scheduled Air Movements

Besides private aircraft movements, the airport has a fairly busy schedule of S.A.A. Viscounts, 727's and Dakotas, but by dint of intelligent co-operation by the Air Traffic Controller and the championships flying control, and thanks to a brisk launch rate, good utilization of the field was possible. No instances were reported of competitors being handicapped by delayed starts due to scheduled aircraft movements, although unavoidably the organisers were occasionally obliged to delay the first take-off time.

Records

As will be noted from the list of daily tasks, Goal-and-Return around pilot's choice of turn-point was set no less than three times in an endeavour to give contenders an opportunity to regain for South Africa the World Goal-and-Return record. There were many notable near misses, particularly those of "Chick" Brydges, Pat Beatty, Hans Böttcher and Ted Pearson.

Anne Burns set a new world feminine Goal-and-Return, and Yvonne Leeman broke two feminine speed records over the 100 and 300 km. triangles.

National records were set up or broken by a number of the visitors.

Prizegiving

Final placings, by conventional as well as "Wallington" systems, showed popular Rudi Lindner from Germany to be the overall winner, Pat Beatty South African Champion, and "Bomber" Jackson Standard Class Champion.

The Mayoress of Kimberley presented the trophies, and the Mayor in his

speech expressed the hope that Kimberley might have the honour of acting as host to a World Gliding Championships in the not too distant future.

WEDNESDAY, 29TH DECEMBER

TASK: 145-km. (90 miles) triangular race: Paardeberg, Henningeskloof, Kimberley.

Making the best of mediocre conditions "Chick" Brydges clocked the fastest time, 1 hr. 36 min. 27 sec. Anne Burns and Pat Beatty ran into some "downs" and had to waste time looking for the saving thermal. Brydges never landed after his first attempt but went round for another go; this time, however, he was 10 min. slower.

FASTEST TIMES

Pilot	Sailplane	h.m.s.
Brydges	Std. Austria	1.36.27
Lindner (Ger.)	Phoebus	1.44.32
Keim (Ger.)	Zugvogel	1.51.50

Oberhofer caused some excitement when he came in very low, but he just managed to roll over the finishing line under loud cheers from the crowds who were watching his spectacular finish. He took three hours over the trip.

THURSDAY, 30TH DECEMBER

TASK: 216-km. (134 miles) Goal-and-Return: Kimberley, Hopetown Bridge, Kimberley.

Conditions were described as "fairly good" with, according to the Press, "a few choppy currents". Most pilots finished the task, among them was 15-year-old Karl-Heinz Töpfer who was flying an SF-26, and although he did not represent a challenge, the experience will be most useful to him.

FASTEST TIMES

Pilot	Sailplane	h.m.s.
Heiriss	Std. Austria	2.23.10
Yvonne Leeman	BJ-2	2.25.10
Böttcher (Ger.)	Austria SHK	2.42.00

FRIDAY, 31ST DECEMBER

TASK: 309-km. (192 miles) triangular race: Christiana, Dealesville, Kimberley.

Conditions were excellent and good times were made. Hans Böttcher broke the German 300-km. record and took only 2 hr. 58 min. 30 sec., the fastest time of the day; but, as he was not competing on this day, first place went to Reinhold Stuhr.

FASTEST TIMES

Pilot	Sailplane	h.m.s.
Stuhr (Ger.)	Phoebus	3.06.00
Beatty	BJ-2	3.05.50
Lindner (Ger.)	Phoebus	?
Anne Burns (G.B.)	Std. Austria	3.18.00

SATURDAY, 1ST JANUARY

No task was set on New Year's Day, but a number of pilots took advantage of the excellent conditions. Alf Warminster broke the British 100-km. triangle record at 115.06 km./h. (71.4 m.p.h.). Pat Beatty broke the South African 300-km. triangle record in a time of 2 hr. 54 min. Willem Boon of Holland, with Bebington as passenger, broke the Dutch record for the 100-km. triangle in a Ka-7 with 1 hr. 19 min.

SUNDAY, 2ND JANUARY

TASK: Goal-and-Return with pilot's choice of turning point.

Another day for record-breaking attempts. Yvonne Leeman set out on a 636-km. O.R. (395 miles) but unfortunately had to land on her return leg with only about 50 miles to go.

Ed Verpraet of Holland broke the Dutch record with a flight of 300 km. (186 miles) in a Skylark 3B. Boon and Bebington flew 420 km. (272 miles) for another Dutch two-seater record.

Peter Eich and Horst Szymanski broke

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Ian Leitch (left) and a helper relaxing before the day's work.

the German record with a flight of 508 km. (315 miles) in their Ka-7. Herbert Stuhr was rather unfortunate in landing about 400 km. (250 miles) away, and his crew drove for nearly 500 miles to retrieve him. The day was won by Heiriss, followed by Jackson, Std. Austria, and Clifford, HP-11, equal second.

MONDAY, 3RD JANUARY

Pilots wandered around the airport waiting for instructions to take off, but rising dust and thunderstorms put paid to any chance of a task being set.

TUESDAY, 4TH JANUARY

TASK: 328-km. Goal-and-Return to Strydenburg (203 miles).

As pilots were flying on alternate days throughout the championships, a number of them chose to fly their own task for record-breaking purposes. These included Hans Böttcher, on an 800-km. (497 miles) Goal-and-Return attempt; however, he had to land on the way out about 230 miles south of Kimberley, and his crew had to hurry to get him back for the next day's event. "Chick" Brydges, also on an 800-km. attempt, landed at Henningneskloof on the way out, but, after a fast retrieve by Jackson, he set off on the official task at 3 o'clock, and although he did not get many speed marks he finished the task in 4 hr. 20 min.

Pat Beatty was an easy winner with the excellent time of 2 hr. 52 min. "This is BJ-2 weather," he said, and "I have never flown in better conditions. I was getting more than 5 metres lift most of the time."

No sooner had he landed than Yvonne Leeman took the machine to break the 100-km. triangle for a feminine world record. Kees Goudriaan, of Dutch origin, pipped Rudi Lindner to the post by 30 sec.

FAIREST TIMES

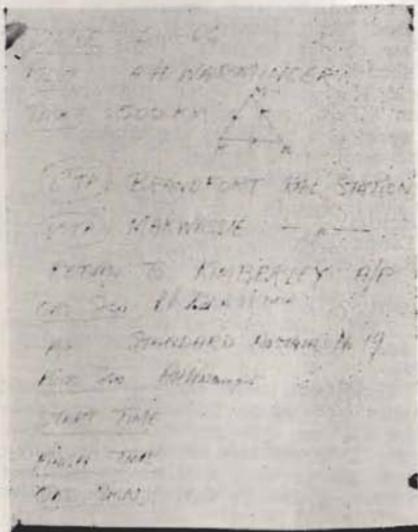
Pilot	Sailplane	h.m.s.
Beatty	BJ-2	2.52.00
Goudriaan	Std. Austria	2.57.00
Lindner	Phoebus	2.57.30
Biggs	HP-11	3
Stevens	Std. Austria	3.12.00
Anne Burns	Std. Austria	3.14.00

WEDNESDAY, 5TH JANUARY

TASK: 532-km. (330 miles) triangle. Turning points, see declaration below.

This turned out to be a difficult day, and only four pilots completed the task. "Bomber" Jackson and Alf Warminger landed after dark and were helped by car and airport lights to see their way in.

No times are available but according to the scores Böttcher came first, followed by Jackson second, Alf Warmin-



ger third and Ted Pearson from Zambia, Std. Austria, fourth.

The following day was declared a rest day, but again many pilots could not resist to try just once more for a record. Anne Burns broke the feminine out-and-return record, approximately 340 miles. Alf Warminger did his 300-km. triangle speed record, and Ted Pearson did a 100-km. triangle to set up a Zambian record.

The 7th January was declared another rest day as high winds and rain prevented a task being set.

SATURDAY, 8TH JANUARY

TASK: A 138-km. (85 miles) triangle was set in mediocre weather.

Many pilots went round again in the afternoon, as the weather seemed to clear, and several pilots managed to improve on their times by knocking a few minutes off.

FASTEST TIMES

Pilot	Sailplane	h.m.s.
Lindner	Phoebus	1.24.30
Stuhr	Phoebus	1.27.00
Beatty	BJ-2	1.31.09
Goudriaan	Std. Austria	1.32.00

SUNDAY, 9TH JANUARY

TASK: 309-km. (192 miles) triangle to Dealesville, Christiana, Kimberley.

Dust made visibility poor and many crews watched their pilots set off with some misgivings. However, the weather did clear later in the day and good times were made especially on the second leg. Only four pilots failed to complete the task.

FASTEST TIMES

Pilot	Sailplane	h.m.s.
Böttcher	Austria SHK	3.45.00
Jackson	Std. Austria	3.59.50
Heiriss	Std. Austria	4.23.00
Warminger	Std. Austria	4.27.00
Yvonne Leeman	BJ-2	4.31.00

MONDAY, 10TH JANUARY

TASK: 516-km. (320 miles) Goal-and-Return to Deelfontein and back.

Pat Beatty claimed today's honours with an average of almost 100 km./h. He took 5 hr. 15 min. for the trip.

In spite of some rain and bad patches, he found good lift most of the time, and having flown straight for nearly half an hour from 17,000 ft. he was lucky enough to fly into a just formed dust devil to regain height. On the way home he radioed that he was getting low but would try to scrape in. One could have hardly called it scraping, as he came in very low and very fast at about 150 m.p.h. to flash over the finishing line. Clinton



There is always plenty of interest at the finishing line.

Aldermann, Ka-6, raised loud cheers as he came in first over the finish, gaining himself 5th place for the day.

FASTEAST TIMES

Pilot	Sailplane	h.m.s.
Beatty	BJ-2	5.15.00
Stuhr	Phoebus	5.28.00
Buchner (Ger.)	Phoebus	5.38.00
Keim (Ger.)	Zugvogel	5.41.00
Aldermann	Ka-6	5.46.00
Lindner	Phoebus	55.5.00

TUESDAY, 11TH JANUARY

TASK: Goal-and-Return with pilot's choice of turning point.

This turned out to be one of the most difficult tasks set, and nobody got back to Kimberley. The exception was "Bomber" Jackson, who had originally declared 780 km. (496 miles), but because of poor weather conditions he changed his mind and nominated another goal of 300 km. which he completed after having flown for seven hours.

Yvonne Leeman did best with an attempted 560 km. (348 miles), but she had to land near Henningneskloof on her way back. Böttcher, who had declared 500 km. (312 miles), had to battle against strong cross-winds and was forced to land. According to the scores Yvonne Leeman was first, Böttcher second and Jackson third. Only another three pilots scored.

WEDNESDAY, 12TH JANUARY

TASK: Same as yesterday.

Pat Beatty declared 790 km. (496 miles) for a world record attempt. He reached his turning point at Rustenburg and got back as far as Bloemhof before he had to land with about 620 km. (387 miles) completed. The tireless Böttcher tried a similar task and reached his turning point at Deneysville, but on the way back landed near Odendaalsrust about 200 miles from Kimberley. No one made it back to base and a number of pilots landed near Christiana. "Chick" Brydges was the last to report in, having landed at about 8.30 p.m. First, Pat Beatty, followed by Linke (Ger.), Ka-6, second, and Lindner third.

THURSDAY, 13TH JANUARY

Declared a rest day, but in South African terms this seems to mean record-breaking days. Although only one of these came off, some very good attempts were made on the 800-km. Goal-and-

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Return record. Several 500-kms. were completed and lots of 300 kms. for Gold Badges. Alf Warminger broke the British Goal-and-Return record with 602 km. (373 miles).

FRIDAY, 14TH JANUARY

TASK: 332-km. (206 miles) triangle: Kalkfontein Dam, Hope Town, Kimberley.

Excellent weather made this task a good finish to the championships. Yvonne Leeman broke the world female record with this task and Böttcher won the day in 3 hr. 1 min. 50 sec. Ted Pearson (who had attempted 800 km. yesterday) had arrived back from his retrieve at breakfast time, revived himself with cups of tea, and then set off once more to fly the task.

Again some 800-km. flights were attempted, but by now it was referred to as the "hoodoo" task. There was joy in the Rhodesian camp as Jimmy Arnett became the first Rhodesian to fly a 500-km. triangle, thus setting up a record in his Vasama. This was followed by a 600-km. Goal-and-Return flown by Paul Hodge in a Ka-6.

"Chick" Brydges on the 800 km. landed on his way back near Bloemfontein.

FASTEAST TIMES

Pilot	Sailplane	h.m.s.
Böttcher	Austria SHK	3.01.50
Jackson	Std. Austria	3.09.30
Yvonne Leeman	BJ-2	3.11.10
Pearson	Std. Austria	3.11.45
Clifford	Std. Austria	3.17.15

We have received no indication of how many miles and hours have been flown, but this could easily be another South African World record.

RICA HARWOOD

LEADING FINAL RESULTS SOUTH AFRICAN NATIONALS

		29.12 Day 1	30.12 Day 2	31.12 Day 3	2.1 Day 4	4.1 Day 5	5.1 Day 6	8.1 Day 7	9.1 Day 8	10.1 Day 9	11.1 Day 10	12.1 Day 11	14.1 Day 12	Total Points	Final Placing
Pilot Lindner (Germany)	Sailplane Phoebus BJ-2	897 666	981 910	943 1000	762 484	954 883	1000 1000	1000 892	900 1000	900 942	1000 904	896 881	1000 1000	5590 5556 5081 5428 5298	1 (1) 2 (3) 7 (8) 3 (2) 4 (3)
Beatty & Leeman Stühr (Germany)	Phoebus Aust. SHK	762	910	1000	762	883	1000	960	1000	942	904	933	1000	5154 4307 4373 5135 4747	5 (7) 12 (6) 10 = 6 (5) 8
Goudriaan & Heiriss Stevens & Jackson Keim (Germany)	Std. Aust. Std. Aust. Zugvogel	748 659 821	1000 757	886 864 832	1000 903	958 861	622	767 980	812 921	573 922	63 630	810 944	809 731	4683 3314 4373 5135 4747	9 12 (6) 10 = 6 (5) 8
Brydges & Warming (G.B.) Aldermann Hodge (Rhodesia) Pearson (Zambia)	Std. Aust. Ka-6 Vasama Std. Aust.	1000 672 791	763 792 677	862 792	792 716 632	604 966	820	793 656 731	892 815	828 645 659	0 0	— 929	— 929	4181 3314 4373 4305 4275	15 24 10 = 13 14 (10)
Linker Biggs & Clifford Buchner (Germany) Anne Burns (G.B.)	Ka-6 HP-11 Phoebus Std. Aust.	699 580 697 659	756	487 902 863 916	903	737 869	750 741	777	809 517	899 510	57	895	— —	4119 4039 4102 3073	15 16 18 (9) 25

NOTE: Last column, figures in parentheses denote placings under "Wallington System". Dash=Did not hand in landing certificate, or did not fly.

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SAFETY PANEL REPORT

THIS year, thanks to the efforts of Club Safety Officers, the B.G.A. has been supplied with more detailed accident reports than in the past. In spite of this wealth of factual information the causes of accidents are so numerous and the number of accidents due to one particular cause so few, that it is not possible to produce significant statistics.

An attempt is made in the appendix to summarise the information and it must be emphasised that where attention is drawn to a particular accident it is done to illustrate a point and not to condemn an unfortunate individual or club. As before, the one conclusion which can be drawn is that accidents with the most serious consequences to pilots are usually those which involve spinning near the ground. Unfortunately it appears that this is just as liable to happen to the experienced pilot as to the inexperienced.

About one hundred accidents have been notified and roughly half of these could be classed as serious, giving an accident rate of one per 2,000 launches or, for serious accidents, one per 4,000 launches. From information supplied by the Ministry of Aviation this would appear to be about the European average, so our safety record is nothing to be proud of. To increase pilots' awareness of our problems it is planned in the coming year to provide more information through the pages of *Instructor*. Accidents with a moral will be covered in some detail and a summary produced of others.

The safety of our flying depends firstly on all pilots making conscious efforts to improve their standards and only secondly on the Safety Panel, i.e. every Club Safety Officer. While thanking the Safety Officers for their efforts during the year I hope that this labour will be one of the operations of the movement which shows a steady decrease with time. I must thank the B.G.A. office staff for their assistance and I would particularly like to express my appreciation of the help, information, and encouragement we have received from the Flight Safety and Accident Investigation Branches of the Ministry of Aviation.

P. MINTON, Chairman.

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APPENDIX

As it is impossible to assign any priority to the accidents the order in which they appear is that of normal circuit flying, with an extra group on soaring accidents.

Cockpit Checks

Taking off with brakes open has caused one accident. The pilot did a cockpit check, there was a launch fumble, and the brakes were opened. They were not shut before the take-off finally took place.

Obstructed Take-off

A glider took off with another machine parked on the side of the runway some 80 yards ahead. A collision resulted.

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This was at a site where operations are restricted to runways only.

Initial part of Launch

There have been ten accidents either due to an initial jerk or due to allowing the machine to climb away at too low a speed where the pilot has been unable to keep control of the situation. The results have been heavy landings, broken skids and bulkheads, etc. Only one accident involved an instructor, while the other pilots involved were inexperienced.

Slow Launches

On two occasions machines with experienced pilots have entered a spin at a low altitude while still attached to the cable. In one case the result was fatal and the other nearly was.

Cable Breaks

While only two accidents resulted from pilots choosing inappropriate landing areas there were four cases of gliders spinning in off the final turn following a cable break. In three of the four cases the pilot in charge was an instructor giving instruction, and in one case two fatalities resulted.

Launching Cables and Equipment

One glider was fouled by the nylon long link after release, another had a winch cable fall on it while on aero-tow, and a powered aircraft flew into a winch cable while taking off. A serious accident resulted when a tug dived away at the end of a low altitude tow without checking that the glider had released the rope. The glider pilot had pulled the release but had not seen the rope go. It had not in fact released.

After a cable break a winch cable shot under a winch and hit a parked car while the brake end hit the cab and splintered into the driver's eye. A tough hill-site character fell off his tractor, which then ran him over without causing any damage!

Structural Failure

The one structural failure is still under investigation by the Ministry. However, it is a reminder that pilots must treat aircraft with respect.

Spinning

There were two classic cases of long spins from a great height where inexperienced pilots were slow to recover, but apart from the four cases already mentioned under cable breaks there was only one case of spinning in on the approach under normal conditions.

Undershooting

The misjudgement of approaches causes a considerable number of accidents. Of the eleven reported the majority were to inexperienced pilots but three involved instructors allowing the situation to get out of hand. Five further accidents involved obstructions in the approach path ranging from T.V. aerials to other gliders, and these could all have been avoided had the pilot planned his circuit with more care.

It is in the approach phase where the faults of pilots such as lack of judgement, lack of concentration, overconfidence, etc. have the most obvious effect. Hence these accidents can only be reduced by an improvement in the general standard of flying.

Heavy Landings

This category is numerically the largest in this analysis, with seventeen accidents. The majority were to in-

experienced pilots, often having trouble with air brakes, and five involved instructors who did not take over in time.

There were five collisions with obstructions such as manhole covers and peritrack edged on the ground, the only serious incident being the concussing of a visitor trying to photograph a glider landing.

Strong Winds and Hill Soaring

Five gliders were seriously damaged through the pilots losing control in strong winds and turbulence. Three of the gliders were on the final phase of their approach and two were in the process of hill soaring.

The failure of hill lift caused two gliders to make unpremeditated and disastrous field landings while a third pilot failed to clear a spur and actually landed on it.

Collision

There was one collision between thermalling gliders and another in the World Championships. By chance no pilot was killed but it would be sur-

prising if further collisions do not prove fatal.

Field Landings

This final group is large (sixteen accidents) and expensive but, with two exceptions, did not have serious consequences for the pilots. Over half the accidents were to pilots with one hundred hours' experience or less and their main fault was in picking poor fields, often with standing crops. The more experienced pilots appear often to have pressed on too low and the two most serious accidents in this group were to pilots who were tired at the time they made the decision to land. One ran into the hedge at the end of a small field and was nearly decapitated by a strand of barbed wire while the other spun off his final turn.

WORLD CHAMPIONSHIPS REPORT

As the World Championships have been fully covered in the magazine throughout 1965, this report is, with permission from Ann Welch, not being reprinted in SAILPLANE & GLIDING.



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ON the 4th March a unique reception was organised by the Club for all organisations connected with activities in the air. Many Clubs, Societies and Associations were represented and they covered ballooning to space flight. It is hoped that the Club will be able to help some of the organisations by providing a meeting place for their members and so increase the utilisation of the premises on evenings other than Wednesdays.

The Aircraft Recognition Society, the P.F.A., the Girls Venture Corps, the ABAG, CISAVIA, The Island Cruising Club, and the Civil Service Sailing Association are already regular users. Hire fees for the Lecture Room are 3 guineas or Group Membership, which covers 10 bookings, costs 16 guineas.

A number of the keenest supporters of the Club's Annual Art Exhibitions are founding a Kronfeld Aviation Art Society. Membership will be by invitation of the founders but anyone will be able to become an associate. The Society's first exhibition will be at the Biggin Hill Air Fair on the 12th-15th May 10 a.m. to 6 p.m. each day. Anyone interested in helping at the exhibi-

tion on any of the days, please let Yvonne Bonham know at 14 Little Brownings, S.E.23, Forrest Hill 9390, from whom application forms and details may also be obtained.

The first Wednesday in each month, starting 4th May, is being set aside for full length feature films. Seats are bookable in advance.

Y.C.B.

Lectures on Mondays at 8 p.m.

- April 18. Advanced Meteorology Part II.
" 25. Trends on Glider Design by Keith Chard.

Diary of Lectures and Film Shows Wednesdays at 8 p.m.

- Mar. 30. Jane's All the World's Aircraft by J. W. R. Taylor.
April 6. The Last of the Many. Film of Battle of Britain 25th Anniversary.
" 13. Easter Gliding — Informal Reports.
" 20. Film Miscellany.
" 27. Thermal Soaring from a Flat Site by John Fielden.
May 4. Feature film "Bringing up Baby" Cary Grant and Audrey Hepburn.
" 11. T.V. "Weather" programme by Brenda Horsfield.

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THIRD NEW ZEALAND GLIDING CHAMPIONSHIPS

OMARAMA 8th—15th January, 1966

The following account has been compiled from notes supplied by Ross Macintyre Geoffrey Ferner and J. A. Hunter.

THE Championships were held in the south-west corner of the McKenzie Basin at Omarama, approximately 70 miles west of Timaru in the South Island. It is a dry glacial valley with its floor varying between 1,000-1,500 ft. a.s.l.

These valleys are wide, up to 20 miles in places, and covered with a rough tussock grass, which hides some rather frightening boulders. Because of this stony situation, the briefings included descriptions of local top-dressing airstrips.

The competitions were opened by the Minister of Civil Aviation, the Hon. J. McAlpine, who had arrived by air from Christchurch. He was treated to a soaring flight in a Capstan which he enjoyed to the full.

Saturday, 8th January

An anti-cyclone covered the area with light winds below 5,000 ft. Thermals were expected to be weak and much restricted by a stable layer above. However, conditions proved to be better than forecast, and at noon the first task was given as twice round a 74.5 km. (46.4 miles) triangle.

Of the 18 competitors lined up at the start, Gerald Westenra, Skylark 4, was the first to be launched and also the first to be back in 2 hrs. 13 min.

Five completed the task, but everybody scored.

FASTEST SPEEDS

Pilot	Glider	km/h (mph)
Westenra	Skl. 4	67.5 (42)
Heginbotham	Ka-6CR	60.5 (37)
Wakeman	Ka-6CR	52.0 (32)
Cummins	Skl. 4	47.5 (29)
Evans (solo)	Ka-7	44.0 (27)
Roxburgh	Ka-6CR	42.0 (26)

Heginbotham was the only pilot to use the newly granted cloud-flying regulations for a short climb to 8,600 ft. (Under the new regulations gliders are allowed to fly in cloud when flight in-

formation is received by radio. However, the area around Omarama had been cleared for cloud flying without the need for radio notification.)

Sunday, 9th January

A 120-km (73.6 miles) Goal-and-Return was set, but the expected clearing after a cold front did not eventuate and the task was cancelled. Dick Georgeson took advantage of this to work on his new Dart 17R; because of his glider not being ready, Dick was allowed to fly a borrowed Dart 15 on the first day.

The reverse "Wallington System" for scoring was used with the winner of the day receiving the highest points, calculated according to the aircraft scoring for the day.

During the day Peter Scott visited the camp and was able to sample some very rough hill lift and wave.

Monday, 10th January

High upper winds (110 knots at 30,000 ft.) indicated possible wave, and with the arrival of a narrow ridge, thermal activity was sufficient to send the pilots on a 124-km (77 miles) triangle.

Fastest time was made by Gordon Hookings, Skylark 4, in 2 hrs. 4 min.; he contacted wave on the first leg and rounded the first turning-point at well over 10,000 ft. In order to partake in the Championships, Gordon had travelled 900 miles from Auckland in the north of North Island to Omarama in the lower part of South Island.

Westenra, 2 hrs. 20 min., and Heginbotham, 2 hrs. 37 min., used only thermals to complete the task, as did Errol Carr, Dart 15, and Evans. Again five pilots completed the course and another nine scored.

FASTEST SPEEDS

Pilot	km/h	(mph)
Hookings	60.0	(37.1)
Westenra	54.0	(32)
Heginbotham	47.4	(29.5)
Carr	45.7	(28.4)
Evans	43.2	(26.9)



*Mt. Benmore,
6,111 ft., seen
here with
lenticulars to the
north.*



*Lenticulars at
Omarama on the
third contest day.*



*Peter Scott (right)
and Des Connor
are ready to
sample the lift on
the ridge behind.*

Tuesday, 11th January

With a cold front approaching and a strong W. to S.W. wind, obvious wave indications meant that a long distance task was probable. At an early briefing John Messervy confirmed this with Pilot-selected Goal.

Some solid thinking went into those goal declarations, as a 30% bonus hung on their achievement. Launches were to 2,000 ft. onto the ridge just downwind of the site. Some pilots had difficulty in contacting the wave, and Heginbotham was down to 300 ft. at one stage before eventually getting to 24,000 ft. Several others were reduced to ridge-soaring and one or two had to land.

The day's winner, Errol Carr, who flew his Dart 15 to his declared goal at Picton, 492.5 km. (306 miles) away, just missed his third Diamond. However, Picton was as far as he could go without crossing Cook Strait or landing in an irretrievable area. Eight pilots went over 300 km. and only four pilots failed to score.

FURTHEST DISTANCES

Pilot	kms.	(miles)
Carr	492.5	(306)
Wakeman	474.5	(295)
Hookings	417	(253)
Menzies (Ka-7)	324	(201)
Heginbotham	317	(197)
Evans	306	(190)
Georgeson	317	(197)
Hamilton	325	(201)

With his flight, Errol Carr can claim the New Zealand Goal and Distance record.

Laurie Harrison, an Australian, flying *hors concours* in a Skylark 3F, reached 24,000 ft. to collect his height Diamond, but he was forced down when his fingers became frostbitten.

Westenra and Hamilton were still in overall first place, Heginbotham in second and Carr in third place.

Wednesday, 12th January

A rest day had been announced after pilots had landed more than 300 kms. away, and retrieves arrived back during the morning and early afternoon. Carr's crew spent about 33 hours in the car towing the trailer about 800 miles in all.

A wonderful barbecue was held in the evening on the banks of the Ahuriri river.

Thursday, 13th January

Another visitor from England was introduced today: John Goddard from Lasham.

A ridge had now intensified over the area. A clearance of low cloud was forecast with the development of moderate thermal activity. Intense warming occurred aloft (in 12 hours the freezing level at Invercargill rose at least 7,000 ft.). It was clear that a large lapse rate still existed in the lowest 4,000 ft. and there was visual evidence of intense instability near the ground. Unfortunately, few thermals reached a height of more than 2,000 ft.; in fact, some pilots swore that there were none at all. No-one completed the task, a Goal-and-Return to Lake Tekapo Hotel, 134 km. (83 miles), and only five pilots managed to score. Under the scoring system only one pilot needed to pass x, which was 24 km. on this day. However, his points are dependent on the total number scoring.

Heginbotham managed to push his Ka-6 39 km. (24 miles) to take first place. Although his crew saw him land, it took 2½ hours to get the glider back in the trailer, the glider having landed in a seed clover field, which the farmer did not wish to have disturbed.

Williamson in another Ka-6 managed 34 km. (21 miles), Evans 25 km. (15.5 miles) and another two right on x. There was some controversy as to whether a landing on x should score, but eventually this was admitted.

Friday, 14th January

A cold front crossed Omarama in the



Laurie Harrison from Australia, who flew *hors concours*.

early morning. In anticipation of further clearance and surface heating, a task was set within the McKenzie basin. However, during the morning cloud thickened and rain became persistent. The task was cancelled during the early afternoon.

Saturday, 15th January

The ridge of high pressure was still over New Zealand, and the cloud which covered the area was forecast to clear by noon, but once again very stable conditions meant that thermals were few and far between. Most pilots needed two or three launches before setting off on a hopeful but most fruitless glide.

The task set was twice around a 56-km. triangle, a total of 69.5 miles. Gordon Hookings, however, had only one launch and scratched around for 1 hr. 40 min. before leaving the site, but managed to get to the third leg on his first time round. Only two other pilots scored by getting just past x on the second leg; these included Gerald Westenra, who was lying second on overall



Peter Heginbotham, the new Champion.

points. However, his daily points were insufficient to bridge the gap and to overtake Peter Heginbotham.

So Peter is the new New Zealand Champion of the Open, Standard and Open Handicap class, followed by Gordon Hookings, second, and Gerald Westenra, third.

LEADING FINAL RESULTS NEW ZEALAND — BASED ON WALLINGTON SYSTEM

Pilot	Sailplane	8.1 Day 1	10.1 Day 2	11.1 Day 3	13.1 Day 4	15.1 Day 5	Total Score	Final Placing
Heginbotham	Ka-6CR	978	699	477	778	—	2932	1
Hookings	Skylark 4	133	1176	699	—	602	2610	2
Westenra & Hamilton	Skylark 4	1279	875	—	—	125	—	—
Wakeman	Ka-6CR	802	398	875	273	—	2552	3
Carr	Dart 15	350	574	1176	185	—	2260	4
Evans	Ka-7	580	477	398	—	—	2100	5
Menzies	Ka-7	350	227	574	185	—	1640	6
Roxburgh & Williamson	Ka-6CR	501	—	176	—	301	1452	7
			97	—	477	—	1251	8

Note — Only Open Class scores have been given, as there is no change in the first eight places.

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Specification: The Ministry of Aviation Specification W145828, which is about to be amended, will be incorporated in CAP 208 (Civil Aviation Publications).

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

DEVELOPMENT COMMITTEE REPORT

FOR the past two years, this Committee has helped Clubs with their application for grant aid under the provision of the Physical Training and Recreation Act of 1937. During this period, most of our clubs which are eligible under this Act have been successful in obtaining grant aid towards the purchase of various items of equipment. With the help of a grant, the Coventry Club was able to develop its new site at Husbands Bosworth. Over the last two years, more money has been given to our gliding clubs than at any time since our sport started in this country.

The purpose of these grants is to make sporting facilities available to more people and the startling increase in gliding proficiency badges will prove that we have made good use of the monies given to us.

In July 1965 the Government imposed a moratorium which at the time of writing has not been lifted. We are hopeful that by the time this report is published, funds will flow once more. In the mean-

time considerable changes are taking place in the sporting scene of this country. The Government established a Sports Council which is examining all aspects of amateur sport. I would like to pay a warm tribute to the Director of this Council, Mr. Walter Winterbottom, and his members for the excellent work which they are doing for gliding and other sports. We also owe a great debt of gratitude to the Minister for Sport, Mr. Denis Howell, M.P., and the officers of the Department of Education and Science for the manner in which they have always received and helped us. The Central Council of Physical Recreation also deserves a warm word of thanks for their continued support of our activities.

Eleven Regional Sport Councils have now been established throughout the United Kingdom and our representatives have attended all the inaugural meetings. It is possible that all future applications will be dealt with at Regional level and this may mean that Clubs will have to justify their requests for grant aid within

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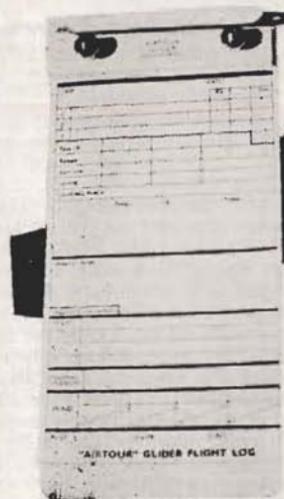
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the framework of their Regional sporting requirements. I can only stress yet again that it is imperative for clubs to improve their own standing in their locality and work much harder at "making friends and influencing people" than ever before. Since the war, gliding clubs have had to be relatively introspective and all available effort has of necessity been directed towards keeping the clubs solvent. From now on much more liaison must take place with other sporting clubs in Regional areas and a new Club Officer must be appointed, called perhaps the "Sport Liaison Officer", who must carry out this work.

Each of the eleven Councils has a gliding representative whose function it will be to make quite certain that all expansion plans initiated by the clubs in his or her area are fully examined by the Regional Council and, if possible, brought to a successful conclusion. This "regionalisation" will undoubtedly produce new problems which we will have to face and solve if we are to continue

to grow and receive grant aid and other forms of assistance such as acquisition of sites, staff and even possibly a greater degree of freedom in the air.

The Committee together with the Officers of the Association produced a comprehensive paper on Gliding for the Sports Council which was discussed with them in September, 1965. Successful applications were again made for grants towards the employment of our two specialist National Coaches and we were granted financial help towards the administrative costs of the World Gliding Championships.

The future work of the Committee will undoubtedly change from the routine help, guidance and progress chasing as done hitherto and I would like to thank Club Officers for their ready co-operation to date. In the light of the new Sport Councils, we will become "watch-dogs" to a far greater extent than before and our function must be to obtain any help which can be "offered" and to protect our interests.

Change often brings heartache but we must be prepared to examine new ideas and if necessary accept new conditions. The effect of the Regional Sport Councils may well force changes upon us which may not be to everyone's liking.

Clubs will be free to decide for themselves whether to accept or reject change. All this Committee can do is to advise them of any possible consequences of their action.

WALTER A. H. KAHN, *Chairman*.

INSTRUCTORS' PANEL REPORT

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

The routine work of the year included the issue of 52 new instructor categories, and the renewal of 326 existing ones.

The National Coach, John Everitt, and Capstan visited 15 clubs, and also ran courses at Lasham for visiting instructors. Altogether 30 instructors received training courses of 7-9 days duration, although on many of them continuous bad weather reduced the amount of flying which could be done. As a result only 19 Wills Scholarships could be awarded. For 1966 the pattern of the Coach and Capstan programme will be different, and include three Long Stay Periods, one each in the North, Midlands and South. These courses will be open to instructors from anywhere in Britain.

In addition, there will be a small number of nine-day club visits, and an Under 20s advanced course in the Easter holidays: the Capstan will be entered as usual for the Nationals and Northerns for instructors who otherwise cannot get any competition soaring. The main changes in the programme are intended to cut down unproductive and expensive travelling time, and to ensure greater utilisation of this very valuable asset to gliding, even though for one year in four the Capstan will not be able to visit quite so many different places.

In November, the Instructors' Panel ran a four-day Conference for Chief Instructors at Lasham. The Friday and Monday were flying days, with lectures on the Saturday and Sunday. A variety of flying exercises were offered to C.F.I.s and their assistant instructors. These included the analysis of handling characteristics, stalling and spinning, aerobatics, and general refresher and new type flying. Altogether 38 flights, mainly aerotows, were carried out on the 7 two-seaters of 5 different types. The lectures covered Stalling and Spinning by John Everitt; Flight Limitations by F. G. Irving; Teaching Thermal Soaring by John Williamson; Running Soaring Training Task Weeks by John Fielden, and a Review of the Year's Accidents by Paul Minton. In addition there were numerous side sessions ranging from the design of a new tug, to controlled air space problems, and the training of club instructors.

Altogether 90 instructors from 48 clubs turned up.

At the Conference the first issue of *Instructor* was produced. *Instructor* is not a magazine, but a method of circulating, and being able to keep handy, useful information for instructors. Stapled into a coloured cover, the duplicated sheets include B.G.A. Safety circulars, a digest of technical notes, and the sort of information one wants to look up in a hurry. *Instructor* will be sent free to all B.G.A. categorised instructors, and will come out four to six times a year.

The Instructors' Panel would like to record its thanks to W. D. & H. O. Wills and the Department of Education and Science for their valuable contribution to instructor training in Britain.

ANN WELCH, *Chairman*.

AUSTRALIAN NATIONALS

Condensed from "Australian Gliding"

MALCOLM JINKS, who celebrated his 21st birthday while taking part in the World Championships at South Cerney, became Australian Champion for the second time running at the end of the Sixth Australian Nationals, held at Waikerie from 27th December to 9th January. The Director of Civil Aviation, Mr. Don Anderson, visited the meeting several times and presented the prizes at the end. He expressed the hope that the World Championships would be held in Australia at some future time.

There were 30 sailplanes with 62 pilots in League 1, only one of whom had a machine all to himself, and 5 sailplanes with 15 pilots in League 2. Malcolm Jinks shared a Boomerang with Bob Rowe and Bob Martin.

Entries in League 1 were 9 Ka-6, 5 ES-60 (Boomerang), 4 ES-59 (Arrow), 2 BG-12A, and one each of Lo-150, Vasama, Foka, Altair, Sagitta, Ka-7 and Blanik. In League 2 were 2 ES-57 and one each of Cherokee, Grunau Baby 2 and Olympia.

Practice Period

Thursday, 23rd December was the outstanding day of this period. Bob Rowe set up a national 100-km. triangle record at 61.4 m.p.h., cutting his son's previous record by 10 minutes. Dick Deane (Ka-6) put up a national 500-km. triangle record at 46.6 m.p.h., taking 6 hr. 11 mins.; this was only the second 500-km. triangle ever performed in Australia. (World record, 66.56 m.p.h.)

Monday, 27th December

The contest opened with light winds and a 100-km. Triangle task — twice round it for League 1 and once for League 2. Under a clear sky the task proved difficult; nine in League 1 and two in League 2 completed it.

FASTEST SPEEDS (M.P.H.)

M. Jinks	Boomerang	40.1
M. Bradney	Boomerang	38.3
T. Thompson	Vasama	34.4
J. Blackwell	Sagitta	34.2
D. Schultz	won in League 2 with	

33.3 m.p.h. in an Olympia.

Next day the wind was too strong

and gusty for the five tugs to manoeuvre on the ground.

Wednesday, 29th December

Under a sky overcast with cirrostratus, League 1 tried for a 200-km. Triangle via Renmark and Alawoona, and League 2 for Renmark and return. None got round, but Dean Stevens (Cherokee) landed only three miles short in League 2, while Bob Martin was best in League 1 with 104 miles (167 km.), and R. Deane (Ka-6) made 101 miles.

Next day brought an overcast sky with two fronts passing through, and no contest.

Friday, 31st December

The "famed Waikerie weather" arrived. League 1 had a dog-leg race to Mildura, 124 miles, and League 2 a straight race there, 118 miles. Twenty-two pilots reached it, 15 of them in under three hours, and heights exceeded 7,000 feet.

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A neat line-up at the launching point.

FASTEST SPEEDS (M.P.H.)

D. Thompson	Ka-6	54.4
J. Blackwell	Sagitta	54.4
G. Sutherland	Lo-150	52.4
J. Iggulden	ES-60	51.25
R. Curry	Ka-6	51.0
B. Underwood	Boomerang	50.6
J. Coolhaas	Foka	49.0

In League 2, D. Jones (Olympia) made 41.0 m.p.h.

Helmut Apitz soared a Tiger Moth tug locally and gained over 1,000 feet.

Saturday, 1st January

With good weather the task-setters became ambitious and set a 250-km. Triangle for League 1, via Alawoona and Karoonda, and Out-and-Return Karoonda for League 2. Malcolm Jinks was flying again and won as usual, though he beat his nearest rival, R. Deane, by only 2½ minutes. Tasks were completed by seven in League 1 but none in League 2.

FASTEST SPEEDS (M.P.H.)

M. Jinks	Boomerang	42.5
R. Deane	Ka-6	42.0
E. Sherwin	Ka-6	41.7
T. Hanna	Boomerang	40.7
D. Stewart	Boomerang	39.8

Sunday, 2nd January

A good forecast encouraged the task-setters to give both Leagues a 300-km.

Triangle via Nuriootpa and Burra. A national feminine two-seater record of 31.8 m.p.h. was set up by Sue Suter with Bob Moore as passenger, and John Blackwell missed a record by only 6½ minutes. Eleven completed it but none in League 2.

FASTEST SPEEDS (M.P.H.)

J. Blackwell	Sagitta	41.0
M. Bradley	Boomerang	38.1
J. Rowe	Ka-6	37.4
T. Hanna	Boomerang	34.8
R. Martin	Boomerang	34.7
H. Clarke	Ka-6	34.3
T. Thompson	Vasama	33.2

D. Schultz (Olympia) won in League 2 with 161 miles.

Monday, 3rd January

Under an overcast sky the tasks were: League 1, Out-and-Return Renmark (78 miles); League 2, race to Renmark. They were completed by seven in League 1 and one in League 2 (John Maddocks in Cherokee). The front brought several machines down just short of home.

FASTEST SPEEDS (M.P.H.)

R. Rowe	Boomerang	45.0
R. Deane	Ka-6	43.9
M. Waghorn	Boomerang	43.1

Next day was a no-contest day as no-one made the minimum distance on the tasks.

Wednesday, 5th January

A high-pressure area was approaching. Tasks: Out-and-Return Karoonda (128 miles) for League 1; ditto Blanchetown (52 miles) for League 2. All League 1 completed their task except the Blanik and two who were "resting". Vik Kasak (BG-12A) was first back but Malcolm Jinks delayed his start for better conditions and won.

FASTEST SPEEDS (M.P.H.)

M. Jinks	Boomerang	51.6
V. Kasak	BG-12A	47.4
J. Iggleston	Boomerang	44.3
J. Blackwell	Sagitta	44.0

In League 2, D. Jones (Olympia) made 28.3 m.p.h.

After the task, Stuart Cox tried for the 100-km. triangle record but landed short and damaged the Vasama.

Thursday, 6th January

A cloudless day with 15-kt. wind from S.E. League 1 had a 200-km. Triangle via Alawoona and Renmark, and League 2 Renmark and return. Lift up to 3,000 ft. was very weak but improved greatly higher up, and those who managed to keep above 3,000 ft. made the best times. Dick Deane, after being second three times, won this day at last. Sue Suter put up a two-seater record, 37.2 m.p.h., with John Walton as passenger. Sixteen finished the task.

FASTEST SPEEDS (M.P.H.)

R. Deane	Ka-6	46.8
R. Rowe	Boomerang	42.0
D. Stewart	Boomerang	41.0

D. Stevens (Cherokee) was the only one to finish in League 2.

Friday, 7th January

The day promised the best conditions of the contest with very high ground temperatures, cumulus popping at mid-day, and heights up to 10,900 ft. reached. Out-and-Return tasks: Spalding for League 1, 187 miles, and Burra for League 2, 88 miles. Marie Bradney tied with Col Churches for first place with 4 hr. 25½ min. The Grunau Baby with H. Dunn was cheered when it returned from its 88-mile trip after 5 hr. 44 min. "Stayer" Ron Adair (League 1) was up for 7 hr. 55 min., landing 10 miles short.

FASTEST SPEEDS (M.P.H.)

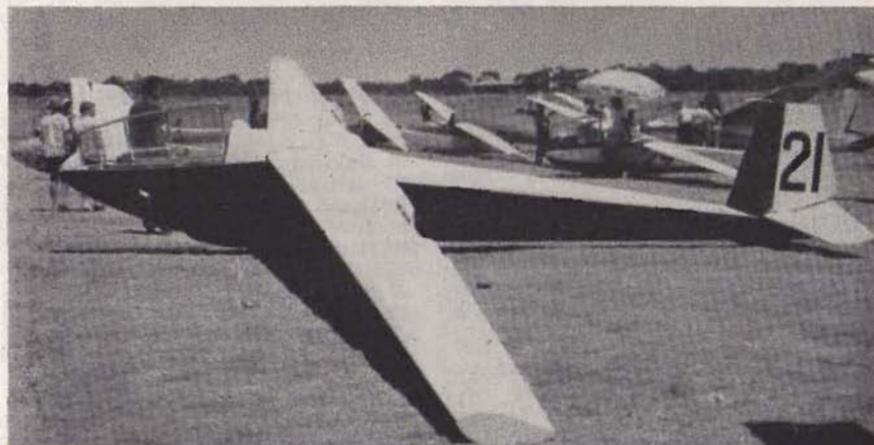
C. Churches	Ka-6	42.2
M. Bradney	Boomerang	42.2
R. Curry	Ka-6	38.6
R. Martin	Boomerang	37.7

LEAGUE 2

B. Schultz	Olympia	28.5
H. Dunn	G.B.2	15.4

Saturday, 8th January

A first-rate day, with more records. Task for League 1, 311-km. Triangle (193 miles) via Nuriootpa and Karoon-



The only 18-metre machine to take part, the Altair, a private venture by Ron Adair and Cliff Gurr. It has sandwiched ply-balsa-ply NACA section wings and about the same performance as a Skylark 4.



l. to r. Bob Rowe,
Don Anderson,
Bob Martin and
Malcolm Jinks.

da; for League 2, Out-and-Return Nuri-
otopa.

Malcolm Jinks, the winner with 59 m.p.h., exceeded the previous 300-km. national record by 21 m.p.h. and was only 8.18 m.p.h. short of the world record. The next eight pilots also exceeded the national record. Noel Roediger, with Elke Apitz and her pet lizard as passengers, broke Sue Suter's two-seater record in the Ka-7 at 44.5 m.p.h. (world record 51.17). Sixteen finished the course.

The Director-General turned up to see the finish but was two hours too late because of the fast times.

FASTEST SPEEDS (M.P.H.)

M. Jinks	Boomerang	59.0
M. Waghorn	Boomerang	51.0
D. Stewart	Boomerang	50.0

In League 2, only D. Pietsch (Olympia) finished; P. Goodale (ES-57) was 2 miles short.

Sunday, 9th January

For the last day "only short tasks were set": a 200-km. Triangle for League 1, which 14 completed, and an Out-and-Return for League 2, uncom-
pleted.

FASTEST SPEEDS (M.P.H.)

V. Kasak	BG-12A	41.2
M. Bradney	Boomerang	41.0
J. Rowe	Ka-6	39.4

League 2: D. Jones (Olympia) made 62½ miles.

Awards

Malcolm Jinks, winner in League 1,

who scored 1,000 points on each of the four days when he flew, retained the Dr. Hall Trophy. He, Bob Rowe and Bob Martin won the League 1 Team Trophy for the Waikerie Club with its Boomerang; the Mt. Isa Boomerang was 2nd and the Adelaide Ka-6 3rd. The same machine also won the Schneider firm's trophy. G. Dunn's 88-mile out-and-return in the Grunau won him the Schneider Trophy for the "best battler".

As the pilots flew for a varying number of days, from 3 to 6, the final table gives their average scores per day, and the same sailplane may appear more than once in the table.

Leading Final Results, League 1

Pilot	Sailplane	Days Flown	Av. Score
M. Jinks	Boomerang	4	1000
R. Martin	Boomerang	3	924
R. Deane	Ka-6	5	919
M. Bradney	Boomerang	6	906
A. Hanna	Boomerang	4	888
R. S. Rowe	Boomerang	4	883
D. Reid	Boomerang	3	823
D. Stewart	Boomerang	5	818
C. Churches	Ka-6	6	758
E. Sherwin	Ka-6	6	745

League 2

D. Jones	Olympia	3	1000
D. Schultz	Olympia	3	1000
D. Campain	Cherokee	4	907
D. Stevens	Cherokee	4	864
D. Pietsch	Olympia	3	635

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, D. A. Wilson.

AIRSPACE-WISE 1965 has been a poor year. New controlled airspace has been set up in the Bristol Channel area and controlled airspace round Birmingham Airport has been extended: worse, a large part of the Birmingham area has been made "special rules" which as far as a glider is concerned means permanent exclusion. Neither of these control measures is in our view justified and we have been able to show this mathematically; unfortunately logic does not prevail and the Ministry continues to make purely emotional decisions.

During the year there have also been cases of failure on the part of the Ministry to go through the agreed consultation procedure before making airspace changes.

Last year I thought I detected the first glimmer of a logical approach to airspace control but this year I am driven to the conclusion that it was a false dawn and the long night goes on.

The widening of Amber One between London and Manchester (in 1964) was made to enable it to operate as a "dual-carriageway" and this has been extremely successful in enabling the airway to carry all the traffic (and more) that wishes to use it. The effect has been to eliminate the need for the low level stubs at each end but the Ministry mind has a convenient lapse of thinking at this point and is unable to deal with this problem due to shortage of staff and the consequent inability to prove that the stubs are no longer needed.

Instead the staff is busy generating a complete new system of airways and control zones to blanket the North East and connect Manchester with Woolington, Middleton and Yeadon. There may be a justification for separating military and commercial traffic in this area but

there certainly is not any justification for a full controlled airspace system applicable to gliders.

London, as many people know, considers it needs a third airport. The present proposal is to build it at Stansted. The effect of this will be to sterilise a huge volume of airspace stretching from London to Cambridge. It will also seriously affect Dunstable and North Weald, not to mention infuriating a large number of people with its infernal noise. The B.G.A. is therefore adding its weight (!) to the many objections to the choice of this site. Naturally it is no good objecting if one has no constructive alternative to offer; we propose Foulness as an appropriate site since, on this currently nearly unoccupied land, it will be possible to build runways with overwater departure and approach lanes thus eliminating the very serious noise problem and at the same time conveniently using up overwater airspace which is of no value for gliding.

The question of conflict between Farnborough and Lasham arose again during the year and at the time of writing is still under review; however Farnborough have made very reasonable proposals for easing any possibility of conflict and it is hoped that these will be accepted by all concerned.

An Information Circular has been issued announcing the existence of enormous Military Aerodrome Traffic Zones round all military airfields. These zones, which extend upwards to 3,000 ft. above aerodrome level, would if made mandatory virtually close the greater part of the country to cross-country gliding. Fortunately the Ministry has announced that it does not intend to make them mandatory to civil pilots at this stage. They remain as a threat. We trust that the fact that as from 1st April, 1966, the Controller of the National Air Traffic Control Services will be a serving R.A.F. officer will not influence this decision.

H. C. N. GOODHART,
Chairman.

DRAG REDUCTION IN SAILPLANES

By Dr. F. X. WORTMANN

Continued from page 33, February issue. Part one of this article was translated by Rika Harwood, with technical advice from Nicholas Goodhart. This instalment has been translated by Karl Doetsch, Imperial College, and has been approved by Dr. Wortmann prior to publication here.

So far, considerations dealing with the choice of planform and profiles have not left the designer much freedom. As far as profile selection is concerned, he is largely dependent on wind-tunnel measurements, whereas in planform choice, although he can obtain some advantage over present designs he can, on the whole, not expect to achieve a large overall improvement. In contrast, maintaining laminar flow, leading directly to a reduction in skin friction, offers much greater possibilities. A wing with a fully turbulent boundary layer can have skin friction values twice as large as a wing with at least a partially laminar boundary layer.

The principle of maintaining laminar flow thus offers the most powerful means available for the reduction of drag and can be applied with advantage to any aircraft. Naturally, to exploit the possibilities fully, the design must be developed with this principle in mind right from its inception.

The thin "laminar" boundary layer which builds up on the surface of a body subjected to an airflow, normally thickens continuously with streamwise distance along the body. The initially stable flow, i.e. flow that is insensitive to disturbances, soon becomes unstable. The transition of this unstable flow to turbulent flow depends on the degree of instability as well as the size of the disturbances which either already exist in the free stream or which are created on the surface of the body.

These disturbances, apart from large ones which cause turbulence immediately, become amplified in an unstable boundary layer, a phenomenon taking both a certain time and distance. It is obvious that the larger the initial disturbance, the sooner turbulence will occur under otherwise similar conditions. If the disturbances, which in the free atmosphere originate only from imperfections in the surface, i.e. roughness and waviness, are sufficiently small, the amplification rate becomes the dominant parameter. On rigid and impervious wings, this

amplification rate depends on the pressure gradient in the flow direction.

A favourable pressure gradient, for example, can stabilise the laminar boundary layer to such an extent that transition is delayed to $Re = 15 \times 10^6$. The Reynolds Number is based on the distance between the wing leading edge and the transition point*. With a positive, unfavourable pressure gradient transition can be as far forward as $Re = 2 \times 10^4$, that is to approximately 1/700 its previous value. For zero pressure gradients, as for example on a flat plate, the transition Reynolds Number is around 3×10^6 .

km/h	(kts)	m/s	Re/m
72	(39)	20	1.33×10^6
108	(58)	30	2.00×10^6
144	(78)	40	2.66×10^6

The significance of these Reynolds numbers for gliders can easily be seen from the above table which gives Reynolds Numbers for a chord of 1 metre and three different speeds. Even when flying fast (40 m/s), a wing of this chord maintains fully laminar flow with zero pressure gradient. Only with a chord of 1.1 m. would the Reynolds Number become 3×10^6 and turbulence set in. On the other hand, fully developed turbulence can occur after a distance of 1 cm. at a flow velocity of 20 m/s if a positive pressure gradient exists on the wing. If one wishes to maintain laminar flow on, for example, a 2 m. length of fuselage, one requires a slight negative pressure gradient to stabilise the boundary layer. Put another way, on a sailplane wing, transition always occurs downstream of the minimum pressure point, whereas on a smooth fuselage, transition will already occur before the pressure minimum because of the higher Reynolds numbers.

The pressure distribution is governed by the profile and the incidence of the wing.

* At a velocity of $U = 40$ m/s (145 km/h), $Re = 15 \times 10^6$ gives a chord of 5.6 m.!

It can be seen that an exact knowledge of the relationship between the profile shape and the pressure distribution obtained either theoretically or experimentally, is an important aid in achieving laminar flow.

On the other hand one can see from the transition Reynolds Numbers that maintaining laminar flow in the speed range of sailplanes with favourable pressure distributions, is relatively simple, providing that it is possible to keep a second influence, namely that of disturbances in the laminar boundary layer, sufficiently small.

Fortunately the composition of the atmosphere is such that practically no disturbances in the boundary layer derive from this source. Many glider pilots are of the opinion that the roughness of thermals has a detrimental effect on the laminar profile. Gusts, however, primarily change the incidence of the aircraft, and this effect is probably the main cause of the adverse influence of gusts. Disturbances originating in the free stream affecting the laminar boundary layer can normally only occur on

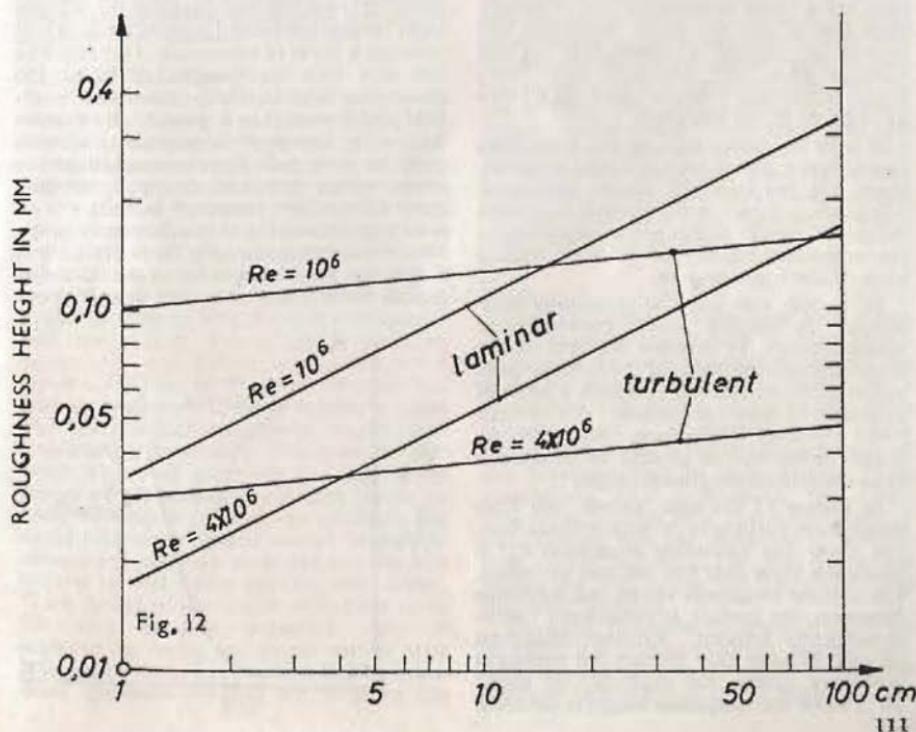
control surfaces submerged in the turbulent wake of the wings.

Disturbances are thus caused mainly by surface imperfections such as roughness and waviness. Fortunately the boundary layer is well behaved and reacts to such things only when their height reaches a certain magnitude. The limiting height above which transition is influenced is called the critical roughness height k and is approximately $1/13$ the boundary layer thickness. Figure 12 gives critical roughness height for a flat plate of 1 m. chord with two typical Reynolds Numbers. If one wishes to transform these values for other chords, c ,

and Reynolds Numbers $Re = \frac{U_\infty c^*}{v}$ one

can use the expression $\frac{k}{c} = \frac{0.35}{\sqrt{Re}} \sqrt{\frac{x}{c}}$. For example, the height k varies with \sqrt{c} , or for a taper of 0.5 , k must be 30% smaller

* U = Aircraft velocity; v = Kinematic viscosity.



in the outer wing than in the inner wing. The values of k given for the flat plate form a very useful guide to the allowable roughness limits for wing sections whose boundary layers are generally 20 to 30% thinner than for the equivalent flat plates because of their negative pressure gradient. This means that the critical roughness heights between the leading edge and the maximum section thickness are a little smaller than indicated in Figure 12. One is then dealing with lower limits which would, in the flat plate case definitely not be "felt" by the boundary layer. For fuselage surfaces, that is, surfaces with three dimensional flows over them, the critical values are again a little lower than those given in Figure 12. The values in the case of the front part of the fuselage must be multiplied by a factor of 0.7 to 0.6.

The reason for this thinner boundary layer on the front part of the fuselage in comparison to that on the flat plate, lies with the ever growing periphery. The boundary layer encircling the body is subjected to continuous sideways thinning and thus has a lower streamwise rate of growth than that of the flat plate. Naturally, the reverse is true of a contraction in the fuselage area; the boundary layer flows together and can become more than twice as thick as at the flat plate.

It is by no means true, as one sometimes hears, that a grease spot can lead to turbulence. On the contrary, rough sandpaper will often not exceed the critical roughness height. Naturally things are more critical in the immediate vicinity of the wing leading edge or the fuselage nose.

How does one find the roughness magnitude? In certain cases, obviously by measurements; in practice the feel of the fingertips and the palm of the hand is quite sufficient. (One can test this with a piece of cello tape which is about 8×10^{-3} mm ($.003"$) thick.) Roughness that can no longer be felt will, in general, be far smaller than the critical roughness height.

In Figure 12 are also shown two lines which have nothing to do with laminar flow, but show the allowable roughness for a boundary layer that has become turbulent. Up to these roughness values and Reynolds Numbers the surface is considered "aerodynamically smooth". Greater roughness heights increase skin friction for turbulent boundary layers, for example, by about 20% when the roughness height is doubled.

The values are, as in the laminar case, safe limits; for example, in the case of increasing pressure somewhat larger roughnesses are allowable. Figure 12 shows the strong influence of Reynolds Numbers: With a turbulent boundary layer the surface, apart from the first 10 cm. ($4"$), must be even smoother than for the laminar boundary layer.

The question as to what the allowable surface waviness is, can not be answered so explicitly. Probably there is no "allowable" waviness. Theoretical investigations have shown that for a sufficient number of waves, no matter how small the amplitude, separation of the laminar boundary layer always occurs. That transition should occur considerably earlier than in the case of a wave-free surface is thus not surprising.

Whereas single isolated waves occur frequently, it is unlikely that a regular system of waves would be built up on an actual surface. It is probable that a single wave whose amplitude is not greater than the critical roughness height shown in Figure 12 will not influence the transition point. It is not beyond question that certain wavelengths are more dangerous than others through a form of resonance. This could be the case with wavelengths of 80 to 150 roughness heights. Early transition results first and foremost in a greater skin friction but, with certain unfavourable conditions such as with full ailerons applied in the outer wings, one also frequently obtains separation of the turbulent boundary layer which leads quickly to much greater drags. One should thus not only check the surface finish, but also the position of the transition points from flight tests. For example, one

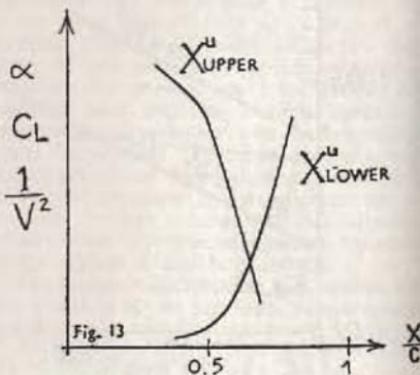


Fig. 13

should obtain qualitatively similar curves to those shown in Figure 13 for the variation of transition point with incidence α (or with C_L or with velocity v). If wind-tunnel data are available for the profile used, one should ascertain that the wind-tunnel results have also been attained in flight, and if not, locate the differences. If the transition points do agree, one can rest assured that the drag values are of the same magnitude as those obtained from the tunnel tests.

In flight, however, it is not as simple to deduce transition as in wind-tunnels where one can with the aid of a simple microphone easily differentiate the quiet whistle of the laminar boundary layer from the rough roar which characterizes turbulent flows. One should be able to observe at least 20 positions in each semi-span with built-in pressure probes. Because of their sensitivity to other acoustical signals, microphones are not very suitable for listening to the boundary layer. The same can be said of pitot tubes because of the low total pressure. My colleague, Dipl.-Phys. D. Althaus, has, for this reason, developed a simple and certain method for observing transition points on sailplanes on which he will report shortly.

Flaps and Air Brakes

After this diversion about the nature and control of laminar flows, here are a few more comments about flaps and air brakes. Normally a laminar boundary layer becomes turbulent at the latest in the region of the brakes. Either the brakes do not fit flush when retracted, or there is a leakage from the lower to the upper wing surface because of the pressure difference. Both conditions are avoidable, however, and it is not always advisable to go to 70% chord or even deeper with the brakes. The optimum position, especially if flaps follow, is probably in the region of 50 to 65% chord, because the laminar boundary layer is relatively thick and the critical roughness height correspondingly large here. This position also leaves plenty of room for building in the brakes as the profile is still fairly thick. In order to reduce the leakage problem, the upper and lower brakes should be accommodated in separate chambers and the hole for the tie rod in the dividing wall sealed. Flush fitting of the brakes will, because of the wing bending, probably only be achieved by using an elastic sealing strip attached to the top of the brakes. The maximum allowable vertical slit between the

strip and the wing surface is about 0.5 to 0.8mm. (-0.02 to -0.03"). If possible the top strip on the brakes should also act as a seal for the brake chamber as it is normally in a positive pressure gradient with the result that air tends to flow in at the back of the brakes and out at the front.

Flaps and ailerons give rise to special difficulties because of the small Reynolds Numbers. A large amount of experimentation is still necessary before a really good solution can be given. From the constructional point of view, however, the downward moving flap is particularly prone to flow separation, and the kink in the upper contour accentuates this danger considerably. Separation caused by aileron deflection not only reduces the rolling moment but also creates a larger drag which increases the unwanted negative roll-yawing moment (aileron drag).

One is able to accept this detrimental effect of ailerons by arguing that the ailerons are used only part of the time and even then with mainly small deflection angles of about 5°. Wings with flaps, however, have more permanent deflections of +10° to -15° and the performance of the flaps at these large angles becomes important. The very limited success of the earlier types of sailplanes with flaps is proof enough that the use of flaps does not automatically ensure better performance, but that specially developed profiles are necessary. (See Ref. 2). Without a doubt the question of flap profiles on sailplanes has only been touched on here and there and further developments are to be expected.

Fuselage

It is astonishing to see how little effort sailplane designers expend on drag reductions of the fuselage in comparison with the effort put into laminar wing profiles. Yet a very simple calculation, as can be seen from Figures 1 or 2 (February issue, pages 27-28), shows the considerable influence of the fuselage drag at high speeds. Two possibilities offer themselves; the maintenance of laminar flow in the front part of the fuselage, and the reduction of surface area of the tail unit. The first alone can reduce the drag to one half that of the fully turbulent fuselage.

Reynolds Numbers of about 6×10^6 , up to which it is easy to maintain laminar flow with the aid of a weak negative pressure gradient, are reached in the region of the

wing leading edge when flying fast. One has, of course, to choose a suitable form with a smooth and impervious surface. Because of this one has to do without pitot probes, ventilation systems, towing attachments, skids, drainage holes, removable canopies and other above-critical roughnesses in the front part of the fuselage. Such requirements do not present serious difficulties and are already met in several sailplane designs.*

One problem does, however, remain; that of the pilot getting in and out of the sailplane. Despite all one's enthusiasm for the perfect aerodynamic shape, one has to allow the pilot sufficient safety and comfort.

In many new designs, however, little thought appears to have been given to the flush fitting and sealing of the necessarily removable part of the canopy. Instead one gains the impression that the solution has been sought in using minimum fuselage cross-sections with supine pilot position and extremely long canopies. On closer inspection one finds that all the requirements for turbulent flow are met and it becomes clear that false reasoning confusing elegance with good aerodynamics has taken place. So far as their drag is concerned these fuselages are no better than conventional forms such as that of the Ka-6.

There are various sailplanes with the canopy form illustrated in Figure 14.

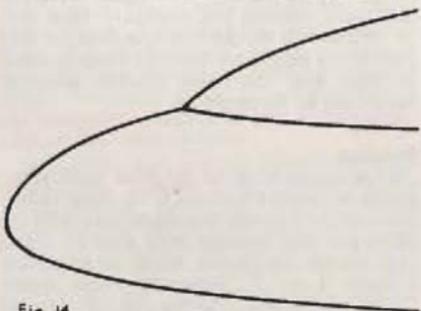


Fig. 14

Because of the re-entrant angle where the canopy meets the fuselage the laminar boundary layer separates in the central longitudinal section, and this inevitably leads to a turbulent vortex round either side

* The D-36 of the Akaflieg Darmstadt was the first sailplane which realised most of these thoughts.

of the canopy. This turbulent region then hits the wing root and a secondary loss, far greater than the skin friction losses on the sides of the canopy, occurs in the wing root region, especially in low-speed flight. In other words: a smaller re-entrant angle only reduces the quality of vision, without yielding any aerodynamic advantage.

If one really places value on obtaining a substantial improvement, one should be consistent, and regard every detail through the eyes of a boundary layer engineer. The fuselage is not allowed to have kinks in either cross-section or, particularly, in longitudinal section; this means that a "faired-in canopy form" is a must. The "canopy", that is the transparent part of the fuselage, should, for practical reasons, consist of a built-in portion in the front, and a removable portion.

The fuselage contour should be such that excessive local velocities are avoided and that a smooth pressure drop occurs even with large incidence or yaw angles.*

When the front portion of the fuselage is completely smooth and impervious, one can attempt to maintain laminar flow over the removable part of the canopy. The greatest chance of this is achieved if the joint is as far back into the region of larger critical roughness heights as possible. By using a splined connection on the front and lower joints, it is probable that the smooth outer contours can be maintained even in every day use. It may even be possible to seal the joint by this means. In the region of the largest cross-section, the pressure is of the order of 10 to 20% lower than the stagnation pressure and as a result flow out of the cockpit will occur through all unsealed portions, causing immediate transition to turbulent flow in the boundary layer. (In earlier World Championships, one often saw canopies sealed with sealing tape from the outside. This method cannot be regarded as a solution to the sealing problem even if the roughness height of the layer is sub-critical, as it makes exit for the pilot more difficult).

It will be difficult to maintain laminar flow over the rearward joint: firstly because of the pressure distribution, and secondly one has to allow for temperature expansion of the perspex. Despite this one should on

* Examples may be found in R & M 2204. A. D. YOUNG A "family of streamline bodies..."

no account allow leakage to occur at this rearwards joint because of the critical wing root region following. One should seek a solution with an elastic seal.

If one follows the most easily achieved concept of a smooth and impervious fuselage front region, with a resulting laminar flow up to the wing region, one naturally has to subordinate the ventilation to this aim. The supply air could be taken from the fuselage side under the wing aft of the transition region with the aid of a diffuser or a scoop and passed through flat channels to the cockpit and allowed to flow along the inside of the canopy through slits. The waste air is allowed, for practical reason, to pass down the fuselage and exit in the region of the tail skid, that is on the underside of the fuselage, through a special opening.

In the same manner, one is not allowed to take the total pressure reading from the front portion of the fuselage. The pitot tube itself should consist only of a tube open to the front with wall thickness small in comparison to the bore. Many possibilities exist for the positioning of the probe, as the total pressure can be measured anywhere outside the boundary layer and separation regions. For practical reasons the possible positioning is, however, more limited. It will get in the way during rigging on the fuselage sides, damage and blockage are likely on the underside of the fuselage, whereas, if positioned a small distance from the top of the fuselage, it is likely to be in a separated flow region. One reasonable position, as sometimes chosen, is on the tip of the fin, as long as delay times are reduced by the use of small bore tubing. Sufficiently fast response is usually obtained with tubing of 3mm (approx. $\frac{1}{8}$) bore.

The static holes can also be situated with the pitot probe (pitot-static probe). Simpler however, are holes situated about one tailplane chord in front of the tailplane. Four or more holes should be used round the periphery of the fuselage in the form of a cross with axes at 45° to the vertical. If these holes are interconnected, the average static pressure measured is virtually independent of the angle of the flow to the fuselage.

If one has been able to delay transition up to the wing one can, without hesitation, think of the second possibility of drag reduction. One reduces the fuselage cross-section and thereby reduces the area subjected to turbulent flow. At the same time

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this fits in with a useful boundary layer principle, namely, that one applies the major part of a pressure increase, which, after all, follows from a reduction in area, in the region of a boundary layer that has just become turbulent. One can rapidly reduce the fuselage area to values limited by rigidity criteria for fuselages with retractable undercarriages as long as one takes care with smooth fairing into the tapering rear section. It is more difficult to achieve an optimum fuselage shape for a fixed undercarriage sailplane as the wheel drag is increased by a fuselage contraction.

Naturally, these considerations can only be followed in their entirety when a new design is being conceived. In an existing aircraft, one has to compromise. In a Ka-6, for example, it is worthwhile building a smooth and impervious nose, but there would be no point in changing the ventilation, because a turbulent vortex originates from the re-entrant angle between the canopy and fuselage. It is similarly rewarding to provide fairings in front of, and round the sides of the wheel. Wind-tunnel tests have shown that the drag of a half sunken unfaired wheel for an aircraft with the

characteristics of the Ka-6 is $C_d = 5.0 \times 10^{-4}$. This sinks to 3.8×10^{-4} for a small fairing and to 2×10^{-4} for a primitive downstream fairing which starts with the full wheel cross-section.

To conclude, one still occasionally sees vertical aerials growing out of the top of the fuselage. Their drag is about that of half an elevator.

Tail Unit

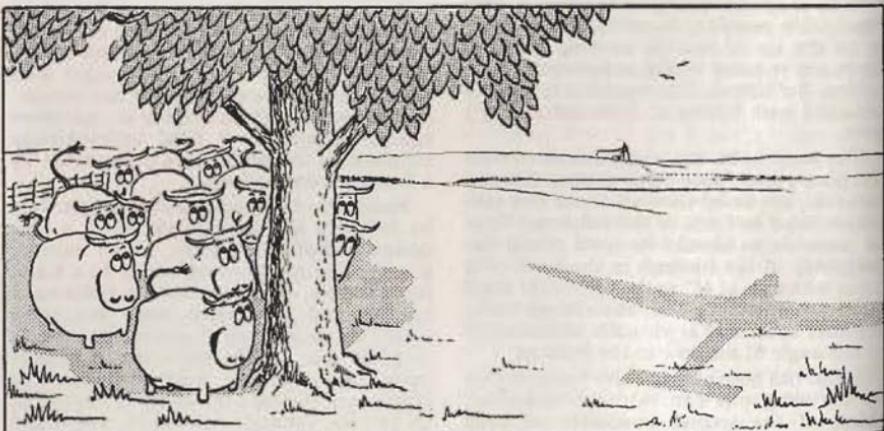
The profile for a vertical surface consisting of fin and rudder should be chosen such that transition occurs shortly before the rudder. As with ailerons, one has to seal the gap carefully. It has become common to choose very thin profiles for elevators with a relative thickness of 6 to 9%. With these thin sections, the profile shape plays a minor role as far as drag is concerned. One exception, however, does occur with the all-moving tail. In this case a profile with transition occurring a long way back, such as, for example, the NACA 66 Series, can be considered. Incidentally, these forms have to be modified a little in order that the sudden transition to turbulent flow at about 60% chord does not lead to the separation of the laminar boundary layer. The constructional problem can also not be neglected. It is desirable to have the centre of gravity near the axis of rotation, i.e. at 20

to 25% chord. The construction required has thus to be extremely light in order that surface finish required to maintain laminar flow behind the axis is achieved. Sweep back of the fin is undesirable as this exerts an unfavourable influence on the laminar boundary layer. Above all, one should not allow the fin to begin with a gradual fairing from the fuselage, but should only use a short fairing. The tapered fin fairing, because of its small angle, carries the turbulence of the fuselage boundary layer outwards, and that part of the surface of the tailplane covered with turbulent flow is increased unnecessarily.

The points covering the reduction of drag given in this paper are neither complete nor, in their entirety, new. Also, in many places, general, rather than detailed, recommendations have had to be made. Despite this, consistent application of the above principles, which are, after all, relatively simple to apply without tremendous technical requirements, should lead to a noticeable improvement in performance.

This chance is given not only to the designer but to every glider pilot who regards his glider with, not only loving, but knowledgeable eyes.

References:— For references see SAILPLANE & GLIDING, February issue, page 33.



... just wait till he's landed.

Drawing by David Lockett.

CONVALESCING AT KIMBERLEY

By ALF WARMINGER

THERE are, of course, always two stories to write after a Gliding Competition, the ground one as well as the flying tale. In this case there is a third, in some respects more hectic to me than either of the other two, and it concerns the juggling that went on in the scheme of things during the last couple of months of the year. Fortunately for me, this third story, entertaining as it might be to read, plays no direct part in this story of my participation in the 1965/66 South African National Championships. Suffice to say that on the 17th December a cable went from Norwich to Johannesburg — it read: "Is your offer still open?" — and on the 19th the reply came: "Affirmative give E.T.A.", signed Jackson. Eight days later I was sitting above Kimberley familiarising myself with a Standard Austria.

"Bomber" Jackson had arranged that I should fly with his co-partner "Chick" Brydges whilst he shared another Austria with Brian Stevens, the competitions being so organized that each glider had two pilots, who flew either on the odd or even days. This system worked remarkably well, mainly because of the rather Herculean tasks and the effect of heat fatigue due to the high temperatures. In the extraordinarily good conditions (by our standards) that pertained the majority of the days, all the aircraft were hot ships (even the Swallow!), but, of course, some were hotter than others. Apart from the BJ-2 flown by Pat Beatty and Yvonne Leeman, which was in a class of its own, the Austrias undoubtedly revelled in the 3 to 5 metre lift and rightly are highly thought of. Pilots were flying these machines between thermals at 85 m.p.h. and final glides from 15,000 ft.* at 110 m.p.h. with harness straps tight and head well back, clear of the canopy top.

Mike Hunt (now domiciled in Johannesburg), Anne Burns and myself made up the U.K. contingent. Anne brought out her syndicate Austria, for

which she had arranged a sale; Mike was in a Skylark 3/4, so named because the undamaged wings of a bent 3 had been married to the undamaged fuselage of a bent 4.

I will endeavour to keep to describing the non-competition part played by the U.K. section.

My first break came on New Year's Day, which was traditionally a non-competition one. Like most rest days decided in advance, this was a real coker, and Chick insisted that I didn't miss out. It was decided that I should go for the Jacobsdal, Perdeburg, Kimberley 100-km. triangle, and if successful, take off on the Koffiesfontein, Belmont, Kimberley 200-km. triangle run. The first task took precisely 59 mins.; 40 minutes later I was airborne once more and returned, mission completed, after 2 hrs. 4 mins. On the 100-km. triangle I had gone over the start line three times before getting away in a healthy 5-metre thermal to 14,000 ft. a few miles on track from Kimberley.

As time was beginning to get short, on the second task I went through the gate at 15.40 hrs. straight from release,



Mike Hunt and Alf Warminger.

*All heights a.s.l. unless otherwise stated.

heading south for the Modder River and Koffiefontein. The ground lying between the airport and the Modder River is a No Man's Land, and for 16 miles there is literally nowhere to land, the surface being very stony, with thick tough scrub several feet high. In fact, a newcomer is warned only to attempt the crossing with adequate height on the altimeter beforehand. However, this was a rather special occasion and it was a day of days even for Kimberley conditions, so I sailed on and on and then — at rather a critical time — up. Nothing really much to say about either flight, except after gliding at home it seemed a little like cheating, especially when going round T.P.'s at 12-14,000 ft. a.s.l. (remember Kimberley is 4,000 ft. up). One had to do a grand sweep of several miles in order to get the proper angle for the pictures at such heights, and this wastes precious minutes! By the way, it was all blue stuff — inversion at 17,000 ft. Mike completed his Gold C too that day with a height climb on the way round a 300-km. triangle — completing the triangle and gaining a Diamond!

From 4th January I flew with Anne for a week, as her partner had to return home and she was without crew. The next non-competition day was on the 6th, declared as such principally because most pilots and crews were late back from the previous day's rather mammoth 500-km. triangle, but only four nations completed the task, a German, a South African, a Rhodesian and an Englishman.

True to form, it developed into a corker; the signs were there earlier than usual, and by 10.30 hrs. nice flat well-spaced Cu formed, particularly to the N. and E. It was Anne's turn; she obviously had something up her sleeve as well as on her mind, quiet as usual, but not quite so patient with Alf's philosophy of "it will be all right you'll find" attitude on oxygen shortage, suspect instruments, etc. Then, when a barograph dropped on the Austria's wingtip. I had visions of being paid off there and then with the native boy Moses, who was doing the cleaning chores. Obviously the best place for her was in the air, and after much sweating by A. H. W., and glowing (darkly) by A. B., she was airborne just after 11.00 hrs. for Kron-

stadt, a Women's World Out-and-Return attempt.

Going back to the billet for a siesta to while away the wait, I suddenly remembered that my first steed ZDO was not flying — Bomber wasn't interested after the exertions of the previous day, and Chick had been obliged to return to Johannesburg temporarily. Why not ask to borrow it? One was pretty sure of an affirmative from Bomber! Within the hour Winamo (Mrs. Bomber) and Bomber had me into the air for a 300-km. triangle, Dealsville-Christiana-Kimberley.

Again there is really little one can say about this particular flight except to pick out the highlights. I went more or less straight from release over the control buildings which acted as the start line, time 14.05 hrs. During the journey the Austria was never below 9,500 ft except for one low to 7,000 ft. Map reading is done from 1/1,000,000 maps; taking cross-country speeds and visibility into account, this puts it roughly on par with using a $\frac{1}{4}$ million in England.

Although visibility generally is excellent, occasionally one gets caught out when sand particles are carried aloft by developing storms, and strong winds are then locally generated. On this particular day it was no problem; the first T.P. at Dealsville could be seen from twenty or so miles away, the vast Salt Pan directly behind it showing up particularly well. Another point about South Africa is that there is little detail visible on the ground; even a 4-inch map couldn't give any more information as there is just nothing there; this is particularly true of the Kimberley area to the south in the so-called Moon Country, "The Karoo", and further west to the borders of the Kalahari.

From Dealsville going northish (I say that because compasses seem to be prone to oscillation on N. and S. headings) one could appreciate the ground at last as it was partly arable with big open fields, some fallow (these are rated best of all for a landing).

Rounding Christiana Station, a time check indicated that I would have to work faster, with some sixty miles to go and already over 2.15 hrs. gone. Fortunately the high flat evening clouds were sucking smoothly in long deep



Retrieves are the same everywhere, with the locals looking on.

breaths, at least 3 metres and usually 4 to 5, enabling the cruising speed to be put up to 90 m.p.h. How easily the Austria picks up speed — often after a dive from a thermal the A.S.I. would be well over a 100 m.p.h. The final glide was made from 14,000 ft. some forty miles back, but 15 miles from Kimberley I couldn't resist two orbits in 5-metre lift and did the rest of the journey at 110 m.p.h., arriving home at 17.12 hrs.

Having put the aircraft away, we waited for Anne to show up; the green fuselaged Austria duly appeared at 18.30 hrs., landed, and a minute later a happy and relaxed Anne, still sitting in the cockpit, with a can of icy lager, was telling us all about the flight and explaining the details. I also had some explaining to do as she'd held the 300-km. triangle. Every evening we seemed to have some cause for the wine to flow; that night the reason was the best yet, particularly when we learned that Mike had completed a 500-km. Out-and-Return to earn his second Diamond.

The 13th January saw me again sharing with Chick. The previous day's task had been a real grind; an out-and-return with a choice of T.P.'s to satisfy World or just National record aspirants. Most people went for the big stakes, but the blue thermals died early and pretty well everyone landed out, some a couple of hundred miles away — so another No Contest. Chick and Anne were tired but not too tired to rig and attend to a

dozen and one jobs just so that I could have a go for the British Out-and-Return Record. Because of the previous day's early closing time — and this one looked like being similar — I plumped for Middelburg and back, a distance of approximately 376 miles. It meant going over the "Karoo" but the Met. man thought this route better owing to the probability of meeting over-development to the E. and N. One doesn't go too far to the west — there's nothing there, except vultures!

From a launch at 11.30 hrs., as time was all important even at such an hour, I set off straight away, heading for the Modder River; within gliding distance of Kimberley, the first thermal arrived, taking the Austria up 4,000 ft., enough to clear the Taboo area. The inversion appeared to be rather lower than on previous days and for the next 30 minutes this seemed the maximum height possible. I wasn't too happy; anywhere other than over the "Karoo", 4,000 ft. above ground is fine, but I certainly needed a higher operating band for the long glides in between thermals necessary to do a 600-km. task. When 40 minutes later I was barely 1,600 ft. above real moon country, all thought of a possible record had been dismissed and I was worrying about the feelings of an overtired crew with yet another long retrieve on their hands. Poor Chick would be flying the next day, too.

Slowly approaching the Orange River,

the ground rose and the terrain became quite broken with spot heights of 5,300 ft.; however, a good blue thermal took the Austria to just under 14,000 ft., and as the aircraft wound round I saw in the distance to the east Ted Pearson's white Austria on its journey to Craddock West (a World Out-and-Return attempt). The next hour was uneventful and I was quite surprised on checking time and distance to find that the Austria was averaging 50+ m.p.h. (wind was light westerly at all operating heights). Crossing the railway line at Arundel siding, the ground rose to 6,000 ft., with the spot heights making it look even closer; here I freely perspired before slowly getting up for the final run to Middelburg Aerodrome. Arriving over the aerodrome I took the required photographs from 11-12,000 ft., and noted the time 15.05 hrs.; 3.30 hrs. left, I hoped, for the return.

Getting strong lift from the deep valleys lying immediately north of Middelburg and in one case aided by three storks thermalling in an impeccable Vic, the Austria quickly cleared the area, but not before it had another brush with the high land near Arundel. Here I found it necessary to pick possible landing sites on isolated farms as the lift hummed and harred. A large area of

cirrus twenty miles or so in depth now stretched in front of me far too big to skirt; anyway the sun was still there, so I pressed on; the best thermals underneath it were 2 metres! Nearing the Orange River again the sky cleared, lift strength improved to 3-4 metres, and for the next hour heights varied between 11,000 and 13,500 ft.

17.00 hrs., found ZS-GDO a few miles S.E. of the small township of Luckhoff with 70 miles to go and 4,000 ft. above the ground. Several dust devils could be seen, but the nearest one seemed about five miles off track. Concerned now with the time factor, as conditions were similar to the previous day when everyone was down by 18.30 hrs., I decided to keep to track and ignore these areas of salvation. I needn't have worried; large areas of lift presented themselves with almost monotonous regularity and the Austria soon reached the gigantic Salt Pans near Koffiefontein. Here, with 50 miles to go and 10,000 ft. above ground, I should just make it; however, over the Riet River near Jacobsdal with 30 miles from home I took 3,000 ft. to top up and again did the remaining distance at 110 m.p.h., landing at 18.25 hrs.

By 18.26 hrs. I was enjoying ice-cold lager, a sort of post-flight stirrup cup.

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almost traditional at Kimberley. By the way, the only cloud I saw all day was the cirrus near Colesberg and that didn't help in the least! In retrospect the task seemed the right distance; Ted on his Cradock run made about the same mileage, landing out at Philipopolis.

Well, that was South Africa that was! A really wonderful competition to remember and a few more gliding stories to tell, but more than anything else a tremendous personal pick-me-up, much needed following a spell in hospital a few weeks earlier.

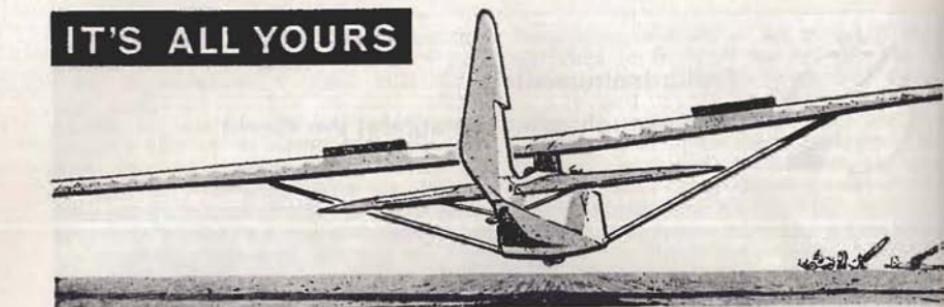
Some quickies! *Dust Devils*: after all I heard, saw and read about these visible thermals, I never really deliberately used one, although I must have been in some inadvertently. *Oxygen*: quite an experience to have to consider one's oxygen supply, particularly as on most trips it came in useful and occasionally was very necessary. *Winds*: one must take these seriously, particularly at heights above 10,000 ft., when they can be blowing at 40-odd knots and from varying directions.

Things I shall never forget: that

return to Kimberley 25 minutes after the sun had set; beer in the cockpit tasting like nectar after hours of being parched; the heat of Kimberley 100° F and plus; sitting in the cockpit being literally frizzled whilst waiting to take-off. Those evenings in the near-by motel when spirits were high, nerves were slackened and the wine flowed. The party given by the Germans which coincided with the Middelburg O. & R., when after one drink Alf had to be excused as he was almost asleep standing. There was never a dull moment; in the air Ted Rudnick saw to that, on the ground Bobby Clifford — Tim Biggs — I ask you! Bathing in the pool adjacent to the airfield in the late afternoon and watching the remainder of the field returning (this only happened in my case about twice!).

But above all I shall always treasure memories of those happy days with Chick, Anne, Bomber and Winona, and the rest of those gliding Cosmopolitans who at Kimberley for three weeks engendered such a fine gliding spirit that I consider the long journey, if not absolutely necessary, well worth-while.

IT'S ALL YOURS



TO HELP OR NOT TO HELP

THE cry is sometimes heard that members will not work like they used to, and that once you get professionals in a club, members think they do not have to do anything at all.

There is some truth in this general statement. But if this is the attitude in a club, it is not only the ordinary members who should receive the blame. A clear look should be taken at —

What do we want a gliding club to be, and

Why do we go gliding?

You can substitute "they" for "we" if you want to feel more detached.

History, of course, comes into all this. Clubs started originally not so much to carry out gliding, as to pioneer and develop this new sport. Clubs were the "getting together of a band of brothers": people who believed that gliding was the only true means of flying, that it had a great future, that it was the most wonderful sport in the world. Others, "the rest", could not see that barn-door tobogganning had, or was, any of these things. There developed from this the close-knit community of the gliding club, people of like mind achieving exactly what they wanted to achieve, often against considerable odds.

Today gliding is proved. It is recognised as an excellent sport in its own right. Its achievements are many. To the outsider it is now classed with sailing and skiing; something that you can go and do in return for money. Hundreds of people every year go to ab-initio courses intended to provide an enjoyable holiday, others join clubs hoping to learn to fly with the aim of be-

coming a cross-country pilot, preferably owning, or part owning, their aircraft. These people are no more interested in the history, administration or organisation of the gliding club they join, than they are in the administration of a ski resort, or the history of their sailing club. We now have customers, not fellow pioneers. We have members who want to buy their flying and then go home. We do not have an endless free supply of dedicated labour prepared to devote all its time. But we still expect, as if by some divine right, club members to work at jobs that they consider should be "done by the club". We even feel that members are "useless" if they do not stay to put gliders away, write up the log, or sweep out the clubroom.

Why should they do these things? Our brochures entice the newcomer to enjoy a delightful sport; the blurb rarely goes, other than very superficially, into the need for participation, or partnership, in the sense that the club means it.

If there are professionals in the club, is it not reasonable that the new member expects them to "do the work"? No one has explained to him (equally why should they?) exactly what the job of the particular professional is, and since he knows nothing of gliding, he expects the paid man to do the lot.

We must decide very clearly what we mean by the term "gliding". Do we want our clubs to go increasingly professional in the sense that the member does less and less except fly himself, or do we believe that gliding is a sport requiring participation in the fullest sense: in other words, that gliding is not only flying, but includes the understand-

ing and practical operation of all that goes with it — maintenance, launching, trailer fettling, instrument servicing, even clubhouse building?

There are good reasons for a full involvement.

(1) Gliding is already one of the more expensive sports. It will not be difficult to price ourselves out of existence as a thriving and growing sport in the forthcoming years. Costs can best be kept down by the members themselves efficiently doing much of the work.

(2) The need for the professional in certain jobs, once the club has grown to a certain size, is real, and the numbers of professionals will increase for this reason. For example, only an instructor devoting his whole time can provide the necessary continuity, and obtain sufficient knowledge of the pupils, in a full-time club. But to do his specialised job properly the professional must be able to get on with it, and not waste his time, and club money, doing other, or less skilled, work.

(3) If, nationally, we are to continue to have a gliding movement which is controlled by ourselves as amateurs in all its aspects — airworthiness, and instructional, as well as policy-making — it is essential that club members are involved in all these same aspects throughout their gliding life: if they are in gliding only to become private pilots, in due course we will find that at national level we can no longer cope with the control of our sport, and by default risk this passing into other, probably government, hands.

If we do decide that gliding means everything involved in operating a glider, then we must take POSITIVE steps to

achieve this. Through our publicity channels and club brochures we must give equal prominence in words and pictures to the winch driver, the members painting the clubhouse, or doing a D.I., and the voluntary instructor or inspector. But this is of little value unless it is realised that members, particularly new ones, will not, or cannot, work without sensible direction and organisation. In the days of a single glider and a bungey it was fairly obvious what the member had to do. Today it is not in the least obvious. Many a new and willing member has been put off doing useful work because no-one shows him, or tells him, what to do, or because the tools have been lost, or the equipment will not work.

To be efficient, a club needs good operational organisation, and an essential part of this is the teaching of new members. There must be well-thought-out schemes which work, and the new member should accept from his first day that driving the winch or painting the workshop is an integral part of the sport to which he is attaching himself. It is no good assuming that the initiative of a few of the members will be enough; it is no good if the schemes exist only on the notice board. What is needed are experienced members, backed up by the committee, who will become club Ground Instructors to organise this work.

I know this happens in some clubs, but it needs to be universal and positive. It must not just be left to a few unselfish members who end up doing almost everything. The teaching, where this is necessary, must be good, and the work, if unskilled, must be properly organised, so that the member not only enjoys doing it, but feels that he is achieving something worthwhile.

At this moment only a small proportion of members coming into a club consciously take the attitude that they owe it nothing; mostly they fail to work because the club fails to help them to do so properly. But should the attitude ever become widespread that the sport of gliding consists only of getting as much flying as possible for oneself, then the small clubs may die, the large ones will become very expensive, and fewer people will have fun.

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GLIDING CERTIFICATES

DIAMOND FOR GOAL

No.	Name	Club	1965	Name	Club	1965
2/208	A. S. Morris	Moonrakers	20.8	S. N. Hart	Four Counties	18.9
2/209	A. J. W. Whitaker	Moonrakers	1.8	E. F. R. Smith	Surrey	18.9
2/210	J. Wills	Bicester	20.8	W. T. Dean	Surrey	18.9

GOLD C COMPLETE

No.	Name	Club	1965	No.	Name	Club	1965
153	E. F. R. Smith	Surrey	18.9	1724	J. E. China	Surrey	19.9
154	R. T. Willbie	Surrey	18.9	1725	D. O. Messent	Silver Wing	22.8
155	W. T. Dean	Surrey	18.9	1726	(Pending)		
156	A. J. W. Whitaker	Moonrakers	1.8	1727	J. Argent	Four Counties	13.10
157	M. Medland	Bicester	22.8	1728	J. Nicoll	Lincolnshire	6.8

GOLD C DISTANCE LEGS

Name	Club	1965	No.	Name	Club	1965
A. S. Morris	Moonrakers	20.8	1729	M. A. Gates	Surrey	20.8
A. J. W. Whitaker	Moonrakers	1.8	1730	J. P. Whitworth	Fenland	18.7
R. A. Foot	Heron	29.8	1731	R. S. Plane	Ouse	6.8
I. Shattock	South Wales	19.6	1732	L. A. Hill	Yorkshire	16.9
J. Wills	Bicester	20.8	1733	G. Morris	Swindon	2.6

GOLD C HEIGHT LEGS

Name	Club	1965	No.	Name	Club	1965
D. P. W. Johnson	Surrey	16.9	1740	G. Leat	Devon & Somerset	14.8
J. Stanley	Fulmar	18.9	1741	N. Dixon	Mendips	21.11
T. M. S. Birch	Yorkshire	18.9	1742	D. J. Connolly	Kent	31.7
J. Nicoll	Lincolnshire	6.8	1743	N. P. Ellott	Southdown	31.7
A. J. W. Whitaker	Moonrakers	1.8	1744	N. Worthy	Ouse	30.8
C. C. Foot	Phoenix	1.8	1745	N. Gaunt	Yorkshire	4.7

A Question of Politics



by
Mike
Bird

UNTIL last Friday, 11th February, 1966, I just never understood the British Government's problems in buying bombers; I stupidly thought they were looking for a good aeroplane. But no. The *Daily Mail's* Air Correspondent, who necessarily combines the skills of Diplomatic Correspondent, Kremlinologist and crack racing tipster, clarified the whole situation for me with one penetrating statement (quoted out of context, of course):—

"It is a clear choice:

"The Swing-Wing F-111, locking Britain into American power, strategy and influence around the world, or

"The Spey-Mirage, proclaiming Britain's desire for a broad industrial partnership with Europe."

We gliding types are really behind the times, bothering our heads about performance, safety, ease of repair and price. Never fear, we will come of age before long . . .

. . . the 1967 A.G.M. of the Unstable Soaring Society saw stormy scenes as plans for the new Club fleet were debated.

"The Chairman opened the meeting with a proposal that the Society should spend its overdraft on the American trainer 'Hominy Grits V'. This decision

would be welcomed in the White House as a gesture of support for President Johnson's Vietnam policy.



"The only alternative choice, he went on, was the French 'Escargot IV', the purchase of which would be interpreted as hinting at Britain's entry into the Common Market and as an overture to President de Gaulle.

"Angry scenes broke out as a dissenting committee member, Eustace Codds-Wallop, dressed in a Union Jack waistcoat, denounced committee policy in forthright patriotic terms. An overture to de Gaulle, he said, would be the finale for Britain's hope 'Yorkshire Pudding II'. The Chairman's observations on laminar buckets was a subtle slur on the Government's handling of the Balance of Payments problem. Cries of 'Order!', 'Sit Down!', 'Shame!', etc.

"The Treasurer retorted that a blatant Buy-British order for seventeen 'Yorkshire Puddings' would foreshadow a new wave of Commonwealth preference tariffs, which would dismay GATT; moreover we did not want to suggest, by trying to save foreign currency, that we were anxious about devaluation. Zurich was watching us, he warned.



"A member in a red pullover spoke up for the Russian 'Stroganoff III'; it needed beefing up, of course, but its purchase would herald a new phase in the thaw of East-West Cold War tensions.

"At this point a few pilots attempted

to put in a word about the flying qualities of each machine. They were greeted with derision, and the Chairman silenced them by noting that 'buying gliders is too serious a business to be left to pilots'. Wild applause. Obstreperous members who asked about costs and delivery dates were ejected from the hall and order was restored.



"Finally a British compromise was announced. The starboard wings would be built in France, port wings in America, while Russia would be invited to tender for fuselages. Instruments would be bought from every member of the Free Trade Area, calibrated variously in metres per second, feet per minute, miles per hour, knots and kilometres. British craftsmen in United Nations overalls would have the job of trying to assemble the bits.

"It was hoped that the project, 'Irish Stew I', would take to the air by 1984 at the latest. Even if it never left the ground, it would remain the greatest memorial to international co-operation since the Tower of Babel . . ."

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OBITUARY



RON WATSON

ON 28th February Ron Watson passed away in a London hospital at the early age of 51.

Ron had been in gliding throughout the whole post-war period and was probably one of the best qualified members ever to come into our movement; his loss to gliding in general and the London Gliding Club in particular is very great.

From the start he was devoted to aviation; he took a degree at Kings College, Cambridge, and then joined Phillips & Powis Ltd. at Reading, where he learnt the wood-worker's art so perfectly that he was later to be quite exceptional on glider repairs; he was one of the very few people I have ever met who was as competent in theory and aerodynamics as he was at the work bench.

He obtained Silver C No. 356 in 1949 while a member of No. 125 Gliding School at Langley, he was a principal scientific officer at the Ministry of Aviation, an approved inspector, a categorised B.G.A. instructor and an ex-A.I.D. inspector. Since 1965 he had been Editor of OSTIV publications in *Swiss Aero Review*. He was also a power pilot of some skill, having been trained by the Royal Air Force.

During the war years he did considerable flying as a test observer on De Havilland Mosquitos.

One might be excused for feeling that such a winged boffin would somehow be aloof and difficult to approach. Nothing could be further from the truth, Ron would help anyone at any time, he spent hours and hours helping his club and any private owner with technical problems, he never asked for or expected any sort of reward.

During the 1952 World Gliding Championships he turned up in Madrid and at once got to work to repair a damaged Sky and so help our team win that series.

Ron was full of fun; he would couple his car to a trailer and come on a hill flying expedition without a second thought, spend all night on a retrieve, do anything at any time; we shall miss him.

The London Gliding Club will be awarding the 1965 Derry Trophy posthumously to Ron Watson for his technical work for the Club over the past year.

P. F.

LORD SEMPILL

UNDER his former title of The Master of Sempill, Lord Sempill, who died on 30th December at the age of 72, took a prominent part in British gliding in the 1930s. He was at the "gliding lunch" in December, 1929, at which the British Gliding Association was founded. He held British Gliding Certificate No. 9, flying his A and B on 7th June, 1930, and his C a week later. In 1933 he took over the joint posts of President of the B.G.A. in succession to Col. Sheldene (Director of Civil Aviation) and Chairman in succession to Gordon England. He set a new example by keeping in regular touch with actual gliding activities, and used to visit gliding meetings in his own aeroplane, flying straight to his chosen landing spot without a preliminary circuit. He was well known at the Wasserkuppe.

In 1931 he helped to found the ISTUS, forerunner of the OSTIV. He took part with Robert Kronfeld in the development of the "Drone", a motorized version of Lowe-Wylde's B.A.C.7 glider, and flew one to Germany and back, having to keep so low over the sea to progress against a contrary wind that he felt the upgust from each wave.

More recently Lord Sempill was guest

of honour at one of the Kronfeld Club's annual dinners. Though he eventually faded out of gliding, he was keen and active in all forms of aviation throughout most of his life—and served a term as President of the Royal Aeronautical Society.

Paul Bewsher of the *Daily Mail*, who died on 18th January, aged 71, covered the first British gliding contest at Iford

Hill in 1922 for his paper, which had promoted the meeting. His duties included a passenger flight with Fokker in the latter's biplane glider. They were up for 7 min. 3 secs., and he wrote an amusing account of the flight which was published in *SAILPLANE AND GLIDING* for December, 1962 (p. 390), on the occasion of the 40th anniversary reunion.

A. E. S.

EXCHANGE VISIT TO GERMAN GLIDING SCHOOL

A"Youth Exchange" for young British and German glider pilots is being organized this year by the Luft-sportjugend section of the German Aero Club. The course will be held at the Hirzenhain/Dillkreis Youth Training Centre from 7th to 22nd June, 1966.

Applications to participate in the course are invited from males of 16 to 25 years of age. Participants must be physically qualified for sporting aviation. The documents required are listed below. Generally, participants should be beginners in gliding, but a limited number of advanced glider pilots can be considered.

In addition to the social side of the programme, the participants will be trained in gliding up to solo flight (Certificate B), and advanced pilots to a corresponding further certificate or flight performance.

DOCUMENTS REQUIRED:

1. Written statement of parent's consent.
2. Medical certificate of fitness;
3. Short biography;
4. Three officially certified photographs;
5. Signature of document (provided) foregoing claims exceeding the amount for which the participant is insured by the organisers.
6. Recommendation from C.F.I. of Club, Commanding Officer of Unit, or Headmaster of School.

Documents 1 and 2 must be sent with the application, and 3 to 6 must be presented on arrival.

FEES.—Upon presentation of the

ticket, 50% of the full 2nd class railway fare will be refunded.

The fee for the course is DM 150 (about £13 7s.) and covers accommodation, meals, launching and flying fees, insurance, entertainment, sightseeing, etc.

Application for the course should be addressed to: Jugendausbildungsstelle der Luftsportjugend, 6341 Hirzenhain/Dillkreis. Tel. 027702/172. Railway station: Herrnberg bei Dillenburg. (Note: Hirzenhain/Dillkreis is not to be confused with Hirzenhain/Oberhessen).

Please do not bring your own car! There is no parking space nearer than the village of Hirzenhain, about 3 km. away. The use of private cars during the course is not permitted, for reasons of liability.

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- Ka-8 training single-seater.
- L-Spatz 55 high-performance single-seater.
- Rhönlerche II training and school glider.

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KEITH BUCKINGHAM

BILL SLATER

THE HISTORIC NINETEENTH RHOEN

By CHRISTOPHER WILLS

Continued from page 21, February issue.

FLIGHT TO HOLLAND

I was second off after Haase. "Rhoen-geist" Ursinus accompanied me to the start. First, he stroked the cockpit, then he spat on the wings. After such an omen, things must work today!

A few minutes later, I hung beneath Haase's Minimoa in strong lift. I waited for better weather for one hour near the Wasserkuppe before setting off under fine cloud streets. Near Marburg I saw the last of the competitors far below. From Marburg to Wuppertal my average speed was 90 km./hr. Over Essen/Mühlheim aerodrome there were dark thunder clouds. Through 4-5 m. sink I flew quickly on. The first large raindrops fell on my fine machine and I set off on course from 2,500 m. Unfortunately after Düsseldorf my maps came to an end. Ahead it was very misty.

Soon, from the country below, I knew that I must be over Holland. I took every bit of lift and flew at best L/D speed. In the thick sea mist I could still discover some little clouds, and with much care I used lift of 10 and 20 cm./sec. to take me to 1,500 m. Then there was no more lift and, late in the evening, I committed myself to a long last glide. Below me seemed more canals than roads and it was difficult to make out which was which. I passed over some farms but no villages. The visibility was so bad that I could hardly see a kilometre ahead. Then, when I had only 100 m. height, a town appeared out of the grey murk. A landing turn, and I was sitting quite close to a road. Cows and horses ran from the uninhabited bird. Some people dashed up, and among them were some Krupp engineers who greeted me with a joyful "Heil Hitler". They were building a roller mill near my field. I had landed near Rotterdam, 412 km. from the Kuppe.

LUDWIG HOFMANN

Soäte arrived over Rotterdam airport at 800 m. He had flown 420 km. This great performance put Späte in the lead.

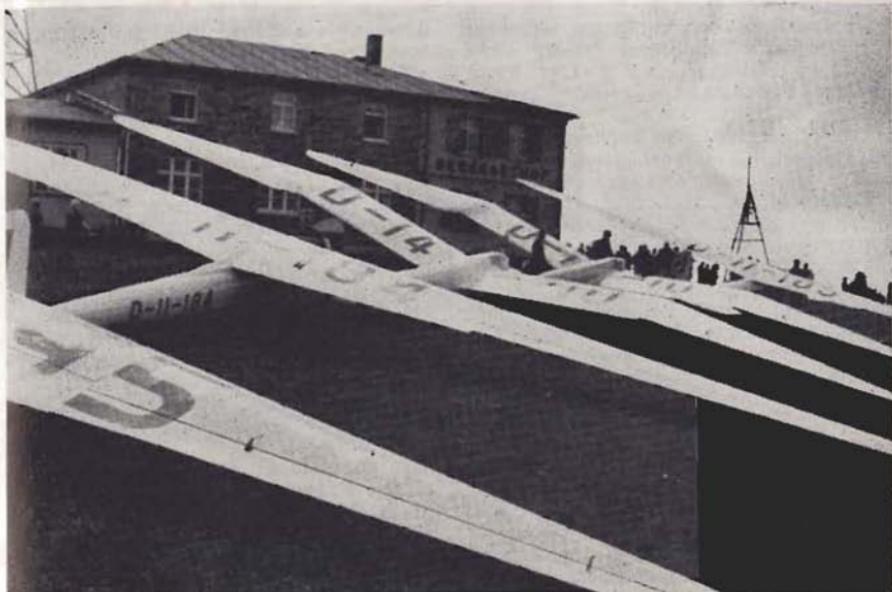
The 5TH AUGUST was the climax of the Rhön Meeting. It must be mentioned that the machines were not equipped with oxygen, nor speed-limiting brakes. (The brakes on the new Weihe would limit the machine to 150 m.p.h.) Nor had the aircraft efficient turn-and-banks, as most of them were air-driven. Nor were the machines equipped with radio. Fearing the clouds, the Contest Direction said that no points would be awarded for altitude, and again set Free Distance. The best performance of the day was by Kurt Schmidt, who made a great effort to get back into the lead. He flew 172 km. to Husten near Arnsberg. No one else got further than 105 km.

The most exciting performance of the day was only learnt after dusk. The 37-year-old Lufthansa Captain Drechsel (he had flown regular night services to London for the past ten years) was flying at the Rhön for the first time. He took off late from the Wasserkuppe and reached a huge thunderstorm over Marburg. In it, he climbed to an absolute height of 8,100 m. (26,575 ft.). During this flight, he had to fight against every horror that is likely to be met with in thunderstorm flight: hail, icing and strong turbulence. Suddenly the lack of oxygen made itself noticeable, so that he decided to break off the climb although he was still in lift. At 7.48 p.m. he landed on Marburg aerodrome in almost complete darkness. (His climb was the world record for the next nine years.)

The next account of a thunderstorm flight is by Romeis (condensed):

KRANICH BREAKS UP AT 28,000 FT.

By my altitude flight on 4th August I had once more gained the lead in the two-seater class, and in no circumstances did I want to lose it again today. Just after starting at 1 p.m., I caught some weak lift which took me to the base of a large cumulus cloud, and I flew



Line-up on the Wasserkuppe, including two Minimoas.

inside. My variometer mounted to over 5 m./s., so I had no check on the actual climbing rate. The altimeter moved round almost like the second hand of a watch, from thousand to thousand, up to more than 6,000 m. (19,700 ft.). Then I brought my Kranich on to a northerly course with the intention of going off on a distance flight. But hardly was I out of the upcurrent area when I encountered heavy hail and extraordinarily bad turbulence, so that the machine was heaved about like a plaything. Without wishing it, I was back in the lift again. I started circling in the hope of being able to outclimb the cloud at 7,000 m., as I had had the luck to do at 5,500 m. a few days before. Unfortunately it did not happen this time, and we climbed to 8,400 m. (27,560 ft.) without any sign of the upcurrent leaving off. There was little icing on the machine and it was still completely under control.

I had to give up my plan of out-climbing the cloud as I began to have slight difficulty in breathing, and I tried

to escape from the cloud in a northerly direction. Just as had happened before, at 6,000 m. the upcurrent stopped suddenly and great turbulence set in. It was quite impossible to counteract or parry the individual gusts. I heard a slight crack but thought nothing of it. Shortly afterwards there was a loud crack and the port wing of the Kranich had disappeared. At once I threw off the canopy and shouted to my companion Schillinger to get out. Then I freed myself and sprang out.

With the opening of my 'chute I felt a terrific shock and the parachute harness began to tear. Soon I hung only by the two shoulder-straps and had to clasp my hands to my chest to prevent myself from falling out of the harness. How long I hung like that I don't know, but it seemed an endless time. At last I came out of the cloud with a great feeling of relief and finally, but not too gently, landed.

ROMEIS

Below, a lorry was searching for gliders when the Kranich crashed not

10 yards away from it. While the crew were frantically searching the wreckage for survivors, Schillinger landed close by. Five minutes later a tiny speck appeared beneath the clouds. It was Romeis.

Other machines also broke up on the 5th (although *Flugsport* states that there was a mass parachute descent on the 6th):— The two Horten 3's (tailless) of Blech and Scheidhauer, at 23,000 ft. and 27,000 ft.; the Minimoa of Lemm (23,000 ft.); the AFH-4 (Hannover) of Schulz; the Minimoa of Steinert. Blech, Lemm and Schulz were killed. Their barograph traces were rather indefinite above 6,000 m. and therefore their heights cannot be certainly established: Scheidhauer, over 7,000 m.; Blech, over 8,000 m.; Romeis, over 8,000 m.; and Lemm, over 7,000 m. However, from the estimated curves on the barograph traces and the accounts of surviving pilots, and the fact the traces were still climbing fast, and comparison with other barograph traces, one has the impression that these heights were actually reached.

Blech was thought to have been frozen to death first before being hit by his machine. Scheidhauer also leaped out while his machine was still ascending at 35 m./sec.; he also was frozen into unconsciousness because of his parachute being carried up by the lift. His parachute was seen high above by Späte,

who was himself at 7,500 m. He got down alive and had to have two fingers amputated because of frostbite.

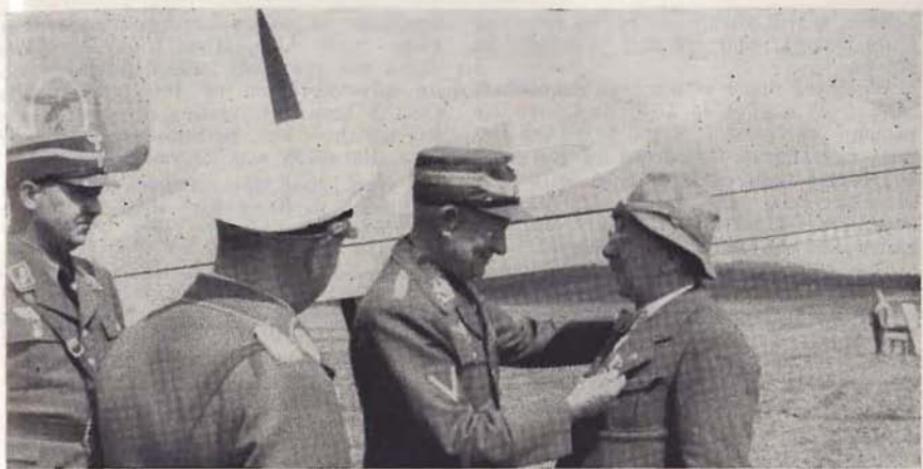
On 6TH AUGUST in the morning there was fog and rain. The first launch was at 12 o'clock. Two huge thunderstorms again stood before the Rhön. Many gliders departed into the storms. Soon hail and rain poured down on the Wasserkuppe. The thunder roared and the lightning flashed. The clouds above became witches' cauldrons and visibility on the ground was nil. The crews huddled together in all the shelters and Gasthäusern on the Kuppe and talked of nothing but the weather and gliders.

At last landing reports began to come in. The furthest was Heidrich (FVA-10B), 180 km., and Peter, 200 km. Späte flew 105 km. but Schmidt had to land after only 66 km.

In the late afternoon in the twilight of the storms, the final ceremony took place. 30,000 people again came to the Wasserkuppe to see the Champion. The Korpsführer, General-Leutnant Christiansen, recalled the great performances: 11 times had the world's height record been broken; 70 times had 3,000 m. been exceeded; 76,000 km. had been flown across country in all directions; 161 goal flights, of which 51 were between 195 and 320 km.; 24 flights exceeding 300 km., of which 5 were over 400 km. The new Gold C had been fulfilled 20 times — previous to



Oscar Ursinus congratulates the winner, Wolfgang Späte.



General-Lieutenant Christiansen honours Oscar Ursinus.

this, there had been only 5. He then called out the names of Blech, Lemm and Schulz: a loud "hier" thundered from the throats of the 530 glider pilots — "their lives, through their achievements, would live on for ever to inspire airminded youth."

Then there were aerobatics by Bräutigam in a Habicht, and by NSFK aeroplanes.

Thus the 19th Rhön Competitions had ended. As the Contest Director, Josef Kunz, stated, Germany had become too small for its pilots: pilots had to land at frontiers though they still had 2,000 m. altitude, and on the day of the flight to Rotterdam the weather was not as good as on some of the previous days. No day was a rest day. The retrieving teams were continually on the roads so that the competition was also a struggle for them. On the last days, machines landed with their wings full of holes from hail after their battle for great heights . . .

Leading final placings

1. Späte (Reiher I). Best flights: 445 km. to Kobtsow near Stettin; 420 km. to Rotterdam; goal flight 320 km. to Freiburg/Breisgau; out-and-return 160 km.

2. Schmidt (Mu-13D): 410 km. to Belinchen on the Oder; 160 km. out-and-return.

3. Treuter (Minimoa). 4. Bräutigam (Weihe). 5. Opitz (Condor 3). 6. Hofmann (Weihe). 7. E. G. Haase (Minimoa). 8. Beck (Minimoa). 9. Peter (B-6 Berliner). 10. Boy (Rhönadler). 11. Flinsch (Windspiel). 12. Kraft (Reiher 3). 13. Lemm (Minimoa). 14. Ruthardt (FS-18 Stuttgart). 15. Peters (Condor 3). 27. Blech (Horten 3).

CLASS B.—TWO-SEATERS.—1. Romeis/Schillinger (Kranich). 2. Vergens/Trippke (Kranich). 3. Kahlbacher/Tauzegg (Mg-9A, Ostmark) — this Austrian two-seater did very well as it was strutted.

* * *

NOTES BY TRANSLATOR.—The documents that I have used have not agreed on distances and dates on which machines broke up. In his book, *Histoire de Vol à Voile*, Eric Nessler speaks of a massive depart of all the gliders for an assault on a thunderstorm. I have not been able to find evidence of just one massive depart from the German accounts. There may have been many mass departs but, generally speaking, the gliders were launched again as soon as they were ready after their previous flights. I would be pleased to hear from any of our readers that are prepared to correct me.

Many of those who took part in the 19th Rhön Competitions are now dead. Bräutigam was lost in 1941. Hofmann, I

believe, is still alive after having returned from Russia, and Schmidt was lost in Russia.

Wolfgang Späte won a high decoration as a fighter pilot in 1942 and then he became commander of the first (and the last) operational squadrons of the Me-163 rocket fighters; he is now an officer in the new Luftwaffe, and today organizes the testing of aircraft for the Luftwaffe and lives at Koblenz.

One will ask how far have we come on? Almost certainly the competitors would have made flights of over 500 km. had they been allowed to cross frontiers. It is true that the Reiher had a best L/D of 1:33, but it was expensive and I cannot answer for its handling

qualities. Machines are no cheaper but faster now. Also, pilots today, if given those old machines, would probably do an out-and-return of 160 km. in less than 5 hours, depending, of course, on the weather. Yes, perhaps we are better now, but 1938 was 27 years ago.

I feel that this article should be dedicated to those who used to inspire the world before the war with their flights.

CORRECTION to last instalment, final paragraph, p. 21:— it was Schmidt, not Späte who flew 198 kms. to Karlsruhe on 4th August, and this comparatively poor showing lost him the whole competition.



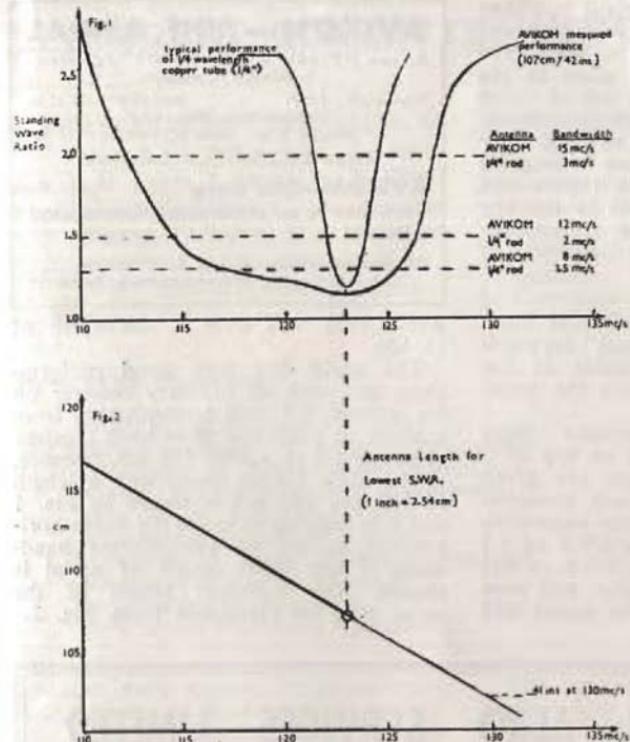
The Austrian Mg 9A, flown by Karlbacher and Tauchegg, which put up a record height of 13,020 feet and finished third in the two-seater class.

A NEW VHF AERIAL FOR SAILPLANES

By OLLE BERG, STOCKHOLM

RADIO, and particularly the use of radio over a large frequency range, has brought the problem of aerials for sailplanes to the fore. It is not feasible to have the aerial outside for many reasons, and especially when the ship is derigged every evening and put in the trailer it is easy to break the aerial rod or to forget it next morning when rigging. The best solution is to place the aerial permanently inside. Because

vertical polarisation for air radio is commonly used, it is necessary to place the aerial in a vertical position. The minimum length of the aerial rod is one-quarter wavelength, i.e. about 24 in. (60 cm.). However, this type of aerial requires an efficient groundplane of some kind which is difficult to place inside the fuselage. The second alternative is to use a dipole aerial which is about 48 in. (120 cm.) long. This type of



aerial needs no groundplane. It is made of two metal tubes each 24 in. long with a coaxial cable placed inside the lower tube. The total length of this aerial makes it necessary to place it inside the fin of most sailplanes. This position, however, is very critical owing to the distance from the c.g. If the aerial is to be matched over a broad band, for instance 118-132 Mc., the dimensions of the dipole tubes become larger and the weight problem has to be solved by an extremely light aerial construction.

Description

The new aerial is made of a foam plastic rod covered with copper foil forming the two dipole elements. The section of the dipoles is square-shaped with dimensions $1\frac{1}{2} \times 1\frac{1}{2}$ in. (3×3 cm.). This effective thickness of the aerial reduces its length by a factor of 0.89, so the total length of an aerial for 122

Mc/s is 107 cm. (42 in.). The coaxial cable (= 60 ohm or more) is glued in the centre of the foam rod and goes up to the middle where the screen of the cable is soldered to the lower dipole element. The centre wire of the cable is soldered to the upper dipole element. In order to make the aerial stiff enough to be handled, transported and built in, there is a bandage of glassfibre-reinforced polyester plastic around the middle of the aerial. The coaxial cable from the aerial to the radio is in one piece in order to eliminate poor contacts and to give better standing wave ratio and hence the whole cable 19 ft. (6.4 metres) is permanently soldered to the aerial.

Installation

The easiest way to build-in the aerial is naturally to place it in the fin before covering at the factory. It may also be

fitted to a completed sailplane but then it has to be taken into a workshop and several hours' work must be spent. The aerial has to be fixed in place in the middle of the fin, and the use of nylon tape and cellulose varnish is recommended. The cable has to be fixed carefully on its way through the fuselage in order not to interfere with rudder and elevator wires. With respect to the airworthiness of the sailplane, it is advisable to check the c.g. after the work.

Performance

On a glider with a steel tube fuselage the aerial tends to "look" forwards because of the vertical tubes in the fuselage. On wooden gliders the aerial is omni-directional.

Standing-wave measurements have been made with the aerial on top of a long pole, and the values are given below in Fig. 1. From these measurements it may be seen that the bandwidth of the aerial is 8 Mc. if a SWR of 1.3 can be accepted. In fact a SWR of less than 1.3 is a very good value, and even if the SWR is up to 2 the aerial still

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The new VHF Aerial specially designed for permanent installation in sailplanes

Band width: 8mc/s Impedance: 60 ohms

Standing Wave Ratio: 1:1.3

Weight: 6 oz., cable 0.53 oz./ft.

Price £3.15s. f.o.b. Stockholm

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SWEDEN

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R.A.F. Locking, Weston-super-Mare, Somerset

works very well over a bandwidth of 15 Mc.

The aerial has very good performance, and with an ordinary receiver on the ground, 0.2 watt transmissions from a glider at 3,000 feet have been received at strength 4 to 5 over 100 km. distance.

The SWR for an aerial with a length of 107 cm. (42 in.) is shown in Fig. 1 and it is possible to move the curve horizontally to get an approximate bandwidth if any other length of aerial is chosen. The optimum length of the aerial may be calculated from Fig. 2.

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TECHNICAL COMMITTEE REPORT

MEMBERS of the Committee: F. G. Irving (Chairman), J. B. B. Johnston, J. D. Jones, J. Leach, K. R. Obec, 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:

Number of Meetings	1964	1965
New Certificates of Airworthiness issued	10	7
Certificate of Airworthiness renewals	64	72
Major Overhauls (included in renewals)	343	372
New Glider Types certificated	19	36
Renewals of Inspection Approval	1	3
Renewals of Senior Inspection Approval	69	80
Renewals of Firms' Approval	16	17
New Inspectors Approved	5	4
New Senior Inspectors Approved	20	17
	1	2

IN last year's Report, the appointment of Mr. R. C. Stafford-Allen as full time Chief Technical Officer was announced. 1965 therefore represents the first complete year of his work, and a very busy one it has been. He has visited 24 sites, organised three inspectors' conferences and personally examined 22 applicants for inspection approval. Superimposed on all this public activity has been the unspectacular but essential work of the office: processing C.s. of A., dealing with queries and writing his excellent inspectors' news sheet. This document is full of helpful information on new techniques, modifications, suggestions and procedures, and plays a vital part in keeping inspectors in touch with the B.G.A. and in spreading ideas. His presence also enables very rapid action to be taken when a defect or an accident is brought to our notice. In particular, a very close liaison has been established with the Accidents Investigation Branch and the Minutes of the year's meetings show that a considerable proportion of Committee time is devoted to discussing technical aspects of accidents.

The general volume of technical work continues to increase but, with the routine taken off the shoulders of the Committee members, fewer meetings are necessary. The year has also been relatively free from the need for major efforts, such as writing great reports on glue. The certification of the sundry variants of the Dart has now been completed.

Much of the remainder of the Committee's work has been concerned with modifications, approval of foreign gliders and liaison with manufacturers and the Air Registration Board. Relatively little work has been done on revision of B.C.A.R. since digestion of various ideas arising at South Cerney is still proceeding. The Committee is currently considering what part, if any, it should play in the certification of powered gliders. At present, it seems likely that such aircraft are already provided for via the procedure of the Popular Flying Association. We are in close touch with this body and look forward to a mutually advantageous exchange of views.

It should not be thought that a relatively uneventful year is making the

Committee complacent: we are acutely aware of being poised at the edge of a new era, in which metal and glass fibre will be important. Undoubtedly, we will be faced by a whole array of new problems, superimposed on those arising from a large number of ageing wooden aircraft.

As usual, the list of Committee members represents only a fraction of those concerned with keeping gliders air-worthy: to all the others, the Inspectors, members of firms, and B.G.A. staff, together with members of A.R.B. and A.I.B., we tender our sincere thanks.

F. G. IRVING, Chairman.

Product Review—THE SALFORD MINITEST

"Let there be some more test" (W. Shakespeare: Measure for Measure)

ELECTRICS and gliding seem to be so firmly associated now that a review of a test meter would not be so out of place in SAILPLANE AND GLIDING as it would have been a few years back. Then it was just a matter of doing the D.I. and cockpit check and off we flew, but now the chap who cannot put his own electrics in order starts off with a disadvantage. The little Salford Minitest will be as much a boon to the pilot who installs his own instruments as to

the non-technical man who only wants to check that he won't be disappointed later during the flight. Also there are uses for it, around the house and in the car, which may be entirely unconnected with gliding.

The instrument will measure D.C. up to 1,000 volts and 1 amp, with lowest full-scale readings of 2.5 volts and 50 microamps. Alternating voltage is covered by the same ranges as direct, a switch making the necessary internal

The electronics engineer can rely on the high sensitivity of the Salford Minitest, the most advanced, pocket-sized, multirange test set available. This instrument is housed in a pressed steel case which effectively screens the movement from external magnetic fields. It also provides that extra protection against the accidental blow which may fracture a completely plastic moulding. The grey melamine cover is designed to focus attention on the clear easy-to-read scale.



D.C. SENSITIVITY 20,000 ohms per volt
A.C. SENSITIVITY 2,000 ohms per volt.
A.C. ACCURACY maintained up to 20 kc/s
TWENTY RANGES
ADDITIONAL DECIBEL SCALE
PRESSED STEEL CASE
SIZE: 5½" x 3½" x 2½"
TEST LEADS PROVIDED

TRADE PRICE £7.17.6
(£8.12.6. with leather case)
IMMEDIATE DELIVERY

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change. The 2.5 v. A.C. scale is separate from the 2.5 v. D.C. scale, otherwise the scales are identical. There is no provision for measuring alternating *current* (as opposed to *voltage*). Three ohms ranges, with maximum graduations of 2 K., 200 K. and 200 M., are powered by internal batteries. These enable continuity and insulation to be measured in a glider, even though there is no power supply fitted.

So low is the current drawn by the instrument that a full voltage reading on a dry battery will give no clue as to the life remaining in it, for which no satisfactory non-destructive test has yet been devised, though short circuit current is often used as a guide. As long as this is below 1 amp, the meter will measure it. This maximum of 1 amp D.C. will cover most gliding uses, but there are some inverters which do take more current than this, and most car fittings do. In an instrument of this size and price it is not possible to fit any effective protection, and overload on any range can damage it. While on the subject of protection, it is worth pointing out that the meter has a plastic panel fitted into a

steel case which gives mechanical protection as well as magnetic shielding. A tough leather case is an optional extra which is much to be recommended, as the meter will doubtless find its way into the tool box where its neighbours are likely to be rather hard-hearted.

The Minitest is made in Salford, Lancs., by a subsidiary of G.E.C., and should live up to the reputation for good workmanship that the latter company has made for itself. For those who want technical details of the internals, the movement is a normal moving coil with sapphire bearings. The rectifiers are germanium diodes, and the resistors are cracked carbon grade 1 types. Accuracy is $\pm 2\frac{1}{2}\%$ on D.C., $\pm 2\frac{1}{2}\%$ on A.C., $\pm 5\%$ of midscale from 0 to mid-scale and $\pm 10\%$ of midscale from midscale to fullscale on ohms ranges. The ohms ranges have to be zeroed each time range is changed, and discharged batteries for the ohms ranges should not be left in the meter as they may leak and corrode the works.

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

CLUB STATISTICS

Gliding Club	Aircraft						On Club site	By Club gliders	Hours	
	Club owned or op.	2S	Sec	HP	PO	TUG			Total	Club gliders
ABERDEEN	1	2	1	3	—	—	2,040	1,877	153	132
AIRWAYS (INCLUDING)	5	3	—	5	2	—	7,806	7,646	1,030	382
CISAV.A. POST OFFICE										
THAMES VALLEY										
AVRO	2	1	1	1	—	—	2,906	2,805	300	284
BATH	2	2	—	6	—	—	3,512	2,448	634	232
BLACKPOOL & FYLDE	1	2	—	—	—	—	1,281	1,281	N/K	N/K
BRISTOL	2	3	1	13	1	—	7,610	5,354	2,178	1,055
BURTON & DERBYSHIRE	1	—	—	—	—	—	208	204	19	18
CAMBRIDGE UNIVERSITY	2	2	1	5	1	—	3,821	4,056	1,523	953
COLLEGE OF AERONAUTICS	2	2	—	2	—	—	150	899	399	219
COTSWOLD	1	2	—	—	—	—	1,480	1,440	101	101
CORNISH	2	3	—	2	1	—	5,787	5,687	747	683
COVENTRY	1	2	2	9	2	—	4,542	4,073	900	677
DERBYSHIRE & LANCASHIRE	4	4	1	17	—	—	6,542	5,386	1,856	899
DEVON & SOMERSET	1	3	—	7	1	—	7,985	6,287	1,495	622
DONCASTER & DISTRICT	2	4	—	8	—	—	6,363	5,597	852	655
DORSET	1	2	—	6	1	—	1,684	1,271	398	191
DUMFRIES & DISTRICT (INC. EDINBURGH UNIV.)	2	3	—	1	—	—	1,078	1,036	79	70
ESSEX & SUFFOLK	2	1	—	2	—	—	3,213	3,064	339	274
GLASGOW & WEST SCOTLAND	1	1	—	—	—	—	253	253	24	24
HALIFAX	1	1	—	—	—	—	344	344	22	22
HANDLEY PAGE	2	1	1	—	—	—	1,602	1,596	221	221
KENT	4	2	—	6	—	—	6,077	5,379	913	560
LAKES	1	4	—	2	—	—	2,357	2,300	254	225
LAND'S END	3	1	—	—	1	—	2,046	1,992	318	268
LASHAM CENTRE (INCLUDING AIR SCOUTS, ARMY, R.A.E., IMPERIAL COLLEGE)	4	2	8	42	5	—	25,457	17,400	7,175	4,243
LASHAM SOCIETY										
LEIGHTON PARK SCHOOL										
SURREY										
POLISH AIR FORCE ASSOC.										
UNIVERSITY COLLEGE G.C.)										
LEICESTERSHIRE	1	1	—	5	—	—	1,268	901	763	357
LINCOLNSHIRE	2	3	—	2	—	—	4,900	4,600	560	500
LONDON	3	7	1	35	3	—	13,459	11,948	3,197	1,322
MIDLAND	2	2	2	7	—	—	8,051	6,802	3,129	2,037
NEWCASTLE	2	2	—	8	—	—	2,225	1,972	619	354
NORFOLK	1	2	—	—	—	—	3,165	2,957	283	249
NORFOLK & NORWICH	1	2	—	4	1	—	135	—	190	—
NORTHAMPTONSHIRE	1	2	—	2	1	—	2,569	2,353	276	203
NORTHUMBRIA	2	3	1	—	—	—	3,391	3,445	422	422
OXFORD	1	1	2	4	1	—	2,951	2,713	564	412
PERKINS SPORTS ASSOCIATION	1	2	—	—	—	—	2,170	2,170	277	277
SCOTTISH GLIDING UNION	5	4	1	4	1	—	5,988	5,030	2,014	1,090
SOUTHDOWN	1	3	—	2	—	—	3,375	3,171	774	469
SOUTH WALES	1	1	—	2	—	—	1,563	1,480	245	167
STAFFORDSHIRE	2	3	—	2	—	—	3,712	3,349	406	307
*SWANSEA	1	—	—	—	—	—	469	469	20	20
*SWINDON	1	1	1	1	—	—	4,300	4,326	—	—
ULSTER & SHORTS	—	2	—	—	—	—	1,250	1,250	170	170
*WEST WALES	2	1	2	—	1	—	4,076	3,996	490	490
WORCESTERSHIRE	1	2	—	3	—	—	1,493	1,477	110	103
YORKSHIRE	2	5	—	8	—	—	6,173	5,423	1,158	—
TOTAL CIVILIAN	82	100	27	226	24	—	183,527	160,549	37,617	22,495

FOR 1965

Flying days		Cross-country		Courses		Certificates			Membership					
Total	soaring	Total miles	By club	No.	Pupils	A	B	C	S	G	Flying	Non-flying	Potential	
71	27	115	25	6	41	7	19	1	2-1	—	54	—	100	
187	91	1,900	500	2	12	44	—	11-5	—	1	276	12	500	
116	41	N/K	N/K	—	—	10	5	6-0	—	—	80	20	85	
85	10	1,458	N/K	—	—	14	10	8-1	2	—	91	7	150	
49	31	—	—	—	—	4	5	1-1	—	—	53	190	N/K	
197	120	5,235	400	20	160	19	16	25-10	—	2	250	50	350	
10	2	—	—	—	—	—	—	—	—	—	51	2	75	
180	107	4,218	1,115	6	40	13	7	11-4	—	5	190	—	220	
73	28	N/K	N/K	—	—	2	—	9-2	—	—	35	—	50	
56	24	—	—	—	—	12	5	—	—	—	51	5	80	
194	48	N/K	N/K	23	137	16	3	4-0	—	—	86	8	150	
122	65	2,324	1,383	—	—	20	3	8-1	—	1	139	31	200	
151	123	2,483	683	6	96	10	8	21-7	—	—	200	120	350	
241	143	3,704	1,570	21	207	21	11	11-4	3	—	145	24	200	
161	82	1,815	168	2	16	11	9	8-4	—	1	128	59	200	
49	14	368	72	—	—	6	2	5-2	—	—	95	35	200	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
103	35	120	70	—	—	6	7	6-1	—	1	117	17	250	
9	6	—	—	—	—	2	1	—	—	—	29	2	60	
27	10	—	—	—	—	3	—	1-0	—	—	29	5	N/K	
59	36	—	—	—	—	6	—	—	—	—	39	—	50	
150	100	1,809	10	8	91	12	6	16-6	—	—	149	41	250	
66	34	N/K	N/K	4	27	6	4	4-2	—	—	58	18	120	
123	43	50	25	17	124	1	1	3-1	—	—	81	24	150	
325	N/K	N/K	N/K	95	400	60	33	—19	8	291	101	N/K		
										241	—			
80	55	4,305	86	—	—	6	4	4-2	1	83	9	150		
N/K	20	N/K	N/K	14	83	20	3	6-2	—	120	10	203		
207	144	4,445	727	21	340	24	18	15-5	3	399	105	600		
120	95	297	36	—	—	10	4	28-2	—	215	64	250		
								2-1	—	100	—	200		
85	32	309	69	1	10	9	15	5-0	—	76	14	120		
32	32	2,722	—	—	—	5	—	—	—	12	—	—		
90	46	260	240	—	—	7	7	7-1	—	70	3	100		
121	41	408	408	—	—	6	6	22-7	—	120	—	180		
85	42	213	85	—	—	6	4	6-2	1	81	2	100		
N/K	240	1,072	249	15	111	3	2	1-0	—	40	—	40		
92	40	1,148	383	—	—	6	4	12-2	11	171	58	250		
55	31	374	—	—	—	7	4	11-4	—	116	24	N/K		
99	31	254	219	—	—	8	5	1-0	1	52	1	100		
						10	3	10-2	—	94	1	200		
40	20	—	412	—	—	—	—	—	—	72	—	100		
42	15	85	85	—	—	5	2	—	—	95	6	150		
130	40	240	240	—	—	—	—	—	—	30	—	50		
70	10	N/K	N/K	5	42	6	4	24-0	—	—	55	5	80	
				2	60	18	16	—	1	189	17	250		
—	—	42,263	9,260	268	1,997	448	263	314-101	43	5,148	1,100			

CLUB STATISTICS

Gliding Club	Club * owned or op.						On Club site	Launches By Club gliders	Hours	
	2-S	Sec	HP	PO	TUG	Total			Total	By Club gliders
R.A.F.G.S.A.										
BICESTER										
(including Halton)	5	3	5	1	2	18,497	18,497	4,385
BANNERDOWN	2	3	2	1	—	4,500	4,721	831
CHEVIOTS	1	2	2	—	—	1,900	1,900	205
CHILTERN	2	2	1	—	—	4,229	4,229	430
CLEVELANDS	4	6	—	—	1	N/K	N/K	N/K
EAST MIDLANDS	3	3	2	—	—	4,900	5,263	724
FENLAND	2	1	3	1	—	7,500	7,500	902
FOUR COUNTIES	1	2	2	1	—	3,684	3,627	453
MENDIPS	1	3	1	1	—	2,626	2,626	306
MOONRAKERS	2	3	2	1	—	4,500	4,369	1,060
WHITE ROSE (ceased ops, in September)	..	1	3	—	—	—	800	800	80	80
R.N.G.S.A.										
FULMAR	2	1	1	—	—	2,673	2,566	286
HERON	2	1	2	1	—	1,962	1,718	433
PORTSMOUTH	1	2	1	1	1	2,534	2,491	456
SERVICE TOTAL	29	35	22	9	5	60,305	60,307	10,567
SERVICE AND CIVILIAN TOTAL										
AIR TRAINING CORPS	111	135	49	235	29	243,832	220,856	48,184
			150					182,000		32,706
R.A.F. GERMANY								
CROSSWINDS	2	2	—	1	—	2,750	2,873	198
EAGLE	—	3	1	—	—	2,150	2,348	464
LAARBRUCH	1	3	1	1	—	3,330	3,431	534
NIMBUS	1	4	1	1	—	3,875	3,831	531
PHOENIX	—	5	1	2	—	4,520	4,929	629
			4	17	4	5	—	16,625	17,412	2,356
										2,312

NOTES: *Only available figures are for 1964. These figures shown for purposes of analysis total and comparison with 1964 total.

B.G.A. NEWS

1965 Annual Awards

THE British Gliding Association has pleasure in announcing the following awards for 1965:

DE HAVILLAND CUP for the greatest gain in height: to Roger Mann for a gain of height of 16,650 ft. at Portmoak on 14th February. Skylark 4.

MANIO CUP for the longest goal flight: to Alan Purnell for the longest goal and return flight Lasham, Cleobury Mortimer, Lasham, a distance of 206 miles, on 10th May. Skylark 3F.

WAKEFIELD TROPHY for the longest distance: to Alan Purnell for the same flight as shown under the MANIO CUP.

VOLK CUP for the longest pre-declared turning point and return flight: to Alan Purnell for the same flight as shown under MANIO CUP.

SEAGER CUP for the best two-seater performance: to Ray Stafford Allen and Roger Marven, a triangle Dunstable, Husband Bosworth, Edgehill, Dunstable, a distance of 116 miles, on 7th August. Capstan.

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:

Alan Purnell, Lasham, Cleobury Mortimer, Lasham on 10th May. Skylark 3F. 206 miles.

Gerry Paddick, Lasham, Frome, Banbury, Lasham on 19th May. Skylark 3F. 192 miles.

John Cochrane, Lasham, Frome, Banbury, Lasham on 20th May. Skylark 3F. 192 miles.

Total distance 590 miles.

FOR 1965 (continued)

Flying days Total	Cross-Country Soaring	Total miles	By club gliders	Courses No.	Pupils	AB	Certificates C	S	G	Membership Flying	Potential
251	N/K	7,443	7,443	16	200	91	22	37-10	10-1	150	N/K
126	84	2,87	2,870	cont	inious	19	8	11-3	2-1	106	N/K
N/K	N/K	1,000	1,000	cont	inious	4	2	4-0	1-0	35	70
80	N/K	200	200			9	8	15-3	—	80	200
N/K	N/K	N/K	N/K	N/K	N/K	N/K	N/K	N/K	N/K	N/K	N/K
116	43	2,023	2,023	cont	inious	24	7	5-3	2-1	60	120
139	49	1,058	1,058	2	10	41	20-6	20-6	—	170	200
94	30	520	450			14	5	15-5	1-0	77	N/K
82	31	188	188			10	13	7-2	—	45	75
141	76	2,542	2,542			18	15	17-3	10-0	95	100
50	17	200	200			4	2	—	—	—	—
90	30	—	—			1	2	3-0	2-0	44	80
80	35	1,522	443	—	—	8	6	4-3	2-0	70	100
91	20	1,367	20	—	—	9	—	—	—	97	100
—	—	20,933	18,437			252	115	138-38	30-3	1,029	
		63,196	27,697	cont	inious	700	378	452-139	73-3	6,117	
						2,176	64				
124	25	—	—	1	15	21	11	—	—	40	50
115	50	1,430	1,430	4	30	14	3	4-2	—	50	60
112	33	994	944	—	—	16	9	5-2	4-2	50	80
76	32	306	306	—	—	13	9	6-3	—	75	90
97	50	510	510	3	26	22	14	5-1	2-0	60	90
		3,240	3,240			86	46	20-8	6-2	375	—

Key to aircraft categories: 2S = two-seater; Sec. = Secondary; HP = high-performance; PO = privately owned; S = 1st column, Silver C legs, 2nd column completed Silver C's. G = Gold.

CALIFORNIA IN ENGLAND to a woman pilot of British nationality for the longest flight commencing in the United Kingdom: to Jane Warter for flight Nympsfield, Duxford, Dunstable, a distance of 141 miles, on 28th June. Olympia 463.

FRANK FOSTER TROPHY for the fastest speed round a 100 km. triangle: to Ian Strachan for a speed of 77.25 km./h. on 20th May. Lasham, Welford, Thruxton, Lasham. Skylark 3B.

ROBERT PERFECT TROPHY for the highest number of B.G.A. categorised instructors in proportion to flying membership:

1st Trophy and £40 Award — East Midlands G.C.

2nd £20 Award — Moonrakers G.C.

3rd £10 Award — Cornish G.C.

British National Records Homologated

100 km. TRIANGLE: Alf Warminger for flight on 21st December, 1965, in Std.

Austria, Kimberley, Paardeberg, Jacobsdal, Kimberley (South Africa), total distance 113.14 km. Speed 115.06 km./h.

300 km. TRIANGLE: Alf Warminger for flight on 6th January, 1966, in Std. Austria, Kimberley, Dealesville, Christiana, Kimberley (South Africa), total distance 309.47 km. Speed 99.29 km./h.

GOAL-AND-RETURN: Alf Warminger for flight on 13th January, 1966, in Std. Austria, Kimberley, Middelburg, Kimberley (South Africa), total distance 602 km.

U.K. Record Homologated

100 km. TRIANGLE: Ian Strachan for flight on 20th May, 1965: Lasham, Welford, Thruxton, Lasham in Skylark 3B. Speed 77.25 km./h.

Life Assurance and Gliding

The Life Offices' Association agreed some years ago that normal gliding does not warrant an Additional Premium on

a new Life Assurance Policy. Existing Policy holders who have gliding excluded will probably however not be able to get their policies changed. Some Life Offices may insist on charging extra for competition gliding or for gliding instructors.

If a Life Office insists on raising difficulties over gliding it should be asked to refer to the above Life Offices' Association ruling.

Almost all Life Offices, incidentally, charge extra for Power flying.

Export List for Sporting Gliders

Sporting gliders have up to now been classed on the Export List as "Aircraft". One result of this has been that an Export Licence has been needed in each case, there being no distinction between, say, a Dart and a V-bomber.

At the instance of the B.G.A., sporting gliders — viz aircraft having no motor, not more than two seats, and weight not exceeding 1,500 lbs. — will shortly be transferred to the Sporting Goods Section of the Export List, and no licences for export will then be needed.

Coming Events

Midland Gliding Club, Easter Rally. 8th-12th April.

Holland: Victor Boin Trophy at Teuge. 30th April.

Switzerland: National Championships at Hausen, near Zürich. 8th-14th May.

Belgium: National Championships at St. Hubert. 14th-22nd May.

National Championships at Lasham. 21st-30th May.

Norway: National Championships, 3rd May-5th June.

Holland: National Championships at Terlet. 24th May-3rd June.

Germany: National Championships at Roth near Nürnberg. 29th May to 12th June.

Bristol Gliding Club: Regionals. 18th-26th June.

France: First International Mountain Competition organised by Association Verdon-Alpilles. 19th-28th June.

U.S.A.: National Championships at Stead Air Force Base, 8th June-7th July.

Derbyshire and Lancashire Gliding Club: Regionals. 2nd-10th July.

Czechoslovakia: National Championships at Vrchlabí. 3rd-17th July.

France: National Championships at Angers. (Les Huit Jours d'Angers.) 14th-24th July.

London Gliding Club: Regionals. 30th July-7th August.

London Gliding Club: Open Day and Air Display. 28th-29th August.

Italy: National Championships at Rieti. 2nd-12th August.

* * *

TWO O.S.T.I.V. COURSES

O.S.T.I.V. is studying the possibility of organising a course for gliding meteorologists at the OSTIV International Research Institute at Calcinate del Pesce near Varese, Italy. The exact date cannot yet be announced (probably 1967).

The course will include the following subjects: evaluation of soundings; analysis of air masses; forecasting thermals, winds, waves; technique of high-performance gliding, particularly the optimum speeds for cross-country flights, and the use of waves.

All members will make observational flights in two-seater gliders. It is planned to organise the course during a season when wave flights are possible in the region.

TECHNICAL COURSE: From the 4th to 17th September, 1966, there will be a technical gliding course at the same place. The subject of this course will be the performance comparison of well-known gliders with an investigation of their flying characteristics, particularly the size and location of airbrakes and various tail configurations (T-tail, V-tail, swept tails, all-moving surfaces, etc.).

A detailed programme and charges will be decided in May, 1966, by the OSTIV Board and can be obtained from the OSTIV Secretariat, NLM Atoomgebouw, Schiphol Airport, Amsterdam, Netherlands, after the end of May.

In the meantime, interested persons can, without obligation, send their applications for the above-mentioned two courses, to the OSTIV Secretariat.

A. STIRNEMANN

BOOK REVIEW

American Soaring Handbooks : No. 1, A History of American Soaring, by R. S. BARNABY. **No. 5, Meteorology,** by HARNER SELVIDGE. **No. 10, Maintenance and Repairs,** by ROBERT FORKER. Published by the Soaring Society of America, Inc. Price \$1.25 each.

RALPH BARNABY built his first glider in 1909 and became America's first C pilot in 1929. So, after giving several pages to the Wright brothers, he can deal with the rest of U.S. gliding history from first-hand knowledge. He gives an excellent summary of it all, finishing with a complaint of lack of official support by government agencies, with the honourable exception of the Weather Bureau.

Harner Selvidge, who is known to our readers for his news reports from the U.S., is professionally engaged with Paul MacCready in the firm of Meteorological Research, Inc. He claims his booklet to be an "introduction" to the subject for "beginning and intermediate pilots", although it would have been reckoned as an advanced text-book for pundits not so many years ago. He even inserts a hill-top into a tephigram to show why thermals start there first — something I have not seen done before. This is a good review of the whole subject in the space available, and Mr. Selvidge includes the Los Angeles Smog Front, which you will not find in Old World textbooks — its production requires an immense seaside city with more cars than inhabitants. Finally he tells how to get met. information and how to use it when you've got it.

A. E. S.

The interesting booklet on Maintenance and Repair by Robert Forker explains in considerable detail the U.S.A. procedures for repair and maintenance of gliders, and it is pleasant to find that in the fundamentals there is little difference between U.K. and U.S.A. practices. The principle that inspection of the work and signing up of it in the logbook by an approved inspector is even more important than the qualifications of the actual craftsman is well brought out.

Main points of interest are in the different techniques. Stringing fabric to ribs and sewing on fabric patches are given thorough treatment, and in this connection it is possible that the explanation lies in the presumably greater difficulty in getting fabric to adhere to metal rather than timber. It is a pity, however, that one can never get a sewn patch to disappear in the finished job, whereas with doped-in patches an invisible finish is quite easy to attain.

The techniques for timber repairs seem almost identical on both sides of the Atlantic, but the 45° two-ply plywood described on page 24 is quite unknown



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here. Also, the splayed patch repair described on the same page might not be passed by an Inspector in this country since we do not like scarfed joints of less than 12 to 1.

The section on general maintenance, wherein U.K. and U.S.A. practices coincide, is very helpful, but one could wish that the author, who is clearly an expert in the field of metal repairs, could not only have given the excellent tips he has done but also could have gone into the whole subject of rivetting and other means of repair more deeply — a subject on which we in this country are most thirsty for information.

R. S. A.

CORRESPONDENCE

THE BRONZE C

Dear Sir,

I am delighted about the introduction of the Bronze C. I am sure that such a move has been long overdue in order to bridge the gap between the C and the Silver C.

Ann Welch hinted at the fact that not more than 5% of ab-initio members obtain the Silver C due to frustrations of various kinds (*SAILPLANE & GLIDING*, February, 1964, p. 38). I am certain that some of the frustration in the past has been due to a lack of not having a definite stated standard to achieve before starting off on Silver C legs. Now this has been rectified I look forward to hearing of an increase in the number of Silver C pilots.

Cubert Vicarage, Newquay, Cornwall.

BRIAN MEASURES

SILVER C ON CLUB GLIDERS

Dear Sir,

Like Mr. Morris I, too, hate Private Owners. I also hate the Chairman, the Secretary, the Treasurer and the C.F.I., along with the Football Association, Coronation Street and Mr. Ed.

However, far from insisting that their certificates should be endorsed "Private Owner", I preach the following doctrine to my fellow penurious peasants:

Any Private Owner who has *not* got a Gold C must be a clot.

MIKE USHERWOOD

P.S. I've been sweating on 5 hours for three years too.

FREE DISTANCE IN PERSPECTIVE

Dear Sir,

Recent letters in *SAILPLANE & GLIDING* have extolled the value of Free Distance as a competition task, and have criticised the modern trend towards speed-flying and closed-circuit tasks.

But no-one wishes to do away completely with Free Distance because, in its place, it is a most fascinating task although it lacks the challenge of accurate navigation and the final glide. However, to get the subject in perspective we must also realise that it can have undesirable features too if set in the wrong weather. Task-setters must realise that the weather all too frequently is different from what is expected, and that pilot abilities are such that landings on distance tasks are often twice as far away as originally envisaged. The two principal dangers in setting Free Distance and Distance along a Line (unless the line is well cross-wind) are:

(i) Pilots may land so far away that the following day has to be a rest day, or at best pilots are fatigued after an all-night retrieve. There is surely no merit during modern contests in landings at Portmoak, Lands End or even South Shields. These flights should be done during normal club flying. In competitions, British road traffic alone makes such epic retrieves undesirable, and the numbers of

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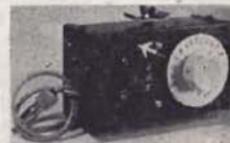
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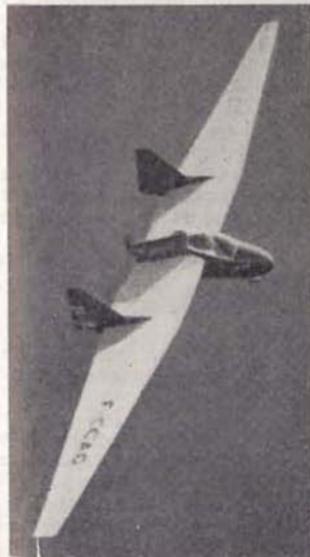
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accidents and breakdowns are increased, as is the cost, which does matter to a lot of people. Should a rest day have to be declared, this is a fearful waste of all the effort put into the contest, which should be devoted to flying and not retrieving.

(ii) Even worse is the case where pilots all reach the coast at the same place, and all score similar marks. This is a problem peculiar to this island and has happened with monotonous regularity in the past. There was actually a case where a pilot reaching a coastal airfield equalled the 300-km. speed record, to find himself eighth for the day, which was Free Distance and so allowed slower gliders to get more marks because of their handicap bonus.

I feel, therefore, that there is moderation in all things, and that we should not get too carried away with either speed or distance tasks. About 50-50 is a good ratio, counting any uncompleted speed tasks in the Distance group. Two neglected distance tasks that should be set more often are the Open-Ended Triangle (Distance along a Line round two turning-points) and Free Distance from a Control Point (the Control Point can also be reached via two turning-points if required). Neither of these tasks need cause especially long retrieves, and both can give many hours of distance flying. In conclusion I would exhort task-setters *please* to exercise caution before setting Free Distance, and *please, please*, in Distance along a Line, angle the line back roughly towards the starting area so that our retrieves may be cheap and not marred by accidents or other mishaps.

IAN STRACHAN

THE CLUB NEWS SECTION

Dear Sir,

I read Anthony Edwards's criticisms of the Club News section with a mixed feeling of interest and indignation. It is very evident that he has never been handed the job of permanent Club News Writer for his club. It's no easy matter to write a reasonable account of nothing very much, or for that matter something which was quite interesting if only one could remember the details. Concerning items of local interest I agree that I am not very interested to know that Joe Bloggs has soloed at last (unless I happen to know him personally), but I am interested in the activities of other clubs which I may have visited, or propose to visit. Joe Bloggs's point of view is, of course, quite different — he has achieved the mighty feat of going solo and he wants the whole gliding movement to know that he has taken the first step to becoming the winner of the 1980 championships. Woe betide the poor Club News contributor who omits to mention this achievement — he is quite likely to find that his retrieve crew has gone on strike in sympathy with Joe Bloggs, leaving our poor contributor to repent in some wet and muddy field.

Seriously though, I personally like Club Notes the way they are, and contrary to Anthony Edwards this is the one part of SAILPLANE & GLIDING which I guarantee to read from end to end. I think the various club contributors do a grand job — but then perhaps I'm prejudiced.

Newcastle Gliding Club.

B. W. BRIGHTON

THE GAP BETWEEN SILVER AND GOLD

Dear Sir,

With reference to Jack Harrison's comments on the gap between the Silver and Gold Badge (December-January, p. 528), I would like to take up some points that he obviously overlooked.

Firstly, if a badge is to be a symbol of achievement, then let each standard set by a badge be a sufficiently high objective to be worth while. If gliding is to progress I would venture to say leave the badge standards as they are. The system works well; higher performance machines, more successful flights, more Silver C's, a higher standard surely. We know the weather hasn't changed over the last ten years; it's just as soarable as then, but we have better knowledge and equipment to adapt the situation to our needs. So let's not have status symbols in gliding, since only the gliding movement knows the value of the international badges.

The Silver C is an elementary achievement, true, but that is precisely what it

is meant to be — an introduction to cross-country competitive and efficient flying. The statement that a badge standard should be set to show that a pilot is of a "somewhat higher standard than a basic Silver C" is utterly ridiculous, since those who would set this standard would cry out for another standard to indicate additional experience. What then, we all become basic Super Silver C pilots! One could well imagine, at this rate, the B.G.A. in years to come issuing a badge bar for Silver C so that pilots could display their badges all at once.

The 2,000-m. height gain would certainly mean cloud or wave lift, but also so would a 3,000-m. climb. Let us have no illusions; it may take 3 to 5 years or more to get a Gold Badge, but I know the sense of achievement I will feel if I ever become a "basic" Gold C pilot.

Why try to align our sport with others and set a Bronze Badge to complete the Olympic trio? The Gold and Silver are logical steps and should stay, but the new Bronze Badge, I feel, is not so logical. Perhaps its introduction is a safety measure to prevent inexperienced private owners from attempting premature cross-country flights. If this is so, it must surely be a reflection on the instructor or C.F.I.'s experience. A simple rule might be more practical. No pilot of less than Silver C proceeds on a cross-country flight without prior permission from a duly authorised person. This is normal practice where I fly and in any other safety-conscious club. Why, then, these administrative changes?

Whilst making these points, I have no wish to offend Jack Harrison's obviously genuine opinions, and I hope that he will press on with his Diamond attempts — for the Diamond is the ultimate achievement.

Bristol Gliding Club.

A BASIC SILVER C PILOT

HOW THE ALBATROSS SOARS

Dear Sir,

My attention has been drawn to an article on "How the Albatross Soars", on page 50 of your journal for February-March, 1965, in which you refer to an article by me submitted to the Duke of Edinburgh. I regret to state that I had not previously seen Mr. Hamilton's contribution to the study of albatross flight. Having now had an opportunity to do so, I would like to offer the following comment on the assumptions he has made, also the comments of Dr. Mottram, and yourself.

I can appreciate the genuineness of the beliefs expressed, but this is a very complex matter, and any of us are likely to jump to wrong conclusions. Let me put it this way: If Mr. Hamilton's reasoning is correct, the conclusions reached by Dr. Idrac (who is generally quoted as the outstanding authority on this subject) in his famous research in 1923 and 1925 are not correct. They cannot both be right. To quote a typical statement by Idrac: "the albatross is not able to remain airborne without flapping in winds of less than 6 metres per second (approx 11 knots)." Dr. Idrac was a trained scientist whose powers of observation must be assumed to be above average, and they were reinforced by the best instrumentation and photographic aids then available. I am not saying that Idrac is right; in fact, I have excellent reasons for assuming he is wrong in concluding that the variation of wind velocity with height is the *sole* reason for the birds' amazing flight performance.

Also, the reasoning of Dr. Mottram and your remarks suggest a lack of knowledge of wind and wave motion mechanics and relative atmospheric densities. Various scientific authorities could be quoted to show that the assumptions made are fallacious.

I do not wish to appear hostile or destructive, but frankly, the various theories which have been expounded over the years are so contradictory and confusing that it is very difficult to get to the truth of the matter. It does appear to me, however, that the research of Dr. S. P. Langley in relation to the effect of atmospheric turbulence, and that of Thomas Young (1800 A.D.), Sir George Cayley, Pilcher, and Hargrave into the properties of curved surface airfoils, could have an important bearing on the eventual solution of the "mystery" of albatross soaring flight. Gliding

experience, whilst desirable, I do not regard as an essential qualification to an understanding of the phenomenon. Neither do I regard the relatively brief and isolated observations made by these two gentlemen as sufficient to gain a complete knowledge of "what goes on". I have been observing and studying the flight behaviour of many kinds of sea birds over a period of six years under almost every possible variety of meteorological conditions, and I still think I have a lot to learn.

I am currently attacking the problem from another angle and expect my views on the subject to be published shortly in an Australian journal. I shall be very interested and happy to co-operate with anyone genuinely interested, as I am, to find a satisfactory scientific explanation of the amazing and fascinating problem posed by albatross soaring flight.

29 Pomona Street, Pennant Hills, N.S.W., Australia.

KENNETH CAMPBELL

EDITORIAL COMMENT.—Mr. Campbell, whose article sent to the Duke of Edinburgh was passed to us via Peter Scott, is evidently a remarkable man who has given an enormous amount of study to the flight of the albatross, and has read so many "authorities" with mutually conflicting views that he can always quote one of them in contradiction of any theory proposed by anyone else. In this case, however, it is evident from Dr. Idrac's book "*Etudes Experimentales sur le Vol à Voile*" (Paris, 1931) that he only observed the albatross in windy weather, so he was in no position to state whether albatrosses ever soar in calm air over the advancing wave fronts of a heavy swell, as described by Mr. Hamilton.

Since no-one else to my knowledge has reported such an observation, and albatrosses normally confine themselves to the windier parts of the southern oceans, one may well ask what the albatrosses were doing in an area of calm. These ground-swell travel outwards from the stormy region where they are created, and the bigger they are, the greater their wave-length and the further they travel before being destroyed by friction. Perhaps the albatrosses found such good soaring in the original storm that they followed these waves as they moved off, being unaware (not having read any geophysical text-books) that this procedure would take them into regions of less and less wind and finally into a calm. One possible scientific objection is that, although the wave-length remains the same, the amplitude of the waves is continually diminished, so that the wave slope is reduced, and it is a little surprising that the slopes should still be steep enough to provide soaring at such a distance from the original storm. However, they would steepen again in shallow water, and the maximum depth which would produce this effect is proportional to the wave-length.

A great many reports of the flying technique of the albatross have appeared in back numbers of this journal and elsewhere, but personally I have never seen one that could not be explained either by the use of upcurrents (due to the presence of waves or a ship) or to the wind velocity gradient (i.e., increase of wind speed with height), provided that the latter is of sufficient magnitude.—A. E. S.

T-31 INSPECTION NOTE

THERE would appear to be a remote possibility that if the cables are permitted to become extremely slack on a T-31, it is just possible to jam the elevators.

In view of this the B.G.A. Technical Committee issued a Special Inspection to be carried out on all T-31 gliders in the U.K., dated 1st November, 1965.

It is possible that there may be overseas operators of T-31 gliders who are not aware of this Special Inspection. It is therefore repeated below:—

Instances have been reported that the bottom of the rod connecting the con-

trol columns fouls the top edge of the gusset plate welded between the flange plates through which the control columns' pivot.

All T-31's are to be inspected for this defect. If the clearance between the bottom of the control columns' connecting rod and the top of the gusset plate is found to be less than $\frac{1}{8}$ inch, a smooth radius is to be filed in the gusset plate to ensure a minimum clearance of $\frac{1}{8}$ inch throughout the full fore and aft movement of the control columns.

R. STAFFORD ALLEN,
B.G.A. Technical Committee

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GLIDING SITES IN

<i>Club</i>	<i>Name of Site</i>	<i>Tel. No.</i>	<i>Position</i>	<i>Height ft. a.s.l.</i>	<i>Lat. and Long.</i>
ABERDEEN	North Littery	—	4 m. N.E. of Turriff	560	57.34 N. 02.22 W.
AIRWAYS CISAVIA THAMES VALLEY POST OFFICE AVRO	Wycombe Air Park	H. Wycombe 3611-3931	3 m. S.W. High Wycombe	520	51.37 N. 00.48 W.
BATH	Woodford	Bramhall 1291	5 m. N. Macclesfield	300	53.20 N. 02.09 W.
BLACKPOOL & FYLDE	Keevil Aerodrome	—	4 m. S.S.E. Melksham	200	51.19 N. 02.08 W.
BLACKPOOL & FYLDE	Squires Gate	Blackpool 41526	S. boundary of Blackpool	34	53.46 N. 03.02 W.
BLACKPOOL & FYLDE	Salisbury 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.
BURTON AND DERBYSHIRE	Church Broughton Aerodrome	—	5½ m. N.N.W. of Burton-on-Trent	230	52.53 N. 1.42 W.
CAMBRIDGE UNIVERSITY COLLEGE OF AERONAUTICS CORNISH	Cambridge Airport Cranfield	Cambridge 56291	3 m. N.E. City Centre	50	52.12 N. 00.11 E.
CORNISH (additional sites)	Perranporth Aerodrome	Perranporth 2124	8 m. S.W. Bedford	360	52.04 N. 00.37 W.
CORNISH (additional sites)	Newlyn Downs	—	4 m. S.W. of Town	320	50.20 N. 05.11 W.
CORNISH (additional sites)	Davidstow Moor	—	5 m. E. Perranporth	370	50.40 N. 05.08 W.
CORNISH (additional sites)	Camelford	—	3 m. N.E. Camel-ford	950	50.40 N. 04.40 W.
COTSWOLD	Long Newton	—	2 m. E.S.E. of Tetbury	—	—
COVENTRY	Husbands Bosworth Aerodrome	Husband Bosworth 429	20 m. E. Coventry	505	52.26 N. 01.02 W.
DERBYSHIRE & LANCASHIRE	Camp Hill	Tideswell 207	8 m. N.E. Buxton	1,350	53.18 N. 01.43 W.
DEVON & SOMERSET	Dunkeswell Aerodrome	Luppitt 287	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	Tarrant Rushton	—	3 m. E.S.E. of Blandford Forum	—	50.51 N. 2.04 W.
DUMFRIES & DISTRICT	Tinwald Downs	—	3 m. E.N.E. Dumfries	50	55.05 N. 03.03 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	Walney Island Aerodrome	—	25 m. S.W. Kendal	10	—
LAND'S END	Land's End Aerodrome	St Just 201	6 m. W.S.W. of Penzance	—	50.06 N. 5.40 W.
LEICESTERSHIRE	Rearsby Aerodrome	Rearsby 450 — 321	8 m. N.E. Leicester	220	52.43 N. 01.02 W.
LASHAM GLIDING CENTRE	Lasham Aerodrome	Herriard 270	Between Alton and Basingstoke	600	51.11 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
Grass aerodrome, one runway	Yes	Civil	Every day	None
Used for testing	—	Civil	Weekends	None
R.A.F. satellite aerodrome runways no power flying	No	R.A.F. Satellite Civil	Weekends	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.
Aerodrome with runways	No	Civil	Weekends only	
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 aerodrome	No	Civil	Weekends	
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 two runways	Yes	Civil	Weekends	
Aerodrome with runways	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	
Aerodrome with runways	Yes	Civil	Weekends	S.S.W.
Grass aerodrome with three runways	Yes	Civil	Weekends	
Grass	Yes	Civil	Weekends, public holidays	None
3 runways, some aeroplanes, land on grass	Yes	Civil	Every day	None

GLIDING SITES IN THE

LINCOLNSHIRE	Swinderby Aerodrome Dunstable Downs	Swinderby 241 Dunstable 63419	7 m. S.W. of Lincoln 2 m. S.W. Dunstable	69 500	53.09 N. 00.41 W. 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.
NORFOLK AND NORWICH	Swanton Morley Aerodrome	Swanton Morley 274	16 m. W. of Norwich	155	52.44 N. 00.58 E.
NORTHAMPTONSHIRE	Cranfield Aerodrome	Cranfield 212	8 m. S.W. Bedford	360	52.04 N. 00.37 W.
NORTHUMBRIA	Currock Hill	—	Nr. Huddersfield-on-the-Hill	800	54.56 N. 01.50 W.
OUSE	Rufforth Aerodrome	—	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	1½ m. N.W. Caerphilly	1,056	51.35 N. 03.16 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	51.35 N. 01.45 W.
ULSTER & SHORTS	Long Kesh	Hillborough 284	10 m. Belfast	120	54.28 N. 06.10 W.
WEST WALES	Withybush Aerodrome	—	2 m. N. by E. Haverfordwest	250	51.45 N. 04.45 W.
WORCESTERSHIRE	Paskie Field Aerodrome	—	2 m. S. of Bidford-on-Avon	—	52.08 N. 01.51 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	3½ m. N.E. Elgin	57.41 N. 03.14 W.
HERON	R.N.A.S. Yeovilton	Extn. 250 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.

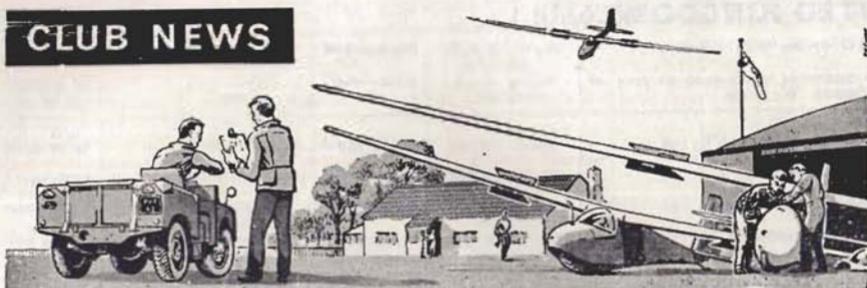
UNITED KINGDOM (contd.)

Aerodrome with runways	No	R.A.F.	Weekends	None
Undulating grass field at foot of Downs, W. slope.	Yes	Civil	Every day	W. & S.W. N.W. to
Heather-covered hill top	No	Civil	Every day	S.W. W. & E.
Heather	No	Civil	Weekends	N.W. & N.E.
Runway aerodrome	No	Civil	Weekends	None
Grass aerodrome	Yes	R.A.F.	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
Aerodrome, runway	Yes	Civil	Weekends	None
3 runways	Yes	Civil	Weekends and Wednesdays	
Grass aerodrome	No	Civil	Weekends	
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.)

CHEVIOTS	R.A.F. Acklington	Red Row 261, Extn. 118 Wallingford 2292	19 m. N. Newcastle 3 m. E.N.E. Walling- ford Nr. Northallerton 7 m. S.W. Lincoln	55.19 N. 01.39 W. 51.37 N. 01.05 W. 54.20 N. 01.30 W. 53.09 N. 00.41 W.
CHILTERNNS	R.A.F. Benson			
CLEVELANDS EAST MIDLANDS	R.A.F. Leeming R.A.F. Swinderby	Northallerton 440 Swinderby 241		
FENLAND FOUR COUNTIES MENDIPS	R.A.F. Feltwell R.A.F. Spitalgate R.A.F. Locking	Feltwell 205 Stamford 2251 Banwell 470	12 m. N.E. Ely 1 m. N.E. Grantham 1½ m. E. by S. Weston-super-Mare	52.29 N. 00.32 E. 52.54 N. 01.06 W. 51.20 N. 02.56 W.
MOONAKERS R.A.F. G. & S. CENTRE RED HAND	R.A.F. Upavon R.A.F. Bicester	Upavon 7 Bicester 501, Extn. 36	8 m. N. Amesbury 1½ m. N.N.E. Bicester	51.18 N. 01.47 W. 51.55 N. 01.08 W.
SUFFOLK	R.A.F. Ballykelly R.A.F. Wattisham	Limavady 2201, Extn. 210 Needham Mkt. 234	15 m. E. Londonderry 5 m. S.W. Stow- market	55.03 N. 07.01 W. 52.08 N. 01.25 E.

CLUB NEWS



THANK you Club News scribes for your criticisms and suggestions to improve our column. Almost to a man you agreed that I should edit more and that details of club members' solo and certificate flights and births and marriages should be left out, so as a start this time I have done just that. More of our suggestions will be incorporated in future issues. However, in the correspondence column you will find a letter hotly defending the old style news, so where do we go?

Copy for inclusion in the June-July issue should reach me typed on foolscap and double-spaced by the 30th March, and that for the August-September issue by the 15th June, at 14 Little Brownings, S.E.23.

YVONNE BONHAM (MRS.),
Club News Editor.

21st February, 1966.

BATH

ANY person not having an intimate knowledge of the breeding habits of gliders would be excused presuming that the T-21c had quite recently given birth when seeing the diminutive H-17 beside the former for the first time. The H-17 has been almost completely rebuilt by its owner, Peter Kent.

Another syndicate has been formed and an Olympia 2B has put in an appearance. Considering that we have been in existence for a little more than two and a half years, with the twelve aircraft now owned by the club and members, and John Graves tug, dare we risk claiming a record for growth rate?

John Fielden was the guest of honour at our third annual dinner.

K. N. S.

COVENTRY

A LWYN FINDON has been appointed as our new C.F.I. and has taken over from Gus Cunningham at the beginning of the year. On the theory that the new broom always sweeps clean, there have already been several changes within the club; one of these is the

appointment of a Flying Committee which is intended to help the C.F.I. in his task, and two meetings have already been held.

Course dates have now been fixed for the season, and Les Johnson is acting as Course Secretary.

The Ka-2B is being decked out in new colours, and Lou Glover having emulated Henry Ford with his "You can have any colour you like so long as it is blue" — blue it is.

B. F.

DONCASTER

OUR Tea-bus put on an excellent Christmas dinner for over 50 in December which was a great success and on 26th January our annual dinner-dance and prize presentation was held at the Kon-Tiki Club at Wakefield, with Yana topping the cabaret bill. On the flying side we have had two 5-hour legs in our own Swallow at Sutton Bank and four A and Bs here at Doncaster. The first soaring flight of the year was on 1st January when the canopied T-21 climbed quickly away in a strong thermal — unfortunately the wind was rather strong and the year's first away landing

had to be made, conveniently on the Racecourse enabling the tug to tow it out.

On 6th February the T-21 and the club Olympia climbed away in the same thermal; both did 30 minutes using several good thermals. May we take this opportunity of reminding Yorkshire Club that we are still in possession of the Tankard, which we have had for about 9 months. Come on, Yorkshire, get your maps ready for the first thermals! It's all down hill from Sutton! D. J. W.

DORSET

THE facilities at Tarrant Rushton have improved and there is now some room for everything—storage for aircraft and vehicles, workshop space, and what still amazes us, after five years of just a caravan to serve for shelter and store, an old generating house has been turned into a clubhouse with a bar. At last we have somewhere of our own to have lectures, meetings and social evenings.

On the flying side a club syndicate has purchased an F100 and auto-towing is now the order of the day as well as aero-towing by Tiger Moth. We also have the Tutor flying again.

Membership has increased by 50% since last April. We have raised the entrance fee from three guineas to five guineas and the launch fees are slightly higher to cover the cost of the extra facilities and to improve them further.

Secretary: A. A. S. Sharp, tel. Wimborne 3272. Membership Secretary: Mrs. V. Linee, tel. Burton Bradstock 292.

A. A. S. S.

EDINBURGH UNIVERSITY

SINCE our last communication in the summer, flying our Eagle and Olympia 2B has been carried out steadily but slowly at Dumfries. We are still searching for a site nearer Edinburgh with undiminished vigour.

The Olympia spent the first week of the year at Portmoak, but soaring weather did not materialize.

A course has been arranged for the Easter vacation at Portmoak when it is hoped that many of our members will for the first time be able to sample the joys of hill and wave soaring.

S. A. C.

ESSEX

THE resurrection of the club took place last August. Its new life blood was a white Ka-7, the arrival of which renewed the morale of members and gave the club a more promising future. Things looked very black for the club when our T-21B was written off last April. All dual flying stopped, which meant that solo pilots due for checks were also grounded. The only people who could carry on flying were a handful of more fortunate Swallow pilots. Both the membership and the launches, which had dropped considerably during those dark months, have got to be worked up again so that the club can afford to keep going.

For a long time the topic of conversation has been "What is going to happen to the club when the Army takes over North Weald?" Now they have taken over and it could not have been a quieter manoeuvre. However, no one is really sure what the club's future is and so the search for a new site goes on.

A gliding week which started on Boxing Day was mainly a success because a Tiger Moth was made available for aero-towing. We are now occasionally given tows by the Moth which is hired from the Tiger Club by the A.T.C., who share the airfield with us. P. J. P.

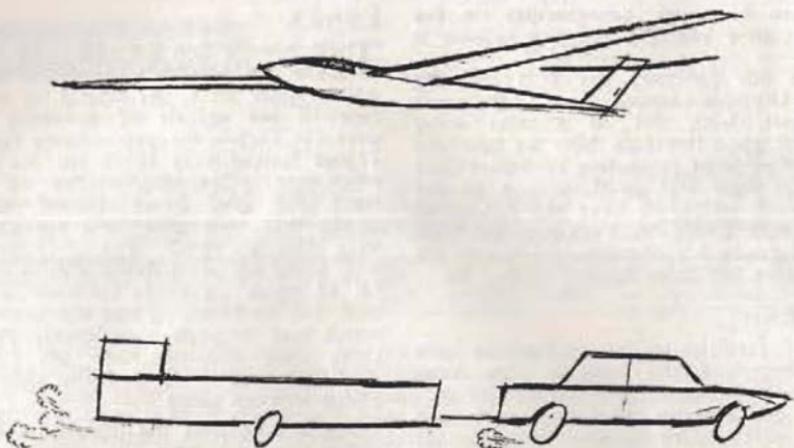
LAKES

GILL HASLAM was awarded the Lonsdale Trophy for his flight from Walney to Salmesbury. Sid Wearing took the Leighton Hall Trophy for his climb to 9,000 ft. last Easter.

A steady flow of new members continues to keep the two-seater busy, but we are beginning to find problems at the other end of the scale concerning provision for the more advanced pilots. The Olympia's time is taxed to the limit and the question of how best to deal with the situation must of necessity occupy our minds in the immediate future.

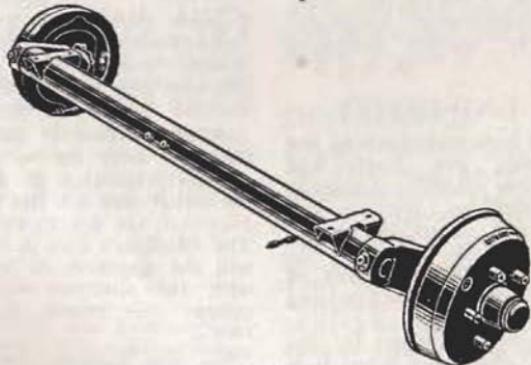
We are looking forward to taking delivery of another Auster in a few weeks' time, as plans are afoot to make more use of aero-tow launches than hitherto.

F. G. R.



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LAND'S END

WINTER is not the most propitious time for flying activity, but we can fairly say we have made the most of our opportunities. One thing is clear, on a grass airfield a retrieve winch is a saving grace — we could not have operated without it on many occasions due to the state of the surface.

We have spent many hours reconnoitring, looking for fields around the south and east cliffs, and have had remarkable success. We now have permission to use fields all the way round from Mousehole to Morvah, if necessary, and are only waiting for the Auster to come back from a C. of A. overhaul to sample the more distant ridges.

Looking ahead, courses are rapidly booking up at time of writing, with over a third of the vacancies already filled and enquiries by the dozen. We have already had bookings from New York, Bahrain, Porto Rico, and several European countries! We have also had five weeks "block booked" by various youth organisations.

David Carrow visited us wearing a "Study Group" hat in January, but we are sure he was far, far more use to us than we were to him, although we tried to be intelligent. Such visits are always a good thing for clubs without a deal of experience behind them. We would seem to be not too far off the right lines.

W. D. T.

LEICESTERSHIRE

AS we all eagerly await the start of the soaring season, a glimpse of the Rearsby fleet may be of interest. Our club machines — Capstan and Olympia 28 — are still in prime condition and fully retrievable whenever necessary. Although our Capstan trailer saw very little use in this direction last year we have higher and farther hopes for 1966.

Syndicate aircraft — Dart 17, Dart 15, two Ka-6's and one venerable Olympia 1 — are all in great shape and rarin' to go. All mods. have been carried out to the Dart 15, even the Olympia 1 has had its wings re-covered with finest fabric! It is strongly rumoured that the committee are discussing purchase of a third club machine, maybe an Olympia 463.

We still aero-tow launch entirely, using a Beagle Terrier which is kept in mint condition by the manufacturers. We can't afford it but without it we just don't fly.

From 20th-23rd April we are taking part in a local sports and pastimes exhibition in Leicester — LEISURE 1966. The exhibition is to be in Granby Halls and will be quite a shop window for the club and the gliding movement in general. Our Capstan is to be on show and with display material and photographs we hope to do a reasonable public relations job. We may even gain a few converts.

D. A.

LONDON

THE winter weather, for once, has not been unseasonable, and although there has been some snow it hasn't interfered with our operations. A good deal of flying has been done over the last couple of months, but primarily on the training side.

The slack period, however, is being used to advantage, the Club buildings, aircraft and equipment undergoing repairs and maintenance in preparation for the coming summer, and we anticipate a record year in all aspects (providing the weather obliges!). One major factor which will help towards this end is that we now have a C.F.I.-Manager, after almost two years of blood and tears, in the capable form of John Jeffries. We wish him well in this arduous task, and feel confident that his infectious enthusiasm will result in a good deal more flying and a lot less complaining! Our Chairman, Tom Zealley, and Hon. C.F.I., John Hands, are to be congratulated for their untiring devotion to the club's affairs, and wonder how it is that wives and employers have not given them the sack!

One innovation this year as far as the London Club is concerned is the introduction of courses and one-day visits for organized youth groups. The club has offered special rates for "off peak" periods and some County Councils in the area have agreed to subsidize the cost of gliding by certain categories of youth groups to the extent of 50%.

The Lasham-Dunstable "Battle of the Plate" has temporarily ceased, and honours are now even.

M. P. G.



An igloo at the Long Mynd.

MIDLAND

THE date of our dinner-dance was changed from the 11th to the 25th March to avoid clashing with the B.G.A. Ball and A.G.M.

A second Olympia 463 has been ordered and judging by the utilisation achieved with the first 463 it will have a busy life.

Flying statistics for 1965 reveal that privately owned aircraft averaged 52 minutes per flight and club aircraft averaged a fraction over 20 minutes per flight.

The seasonal weather has given opportunities for the traditional winter sports such as ice-skating and the unique sport of ice-bungy. The requirements are an old bungy rope for motive power, beer trays to sit on and a frozen pend. The acceleration is exhilarating to say the least.

We hope that by the time these notes are read, the igloo built outside the hangar will have melted and we are able to fly again.

K. R. M.

NEWCASTLE

AT the time of writing the weather has managed to hide our site beneath extensive snow drifts yet again. However, somehow we have managed to keep flying and there have been one or two good days when the winch was not bogged axle deep, and we have managed to get in some hill soaring.

Last time, I reported that the G.P.O. had begun work on our telephone. At last I am able to report that the 'phone has been installed and our number is Wainstones 434. This should make cross-country retrieving a good deal less of a hit or miss affair than it has been to date, and we feel it is a significant step forward when one considers the difficulties which have had to be overcome.

Plans for further improvements to the site are taking shape, and it is hoped that these can be put in hand without interfering with our site grassing project, which certainly seems to be having the desired effect. An ambitious group of members, dissatisfied with the accommodation offered by the present temporary clubhouse, are planning to start work on the construction of a new permanent

clubhouse as a long term project—I foresee much hard "graft" ahead!

Treasurer Adam Dodds announced at the A.G.M. that in spite of the poor flying last year we have managed to pay off a substantial part of our debts and still made a small profit. What we really need now is more members from our current publicity campaign. B.W.B.

SOUTHDOWN

NOVEMBER was for us the best winter flying month for several years. Although only 169 launches were recorded, 72 flying hours were achieved (an average of 26 minutes per flight)—and these mostly training flights, using hill, thermal and minor wave lift.

Geoff King completed his Silver C with a commendable flight along the Downs to Midhurst.

Following a successful expedition to the "Centre de Vol à Voile", Fayence, France, last summer, a larger party are planning to go this year.

E.M.K.

STAFFORDSHIRE

AS we put away our retrieve boats and remove the spinnakers and floats from our gliders and tug, we look forward to landings back on terra-firma once again and to the approach of the soaring season with high hopes encouraged by the ten Silver C legs completed in 1965.

The A.G.M. on 1st February went off well with a vote of confidence in the 1965 committee in the form of a proposal that all members of the retiring committee, who were prepared to accept office in 1966, be re-elected en bloc. This was seconded and carried unanimously.

Lt.-Col. Christy, who is already instructing and tugging, was elected Vice-Chairman. Her experience gained while associated with several other gliding clubs should be most useful. The retiring committee's proposal to raise entrance and annual flying membership fees, and to introduce family membership at special rates, were carried unanimously.

It is with regret that we have to



A non-flying day at Firle Beacon.

report the departure recently, after a relatively short and very pleasant association with us, of instructor Chris. Duthy-James as C.F.I. Designate of our new neighbours Burton and Derby Gliding Club. We look forward to many happy associations and possibly joint enterprises.

When Alistair Wright, our usual contributor, recently had to fly to South Africa he felt, having read about Caroline Rowe's 33,000 ft. in Colorado in the last issue's Club News, that he already knew her when she turned up as a ground hostess on his flight. Quite a coincidence.

R. W. J.

YORKSHIRE

OUR somewhat violent development programme is now at white heat with the airfield looking more like a battlefield every day. Two strictly non-flying machines are busy digging the trenches for a comprehensive drainage scheme. By the time you read this we should be busy annihilating 80 acres of heather, levelling and sowing the grass.

A Piper Super Cub has now been purchased. We very much hope that its more powerful engine, better rate of climb and excellent low speed characteristics will more than compensate for its slightly greater hourly fuel consumption and result in an attractive launch cost.

We are in the process of replacing one of our T-21's with a laminar two-seater to provide smooth progression from T-21 to Swallow and thence to Skylark 2.

A new dormitory wing is now in course of design to accommodate 20. The layout consists of two 4-seaters and six 2-seaters, each with h. & c. and central heating.

Fitted carpet, new chair covers and cushions, etc., now adorn the lounge and bar which, together with a major effort on the part of most members in the capacity of interior decorators, has provided us with very comfortable and attractive indoor facilities. New "olde worlde" dining furniture has effectively removed the "air raid canteen" atmosphere from this important department and our Stewards are now planning the menus.

The new hangar for private owners is about to go into the design stage as is

airfield communications and winching facilities.

We have published our first comprehensive tariff and anyone who would like to see it and comment please let us know. We don't wish to compete on this front without justification.

Our members are now busy recruiting both flying and associate members. It is quite clear that the cost efficiency of our club, and I suspect most others, is profoundly related to maximum utilization of all facilities, both indoor and out.

E. R.

SERVICE NEWS

AIR TRAINING CADETS

(643, R.A.F. Hemswell)

AS this is the time for looking back on the achievements or otherwise of the past year, it might be of interest to you "Civie types" to know how the other half have fared.

Covering the country there are 26 Air Training Cadet Schools which operate at week-ends, and one or two weeks courses in the summer. Most schools are equipped with five gliders, T-31's and T-21's, two twin-drum winches, and two or three M.T. vehicles. Occasionally a Prefect or a Swallow is made available to a school for a few week-ends. In addition there are two gliding centres operating on a full-time basis.

The main effort of the Air Cadet Gliding Movement is directed towards obtaining the A and B certificates, but 219 Cadets completed a 30-launch Advanced Course, similar to the new Bronze C (less duration flights and fifty P.1 launches), and 64 of them gained C certificates. Giving Air Experience flights accounted for most of the remaining launches shown in the annual statistics, bringing the grand total of launches up to 182,000. These totals are not quite as high as last year due to the unfavourable weather from which we have all suffered.

M. S. D.

BANNERDOWN (Colerne)

EVEN January's white mantle did not keep us on the deck; the 22nd saw operations in icy conditions and 6 inches



Flying in the snow at Bannerdown.

of snow. The first thermal of the year came on the 30th when Mac Macintyre flew for 20 minutes. Ground work has not been neglected and most week-ends have seen the faithful.

Publication of the revised syllabus for flying training has shown that a great deal of thought has been given to more thorough and varied curriculum. The intention is clearly to ensure higher standards all round. Systems in which pilots regularly return to the two-seater for further advanced instruction are in use in many other countries, for the operation of a wider variety of high performance sailplanes calls for high standards of pilot ability.

STOP PRESS.—We are sorry to report that our assistant secretary, A. "Curly" Kingstone, died on the 8th March following an accident. He was formerly a member of the Laarbruch Club.

P. H.

CHEVIOTS (Acklington)

AFTER a long absence from print, we have to congratulate John Clark who obtained the club's first ever Gold C height while doing his five hours on our ridge at Chillingham; he climbed to 1,000 ft. and then flew the 20 miles back to Acklington.

On the aircraft side our T-31 and SF-26 have been re-allocated, and our Grunau Baby 2 went the way of most Grunaus—glue joint failure. To replace these we have a shining new Ka-6 and

a wheeled and canopied Grunau Baby 3; these with a T-21 and an Olympia now constitute our fleet.

A new tractor has also been put into operation, the old one caused one member to have three stitches in his head when it back-fired on him.

Socially the club took a great step forward when the bar was finally opened on a permanent basis in December, and several highly successful parties have been held. It has also helped to arouse interest in the club and boost membership.

Our programme includes exploring more ridges by using our newly acquired mobile Pfeifer winch, and more expeditions to Chillingham, which we think is as good a ridge as any in the country.

Visitors are welcome any week-end or Wednesday night.

C. G. T.

CLEVELANDS (Leeming)

DESPITE not appearing in print for nearly a year, activity has not ceased on the airfield at Leeming—quite the reverse. The club activity and organisation have gone from strength to strength and membership has nearly reached the century.

Equipment always tends to be neglected during the season and several stalwart members have been spending a lot of time recently putting it to rights after the havoc wreaked by last summer's activities. However, the biggest single contribution has been made by our Army members from Catterick who have completely overhauled and fitted diesel engines to two of our winches, a most magnificent effort.

Our club fleet has changed considerably over the past year. The poor faithful old Kranich suffered glue failure and has been replaced by a gleaming Ka-7 (it's not the same!). In December, Gerry Kemp took to spending six nights a week in the workshop, together with our rather battered Olympia 2B. Then, last week, appeared in the centre of the hangar a beautifully finished 1965 model Olympia, completely rebuilt.

Situated as we are on the A1, we would like to invite anybody travelling along it to drop in and see us. We have a good bar and you would be most welcome.

P. H.

FENLAND (Feltwell)

FLYING has continued during the winter weather, and 1,044 launches have been achieved during the first quarter.

Congratulations to our C.F.I. Colin Elliot on receiving a Silver Medal as runner-up in the Bomber Command individual competition.

Len Tanner has taken over the onerous post as club treasurer.

The club's height record, on the cable, has been increased to 2,800 ft.

An ab-initio course is being run on the 28th March, and we hope to train twelve new pilots to solo standard.

R. G. J.

FULMAR (Lossiemouth)

A recently instituted recruiting campaign has (whether by accident or design) resulted in half a dozen new members of the fair sex whose presence, it is hoped, will make the campaign organisers' task an easy one. For added publicity we struck camp and moved to R.A.F. Kinloss for the week-end 12th-13th February and experienced our first thermal lift this year when other parts of the country were under deep snow.

C.F.I. Jim Gunter has been able to hand over the onerous task of Secretary to Peter Coward and now has more time to devote to flying. John Stanley has taken over as Treasurer from Robin Newington.

Our only trophy, for absolute altitude, was retained by Derek Marpole but several self-sacrificing types have already expressed the intention of relieving him of the chore of polishing it next year.

Our new Swallow was collected from Slingsby's in January and several members have been promoted from the Prefect. With aircraft and launching equipment in excellent condition and spring not far off, a fresh enthusiasm pervades the club and we are resolved to make this the club's most successful year.

H. D.

ADEN SERVICES

AFTER a lay-up of some five months, due partly to the "hot season" and partly to the tremendous amount of aircraft maintenance required, the Swallow spread its wings in mid-November. This was followed by a completely re-covered T-31, then the Olympia 401 and the T-21. Our other T-21, unhappily nicknamed "The Yellow Peril", is about to change its jaundiced skin.

On the M.T. side the Nuffield Trust have bestowed their blessings upon us in the form of two "Nissan Patrols" which with their four-wheel drive and six cylinder engines provide ideal desert transport and tow-vehicles.

With five full category instructors and an equal number of assistant instructors flying takes place every afternoon and all day Sunday; and two or three mornings of the week are now being utilised by the shift workers!



Part of the Aden fleet lined up.

Soaring in Aden from October to May (the cool season) is regular although—apparently due to being on the coast—it is exceptional to make a climb above 4,000 feet. Cross-countries, which are such a temptation, are not permitted at present.

Next October our C.F.I., Jack Harrison, hopes to run a month's soaring camp in East Africa, taking the Olympia 401 by air transport.

Our best wishes go to Charlie Donaldson and Terry Braganza who will shortly be joining "Four Counties" and the "Centre" respectively; also we extend a welcome to Don Spottiswood and Pat Sassi.

S. A. J. M.

CROSSWINDS

(Butzweilerhof, Germany)

THE Crosswinds G.C. was inaugurated in 1964 at Flugplatz Butzweilerhof, which lies in the outskirts of Cologne. It is reputed to be the oldest airfield in Western Europe and was the site chosen for the World Gliding Championships of 1960. The club-room and bar were opened in time for the Royal Air Force Germany Championships in 1964, but the club did not become operational until August of that year.

Much to the amusement of the six German gliding clubs with which we share the airfield, we fly our complete fleet (comprising the two T-31's and two Grunau Baby 2B's) in non-soarable weather. On soaring days, we wait patiently in the queue of Ka-6's, 7's and 8's with the occasional Vasama and Phoebus striking a brilliant contrast.

We held a successful ab-initio fortnight last year, for which we had the temporary services of Tony Phipps with his T-21 from the Nimbus G.C., and Rudolf Rübesamen with his Ka-7 and Tost double-drum winch from the Köln Polizei Sportverein.

We have always maintained a close liaison with the Polizei club and last August pooled our resources for a joint expedition to Lachen Speyerdorf in the heart of the grape-growing country near Heidelberg. Needless to say, many of the local wines were sampled and enjoyed. In the absence of our acting C.F.I., Terry Slack, Dick Barratt from Nimbus G.C. offered to lead the expedition and

brought the Nimbus Olympia 2B and two Oly pilots with him.

Although the weather did not reach expectations, all of our Grunau pilots present gained their long-awaited C certificates. Andy Price from Nimbus completed his Silver C in the Olympia, with a flight of 53 kms. over the Rhine and into the hills beyond. His previous attempt carried him 20 kms. down the Rhine valley and he returned 40 minutes later in a U.S. Army helicopter which "just happened to be passing by", having left his glider in the capable hands of two village glider pilots. With a long face, he then organised a crew and drove off to retrieve himself.

Our founder C.F.I. John Wombwell has been replaced by "Spike" Jarred.

A.C.P.

STOP PRESS: We are sorry to report that on 6th March "Spike" Jarred and his passenger, J. McIlwaine, flying in a T-31, were involved in a mid-air collision with a German glider and all three pilots were killed.

CRUSADERS (Cyprus)

THE Crusaders are now doing the majority of flying at the Kingsfield site, and aircraft utilisation is rising quickly. More soaring is being achieved, and new members are coming along. Both trailers, for the T-21 and the Swallow, are now in regular use on the 120 mile return journey (aircraft are brought back for servicing) and are most satisfactory. The total cost of the two was under £20!

A very successful dinner was held at Christmas, when we "dined out" Penny Potts, and awarded the Andy Marshall Trophy to Harry Oxer. The latter, who is our Secretary and Treasurer, is shortly leaving for the U.K.

The club is rather proud of its achievements over the past year, which include 3,500 launches, 390 hours, 22 A and B's, 17 C's, and 3 Silver height legs. Two trailers have been designed and built, and a new site opened up. All this with a membership of 90% ab-initio at the beginning of the year.

We hope to get a new Swallow as an addition to our fleet by the summer, which will give more opportunities to our solo pilots.

H. F. O.

FAR EAST AIR FORCE (Singapore)

GLIDING has come to Singapore. By the time this is read, the F.E.A.F. Gliding Club will have started training within the complex of airways and control zones which surround the island.

Piloted by C.F.I. Rip Kirby, the club will train to C standard at Sembawang, only eight miles from Paya Lebar, the international airport on the island, and run camps at Kluang in Malaya, 80 miles north of the main base, for soaring during the "dry" season. It is hoped to get at least one advanced two-seater to keep the present private Austria SH company at Kluang, and to practice cross-country work dual before deciding on solo attempts in club aircraft.

At the moment the club has one T-31 with a further T-31 and Tutor to come. Not an exotic mixture, but the inch having been taken will open up many miles of flying in consistently good (superb by U.K. standards) gliding opportunities for the club in the future.

R. A. H.

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R.A.F. GERMANY GLIDING ASSOCIATION

THE only activity for this period that can be reported on briefly is the R.A.F.G.G.A. Wave and Winter Soaring Expedition at Issoire. "Briefly" because the Expedition is still going on at the time of writing; the last glider and pilots are returning 21st February.

This has been somewhat of a "de-centralised" expedition in that there have been three Association Aircraft (Swallow, Olympia 463 and Ka-2) stationed down at Issoire since the end of December and parties from all the R.A.F.G. Clubs coming and going all through the period. There have been three Gold heights gained: Andy Price and Norman Smith each to nearly 20,000 ft. a.s.l. and Ray Passfield to 18,000 ft. a.s.l. (airfield height is 1,300 ft. a.s.l.). In addition there have also been quite a number of wave trips in excess of 3,000 metres by those already having Gold heights, but none unfortunately to the magic 5,000 metres yet.

For the Swallow pilots there have been four Silver durations, three on the local hill of Le Broc (Ken Phipps, John Buckles and Ray Passfield; this completed the latter's Silver C) and one in wave. For those who got tired of soaring in straight lines, there were a surprising amount of good old-fashioned thermal soaring trips; flights of up to 2½ hours in 2-3 m/sec, cloudbase up to 6,000 ft. a.s.l. were recorded, which is not bad for January in Europe. This all goes to sum up that Issoire is a fairly remarkable site, ably presided over by the "Chef du Centre", Mlle. Denise Trouillard, who spared no pains to ensure that all foreign pilots got as much soaring as possible; so far, the R.A.F.G. G.A. Expedition has put in approximately 170 hours.

L. S. H.

TWO RIVERS (Goch, Germany)

AFTER many years without a name, the club has decided on a title for itself. Many heated liquid discussions finally produced the "Two Rivers G.C.". The name evolves from our close proximity to the rivers Maas and Rhine.

We have been experimenting with auto-tows during the last few months,

but so far we have had only limited success.

A Dornier Do. 27 has been made available to us for aero-tows. The summer's longer days should see very full use being made of this very interesting aircraft. Our thanks go to Ricky Kraft and his friends for their help.

Jack Collins has taken over as C.F.I. from George Ross. George and Cliff Brookfield have left us for the U.K.

Plans for the coming year include a fortnight's camp at De Peel in Holland during May, and a wave soaring expedition to Zell-am-See in November.

R. A. B.

OVERSEAS NEWS



P. K. RUMM

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

SUBSIDY REVIEW. — Commonwealth grants to gliding are fixed for a period of several years and then reviewed, so the Gliding Federation of Australia has submitted revised proposals for the new period about to begin.

Formerly £3,000 p.a. was distributed to clubs, half of it in proportion to membership and half on the basis of certificates gained. But gliding has grown enormously since the subsidy started, and the G.F.A. asks for a five-fold increase in the membership subsidy and a doubling of the amount for certificates. £2,000 was allotted for central administration; a large part of this went for design and development of Australian gliders, and more than double the previous amount is asked for, so that design costs will not cause native gliders to be priced out of the market by imported ones. An increase of the £1,000 for the National Gliding School is also asked for, to help to establish new sites for advanced training courses "in strategic areas".

MIXED FLYING. — At Renmark, where powered and unpowered aircraft use parallel strips, priority of launch depends

on which happens first — the Cessna 172 swings into wind, or the glider wing is held level and bats are signalling for take-off. The aeroplane does not take off while the glider cable and drogue are still airborne.

NOVEL HANDICAP SYSTEM. — Richard Deane proposes (A.G. Jan. '66, p. 22) a handicap scheme based on the polar curve of each competing glider, from which the maximum cross-country speed is calculated, based on the average thermal strength along the course of the day's task — or, if the strength varies, for each section of the course. Thermal strength is calculated from the winner's performance.

HISTORY. — The first glider flight in Australia was in December, 1909, by George Taylor in New South Wales. The first formal club was Grandville Gliding Club, founded in N.S.W. in 1926, which continued until 1930. Many more clubs were founded in 1928, but of these only the Gliding Club of Victoria (founded as Melbourne G.C.) now survives. The Gliding Federation of Australia was founded in 1949 and formally constituted in April, 1950.

Australian Gliding

AUSTRIA

AN article in *Austroflug* sings the praises of a little-known site at Turnau, where for the first time two pilots made Gold C climbs in a foehn wave on 27th September last year. Waves can be contacted in foehn winds from both north and south, in the latter case from a soarable slope. Flying activity averages 1,000 launches a year with 600 flying hours, and many distance flights are made.

Austroflug

BELGIUM

COMING events for this year are: National Championships at St. Hubert, 14th-22nd May; Regional meeting at Balen, 28th-30th May;

Meeting at Tempoux, 21st July;
Meeting at Gand (Ghent), St. Denis Westrem, 14th-16th August.

Conquête de l'Air

CANADA

THIS big news this time is the move to a new site by the York Soaring Association (York County, Toronto, Ont.). This small but energetic club has leased the former airport of Orangeville, Ont., and is planning to have a very active season. Facilities at the new site include, besides hangars and three-storey clubhouse, a swimming pool, a tennis court, and just about anything one might expect at a country club. It is planned to have towing facilities available throughout the week for licenced pilots.

A newly formed club in the Montreal area, the Champlain Soaring Association, is also planning for a season's activity, although the base of operations is not definitely decided on yet. There are several possibilities under review.

At the new site of the Southern Ontario Soaring Association near Sheffield, Ont., the hangar should be completed some time in March; it is quite a structure, professionally built.

In new equipment, the Windsor, Ont., Club are acquiring a new K-7, after selling their former Schweizer 2-22 to the Chatham, Ont., Air Cadet Squadron. A used Bergfalke is being imported by a syndicate near Vancouver, B.C. — all the way from Finland! A number of

home-built sailplanes should see the air this year, including two or three Cherokee II's, one or two BG-12's, and a number of HP-11's.

The Annual General meeting of the Soaring Association of Canada is scheduled for early April, and the officials have their hands full with various tasks in the meantime, such as border crossing procedure for pilots who go cross-country to the U.S.A., to mention just one.

People who imagine Canada as a cold, wintry country might be surprised to hear that a soaring flight took place on New Year's Day at Goodwood, Ont., with Willy Krug keeping the syndicate-owned Austria aloft for over half an hour.

ONTAERO

DENMARK

COPENHAGEN'S Polytechnic Flying Group is producing a new high-performance Standard Class sailplane, the Polyt IV. The wing, which has an Eppler 450 section, has no internal structure except for two spars; between the spars the skin is of aluminium honeycomb; over the leading and trailing portions it is of glassfibre foam sandwich. Airbrakes are placed well back. The outer wing portions are tapered; the ailerons do not extend as far as the wingtips. The fuselage and tail are made of glassfibre and balsa as used in the Brunswick machines SB-6, SB-7 and D-36.

Span is 15 metres, aspect ratio 18, empty weight 110 kg. (242 lb.), wing loading 25 kg./sq. m. (5.12 lb./sq. ft.). Best gliding ratio (estimated), 38-40 at 90 km./h. (56 m.p.h. or 49 kt.). The machine is designed for optimum cross-country speed with thermals of 1-2 m./sec.

Longest flights in Denmark in 1965 were 737 km. by H. Marqvardsen and 690 km. by K. Wiehe.

Flyv

EAST GERMANY

HIghest scorers in the 1965 decentralised contest were, in order, Walter Raap, Horst Rakowski, Udo Elke, Bernd Nolte, Manfred Iltche, Adolph Daumann, Klaus König, Manfred Warstat, Manfred Blauert, Hans Schmidt. Each earned points for his three

best flights, the winner's score being 16,310. Blauert and Nolte were to have represented East Germany at the World Championships.

This year's decentralized contest, open from 15th March to 30th September, will be divided into two classes: Class A for all sailplane types, and Class B for sailplanes with a gliding ratio not exceeding 1:32. Any pilot may fly in both classes, but any one flight is only eligible in one class, though a pilot can transfer a flight from Class B to Class A if he gives notice before 14th October. Pilots must have the Silver C.

This year's National Contest, with international participation, will be at Gera-Leumits Flying Club from 21st May to 5th June. There will be two classes: Class A for aircraft with laminar-flow wings, and Class B for aircraft with "classical" wing profile flown by pilots aged 26 or under. Only Class A may carry radio.

Aerosport

FRANCE

A new national gliding organization, the Fédération Française de Vol à Voile, has been formed by the division of the Fédération Nationale Aéronautique into three autonomous bodies, the other two being concerned with power flying and "aeromodelisme". The original Federation still exists as a "Confederation" for relations with the government and problems of mutual interest. The parachutists already had a separate Federation.

M. Mudry, Chairman of the gliding body, in an interview, mentioned as some of its objects the encouragement of youth, courses for instructors, the holding of "veritable" French Championships preceded by regional eliminating contests, the intention to make its views heard on the subject of airways restrictions, and the setting up of eight special commissions for instruction — competitions, publicity, etc., and a working group for "financement".

STATISTICS.—Total flying during 1965 was about 95,000 hours from 180,000 launches. Certificates were 1,131 C; 388 altitudes, 304 durations and 229 distances for Silver C; 103 altitudes and 27 distances for Gold C; 41 altitudes, 16 goal flights and 4 distances for Diamonds.

WAVE SITES.—Saint Auban beat all records in 1965 with 8,130 gliding hours (including 2,423 hours with dual control) and 213 course participants (163 in 1964); 57,415 km. were covered among the mountains. Certificate legs numbered 190, made up of 3 altitudes, 3 durations and 8 distances for Silver C; 91 altitudes and 2 distances for Gold C; 81 altitudes and 2 goal flights for Diamonds.

A recent north-westerly spell at St. Auban brought 11 Diamond climbs, 11 Gold C and a Silver C climb. These included absolute altitudes of 7,180 m. (23,560 ft.) by Jean-Paul Poindextre of Fayence and 7,020 m. (23,030 ft.) by Michel Aperce of Bordeaux. Again on 14th February in similar conditions 6 Diamond and 6 Gold C climbs were made.

Fayence had good days on 13th and 14th November last, with a mistral blowing at 20 kt. at 5,000 ft. increasing to 50 kt. at the tropopause at 30,000 ft.; 10 altitude gains exceeding 3,000 m. included absolute altitudes of 6,500, 6,400 and 6,300 m. (around 21,000 ft.) Total flying time for 1965 was 5,204 hours. Certificates and "legs" for the year were: 28 C, 6 five-hours, 3 300-km. distances, 11 climbs of 1,000 m., 33 of 3,000 m., and 14 of 5,000 m. There are 12 sailplanes and 5 tugs.

At Beziers (Midi) during November and December, 10 climbs of between 3,800 m. and 6,500 m. were made.

Air et Cosmos and *Aviasport*

HOLLAND

MOST of our flying news happened outside the country; the safari at Innsbruck was, alas, without success, but six of the pilots who went to Issoire came back with Gold C or Diamond heights.

In South Africa W. Boon, with Bebbington as passenger, flying a Ka-7, set up new Dutch records for two-seaters. On 1st January they flew a 100-km. triangle in 1 hr. 19 min., and the following day they did an out-and-return of 272 miles (420 km.). They took about six hours to complete this task. On the same day Ed Verpraet, flying a Skylark 3B, broke the out-and-return record with a flight of 308 km. On 14th January W. Boon also completed his 500-km.

for another Diamond. Dutch-born K. Goudriaan completed a 300-km. triangle at 92 km./h. and also flew a 518-km. out-and-return. P. Huhne claimed his Gold C and one Diamond. (All records subject to homologation.)

At Issoire J. v. Leeuwen, H. de Nie, I. Kassai and A. Szabo all completed their Gold C with 3,000-m. climbs, and J. v. Steinvoorn and I. Kassai also gained Diamonds for height.

THE DUTCH NATIONALS will be held, as usual, at Terlet from 24th May to 3rd June. Because of the limited number of entries, about 32, a second contest for young and upcoming pilots is being planned.

Jan Minoli, Terlet's permanent instructor, has left Terlet to take up a post at a power flying school at Beek.

Following the example set by the Kronfeld Club, an art exhibition will be organised later in the year.

Private owners have ordered five Foka 4's and we are looking forward to seeing their performance against the existing Ka-6's in Holland.

J. TH. VAN E.

IRELAND (Dublin)

SOME important changes were made to the structure of the Committee at the last A.G.M. In general, the Committee was enlarged slightly to carry on the administration of the Club proper, and several sub-committees were formed to do the actual labour. Also, a new rule has been introduced whereby every member must contribute 20 hours' labour to the club each year.

Our new clubhouse is erected in Bal-donnel; fully rain-proof, if not wind-proof as yet. Once the draughts have been eliminated and C. of A. overhauls start, the 20-hour minimum should be easily exceeded. Happily, Government action (or inaction) has almost eliminated the threat of our eviction from Bal-donnel, in favour of VC-10's and Boeings.

Like most other clubs in this hemisphere, our flying has nearly stopped, due to unfavourable conditions and flu. However, we recently found that our Beagle Terrier tug (with heated cabin) could operate much more economically while tugging than joy-riding. Whaddaya-know!

C. G.

ITALY

"VOLO A VELA", the Italian gliding magazine, celebrates its 20th anniversary with the January issue. It is extremely well produced on high quality paper and is published at the Alpine gliding centre: "Centro Studi del Volo a Vela Alpino, Varese, Aeroporto Calcinato del Pesce", the foreign subscription being L.4,200 for a year, L.7,400 for two years, or L.700 for one copy. Plinio Rovesti is the editorial director.

The "S. Pedrino" trophy, founded in 1962, is awarded annually for cross-country flying, evidently on the basis partly of total distance and partly of average distance per flight. Highest scores for 1965 were:—

Pilot	Flts.	Km.	Pts.
Adele Orsi	33	4156	5363
W. Vergani	18	2938	3733
U. Bertoli	11	2077	3104
G. Giusti	18	2390	3046
Della Chiesa	14	1986	2413

MALAYSIA

THE writer has been gliding on and off since 1954, has been living in this part of the world since 1957, and has been a member of the Perak Flying Club, Ipoh, the only club in this country offering gliding facilities, since 1962. The last published report — by "Pedro" — about the Perak Flying Club was in the News Section of SAILPLANE AND GLIDING in August, 1961. There haven't been many changes there since then. I used to go to Ipoh practically every second week-end when I was stationed in Kuala Lumpur and later in Penang and did quite a lot of gliding there. Last year I was transferred to Singapore and I got a bit out of touch. However, I hear that the T-21 as well as the Tutor and the Olympia are still actively flying.

Last year I purchased a Standard Austria SH. I haven't flown it very much yet since I was busy building a trailer. With the kind help of various members of the Far East Air Force Gliding Club, Singapore (they are expecting their first glider, a T-31, to arrive any time now), I obtained permission from the Army Air Corps, Kluang, to fly at Kluang aerodrome, about 60 miles north of Singapore. Allan Hardon, honorary secretary of the F.E.A.F. Gliding Club, has

been going up with me to Kluang regularly, sharing the flying with me. Nigel Stevenson, who is stationed in the Navy here, also came along once. However, he has been at sea too frequently to come more often before the monsoon brought our gliding activities to a temporary halt. We get launched by aerotow. The Royal Singapore Flying Club is sending one of their Cessna 172 aircraft regularly up to Kluang for parachute jumping and they have installed a tow-hook for us.

Thermal conditions at Kluang are very good, better in actual fact than at Ipoh, and convection always starts quite early. However, cloud base is mostly low (about 2,500 ft to 3,500 ft.) and thunderstorms tend to develop quite frequently in the early afternoon. I hope to get my gyro instruments (T. and B. and Bendix J8 horizon) working soon and shall then try some cloud flying. I haven't done any cross-country flights out here yet, neither have cross-countries ever been carried out from Ipoh. Unfortunately suitable landing grounds are very scarce in Malaya, but there are landing strips up and down the country at distances of about 20 miles on the average, built during the emergency. I hope to be able to report on my first cross-country flight in Malaya some time later this year.

P. GREHL

POLAND

THE Polish Technical Review for 1965, just issued in English by the Saward Baker firm, has a comprehensive article on "The Production of Gliders in Poland". Starting with the first National Championships in 1923, when nine gliders of original Polish design took part, the movement grew until in 1939 there were 1,200 gliders, 100 gliding schools and 14,000 pilots who put up 11,000 flying hours and covered 45,000 km. across country.

Only three types, the Salamandra, Orluk and Zaba, outlasted the war; then an Experimental Institute was founded at Bielsko. A list of the numbers of each type produced since then is given: it is headed by 310 Mucha-100, 286 Mucha Standard, 284 Salamandra and 241 Bocian. There have been also 136 plain Muchas, 150 of the Jaskolka, and 116 of the Foka-C and Foka 4.

Another article describes cockpit instruments and the "SAT-5" oxygen apparatus, designed for heights up to 12 km. (40,000 ft.). This apparatus operates on the continuous-flow principle with stepwise control of the oxygen percentage as a function of altitude; also "an emergency flow nozzle for use when the pilot feels unwell." In the future it will include light oxygen tanks made of laminates to save weight, and two or more tanks can be mounted simultaneously.

The Institute at Bielsko (SZD) is the first to receive a newly introduced FAI technical Diploma, *Skrzydla Polska* writes.

RHODESIA

WE are still managing to fly in spite of Dear Old Harold. However, we won't be able to do any cross-countries unless we do some horse-drawn retrieves. Any donations of petrol gratefully received.

G. HIRD

SOUTH AFRICA

E. "Boet" Dommisse, of Pretoria, has announced his retirement from gliding at the age of 53. He began gliding in 1937, and since then has put in 1,200 hours in sailplanes and 750 hours' power flying. He has been National Champion five times, has the Gold C with Diamonds, and his last record was the 500-km. triangle at 107.4 km./h. in his BJ-2, which he also flew in the World Championships last year.

Australian Gliding

SOVIET UNION

NATIONAL RECORDS. — On 22nd May, 1965, Master of Sport E. Anakhova set up a new Soviet speed record for women by flying a Blanik over a 100-km. course at 75.9 km./h., thus breaking the record of Nasanova by 3.7 km./h. On 28th July, First Grade Sportswoman L. Khomenko from Rovno broke the Soviet woman's out-and-return record by flying 353 kms. exceeding Samossadova's record by 16 kms.

A new Soviet out-and-return record of 504 kms. was set up by Master of Sport A. Yonushas, from Kaunas, on 19th July, 1965, in an A-15 sailplane. This flight breaks V. Goncharenko's

record (described in SAILPLANE & GLIDING for Dec.-Jan., p. 487) by 26.6 kms.
Translated by C. Wills from
Krilya Rodiny

SWITZERLAND

THE DIAMANT.—The firm producing this new all-glassfibre machine, described in SAILPLANE & GLIDING for Oct.-Nov., 1965, p. 400, has published the results of a series of comparative trials carried out by the Zurich Academic Aero Club, with a Ka-6BR, Ka-6CR, Ka-6E, Edelweiss, Phoebus and Austria SHK. But, owing to the small numbers of measured points, the resulting polar is a band rather than a line. It shows a best gliding ratio between 35 and 39 at 95 km./h., a minimum sink between 0.65 and 0.70 m./sec. at 80 km./h., not quite as low as the SHK, equal to Ka-6CR, and lower than Phoebus, Edelweiss and Ka-6BR; and a sink of nearly 2 m./sec. at 150 km./h., slightly more than SHK, equal to Phoebus and better than the 2.11 m./sec. of Edelweiss and the 2.48 m./sec. of Ka-6E.

Air et Cosmos

UNITED STATES

NATIONAL SOARING CHAMPIONSHIPS. The site of the Championships has been changed from Douglas County Airport, forty miles south of Reno, to Stead Air Force Base, eight miles north of Reno. This base is being deactivated and will provide both better facilities and a superior site from which to soar. The valley in which Douglas County Airport is located is afflicted with quite stable marine air pouring over from Lake Tahoe. In spite of that, we had many flights over 300 miles in the Western Regional Soaring Championships we staged in August. The Stead location, in addition to being roomier and closer to the abundant hotels and facilities of Reno, provides superb soaring,

And, of course, there is always the enticing possibility of a standing wave. While this will be a little late in the year, wave activity does occur during the summer months and, should it occur during the contest, everyone will have an opportunity for most unique flights. While during winter and spring we are

blessed with opportunities to fly well above 30,000 feet, we have made flights to 25,000 feet during the summer months.

The area about Reno is located in the high desert region of Nevada. Most soaring will take us eastward, over a high desert plateau ranging above 4,000 feet. This means that we are not afflicted with the blistering heat of Texas and Southern California, and our soaring possibilities seem to be just as good. Actually we have only begun to explore soaring possibilities in this region.

L. H. GOULD, President
Nevada Soaring Association

WEST GERMANY

YOUTH EXCHANGE. — The Luftsportjugend section of the German Aero Club has arranged several exchange camps for young glider pilots of other nations, each lasting 16 days. There are 4 joint camps with the French, one with Austrians and one for British and German pilots (age 16-25) at Hirzenhain/Dillkreis from 7th to 22nd June (see separate announcement, page 127).

GLASSFIBRE NEWS. — The Libelle (H-301) received its Airworthiness Certificate on 19th August last, and has since been passed for cloud flying. The rough-air maximum of 175 km./h. has been raised by slight alteration to the fuselage, and it is hoped to raise the smooth-air limit to 200 km./h.

EUGEN HANLE

KRONFELD'S BIOGRAPHER. — Dr. K. Theodor Haanen, author of a biography of Robert Kronfeld (reviewed in SAILPLANE & GLIDING for April, 1963, p. 141), died on 8th December last, aged 73.

Der Flieger

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