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Cover photograph: Dart 17 flown by Nick Goodhart returning to Lasham. *Photo by Peter Browne.*

Published by the British Gliding Association, 75 Victoria Street, London, S.W.1. 01-799 7548/9

Printed by Hampshire Printers Limited, Basingstoke, Hants.

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THE ELEVENTH WORLD CHAMPIONSHIPS

IT seemed remarkable to be thinking about 1970 before one had even arrived home from the 1968 Championships, but for reasons both expected and unexpected, Leszno highlighted the end of an era. Since 1948, twenty years ago, the World Gliding Championships have changed gradually but steadily, from a small International get-together run by amateurs (in the best sense) to a very expensive world event. Now there is so much money tied up, and so many valuable people involved, that no longer can any chances be taken of having a championships which, weather apart, does not make the best use of the talents, skills and superb equipment present.

From the point of view of teams entered by countries where there is little soaring, there is a further problem. Up to the present, pilots with minimal experience of competitions have been able to gain a great deal from their participation in a World Championships; from now on the equipment and techniques required are likely to possess such a degree of sophistication that "small" countries may find it is increasingly less worthwhile to come, other than as observers. This would be a great pity.

To give a simple illustration of fact of what is now involved, a single gaggle drooping gently around at 1,000 ft. on the edge of the airfield one day was worth £70,000 in basic hardware, without even starting to consider putting any value on the human contents.

So between now and 1970, there is a lot to be done, both internationally and here at home.

Gliders: In spite of present flutterings, there is no doubt that glass-fibre gliders are here to stay. In terms of basic manufacture, finish strength, resistance to superficial damage, ease of minor repairs, and appearance they are the best of the lot; if the world's brains are now devoted to overcoming certain stiffness shortcomings, the future for these gliders is immense.

The high cost of the development and production of good competition gliders is encouraging more entrants to buy aircraft of this class from those countries which have decided to concentrate on their production. At Leszno, the winning seven gliders in each class were: nine German (eight glass-fibre) and five Swiss (two glass-fibre). (It should be noted here that, among them, the highest placed pilot flying probably the lowest performance glider was George Burton!)

It is hoped, obviously, that more National constructors will produce and sell top-class gliders in order to keep world competitive development in an active state. Several nations are already working in the "Sigma" direction, and it will be interesting to see what comes out.

The Standard Class is not likely to produce much of a problem for 1970, as the Glasflügel Libelle, with or without the probable retractable undercarriage clause, seems to be the popular choice. Thereafter, the future of this class is full of interesting possibilities, as the "club glider" aspect is rapidly disappearing in favour of a straightforward restricted-design competition class.

Organisation: The sheer size of the organisation needed to cope with 100 or more gliders will tend, I think, to limit future championships to no more than this number, and these certainly divided into two classes. Apart from the operational problems, it is very important that the 500 competitors and participants from some thirty nations should be able to get to know each other and talk together. At Leszno this was almost impossible due to the difficulty in getting information on either flight results or social arrangements, combined with the fact that both café/bars were open to the public. This greatly and unnecessarily increased the number of "new faces". Future championships can provide their organisers with an absorbing exercise in communication theory.

Rules and Scoring Systems: It is now generally accepted that 20 years has been long enough for experiment in this fundamental aspect of championship organisa-

tion, and that FAI (CVSM) will need to produce basic international rules and scoring systems for future championships. These should allow modification by each Organising National Aero Club, but the need for starting from scratch each time would be eliminated, together with the risk of building in previous mistakes, or undesirable characteristics—such as the score of the top pilots being dragged down on days when the tail was incompetent.

Task Setting: This cannot be done by anyone other than the person(s) nominated by the Organisers; nevertheless, there are certain principles of task setting which they should be expected to take into account. It is accepted that at Leszno the task setting was restricted by political and security factors outside the organisers' ability to deal with. This brings the thought that, possibly, before taking on the organisation of a World Championships the National Aero Club should obtain agreement with the powers that be that sufficient freedom of air space will be made available to set reasonable tasks within the limits of the weather.

Future of the British Team: It is quite clear that if we wish to have any hope of winning in 1970, we must start our preparations now, and not wait until after the pilots are selected late in 1969. If we are to fly the best gliders we can get we must order them now, and find the money to pay for them. This summer it would be sensible to select a "probables" list of 10-15 likely pilots to start concentrating their efforts, fly any team gliders which could be made available, and if possible, be entered by the BGA to fly in foreign National Championships. There is altogether too much to be thought about, and done, to wait until 8-9 months before the event to make a proper job of our entry.

Conclusion: This article is not intended to be an account of the Championships, but I would like to take this opportunity of thanking firstly, all those who helped the British team to go to Leszno, and then all those members of the Polish Aero Club Organisers who worked so hard and continuously to look after us all, including coping with seven unexpected but continuous days of vile weather. In particular, this opportunity should be taken of thanking the tug pilots, who regularly got off 100 gliders an hour, but who never seemed to be around to be thanked personally.

Nearer home, the retrieving Ford Cortinas supplied by Messrs. Taylors (Gloucester) Ltd. were really well prepared and gave no trouble whatsoever in thousands of miles of tough trailer-towing. Courage's copious supply of beer was the salvation of many a thirsty crew, and Haig's whisky was the backbone of some memorable parties. Wills' cigarettes were all the more appreciated by those acquainted with the local product, and even the technologically advanced countries regarded the Rolls-Royce with considerable awe. We also had batteries from Exide and Ever-Ready, parachutes from Irving Air Chutes of Gt. Britain, oxygen from Walter Kidde and generous assistance from numerous other organisations. We are most grateful to them all.

ANN WELCH.

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DART OWNERS OF THE WORLD — UNITE!

By WALLY KAHN

IN a mad depressed moment last year, after listening to tales of Sigma, Cirrus and sooo many exotics to come, those two mad fools Carrow and Kahn decided that the only way to fight the wealthy guys was to run a one-design Dart Championships.

Arms were twisted, beers were bought and soon we had worn down various worthies who finally pledged us their support. Just then the big bad BGA Flying Committee heard tell of our plans and told us to call it a Contest—not a Championships. Just as well, I suppose, 'cos Carrow won!

About this time, cold feet and work hit Carrow and I was left holding a very hot potato. A firm contest—five entrants to date and Barrett the Flying breathing damnation down my pitot tube. More arms were twisted, more beers were bought, many phones were rung (sorry, Dart owners), wife was bribed (more golf), prizes were purloined.

However, endless letters promising the earth went out—it was to be fun, fun, fun. Prizes for all, diverse diversions, bring the wife—we promise to entertain her if you don't. Key people were sought, bribes were offered. We won those eagle-eyed observers Joy Taylor and Arthur Speechley. We lost master scorer Robin Harper.

Then came the master-stroke. The wonderful firm Shell-Mex and B.P. gave us £100 to pay for the British Team's practice week which was to take place at Lasham during the Dart Contest. Thus we got the Team and its Manager; the pilots to fly "horses manoeuvres", Ann Welch to task-set.

Now everything was ready. Lasham was as tidy as a new pin, the Courage tent was up and the bar was stocked. Came the opening day—and it rained.

Saturday, 18th May, 1968

Peter Masefield, who is Chairman of the Royal Aero Club, the British Airport Authority and Beagle Aircraft Ltd., performed a superb Cat's Cradle to get to us in a shiny new Beagle Pup. On arrival he delighted us with a lovely low roll, landed and made a brilliant speech. "Gliding," he said, "is one of the very few sports these days in which both sexes can indulge without it being either illegal, immoral or fattening." As the bossman of London Airport and Gatwick, he noted with awed interest that Lasham had completed 71,000 air movements last year, an increase of 20 per cent on the year before—and all without air traffic control! After his speech we knew that even if the weather prevented flying, we at least were the salt of the earth. Ann then set an optional giggle task of the milk run 100-km. triangle and we all retired to the bar.

At this point the British Team took delivery of their Cortina cars, much film was consumed and yet another championships (er—sorry, contest) had started.

Sunday, 19th May

General light NE airstream covered UK. 6/8th Cu. and Sc., base 3,000 *ft., tops* 5,000 *ft., rising to* 10,000 *ft. in afternoon.*

Task set by Ann was a 235-km. out-and-return race to Sutton Bingham reservoir near Yeovil. The Met. man



L. to R.: Jack Atkinson, Manager of Lasham, Pat and Russell Johnson, our Met. man.

(who is one of the finds since Wally Wallington—this guy forecasts accurately, has a superb sense of humour, likes retrieving, flying, beer and has a splendid wife who adores to man the retrieve telephone all day! Russell Johnson, we salute you!), drew pretty pictures and said that it would be OK. I bet him a pint—and lost.

All but two competitors rounded and 12 completed the task. No repeatable funnies. One unfunny: cloud flying is great on 130.4 providing everyone has radio on the glider frequency.

Leading scores:

Carrow	...	1,000 pts. (68 km./h.)
Garrod	...	881 pts.
Lovell	...	854 pts.
Kahn	...	850 pts.

Monday, 20th May

Carrow got a lovely metal tray as daily prize donated by Joe Przewlocki (Dart 966).

Very light northerly airstream over UK. Forecast 7/8th Cu. and Sc., base 2,500 ft., rising to 3,500 ft. Thermals plentiful, weak to moderate. Ha.

Ann set a flat triangle of 180 km., Blandford-Australia (not that flat, it's a map of Aussie cut into a chalk hill west of Salisbury)-Lasham. Russell drew more maps, spelt "plentiful" wrong and won another beer. No one completed the task. Various people hill soared Australia—Chris Day has the unique turning point photograph taken from below! He landed 15 miles on in a Duke's castle and was treated to over-proof gin poured from a four-gallon jar by the Duke himself. (Beat that, "Marfa in '70" if you can.) After some collusion on their final glide, Carrow was heard to say to Garrod, flying with him in near formation, "Let's land in the same field, no point in stretching the glide and possibly breaking our gliders." He is not an insurance broker for nothing, that man. They landed at Worthy Down, just 16 km. short of Lasham. "Horses" George Burton, of the British Team, coaxed his SHK to within 7 km. of Lasham.

Leading scores:

Carrow	... ...	1,000 pts.
Garrod	... ...	1,000 pts.
Day	... ...	749 pts.
Plumb	... ...	602 pts.

Tuesday, 21st May

Both Carrow and Mike Garrod got trays donated by Joe!

Ridge of high pressure to east of UK making very slow progress eastwards. Large areas of thick 8/8th Sc.

Local conditions improved just enough to launch at 13.45 hours.

The task set was a race to Perranporth, 300 kms. Cries of derision and despair greeted this and the Met. man, who promised weak thermals if we could find them. He lost a pint this day.

Seven brilliant pilots passed Y (70 km.). George Burton went the furthest, to Yeovil reservoir, 117 km. Peter Scott won the day, just a few km. short of George. The dangers of advertising slogans on the side of trailers was amply demonstrated this day. Mike Bird's retrieve equipage crossed a very minor road in the Dorset hinterland when a young woman driver of two weeks proud licence holding saw an Ovaltine hoarding blocking her path. She must have realised that it was a mirage and pressed on through it. Anyone got a spare Dart trailer with a large "Stop, before it's too late" anti-drug, drink, tobacco or women warning slogan?

Leading scores:

Scott	... ...	460 pts.
Przewlocki	...	429 pts.
Carrow	... ...	422 pts.
Kerridge	...	401 pts.

Wednesday, 22nd May

Peter Scott had a Joe tray this day.

Still our Lasham Comps. (ha) *ridge of high pressure. Forecast gave large areas of 8/8th Sc. over most of UK.*

The task set was an out-and-return race to Dunkeswell airfield, 312 km. Russell the Met. forecast gloom and no lift till Salisbury (50 km.) then glorious sun (bright yellow thing hot to touch) and luverly Cu. all the way there and back. He said that conditions were better to the south. Ha.

The sun and Cu. came out till Salisbury. Carrow announced, "Barn door chaps"—Carrowism for whoopee thermals and when we reached the famous Spire: gloom, gloom and more gloom. The press-on brave chaps turned south-west and most of them seemed to climb

to 6,000 ft. in the same cloud over Blandford before striking north-west towards the turning point. Others went due west and hit the snow at Yeovil. Rick Prestwich had an interesting very near miss in cloud with a wing of something whose pilot was not on 130.4 mcs. More of that anon. The snow at Yeovil played havoc, yet ten gliders rounded the TP. The leisure flyers arrived later at Salisbury to find a handy cloud street under the 8/8th Sc. which stopped some 20 miles from Yeovil. They fell off the end straight glided to—guess—Yeovil. No one made it back—Carrow very nearly never, as he landed among the Navy at Yeovilton just as they were playing with their shiny new jets practising GCA let-downs. However, judicious name-dropping did the trick and they almost gave him tea.

Leading scores:

Garrod	... ...	1,000 pts.
Carrow	... ...	953 pts.
Plumb	... ...	931 pts.
Cousins	... ...	902 pts.

Thursday, 23rd May

Mike Garrod won yet another Joe tray.

Our ridge of high pressure at last moved to the east of UK with the axis of a ridge crossing Lasham during the day. 4/8th-8/8th Cu. and Sc. with base rising to 4,500 ft., tops to 5,500 ft.

Ann set the 100-km. milk run, Lasham-Welford-Thruxton-Lasham. This was the mad, mad day. All but one pilot went round at least once. The first time round a real old-fashioned gaggle collected at Welford and started on the second leg with cries of, "I was here first, turn left damn you!" Gilroy Phillips, of the West Wales Gliding Association, completed his first triangle but would not sing the song which first made him immortal some 20 years ago in the Cambridge Club—"Oh, the wheel fell off the hearse. . . ." Poor Joe of daily prize fame bogged his final glide first time round and landed near Old Alresford and Wield (pronounced in English Old Oolsford). His crew in near English (apologies, Joe) on 130.4 were a joy. After much "Amber one, amber two, turn left and right, no right and left", they got him back for a relight and he fair shot round the second time.

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Thirteen others went round twice, some faster than the first.

Leading scores:

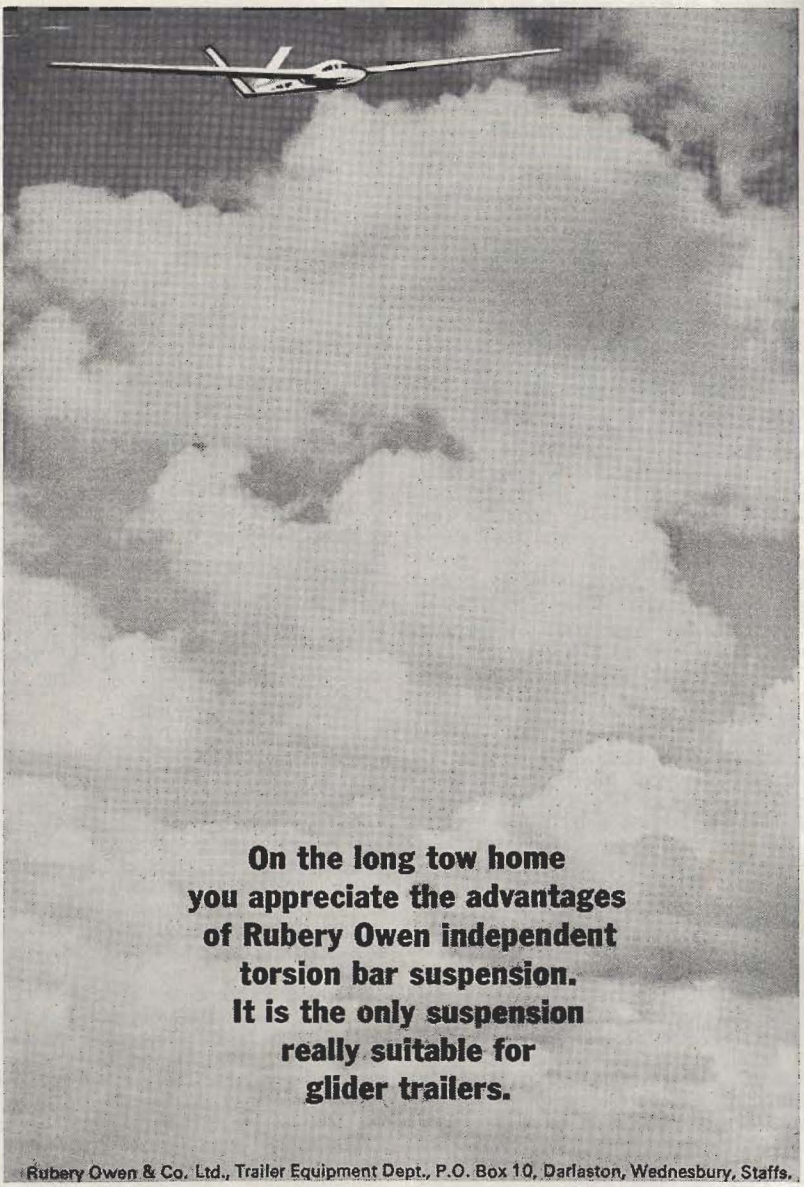
Carrow	...	1,000 pts. (68.7 km./h.)
Kahn	...	980 pts.
Burgess	...	935 pts.
Bird	...	925 pts.

Friday, 24th May

Carrow won yet another tray—look out friends, you'll get 'em as wedding presents!

Deepening depression approaching SW England with frontal system moving into SW UK during day. Strong SE winds over country with gradual increase of upper cloud from west.

Ann set a free distance, Russell nearly put on a kilt and all the pilots swarmed round Nick Goodhart to ask where he hit his wave that famous day when he flew to bonnie Portmoak. Tom Docherty, the Chairman of the Scottish Wave Soaring Centre (well, why not?), answered questions by the score. Gliders came to the grid in high excitement, pilots were uncontrollable. The wind was strong and clouds looked soft and wet but into the


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skies we went full of hope and promise. Basingstoke, not 7 km. away, claimed the first victim, then the air was full of cries, "Roll crew—but not too far." Visibility soon disappeared and stayed that way for the rest of the day. Interesting stories can be told, but not here. Suffice to say that two pilots had their points removed by the stewards—one landed in the Manchester Zone, one in the Birmingham taboo area. Kahn had an interesting time when 12 noisy nasty jets broke formation to go through him (cries of "Pity" do I hear?). Split into two formations later, they gave Tom Docherty an anxious moment. David Carrow and Fred Plumb hit the edge of the Birmingham Zone and went into Wales; Peter Scott and Mike Bird went north east. It was a day for pinhead map reading and heading 090°. Although Scott and Bird won the day by flying 312 km. to west of Harrogate, the day really belongs to George Burton who finished up north of Carlisle 451 km. from home. On his return from Poland, he must describe his flight, especially the last 100 km. up valleys at no more than 500 ft.

Leading scores:

Scott	... ...	1,000 pts.
Bird	... ...	1,000 pts.
Carrow	... ...	950 pts.
Phillips	... ...	685 pts.

Saturday, 25th May

It rained, which was just as well as most pilots and officials were recovering from the wine tasting and dance of the night/morning before. Peter and Mike each were given trays and, of course, it cleared in the late evening to allow good soaring flights.

Sunday, 26th May

Depression and frontal system approaching SW England. Slow-moving occlusion lying east to west across central and northern England.

More in despair than anger Ann set the reverse milk run 100-km. triangle, Lasham-Thruxton-Welford-Lasham.

Russell forecast 5/8th Cu. base 2,000 ft. asl (1,390 ft. above Lasham) by 10.30 hours, rising to 3,500 ft. by mid-afternoon, 3/8th upper cloud gradually thickening from SW during the day. Thermals plentiful, light to moderate—only a slight chance of strong ones. Tops about 8,000 ft. We all sat on the grid, laughed and joked about the non-gliding weather, the low cloudbase and what fun it had all been—until some clot of a thermal snifter in a tug found a hole upwind and we were ordered off. The early competitors found cloudbase at 1,800 ft. above Lasham, and Kahn, Carrow and Warminger pressed off under cloud to make a start straight off tow. These three played footie-footie all the way down the first leg. Kahn and Warminger played "you land first, no you land first" while Carrow, the cunning peasant, sat behind and climbed all of 300 ft. in each cloud we had left. At the first turning point the trio broke up in disorder and each went his own way to meet up again at the second TP. Here, Alf Warminger struggled and landed, while Carrow and Kahn, in different clouds, climbed to vast undreamt-of heights of 8,000 ft. and 7,000 ft. and then final-glided home.

The other competitors launched and landed on the airfield or off, using up their aero-tow vouchers, cursing Carrow and Kahn and swearing that there really were no thermals and once in a while one of them actually got away. Chris Day rounded the second TP but landed soon after. Chris Riddell, flying as Peter Scott's partner for the first time in the contest, also rounded Welford and pulled his team into second place by doing so. Ten pilots scored and so ended the first-ever one-design contest for high-performance sailplanes to be held in the UK.

Leading scores:

Carrow	... ...	348 pts.
Kahn	... ...	342 pts.
Day	... ...	195 pts.
Riddell	... ...	170 pts.

Jack Bradley, who is the Chairman of the Slingsby Aircraft Ltd., presented the prizes to the competitors. I had decided that everyone should win something and was given a vast array of superb goodies. All pilots from eleventh place downwards won an inflatable beachball, the others assorted prizes. Mike Bell kindly donated enough Dart Contest Medals in silver and gold so that all helpers, pilots and crew were given one each. Special prizes went to George Burton, for his outstanding flying and to all key workers.

We learnt many things as a result of this contest. Photographic turning point evidence is child's play if you have the right equipment (Lasham has bought and will hire out the full Kodak equipment which will develop up to 30 films at a time). You need our wonderful Sue (third officer WRNS) Carr, who is a fully-trained photographic Intelligence Interpretation Officer. Computer scoring arranged by Bill Bailey, of the Imperial College Gliding Cl. really works and is wonderful. Phone through at 19.00 hours and ten minutes later you have all the scores. A *must* for all future contests. There was really an efficient team under contest director Martin Seth-Smith, with the Lasham permanent staff under Jack Atkinson quietly tying up any loose ends.

This one-design business really works. We had 23 Darts, of which five were 15-metre versions. The *hors concours* were Goodhart and Delafield in HP-14's, Williamson and Innes in Dart 15's, Burton in an SHK and Dimock in a 18m. Diamant. BGA handicapping was applied throughout. By flying one-design, it sharpens the competition beyond belief yet makes it more fun than ever. I hope that next year we will see two or three one-design—say Dart, Ka-6 and Skylark 3 and 4 contests.

It is early days to start suggesting new competition structures, but certainly three equal one-design contests as well as the Sports and Open Contests would make sense. For British Team selection you could always take the top "X" places from each depending on the size of the contest (say one place for each four gliders) and fly them off in a separate selection contest later in the year.

The only blight of this contest was that not all pilots were on 130.4 mcs. for cloud flying. Our contest proved that this must be mandatory in the future—BGA please note.

(Heard on the opening day of the Sports Class at Dunstable: "Christ, Peter, that was bloody close." "I have you visual." "I should bloody well think so.")

DART CONTEST — LASHAM 18th-26th MAY

Final Place	*Pilot/s*	*Contest No.*	*19th*	*20th*	*21st*	*22nd*	*23rd*	*24th*	*26th*	*Total Points*
1.	Carrow	20	1000	1000	422	953	1000	950	348	5673
2.	Riddell, C.	95							170	
	Scott		717	548	460	473	856	1000		4224
3	Garrod	261	881	1000	81	1000	885	231	13	4091
4.	Bird	68	726	0	342	576	925	1000	0	3569
5.	Plumb	24	354	602	300	931	759	506	25	3477
6.	Day	477	722	749	155	653	770	214	195	3458
7.	Kahn	4	850	290	53	572	980	340	342	3427
8.	Cousins	102	785	396	90	902	736	298	11	3218
9.	Warminger	44	781	548	57	704	802	0	166	3058
10.	Lovell	470	854	290	53	828	869	0	0	2894
11.	Przewlocki	966	362	84	429	808	783	240	0	2706
12.	Kerridge, Scallon	329	682	0	401	473	742	405	0	2703
13.	Prestwich	121	22	542	90	572	858	333	0	2417
14.	Pope, Aldridge	46	399	358	0	442	632	570	0	2401
15.	Hanson	349	375	319	361	648	564	109	0	2376
16.	Burgess, Eccles	404	816	74	118	257	935	138	0	2338
17.	Fay	436	429	119	0	473	805	448	52	2326
18.	Johnson	474	343	321	122	496	671	247	0	2200
19.	Glennie, Docherty	126	692	0	0	443	594	300	0	2029
20.	Irving, Martin	466	270	0	0	473	656	357	0	1756
21.	Caveen, Rylands	63	250	162	0	820	456	0	0	1688
22.	Snodgrass	468	215	470	90	597	16	151	42	1581
23.	Lloyd Edwards, Phillips	513	0	0	0	284	431	685	0	1400

A NEW VARIOMETER IN PRACTICE

By TONY DEANE-DRUMMOND

THE psychology of gliding is interesting and gives some clue why it is at the same time both satisfying aesthetically and has considerable appeal to the purist inside most of us. The glider, the pilot and his instruments must work as a team in which confidence in a glider's performance, as shown on the instruments, gives the pilot a mental reassurance of success. Even then, frustration and the disaster of landing short are never too far away and catch out all of us sooner or later.

I was most interested to read E. Dommisse's article on a proposed zero reading variometer in the last issue. The idea has already been put into practice by Ralph Chesters in a remarkable piece of electronic engineering called the Skye Air Data Computer Mark 2. I have just finished flying in the Sports Class Nationals with one of his prototypes, which I installed a week before they started.

I am sure the instrument is a great step forward. It provides at a flick of a switch, conveniently located by your left hand, either a normal total energy compensated electric variometer or a variometer showing what the air is doing in a vertical sense outside the glider, regardless of how fast it is flown. To the left of the normal variometer presentation is an average rate of climb. Again by your left hand is a switch that can give either the rate of climb over the previous minute or so, or alternatively over the previous 20 minutes (or 7,000 ft.). Two reset buttons enable the pilot to start the averager working.

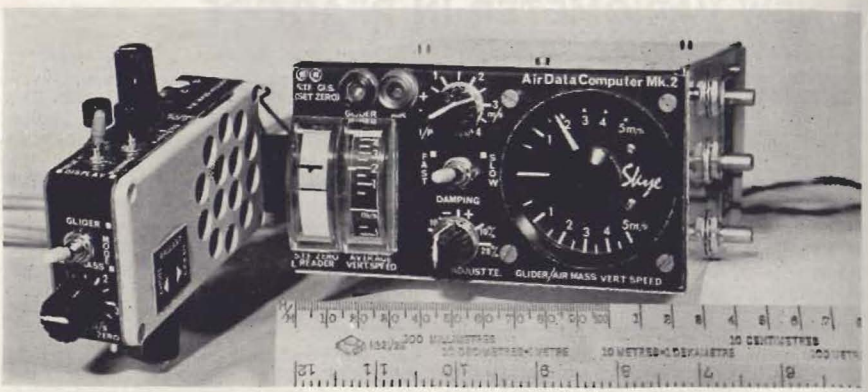
Linked electronically to the variometer and the ASI is a zero reader which is to the left of the averager.

It might be worth describing the procedure that the pilot should go through on arriving at a thermal, circling up in it and then starting off on his glide to the next one.

As the air starts to bubble on arriving at a thermal and the air mass is showing fast climb, the mode switch is flicked to the normal variometer, a green light comes on and the reset buttons are pressed. As the climb proceeds, an average rate of climb will be registered and a further flick of a switch can show when the thermal is losing strength towards the top. At the same time a clear tone will sound, rising in pitch as lift increases and this can be set to come in at different variometer readings. The total energy compensation on the variometer is very good indeed and can be adjusted in flight to take care of temperature changes. It is the first electric variometer that I have flown with that does this properly without external blisters sticking into the airflow. The zero reader meanwhile has been acting as a pitch indicator which may be useful when thermal soaring, and incredibly valuable when cloud flying on a limited panel with no horizon. I found that I rarely bothered to switch on the horizon—the zero reader gave all the pitch indication necessary for accurate cloud flying. Beginners at cloud flying may need an horizon, but it should not be necessary after that.

The decision to press on is now made. The 20 minute averager shows the achieved rate of climb, and assuming you expect the next thermal to be the same, this is now set on a knob near the variometer dial. The mode switch is turned to "air mass", an orange light comes on and buttons reset. All the ADC instruments now read what the air is doing in a vertical sense outside the glider. The zero reader indicates clearly whether the aircraft is being flown too slow or too fast. When kept central, maximum cross-country speed will be achieved.

The glider's airspeed will be varied most of the time to make allowance for downward or upward moving air. This facility is especially valuable when cruising fast under cloud streets, and it becomes easy to select the path with the most rising air in it. The averager, meanwhile, is showing whether the sum total is up or down (again over the previous minute or 20 minutes). This is particularly useful during a final glide and there



is no need to pinpoint positions every few miles—the instrument tells one whether the glide angle is being achieved or not. At first during the championships I did both, but soon I became confident in the instrument, which appeared to be very accurate.

The more I used this instrument the better I liked it. Although accustomed in the past to make guesstimations of the rate of climb, and hence the air speed to fly, this is all done for you. I must admit that it made me vary my air speed much more than I have ever done in the past by guesswork. The achieved rates of climb were, in fact, much the same as I would have guessed at, but perhaps that is because I have done quite a lot of soaring.

The damping can be varied in flight, but I found that I never used anything except the minimum position. For my taste, a further speeding up in the reaction time would be desirable for the really weak days, and I believe this can be done quite easily.

At first, the zero reader was too sensitive to smallish changes in air speed or rates of climb/sink. In a flash, Ralph Chesters wired in another small component, and it now gives a very fair presentation. The indicator comes "unstuck" from the top at about 50 knots, if the proper air speed to fly was, say, 65 knots. It is now quite easy to round out the air speed to bring the zero reader central. This has built into it electronic feedback similar to that used by automatic pilots in aeroplanes, and probably explains why it can be used successfully when cloud flying.

The instrument will, of course, need a new computation of the polar curve for each type of glider. A plug-in patch board enables this to be done quite easily.

Although the procedure I have described may appear complicated, I soon found my fingers reacting automatically and without too many thought processes going through my head. The presentation in front of the pilot is simple and no longer is he required to be a human computer. This instrument does it all for you—except tell you which thermal to use or reject. As always, it is this last point which will make the real difference between fast and slow times. Use of this instrument will, however, extract the maximum from the air the pilot uses and make him go faster.

Perhaps I have been too enthusiastic in the write-up of this instrument. If I have, I must apologise and also, of course, for not winning the championships with its help. But that is another story.

EDITORIAL NOTE:—Ralph Chesters, the designer of this instrument, informs us that explanatory leaflets will not be available until the end of August. However, he hopes to have a production line going by next December. The whole outfit will cost approximately £100. Enquiries after August to Ralph Chesters, 13 Blandford Road, London, W.4.

AIRSPEED AND ALL THAT JAZZ

MOST gliding folk these days do realise that it is important to know just how fast you are going at any moment. Apart from needing to know your speed from the point of view of performance, it is vital to know it accurately if you are to avoid exceeding the limitations of the glider. And this is where the difficulties start.

The ordinary ASI is simply a little pressure gauge which measures the pressure difference between the static pressure of the air and the pressure which is exerted on a forward-facing open-ended pipe, usually termed the Pitot head. This pressure difference is quite small for the speeds at which we fly; for instance, 45 m.p.h. is the equivalent of about 1 in. of water pressure, so the ASI is a fairly delicate instrument.

Now, within reasonable limits, the Pitot head can be put anywhere you like, provided that you put it out in the clear airflow. So long as the air is brought to rest at the open mouth of the Pitot head, you will get a reasonable reading of the Pitot Pressure. Things are not so simple, however, when you come to the Static Pressure.

A glider, or any other aircraft, affects the pressure of the air around it for quite a long distance. In fact, the only way to get a proper reading of the Static Pressure is to put a static pipe some 50 ft. or more away from the nearest point of the glider! When a new glider is being tested this is actually done, and the static pipe is slung on a long length of pipe lowered down below the glider when it is in flight. The designer chooses a spot on the glider where he hopes that the pressure will be static, and then compares the readings obtained from the aircraft's static connection and that from the trailing static, by using two ASI's in the glider. It is almost impossible to find anywhere on the glider where the pressure will be static at all speeds. It may be correct at one speed, and slightly above or below

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the correct pressure at other speeds. However, if the error is not large, the designer pats himself on the back, and records the actual error on a graph. This is what is known as the Position Error Curve.

This is the reason why most gliders have odd figures for their various limiting speeds. You may find that the Rough Air Speed for a glider is placarded as 76 knots. You can bet your boots that the designer worked on a figure of 75 knots in his calculations, and then found, on test, that, with the ASI installation that he planned for, the actual reading at 75 knots was 76 on the instrument.

Why is all this important? Simply this. Unless the ASI of a glider is connected to the Pitot/Static system that was used in the Position Error tests, the readings of the instrument are quite unreliable. They may be right, and they may be wrong. They may be very dangerously wrong. You will find a remark in the C. of A. of the glider, if it has a BGA C. of A., under the table of the speed limitations, to the effect that "these speeds refer to the following Pitot/Static installation. . . ."

It therefore behoves you to ensure that the Pitot/Static installation is correct.

If, of course, you think that you can improve on the original installation, for any reason, such as reducing drag, there is no reason why you should not experiment, *but* you *must* carry out a Position Error test and establish the new Position Error curve for the new installation. Any BGA Test Group can do this for you quite simply.

It is now a requirement that the Inspector who applies for the renewal of C. of A. on a glider, shall sign that he has check-calibrated the ASI and that it is accurate to within plus or minus 2 knots, and that it has a maximum reading which is 5 per cent more than the Never Exceed Speed of the glider. It is also his job to see that the ASI installation is as specified in the C. of A., or, if it is not, that the Position Error of the new installation has been determined. In the latter case he should see that the C. of A. is amended by the BGA to the new installation.

This is the reason why there are, in some cases, different cockpit placard speeds for the same type of glider. Several types which originally were produced with Pitot/Static heads on the nose were later modified to Pot-pitot in nose-cap, and a different static; sometimes even Cockpit Static if that was shown to be satisfactory. The Position Error for the two installations may be quite different, and if one reads high where the other reads low, the difference in the two Placard Speeds may be quite large.

R. C. Stafford Allen, CTO, BGA

WILLS' GLIDER PILOT COMPETITION

THERE is no doubt that many people will appreciate the generosity of W. D. & H. O. Wills once again when, on the 4th August, John Ware will present two Ka-6's (instead of Swallows, which could not be delivered on time) to the club of the winners of the Wills' Glider Pilot Competition.

The runners-up will receive radio transmitters and third prizes will be barographs.

The semi-finals of the competition were held at various regional centres during the weekend of the 6th July. The following pilots have secured a place in the final competition, which will be held at Lasham from 2nd-4th August.

Northern Region

R. W. Bowhill	Ouse
W. Barcroft	Blackpool & Fylde
M. C. Johnson	Staffordshire
A. M. Blackburn	Derby & Lancs.
L. J. McKelvie	Ulster & Shorts

Southern Region

B. R. E. Collings	Essex
R. S. Wybrow	Cornish
J. P. Millward	Airways
G. Jansen	Kent
Gillian Howe	Cotswold

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Dr. Alf Schubert DIAMANT — 4th place

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Aart Dekkers — DIAMANT
1st place — Wright Memorial Championships
Indiana — Robert Tresslar — DIAMANT
2nd place — Swiss National Championships
Rudolf Seiler — DIAMANT
2nd place — Journess des Ardennes, Belgium
Aart Dekkers — DIAMANT

100km., 300km. and 500km. triangle Australian National Records broken by Malcolm Jinks — DIAMANT

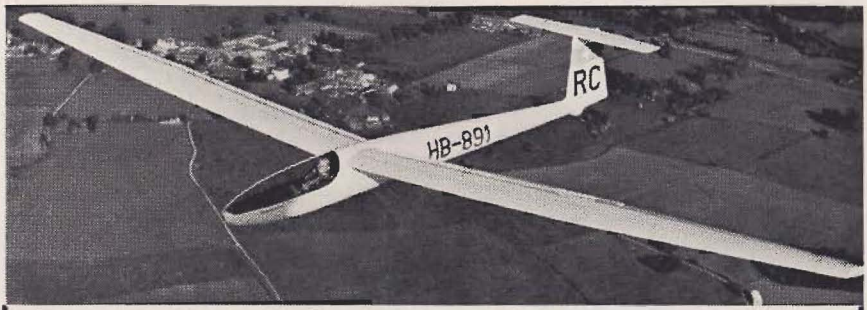
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Dr. Brennig James — first British 500km. triangle — DIAMANT

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Congratulations Dr. Brennig James on the first U.K. 500km. triangle – Booker – Long Mynd – Cranwell – Booker on 16th June, 1968 in DIAMANT 18.

NATIONAL SPORT CLASS GLIDING CHAMPIONSHIPS 1968

By G LOCKE

THE tasksetters Peter Scott and Geoffrey Stephenson at the Sports Class Nationals had their backs to the wall with a vengeance.

Two to three weeks before the competition was due to begin, the organisers learned that the RAF would be holding rehearsals for a special 50th anniversary fly-past on 5th, 6th and 10th June, which would involve large quantities of jet fighters and bombers flying at low altitudes (below 2,000 feet). They were scheduled to converge on Halton (about ten miles west of Dunstable Downs) a little before 3 p.m., with one flight of V-bombers to pass about two miles south of the site. Getting the rehearsals shifted from what was generally the most soarable part of the day to, for instance, the morning, was not possible, although energetic efforts on the part of the organisers managed to achieve a minor re-routing of a flight of Hunters.

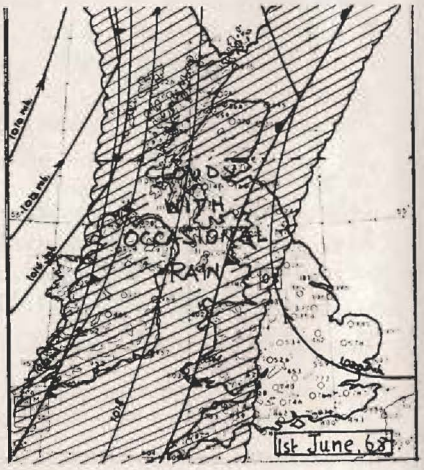
When the competitors and crews congregated in the briefing marquee at 10 a.m., on 1st June, the "RAF" days were a long way ahead. It was going to be a fine day and everybody was cheerful. What was more, at a championships with no ships better than a Foka 4 and a flock of Ka-6E's flying, there were no anxious glances to reserve for the latest hot ships with a glide angle whispered darkly to be in the fifties. True, there was a cool ship, a Ka-8 (handicap 112) with which John Cardiff would try to scrape round the tasks, but there was no need to worry about it — it was the London Gliding Club's Oly. replacement.

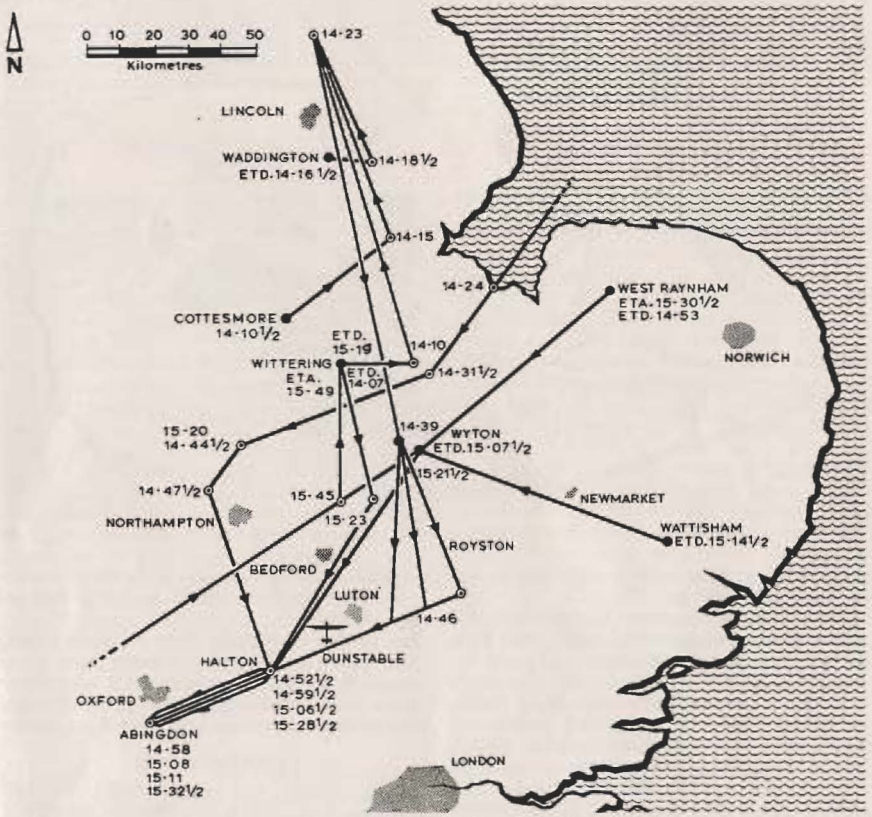
Hostilities were opened by Air Vice Marshal J. Russell, Controller, National Air Traffic Control Service. Putting A.T.C. work in a nutshell, he described it as "reconciling unavoidable incompatible requirements". He presented the Churchill Gliding Award to Dr. George Whitfield for the development of a two-seater powered glider.

After the usual run of church notices, we got down to the business of the day — a triangle race of 213.4 kms. The route ran from Dunstable more or less due north to Uppingham School, then south-east to Duxford. The last leg was a short south-westerly one back to Dunstable. There was a small air display near Alconbury, and pilots on the second leg were advised to keep right (west) of track. There was also a number of Spitfires and Hurricanes at Duxford engaged in making a Battle of Britain film, and it was possible they'd be in the air.



Meteorologists Harry Douglas, Norman Ellis and Eleanor Hutcheson had between them cooked up a depression near Iceland and a brace of very slow moving, weak fronts over Ireland and





Routes of rehearsal flights for RAF 50th anniversary celebrations.

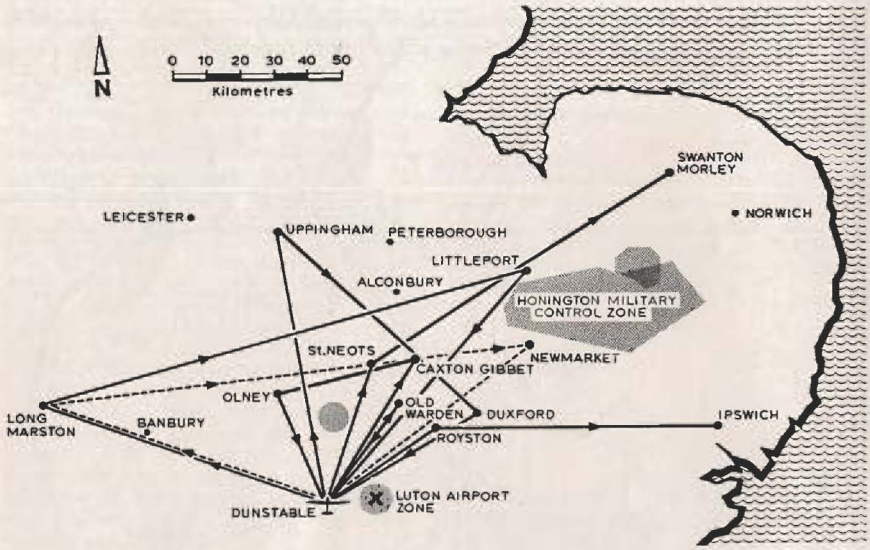
the west of England. The cloud and occasional rain associated with these had pushed the task to the fine and sunny eastern part of Britain. Thermals would be dry, although there was a possibility of about 1/8 cumulus forming.

Some evanescent cumulus began to form at 11.15 over the dropping zone between Dagnall village and the Ivinghoe Beacon range of hills. Mike Garrod took off shortly before for an official sniff round, and declared conditions O.K. ten minutes later. First to take-off was Ian Strachan at about 12.20 and the first across the line was Norman Smith at 12.33, followed by Strachan at 12.48.

The first leg was reported to be quite easy, many pilots reaching Uppingham in about an hour. Very few sank at this stage, but one of these, Tony Deane-Drummond, managed to get back in time for a relight and subsequently got past the first turning point.

As it turned out, up to 4/8 cumulus formed, rising to about 9,000 ft., but these clouds, if anything, helped the pilots.

South-east from Uppingham, things toughened. The wind had freshened and the second leg was more or less directly into it. At 3,000 feet it was estimated at 20 knots and at 5,000 feet, 30 knots. John Fielden made at least half a dozen cloud climbs to 8,000 feet, followed by glides down to cloudbase, and was horrified to find, on emerging from the last of



these climbs, that he had only got as far as Graffham Water.

Even worse was to come. Halfway down the leg, around Graveley, they flew into a completely different air mass — cloudless and dead. The only thermals, it appeared, were low down, and feeble at that. It was thought that stable air had come in from East Anglia, killing things completely. It was a struggle to remain airborne at all, let alone make any headway into the wind. From Graveley to Bourne it was one long grind, and most of the pilots came to rest — perhaps thankfully — in this area.

A group of about half-a-dozen managed to punch their way round Duxford, although their altitudes could hardly be termed conservative. After Duxford, three (Tanner, Wheeler and Zotov) made more or less final glides on track, landing in the Royston area. Messrs. Bentson, Ted Shephard, Strachan and Williams, however, stuck to the sky as long as possible, allowing the south-easterly wind to drift them well north of track. In this manner, they managed to get a bit closer to Dunstable and gained points over the others. It was very scratchy indeed. Strachan spent fifteen minutes gaining a hundred feet near Bassingbourne, while Shephard circled in zero sink, more or less, from Duxford to Old Warden (20 miles) rising from 1,000 to 1,200 feet in the process.

There was, perhaps, one blessing about the "change of air". Nobody was in a position to savour the delights of a final glide into Dunstable from the north-east. However, there were still nine days to go.

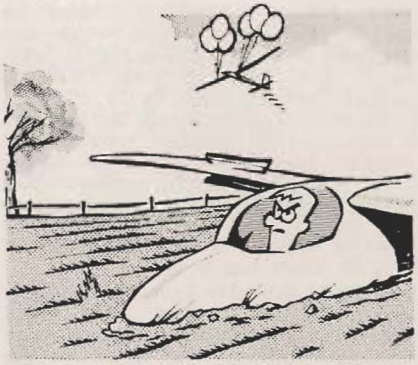
Leading results

		H'cap points	*St. Class no H'cap*
Williams	Skl. 3F	1000	—
Bentson	Ka-6E	998	1000
Strachan	Ka-6E	981	983

Frustration

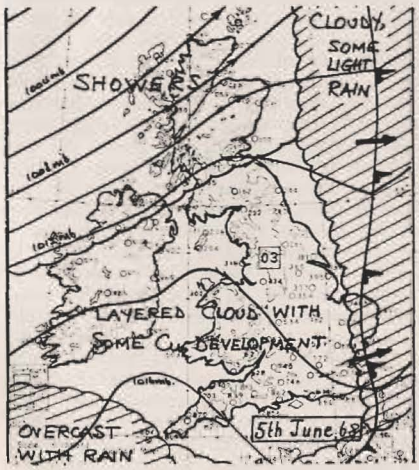
Sunday, Monday and Tuesday were characterised by frustration (it was soarable at Rearsby, Lasham and other unmentionable places), thermal snifters who were up and down like yo-yo's for instant relights and a cross-country with two outlandings in one flight by the London Balloon Club's hot air balloon (how about **that** for instant relights?).

They were washouts, Tuesday in the traditional 'Splasham' sense, and 40 per cent of the Nationals had gone by. To follow were six days, of which three were likely to be affected by the RAF manoeuvres.



The first of these was Wednesday.

To start with, Wednesday didn't look any better than the previous day. However, the set-up wasn't as black as the morning sky. A weak cold front had passed into East Anglia and was expected to move into the North Sea in the afternoon. The southern end of it, though, trailed back west across the north of France into the Atlantic, and minor waves in this were expected to keep the south of Britain cloudy. Harry and Norman, who felt quite sorry for us, and wondered how we could ever stand the frustration of gliding, generously promised the pilots 6/8 cover. There would be some reasonable breaks containing about 5/8 cumulus and strato-



cumulus, base about 2,500 feet, perhaps rising to 3,000. There was a possibility of some bigger build-ups over East Anglia later in the afternoon. The wind would be about ten knots from a generally westerly direction.

The task-masters set a 124.5 kms. race to Ipswich airfield, with a turning point at Royston (oil tanks) to keep pilots clear of Luton. The meteorological set-up indicated a latish start. The RAF rehearsal made it highly unwise to have a mass of gliders scratching in the Hitchin/Royston area at quarter to three, and pretty well dictated the time for the first take-off. This was set at 14.15. As it turned out, the RAF probably did the competitors, albeit unwittingly, a good turn. If people had gone off earlier, the clag over the east coast wouldn't have cleared sufficiently to the east and might have sunk them.

The rehearsal also made it impossible to use the logical dropping zone, which would have been in the Dagnall area. Competitors were therefore waved off near Eaton Bray and were forced to head back upwind if they wanted to cross the line. All forty were flicked off in 42½ minutes, 2½ minutes less than the goal the launch point organisers were aiming for. Although pilots launched early crossed the line, some later ones didn't. They could see a mass of clag coming in from the west and decided to beetle off to the east, where the better weather was. Some didn't even bother to thermal, but set off on track immediately on releasing. Ian Strachan spent about ten minutes locally deciding whether or not to cross the line. He finally decided against it, and said he lost time as a result.

Pilots thought conditions were quite good as far as Royston, but they tended to deteriorate further east. Some competitors were so encouraged by the good times achieved over the first leg that they bored on at high speeds past Royston, only to find themselves either sunk or struggling very hard near Saffron Walden, particularly.

It appeared to be one of those days where it didn't matter whether one went into cloud or not. Norman Smith, who made the fastest time, didn't use cloud at all for fear of losing performance and getting off track, while Ian Strachan, who

made almost as fast a time, took 8,000 feet soon after Royston which, with a couple of further small climbs, sufficed for the rest of the task.

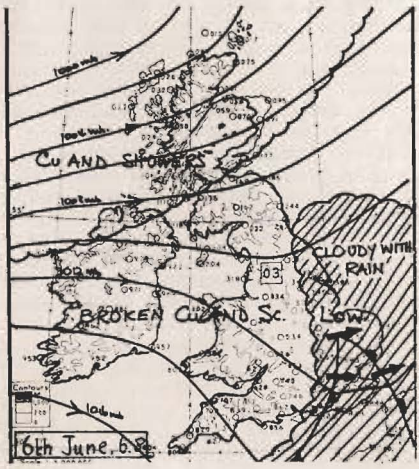
The much-feared sea breeze didn't materialise, although conditions were generally found to get progressively poorer the nearer one got to Ipswich. Not only that, but some pilots thought that the helpful westerly died away near the coast, adding spice to the more finely calculated final glide. John Cardiff bitterly regrets not taking an extra 300 or 400 feet in his last thermal, a weak one. He pressed on in hopes of picking up another one *en route*, but found nothing and landed about three miles short. David Lilburn was even unluckier, landing on the western edge of the estuary about a mile short.

Leading results

		H'cap points	*St. Class*
Smith	Ka-6E	1000	1000
Strachan	Ka-6E	991	992
Bentson	Ka-6E	944	947

An afternoon's local soaring

Thursday was the day everybody had been waiting for. People who got up very early might have been tempted to return to bed sharpish-like, for a cold front with all its attendant unpleasantness was passing through. It cleared Dunstable at 07.00, however, leaving a sheet of cumulus and stratocumulus which disintegrated even as we watched it, leaving a cool, clear air mass ready to generate thermals like a bottle of champagne generating bubbles when the cork is removed. The forecast promised 4/8 cumulus, bases 3,000 feet, tops maybe 6,000 with an occasional larger one forcing itself up through the icing level. The surface wind was expected to be west or west-north-west, 10-15 knots, with 20 knots higher up.



It would probably have been suitable for a 250 km. triangle, and Geoff Stephenson said that one might well have been set — had it not been for the second RAF fly-past rehearsal in the afternoon. This caused him to limit the day's flying to a 123.6 km. triangle with the first take-off at 14.00. Three hours' good soaring wasted. And it certainly would have been good soaring, too. Roger Barrett went up at 11.00 and declared it well and truly soarable, just to confirm what all the clouds showed. (He did get sunk later a little way up the A.5, but that's another story.)

The first turning point was the crossroads at Caxton Gibbet at the end of a crosswind leg with, perhaps, a little of the wind behind the glider's tail. The second leg, to the church at Olney, was almost dead into wind, and the return home was again mostly crosswind.

Time dragged as the competitors sat on the grid, watching tall, meaty cu. passing one by one over the site, nicely, evenly spaced. One or two pilots, perhaps, gave a cursory glance at the hill. For the first time since the competition began, it was working. Averaging about two or three hundred feet above the site, the hill is about two miles long, perhaps a little more. The locals divide it into two sections. The main slope, at the foot of which the field lies, faces more or less due west, and is soarable in 10 to 15 knot winds from west-north-west to west-south-west. It is possible to soar certain parts of this section in winds outside this "quadrant". The power-wire slope — crossed by high-tension cables — at the southern end of this section is soarable in a north-westerly and even a northerly, with care, while the "bowl" at the northern end is soarable, by dint of S-turns, in a south-westerly. The other



. . . Most of it is occupied . . .

section, from the power-wire slope south'ards, is soarable with a bit more south in the wind than the main slope. Most of it is occupied by Whipsnade Zoo, but there is a landable field at the foot for the pilot to sink into if he can't make it back to the site. This field is known as the Pyjama Field. (Well, there was this instructor, see, who got up late, see, and put on a flying suit over his pyjamas without bothering to dress, see, and he took this beautiful young maiden up for a joy-ride, see . . .)

At long last, the great moment arrived — 14.00 hours. The tugs roared into action. Forty pilots, audios ready to shriek the splendour of ten knot thermals, were launched.

The dropping zone was between Ivinghoe Beacon and the glasshouses on the way to Leighton Buzzard, and the weather gremlins arranged for a wide patch of dead air — scraggy, decayed strato-cu. — to be there waiting for the first hapless dozen.

By 14.15, several pilots were grafting on the hill or heading towards it. Fortunately, it was working along its entire length, including the Zoo slope. One or two of the early pilots managed to get away; Goldney in No. 72, for example. He went across the line at winch-launch height, heading towards a black cloud over Dunstable town which gave a faint promise of activity. He told his crew to wait south of Dunstable for a quick retrieve and relight, threw a couple of turns behind the hill, and disappeared from view.

By about 14.20, there were between 6 or 8 gliders hill bashing. Robinson, in No. 68, was seen to make a marginal final glide from the Beacon to the Zoo slope. He, too, disappeared from view. The Pyjama Field had claimed its first victim, the observers thought. But no, he staggered into view, low, but still airborne, forcing himself up to a more comfortable hill-soaring height.

Somebody reported that they were at 900 feet near Leighton Buzzard, but nobody took much notice. Man, that was high ! At 14.25, it turned out to be Riddell in his Foka : " Prepare for possible landing Leighton Buzzard." Poor Riddell. He was down to 300 feet downwind of the town before he managed to find something and get away. Newall, in No. 29, who was the first launched, landed for the first relight, and a message from 72 indicated that he was still airborne. Bill Shephard, in No. 190, declared that he might have to land near the Beacon.

He was seen a few minutes later scraping back to the field for the more efficient form of relight. By this time, several of the hill-bashers had given up the struggle and landed. Several others persevered, and eventually got away as better weather came over. By 14.30 the latter launches were getting quite high in the good stuff following the clag. Competitors were beginning to cross the line in earnest, and not accidentally in the process of hill-soaring. Strachan, Tanner and Dunn were among the first.

And by the time the V-bombers roared past just south of the site, there was a big gaggle over Houghton Regis, all but one relight were in the air again, and the hill was emptying.

After that, it was quite a straightforward day. More than three-quarters of the competitors got round.

Goldney and Riddell, the early scrapers, both got round. Jack Harrison, who made the best time (55.6 kph), found it quite easy. " It was the first day in which I haven't had to pick a field — a nice afternoon's local soaring, in fact."

Leading results

		H'cap points	*St. Class*
Harrison	Ka-6E	1000	1000
Strachan	Ka-6E	987	987
Cardiff	Ka-8B	974	796
D.-Drummond	Ka-6E	941	941

The corn got in the way

On Friday morning, it was raining, and briefing was postponed until 11.00. By then the rain had stopped and Peter



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Scott opened the proceedings by saying: "This is not a day for flying for pleasure." Indeed, it was not. The sky was still filled with cloud. Beneath the general clag, though, there were some blacker lumps which promised convection. "However," Peter went on, "since we're not flying for pleasure, we've set a task."

It was a race to Swanton Morley via the cooling towers at St. Neots. The



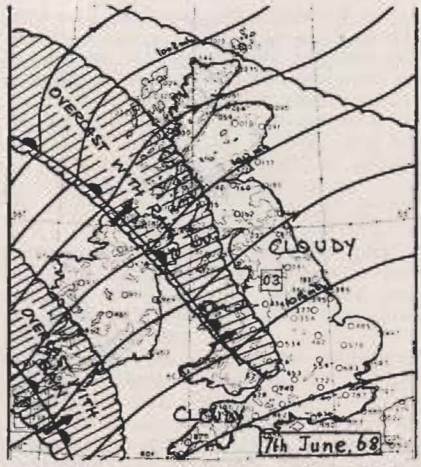
The ideal T.P. photo taken by "258".

turning point had been specified to keep the pilots, as far as possible, out of the Honington military control zone.

There was a depression west of the United Kingdom with two rain areas associated with it. The tail-end of the first had passed over during the earlier part of the morning, and the second was expected to arrive at about 17.00. The gap in between would be dry, but the cloud was not expected to clear. 7/8 high cloud was forecast with, below it, 6/8 cumulus and strato-cu., the bases of which would be 2,000 feet, perhaps rising to 2,500 or 3,000 feet later. The tops would be about 5,000 feet and the winds more or less south-westerly, 15 to 20 knots.

Mike Riddell was first off, but was soon back for a relight. It just wasn't Mike's week. Later in the day, he landed in the fens among healthy young crops. The tailplane of the Foka was damaged and he was out of the running for the duration.

Ten minutes after launching began, several pilots had crossed the line, and by 13.45 cloudbase was practically in the



stratosphere — 2,200 feet! The blacker bits had up to 5 knots under them. By 14.05, six had left the site and by 14.20 they'd all set off on track, some of them at a very low altitude.

Conditions, it was felt generally, were better than anticipated — although the competitors who landed en route might not have agreed. Frank Pozerskis — upon whom the gods never smile for long; having been forced down several times just short of his Gold C distance — and Charles Ellis were among these unfortunates. To compound their misery, they ran into some difficulty over their turning point photographs. This was,



however, resolved a day or two later by the stewards.

Nearly half the pilots got there, however, and Ian Strachan, who'd only dropped 41 points in the previous three days, achieved a "minor" ambition by

finally winning a day, clocking 63.9 kph. 'Tricia Watson, the only distaff competitor, had her best day so far, getting to Swanton Morley at 51.9 kph. Messrs. Strachan, Deane-Drummond, Smith, Tanner and others found that they couldn't get into cloud at all. Jeffries, with Brian Davies in the front seat of the Ka-13 once again, was one pilot who surely wished he could have done so on his last thermal.

" We reckoned we had come to the end of the road about 25 nautical miles out, near Methwold," he said. " The Ka-13 is supposed to have a best glide ratio of 1 : 27. Using a 1 : 30 final glide calculator, taking into account the wind behind us, and treating it as a maximum glide case, we 'guestimated' that the height we needed to get in was 4,300 feet. We achieved slightly less than that, jockeying for position to get into cloud with Seth-Smith. He beat us to it by a very short head, and radioed that he wasn't doing any good in it. By looking up and seeing the high cirrus through the cloud, we thought we wouldn't do much good, either. So we decided to fly a little slower than we'd calculated and left for Swanton Morley with some conservative margin (approximately 2 per cent.).

"The only alternative to this was to stick to the cloud and drift along with it. This Seth-Smith decided to do, gaining 500 feet and losing ten minutes. We pressed on, checking our vital statistics at the salient points. They were correct to the nearest ten feet, both as regards height and track. Down to about 2,000 feet, we approached a bit that looked as though it might produce zero sink. We diverged a bit and got the vario nearly down to zero.

" We anticipated some sink after this, and were not disappointed. We also ran into some drizzle, but managed to steer clear of the worst of it. We began to lose out about now, with still eight miles to go. We crossed the five mile mark at exactly 800 feet, which should be just enough. Then we started to hit turbulence due to the 15-20 knot tail wind. Open fields gave way to trees, bog, pond, the odd house and, generally, bloody awful landing prospects. About this time we saw Swanton Morley, which happened to be on the horizon. We were not conscious of breathing during this stage. Brian, the navigator, kept saying that we were all right. I kept expecting a clutching hand to pull us into a bog. It looked like a bit of prehistoric H. G. Wells country . . ."

They got in.

The observers at Swanton Morley, however, said that they couldn't see most of the glide since the corn kept getting in the way.

Saturday was quite an energetic day for pilots, crews, tug pilots, farmers and the Warders of the psychiatric prison at Grendon Underwood, who soothed the fevered brows of two pilots who landed there. The weather was claggy, nearly everybody had relights, many had two, and as it was a cat's cradle task, the fields of North Bucks, and West Beds, were littered with gliders. Not unexpectedly, it was a no contest day.



The day of days

Sunday, 9th June, was surely one of the best days England has had for a long time. It was the day that the first 500-km. triangle was achieved, from Booker.

So what did we do at Dunstable?

Harry, Norman and Eleanor were beaming all over their faces. They'd had some pretty grotty weather to sort out for us in the past week, but now, at last, they could promise the Nationals a good day. A high had built up to the south-west of the British Isles and a fine day was expected. Cumulus would soon develop, with base 2,000 ft. at first, lifting to about 4,000 by mid-afternoon. The tops would be about 5,500 ft. Some layered strato-cumulus to the south of Dunstable was expected to move away further south. Winds would be almost nil at the surface, and light and northerly (backing north-westerly) at flying heights.



There was some broken layered cloud over the northern part of England, which caused Peter Scott to announce that a flat 306-km. triangle (Dunstable—Long Marston (sheds) — Newmarket (Grandstand) — Dunstable had been set.

It wasn't an FAI-approved triangle, by any means.

Roger Barrett then asked how many pilots didn't have Gold C distance.

A forest of hands shot up.

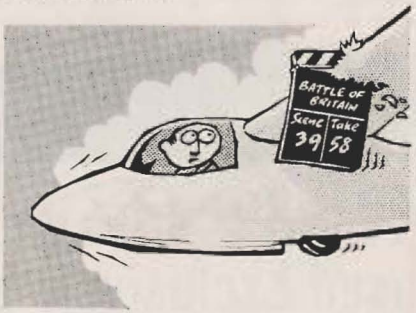
On the basis of this response, Peter Scott stood up and set a new task, with a second turning point at Ely instead of Newmarket. (The Littleport road bridge over the River Ouse, to be precise.) It was slightly longer—322.5 km.

Somebody asked about the possibility of sea breezes affecting it.

One *was* likely to develop, Harry Douglas said. He expected it to be on the Norfolk coast and the Wash by 14.00 or 15.00, and would probably reach Ely by 16.00 to 17.00.

As it turned out, nobody saw a sign of one, and the day was basically, as one would expect, from a record-breaker, straightforward. Competitors, however, thought that they entered a different air mass west of Banbury, with lower cloud bases, which persisted to Long Marston and some way along the second leg, but it was by no means duff enough to give anybody any neuroses. Some of the RAF competitors were, however, getting the twitch—if their radios were anything to go by. John Cardiff in the Ka-8 had been quietly working his way up the charts, after his disaster at Ipswich, and was lying in 8th position. Suddenly, it seemed to Harrison, Strachan, Tanner, *et al*, the little green and cream Ka-8 was everywhere, and just couldn't be shaken off. Harrison, who made the fastest time, said that that bloody Ka-8 had taken off 20 minutes after him, but had caught him up by the first turning point. Harrison ran into Cardiff again at the second turning point, and only managed to shake him off on the final leg home. However, Cardiff took first place on handicap.

Clouds, in fact, went higher than had been anticipated, to about 8,000 ft. There was another near miss in cloud. Tony Deane-Drummond reported seeing a roundel "going the other way". He continued his turn for a calculated number of seconds, straightened up and got the hell out of it. One wonders what he would have thought if he'd seen a swastika, instead. A number of Me. 109s engaged in filming at Duxford were flying, and Lem Tanner reported being buzzed by them.



Frank Pozerskis had become very distrustful of cameras, and took great care to make sure other pilots observed him round the turning points. "Yes, Frank, you went round it." "Are you *sure* it's the right bridge and the right town?" "Yes, Frank, you're all right."

Back at the finish-line, excitement was building up steadily throughout the afternoon. Snatches were heard occasionally over the radio. People were struggling near the second turning point —that sort of thing. The task was the



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biggest that had ever been set at Dunstable. 300-km. triangles of any kind were comparatively rare.

Then at 17.15 Jack Harrison announced that he was on his final glide, and would arrive in a couple of minutes. The observers' binoculars scanned the



horizon. Where would he come from? Was he high? Low? Fast? Slow?

But not this week. The trailer parking area blocked the tradesman's entrance.

"There he is!" somebody shouted.

He came round the side of the hill, fast, and crossed the line comfortably. After Harrison came John Ellis, at 17.34. He came over the bowl with 20 ft. to spare and whizzed across the line a metre above it. Strachan was next, high and sedate, while Ron Newall crept in over the ridge a little later. Soon they were coming thick and fast—or slow. Deane-Drummond, Fielden ("a delightful day"), Zotov, Pozerskis (all smiles: "I've done it at last!"), Cardiff. . . .

Just before 19.00 there were three scrapers, almost in line abreast. Lilburn



in 258 ("The chimneys at Houghton Regis have a couple of birds' nests which need clearing") and Hale in 407 crept in, oh so tenderly. Robinson in number 66, who'd only just managed to avoid landing in the Pyjama Field a few days earlier, was even lower. He detoured towards the west to avoid clobbering the stray TV aerial, and flew the contours down towards the site. But he was running out of height and speed too quickly; the tradesman's entrance was filled with trailers, and at the agonising last minute he had to turn away to land at the foot of the hill just short of the goal. However, there was one consolation—he was within the half-kilometre requirement for the Diamond goal.

Leading results

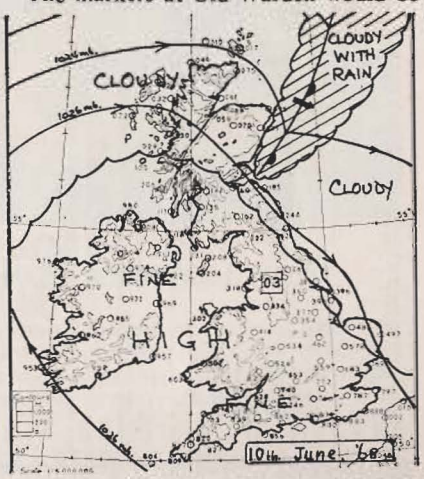
	H'cap points	*St. Class*
Cardiff	1000	934
Tanner	891	779
Harrison	883	1000

After the Lord Mayor's Show

The last day had the RAF rehearsal to contend with. It was decided, therefore, not to set a two or three hundred kilometre task, but a teeny-weeny little closed-circuit of 114 km: out-and-return to Old Warden (home of the Shuttleworth Collection) *twice* round. Pilots were to be on the grid at 11.00 and the last launch would be 14.00. The start-line would also close at that time.

The high had moved pretty well over the top of us, convection was expected to start about 10.00 and 1-3/8 cumulus was expected. The winds would be light and variable on the surface and from a northerly quarter at flying altitudes (about 10 knots). It turned out, however, that there was more cloud than expected.

The markers at Old Warden would be





on the north-west boundary where the hangars were, and those at Dunstable tucked conveniently behind the bar.

It was, it appears, a very tense day for the boys at the top. They were all terrified of making a mistake, scared stiff of slipping up on such a simple little task, and as a result tended to fly conservatively. But not all. Lem Tanner fairly bored along, to make the best time of the day.

The Ka-8's handicap, however, gave John Cardiff the 1,000 points for the second day running, but Lem Tanner just managed to hold him back to third place overall.

Leading results

	H'cap points	*St. Class*
Cardiff	1000	910
Tanner	891	1000
Wheeler	854	958

FINAL RESULTS — SPORTS CLASS

Place	*Pilot/s*	*Contest No.*	*Type*	*H'cap %*	*Day Score* 1	2	3	4	5	6	*Total Score*
1.	Strachan	263	Ka-6E	96	981	991	987	1000	843	701	5503
2.	Tanner	264	Ka-6E	96	884	893	921	867	891	891	5172
3.	Cardiff	107	K-8B	112	893	394	974	890	1000	1000	5151
4.	Wheeler	388	Ka-6E	96	887	806	868	808	749	854	4972
5.	Deane-Drummond	454	Ka-6E	96	503	889	941	945	773	750	4801
6.	Shephard	433	Ka-6E	96	956	847	889	374	712	840	4618
7.	Bentson	15	Ka-6E	96	998	944	596	760	671	578	4547
8.	Slater	86	O.419	96	699	867	604	820	698	679	4367
9.	Harrison	26	Ka-6E	96	713	914	1000	0	883	795	4305
10.	Smith	315	Ka-6E	96	778	1000	777	878			
		381	Ka-6CR	100					44	765	4242
11.	Hood	12	O.463	102	570	916	882	915	294	652	4229
12.	Goldney	72	O.419	96	652	676	645	767	755	652	4147
13.	Atkinson	253	S. 4	98	632	746	799	402	724	801	4113
14.	Zotov	356	Ka-6CR	100	927	813	887	28	808	613	4076
15.	Fielden	200	Ka-6E	96	807	810	719	284	800	539	3959
16.	Robinson	66	S 3F	100	800	736	597	813	325	684	3955
17.	Pozerskis	260	S 4	98	644	852	897	187	741	543	3864
18.	Williams	52	S 3F	100	1000	778	625	0	697	674	3774
19.	Lilburn	258	S 4	98	669	334	670	687	704	701	3765
20.	Seth-Smith	111	Ka-6E	96	702	779	158	741	736	576	3692
21=	Ellis	197	S 4	96	716	775	882	351	868	6	3598
	Sommerville	420	Ka-6CR	100	sc8	234	929	857	69	761	3598
23.	Hale	407	S 3F	100	816	636	673	0	678	747	3550
24.	Newall	29	Ka-6E	96	753	254	769	90	785	795	3446
25.	Dunn	318	Ka-6E	96	713	145	735	869	810	119	3391
26.	Ellis	9	S 3	100	726	239	555	193	735	622	3070
27.	Welsh	348	O.463	102	604	819	606	178	632	187	3026
28.	Dobson	354	Ka-6CR	100	413	269	921	163	309	761	2836
29.	Jeffries	110	AS K13	110	81	708	653	839	299	184	2764
30.	Shepard	190	S 3F	100	667	810	97	277	319	538	2708
31.	Austin	191	Ka-6E	96	713	211	518	336	297	629	2704
32.	Ince	75	Ka-6E	96	705	753	225	42	291	629	2649
33.	Paul	2	S 4	98	731	121	727	0	314	604	2497
34.	Orme	355	Ka-6CR	100	748	116	731	787	DNF	DNF	2382
35.	Whiffen	345	Ka-6CR	100	713	321	20	49	661	591	2355
36.	Morgan	87			713				308		
	Phipps		O.419	96		210	61	429		554	2275
37.	Patricia Watson	36	S 4	98	297	0	173	859	253	632	2214
38.	Riddell, M.	173	Foka 4	96	549	117	868	182	DNF	DNF	1716
39.	Tull	415	S 3F	100	640	0	163	399	318	102	1622
40.	Kay	350	Ka-6CR	100	211	209	197	0	290	616	1523

DNF = Did not fly.

STANDARD CLASS

Place	Pilot(s)	Contest No.	Type	Day Score 1	2	3	4	5	6	Total Score
1	Strachan	263	Ka-6E	983	992	987	1000	947	775	5684
2	Tanner	264	Ka-6E	887	897	921	853	779	1000	5337
3	Wheeler	388	Ka-6E	889	813	868	788	823	958	5139
4	Deane-Drummond	454	Ka-6E	506	893	943	939	854	835	4970
5	Shephard	433	Ka-6E	959	853	889	413	773	942	4929
6	Bentson	15	Ka-6E	1000	947	596	733	719	629	4624
7	Cardiff	107	K-8B	751	400	796	779	934	910	4570
8	Harrison	26	Ka-6E	716	918	1000	0	1000	888	4522
9	Smith	315	Ka-6E	781	1000	777	864	43	808	4273
		381	Ka-6CR							
10	Fielden	200	Ka-6E	809	817	719	315	892	584	4136
11	Zotov	356	Ka-6CR	887	788	841	29	856	643	4044
12	Hood	12	0.463	532	861	817	861	281	671	4023
13	Seth-Smith	111	Ka-6E	705	785	195	713	805	628	3831
14	Newall	29	Ka-6E	756	318	769	104	870	888	3705
15	Sommerville	420	Ka-6CR	716	275	880	815	69	804	3559
16	Dunn	318	Ka-6E	716	184	735	854	903	145	3537
17	Welsh	348	0.463	564	778	571	180	628	208	2929
18	Austin	191	Ka-6E	716	265	518	372	303	689	2863
19	Dobson	354	Ka-6CR	395	317	873	170	302	804	2861
20	Ince	75	Ka-6E	708	761	276	51	297	691	2784
21	Whiffen	345	Ka-6CR	683	379	21	51	676	618	2428
22	Orme	355	Ka-6CR	716	136	698	744	DNF	DNF	2294
23	Riddell, M.	173	Foka 4	552	150	868	204	DNF	DNF	1774
24	Kay	350	Ka-6CR	202	246	229	0	283	646	1606

DNF = Did not fly.





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COMPETITION SCORING

By C. E. WALLINGTON

THE article "Throw away the task setter" by Charles Ellis in the April-May, 1968, issue of SAILPLANE & GLIDING prompts me to take up the case for a revised scoring system again.

In the article "Throw away the slide rule" in S. & G., December, 1964, I discussed the principle of a new system but did not try to lay down a set of formal rules. Judging by subsequent correspondence the idea was attractive. A number of competition organisers applied the principle in various ways and as a result of the experience thus accrued both the advantages and the problems of the principle have become clearer. But before describing these let me clear up a few misconceptions that seem to have arisen.

First it should be stressed that my system is not designed merely to eliminate good or bad luck. The argument I put forward is simply that if pilot A goes further or faster than B, then the only thing we can be sure of is that A did better than B. We have no unequivocal way of saying how much better. Whatever scoring system we have, whether it is the present points system, my system or any other, we measure pilots' performances on each competition day, with, virtually, a rubber ruler that is stretched and shrunk unevenly by the weather, terrain over the course and other operational influences. We could delude ourselves into thinking that the ruler is accurate because it has a scale derived from an impressively complicated formula, or that we can make our measurements with more precision merely by crowding a lot of marks on the scale. But when we come to use our rubber ruler for real competition marking all we can be sure about is the *order* of the marks on it. If there were only one contest day in a competition it would not matter what scale we had, but in a normal competition our ruler is distorted by circumstances in a different way on each contest day. As soon as we put any scale whatever on the rule we begin to prejudge the final results. For example, if the scale is such that points increase with distance or time to a power greater than one we are favouring the pilot who may have made on one or two days outstandingly good flights in an otherwise average or even mediocre overall performance. If the scale is such that points increase with a fractional power of distance or speed we favour the pilot who maintains a consistently good or average performance without necessarily making any outstanding flight. I am not taking a stand on what constitutes a good pilot; the point here is that we cannot devise a scoring system without influencing the results.

Charles Ellis gives us a good example of prejudging. He contends that if, in a three-day contest, A flies distances of 100, 200 and 75 miles while B flies 95, 95 and 150 miles then B is the better pilot. This may be so, and if a scoring system is designed such that B's points total more than A's everyone would be happy *provided that they agree with the original contention.*

Unfortunately, in this same example, it was said that my system would fallaciously make A the eventual winner. This is wrong; the placing system does not necessarily make A the winner. Another gross misconception appears to be that my system attributes the difference in performance between two pilots as due only to luck. This, too, is quite wrong, and I hope that readers have not been misled by correspondence or discussions that may over-emphasise the luck factors.

The main mental obstacle to acceptance of the placing system is the reluctance to give up the notion that a pilot who outstrips all the other competitors by a big margin should always be rewarded by a very large number of points compared with those of his rivals. This, too, is a form of prejudging the final championship result. It is tantamount to sweeping aside any thoughts about soaring conditions on route and declaring that he *is* by far the best pilot —and if we make such a virtual declara-

tion do we really need to continue with the championship? Of course, this traditional viewpoint may be right, and again if we use a system that expresses it in points, everyone will be happy provided that they continue to put up with the trials and tribulations that this type of system has already caused and provided that they share the view. But there is strong evidence that the majority of pilots do not share this old point of view.

If contests were judged by an all-seeing umpire he might occasionally award more points for an outstanding flight than would be obtained from a placing system. But without such an umpire all we can say for sure is that the flight is better than the others. The placing system can still give the pilot many more marks than a number of his competitors, and if he really is good he will consolidate his lead during the other contest days. This caution in the placing system is wiser than a dogmatic assertion that *all* outstanding flights are pure brilliance.

Charles Ellis hits the nail (or nails) on the head when he suggests we liquidate the task setter and forecaster. When, and if, it becomes feasible to do so we shall presumably have operational and scoring systems that satisfy almost everyone. But at present there is little likelihood that forecasts for gliding will attain the ultimate accuracy in detail that is required, and there is not much chance of the task setter becoming an impeccable robot who will digest all the vagaries of predicted and actual weather, terrain, operational, legal and safety problems, then declare a perfect task. Even if the forecast were absolutely accurate the robot would invariably declare, "No contest today as the perfect task cannot be set."

So how can we make the best of imperfect tasks? Perhaps it would be nice to have an impeccable umpire who could award points at the end of each contest day in the light of the conditions that actually existed. But how would he know what conditions actually existed? Apart from pilots' reports his best guide would be the actual distances and speeds achieved. Logically he would assume that the "difficulty" in attaining any particular distance or speed was a function of the number of lone pilots and gaggles that failed to attain this distance or speed. Therefore, the difference in marks of any two pilots should be a function of the number of pilots with performances between those of the two pilots. He may not be sure what functions these differences should be, but unless there was information to the contrary he would have to assume that, beyond the straight gliding distance from the starting point, this function was the same over the entire course. In other words, the difference in marks between two pilots should be directly proportional to the number with intermediate performances. (The probability theory involving logarithms of the place marks is not appropriate to this argument.) This is the primary principle of the placings system. It virtually weighs up the day's actual performance and allocates marks with built-in compensation for many of the normal imperfections of any task.

The main problem of applying the principle is to deal with ties or groups of pilots that have almost equal performances. In the interests of both fairness and safety our umpire would try to award equal marks to pilots who were very close together in distance or speed. He would also suspect that if many

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pilots landed very close together that they had either been flying in a gaggle or had run up against an adverse change in soaring conditions. Therefore, in assessing the difficulty of a sector he would consider a gaggle as a group of pilots and not as a number of separate and independent pilots. This poses the question: How close should two pilots' performances be to be considered as a tie? How many pilots constitute a group or gaggle? How should the marking system be arranged to deal with ties and gaggles? Trials of the placing system, analysis of past national and international championships and correspondence on the subject have led to the answers that are implied in the system described in the next section of this article.

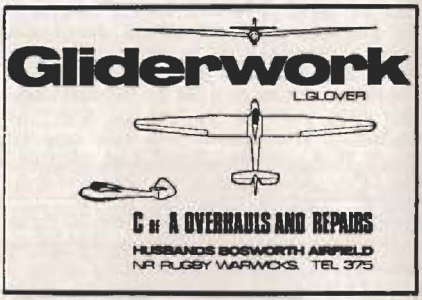
One unattractive aspect of the system I suggested is that to have a winner with the least marks does not sound quite right. Several hundred, or a thousand points for a day's winner sounds more satisfying and may appear (quite falsely) to give better resolution. But it is easy to make the placing system satisfy the natural desire to see a winner get most points.

The scoring system

To apply the placing principles, I suggest the following procedure.

When a task is set the organisers must declare a minimum scoring distance X, a distance criterion for ties, and a time criterion for ties. The two criteria for ties can be declared for the whole competition if necessary. Experience suggests that 2 km. and 30 seconds are about right. There is no need to declare what percentage of pilots need attain X or Y to make it a contest day.

As landing reports or racing times become available the scoring distances and times are calculated in accordance with whatever rules normally apply, e.g. penalties for distance off course. If handicaps are used these are applied at this stage to modify the scoring distances or times. These scoring times and distances are then listed in order of merit with racing times ranking above distances. Let us take Col. (2) in Table 1 as a set of results in which pilots A-H complete a course, pilots I to Q do not complete the course, while R, S and T do not attain



X, which is taken as 30 km. for this example.

The next step is to credit any pilot whose performance is at or within 30 seconds or 2 km. of any better pilot with the scoring time or distance of that better pilot. These "credited" times and distances are shown in Col. (3); D is credited with 195 minutes as he is within 30 seconds of C; K, L, M and N are all credited with 200 km. as they are within 2 km. of J. Now we insert in Col. (4) the number of pilots in each place or tie, subject to the proviso that 4 or more counts as 3. Pilots with credited distances less than X all tie for last place. Finally, we give the top man 100 points and work down the list making the difference in points between any two adjacent places equal to the sum of the numbers in these places in Col. (4), e.g. the difference between the first two places is 2 because there is only one pilot in each of these places; but there are two pilots counted in the third place, so the difference between 2nd and 3rd place is $1 + 2 = 3$; further down the list the drop of 5 points from 80 to 75 is because there are $3 + 2$ in these adjacent places.

There is no dividing or multiplying to do, and except for the landing positions that look close enough for ties, distance measurements need not be exact. The scorer does not have to wait until all pilots have reported until he can start the scoring, and, because the system is simple, there is much less chance of errors being made or being undetected.

In proposing this system I want to stress that it is not based on any personal views of what constitutes a "best" pilot for a whole championship. Over many years organisers and competitors have found the more common points

scoring system unsatisfactory. Versions of it in some circumstances have led to pilots being able to get more points by landing just short of a finishing line than by finishing the race. A long tough battle on one leg of a course is sometimes rewarded with only a fraction of the points easily acquired on another. The outcome of a World Championship would have been different if the organisers had quite fortuitously made a slight arbitrary change in an already arbitrary qualifying distance criterion. The fact that the current points systems are unsatisfactory is amply demonstrated by the changes that have had to be made to cover up anomalies and difficulties that have arisen year by year. Some organisers and rules committees have been painstaking and ingenious in their attempts to patch up the systems. But it is difficult for them to do much more than pile irregularities on to the illogical basis, wherein performances on each day are expressed as ratios (or powers of ratios) which are then summed to get a final result.

The system I propose is simply an attempt to produce the type of scoring system that organisers, rules committees and most competing pilots appear to be striving for — but they have been approaching their goal in a roundabout way because they have been saddled with the official points system.

I sincerely hope that if and when rules committees adopt the placing system they do not modify the marks by using squares, cubes, logarithms, or any other clever functions. The simple system I have suggested was not derived suddenly or lightly; nor is it suggested merely because it is simple. It is a direct consequence of many trials and of shaping the system to meet views expressed by many pilots in many countries. There may well be arguments and counter-arguments about the fairness of this or that feature, and I do not claim that the system will satisfy every opinion of every individual. But I am following, rather than trying to lead, general opinion on what constitutes a champion, and the proposed system would satisfy most people most of the time.

If any reader would like a complete set of scoring rules employing this system, I would be pleased to send him a copy.

Table 1

1	2	3	4	5
Pilot	**Scoring time or distance**	**Credited time or distance**	**Number of pilots* in each place or tie**	**Points**
A	180 minutes	180 minutes	1	100
B	188 ,,	188 ,,	1	98
C	195 ,,	195 ,,	2	95
D	195½ ,,	195 ,,		
E	196 ,,	195½ ,,	1	92
F	205 ,,	205 ,,	3	88
G	205½ ,,	205 ,,		
H	205½ ,,	205 ,,		
I	290 km.	290 km.	1	84
J	280 ,,	280 ,,	3*	80
K	279 ,,	280 ,,		
L	279 ,,	280 ,,		
M	278 ,,	280 ,,		
N	278 ,,	280 ,,		
O	200 ,,	200 ,,	2	75
P	199 ,,	200 ,,		
Q	40 ,,	40 ,,	1	72
R	28 ,,	−30 ,,	3	68
S	20 ,,	−30 ,,		
T	15 ,,	−30 ,,		

* 4 *or more counts as* 3

THE SIX DAYS OF DUNSTABLE

By IAN STRACHAN

IT is a great honour to be the first of a new line of champions, particularly as I firmly believe in the concepts behind the Sport Class, and indeed had a hand in its creation. The two factors of a more refined handicapping system, combined with a "narrow performance band" contest, have enabled the cheaper, simpler gliders once more to have a place at "Nationals" level. These gliders are the real stuff of which our movement is made, rather than the "exotics", although these also have their place.

Many wives (and bank managers) must now be sighing with relief as it is no longer necessary to buy a new glider each year in order to stay at the top. Some might think this retrograde, but what it really means is that sounder choices of new gliders will be made, as there will be more time before older gliders are obsolete, and so more time to assess the merits of new types. More emphasis will probably be placed on practical features such as ease of rigging, servicing and handling, now that straight performance is not quite the "be all and end all" that it was. Of course, regarding the World Championships, handicapping is neither desirable nor possible, the Standard Class being the nearest practical alternative. I would heartily endorse Lorne Welch's views on the retention (or tightening) of the Standard Class rules (see *S. & G., June*, 1968, *page* 218).

Aside from politics, what of the flying? Three points of technique which contributed to my success come to mind:

1. Radio Information of Conditions Ahead. It pays to let at least some pilots get down the route first, so that one is warned of any unforecast changes in conditions. One has everything to gain and very little to lose with this ploy—even on a distance day it can work by warning one of bad conditions in time to work round them, especially if one uses the second point of technique, which is. . . .

2. Not Hesitating To Go Off Track. This only pays if conditions really warrant it—otherwise one loses time—but one should not have too stereotyped an outlook towards sticking close to track. On both the Duxford triangle and the race to Swanton Morley I was initially just behind the leading pack of gliders. On each occasion, clouds looked better to the right of track, and as the leading machines were getting bogged down (from radio reports), I diverged each time to 15 n.m. from track.

Duxford was reached after a long glide from this high position, high enough to scratch away to halfway down the final leg. Swanton Morley was reached well before other gliders because I tracked over the better thermal country of the Thetford area while other pilots were held up by a clamp in the fens.

Some tried to glide through the clamp, and came unstuck, whereas I feel it is better to work round such bad areas unless radio information is available that they are narrow enough to cross. A



Ian Strachan under his traditional camouflage, which is trimmed for max. L/D.

knowledge of the "radius rule" of distance scoring is useful here, for one is not penalised much for being off track until one nears the next TP. This is worth studying.

Another allied technique is that of the tactics of height at TP's. On an into-wind leg, each thermal drifts one back. It is thus better to round the into-wind TP as low as one dares, to minimise the adverse effect of wind on the leg. One can then scrape away in weak lift, allowing the wind to take you towards the next TP, while others stack up with height for the into-wind TP, drifting back all the time they do so. My classic use of this was on the Olney triangle, where I deliberately rounded Olney at 1,800 ft., ASL, but conversely took 6,000 ft. on the first leg to round Caxton Gibbet.

3. NOT Flying for Speed. For years I have flown at 70 and even 80 knots between strong thermals, in the belief that this was right for the best overall speed. And indeed it is, if the next thermal is also strong. However, last year I was greatly influenced by Pat Beatty's article in the June *S. & G.* (*page* 238) about his 300-km. triangle world record in the BJ-3. Pat gave a number of reasons why it was not politic to fly at the theoretical speeds between thermals, which coincided nicely with Anthony Edwards' "Stochastic" articles (*see S. & G., October*, 1964, *page* 364).

This year I resolved to be not quite so dashing, and to fly slower between lift. When the 300-km. triangle day came I was 400 points in the lead, and so resolved to do a controlled experiment and see what happened if I flew range speeds between thermals—I could always speed up if radio reports showed that I was falling behind. Well, with an average inter-thermal speed of 50 knots, and a maximum of 55 knots (for a down-current), I was third fastest for the day! Selection of thermals is much more important than the speed one flies—and I didn't really have an uncomfortable moment on that trip—whereas doing 80 knots I would have been sure to have had a scrape. In unreliable British conditions, at any rate, one should compromise between flying for range and flying for speed, the balance to be struck depending on the look of conditions ahead, and biased if anything in favour of flying slower rather than faster.

Final comments? Luck was well and truly with me in that I didn't fall down badly on any of the six days, and was able to coast round on the last day really to make sure of finishing. Many fine pilots had the misfortune to come unstuck on one day only, and had things been slightly different, perhaps I should have landed at Kettering on Day 1 and at Thetford on the Swanton Morley race. But this was not to be, and I was also lucky with cloud climbs, as in the Ipswich race where an 8,000 ft. climb after the TP put me virtually on final glide.

The Dunstable organisation was superb. Our noses were kept to the grindstone and tasks were not cancelled too early, yet the organisers were cautious enough not to launch 40 rampant pilots into unsuitable weather. Task setting was excellent, with no resort to free distance, long races and other tasks involving fruitless retrieves. The "Alternative Out-and-Return" was even tried on a couple of days but the weather didn't brew up for launching.

Thank you, London Gliding Club, for having us all, and thank you Roger Barrett, for so efficiently heading the Nationals organisation.

WORLD CHAMPIONSHIPS APPEAL

Donations from the following to the British Team's expenses are gratefully acknowledged:

Boots

Messrs. Courage (Central) Ltd.

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Goldby, P. E.

Goodhart, Mr. and Mrs. Gavin.

Garrod, M. P.

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The contributions to the Fund totalled £1,546 5s. 0d.

WORLD GLIDING CHAMPIONSHIPS — 1968

THE PRELIMINARIES

By A. E. SLATER

ON 31st May the British set out for the same place as ten years before, and for the same purpose, though not by the same route. Last time they went through Czechoslovakia; this time they took the direct route through East Germany, passing just south of Berlin, and then, at the Polish border, changing course from E to SE to reach Leszno.

For several crew members it was to be their second "working holiday" in Leszno, but only for one of the pilots, Nicholas Goodhart, who, in 1958, finished in the Open Class as runner-up to the champion, Ernst-Günther Haase of West Germany. Nor, of course, was it the first time for Ann Welch as Team Manager.

After a two-hour wait outside Zeebrugge for an opportunity to dock, they proceeded to the hospitable Officers' Mess at Brüggen for the first night, and went on next day to Oerlinghausen, where the German Nationals were about to conclude. On the approach they heard over the radio the voices of Anne Burns, who, with her husband, was an official participant, and of John Williamson and David Innes, who had gone on ahead of the team to take part *hors concours*. Each of these two had been conveyed, complete with glider and equipment, in an RAF Hercules conveniently doing a training flight to Gütersloh.

The team spent the next night, such as it was, at Braunschweig, so as to be off at 3.30 a.m. for the East German frontier to avoid the rush. The result was that they were the first national team to arrive there, so they became the "guinea pig" on which the frontier officials had to learn the art of letting through a whole World Gliding Championship team with all its equipment—not forgetting the radio. The process took over three hours. The Polish frontier was rather easier—except for the woman behind the money-changing counter.

The West German team were less fortunate: they had to go through Czechoslovakia and try all six checkpoints before finding the right one, and this cost them five days and 2,000 kilometres on the way.

Round the entrance to Leszno airfield the buildings looked much the same as before, but in the offing the former odd collection of low buidings, which had included a small café and briefing room, had been replaced by various sets of new buildings. The nearest contained cafés, lounges, offices and a big lecture room (used by OSTIV) on the ground floor, and bed-sitters upstairs for all the pilots, grouped together in various assortments—such as the four Australians with the one Japanese.

Further off was the restaurant for the crews, who were encamped in tents.

Another new feature was a swimming pool.

On Monday, 3rd June, an official practice day, flights were limited within a 15 km. radius and cloud flying was forbidden, while launches were only laid on between noon and 3 p.m. By the end of the day, 18 national teams had arrived. Next day, two alternative triangles were set.

At briefing on 5th June the Standard Class were told to be ready for inspection from 17.00 to 20.00 hours, and again early next morning. This inspection revealed that a new Czechoslovak machine (M-35) had something which was called an airbrake but looked rather like a flap. There had to be a discussion by the International Jury and then by the OSTIV Jury before it was finally decided, a few days later, that it was a brake.

As the birds chirruped above the protective parachutes hung in the roof of the briefing hangar, the day's unofficial task was announced: a 107-km. triangle race. Pilots were given forms to fill in whenever they made field landings; they were for entering up any observed, estimated or alleged damage to crops or farm property, and had to be done in

duplicate—one for the farmer to keep, the other for the organisers.

Not everyone tried the task; but of those who did, 18 got round in the Open Class and ten in the Standard—others presumably filled in the new forms. Fastest was Nicholas Goodhart at 66.1 km./h., closely followed by Vergani of Italy with 65.6. George Burton was launched too late to get away. In the Standard Class John Williamson won at 57.7 km./h., and David Innes came second at 56.4 km./h. John Willie said he found it straightforward, and was only once down to 1,500 ft.

And this was all the forecasters of "form" had to go on, because the weather clamped down next day and remained clamped, with evanescent breaks, for the remaining three days of the practice period, the opening day and the first three days of the contest period —seven days on end.

Opening day, Sunday, 9th June, brought thousands of spectators from Leszno town and surrounding districts to see and hear the Deputy Prime Minister, Mr. Waniolka, perform the opening ceremony. His speech went on for a considerable time, although the official interpreter would have us believe that all he said was: "I declare the Eleventh World Gliding Championships open."

He was followed by "Pirat" Gehriger, President of the Gliding Commission of the FAI, who pleased all the local people, especially the Mayor of Leszno, by hoping it would become an established tradition to hold the World Championships there every ten years.

Then came "Pelle" Persson, the 1948 champion, who has flown at more World Championships than anyone else, hurrying up with a flaming torch with which he set light to a stationary flame in front of the FAI flag (after the man in charge of the gas tap had discovered by trial and error which way to turn it).

There followed a spectacular flying display. A Jastrzab aerobatic sailplane, with a designed maximum speed of 450 km./h., performed wondrous aerobatics, including bunts, a long absolutely vertical dive and an upside-down glide across the airfield at less than 30 ft. A helicopter towed off a glider and eventually came to a stop with it dangling below like a fish on a line. Another helicopter stunt was to drag a man about the sky at the end of a rope until he released himself and parachuted down. Another group of parachutists spot-landed with Polish Aero Club flags.

The first contest briefing, on Monday, 10th June, was notable chiefly for the presentation of a cup to Per Axel Persson of Sweden for having flown in more World Championships than anyone else.

Briefings were given in Polish and English, and this seemed to satisfy most people, although, in fact, the main international language in Poland was German, with English a good second and French (the second "official language" in 1958) quite a way behind. The meterologist himself repeated his briefings in English, but our team also had the benefit of its own professional Met. man in Brian Hunt.

For three days briefings were held and postponed and tasks were announced and cancelled, until at last, during the night of Wednesday, 12th June, fine weather which had been knocking at the door from the north surreptitiously moved in, the sun rose into a clear bright sky on Thursday morning, and with the onset of real competition flying this account of the Preliminaries comes to an end.



On the sixth day of rain Ann Welch and Frank Irving turned up at briefing attired in their wet suits complete with snorkels.

WORLD GLIDING CHAMPIONSHIPS—LESZNO, POLAND—9th-23rd JUNE, 1968

FINAL RESULTS OPEN CLASS

No.	Pilot	Country	Comp. No.	Sailplane	13.6 1000 1	15.6 640 2	16.6 706 3	17.6 1000 4	18.6 1000 5	20.6 1000 6	22.6 1000 7	Total Points
1.	Wödl	Austria	5	Cirrus	959 (7)	640 (1)	693 (2)	758 (17)	1000 (1=)	761 (16=)	919 (5)	5730
2.	Ax	Sweden	37	Phoebus 17	912 (8)	515 (20)	683 (3)	964 (3=)	932 (12)	838 (9=)	855 (8)	5699
3.	Seiler	Switzerland	35	Diamant 18	860 (11)	609 (4)	706 (1)	626 (26=)	916 (15)	1000 (1)	956 (4)	5673
4.	Schubert	Austria	6	Diamant 18	962 (5=)	605 (5=)	674 (4=)	764 (15)	758 (28=)	908 (4)	854 (9)	5525
5.	Huth	W. Germany	28	ASW-12	753 (23)	554 (9=)	674 (4=)	654 (21)	1000 (1=)	761 (16=)	978 (2)	5374
6.	Hossinger	Argentina	1	Phoebus 17	854 (12=)	546 (16=)	661 (8)	887 (6)	815 (20)	838 (9=)	747 (16)	5348
7.	Burton	Gt. Britain	42	SHK-1	962 (5=)	554 (9=)	648 (10)	909 (5)	959 (6)	543 (30)	688 (21=)	5263
8.	Johnson	USA	34	HP-13	909 (9)	612 (3)	658 (9)	791 (12)	938 (10)	719 (19)	593 (31)	5220
9.	Yeates	Canada	23	Cirrus	988 (3)	554 (9=)	623 (16=)	594 (31=)	812 (21)	803 (14)	806 (12)	5180
10.	Zegels	Belgium	8	SHK	828 (17)	554 (9=)	626 (15)	561 (34)	758 (28=)	873 (7=)	781 (13)	4981
11.	Cameron	New Zealand	29	Cirrus	785 (21)	605 (5=)	671 (6)	698 (19)	723 (31)	620 (21)	857 (7)	4959
12.	Horma	Finland	13	SHK-1	843 (14)	554 (9=)	635 (12=)	599 (30)	686 (33)	733 (18)	891 (6)	4941
13.	Webb	Canada	24	BS-1	18 (47)	554 (9=)	619 (18)	1000 (1)	957 (7)	929 (2=)	810 (11)	4887
14.	Wroblewski	Poland	31	Zefir 4	991 (2)	539 (18=)	587 (28)	964 (3)	806 (22)	297 (41)	627 (26)	4811
15.	Frene	Argentina	2	Phoebus 17	895 (10)	414 (26=)	629 (14)	558 (35)	777 (27)	901 (5=)	619 (29)	4793
16.	Goodhart	Great Britain	41	HP-14C	814 (20)	30 (46)	607 (21)	720 (18)	951 (8)	929 (2=)	739 (17)	4790
17.	Dekkers	Holland	20	Diamant 18	726 (26)	605 (5=)	664 (7)	832 (9)	15 (46)	901 (5=)	1000 (1)	4743
18.	Spánig	W. Germany	27	BS-1	729 (25)	554 (9=)	597 (25)	983 (2)	973 (3=)	262 (42)	623 (28)	4721
19.	Litt	Belgium	7	SHK	816 (19)	414 (26=)	607 (21=)	769 (14)	482 (38)	873 (7=)	757 (14)	4718
20.	Ehrat	Switzerland	36	Elfe*	854 (12)	488 (22)	623 (16=)	*626 (26=)	857 (19)	564 (26)	656 (23)	4668
21.	Schreder	USA	33	HP-14	968 (4)	620 (2)	424 (41=)	613 (29)	970 (5)	410 (39=)	609 (30)	4614
22.	Czuvikov	USSR	45	A-15	689 (29)	500 (21)	616 (19=)	761 (16)	801 (23)	613 (22=)	625 (27)	4605
23.	Vergani	Italy	43	Cirrus	1000 (1)	383 (31)	635 (12=)	588 (33)	973 (3=)	557 (27=)	457 (40)	4593
24.	Satny	Czechoslovakia	10	Vega	779 (22)	438 (24)	463 (34=)	594 (31=)	790 (25)	817 (12)	688 (21=)	4569
25.	Manzoni	Italy	44	Cirrus	738 (24)	131 (14=)	444 (40)	827 (10)	919 (13=)	515 (32=)	970 (3)	4544
26.	Rudenskij	USSR	46	A-15	840 (15)	212 (37)	616 (19=)	807 (11)	785 (26)	613 (22=)	443 (41)	4316
27.	Gatolin	Yugoslavia	21	Meteor	302 (42=)	539 (18=)	591 (27)	626 (26=)	879 (18)	698 (20)	629 (25)	4264
28.	Krolikowski	Poland	32	Zefir 4	822 (18)	201 (38)	460 (39)	849 (7)	941 (9)	487 (35)	463 (39)	4223
29.	Rowe	Australia	4	Libelle	837 (16)	546 (16=)	424 (41=)	646 (22=)	702 (32)	459 (37=)	587 (32)	4201
30.	Csepan	Hungary	39	A-15	419 (38)	278 (33=)	642 (11)	777 (13)	911 (16)	459 (37=)	698 (20)	4184
31.	Kunsagi	Hungary	40	A-15	392 (40)	395 (28=)	603 (24)	843 (8)	898 (17)	44 (44)	814 (10)	3989
32.	Jinks	Australia	3	Diamant 16.5	596 (34)	391 (30)	594 (26)	646 (22=)	646 (34)	529 (31)	581 (33=)	3983
33.	Olsson	Sweden	38	Phoebus 17	663 (30)	220 (35)	523 (30)	629 (25)	919 (13=)	606 (24)	319 (42)	3879
34.	Rakowski	E. Germany	25	Foka 4	503 (36)	158 (39)	479 (33)	519 (36)	753 (30)	838 (9=)	581 (33=)	3831
35.	Mercier	France	16	Edelweiss 4	395 (39)	562 (8)	578 (29)	29 (46)	796 (24)	578 (25)	749 (15)	3787
36.	Thomasen	Denmark	12	Zugvogel 3	625 (31)	395 (28=)	463 (34=)	509 (38)	538 (37)	557 (27=)	467 (38)	3554
37.	Frenc	Yugoslavia	22	Meteor	76 (45)	154 (40)	463 (34=)	443 (39)	935 (11)	775 (15)	640 (24)	3486
38.	Jungblut	Holland	19	Phoebus 17	607 (32)	461 (23)	607 (21=)	382 (41)	434 (41)	248 (43)	706 (19)	3445
39.	Hamalainen	Finland	14	Kotka	697 (28)	100 (44)	418 (43)	632 (24)	584 (35)	480 (36)	514 (36)	3425
40.	Heginbotham	New Zealand	30	Phoebus 17	709 (27)	131 (41=)	517 (31)	657 (20)	300 (43)	501 (34)	573 (35)	3388
41.	Gavillet	France	15	WA-26	302 (42=)	426 (25)	463 (34=)	344 (42)	458 (40)	515 (32=)	721 (18)	3229
42.	Svoboda	Czechoslovakia	9	Vega	599 (33)	278 (33=)	2 (46)	517 (37)	463 (39)	550 (29)	6 (45)	2646
43.	Thortensen	Norway	49	A-15	43 (46)	216 (36)	95 (45)	432 (40)	581 (36)	810 (13)	7 (44)	2184

44. Junqueira	Brazil	48	Foka	593 (35)	131 (41=)	130 (44)	330 (43)	179 (44)	0 (45=)	483 (37)	1846
45. Ara	Spain	18	HP-14	305 (41)	41 (45)	463 (34=)	51 (45)	311 (42)	410 (39=)	141 (43)	1722
46. Franzen	Denmark	11	SHK	456 (37)	383 (31=)	0 (47)	—	—	—	—	839
47. Anglada	Spain	17	Foka 4	97 (44)	0 (47)	498 (32)	65 (44)	43 (45)	0 (45=)	—	703
48. Elke	E.Germany	26	Foka 4	0 (48)	—	—	—	—	—	—	0

* As from 17th June glider changed to Diamant 18.

Figures in brackets denote daily placings.

FINAL RESULTS STANDARD CLASS

No.	*Pilot*	*Country*	*Comp. No.*	*Sailplane*	13.6 1000 1	14.6 588 2	15.6 380 3	16.6 683 4	17.6 1000 5	18.6 1000 6	20.6 1000 7	22.6 1000 8	*Total Points*
1.	Smith	USA	93	Elfe-S3	974 (3)	513 (7=)	171 (32)	658 (4=)	974 (2)	898 (7)	542 (18)	865 (6=)	5595
2.	Persson	Sweden	97	Std. Libelle	636 (22)	497 (9)	198 (21=)	683 (1)	945 (4)	705 (27)	1000 (1)	795 (16)	5459
3.	Lindner	W. Germany	82	Phoebus 15	997 (2)	308 (30)	210 (13=)	645 (6=)	745 (22)	867 (11)	870 (3=)	802 (15)	5444
4.	Moffat	USA	92	Elfe-S3	730 (12)	588 (1)	198 (21=)	614 (16=)	1000 (1)	896 (8)	573 (17)	838 (10)	5437
5.	Stouffs	Belgium	56	Std. Libelle	1000 (1)	191 (40)	237 (6=)	658 (4=)	953 (3)	1000 (1)	847 (5=)	496 (45)	5382
6.	Bloch	Switzerland	94	Elfe-S3	837 (6)	543 (3=)	138 (39)	541 (29=)	763 (15)	862 (12)	870 (3=)	815 (13)	5369
7.	Perotti	Italy	104	Phoebus 15	688 (16=)	513 (7=)	237 (6=)	630 (12)	773 (13=)	664 (29)	847 (5=)	907 (4)	5259
8.	Makula	Poland	88	Foka 5	799 (8=)	119 (41=)	262 (2=)	611 (18=)	776 (12)	879 (9=)	824 (8)	916 (3)	5186
9.	Nietlispach	Switzerland	95	Phoebus 15	905 (4)	543 (3=)	156 (34=)	528 (33)	942 (5)	958 (4)	367 (22)	757 (17=)	5156
10.	Grosse	W. Germany	83	ASW-15	799 (8=)	298 (31=)	380 (1)	642 (8=)	758 (16=)	879 (9=)	123 (39)	1000 (1)	4879
11.	Vavra	Czechoslovakia	62	M-35	348 (41)	478 (11)	198 (21=)	626 (13)	750 (20)	971 (2)	756 (12)	707 (25)	4834
12.	Pronzati	Italy	103	Phoebus 15	747 (11)	474 (12)	198 (21=)	623 (14=)	812 (11)	949 (5)	62 (45)	885 (5)	4750
13.	Rodling	Sweden	96	Std. Libelle	605 (26=)	269 (34)	237 (6=)	614 (16=)	880 (8)	770 (20)	321 (25)	930 (2)	4626
14.	Reparon	Holland	73	Ka-6E	811 (7)	211 (39)	240 (5)	668 (2=)	643 (30)	828 (15)	359 (23=)	853 (8)	4613
15.	Fritz	Austria	55	Std. Austria	147 (48)	549 (2)	216 (12)	623 (14=)	753 (19)	915 (6)	580 (16)	750 (20)	4533
16.	Muszczijnski	Poland	89	Foka 4M	858 (5)	119 (41=)	262 (2=)	645 (6=)	916 (6)	833 (14)	763 (11)	78 (52)	4474
17.	Petroczy	Hungary	100	Foka 4	700 (15)	416 (22=)	222 (11)	573 (26=)	589 (33)	756 (22)	466 (21)	674 (30)	4396
18.	Reid	New Zealand	87	Ka-6E	563 (32)	543 (3=)	225 (10)	607 (20=)	667 (28)	149 (48)	885 (2)	748 (21)	4387
19.	Gombert	France	68	Edelweiss	721 (13)	491 (10)	132 (40=)	512 (38)	732 (23)	797 (19)	146 (36=)	692 (28)	4223
20.	Nolte	E. Germany	81	Foka 4	570 (31)	292 (33)	0 (54=)	604 (22=)	833 (10)	272 (40)	809 (9)	804 (14)	4184
21.	Johannessen	Norway	85	Vasama	589 (30)	12 (48)	237 (6=)	506 (39=)	568 (35)	749 (24)	801 (10)	710 (24)	4172
22.	Williamson	Gt. Britain	102	Dart 15W	617 (24)	520 (6)	189 (30)	234 (50)	690 (27)	966 (3)	199 (34)	745 (22)	4160
23.	Kuzniecow	USSR	105	Foka 4	655 (19)	419 (21)	201 (19=)	604 (22=)	701 (26)	623 (31)	245 (28=)	633 (33)	4081
24.	Wiitanen	Finland	66	KK-1 UTU	789 (10)	119 (41=)	107 (48)	642 (8=)	662 (29)	821 (17)	70 (43=)	817 (12)	4027
25.	Schreibmaier	Austria	54	Ka-6E	591 (29)	243 (37)	210 (13=)	516 (35=)	758 (16=)	758 (21)	245 (28=)	703 (26)	4024
26.	Urbancic	Agentina	51	Phoebus 15	506 (37)	468 (13=)	125 (44=)	414 (46=)	472 (42)	809 (18)	359 (23=)	865 (6=)	4018
27.	Finescu	Rumania	91	Foka 4	681 (18)	416 (22=)	198 (21=)	525 (34)	368 (45)	645 (30)	519 (19)	631 (34)	3983
28.	Matousek	Czechoslovakia	63	M-35	539 (35)	253 (36)	256 (4)	547 (28)	755 (18)	860 (13)	70 (43=)	548 (41=)	3828
29.	van Bree	Holland	72	Foka 4	605 (26=)	425 (19)	13 (52)	636 (10)	612 (32)	741 (25)	230 (31=)	523 (44)	3785
30.	Innes	Gt. Britain	101	Dart 15W	136 (50)	461 (16=)	198 (21=)	604 (22=)	862 (9)	826 (16)	0 (51=)	683 (29)	3770
31.	Münch	Brazil	58	Foka	541 (34)	412 (25=)	204 (16=)	607 (20=)	727 (24)	541 (33)	0 (51=)	644 (32)	3676
32.	Penaud	France	69	Edelweiss	714 (14)	461 (16=)	204 (16=)	633 (11)	703 (25)	220 (43)	108 (41)	629 (35)	3672
33.	Fowke	New Zealand	86	Ka-6E	605 (26=)	0 (50=)	47 (51)	516 (35=)	477 (40)	720 (26)	496 (20)	752 (19)	3613
34.	Szereday	Hungary	99	Foka 4	615 (25)	416 (22=)	10 (53)	531 (31=)	584 (34)	751 (23)	54 (46)	586 (38)	3547
35.	DeFosse	Belgium	57	Foka	688 (16=)	217 (38)	201 (19=)	604 (22=)	903 (7)	125 (50)	725 (13)	1 (53)	3464

				13.6 1000 1	14.6 588 2	15.6 380 3	16.6 683 4	17.6 1000 5	18.6 1000 6	20.6 1000 7	22.6 1000 8	*Total points*
36. Blauert	E. Germany	80	Foka 4	626 (23)	468 (13=)	198 (21=)	500 (41)	120 (52)	333 (37=)	641 (15)	541 (43)	3427
37. Balukin	Norway	84	Std. Austria	534 (36)	464 (15)	210 (13=)	668 (2=)	773 (13=)	2 (53)	0 (51=)	757 (17=)	3408
38. Liljamo	Finland	67	KK-1 UTU	641 (20)	403 (27)	204 (16=)	506 (39=)	638 (31=)	169 (47)	115 (40)	696 (27)	3372
39. Stanley	Argentina	52	Phoebus 15	362 (40)	298 (31=)	125 (44=)	541 (29=)	132 (49=)	284 (39)	717 (14)	833 (11)	3292
40. Rusuw	Bulgaria	60	Foka 4	242 (44=)	113 (44)	153 (36=)	516 (35=)	215 (47)	462 (34=)	832 (7)	595 (37)	3128
41. Mix	Canada	79	Foka	430 (38)	106 (45)	198 (21=)	611 (18=)	503 (39)	406 (36)	153 (35)	665 (31)	3072
42. Perez	Chile	77	Foka	242 (44=)	259 (35)	150 (37)	417 (44=)	550 (36)	462 (34=)	230 (31=)	721 (23)	3031
43. Braes	Denmark	64	Ka-6E	553 (33)	48 (46)	0 (54=)	573 (26=)	397 (43)	0 (54)	47 (47)	851 (9)	2469
44. Loughran	India	74	Foka	0 (52=)	360 (29)	180 (31)	462 (42=)	391 (44)	232 (42)	260 (26)	548 (41=)	2433
45. Iliescu	Rumania	90	Foka 4	395 (39)	5 (49)	125 (44=)	113 (52)	274 (46)	669 (28)	230 (31=)	611 (36)	2422
46. Schubert	Brazil	59	Urupema	242 (44=)	422 (20)	125 (44=)	269 (49)	141 (48)	609 (32)	0 (51=)	561 (39)	2369
47. Didriksen	Denmark	65	Ka-6CR	641 (20=)	377 (28)	168 (33)	414 (46=)	475 (41)	88 (51)	146 (36=)	345 (46=)	2328
48. Stepanovic	Yugoslavia	107	Delfin	204 (47)	0 (50=)	192 (29)	462 (42=)	508 (38)	245 (41)	146 (36=)	522 (40)	2309
49. Zajcew	USSR	106	Foka 4	265 (42)	412 (25=)	132 (40=)	284 (48)	747 (21)	139 (49)	1 (48=)	0 (54)	1980
50. Juez	Spain	71	Foka 4	263 (43)	0 (50=)	128 (43)	417 (44=)	513 (37)	176 (45)	1 (48=)	345 (46=)	1843
51. Blackwell	Australia	53	Foka	0 (52=)	458 (18)	62 (50)	531 (31=)	132 (49=)	—	—	—	1183
52. Filuppusson	Iceland	75	Foka	39 (51)	0 (50=)	132 (40=)	0 (55)	128 (51)	174 (46)	253 (27)	314 (49)	1040
53. Fujikura	Japan	78	Foka	141 (49)	35 (47)	156 (34=)	31 (54)	64 (55)	36 (52)	237 (30)	318 (48)	1018
54. Sole	Spain	70	Foka 4	0 (52=)	0 (50=)	0 (54)	98 (53)	76 (54)	333 (37=)	85 (42)	273 (51)	865
55. Haflidason	Iceland	76	Foka	0 (52=)	0 (50=)	77 (49)	183 (51)	78 (53)	188 (44)	1 (48=)	291 (50)	818
56. Stanczew	Bulgaria	61	M-35	0 (52=)	0 (50=)	141 (38)	—	—	—	—	—	141
57. Aydogan	Turkey	98	Foka	0 (52=)	—	—	—	—	—	—	—	0

TASKS OPEN CLASS.—13th June: 224-km. Triangle—Miłosław, Sulmierzyce, Leszno. 15th June: 224-km. Triangle—Sulmierzyce, Miłosław, Leszno. 16th June: 315-km. Triangle—Wrocław, Borkow, Leszno. 17th June: 215-km. Triangle—Przylep, Lubin, Leszno. 18th June: 182-km. Out-and-Return—Dąbrowa, Leszno. 20th June: Distance along a line to Konskie (228 km.) and back through Leszno. 22nd June: 200-km. Goal Race —Lublinek.

TASKS STANDARD CLASS.—13th June: as for Open Class. 14th June: 226-km. Out-and-Return—Borkow, Leszno. 15th June: as for Open Class. 16th June: as for Open Class. 17th June: as for Open Class. 18th June: 170-km. Out-and-Return—Maly Gadow, Leszno. 20th June: Distance along a line to Piotrkow Trybunalski (227 km.) and back through Leszno. 22nd June: as for Open Class.

We hope to have further reports on the World Championships in our next issue.



▲ *World Champion Open Class: Harro Wödl (Austria).*



Hans-Werner Grosse (W. Germany) illustrates a point to Gerhard Waibel, designer of the ASW-12 and 15, Wally Wallington and Rika Harwood.

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Zefir 4's ▶





▲ *World Champion Standard Class: A. J. Smith (USA), on right, talking to Harold Drew.*

The grid system was one of the best features, with plenty of room for everyone. ▶



The new tower, hotel and restaurant. The pilots were allocated rooms in this building. ▶



▼ *George Burton, the highest placed Briton, who came seventh in the Open Class in his SHK-1.*





▲ *The British team at the opening ceremony.*

Tugging was carried out by 20 Gawron's and 5 Wilga's. ▶





▲ *At the official welcome ceremony "Pirat" Gehriger cuts the traditional bread to accept the hospitality on behalf of all the teams.*

Nick Goodhart and Frank Irving with the HP-14 ▶



5 blocks by courtesy of Flight International.

▼ *Briefing in progress.*



TOWING HITCHES AND ELECTRICAL PLUGS FOR GLIDER TRAILERS

By FRANK IRVING

THERE will always be a few rugged individualists who cling to their unique towing arrangements, if only to ensure that nobody else is going to remove their trailer either advertently or inadvertently. But most owners and clubs, for very obvious reasons, would like to see a high degree of standardisation so as to ensure the maximum compatibility between cars and trailers. It is too much to expect that all owners of trailers will immediately hasten to make them standard, but one might hope that standardisation will creep in as equipment is replaced. The object of this article is to explain what the present standards are, so as to encourage their eventual adoption throughout British gliding.

Towing hitches

The car fitting which is standard throughout continental Europe, and now adopted in this country, is the 50 mm. diameter ball. If you order a car fitting without stating an explicit requirement, this is what you are most likely to receive. In this country the issue is confused by the previous widespread use of the 2-inch (50.8 mm.) ball. The difference in size is too small to be apparent to the eye, so all 50 mm. balls are distinguished by having a flat machined on the top. In some cases, but not all, "50 mm." is stamped on the flat. No 2-inch ball has such a flat.

Car manufacturers and designers of towing gear are normally concerned with caravans rather than glider trailers, and the National Caravan Council has recommended a British Standard for the height of the towing hitch. The figure is 415 mm. plus or minus 40 mm. (16.25 in. plus or minus 1.5 in.). The ball is attached by two $\frac{5}{8}$ in. diameter bolts at $3\frac{1}{2}$ in. centres. Broadly speaking, standard attachments for most cars come at a reasonable height for towing glider trailers, although in a few cases (particularly Land Rovers) it may be necessary to lower the ball. Kits are available for fitting towing gear to almost every type of car, either from the car manufacturers or from specialist firms. They are not very expensive and although the ease of fitting varies from one type of car to another (and sometimes between different examples of the same type), they are usually far better than some home-made angle-iron lash-up.

The trailer fitting must also be designed to take the 50 mm. ball. Both 50 mm. and 2-inch hitches are in use, and the size may not be apparent from a cursory inspection. Therein may lie a hazard. Both sizes of trailer hitch will go on a 50 mm. ball, but a 2-inch hitch will be a dangerously loose fit. Although one might imagine that the nominal

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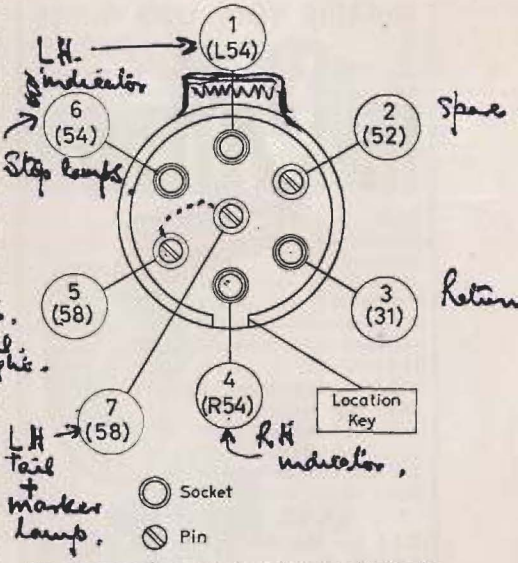
0.8 mm. clearance would simply cause some rattle, certain hitches have quite a small overlap even when fitted to the correct ball, and the extra clearance can make them quite unsafe. So while all 50 mm. balls are distinguished by the flat top, trailer hitches may not be so readily distinguishable; it would therefore be useful to fix a warning notice to your trailer near the hitch if it is of the 2-inch size. The Leason "Lockmatic" hitch is nominally designed to the 50 mm. standard and is marked accordingly. The makers claim that the same hitch will also accept a 2-inch ball.

Electrical plugs and sockets

The standard is the 7-pin plug and socket. At present, the International Standards Organisation (ISO) has a draft recommendation for the 7-pin connector, based on the German DIN 72577 standard. The latter has been in widespread use in continental Europe for some time. For all practical purposes, the two are identical, save for the pin numbering: in the ISO draft the pins are numbered, with commendable logic, from 1 to 7. Not so on DIN connectors. No doubt, many committee meetings were spent on deciding the numbers of the pins with exactly the results one would expect: there are two pins numbered "58"! Perhaps all this becomes clear if one knows about the upstream electrics in German cars, but it all seems rather baffling to the innocent British.

The diagram shows the standard layout of the *car socket* as seen when standing behind the car looking forwards at the socket contacts. Both ISO and DIN numbers are given, together with the function of each pin and the ISO colour code.

It will be noted that the right-hand tail and marker lights, and the number plate are connected to pin 5, while the left-hand tail and marker lamps are connected separately to pin 7. (These are the two pins numbered "58" in the DIN system — perhaps a faint glimmer of logic is to be discerned.) Presumably the object of the separate connections is to ensure that a failure of a single contact does not lead to a totally unlighted trailer, and to make allowance for cars in which the side and tail lights can be turned out on one side when parked.



The car socket, as seen from behind the car, looking forward at the contacts. The contacts are numbered 1 to 7 according to the ISO convention. The DIN numbering is given in brackets. The functions of the contacts and the ISO wiring colour code are as follows:

1 (L54)	*Left-hand indicator*	*Yellow*
2 (52)	*Spare*	*Blue*
3 (31)	*Common return*	*White*
4 (R54)	*Right-hand indicator*	*Green*
5 (58)	*Right-hand tail and marker lamps and number plate.*	*Brown*
6 (54)	*Stop lamps*	*Red*
7 (58)	*Left-hand tail and marker lamps*	*Black*

There is obviously no objection, if one does not need the latter facility, to wiring these pins in parallel in the car and/or trailer. Pin 2 is designated as "spare". ISO has not many plans for the future of this pin that they are adamant that they will not, at present, countenance its use for anything. Obviously, the individual owner can use it as he desires, perhaps for internal lights.

(To confuse the issue even further, the European Caravan Federation is now contemplating a further 7-pin connector to run exotica such as electric brakes

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and refrigerators. This development is unlikely to affect glider trailers, except as a potential source of the wrong type of 7-pin connectors.)

Flashers

The present law states that if the car is fitted with flashing turn indicators, the trailer must also have them. The car and trailer flashers must operate simultaneously (one cannot have a separate flasher unit working the trailer lamps at a different frequency from those of the car) and an indicator lamp in the car must show when the trailer turn indicators are working.

In general, one cannot wire-up the connectors to the trailer flasher lamps in parallel with those on the car unless a special flasher unit is fitted. The car flasher unit may be over-loaded; the frequency of flashing will often — but not always — be reduced, probably to a value below the legal limit; and, finally, it is difficult to provide an additional indicator lamp. There are various solutions to this problem:

(i) Home-made contrivances of relays or transistors triggered by the impulses from the car flasher unit, which thus takes negligible extra current. These can be entirely satisfactory if you know what you are doing, and are sufficiently ingenious to deal with the indicator lamp situation. Also, it must be remembered that negative-earth cars can have remarkable effects on transistors of the wrong sex.

(ii) Commercial contrivances of relays. One is sold by J. Lucas Ltd.

(iii) A special flasher unit. One is sold by Bosch, and simply replaces the original car unit. It has an extra pin for an indicator lamp. In this case, the trailer flashers are simply wired in parallel with the car flashers. With the trailer attached, it emits louder "clunks", flashes very slightly slower than usual, and provides an extra green light of great splendour on the instrument panel. Connecting it up is something of a conjuring trick: the pins have inscrutable German numbers stamped alongside, giving little clue as to their functions, and one can only proceed by ad-hoc experimentation. There are 23 ways of getting it wrong. The three or four incorrect ways explored by the writer did not lead to any electrical disasters, but merely produced either gloom or exciting Christmas-tree effects. All this is rather unkind: it is a very satisfactory and simple arrangement.

Whatever system is used, it should obviously be wholly contained within the car and should not involve fiddling with extra switches or wires. One should be able to plug any trailer into the car socket and, without more ado, achieve instant success.

Stop lights

It is usually quite satisfactory to connect the trailer stop lights in parallel with those of the car, despite the dire warnings from the manufacturers about overloading the car's stop light switch. If your conscience really troubles you, Lucas will sell you a relay.

Summary

1. The standard towing fitting on the

car is a 50 mm. ball, distinguished by a flat machined on the top.

2. The trailer must have a corresponding 50 mm. hitch. Putting a 2-inch trailer hitch on a 50 mm. ball is dangerous.
3. The standard electrical connection is the 7-pin ISO or DIN plug and socket.
4. Proper provision must be made for operating the trailer flashers in accordance with the law. Any additional devices required to deal with the trailer flashers should be contained in the car.

Acknowledgements

The National Caravan Council has been kind enough to seek the opinions of the BGA on matters such as heights of towing hitches, and provided data on the ISO Draft Recommendation for the 7-pin electrical connector. Reference has also been made to the wiring diagram and instructions supplied by the Rover Company Ltd. for the Rover 2000.

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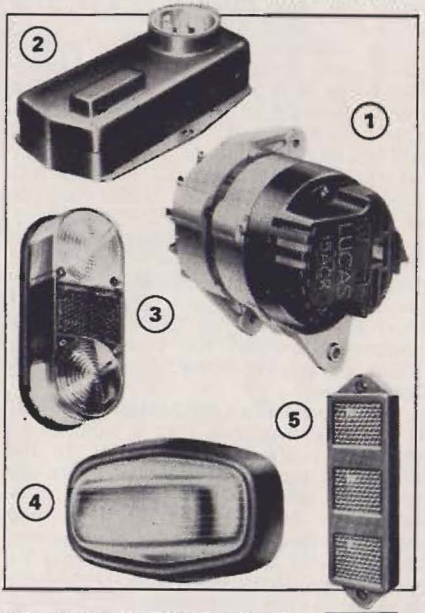


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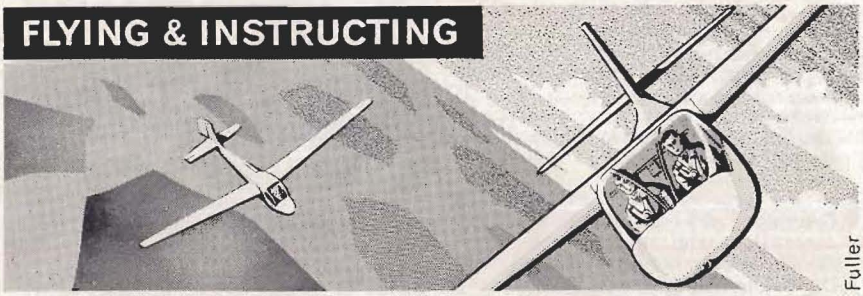


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The Professional Approach

GLIDING is a sport. We do it for fun. It is far removed from, and sometimes comes into conflict with, professional aviation. Therefore we cannot apply the same standards to both. True or false? I think it is false.

The accepted definition of a professional pilot is that he does it for money. But being a professional also implies a higher standard of flying. This is reasonable because a man who flies for a living will spend far more of his time in the air than an amateur, and thus he will tend to be *more at home in this environment.*

So what? you say. Gliding is a sport; we can't hope to achieve this level of competence; it's fun, we're not supermen, etc., etc. Do you really believe this? Or are you just churning out the hackneyed excuses for your not even trying to achieve some degree of professionalism?

How about top competition pilots? It is not a coincidence that a number of them fly professionally as well. In the top 50 on the 1968 rating list, there are 21 pilots who fly or have flown professionally. In the bottom 200 I can find only six. (Don't hold me to these figures, they are only a rough check, but they do indicate the situation). If you think about it, this is not surprising. Picture the pundit in the last thermal before the final glide. His problems are: to assess his rate of climb, estimate the wind component, estimate the distance to go to the goal, set this information on his final glide computer, make sure he is still centred, avoid other gliders. He might, of course, be doing all this on instruments in cloud. What possible chance has he got to achieve this if he is worried about what the glider is doing and his ability to control it accurately without any thought?

Let us have a look at three flying activities, on the surface totally unconnected, and see if we can establish anything in common about them.

One, the fighter pilot trying to bring his guns to bear on a target. He is interested solely in laying his aiming mark on the target, keeping it there and covering the range. If he is not sure how much aileron to use, or whether he is slipping or skidding or what his throttle setting is, then he is doomed to failure.

Two, the pilot of a big jet, with a 150 souls on board, sliding down the glidepath through the night into fog with 600 yards visibility. If he needs to think, even for a second, about the combination of controls and power needed to maintain the correct approach path indicated by his radio equipment, then both he and his passengers are likely to suffer a disappointment.

Three, the weekend gliding instructor. On a typical circuit he must cope with: speaking clearly and synchronising voice with aircraft behaviour, assessing the pupil's understanding of what he is being taught, trying to find the correct approach to apply to the individual, planning ahead to make the most of the time available, positioning the glider while talking about something else and keeping a lookout. You will notice that there is no mention of actually controlling the glider, it's too late to be worrying about that.

In my view, all these three activities have one thing in common. The pilot must be so at home in the air that he

can devote his entire attention to the particular job in hand. And anyway, is there really any difference between a man with a 150 lives in his hands and a person with only one? This puts the weekend gliding instructor in a different perspective. One might say his responsibility is enormous, human life being somewhat precious.

Now how can we go about encouraging glider pilots to develop a professional approach while still enjoying their flying? The first argument is that the more at home a pilot is the safer he will be and his enjoyment will increase automatically. If we get our approach to the average club pilot right, the instructor problem should solve itself, because we then only have to select potential instructors from already good solo pilots. So let's have a look at the improvement of the solo pilot's standards.

First, he must be convinced of the need to fly regularly, even when it's not soarable. It is really false economy to stay on the ground and save the money for another weekend. Even a fortnight without flying can cause a pilot who flies relatively infrequently to deteriorate to a marked degree. He should be encouraged to improve his flying standards by practising briefed exercises and not just aimlessly flying around. The exercises should first be flown dual, thus giving the instructor the opportunity to observe the pilot's progress without there being the atmosphere of a formal check.

It must be recognised that the average club pilot has quite an exciting time whenever he flies. The air is not his normal environment and small upsets are likely to affect his judgement far more than is generally realised. This is the basic problem which must be overcome.

I know of an instructor who is in the habit of giving early solo pupils a kneepad with some elementary arithmetic questions to be answered during the flight. This may sound ridiculous but it is amazing how many people add two and two and make five under the stresses of a normal flight.

What exercises are suitable for the improvement of the flying? My favourites are: stalls, slow flying, trimming out at different speeds, steep turns, turn chandelles and lazy eights. Let's look at them in order.

The stall

Surprisingly, this is an accuracy exercise. I am not talking about what sometimes passes for a stall, which goes as follows: the aircraft is dived a little and the nose is pulled up to about 30° above the horizon. After a suitable time interval (depending on the bravery of the pilot) the nose is smartly lowered until the pilot feels he his standing upright. At this point the cockpit becomes filled with dust, spanners, old lunch, telephone money, etc. Having reached Vne the glider is then pulled level. Everything subsides to the cockpit floor. Not unnaturally this is an unnerving experience and the pilot is cured from wanting to try it for at least another six months.

No. For a normal unaccelerated stall the procedure is this. First, check straps are tight, that there are no loose articles in the cockpit and that the machine is clear of controlled airspace and of other aircraft. A steepish turn in each direction will check that there is clear air below. Next, raise the nose a couple of degrees or so. As the speed reduces, the pitching stability of the glider will cause it to try to nose down again. Counter

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this by moving the stick back enough to maintain the new attitude but not so much that the nose rises any more. If this is done with some delicacy (and nice co-ordination is necessary) the speed will be reduced at about one knot per second. While all this is happening, the keen chap is noting the changes of feel and sounding out the amount of buffet, if any. It is also interesting to note the antics of the vario; modern gliders have a marked increase in sink before the stall. This is very noticeable if you fly slowly near the ground!

When the stall arrives, with the stick hard back, one of two things may happen. The nose may drop or the glider may stay substantially level. In either case, the rate of descent is somewhat startling. The remedy for this state of affairs is to relax the back pressure on the stick, let it come forward a little until normal flying speed is reached. The glider will probably be fairly near the normal attitude, slightly nose down. Recover to the normal attitude and you're in business again. This stall should be practised with brakes out, and in a gentle turn. In the latter case it requires some skill to keep the bank from increasing as the speed reduces and so it is an even better accuracy exercise. The recovery is the same in all cases.

Stall with wing drop

Sooner or later you will find a glider that will drop a wing at the stall. This may be due to imperfections in finish, an airbrake being slightly proud, some yaw being present, one wing having been put on upside down, etc. Now here I am going to preach what, to some, will be heresy. You will all have heard instructors say, "If the wing drops put on full opposite rudder and push the stick forward." Now wooden gliders are not keen on having large boots-full of rudder applied near the stall and you can make rotten work worse if you try to correct a wing drop this way, i.e., you may flick over in the direction of the rudder. This effect is most marked if there is a delay in moving the stick forward. The problem should be tackled like this: If a wing drops a small amount, just relax back pressure on the stick and when the speed increases, level the wings on the ailerons as you raise the nose to the normal attitude. If you have delayed the recovery and yaw has developed (shown by the nose slicing round over the ground) then apply sufficient rudder to stop the yaw, then relax back pressure on the stick. This will cope with a really fierce wing drop. In neither case use ailerons until unstalled, because, although some gliders' ailerons still work into the stall, there is a limit to all things.

Slow flying

A useful curtain-raiser to stalling is flying slowly. This is surprisingly difficult to do well because the control response changes as you slow down, and the secondary effect of yaw becomes most pronounced. Before slowing down do the pre-stall checks. Raise the nose very gently until a speed of about 2-3 knots above the stall is reached and when stabilised retrim. Some gliders may not have enough "nose up" trim to cope completely and there will be some residual back pressure on the stick. Note that the nose settles down only slightly higher on the horizon than in normal flight. Next try each control separately and notice the effect. Particularly important is the fact that rudder deflections produce a large response in roll. This will prove the need for care in use of the rudder at low speeds.

Should you stall the glider inadvertently, recover quickly and little height will be lost. It is useful to try some very gentle turns while flying slowly. This will acquaint you with the warning sensations which might creep up on you in a thermal while the brain is otherwise engaged.

Flying at different speeds

The ability to trim properly is most useful if you wish to eat your lunch without the glider bunting or looping. It is also a very useful accuracy exercise for pupils. There are still, I suspect, many instructors who do not know how to trim properly themselves, let alone teach it to others. I know that many clubs still use two-seaters without a trimmer, but there can't be many operating trim-less solo machines. It is important, therefore, to do the job properly.

This is the procedure. The magic words are: attitude, speed, trim. First

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decide whether you want to fly more quickly or slowly. Next, alter the attitude, hold it and see what happens to the speed. If it settles down at the wrong speed, adjust the attitude in stages until the speed is right. Now, and only now, grab the trim lever and move it in the direction of your hand force on the stick, until this force disappears. Take your hand off the stick and see if the attitude is maintained. If it isn't *don't* try to adjust it with the trimmer. Go back to the attitude speed trim sequence and try again. If you move the trimmer while the attitude is changing, you will be trying to trim to a varying datum and will be doomed to failure unless very lucky.

Steep turns

An accurate steep turn is not easy to do. The control movements need to be deft and positive because of the large angle of bank, and the speed is difficult to control. It is important first to be able to turn without the bank or nose position varying too much, before going on to turning at a given speed. I don't propose to enlarge on the method of teaching steep turns, but will stress that they are very useful and interesting accuracy manoeuvres and are worth spending time on, both dual and solo.

Turn reversals

When steep turns become less traumatic, reversing the turn at constant speed with a smooth rolling action really sorts out the men from the boys. At this stage, too, it is worth trying to achieve the desired speed for the turn before entering.

Increase speed to, say, 60 knots, then roll into the turn, steadily increasing the bank up to about 60°, maintaining the airspeed. This will require some practice. The speed is controlled with aileron and elevator together with rudder eliminating slip or skid as usual. This statement may need some amplification. If the speed is increasing, the nose must be raised. Before this can be done, however, the bank must be reduced somewhat. The two control movements should be made simultaneously and the bank should be increased again when the speed is right.

Conversely, if the speed is too low, lower the nose by increasing bank slightly, allowing the nose to drop before increasing back pressure on the stick to maintain the trim.

The reversal is achieved by rolling the glider cleanly using full aileron deflection with rudder to co-ordinate until you have achieved the same amount of bank in the opposite direction. Unfortunately there is a complication. The idea is to keep the speed at 60 knots and this involves relaxing the back pressure as the wings pass through the level position and then steadily pulling again as the bank increases. When the turn is corrected, repeat the procedure again. A word of advice: Practice this yourself before trying to demonstrate it to a pupil. You may get a surprise. The aim should be to keep the speed within ± 5 knots of the datum. With pupils, the exercise should be worked up from shallower turns and lower speeds.

If you have managed to cope with all the foregoing you are geting somewhere. The last two exercises I have described constitute the *pièce de résistance* and they need considerable skill to perform really well. They are not as spectacular from the outside as a steep turn, neither is there the feeling of "G". But for sheer co-ordination and accuracy they are supreme.

The chandelle

This manoeuvre is not to be confused with the semi-stall turn aerobatic which is not a true chandelle, but a wing over. The real chandelle is a 180° turn at a constantly changing bank angle, starting at a given speed, slowing continuously to another given speed which should be

reached exactly as the wings come level after 180° of turn. In a powered aircraft there is also an exact gain of height during the manoeuvre, but this is clearly not possible in a glider.

We will assume the speed limits are: start 80 knots, finish 40 knots. First pick a point in the direction of proposed turn at exactly 90° to your heading. Increase the speed to 80 knots and start a turn very gently towards the 90° point. At the same time start to decrease the speed. The bank should steadily increase until it has reached about 45-60° when the nose is travelling past the reference point. At this moment the speed should be halfway between 80 and 40, i.e., 60 knots. Now start to decrease the bank slowly, aiming to have the wings level as the 180° point is reached. The speed should reach 40 knots as the wings come level. The original 90° point should now be off the opposite wing tip. It is helpful to have a live feature to fly along to check that you have turned exactly 180°. A pilot who can perform this manoeuvre consistently well has really achieved a high degree of skill.

The lazy eight

For this, you will need another live feature and speed limits of again, say, 80 and 40 knots. Start on a heading 45° to the live feature and dive to 80 kts. Pull up into a steepish climbing turn so that you have about 45-60° bank and 40 knots indicated when you cut through the live feature at 90°. Start to roll out and increase speed until cutting the feature at 45° wings level at 80 knots. Roll into a climbing turn in the opposite direction and continue round, levelling and speeding up again until heading in the same direction as at the start.

Countless hours of fun may be had learning to do these last two manoeuvres properly. I wish you the very best of luck.

R. A. NEAVES

THE LONG SCRAPE HOME

(500-km. Triangle Long Mynd-Cranwell-Booker, 9th June)

By DR. BRENNIG JAMES

BY the time you are sure that a task like this is on, it is likely to be too late to start, so you must prepare and get an early launch on spec. I cast off in my 18 metre Diamant at 11.15 a.m. at 3,000 feet over Booker. A big gap from the Chiltern ridge to Oxford slowed me down and I was not very far beyond Oxford after an hour.

Things picked up then with a reasonable cloud to 5,800 ft. near Moreton-in-the-Marsh. This was my best height. Mostly I operated between 2,900 ft., and cloud base at 4,000 ft. I arrived at the Mynd with 200 ft. in hand and the wheel down but caught a thermal on the approach. Three hours for the first leg . . . I told myself you'll take nine hours to get round if you go on like this (ha ha). The first two-thirds of the second leg were quite fast. There is a point on the barograph which reads about 100 ft. above launch but I don't recollect it. Must have missed the altimeter.

Derby and Nottingham worked well but then in came the sea fog from the Wash — wish those yachting types would keep it to themselves — and I started groping on hands and knees. The only cloud for miles took me to my second turning point, which I photographed and then identified as Waddington, at 5 p.m. Half-an-hour later the right turning point turned up and for about three-quarters of an hour, I was below 2,500 ft. Funny, once I got that high I became bored with 2 knots, but down to 1,000 ft., I was glad to get anything. Each time I worked back to the west to get away from that damn sea fog but it turned out I was just going dead down track anyway and things perked up at Stamford. I had long since given up hope of getting home

and in fact did six final glides, each time saying I might as well try that cloud, it will shorten the retrieve. I flew five miles nearly back on track to Corby but was rewarded by 8 knots to 5,000 ft., the only lift for miles. Twice again cloud materialised out of the distant gloom and to my astonishment I found I could just reach Cranfield. A few miles beyond was a brick works at Ampthill. I thought I would be an idiot not trying it, having come all this way, so I forgot about my aero-tow retrieve and arrived over the chimneys at 400 ft. (This was all carefully planned before take-off, of course!) The smoke, which was invisible against the gloom, surprisingly went up to 4,500 ft. and obligingly took me up with it. I could now get back to Booker. I took another 500 ft. from another brickworks near Dunstable and at 8.15 p.m. could see two gliders in a field adjoining it. Flying 3,000 ft. over Dunstable I knew I had the first U.K. 500-km. triangle in the bag and looked down on the field where twenty-one years before I had done my first ground slides and hops.

I landed at 8.40 p.m., having taken 9 hours 25 minutes of low flying but high adventure. I hope my account of all the difficulties will discourage anyone else from trying to do it again.

The barograph was set on 2 hours per revolution and looked like a ball of string. I hope those photographs come out.

TRAILER-CUM-SHIPPING CRATE

THE Gliderporter trailer has been designed for the Phoebus by the Stevenson-Ebentheuer Agency, 806 Dachau, Postbox 52, West Germany. Shipping costs of the Phoebus are claimed to be reduced by more than 50 per cent by the use of an export version of the trailer, and versions for other sailplanes are being designed.

It is available either "open", with synthetic fabric covering, or with a "clamshell" aluminium hardtop. The export version incorporates a retractable tongue, provision for storing axle and wheels on the trailer, and small castoring wheels to allow movement while shipping.

There are, the manufacturers state, several novel design features which give it good roadworthiness, security for the glider and make rigging and de-rigging easy and quick. There are centrally situated tubular steel "trusses" which serve also as tracks for the fuselage wheel. High strength and rigidity combined with low weight are achieved by this arrangement, it is claimed, and the C. of G. is low. There is "adequate tail clearance, wide wheel track, rubber-in-compression suspension and a small turning radius". The fittings, padded and arranged to prevent vibration of movement of the glider in any direction, are automatic or semi-automatic, "self-safetying" and have no loose parts such as wingnuts. The total time for one man to lock or unlock all the glider parts on the trailer is said to be less than twenty seconds.



HANDICAPPING AND CLASS COMPETITIONS

By TONY DEANE-DRUMMOND

I AM delighted that handicapping has come to be accepted as a means of evening out performance difference between gliders. It is much more fun for the pilots. But equally, I am surprised that some quite experienced pilots have not appreciated the inherent limitations of the system.

The present handicapping list is based on the cross-country speeds of gliders in 2½ knot thermals. Most pilots are in agreement that this strength of thermal is a rough average for UK conditions. In theory, if thermals were spaced sufficiently close together for the worst gliders and the wind was less than 5 knots or so, application of handicapping percentages would equate a "cooking" Oly to a Cirrus. Unfortunately this never happens.

In the UK we are blessed with rapid changes in the weather, with associated frontal systems, bands of 8/8 stratus and areas of clamp. The genuine hot ship with its superb gliding angle can cross gaps of this sort and perhaps reach good conditions beyond. This negates the handicap.

Another aspect is the effect of wind. On a particular day a Skylark 3 (as an example, with 100 per cent handicap) may have an effective ground speed of 10 knots when flying into a 25 knot headwind. A Cirrus (78 per cent) should have a ground speed of about 20 knots on the same day. This sort of situation, although a little extreme, can certainly happen on one of the legs of a triangle. The Cirrus may even be able to increase this ground speed considerably by flying in more or less straight lines in weak lift which the Skylark cannot use. This again makes a nonsense of the handicap.

This all boils down to the fact that the present BGA system can only cope with gliders within a certain bracket of percentages. I do not believe there is any other simple system which would be better, but it does mean that anybody entering a moderate performance glider in our present Open Class is in for a shock—if he thinks that handicapping will even out the results. It won't.

It is a matter of opinion what bracket of performance should make a good competition. Clearly the best bracket is a one-design competition, but I believe this to be too restrictive. It would be great fun, for example, to pit a Phoebus 15 against a Dart 17. Both gliders have the same percentage handicap, although the small glider should be expected to be a little worse in thermals and better on the glide. The same applies to the 419 and the Ka-6E.

How much wider can the bracket go and still be fun for the pilots? Clearly anything within 2 per cent should be satisfactory. Perhaps another 2 per cent each side of the norm could be accepted, but this should be a maximum. In effect, this means plus or minus 5 per cent of the "middle" glider.

How should our class competitions fit in with this idea? The Open National Class, by its name, should accept anyone. But in the present state of the art, it would not be much good anybody entering a glider with a worse performance than a SHK. The days when good pilots in poor gliders could do well are surely past. There are too many good pilots about.

There appears to be plenty of room for an Intermediate National Class centred on the Dart at 90 per cent. There are sufficient gliders of this performance in the country, and this class would accept all gliders within 5 per cent.

The present National Sports Class has proved a great success and includes most of the unexotic standard glass gliders as well as older gliders of the Skylark 3 and 419 vintage. Unfortunately the so-called Standard Class will include, in 1969, 15 m. gliders with a performance well outside the range of the present Sports Class, so it is hardly possible to include all existing Standard Class gliders in the National Sports Class.

I am sure that purely one-design competitions should be restricted to heats or

regionals. There is a flavour of advertising about it which cannot be good. It would be quite easy to have a Skylark 3, a Ka-6 or a Dart competition, but it does seem silly to restrict the entry only to machines of these types.

One advantage of an increased number of national competitions is that it reduces the need for a rating list, except to ensure that pilots taking part have adequate experience. I believe an up-and-coming pilot would learn a great deal from competing against the top pilots in his class in a Nationals. Equally, he may surprise some of the best.

The last problem is that of selection of pilots for World Championships. It is difficult to see how this can be done fairly without a selection based partly on the results of a one-design competition for nominated pilots. In the future, gliders like the Dart 17 or the Ka-6 should be available in sufficient numbers to be obtainable on loan. Such a competition could take place in the first week of September in a non-international year, and thus come after the results of National competitions were available. As the trend appears to be proliferation of numbers of Nationals and the sites where they are held, any other system would appear to be rather questionable.



UNTIL the 25th September, when the Winter Season opens with the Annual Wine & Cheese Party, the club will continue only to be open on Tuesday, Wednesday, Thursday evenings from 6.30 p.m.-11 p.m. Lectures continue on the first Wednesday in every month.

DIARY OF LECTURES

First Wednesday each month at 8 p.m.

Aug.	7	The British Team report on Leszno with slides and film.
Sept.	4	D. P. Davies: Author and Chief Test Pilot, ARB, Redhill. Talk: "Flying the Big Jet".
Sept.	25	Annual Wine & Cheese Party.
Oct.	2	A. W. (Bill) Bedford, of Hawker Siddeley. Talk and film on the Harrier vertical take-off fighter.
Nov.	6	Opening of Art Soc. Exhibition (6th-23rd Nov.).
Nov.	27	**AGM** followed by film.
Dec.	4	Ken Owen: Business Correspondent "The Times", will talk "Around Computers"

AVIATION ART SOCIETY

The Society is having a most successful summer. The collection of some 68 paintings got together to commemorate the 50th Anniversary of the Royal Air Force has been most enthusiastically received. To date, this has been shown at the Biggin Hill Air Fair, Selfridges for three weeks, RAF Abingdon, and at present decorates the windows and men's wear dept. of Lillywhites, Piccadilly Circus.

The Annual Exhibition will, as usual, be held in the club premises, starting on 6th November, weekdays from 1 p.m.-2 p.m. and 6.30 p.m.-10 p.m., Saturdays and Sundays, 3 p.m.-5 p.m.

The Exhibition will be opened on the 5th November during the Private View which precedes the Annual Dinner of the Society. This will be held in the Eccleston Hotel on the same evening. Tickets and details of these two events may be obtained from the Hon. Secretary, as may also the Rules and Entry Forms for intending exhibitors.



A corner of the Society's Exhibition at the Biggin Hill Air Fair.

ANN WELCH, O.B.E.

By PHILIP WILLS

IF the Honours system has any value (and I believe profoundly that it has), it is that Society should have a method of recognising services given by an individual beyond the motivation of self-interest or even of duty.

In previous times, it could be argued that a career in the Civil or Military Services was underpaid, so that to balance out, success in these occupations could justly be recognised by the award of an Honour: but this is no longer the case, and I think most people now feel that the attainment of some given rank in one of these Services should no longer be marked by an automatic Honour.

My belief in the value of the system is reinforced when I see someone like Ann Welch appear in the Honours List. No one knows better than I the thousands of hours of work and worry she has put into gliding over most of her lifetime, for the sheer enthusiasm and love of the game, and because she believes the sport offers something of literally priceless value to those who take part in it.

It is a curious coincidence that 8th June, when her OBE was announced, was the eve of the 1968 World Gliding Championships in Poland, finding her at Leszno as Manager of the British Team; whilst the award itself was, in part at least, the culminating recognition of the fantastic job she did for us in organising the previous, 1965, World Championships at South Cerney. It also, by a most pleasing chance, came just after the termination of another extraordinary contribution: her 20 years' Chairmanship of the Instructors' Panel.

Through Ann's work, hundreds of people have taken up gliding and found their lives thereby enriched. They particularly will want to join me in recording my warmest congratulations.

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BGA NEWS

National coach

By the time this issue is published, Ed Meddings will have taken up his duties as National Coach.



Ed. who is 44 and married with two children, started gliding in the RAF in 1950 and since then has logged over 700 hours gliding and 5,000 hours power. He was full-time Instructor at the RAF Gliding Instructors' School at Detling and has been CFI of both Bannerdown and Moonrakers Gliding Clubs. Ed Meddings has competed in many National Gliding Championships, the latest being in League 1 in 1967.

We know that everyone will do all they can to assist our new National Coach and wish him success on his appointment.

* * *

ENTRY SELECTION SYSTEM FOR 1969 NATIONALS

THE points raised at the BGA AGM regarding the Placing System for entry to the 1969 National Championships, and proposed modifications to that System, have now been discussed by Council. It has been agreed to amend the Scheme (published on 16th January, 1968, and printed in SAILPLANE & GLIDING, April-May issue, page 136), and the two main effects of these amendments are:

(a) A 1967-type Rating Scheme will be used to assess pilot's NATIONAL RETENTION QUALIFICATIONS at the end of 1968.
(b) Pilots who fly in Nationals in 1968 may also compete in Heats in 1968.

The amendments do not change the placing method of gaining promotion from Heats. The number of guaranteed promotion places in 1969 Nationals has been increased from 26 to 30 to make some allowance for the fact that Nationals pilots may compete in Heats.

The revised Scheme incorporating all the amendments approved by Council is given in full below.

1. Nationals Entry Selection

If entry into a National class competition in 1969 is over-subscribed, entrants will be selected in order of their ranking on a NATIONALS ENTRY LIST to be published at the end of 1968. This list will be a combination of:

(a) A NATIONALS RETENTION LIST produced by the method in paragraph 2.
(b) A HEATS PROMOTION LIST produced by the method given in paragraph 3.

The method of combining these two lists is explained in paragraph 4.

2. The Nationals Retention List

(a) All pilots on the 1968 Rating List are assumed, as of now, to have obtained their present rating scores by flying for *four days in League* 1 in 1967 and by no other method.
(b) At the end of National competitions in 1968, pilots' rating scores will be adjusted, using handicap lists for 1968 competitions, on the basis:

PILOT'S END OF 1968 RATING SCORE:

$$= \frac{1000\ (4y + a)}{4000 + A}$$

y = Pilot's end of 1967 Rating score.
a = Total points scored by pilot in 1968 Nationals.
A = Total possible points in pilot's 1968 Nationals.

(c) The pilots in descending order of Rating score will constitute the Nationals Retention List, the

top 50 of whom are guaranteed a 1969 Nationals place.

3. The Heats Promotion List

(a) *Form of Competition Results to be Used*

(i) Handicapped marks/points will be used to produce final competition results lists. Every competitor at the start of the contest must initially be on this list.

(ii) Drawn places will be resolved by lot.

(iii) Teams will be represented by one pilot only (see para. 6b).

(iv) The resulting list of pilots will be numbered consecutively from one upwards.

Subsequent to this, the BGA Flying Committee will edit the results thus:

(v) All pilots in the first 50 places on the 1968 Retention List will be deleted from the final placing lists received and Heat sizes will be adjusted accordingly.

(vi) The remaining pilots in each Heat will be renumbered consecutively from one upwards.

(b) *Method of Obtaining Heats Promotion List*

All competitions accepted by the BGA as qualifying competitions (except Nationals) will serve as Heats, subject to (i) below. Promotion Qualifications for 1969 will be gained by the highest-placed pilots in each Heat. The order of their promotion priorities will be decided as follows:

(i) For a Heat to qualify it must have achieved at least four contest days *or* the aggregate of the points scored by each day's winning pilot must *exceed* 2,000.

(ii) The System requires all Heat sizes to be different, so that the BGA Flying Committee will make (by lot) the minimum alterations necessary to achieve this.

(iii) For each pilot in each Heat, his placing number (e.g., 1st, 2nd, etc.) is divided into Heat size.

(iv) All pilots' names are arranged in descending order of resulting numbers. Where a group of pilots share the same number, they are ranked in descending order of Heat size.

(v) Pilots named more than once on the list will have all but their

SUCCESS!

Final results of the 1968 National Sport Class Championships show EIGHT Ka 6E's and ONE Ka 6CR in the first TEN places, with a K 8B in THIRD place! Of the 40 gliders entered in the contest, more than half were from the Schleicher stable — proof enough of the popularity and competitive prowess of Schleicher products. These include:

AS-K 13 Robust and docile, performance two-seater trainer.

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c/o J. Jeffries, Dunstable Downs, Bedfordshire

highest references deleted.

(vi) The pilots are then numbered consecutively from one upwards to give their order of promotion priority and this will constitute the HEATS PROMOTION LIST.

4. Method of combining the Retention and Promotion Lists

The Retention and the Promotion lists will be combined in the following manner to give a Nationals Entry List for 1969:

Pilot No. 1 on the Promotion list will be given a RATING SCORE halfway between pilots ranked 20 and 21 on the Retention list.

Pilot No. 2 on the Promotion list will be given a RATING SCORE halfway between pilots ranked 21 and 22 on the Retention list.

And so on throughout the two lists to give a combined list of suitable length of pilots each with a rating score. Decimals will be used where necessary to reduce ties. Where a pilot's name would appear more than once on the combined list, his name will be deleted from either the Retention or the Promotion list, so that only the highest reference is retained on the Nationals Entry List.

Pilots who have neither been promoted from a Regional in 1967 nor *actually* competed in Nationals in either 1967 or 1968 will not qualify for inclusion in the Nationals Retention List.

The combined list will be published in autumn, 1968, as the *Nationals Entry List* for 1969 Nationals and priority for entry to a Nationals class in 1969 will be in order of rating score on this list.

Should the system continue in use to control entry to Nationals in 1970, then at the end of 1968 *all* pilots on the combined list would be assumed to have gained their end of 1968 Rating Score by flying for four days in Nationals in 1968 *only*.

5. Heats Entry Qualifications

Entry into Heats will continue on a fairly informal and random basis of selection and all pilots may fly in as many Heats as they can gain entry to. Pilots who compete in Nationals may also compete in Heats in the same season.



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6. Teams

It is intended that there should be the maximum possible freedom for pilots wishing to fly in team entries. In order that this freedom should not displace other competitors, the Retention and Promotion qualifications of teams are dealt with as follows:

(a) When entering a competition, a team will be selected on the qualifications of the best-qualified pilot only; the other pilot(s) will be ignored. However, all pilots must satisfy the minimum experience qualifications for the competition, and share the flying on a basis acceptable to the competition organisers and the BGA.

(b) In all competitions including Nationals the qualifications gained by a team will only be attributed to the pilot making the highest proportion of the individually available score. The other pilot(s) will be ignored after the operation of 3 (a) (iii).

7. BGA Discretion by Powers

The BGA Council, on the recommendation of the Flying Committee, may depart from these Rules in exceptional circumstances.

* * *

Documentation for annual award claims

The procedure for annual award claims is to be simplified. In future, award claims to BGA need only be accompanied by a certificate signed by two Official Observers stating:

We, the undersigned, have examined all the applicable evidence concerning the claim of ..... (pilot's name) and are satisfied that the flight was carried out as claimed in accordance with FAI requirements for record flights. The full list of items checked was:

.....

.....

.....

The pilot has been told that all the evidence must be retained by him until the annual award list has been published.

Date of flight .....

Glider type .....

Trophy claimed .....

Signed ..... O.O. No. .....

Signed ..... O.O. No. .....

WAVES AT WESTON-ON-THE-GREEN

By STAN GREEN

EXAMINATION of the topography in the locality of Weston-on-the-Green, seven miles north of Oxford, suggests that it is a most unlikely place to find waves, although during very strong westerly wind conditions wave clouds have been seen locally, possibly set up by the Welsh mountains.

Easter Monday, 15th April, looked as though it was going to be another disappointing gliding day. The wind was about 15 knots at ground level with a medium overcast at high altitude. At about 2.30 p.m. the sun started to break through, and interest began to liven. Although I thought it was a little early for a possible soaring flight, my hand was forced because I had to assert my rights according to the flying list. Another member of the Oxford Club wished to fly our Skylark 3F — a very desirable machine.

The launch at 2.45 p.m. was to 1,100 ft, into the 15 knot wind coming from 090°. After two-and-a-half minutes I was down to 800 ft., and had committed myself to yet another circuit. Wait! Here comes lift, I thought. It was not very strong but there, and another eight minutes saw me back at launch height. By this time the airfield looked quite distant and I thought I would have to return, but gradually the lift improved and I was able to settle down to some local soaring with very poor visibility, especially up sun.

JOHN HULME
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Bottisham, Cambs.
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for
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T49 and T21B HIRE

After two good thermals to about 4,000 ft., I found myself between Bicester and Upper Heyford looking for more lift. At about 3,000 ft. flying straight and level at minimum sink, I went through a quite extensive area of smooth weak lift for something like a minute. Wave? I thought, and promptly dismissed the idea, as this kind of thing would never happen to me and had not happened to a club member in the decade that the Oxford Club had operated at Weston-on-the-Green. So I carried on looking for stronger lift and made tracks for Bicester.

I started thermalling and spotted Dave Roberts in the Olympia 463 downwind of me and a lot higher also thermalling. The lift continued and at about 4,000 ft., with about 1½-2 knots the lift seemed rather smooth so I turned approximately crosswind on to 180° keeping a straight course. Lift continued at 1-1½ knots for about three minutes and when it died I turned on to the reciprocal course flying again straight and level for about six minutes. Was this it? Wave?

I looked above me to see if there were any lenticulars and there they were, although to me they looked more like streets of alto-cumulus and not the classic smooth eyebrows one sees in the books. I estimated their height to be about 10,000 ft. The position of the cloud I was under corrected my tracks to 30° and 210°, showing a veering of the wind from east towards south. Subsequent searching for best lift put me just up wind of the centre line of the cloud. Lift continued steadily and at maximum altitude was found to be upwind of the cloud. Eventually I was able to circle in dead smooth lift with crystal clear visibility above a ring of cumulus sitting on top of their thermals with a big hole below me through which I could see the runway at Upper Heyford. I presume the ring of cumulus was surrounding the upgoing side of the wave which had lifted me through the inversion.

Thoughts of Gold C height went through my mind but lift died to zero at 7,300 ft., no great height for wave. It was still possible to do large, lazy circles in zero sink. After landing examination of the barograph trace showed an average of 75 feet per minute achieved rate of climb, the maximum reading at one time being 3 knots.

Several further attempts were made by other gliders to contact by areo-tow without success. Those aloft at the same time as I, thought that they may have flown through wave.

Study of the weather maps showed a High over Scandinavia moving east with low pressure coming in from south-west, which would seem to account for the wind shift.

Reports were received over the ground radio from gliders at Lasham in wave at 8,000 ft. But wave from the south-east — where does it come from? How did it get to Weston-on-the-Green? Perhaps the expert meteorologists could explain. Ah well! What with 80 members in the Club and one wave flight per ten years per member it seems I shall have to wait 800 years for another.

THROW AWAY THE BRADS

By COLIN R. ELLIOTT

ONE of the most persistent and recurring problems which confront the glider repair man, be he professional or the normal club "Aircraft Member", is that of securing the repair patch while the glue sets. The normal method is to use brass tacks or "Brads".

While "Aircraft Member" of the East African Gliding Association, in Kenya, I was introduced to a much simpler method of tacking a patch. It is by means of a *Titan Tacker*, a small, hand-operated, powerful stapling machine, which does

not "curl" the staples as does a small office machine, but "shoots" them into whatever requires fastening.

The machine's magazine can hold 50-60 staples which are the "chisel-pointed" type, and is available at most large stationers for approximately £5 10s. each, boxes of 3,000 staples being a few shillings extra.

It has a two-position pressure regulator on the operating handle which regulates the depth of a staple insertion, enabling it to be used on both hard or soft materials. Also built into the head is an adjustable slide which can be set to put staples in at a regular and even distance from an edge—very useful when tacking ply on to a longeron, for example. It is easily stripped for cleaning and the one at Fenland has now been in use for the past five years and is still in perfect working condition.

The machine can be used almost universally in place of "Brads" and the speed of attaching even the largest panel can be quite staggering. A staple a second is more than possible with an inexperienced user. If used through a tacking strip, it leaves the smallest of pinpricks in the actual repair; an obvious improvement on the normal tack. Once they have served their purpose, the staples are easily removed using a screwdriver and a pair of pliers.

During re-covering, the machine is a real boon as fabric can be lightly tensioned and held with staples until the securing solution has dried.

In addition to its obvious application to glider repair, I have used it for: attaching notices to notice boards, attaching maps to frames or even walls; holding Christmas decorations.

I am certain clubs will find even more uses for the *Titan Tacker* and I firmly recommend it after eight years' practical use as an essential club extra.

BGA 9-DAY INSTRUCTORS' COURSES

Vacancies 3rd Aug. at Wycombe Air Park; 24th Aug. at Lasham; 7th Sept. at Coventry; 21st Sept. at Yorkshire; 19th Oct. at Wycombe Air Park. Course fee £9 plus accommodation, food, temp. membership, launch charges and time on club aircraft. Applications (CFI's approval required) to BGA as soon as possible.

Mending and Making

For TITAN TACKERS and all stapling and fastening equipment and tools, consult INDUSTRIAL STAPLING & PACKAGING LIMITED, GATEHOUSE ROAD, AYLESBURY, BUCKS. Telephone 81341

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OFREX GROUP

FIELD STUDY COURSES

A COURSE on "Weather and Bird Movement" will be held at Dale Fort Field Centre, Nr. Haverfordwest, Pembrokeshire, from 18-25th September, 1968, under the direction of Kenneth Williamson of the British Trust for Ornithology and S. G. Cornford of the Meteorological Research Flight.

A course on Meteorology will be held at Marham Tarn Field Centre, Nr. Settle, Yorks., from 4th-11th September.

Applications should be sent to the Warden of the respective centre. The all-in fee for a week is £11 10s., of which £3 should be paid in advance as a booking deposit (not returnable). Students and staff of certain universities get £2 10s. reduction.

A course on "Weather and Sailing" at Falmouth Sailing Centre from 7th-14th September costs 18½ gns. Applications to Executive Secretary, Royal Meteorological Society, 49 Cromwell Road, London, S.W.7.

YATES' RECORD CLAIM REJECTED

The SSA Contest Board has announced regretfully that the world distance record claim of 681 miles by James Yates has had to be rejected. An apparent barograph malfunction was such that the barograph trace did not sufficiently support the flight account to justify homologation of the record. (See Second 1,000-km. Claimed In 2-32 Flown Solo, *S. & G.* June issue, page 179.)

GLIDING CERTIFICATES

DIAMOND GAIN OF HEIGHT

No.	*Name*	*Club*	1968
3/74	H. F. Brown	Four Counties	15.3
3/75	I. Shattock	S. Wales	6.3
3/76	J. Cardiff	London	6.3
3/77	K. A. Harrison	E. Midlands	8.3

DIAMOND GOAL

No.	*Name*	*Club*	1968
2/248	D. V. Zotov	Moonrakers	12.4
2/249	R. C. Stoddart	Newcastle	7.4
2/250	R. Cousins	Kent	12.4
2/251	M. Wilton-Jones	Fenland	2.2
2/252	J. B. Goldsborough	Yorkshire	7.4

GOLD C COMPLETE

No.	*Name*	*Club*	1968
189	W. Stachowiak	London	4.10.67
190	M. Wilton-Jones	Fenland	7.3
191	R. J. Smith	London	14.4
192	J. B. Goldsborough	Yorkshire	7.4
193	R. Cousins	Kent	12.4

GOLD C GAIN OF HEIGHT

Name	*Club*	1968
C. J. Woodier	Four Counties	6.3
R. A. W. Tomlinson	Four Counties	10.3
M. Hutchinson	Airways	11.3
H. F. Brown	Four Counties	6.3
R. J. Smith	London	6.3
K. G. Wilkinson	AFC	28.3
K. A. Harrison	E. Midlands	8.3
R. Cousins	Kent	9.8 (1967)

GOLD C DISTANCE

Name	*Club*	1968
R. C. Stoddart	Newcastle & District	7.4
R. Cousins	Kent	12.4
M. Wilton-Jones	Fenland	2.2
R. J. Smith	London	14.4
J. R. Goldsborough	Yorkshire	7.4

SILVER C COMPLETE

No.	*Name*	*Club*	1968
2164	R. A. W. Tomlinson	Four Counties	10.3
2165	H. Karney	Coll. of Aeronautics	12.4
2166	P. J. Trenchard	Swindon	12.4
2167	M. Valentine	Midland	5.3
2168	P. D. Quilter	Heron	6.4
2169	R. D. C. Hart	Swindon	7.4
2170	M. L. Audritt	Essex	6.4
2171	T. E. Vines	London	8.4
2172	H. A. Torode	Imp. College	4.4

How to get "SAILPLANE AND GLIDING"

"Sailplane and Gliding" can be obtained in the U.K. at all Gliding Clubs, or send 30s. (post incl.) for an Annual Subscription to: The British Gliding Association, 75 Victoria Street, London, S.W.1. Single copies and most back issues are also available, price 5s. (post incl.). Enquiries regarding bulk orders of 12 or more copies, at wholesale prices, should be made to The British Gliding Association.

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2174	A. C. Watt	Condor	9.4
2175	P. Cleeve	Bannerdown	6.4
2176	W. J. C. Smith	Essex	13.4
2177	J. P. Hunt	London	8.4
2178	J. D. Price	Imp. College	12.4
2179	R. A. Hardon	Mendips	15.4
2180	R. M. Dudley	Heron	5.4
2181	F. W. Butler	Heron	12.4
2182	G. C. Johnson	West Wales	17.3
2183	L. H. Esser	Essex	12.4
2184	T. A. S. Rosie	Heron	5.4
2185	R. J. Wilson	Essex	6.4
2186	T. M. Braganza	Bicester	12.4
2187	I. A. Pringle	Cambridge	12.4
2188	Mrs. A. Woolf	Mendips	11.4
2189	G. W. Turrell	Dorset	14.4
2190	A. B. Thompson	Two Rivers	12.4
2191	V. R. Dubery	RAE Farnborough	14.4
2192	J. Turner	Heron	10.4
2193	Miss S. C. Wilson	Heron	12.4
2194	G. C. Cameron	Dorset	10.4
2195	E. Neve	London	6.4
2196	N. C. Stagg	Moonrakers	27.4
2197	G. J. Vakkur	Surrey	12.4
2198	B. W. Harris	London	9.4
2199	A. Firmin	Imp. College	11.4
2200	R. C. Salmon	Bicester	24.4
2201	M. Brown	Fenland	4.3
2202	(Not Issued)		
2203	W. A. Miller	No. 1 Gliding Centre	5.4
2204	R. Helme	Bicester	25.4
2205	M. C. Costin	Coventry	20.4
2206	F. K. Jensen	RAE Farnborough	15.5
2207	J. A. Ellerbeck	Heron	11.4
2208	Whittaker	Moonrakers	24.4
2209	R. J. Pratt	Airways	26.4
2210	E. P. Affleck	Midland	25.4
2211	S. N. Hawley	Derby & Lancs.	6.4
2212	L. J. Norman	London	26.4
2213	D. F. Greaves	Thames Valley	25.4
2214	T. M. Gormley	Four Counties	24.4
2215	W. Harper	Bristol	5.5
2216	M. T. Carr	Surrey & Hants.	6.4
2217	T. Marlow	London	2.4
2218	E. H. Shore	Devon & Somerset	5.5
2219	A. D. Duke	Bristol	5.5
2220	M. E. Cole	Airways	5.5
2221	D. E. Tomkins	Imp. College	2.5
2222	C. M. C. Hodgson	Surrey & Hants.	26.4
2223	L. Bleakin	Cotswold	12.4
2224	D. R. Bath	Lands End	4.4
2225	J. S. Astley	Thames Valley	6.5
2226	D. J. Wrathall	Clevelands	14.4

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Never exceed speed: 260 kilometres per hour. Flying weight: 386 kilogrammes.

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Due to its many flight qualities under varying thermic conditions, Bocian is suitable for all types of performance flights. The pilots' seats are in tandem, and there are coupled control columns, which make the glider ideal for basic training.

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OBITUARY

S. C. O'GRADY

STANDISH CONN O'GRADY took an interest in gliding when one of his students at King's College (now Newcastle University) introduced him to Newcastle Gliding Club in 1936.

He became a member and, as he had over 2,000 hours flying experience, he was asked to become CFI. He agreed providing he had gliding certificates first. He made a visit to Sutton Bank to obtain his A, B, and C (in half-an-hour), and obtained the British Silver C.

At the time of his enrolment the club was winch-launching at Moot Law. O'G suggested leaving the hill site and recommended a flat site near the city. He negotiated for Cramlington Aerodrome (used in the 1914 war and then by the Aero Club), with its large brick hangar and a nine-roomed clubhouse, in which we installed a resident steward. This was the greatest turning-point in the club's history, bringing it within 7 miles of the city.

By flying from the club's hill site at Rothbury to Sutton Bank in April, 1938, O'G made the first British club-to-club flight; it was also the first local thunderstorm flight.

He scoured Northumberland for hill sites, and used quantities of dynamite blasting rocks at Hepburn Moor.

He was awarded the MM in the 1914 war and the AFC in the 1939 war. He was affectionately known as "Old Og" in both wars.

In September, 1939, he held an exalted position on RAF recruiting, which annoyed him because he was not flying. Posted to Pretoria, he returned, and pleaded with authority that unless he could get into the fighting he could serve the country better at the College. He got his way about a year before the end of hostilities—but went back to College.

In recent years O'G travelled a great deal and spent the winters in the South Seas. He died recently at 82.

A. P. MILLER

CORRESPONDENCE

VORTEX-RING NONSENSE

Dear Sir,

This subject has been discussed following a paper given by W. S. Hall at the Royal Meterological Society on 20th March, 1963 (see Q.J.R. Met. Soc. page 394 of 1963).

The main conclusion is that theoreticians do not suggest that bubble thermals with vortices occur when the wind is stronger than the thermals. Since a 5 knot thermal is strong and a 5 knot wind is weak it follows that in the majority of cases the wind will be stronger than the thermals and vortices will not be expected to form. My recollection of the meeting was that the theoreticians were fairly thoroughly shot down; however this is not apparent from the proceedings as they were not recorded verbatim. To quote from the proceedings:

Professor R. S. Scorer: The only way to answer Dr. James' statements is to refute them. If thermals are 300 *ft. wide gliders* 1,000 *ft. apart cannot be in the same thermal, not even "effectively".*

Pilots who have flown in recent competitions must have vivid experiences of 30 or more sailplanes in the same thermal all climbing at much the same speed and spaced fairly evenly over 1,000 ft. to 2,000 ft.

During the next few months, farmers will be burning off many square miles of stubble and pilots must make up their own minds as to the shape of thermals on the basis of their observations at that time.

In that connection the following quotation would seem to be appropriate:

"Believe nothing, no matter where you read it or who said it. No matter if I have said it, unless it agrees with your own reason and your own common sense." BUDHA.

Marlow, Bucks.

DR. BRENNIG JAMES.

ONE-DESIGN COMPETITIONS

Dear Sir,

Rika Harwood's list of data on high-performance sailplanes and Nick Goodhart's companion article in the April-May issue of *S. & G.* were most illuminating.

It really is amazing that so many different really high-performance machines are being produced. To me, this indicates that the gliding world is not directing development of sailplanes along lines which will result in costs being controlled. Gliders are being built much as cars were in the pre-Ford era and thus we pay through the nose for what are virtually prototypes.

I understand that production costs of light-powered aircraft (including development costs) vary with the number produced in the following manner: Taking a production run of 100 as datum, it costs twice as much per aircraft if only 15 are produced, but only half as much if 1,000 are produced. Now the economies of scale of glider production must be similar, though perhaps not quite so pronounced, so it should be possible for a few standard designs to be produced very cheaply.

It might be argued that the Standard Class was intended to keep costs down. For a time it was successful, particularly when the Ka-6 was first produced, but now the importance of the class has been overshadowed because Standard Class machines do not offer good performance for the money, compared with Open Class "exotics".

The answer is surely one-design competitions on a world-wide basis, as yachtsmen have had for years. Could not the BGA start a movement for evolving one or more basic designs which would be suitable for a variety of climates and could be produced in large numbers? There seems to be less difference between machines designed for cold "European type" climates and hotter ones, such as Texas and Australia, than there was five years ago, particularly with the increasing popularity of flaps, so is the time not ripe to stop the performance race and build what most of us can afford?

Drysdale, Victoria, Australia. CHARLES DAY.

POWERED GLIDING—THE "OPEN SESAME"

Dear Sir,

Derek Piggott's article on the Nelson Powered T-49 (*S. & G.*, June/July) prompts me to plead once more for those who, like me, cannot afford the time to glide under the present club system or the money to be a private owner.

I visited a club for half a day recently to have a look at its newly-acquired Ka-13. The weather wasn't very soarable and the Swallow completed a circuit as I arrived. On the next launch the wire broke before the Ka-13 had even moved. This was followed by a split tyre on the towing car and the ensuing chaos took just over an hour to sort out. Whilst this was going on I took stock of the general situation.

Idle on the ground was £6,000 worth of gliding equipment in the shape of two club machines, two private owner machines and their trailers, etc., whilst several bods struggled to repair about £100 worth of junk used for getting the sailplanes into the air.

How right Ann Welch is when she says that the biggest bottleneck in gliding, particularly training, is getting them off the ground.

How right Philip Wills is when he says that if the BGA opened the floodgates of expansion the movement would not be able to cope.

Professionalism is the anwer in part, but professionalism plus powered gliders is the "Open Sesame" for the gliding movement as a whole.

Derek Piggott says that manufacturers don't want to risk a new venture which may have a limited market. To them I would say that the market is tremendous both here and abroad and will almost certainly be scooped by the Germans. Many candidates in the Wills Flying Training Scheme said they haven't tried to fly before because it is too expensive. What is needed is good flying-for-fun at about 30s. per hour, and the powered glider can provide this.

The Nelson Powered T-49 seems to be a good start. The Falke is another. Chuck

away the ancient methods of launching. Leave them to the purists who don't want their gliders contaminated with petrol. Throw away the idea of a light aircraft trainer with "glider characteristics" which will drop like a stone the moment the power is cut. Let us have a self-launching glider which will really glide. Then we can do ten circuits an hour, every hour of the day. Then we can book our flying in advance, say, an hour from 10 a.m. to 11 a.m. Any sort of flying from effect of controls to simulated instrument flying.

The amount of hours flown by machines would be doubled, trebled, quadrupled, squared, and incomes would rise accordingly. No more would sailplanes depreciate quietly away in hangars all week long. They could fly every day with very few helpers required and no extra equipment. A professional instructor could manage entirely on his own for long periods and two instructors could have it cushie.

Many fields unsuitable for gliding at present would be usable by powered sailplanes, especially with radio. Gliding courses would take on a new look. Those floodgates of expansion could be opened wider each year until flying for the man-in-the-street could be nearer a reality than ever before. Youth clubs, sports clubs, works clubs, and clubs, could be brought into gliding because at last a member could be offered more time in the air than he has to spend on the ground. His 10 gns. membership would be money well spent.

With the profits which undoubtedly would come from this amount of flying a towing aircraft could easily be purchased for the enthusiast who wants to fly unpowered sailplanes. The clubs could still operate their high-performance sailplanes without the heavy waste of time and effort on training circuits.

The British Gliding Association would still be justified in its name.

I am sure too many pundits are trying to keep gliding clean by not accepting the need for a self-launching powered sailplane. This means that the amount of flying will always be restricted by the continued use of launching methods which are in themselves wasteful of time, manpower and money. A sailplane which isn't flying is wasting its time and costing money for nothing.

If gliding can be done at the £1 or £2 per hour which we have at present with such dreadfully inefficient use of such expensive machines surely it can only reduce the cost to add a motor and fly any time?

Come on now, BGA! Formulate a plan and policy for powered gliding and cut out this wasted time on the ground. Persuade a manufacturer to design and build the machine we need. It would do British gliding far more good than any project Sigma.

How many people want to fly?

The Wills Flying Training Scheme had 50,000 applicants in 1966, 141,000 in 1967 and 90,000 in 1968. That gives some idea of the potential.

I have 10 gns. subscription waiting and 30s. an hour for about 20 hours for any club within reasonable distance which can offer me flying by appointment. That leaves 89,999 other people you could approach this year.

Ipswich, Suffolk. PETER M. WARREN.

[The BGA is understood to be well aware of the potentialities described by Mr. Warren. The Report for 1967 of its Powered Gliding Committee will be found on page 115 of the April-May, 1968 issue. ED.]

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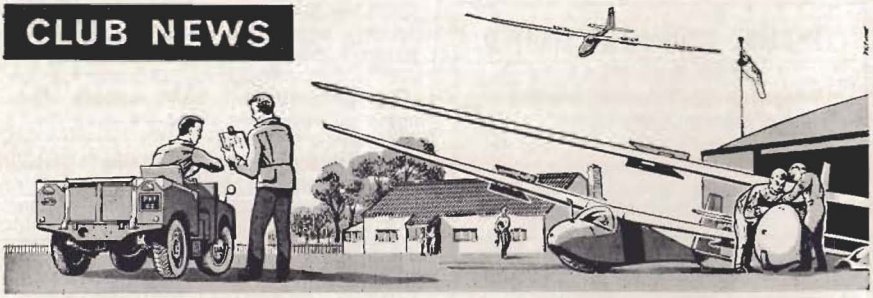
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CLUB NEWS



WHILST some have been away flying in the Nationals or at the World Gliding Championships, those left behind have been making good use of the excellent thermals. There are reports of many 300-km. and Diamond achievements from clubs all over the country. We are very short of photographs for reproduction in this section, so if you have anything suitable please do send it along, but do not forget to include in the caption the names of all those included in the photograph. News for inclusion in the October-November issue should reach me, typed double spaced on foolscap sheets, by the 14th August and that for the December-January issue by the 16th October. Please note my new address: 11 Great Spilmans, Dulwich, London, S.E.21. Telephone 01-693 3033.

15th June

YVONNE BONHAM (MRS.),
Club News Editor

ALBATROSS

THE foot-and-mouth epidemic forced us to cease operations from November, 1967, until March, 1968. Only one journey was made to the site over this period, and this will long be remembered. Having purchased a load of steel roof trusses from a demolished Army barracks, we set out to move them on an articulated vehicle to the gliding site, where they will form part of the hangar roof. The load was 13 feet 8 inches wide, and we were assured by the police escort that the streets of this particular Devonshire town near our site were all at least 14 feet wide, although we ourselves had expressed doubts. Unfortunately, we did not have a tape measure at hand, and it was only when the load jammed firmly in a narrow street that the local police conceded our point. It was two hours before the load could be extricated, leaving behind a Devon town well aware that gliding types spend more time on the ground than in the air.

During our enforced exile, we moved our faithful T-31 to Dunkeswell, and Westward Aviation were kind enough to offer airfield facilities to the band of die-hards who were prepared to travel the 70-odd miles in order to fly. It was certainly well worth the trip to achieve launches of well over 1,000 ft. from the large airfield, with additional thermal activity on a number of particularly good days.

It was with renewed enthusiasm that we launched CFI Tony Edwards in the Prefect on its first flight, and the solo pilots licked their lips as he soared it to over 1,200 ft. and treated us to a display of its aerobatic capabilities.

F.C.S.

BATH AND WILTS

ANOTHER glider has appeared in our midst, this time in the shape of a brand new Bocian 1E. Purchased by a syndicate, which has very graciously allowed the club to use it, the aircraft is proving very popular, and is an ideal stepping stone from the basic spoilered T-21c to the Swallow, which we use in our first solos.

Geoff Bailey notched up another "first" when he became the first member wholly trained by the club to achieve a Gold C distance to a declared goal at Great Yarmouth. Flying the Ka-6 he completed the flight in just over four hours. His wife also achieved a first by driving a car and trailer, at dead of night, through a very narrow shopping arcade prohibited to cars and motor-cycles.

K.M.S.

CAMBRIDGE

PAUL BETHELL-FOX died on the 8th July, 1968. Paul was not, in the conventional sense, one of the big names of gliding. For one thing, 40-odd is a late start. For another, his first reaction to a control column was to treat it like the ash tiller of the big Hilliard sloops in which he spent his youth. He learnt delicacy with gliders soon enough, but he took a grip of the Cambridge Gliding Club like one of those tillers and never let go. In his short gliding life, he became a brilliant instructor because of his sense of urgency, his enthusiasm and his personal magnetism. He talked continual sense to anyone who would listen, both in and out of instructors' meetings. He encouraged the timid and stamped on the conceited. And, always, whatever the job, he worked.

A few years ago, I received an excited letter from my wife's grandfather in Newfoundland. He had just seen gliding for the first time in a Rank "Look at Life" film—Sailing the Sky. Paul alone was responsible for the fact that that film was made. In this way, he gave gliding a free advertisement whose enduring value has been repeatedly proved by the delighted comments of non-gliding people who have seen it.

Do his personal qualities matter, except to those who were fond of him? I think they do. The complete harmony in our syndicate from first to last shows that peace can be engendered not only by the negative and submissive, but also—and in a more positive way—by a positive, fiery but truly gentle man, as he was. His own fire, his own compelling energy, burnt him up in the end. Most people, and I am one of them, would say that 47 is far too soon. I wonder if Paul thought so.

LIONEL ALEXANDER

CORNISH

GEORGE COLLINS stood down as CFI in February, having filled the post for nine of the club's eleven years of operation. As the club won both a Wills Swallow and the Perfect Trophy last year he can now streak around the sky in his sparkling new Diamant with the satisfaction of a job well done. We are very grateful to him. Ernie Hayman, who has taken over, has been well trained by several years as deputy.

There are now two privately-owned tugs on the airfield and these, together with the club Tiger, have benefited both training and cross-country flying. You may remember that we have a cliff-top site and like to think that our ultra-maritime climate makes thermal soaring harder here than in those places where things go up with a whoosh and you can get Silver height in clear air.

There is also a persistent gaggle of 463 pilots who think nothing of making two Silver C distance attempts a day. One of them, Dave (Sandy) Collins, landed on a beach, was promptly towed off it and on his way again. Bill Lewis, flying the old Avia, which now has nearly as many legs as a centipede, made use of a sea breeze front to be the first to get Silver C distance this year. Bill has done it all before but he is going to register it this time!

J.E.K.

COVENTRY

THE highlight of recent cross-countries was our Capstan's trip to Camphill, captained by Messrs. Chris Falconridge and John Large. This all started on a rather dubious day when Chris, having jokingly suggested a trip to Camphill, was challenged to attempt this amid much laughter and promises of free beer. We must admit to a certain amount of inner mirth when we heard about the expressions on the Camphillites' faces as our Capstan descended out of the murk to reclaim the Trophy, everything there being grounded due to poor flying conditions!

We are expecting a boomerang revenge flight in a Tutor any day, and anxiously scan the skies—the Trophy being permanently locked in our thief-proof safe!

Peter Partridge very nearly became the new UK 100-km. speed record-holder when he went to King's Lynn in what seemed an unbelievably short time, but he missed the record by no more than three seconds.

Diamonds for 300-kms. goal have been logged in the past few weeks by Keith Nurcombe, Lou Frank and Bill Fay, Keith going to Morpeth, the latter two to Winchester Cathedral and return.

Finally, our Deputy Tugmaster, Nick Manley, seems to be suffering from split affections, as he is now, more often than not, to be seen pop-popping over the site in a hired R.F.4 from Leicester East. The obvious pleasure Nick derives from these flights seems to be infiltrating into other minds, and there are rumours of more P.P.L.'s and R.F.4 and 5 syndicates.

B.F.

CUMBERNAULD

AFTER a slow start due to weather and C. of A.'s ably carried out by Russell Brown and his team, we are beginning to log quite a number of launches. May was not a good month, with a number of poor weekends with rain and easterly winds.

On one good blue thermal day Roy Surtees obtained his C with a 17-minute trip in the Prefect without the use of a variometer. Another course is planned for late June.

A number of members are venturing away to other clubs to obtain the chance of hill soaring and well-known faces will be turning up at Sutton Bank, the Mynd and Camphill.

T.J.G.

DEVON AND SOMERSET

THE soaring season always triggers off new and more sophisticated sailplanes and it looks as though the club Ka-6E which arrived on site the week before Whitsun will be followed by at least two more syndicate-owned craft of this type.

An interesting test was carried out by two of our senior pilots who flew the new Ka-6E and the Olympia 463 respectively almost in formation on a "scratchy" afternoon for nearly an hour in order to compare performances. If you want to know the answer, come and visit us at North Hill, as more and more friends are doing. We are getting to be quite a staging post on the Gold and Diamond road to the west.

Some colleagues from Southdown brought their Ka-13 and spent a week with us in May and rumour has it that they wish to repeat the performance, which we take as a compliment. For our part, we enjoyed their company.

Work on the hangar and workshop proceeds albeit slowly and Ted Hayter and Chris Slade spent most of the Whitsun holiday erecting what must be the tallest windsock pole in the country.

The Tiger Moth is back on duty after a major overhaul, so that we are now all set for the busiest period of the year. Social activities have also been well maintained by supper parties at the Carlton in Honiton and a soirée at Mike and Barbara Fairclough's house.

A.E..RH.

DERBY AND LANCASHIRE

TED NEIGHBOUR has been putting the grass mower he acquired to good use and the grass is shorter now.

The Coventry club took back the tankard recently when 'Capstan' landed at Camphill on the Saturday, and a 17R on the Sunday. We also welcomed a Bocian syndicate for the weekend. George Whittaker is in hospital for a week or two after bending the Skylark 2. Bob Frith was to fly this in the Northern Comps, 29th June to 7th July, and is now without a charger. Ken Gregory attempted his 5-hr. "hill squat" in the Zlin Krajanick "Mam Tor", but ended in the bottom field (it knows its own way down!). Peter Boneham managed 5 hrs. in the afternoon in the Wills Swallow.

Reg Warren, ex-Lasham, has been appointed Technical Officer and the bond store is now so neat that we cannot find anything!

Hangar packing trolleys have been built à la Portmoak, and have met a mixed reception because of their initial inability to carry Capstans. A new, beautiful, tubular, independently-sprung cable spreader trolley is under construc-

tion—Lotus look out. . . . On the winch front, the driver protection on our expensive Tost winch is being improved—shades of Securicor, and the twin-drum Thornycroft is back in action.

A sniff of wave sent Allan Beckitt heading for the east wind slopes of Mam Tor in the 17R. The wind changed, though, and he came home by car and trailer.

R.H.

DONCASTER

THE club has now replaced the Skylark 2, lost in an accident on Easter Sunday, with Tommy Smith's Olympia 460, rebuilt and much modified, and now wearing competition No. 118. Only three days after its arrival, Andy McPhaden got Silver C distance with a flight to Grimsby.

As was reported previously, Doncaster Airport is being reopened as a centre for light aviation and gliding, organised on similar lines to the Wycombe Air Park at Booker.

The operating company, South Yorkshire Airport (Doncaster) Ltd., of which Doncaster Gliding Club is a shareholder, is anticipating the granting of a licence by mid-June. Runway headings are 23/05 and 15/33, and glider take-offs and landings will be restricted to the areas east of 23/05, and south of 15/33. No radio is at present available.

The reopening of the airport was celebrated by an Air Show organised by the Tiger Club, which opened with displays put on by Doncaster Gliding Club in which some of our instructors, flying the Blanik, K-13 and RF. 4, attempted to outdo each other.

R.P.H.

DORSET

ALTHOUGH there hasn't been much sound from Dorset for a while, we have nevertheless been very busy.

The club has five gliders at present, and there are a further eight privately owned gliders operating, shortly to include another Dart 15.

Early in the season, Gill Turrell and Terry Linee completed Silver C's and Arthur Parrott and Tom Webster gained Silver legs (not literally!). Seven pupils have gone solo, including Vince Haslam, Paul Thomas, Tony England and Mike Brown.

We have just completed another successful Task Week, despite a mixed bag of weather. During the week ab-initio pilots Rosemary Boas, Ross Guymer (a visitor from Australia), and Jeff Jackman went solo; and Ted Andrew and Colin Street completed their Silver C's.

The new kitchen built last summer suddenly acquired some "haute cuisine" touches, i.e., knives and forks; plus an enormous and beautiful blue and white dresser.

Jim Tudgey has completed three years as our CFI and Allen Palmer has taken on the job this season. Our Club Ladder, which is run parallel to the National Ladder, is well looked after by Robin Strange; and finally, our social committee is working hard. Our last social occasion was a Tramps and Vamps Ball, and we will shortly be holding a Barn Dance and Caelid.

S.P.

KENT

WE have had some good days these last two months, especially at weekends for a change.

Unfortunately, there are no first solos to report as we have had to restrict flying whilst the Swallow and Skylark 4 are out of action.

Our most cheering news was Ron Cousins' achievement in the Dart 17 competition at Lasham in May, coming eighth and beating many established pundits.

Again cross-countries have been on the increase such that Firle and Redhill are now regular "milk runs" and our local 102-km. triangle via West Malling and Mountfield Reservoir has already been covered three times. On 1st June Ray Hatton flew his Skylark 4 northwards across the Thames, finally landing near Stevenage — only the second time in the club's period at Challock that this northbound route has been used. Congratulations to Brian Foster, who, on the same day, completed his Silver C with a 70-km. flight to Redhill.

Sunday, 9th June, was our most active day yet with four flights to Redhill (one an out-and-return) and two flights to the

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Southdown club at Firle, one of the latter by the Capstan with Richard Pitman and Leslie Masson as P.1 and P.2, who have now set the pace for the new two-seater cup. Tony Carr got a surprise Silver height from Redhill, having driven there to retrieve his Ka-6 after Bob Graves' flight in it from Challock.

We are now regularly doing double aerotows with single-seaters when conditions permit as, apart from the financial gain to both club and pilots, they also clear the queue quickly when properly organised.

M.H.

LINCOLNSHIRE

JUNE in Lincolnshire seems to have brought some reliable soaring weather after a series of "working weekends".

We have had our share of C certificates and a few bronze legs since the last time of putting pen to paper, and hope to improve the record even further in the current season with perhaps a few Silver C's and Gold C's just to colour our pilot achievement board a little.

The club is still welcoming a steady flow of new members and three separate training weeks have been arranged this year so that our trainees may obtain the benefits of concentrated instruction both in the air and in the lecture room.

A telephone has now been installed in our club premises, so if you aviators want to be officially observed whilst turning in our vicinity, make a note: Lincolnshire Gliding Club, Bardney Airfield. Telephone Bardney 328.

R.S.C.

MIDLAND

THE weather has not been too kind to us this season although there have been some days of the right calibre. Particularly noteworthy was Sunday, 9th June, when Mike Horan completed his Gold C with a 300-km. triangle Mynd-Edgehill-Usk-Mynd. On the same day Stephen Wills did a 200-km. triangle and Jane Randle a 100-km. triangle.

Our ab-initio pilots have been making good progress with a fair crop of first solos including Gordon Pemberton who went solo on a Saturday and did his C flight on the next day, very nearly getting a Silver height gain.

For the middle fortnight in June we were pleased to welcome the members of the Cambridge University G.C. for their usual mid-season visit.

A number of our instructors and potential instructors have either been or are booked to go on instructors' courses. Congratulations to Mike Valentine on gaining a full rating in April.

With effect from the beginning of May, Ernie Ainscough was appointed as CFI to succeed Keith Mansell who for the time being will act as Deputy CFI.

K.R.M.

NEWCASTLE AND TEESSIDE

WE were all very sorry to learn recently of the death of our Vice-President, S. C. O'Grady, or "O'G" as he was affectionately known. We shall never forget him toiling up the hill to Carlton on his scooter loaded to the top of the perspex screen. He was known throughout the gliding movement, but will be sorely missed particularly by this club, which he has continuously helped ever since its inception.

Once more the season of fine weather and thermals is with us. The sun has been shining, and the thermals are tempting us aloft. Several members of the club arranged to stay at Carlton for the week following Whitsun. Mick Martin and Frank Farrow went solo and Colin Richardson completed his Bronze C.

A state of turmoil exists in the clubhouse, with extensive modifications being undertaken under the jurisdiction of the clubhouse committee. We hope eventually to be able to cook and dine away from the lounge.

We have several new members recently to whom we extend a warm welcome. One or two have shown interest in the workshops as well as flying. We have been able to repair and completely overhaul our burnt tractor, and moves are afoot to finish another winch, and then allow our faithful 32-seater "Duplicate" bus to have a well-earned rest and recuperation.

N.M.J.

NORFOLK



Instructors Keith Panton (left) and Graham Ashworth (2nd left) ran a youth course for the Norfolk Education Committee in June. (Photo by Peter M. Warren, Ipswich.)

NORTHUMBRIA

THE badge collecting season is off to a golden start. On 20th April three members managed to contact the oft seen but out of reach Pennine lee wave system by thermalling up from a winch launch. CFI Dave Wilson climbed to 12,500 ft. for the third time in the Eagle. John Greenwell, with a maximum height of 13,300 ft., pioneered a new means for Silver duration by sitting out the five hours at two miles up in a Skylark 2. Both collected Gold height.

When the site is levelled and aerotows are available such flights should become the norm. However, at the moment the combination of the site levelling and east winds has reduced the flying of early soloists to practising small field landings in the T21.

Seven members in two parties visited Sutton Bank in May and June. The first group basked in the sun of an anticyclone and consumed large quantities of beer, the second group had better luck with the weather and piled up the hours. Vic Lawson collected Silver distance for a flight to Flamborough.

J.R.G.

OUSE

INDICATIVE of the enthusiasm of the Ouse club was the attendance at the Annual General Meeting. It was a case of standing-room only for late-comers. Considering that many of our members come from a wide area of this vast county of Yorkshire—from Beverley and Hull in the east to Halifax and Huddersfield in the west—the attendance was magnificent.

Officials elected were: Chairman, Major Alan Simpson; Hon. Secretary, Eric Rogers; Hon. Treasurer, Richard Boddy; Committee: Brett Atkinson (Leeds), Derek Moore (York), James Purves (York). James Wilfred Coulsey was re-elected CFI, coupled with the warm thanks of all members for his dedicated work for gliding.

Glowing tributes were paid to James Park and Ronald Taylor, handing over their jobs as Chairman and Hon. Secretary respectively. As the new Chairman, Alan Simpson, said, "The present high status of the club is due, in no small measure, to their devoted work." He also paid tribute to the work of Brett Atkinson, formerly Social Chairman,

now Executive Officer, and his remarkable organising ability; and to Richard Boddy, who combined financial flair with instructional expertise — to the apparent advantage of both!

We are now revelling in summer sunshine. We fly almost from dawn to dusk. Flying takes precedence over all, but we have a busy social programme; we are improving our clubhouse, we are planning for our winter gliding—and for our gliding week in Austria next July.

A.H.S.

PERKINS

FLYING deep in the heart of Fen country from Postland Airfield commenced on 28th April, with what we hope was a good omen, as the unbelievers witnessed beautiful "cu" positively bubbling from this extremely flat but varied landscape.

Ten aero-tow Skylark flights were made, seven were thermal flights, but as only one aircraft was available these were restricted to one-hour duration.

An operational analysis of the first six weeks' working from Postlands Airfield with our T-21B and Skylark have enabled us to make a fair assessment of the site possibilities, and we have found it has far greater thermal soaring potential than was originally anticipated. Very low release heights have hampered us, but realising our problem, our host gave us permission to drive a path some 300 yards long across the wheatfield at the end of the S.W. runway so we could get a longer run.

It is worth mentioning our local soaring duration and height records from Postlands from winch launches to date: Sunday, 2nd June, saw Reg Bradshaw cruising round the area at 7,300 ft. in the Skylark to record a 105-minute flight duration time. The following Sunday, the 9th June, John Baker and Gordon Truss, clocking 45 minutes, took the T-21B to 4,500 ft. Doug Phythian meanwhile declared Feltwell his goal, boarded the Skylark and sailed into wind towards his target. The barograph recording 5,200 ft., he landed there 2 hours 15 minutes later.

J.V.L.

SCOTTISH

MORE Portmoak pilots have stretched their wings to cross-country and Silver C requirements have been fulfilled. Two who have newly made the grade are Alan Cameron, who chose the "milk run" to Condor, Arbroath, whilst Bob Rothnie headed south-west. We are currently encouraging outward-bound enthusiasts by setting tasks for the week-ends of June.

The weather at Whitsun was rather unco-operative, but there was the day when Andrew Thorburn and Roger Constable landed in the same field; and the occasion when Bill Lawson touched down in "Baby Doll" whilst his crew and the farmer arrived simultaneously at the gate to meet him.

A recent week's instruction for potential instructors has proved very satisfactory and we have another four graduates to add to our list of mentors.

Congratulations to Bruce Marshall and Pamela on their engagement.

M.B.R.

SOUTH WALES

OUR CFI obtained his Diamond C by a climb to 1,800 ft. at Portmoak. Adrian Thomas "overshot" on his first cross-country to land at RAF Strubby—303 km. away—well done!

A lot of interest is being shown by the gliding world in our Black Mountain site at Langmore, which is at the planning stage at the moment. We have only flown there once, but all being well, regular launching could start this autumn.

Photographs and plans of this superb 2,600-ft. mountain ridge are available on request. Wave fever is running very high and already one member's *two-year-old* son greeted his father's return from the office with, "Look, Daddy, wave clouds!"—they were too!

I.S.

STAFFORDSHIRE

EACH year, some time before Whitsun, the club holds a week's gliding course for club members, the exact date being chosen by Chairman Boris Clare,

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who is the organising genius. This produced a week of excellent weather, as the following results show: Barry Ward and Ken Sherriff did their five hours—in thermals (none of this easy hill lift stuff)—and Ken also got his Silver C gain of height. George Von Bradsky got his C and his two Bronze C legs from three successive launches. Frank Townsend did a 32-mile out-and-return in the club Boomerang competition, which is for a real boomerang presented to the club by Gordon Hudson—a former club instructor who has emigrated to Tasmania. Also obtained were four Bronze C legs, one Silver C gain of height and two A and B certificates.

Christine Townsend is doing a valient job on the airfield in a trailer, making tea, coffee, bacon butties or what have you for hungry and thirsty glider pilots.

A visitor to the club from the Ouse Gliding Club was given the first dual aero-tow on a murky day, and was rather surprised to eventually find himself being landed at a farm five miles from the airfield. The instructor concerned, who is fairly new to the club, was rather relieved to find that he was keeping up a tradition of the instructors to get themselves lost at least once at Meir.

R.B.L.

SURREY AND HANTS

CROSS-COUNTRY flying has continued unabated and the total distance flown on flights from Lasham airfield so far this year is over 23,000 km. (excluding distance flown during the Dart competition). Of this total some 8,000 km. has been done in Surrey Club owned gliders and the Hilditch/Horridge/Purnell SHK has done over 3,000 km.

The longest flight so far this year was a 400-km. declared triangle by Purnell in the SHK and he has also climbed to over 10,000 ft. on two successive days. The best climb so far was to over 17,000 ft. by A. J. Burton in a club Dart, and a Capstan has been to over 10,000 ft.

The club is taking a large expedition to Portmoak for two weeks in October so we hope that those who have got their distance during the season will be able to get their height in comfort.

W.J.D.

WEST WALES

AUSTER unserviceability is our problem. We broke a prop and the new one fitted cracked after three hours' use. The Pirate should have arrived by the time you read these notes and we are all eagerly awaiting it.

We have had four solos in the last month, which should help to fill up the single-seater list, as this is rather short at present.

J.D.O.

Contact Ralph Jones for details of the 1968 World Championship winning "CIRRUS".

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SERVICE NEWS

CHILTERNS

AN expedition to Sutton Bank in April resulted in seven Silver C legs being achieved. Joan Maltby attempted a five hours in thermal out of Benson but ran into the "clutching hand" after 2½ hours.

In May, flying was very restricted owing to bad weather at weekends. We are hoping to catch up on these lost hours with mid-week evening flying. This, of course, is always subject to the operational requirements on the airfield.

After much lobbying and assistance from the Station Commander (Group Captain C. L. Godwin, AFC) it is hoped that auto-tows will become a regular feature in the near future.

The Group Captain and Wing Commander "Ops" (Wing Commander A. J. Whitlock, OBE) are both very active members and would appear to be having a personal competition for achievements, the Group Captain being slightly in the lead at the time of going to press with one Bronze C leg.

F.G.L.

EAST MIDLANDS

THE season has been progressing very well and from both the soaring and training aspect it looks like being a record year. The weather, of course, has been excellent, but on the other hand, our new F 100 tow cars have been able to launch us without the fumbles we experienced with winches; and consequently we have been able to make good use of the weather.

Ian Strachan and Jack Harrison flew in the Sport Class Nationals and did extremely well, Ian coming first and Jack ninth. Back at Swinderby our success at task flying has not been quite as good. Several 300-km. closed circuit attempts have just failed, the latest being our CFI, Dick Feakes, who landed a few miles short of the airfield on the last leg of a 300-km. attempt.

J.D.

TWO RIVERS
(RAF Laarbruch)

OUR absence from these pages has been caused by intense activity. At Easter we had a task weekend, which was run as a "Mini Comp", the other service clubs in Germany and the local German clubs being invited to participate.

In all, ten aircraft assembled on Good Friday and were split into two leagues by pilot qualifications: League 1 (Silver C), League 2 (Non-Silver C). The competition was run under BGA handicaps and scoring, the mysteries of which take a little explaining to newcomers to competitions, especially when they are German and you speak practically no German!

The tasks for the three competition days were:

League 1

Day 1. Out-and-return Beek, 155 km.
Day 2. Triangle Kempen-Wesel-Laarbruch, 100 km.
Day 3. Distance along line Laarbruch, Berk-sur-Mer, 355 km. (max.).

League 2

Day 1. Race to Beek, 78 km.
Day 2. Free Distance.
Day 3. Distance: Laarbruch, turning point Eindhoven (Holland), then along line through Liege.

Day one was notable for the fact that Beek, described by the task-setter, after chatting to the gliding club there, as a "small town airfield with a gliding club", turned out to be Zuid Limberg Airport.

Day two was noteworthy for the fact that the club Chairman, Wing Commander Bruce Thompson, flying a Swallow in League 2, had to be rescued from the guardroom at RNAF Vokel, where he had been detained as an undesirable alien.

Day three the Phoebus reached Berk-sur-Mer and the Meise reached St. Omer (310 km.), which, when the handicap was applied, put him in the middle of the English Channel!

The final first three placings in the leagues were:

League 1

1. Abladen (Phoebus), Aspeden.
2. Young (Ka-6), Two Rivers.
3. Hannen (Meise), Kleve.

League 2

1. Pretlove (Skylark 2), Two Rivers.
2. Thompson (Swallow), Two Rivers.
3. Baker/Scarfe (Swallow), Phoenix.

In the two weeks following the Mini Comps a camp was run at the Nijmegen club's airfield at Malden. Unfortunately the good weather did not continue and as a result the camp was notable for its A's & B's and aircraft conversions rather than soaring achievements.

Finally, during the Whit weekend, while the UK dailies were telling us that the Nationals had been rained off, the club was enjoying excellent soaring. Peter Young took one of the Swallows to Berk-sur-Mer for a Gold C distance, while Mick Terry surveyed the local countryside for 5½ hours from the cockpit of the Skylark to gain his Silver C duration.

M.C.R.

WREKIN

THE April soaring week was a success. Thanks go to John Prince for doing all the tugging. Chas Nightingale and "Scotty" Haig both gained their Bronze C's. Chris Joslyn gained one leg of his and has since completed it and also gained his Silver C height and distance.

The Long Mynd people paid us a visit during the soaring week when their ridge was not working and from reports seemed to enjoy themselves. We were pleased to see them and have since then made one or two return visits to the Mynd.

Sunday, 9th June, was a really good day for us. Colin Dewhurst gained his C, "Mac" McLean gained both Bronze C legs and his Silver C height and "Scotty" Haig gained his Silver C height. All these trips were done in the Grunau 2. The Bocian disappeared shortly after 11 o'clock and was not seen or heard of until 7.30 when it reappeared over Cosford. It had flown from Cosford to Ternhill, where it was landed. After doing some local soaring it flew on to Mere, where it again did a few more local soaring trips before it was aerotowed to within sighting distance of Cosford and released to return to its home base.

C.B.B.P.H.

OVERSEAS

THIS section has had to be curtailed owing to the Editor being away at the World Championships at Leszno, but we hope to make up for it next time, and meanwhile news is still sought from every country where soaring is done.

BELGIUM

AS last year, the "Journees de Gand" are to be held at the aerodrome St. Denis-Westrem, and pilots from all countries are invited. The dates of the competition are 10th to 18th August inclusive and the programme is as follows:

Friday, 9th August: traditional reception at 12 noon and cocktails at 20.00 hours.

Saturday, 10th to Saturday, 17th: competition days.

Saturday, 17th August: closing dinner.

Sunday, 18th August: prize-giving at 11.00 hours.

The rules will be sent shortly and will be similar to those of previous years.

P. J. PACCO, *Director,*
Royal Aero Club of Belgium.

HOLLAND

THE thermal season started extremely early this year, with the result that several notable flights of gold and diamond distance were made into France and Germany.

Apart from the Nationals, four successful one-day contests were held:

1. Teuge, 14th April: Task—Out-and-Return to Borkenberge, 202 km. Completed by three of the 14 contestants, and won by Jaap van Steinfoorn, 44 km/h.
2. Eindhoven, 27th April (Victor Boin): This is traditionally a free distance contest. There were 56 competitors, which included 14 from Belgium. Dick Reparon won with a distance of 345 km.
3. Gilze Rijen, 4th May: Task—Out-and-Return to Grave, 120 km. Only two succeeded in reaching the turning-point and the day was won by Hans Fernhout.
4. Malden, 1st June (Golden Venturi): Task—155-km. Triangle, completed by

14 of the 23 contestants, and won by Gerrit Jan Ordelman 67.5 km/h.

Dick Teuling and P. L. Cornelisse in Ka-7 set up a new two-seater record for 100-km. triangle at a speed of 61.2 km/h. at this contest.

J. TH. V. E.

SOUTH AFRICA

THE 1968/9 South African National Gliding Championships, to be held from 27th December, 1968, to 11th January, 1969, at Tempe Airfield, Bloemfontein, will be limited to 35 entries. A third of these will be accepted from overseas pilots.

The system of "shared" flying which operated in past championships is to be modified. The flying is divided into "Championships" days alternating with "Competition" days. The Championships days, based on one man flying one glider, will provide the Open Class, Standard Class and Handicap Champions. "Competition" days will be open to any pilot, provided he or she flies a sailplane formally entered in the Championships, and each day will be a separate event for which a trophy will be awarded. Shared flying is not, of course, compulsory; single entries will be accepted.

Dormitory-type accommodation at St. Andrew College is available at R.3 per person per day, bed, breakfast and dinner (£1 15s., $4.20).

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