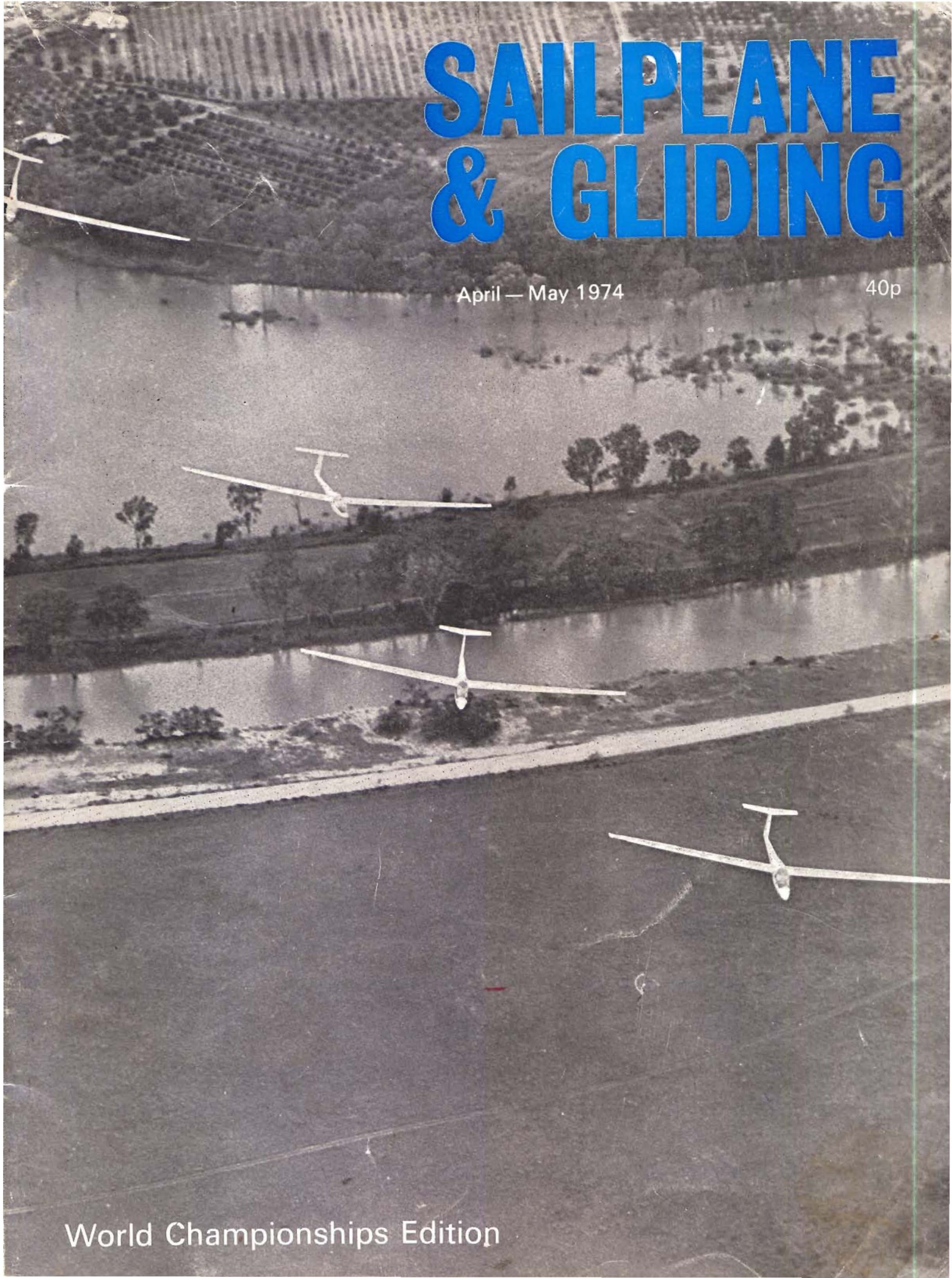


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April — May 1974

40p

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# SAILPLANE & GLIDING

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*Cover: The German "fleet" lining up for a mass landing at Waikerie. Photo: John Powell, courtesy The Sun, Melbourne, Australia.*

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# CHAIRMAN'S REPORT, 1973

BY any standards, 1973 was a very good soaring season. Many British and United Kingdom records were broken, indeed, so many that it is not possible to mention them all here. Statistics are not an entirely reliable guide but, nevertheless, I think it fair to say that more flying of every sort was achieved than in any previous year.

On the international scene, Angela Smith, flying in South Africa, has established a new feminine 500km triangle world speed record at an average of 108.9km/h; this must rank as an outstanding achievement.

At home, Ralph Jones has won both the Open/Standard and the Sport/Club Nationals, together with Euroglide Contest and three Regional Competitions. This surely entitles him to a place in the *Guinness Book of Records* as the person who has won the most gliding contests in one year, certainly in Britain, if not in the world.

## EXCELLENT CONTEST

The continued support of Euroglide by the *Daily Telegraph* resulted in a first-class contest held at Lasham. The *Daily Telegraph* is again sponsoring Euroglide in 1974, which will, on this occasion, be organised by the Bristol and Gloucestershire Gliding Club at Nympsfield. However, unlike previous occasions, it will be held on its own following the only Nationals — namely the Open/Standard Class at Dunstable earlier in the season. Thus it is hoped that the standard of competition will be higher than in previous years. The decision to hold only one Nationals in 1974 was taken because the Sport/Club Class was, in 1973, very nearly cancelled for lack of support.

The *Daily Telegraph* continues to support Operation Farglide, and we can look forward to several attempts next year on the World Distance Record. Let us hope that one of them may be successful.

When writing this report, I can only speculate on the prospects of the team to represent Britain at Waikerie, Australia, in January, 1974. Naturally, we in the gliding movement wish them every possible success, but I am delighted to say that the Prime Minister has personally invited the members of the team to visit him at No. 10 Downing Street before their departure.

Now to less spectacular but equally important matters. Ian Strachan has replaced Tom Zealley as Chairman of the Flying Committee and Don Spottiswood has succeeded Roger Neaves as Chairman of the Instructors' Committee. Both Tom and Roger chaired their respective committees for five years. No praise is too high for the tremendous amount of hard work and time that each of them has contributed — we are very lucky to be able to call upon the services of such capable people, and, so saying, I wish their worthy followers every success.

Gillian Bryce-Smith has followed George Locke, to whom our thanks are due, as Editor of S&G: I am eagerly awaiting the first 1974 edition, which will appear in a new and larger format than hitherto. One immediate advantage will be the much improved reproduction of photographs.

Negotiations have been successfully concluded with the CAA so that the maintenance and renewal of Certificates of Airworthiness of self-launching motor gliders is the effective responsibility of the BGA. The assistance of the CAA is much appreciated and it is gratifying that, in yet another sphere, we are regarded as capable of accepting full responsibility for our own affairs.

Undoubtedly the most important of our problems is the continual battle to prevent the closure of more and more airspace to gliders. We are extremely fortunate to have John Ellis as our champion in this field — his efforts are untiring. Obviously NATS have a very difficult task in trying to resolve the conflicting interests of all airspace users. I think, however, it is not unfair to say that some commercial users believe they are entitled to a prior claim to the use of British airspace, ranking above those who use airspace for recreation and leisure. Surely such a philosophy must not be allowed to prevail?

In all other walks of life the god of cost accounting is no longer permitted to sacrifice everything on the alter of cost-effectiveness. There would be a national outcry if a local authority were to acquire compulsorily for housing development the national shrines of Wembley or Twickenham or Lord's. There ought to be just such an outcry if it were proposed to ban gliders from flying over the Cotswolds. Just imagine the scene if Cowes was closed to sailing vessels because of the remotely possible danger to a passenger liner or an oil tanker. Every conceivable opportunity must be used to show that not only are glider pilots responsible citizens, but also that gliding makes a real contribution to society, not only by providing a healthy and invigorating sport, but also by developing in the individual qualities of skill and resourcefulness and, above all, ability to make decisions and to think clearly, which are so needed in the modern industrial world.

## PROBLEM OF SITES

Our next most important problem remains that of sites. This may not be obvious to the transient club member, but without security of tenure the provision of proper gliding facilities throughout the country on a permanent and lasting basis cannot be achieved. With today's high cost of land it is no longer possible for the private individual or a group of private individuals to provide a gliding site at his or their expense. Gliding is not alone in this problem, which is shared by nearly all sports. The recent report of the House of Lords Select Committee on Recreation and Leisure envisages that in future most new sports facilities will initially be provided from public funds.

The Sports Council is fully aware of the problem and we have had discussions with its Chairman, Dr. Roger Bannister. However, the funds available to the Sports Council fall very short of its requirements. Additionally I am having discussions with the Ministry of Defence representative on the Sports Council. The varied conditions on which certain gliding clubs are permitted to use MoD property differ so widely that it is impossible to perceive any consistent policy for the use of MoD facilities despite the attempts of both the Sports Council and the Government to secure a policy properly suited to the needs of all sections

of the community both civil and military, in the nineteen-seventies. Our thanks must go to Joan Cloke and the Development Committee for all their hard work.

A week-end conference for all clubs employing professional staff was held in November at Nympsfield. These attending learnt a very great deal from each other about methods of club management. The wise learn from the mistakes of others, while the foolish learn from their own experience. It seems to me that the inter-change of ideas could be very helpful at all levels of club organisation, not least at the administrative one. It was readily apparent at the conference that each club exists primarily to benefit its own members and that each club reflects their consensus. It is encouraging that clubs do indeed encompass a wide variety of attitudes to the sport. The future must lie in the consolidation and strengthening of clubs, bearing in mind that too much fragmentation of effort can only lead to ineffective clubs which have none of the necessary resources in manpower and influence, without which they will be unable to survive.

## MORE MONEY FOR SPORT

The re-organisation of local government taking place in 1974 effectively means that more public money is available for sport and recreation. Most of the new local authorities at County and District level are appointing full-time officials to look after sport, and all local authorities, including the new Parish Councils, will have power to spend money on the promotion of sport. Joan Cloke has recently written an excellent paper (published recently in BGA News) describing the various grants and assistance available to clubs, and I suggest that any club considering whether or not to apply for a grant should study it carefully first.

The effect of monetary inflation on gliding is considerable. Its greatest impact is that it prevents nearly all the younger generation from learning to glide. We must actively seek to promote the assistance of education authorities and commercial sponsorship to promote gliding courses for the young. Several clubs already have groups of University students who are subsidised by their University, and unless we encourage such participation we shall not continue to achieve the successes that we have done in the past.

## VINTAGE CLUB

1973 saw the introduction of the Vintage Glider Club and the first-ever vintage glider rally was successfully held at Husbands Bosworth in May. 1974 will see Competition Enterprise being held at North Hill. This promises to be well supported and will be devoted to encouraging adventurous and unusual tasks, different in style and character from those at present undertaken by the race addicted pundit. It may well show that there is a considerable demand for a kind of gliding which has been neglected.

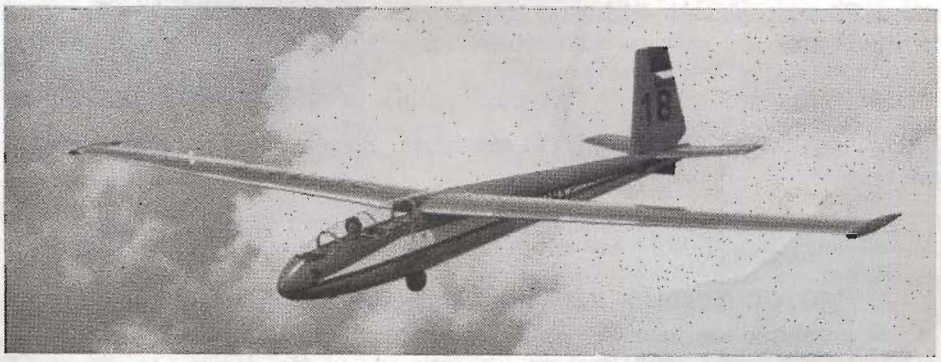
During the course of the year two hang glider associations have been formed. In the early part of the year it was decided, after much careful deliberation that the sport of hang gliding was far removed both technically and practically from gliding as we know it and that hang gliding would develop more effectively on its own rather than under the BGA. It is, perhaps, unfortunate that hang gliding should be known by that name, thus suggesting to the layman that there is a strong connection between the two aerial sports which in many aspects are very different, and whose only similarity is that neither require an engine for propulsion.

I realise that I have left unmentioned by name the efforts of many persons, and, indeed, of all the BGA staff. Without them all would be chaos and to them are due my most heartfelt thanks.

C. R. SIMPSON, Chairman.


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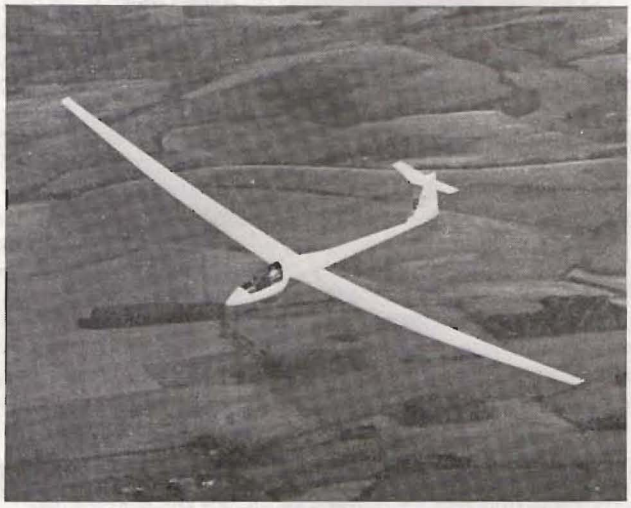
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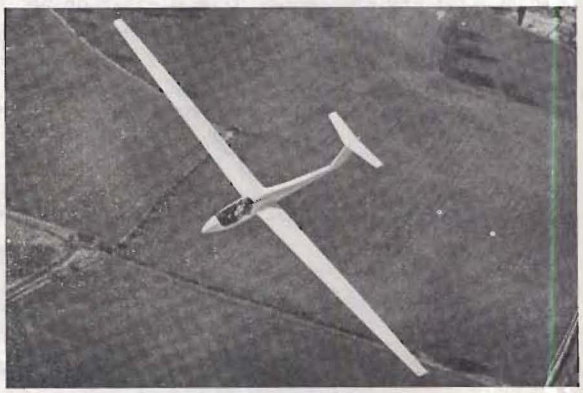
Tim Biggs won the Rhodesian Nationals (again!) in a Nimbus.

**With this sort of record it must be the best**

## ALSO

## THE STANDARD CIRRUS

took 2nd, 4th, 9th and 10th places in the Std. Class. British pilot Bernard Fitchett placed 4th very close behind the leaders.



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# WAIKERIE
# IT WAS A "BEAUT"!

. . from arrival on a lush green airfield instead of the expected dustbowl — which took even the Aussies by surprise! . . . but it took Rex Coates two years of irrigation work aided and abetted by excessive rain and floods! . . . The people, so proud to be Australian, such fabulous hosts, so helpful and so kind . . . The organisation, so magnificently directed by "Wally" Wallington . . . Joyce, his wife, putting everyone at ease with her charm . . . The wonderful hospitality . . . which they nearly overdid by importing all that 'European' weather — not seen for ages! The briefings — short and to the point . . . the flies—everywhere!

The team caravans, to feel at home from home . . . the hostesses always ready to help . . . the swimming pool . . . the unending supply of orange juice . . . the Holden cars . . . forever at our service!

The 'fix-it' team ever at hand always finding a solution . . . Sally Colton and her singalongs making everyone feel wanted and happy. The parties, impromptu or not, under the Southern Cross . . . with the flies!

The children's kindergarten . . . always laughter. Bill and Joan Ridley and their superhuman efforts . . . The flying — a bit of everything — weak, strong and windy conditions; the 67 artists in the arena giving of their best . . . the 'Boeing' 707 task — ten finishers . . . all exciting, all new — history in the making . . . and more flies!

Moss Potter, beloved by everyone. All the other colourful personalities — the atmosphere of rivalry, comradeship and friendship tying the 22 nations closely together. . . The missing Yugoslav flag . . . the missing Polish flag . . . and the missing British flag which kept Roger up half the night . . . only to be told next morning it was the flag provided by the organisers . . !

The beer, the wine, the barbecues . . . and Hardy's wine cellar . . . hospitality never seen before. Waikerie wanted us . . . they wanted success . . . and they got it in immeasurable quantities . . .

The finish line spectacular . . . the excitement . . . the support from the locals for the Aussie pilots . . . Ingo Renner, utterly modest and shy but always trying . . . and nearly succeeding . . ! The British glider badges — coveted the most by everyone . . . , the humidity . . . the flies still with us!

Manfred Reinhardt's birthday . . . and Roger riding his bike by moonlight under the Southern Cross! Walter Kucera and his guitar accompanied by 'Papa Juliet's' singing . . . Bernard Fitchett hanging on to third place for seven long and tiring days . . . to be pipped at the post by Kepka. All the pilots for ever trying again and again and often exceeding their personal best . . . A kaleidoscope of effort, rivalry and friendship . . . and hard work by all concerned!




*Courtesy: Championships Bulletin.*

Roberto Sada and wife the Mexican honeymooners . . . and 'L. Michel' Kun (Comp No ZS) affectionately known as 'Zero Siesta' as he needed retrieving on all but the last day; always colourful always cheerful . . . the newcomers, the oldtimers those who never stopped working, they all have helped to place Waikerie firmly on the map for ever . . .

Moffat taking the lead after five days from Ragot, and keeping it . . . perhaps making the best assessment of the daily weather . . . and Moffat being happy letting his hair down after the last contest day . . . happy and relaxed . . . a real champion.

The last briefing. . . the atmosphere of togetherness, the comradeship and a little bit of sadness — it could all be felt!

Reichmann beating Australia's Ingo on the last day . . . to join Moffat on the podium as he did at Marfa. Kepka for the fourth time in third place — he must have a season ticket!

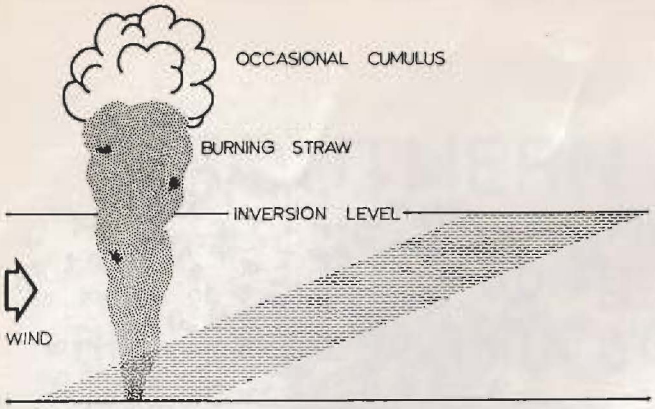
The last evening — the swapping of ties for badges, badges for shirts, shirts for autographs. . . the swimming in a private pool and gazing at the Southern Cross — they are all experiences never to be forgotten!

The gigantic scoreboard an innovation much talked about — I hope they keep it, as it is a monument!

The *Code Sportif* states ". . . . and to reinforce friendship amongst glider pilots of all nations". The Australians made it all happen . . . they were magnificent, and I am glad I was there . . . it was a real "beaut". Thank you all.

RIKA HARWOOD

*The full report of the Championships is on p64.*




# THOSE STUBBLE FIRES

H. R. DIMOCK

On August 19, when the National and *Daily Telegraph* Competitions were being held at Lasham, I was airborne for four hours in my Kestrel for no reason other than it was a lovely day, and what else should a gliding enthusiast do other than cruise around the sky and listen to the competition pilots' radio transmissions of their progress or failure?

The farm stubble fires were continuous around Lasham and I was able to watch and study them as they were ignited. Generally speaking the farmers tended to light the fires all round the field. Initially a gentle thermal was formed, but I noticed that as the fire spread towards the middle, a terrific flame-up occurred.

The original gentle thermal arose with the wind at an angle of about 25°, but with the sudden flare-up the thermal (smoke) went up almost vertically and above the inversion level, which was about 3500ft.

I found that if I left the gentle thermal in time to get above the flare-up smoke before it hit me, and I have used the word hit meaning just that, the thermal went through the inversion to about 6500ft, taking my Kestrel with it. In this volatile thermal, the Kestrel was almost out of control, semi blinded by the smoke which carried up huge lumps of burning straw, although the visibility was enough to avoid flying into these.

No doubt power pilots and CFS instructors would be horrified to fly in these conditions but we glider pilots revel in it, our rate of ascent so great that it is "off the clock". During the Nympsfield competitions I counted eight gliders in one of these stubble thermals.

A farmer relation of mine said that after he had set fire to his field all around the boundary until he reached the gate again, a gale of wind sprang up from left to right (the Coriolis Force at work) and really frightened him as it roared with the force of a hurricane around an inferno of burning straw being hurled into the sky. He was not ashamed to say that he ran away. Assuming that the Coriolis Force always causes thermals to be cyclonic in our hemisphere, I therefore favour right hand circuits.

I found the stubble fires most interesting and have included a sketch of how I picture it happens.

# A 300km TWO-SEATER TRIANGLE

TONY SHELTON & KENNY JAMIESON

On Monday, November 5 1973, according to the BBC weatherman and A. Sambale (resident instructor at the SGU), the next day was going to be superb. Our own aircraft not being available, we obtained authorisation to fly the Glasgow and West of Scotland K-13.

From previous experience Kenny knew that the main ingredient for a successful two-seater trip is to establish before take-off who will be making the necessary decisions regarding utilising the aircraft and conditions to the best advantage, and the obvious choice was Tony.

We took off at 10.46 and released above the clubhouse at 3000ft, having declared a 300km triangle with Killearn and Fordoun as turning points.

We flew straight towards the Ochils, arriving at 2500ft. The nearest wave cloud was not stationary and slowly advancing towards Perth. We flew diagonally along the wave in weak lift, eventually reaching 5000ft near Alva where we were faced with cloud. Here we turned clear of the high ground and the low cloud. At 3000ft we got established in weak wave, which rapidly developed into strong lift taking us to 10000ft. We then cruised at 80kts along the wave band towards Killearn.

It was at this point in the flight that we began to feel the adverse effects due to the missing seal on the aerotow nose hook, from which we were subjected to a strong blast of exceedingly cold air.

We flew slightly south of Killearn along a strong wave. Killearn was situated between our wave bar and the one to the north. We climbed to 11000ft and flew directly overhead Killearn from one wave band to another, taking two photographs of Killearn Church, quickly becoming established in a strong wave. We increased the speed of the K-13 to 100kts and were still achieving lift of one knot. We raced to the west along this wave at speeds from 100 to 120kts.

By this time we were both experiencing considerable discomfort due to the intense cold, but by mutual agreement decided to press on.

On this leg of the flight we had been cruising between 8000ft and 11000ft and had a speed usually in excess of 100kts, this being made possible by a strong and clearly defined wave cloud. However as we approached north of Perth the wave system was less clear, so we climbed to 14000ft and dived on a course towards Fordoun. The strong lift had tapered off and we reached Drumtochty Castle in the foothills west of Stonehaven, beyond our turning points. Fordoun was completely clamped with cloud and there was no indication of lift anywhere.

We turned and decided to try to land near Edzell. The visibility was extremely poor and we did not get clear air until parallel with the Montrose Basin. We slowly worked our way towards Arbroath and then decided to land at Riverside, Dundee. Our height was now down to 3000ft. As we approached the Tay Bridges there was a small ragged wave cloud, which developed in a remarkably short time into a strong lift of 1000ft/min. We reached 11500ft, pointed the K-13 at Loch Leven and gained Portmoak Airfield as quickly as possible. Time from take-off to landing — 4hrs 13mins.

As the people in the clubhouse can verify, two extremely frozen figures hobbled in, both without feeling in their feet and elsewhere. As well as the great enjoyment that we both had, it really proves that high performance is not the sole key to long flights in wave.

# Tail Parachutes and Landing Incidents

DENNIS CAREY



**Dennis Carey, MSc, CEng, AFRAeS, started gliding in 1951 on a Dagling. He works on various military projects, including VTOL aircraft, helicopters and guided missiles, and until recently was a project manager in the naval weapons division of Hawker Siddeley Dynamics. He is now involved in the development of submarine vehicles for commercial applications with Vickers.**

**Dennis lives with his wife, son and two daughters in an 18th century farmhouse in the Lake District. A BGA instructor with a Silver C and 25 types in his logbook, he now flies a K-6E with the Lakes Gliding Club where he is the site development officer. The photograph, taken some time ago, shows him in a Scud 3 which may soon be flying again at Nympsfield.**

LANDING accidents are by no means a new phenomenon, and are generally attributed to "pilot error". This is not necessarily true when heavy landings occur as a result of using a tail parachute, because other factors are involved over which the pilot has no control. The following notes attempt to shed some light on the matter, and hopefully, will stimulate some constructive comment and observations from those with first hand experience of the problem.

When the tail parachute is deployed, there is a large increase in the total drag; but not so obviously, there is a change in the balance of pitching moments acting on the glider during the critical stages of approach, round out and hold off. It is this latter effect with which we shall primarily be concerned. There is also a very small rearward movement of the glider's centre of gravity, due to transfer of the parachute weight to a position further aft, which, although beneficial in this instance, will be ignored.

**Basic Effects.** The most important effect of the parachute during landing is a stabilising influence resulting from the nose down pitching moment on the aircraft due to the drag produced by the canopy. We can estimate the approximate magnitude of this effect as follows:

Consider Fig 1 which illustrates the situation during an approach prior to round out.

The parachute trails in a position parallel to the resultant air flow behind the glider, ie at an angle $\alpha_p = \alpha_w - \varepsilon$ relative to the wing zero lift datum, where ($\alpha_w$) is the wing incidence and ($\varepsilon$) is the downwash angle at the parachute.

Fig 2 indicates that the parachute drag ($D_p$) acts at a distance $l_p\alpha_p - Z$ below the CG, where (Z) is assumed to be negligibly small for most gliders except when ($\alpha_p$) approaches zero in high speed flight, which is a condition of no particular interest.

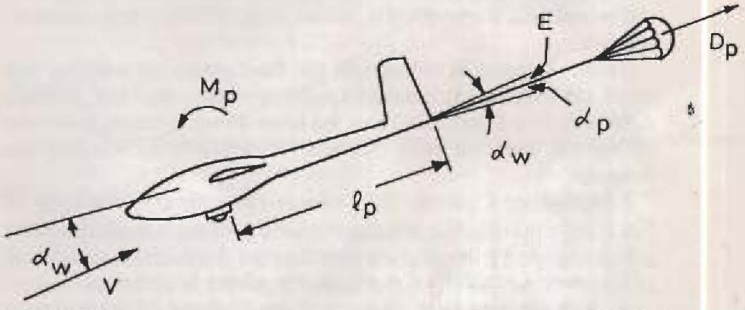
There is therefore, a nose down pitching moment about the CG of approximately

$$M_p = D_p l_p \alpha_w \left(1 - \frac{\varepsilon}{\alpha_w}\right)$$

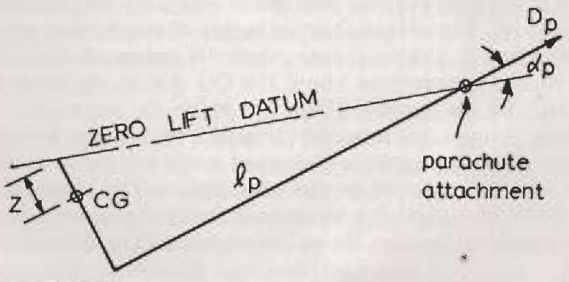
The drag force, which varies with ($V^2$), will be 128lb for a 4ft dia parachute canopy, assuming a drag coefficient ($C_D$) of 1·2 and an approach speed of 50kts.

(*NB*—Speed will decrease by about 10kts in 3secs typically, if no action is taken. The nose must be lowered 10° immediately to balance the increase in drag—a process which will be assisted by the parachute to some extent and increase the rate of sink by 8 to 10kts.)

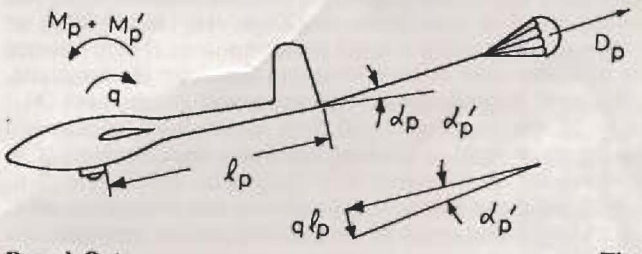
The distance from the CG to the parachute attachment ($l_p$) is typically about 15ft, and ($\alpha_w$) the wing incidence will be in the region of 6° (say 0·1 rad.). The downwash ratio ($\varepsilon/\alpha_w$) in the vicinity of the parachute will be about 0.2, so that $M_p$ is of the order 150lb ft.




**Approach** **Fig 1**




**Moment Arm** **Fig 2**




**Round Out** **Fig 3**

Consider now, the situation illustrated in Fig 3, which shows the position during round out, when the glider is rotating about its pitch axis in the nose up direction.

The parachute now trails at a larger angle determined by the

rate of pitch (q) and the greater wing incidence ($\alpha_w$) needed during round out, ie, at a new angle,

$$\alpha_p + \alpha_p' \quad \text{where} \quad \alpha_p' = q\left(\frac{l_p}{V}\right)$$

The corresponding nose down pitching moment about the CG due to (q) is approximately

$$M_p' = D_p l_p^2 \left(\frac{q}{V}\right)$$

During an approach with parachute, the glider's attitude is typically in the region of 12° to 15° and consequently the rate of pitch during the 2 or 3secs of round out will be 5° to 6°/sec or 0.1 rad/sec on average, so that $M_p'$ is of the order 35lb ft.

These two effects are cumulative and will require an additional average down load from the tail of about 15lb to balance the pitching moment from the parachute.

If we look at the formulae for $M_p$ and $M_p'$ more closely, we know that the parachute drag varies with ($V^2$) and the wing incidence varies in level flight as ($1/V^2$). So that $M_p$ remains substantially constant if the speed varies. On the other hand, $M_p'$ varies directly with (V) for a constant rate of pitch. The tailplane behaves just like a small wing and the maximum down load it can provide is limited by its maximum elevator deflection and, consequently, varies with ($V^2$) to a first approximation.

Thus, as speed is reduced in the final stages of landing, the nose up pitching moment available from the tail surface decreases at a faster rate than the nose down moment from the parachute, and the pilot has greater difficulty in holding the nose up.

**Longitudinal Control.** Now one of the primary functions of the tailplane is to balance the pitching moments from the wing and body, from the stalling speed up to the highest speed and manoeuvre capability for which the glider is designed.

A high performance glider will be designed in such a way that the balancing force required from the tail (and hence its size) is as small as possible in order to minimise the associated drag penalty. This means that the centre of gravity will generally be located close to the aerodynamic centre of the wing, and the pitching moment about the CG due to the wing lift force can, for the purpose of this discussion, be neglected.

The tailplane is now required to balance the residual pitching moment associated with the body, and camber of the particular airfoil section employed in the wing design. The latter effect can still be of appreciable magnitude and will require a small balancing down load on the tail of perhaps 20 or 30lb at low speed.

If the tail of our typical glider is designed to just meet this requirement with maximum up elevator deflection at the stalling speed in level flight, say 35kts, then it will have no margin of longitudinal control movement available to balance the additional nose down pitching moment from the parachute.

We have previously estimated the parachute moment ($M_p$) to be in the region of 150lb ft in steady flight, which will require an increase in the tailplane down load of about 10lb, or somewhere in the region of 33% to 50%.

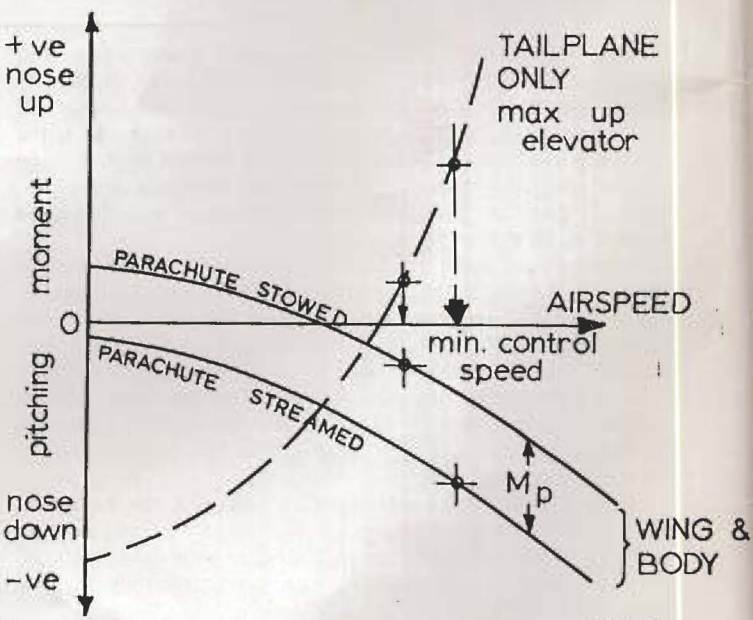
With no more elevator movement available and all other factors remaining constant (not strictly true in practice), the flying speed would have to increase, for example, by 5 to 8kts above the stalling speed in order to provide the extra 10lb of download necessary to maintain longitudinal control with the parachute deployed. This is a little more obvious in Fig 4 which shows a representative situation during hold off.

The glider is in trim at an airspeed where the pitching moment available from the tail is equal to the pitching moment from the wing and body.

However, we cannot assume that all gliders have tail surfaces of a size just sufficient to stall the aircraft in level flight at the forward CG limit with parachute stowed, and a small margin of elevator movement will be available in some cases. In general, the CG will not coincide exactly with the wing aerodynamic centre, and there will be a nose up or nose down pitching moment from the wing lift force which will either reduce or add to the tailplane download, depending on whether the CG is respectively forward or aft of the aerodynamic centre.

There will be other (downwash) effects due to the proximity of the ground that influence the tailplane lift and the angle at which the parachute trails, so that we cannot (without a great deal of labour) estimate with any exactitude the nett effect of the parachute on the minimum control speeds during approach and hold off.

During round out, the total pitching moment is increased due to a damping moment arising principally from the tail surface, and the parachute moment which increases by an amount ($M_p'$). There will be a larger contribution from ($M_p$) due to a greater wing incidence, and the wing lift force (and associated pitching moment) must also increase by about 25% to balance the normal acceleration (*g*). These effects all result




**Hold Off** **Fig 4**

from the flight path curvature and depend on the rate of pitch (q).

The balance of pitching moments during round out will in general require an even larger download from the tail and consequently the minimum control speed will be higher than it is during hold off.

Clearly, there are a number of significant parameters which combine in varying degree to determine the minimum control speeds during approach, round out and hold off for any particular type of glider. Nevertheless it is not difficult to see how a loss of longitudinal control can occur when tail parachutes are used.

**Handling Qualities.** The first effect discussed at the beginning ($M_p$) can be described as a rearward shift of the "neutral point"—which will have the effect of increasing the stick travel and stick force required to trim the glider in steady flight, relative to flight at the same speed with the parachute stowed. In other words, more "up" elevator and back pressure will be required during approach and hold off.

The second effect ($M_p'$) can be described as a rearward shift of the "manoeuvre point"—which will have the effect of

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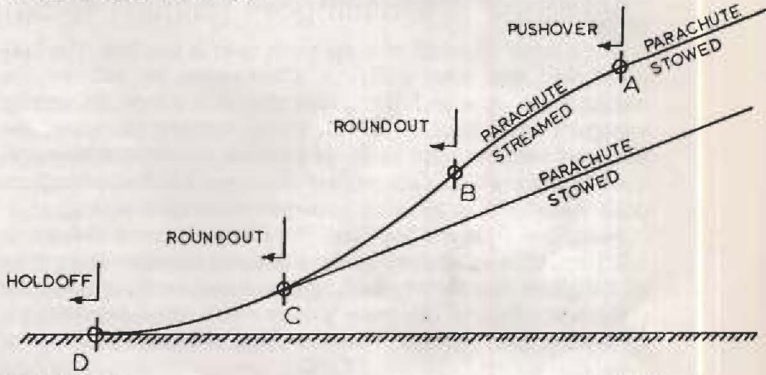
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increasing the "stick travel per $g$" and "stick force per $g$", relative to accelerated flight (in turns and pull outs) at the same speed with the parachute off. It will also reduce the rate (of pitch) at which the glider responds to stick movement, compared with the response when the parachute is stowed.
(*NB*—There are in fact two "neutral points" and two "manoeuvre points"—but we need not go into the distinction here.)

The nett effect of all this is to reduce the elevator movement available for landing, and to increase the elevator movement required to achieve the same response at the same speed.

Let us now translate these effects to the landing situation.

After deploying the parachute at point A, the pilot must initiate a bunt or push over into a steeper approach attitude, but this manoeuvre should not present any difficulty with an adequate speed at entry.




**Flight Path** **Fig 5**

The point to notice is that since the approach path is steeper with parachute streamed, the glider must be rotated through a larger angle in pitch during round out, by a factor of about $2\frac{1}{2}$ compared with the parachute stowed.

The round out must be started at a greater height and distance downwind at point B, and will take longer to perform, if the pilot aims to maintain the same flight path curvature (normal acceleration) and complete the round out at the same point D.

If the approach speed is maintained, but the round out is delayed to a height nearer C, the pilot will demand a higher rate of pitch and more control movement than at B, and the glider will respond by developing more $g$. This will increase the wing, damping and parachute pitching moments (discussed earlier) and require even more up elevator to maintain a faster round out and smaller radius of flight path curvature.

Loss of speed during approach and round out will reduce the tail plane moment available, and these effects can accumulate to a point where the pilot discovers that the elevator has either lost its effectiveness or no more control movement is available, and the glider will not respond.

A pilot who is not aware that these changes in handling characteristics have taken place and commences the round out at his (or her) customary height with the parachute stowed, at C, may fail to round out.

Assuming that our pilot has survived this manoeuvre—with a certain amount of excitement!—he breathes a sigh of relief and proceeds to hold off—only to discover that the nose has dropped several knots above the speed at which he was expecting to touch down. He will have learned that he cannot land the glider with the parachute streamed, at a speed to which he has become accustomed with the parachute stowed.

It is worth having another look at the initial push over because this manoeuvre is very similar to the round out, and will require the same loss of height from A to B, as from B to C. Even with no allowance for a steeper steady approach path prior to round out, the parachute will need to be deployed at

an even greater height and distance downwind. For the flight conditions assumed previously, point A will be located at a height of 15ft and a distance of 420ft from D in zero wind conditions.

Although the flight path curvature is convex in the push over—instead of concave as in the round out, the same effects which occur in the round out will also occur in the push over, but they will act in the opposite direction because the rate of pitch is now in the nose down direction instead of nose up.

If the push over is delayed to a height nearer B, the pilot will demand a higher nose down rate of pitch and more down elevator than at A, if he wishes to be in the correct position and attitude for starting the round out at B. In all probability he will not have appreciated the need for an extra margin of height to perform the push over and will end up in the correct attitude but at a position nearer C, which is a situation we discussed before.

If the speed at entry into the push over is too low, the tailplane will not have sufficient effectiveness to achieve the required response and the glider may not adopt its correct approach attitude at roundout. In an extreme situation, the glider will not respond at all to forward stick movement and it will continue along its original flight path before parachute deployment, losing airspeed continuously until it stalls.

**Static and Dynamic Stability.** The ideas discussed above can be extended to an analysis of the static and manoeuvre margins of the glider (see Refs 1, 2 or 3), and it can be shown that the stabilising effect of the parachute is (with some reservation), equivalent to an increase in the size of the tailplane by a factor of

$$1+\frac{C_D S_p}{a_T S_T}$$

where ($S_p$) and ($S_T$) are the areas of the parachute and tail respectively, and ($a_T$) is the tailplane lift gradient.

Typical values of these parameters suggest that a parachute is equivalent to an increase in tail surface area of about 25%, or a rearward shift of the neutral and manoeuvre points of 7% to 8% of the wing mean chord.

More simply, deploying a tail parachute has much the same effect as a sudden forward CG movement of typically between 2 and 2½ins. This would represent as much as 50% of the permissible range of CG movement on some high performance gliders.

The corresponding deterioration in handling qualities (ie stick force, stick travel and aircraft response) is rather more difficult to generalise and quantify, since these parameters depend on the actual CG position within the normal range of CG movement, and the type of glider being flown. The combination of forward CG and maximum weight with tail parachute and possibly flaps also deployed, may well prove to be critical at low speed in some cases. The apparent change in handling characteristics is, however, greatest when flying near the aft CG limit.

**Is there a Solution?** In the first instance, a critical analysis of landing incidents and pilot's comments is indicated to establish that a problem really exists. A more rigorous theoretical approach than that which has been attempted here, would appear to be necessary, and preferably confirmed by appropriate instrumented flight trials conducted at a safe altitude.

Where the problem can be identified positively on existing gliders, lower weight and reduced forward CG limits would apply to parachute landings, since higher landing speeds only aggravate the H.E.L.P. (high energy landing) problem. Alternatively, it might be possible to re-locate ballast tanks (if fitted) to a position where an appropriate rearward CG shift is obtained when ballast is jettisoned prior to landing.

Even this solution is not very attractive because it could lead to marginal stability at aft CG positions when the parachute is not used.

Increasing the elevator travel is another obvious possibility, but if the maximum up elevator deflection has been chosen correctly in the first place, there will be very little scope for improvement.

A substantial increase in tailplane area might do the trick, but this would have the effect of also increasing the basic static and dynamic stability margins of the glider, causing a deterioration in the handling qualities in normal flight. The inevitable compromise would be necessary and a drag penalty incurred throughout the speed range.

There are more radical solutions, but what is really required is a drag producing device which has no effect on the basic stability of the aircraft. The rotating trailing edge divebrake advocated by Keith Emslie (Ref 4) is likely to emerge as the only contender which provides a completely effective solution to the problem.

**To summarise,** approach path control requires more height, speed and careful judgment when tail parachutes are used, due to a powerful stabilising influence which is equivalent to a forward CG shift of appreciable magnitude. There would, therefore, appear to be some justification for believing that recent heavy landing incidents involving different types of glider, have their origins in varying degree, in a loss of elevator effectiveness and a corresponding deterioration in handling qualities at low speed. Which would suggest that this is an aspect of modern sailplane design which has become neglected in the pursuit of ultimate performance.

**Acknowledgements** are due to Frank Irving for several constructive suggestions, and also to Bill Scull who pointed to the existence of this particular problem area in the first instance.

**Refs 1 B. ETKIN** *Dynamics of Flight* **(WILEY); 2 W. J. DUNCAN** *Control & Stability of Aircraft* **(CUP); 3 F. G. IRVING** *Introduction to the Longitudinal Static Stability of Low Speed Aircraft* **(PERGAMON); 4 K. EMSLIE** *The Perfect Dive Brake* **(Soaring Pilot No. 1 Vol. 1 1973).**


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# coaching corner

**BILL SCULL, National Coach, replies to John Stirk's article — A New Look at Instructor Training Programmes — printed in the last issue on p19.**

JOHN's article offers much valid comment and constructive criticism. Certainly someone outside our coaching system is perhaps able to criticise more objectively. But before examining John's article, I would like to point out some changes in the system and some of its deficiencies.

With the advent of the coaching system, the requirements for a pilot to qualify as an instructor changed to include an approved instructors' course, either run by the Coach or approved CFIs. The number of courses run by CFIs has dwindled. I am not certain why, but it isn't entirely due to the number of places on coach courses.

## Slant to Briefings

One or two CFIs have admitted that they feel unable to run a course "anything like as good as a Coach course" — their words not mine. The reasons are obvious: to run one course every two or three years will considerably extend the average conscientious CFI. A Coach running 12 or more courses each year not only keeps in practice but improves his technique. Moreover a Coach is much more aware of accident trends and can give a slant to briefings and exercises.

Undoubtedly the present system is far from ideal and changes are taking place — more of this later. The ideal candidate for an instructors' course would come with adequate experience and prepared because his CFI had helped him. Maybe there is a communication problem between Coach and CFI, but should a CFI really need to be told how to prepare a potential instructor for a course?

## Club Visiting

Now John's argument leads towards redeployment of Coaches to visiting clubs at weekends. Obviously such visits do take place with varying degrees of success. If the object of the visit is further training or retraining of established instructors, then the magnitude of the task is awe-inspiring.

There are approximately 1300 on the register. If we take John's estimate of a refresher course once every five years, that is 260 instructors per year. One Coach running five-day courses means 52 courses each year (with the usual complement of five). The season can only be considered to last from the beginning of March until the end of October — 35 weeks. Need I say more?

The present Coach programme, entering its third year with two Coaches, will already be known to CFIs through the first CFIs newsletter, but summarised is as follows:-

| Type of course | Coach weekends |
|---|---|
| 5 (double) instructors' courses, ie two Coaches | 20 |
| 6 (single) instructors' courses | 12 |
| 1 (double) type-conversion course | 2 |
| 6 (single) type-conversion courses | 6 |
| 6 instructors' course briefings (1 day) | 3 |
| 12 CFI seminars | 6 |
| 15 weekend visits to clubs | 15 |
| AGM and Ball | 2 |
| Holiday (2 weeks in season) | 6 |
| | 72 |

Naturally some of the weekends are not committed to allow time for rating tests and categories.

Some idea of the priorities can be gained from the breakdown. If more refresher courses in any form are to be run, then these would have to be at the expense of instructors' courses. (Note the new type-conversion course has already done this to some extent). Very few CFIs would agree to this — a concensus of opinion from recent CFI seminars.

I can see that there is scope for improvement and changes in the 1974 programme go a little way towards this with one-day briefings and one-day debriefings after the courses. Regularly meeting CFIs at seminars should also improve communication.

Obviously one improvement John envisages is CFI participation in instructor training. I'm afraid I must disillusion him. Before a CFI becomes active in the training of instructors, he must have a club organisation to back him (a number of senior instructors at least). John is evidently in this situation and one can only praise him for the support and further training he gives his instructors. However, the typical CFI is in the post for three years or so and quite unable to allocate enough time to this aspect of the job. So the system that John would like is unobtainable.

To provide a complete coaching system would require three or four Coaches and two aircraft. Furthermore the amount of travelling would be considerable and, with annual mileage already approaching 30000 per Coach, I think there would be a diminishing return.

The members of the committee, most of whom have been CFIs, are only too anxious to help clubs and it would seem that visits at weekends are one way in which they can, and so supplement the work of the Coaches. As John says, they must come to "help" not "check". CFIs who would welcome such help, please write and ask for a visit. They are waiting to hear from you.

# FLASHBACK TO 1973— Extracts from the Annual Report

## The BGA annual general meeting was at the Cairn Hotel, Harrogate, on March 9, followed by a dinner-dance and presentation of trophies, this year organised by the Yorkshire Gliding Club.

## Airspace Committee Report

JOHN ELLIS, CHAIRMAN.

1973 has been a "waiting" year with only two small changes since the last report; a small airway extension over the Ulster and Shorts Gliding Club current base at Newtownards, and a Special Rules Zone at Fearn airfield, north-east of Inverness and mostly within the highly active Moray Firth danger area.

Negotiations have continued at a high level. Those concerned with the London TMA, two years in progress so far, may finally be completed by early 1974. They have been very complicated and radical changes can be expected. However, it is still not certain what the effect will be on gliding in south-east England, since the all important question of VFR flight for gliders within the TMA has not yet been properly discussed. There is undoubtedly considerable opposition to the continuation of our current rights in this respect; if they were to cease, cross-country flying will become very difficult, if not impossible, under the new TMA. Restrictions on soaring may cause severe problems for some of the clubs under, or on the edge of, the planned area.

There is in existence an "Oxford Area Working Party" whose brief is to report on the "Air Traffic situation" in the large FIR area, north-west of London and loosely centred on Oxford. Since their aim is to suggest "improvements", we shall be watching their activities with close interest.

Negotiations have been re-opened on the Brize Norton SRZ with a view to glider penetration at weekends for cross-country flights. In the slightly longer term, proposals can be expected for Special Rules Zones around East Midlands and Newcastle airfields.

1973 has also been Census Year. After previous well organised Censuses, this one has been noticeably badly done —the results should be interesting if only because of that fact, providing they are not produced in similar computerese fashion. Finally, on the international scene, the answers to an "airspace for gliding" questionnaire are arriving. Some 14 countries have replied to date, showing a remarkable spirit of co-operation.

## Development Committee Report

JOAN CLOKE, CHAIRMAN.

To secure the future of our site-threatened clubs we need a minimum of £500,000. This would be just sufficient at current prices to buy 40 acres of land and the necessary buildings for ten clubs. These are the clubs which are in immediate or imminent danger of dispossession. It takes no account of the remaining 23 clubs which have little or no security of tenure. Nor does it provide for those areas of the country where there is demand for gliding but no club because there is no site.

Twelve of our clubs operate from MoD airfields. These have no security and in some cases their position is aggravated by unreasonable operational restrictions. The granting of adequate security of tenure and proper facilities on these and other airfields would go a long way towards meeting the gliding needs of the country.

There seems to be no real reason why sensible use of certain MoD airfields for civilian gliding should not be permitted, without onerous restrictions, especially at weekends. During the year we have made a number of approaches to try to secure this reasonable and sensible use of scarce and valuable land and we shall continue to bring as much pressure as possible to bear on the authorities in the future. We believe that we have the support of the Sports Councils in this, for they have long held that the dual use of government land should be encouraged.

The Sports Council grants have continued to be available to gliding clubs and several have been awarded for land, buildings and equipment. The Regional Sports Councils have an increasingly important role and following the policy of regionalisation are preparing development plans for their areas.

## Instructors' Committee Report

DON SPOTTISWOOD, CHAIRMAN

The National Coaches have run 14 courses during the year and as a result of these, a further 88 instructors have been trained and standards continue to improve. There are now 1300 instructors registered, a significant proportion of the total membership which is around 9000.

With the Safety Panel Chairman, the Instructors' Committee have been preoccupied throughout the year with accident rates, particularly in association with the rapid increase in high performance glass-fibre gliders in the UK. In 1970, 21 of these aircraft were owned in the UK now there are 163.

The Senior National Coach and John Williamson were asked independently to examine the efficiency of present training methods in the light of improved glider performance. Not surprisingly both concluded that a very real problem does exist in training and supervision.

The alterations they recommended to bring training methods more in line with current requirements include a closer control and supervision of a pilot making a type conversion; the refinement of basic training methods to meet the needs of the pilot who may quickly graduate to the high performance glider and help for the long-established instructor to supervise properly the operation of high performance gliders.

The subject is given maximum publicity and raised at CFI seminars. To give greater emphasis, the Committee are introducing three-day courses to examine the problems of type conversion and to train instructors to assess glider handling characteristics more accurately.

In the longer term, the Committee are investigating ways of making a high performance two-seater glider available to

gliding instructors. The Caproni Calif has been evaluated and the Janus, which hasn't yet flown, will be considered, though such a venture has financial problems.

## Flying Committee Report

IAN STRACHAN, CHAIRMAN.

A circular was sent to all Nationals pilots asking for views on several issues of rules and scoring. As a result several changes were made. These include the cancellation of all distance tasks except Cat's Cradle, the withdrawal of further contest launches in Nationals to pilots landing out, and the modification to the 1972 placing rules to reduce the number of tied places.

There was a trend towards standardisation with CIVV contest and scoring rules, which may be pursued further as the Sporting Code is due to be revised in 1974. The Committee intend to formulate and make known a BGA view on revisions to the Code, as it is the heart of all Sporting Gliding matters. Any constructive comments on the Sporting Code from any BGA member will be welcomed by the Committee.

## Technical Committee Report

R. TETLOW, CHAIRMAN.

The BGA has at last been granted Approved Design Organisation status by the CAA for recommending the issue of Special Category C's of A for motor gliders, following the scrutiny of our inspection and monitoring procedures by CAA personnel.

The year has not been without its problems, two of which had some similar features. The grounding of the Breguet Fauvette due to corrosion in the metal-wood bonded joints at the interface and the major inspection called for by Slingsbys on the composite metal-wood sparred Darts. The latter resulted from severe corrosion being detected by Slingsbys on a Dart which had been sorely neglected, having been left outside on an open trailer during rainy weather. The defect was detected during a major inspection for a C of A prior to export; fortunately, other inspections carried out to date at C of A renewal have not yet produced a similar case.

The question of the use of multi-channel radios has been under review this year. Whilst the mode of operation of these sets is the concern of other BGA Committees, gliders fitted with radio equipment will only be issued with C's of A if this equipment is approved by the CAA for use in gliders. We are, in fact, concerned with the approval of the installation rather than the approval of the radio equipment which is under the jurisdiction of the CAA.


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## Safety Panel Report

IAN DANDIE, CHAIRMAN.

The 1973 accident rate, 0.46 per 1000 launches, is the worst since 1969 and compares with 0.43 for 1972. The Panel received 164 reports and from these considered 133 accidents. The three fatal accidents were the result of spins, one unexplained.

Considering the accident rate against P1 experience, the increase is in the 100-plus hour group. Taking the increased launch rate into consideration, there is a marginal decrease in accidents involving pilots of less than 100hrs' experience.

A breakdown of accidents into their different types gives a mixture much as before. Worthy of mention have been a number of ground loops following failure to release in time when a wing has dropped on the take-off run. Supervision of early solo pilots mentioned in the conclusion of last year's report is still not good enough, with some 13 accidents in this category. Poor airfield organisation (eg launching from behind or close to other aircraft and obstructions; poor surface left unrepaired; use of converging aerotow and wire-launch lines) gave rise to another 14 accidents which should never have been allowed to happen.

We have had approval for a modification to the Swallow elevator which, we hope, will be fitted and thus result in a reduction to the damage due to misuse of the control. The Libelle nose pitot problem has also been resolved to the satisfaction of all without the loss of the canopy ventilators and consequent misting problems.

## Philip Wills Reserve Fund

During the year a total of £3500 has been pledged to one club for the purchase of the freehold of the hangar and clubhouse site, and to another for building a bunkhouse. By the end of the year, the whole Reserve Fund will be out on loan. Quarterly repayments will slowly build it up, but for the next nine months there will be little available.

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**MBE FOR GLIDING MAN.**

F/LT KEN PEARSON, CO for the last three years of No. 644 Gliding School RAF Spitalgate and their CFI for 20 years, was awarded a MBE in the New Year's Honours List for his work with cadets. As well as the Gliding School he runs the Northampton ATC Squadron. Ken, the Mayor of Northampton last year, was a founder member and CFI of the old Northamptonshire Gliding Club and is a life member and instructor of the Coventry Club.

He is an approved inspector of many years standing and has held a BGA full instructors rating for 16yrs.

## INTERNATIONAL GLIDING RECORDS (correct as at 26.3.1974)

### SINGLE-SEATERS

| | | | | |
|---|---|---|---|---|
| Distance | 1,460.8km | H. W. Grosse, West Germany | ASW-12 | 25. 4.1972 |
| Height Gain | 12,894m | P. F. Bikle, USA | SGS 1-23E | 25. 2.1961 |
| Absolute Height | 14,102m | P. F. Bikle, USA | SGS 1-23E | 25. 2.1961 |
| Goal and Return | 1,260.44km | W. C. Holbrook, USA | Libelle 301 | 5. 5.1973 |
| Goal Flight | 1,051.2km | K. Tesch, West Germany | LS-1C | 25. 4.1972 |
| 100km Triangle | 159.24km/h | K. Holighaus, West Germany (in Switzerland) | Nimbus 2 | 14. 8.1973 |
| 300km Triangle | 153.43km/h | W. Neubert, West Germany (in Kenya) | Kestrel 604 | 3. 3.1972 |
| 500km Triangle | 135.32km/h | M. Jackson, South Africa | BJ-3 | 28.12.1967 |

### MULTI-SEATERS

| | | | | |
|---|---|---|---|---|
| Distance | 921.95km | J. Kouznetsov and J. Barkhamov, USSR | Blanik | 3. 6.1967 |
| Height Gain | 11,680m | S. Josefczak and J. Tarczon, Poland | Bocian | 5.11.1966 |
| Absolute Height | 13,489m | L. Edgar and H. Klieforth, USA | Pratt-Read G-1 | 19. 3.1952 |
| Goal and Return | 718.2km | E. Makula, Poland and J. Serafin (in USA) | Calif A-21 | 8. 8.1972 |
| Goal Flight | 864.86km | Isabella Gorokhova and Z. Koslova, USSR | Blanik | 3. 6.1967 |
| 100km Triangle | 130.73km/h | E. Makula, Poland and H. G. Taskovich (in USA) | Calif A-21 | 6. 8.1972 |
| 300km Triangle | 113.72km/h | E. Makula, Poland and J. Serafin (in USA) | Calif A-21 | 31. 7.1972 |
| 500km Triangle | 101.18km/h | E. Makula, Poland and J. Serafin (in USA) | Calif A-21 | 4 8.1972 |

### SINGLE-SEATERS (WOMEN)

| | | | | |
|---|---|---|---|---|
| Distance | 749.20km | Olga Klepikova, USSR | Rot Front | 6. 7.1939 |
| Height Gain | 9,119m | Anne Burns, GB (in South Africa) | Skylark 3B | 13. 1.1961 |
| Absolute Height | 12,190.2m | Betsy Woodward, USA | Pratt-Read 195 | 14. 4.1955 |
| Goal and Return | 672.2km | Adela Dankowska, Poland | Jantar | 29. 5.1973 |
| Goal Flight | 731.60km | Tamara Zaiganova, USSR | A-15 | 29. 7.1966 |
| 100km Triangle | 120.15km/h | Adele Orsi, Italy | Kestrel 604 | 17. 8.1973 |
| 300km Triangle | 114.45km/h | Susan Martin, Australia | Kestrel 17 | 11. 2.1972 |
| 500km Triangle | 108.9km/h | Angela Smith, GB (in South Africa) | Libelle 301 | 28.12.1972 |

### MULTI-SEATERS (WOMEN)

| | | | | |
|---|---|---|---|---|
| Distance | 864.86km | Tatiana Pavlova and L. Filomechkina, USSR | Blanik | 3. 6.1967 |
| Height Gain | 8,430m | Adela Dankowska and M. Mateliska, Poland | Bocian | 17.10.1967 |
| Absolute Height | 9,519m | Anne Burns, GB and J. Oesch (in USA) | SGS 2-32 | 5. 1.1967 |
| Goal and Return | 515.82km | Isabella Gorokhova and N. Tinkova, USSR | Blanik | 6. 6.1973 |
| Goal Flight | 864.86km | Isabella Gorokhova and Z. Koslova, USSR | Blanik | 3. 6.1967 |
| 100km Triangle | 90.95km/h | Yvonne Leeman and M. Human, South Africa | Kranich 3 | 27.12.1967 |
| 300km Triangle | 74.31km/h | Olga Manofova and V. Lamova, USSR | KAI-19 | 12. 6.1964 |
| 500km Triangle | 69.6km/h | Tamara Zaiganova and V. Lobanova, USSR | Blanik | 29. 5.1968 |

## BRITISH NATIONAL RECORDS (correct as at 26.3.1974)

### SINGLE-SEATERS

| | | | | |
|---|---|---|---|---|
| Distance | 741km | P. D. Lane (deceased) (in Germany) | Skylark 3F | 1. 6.1962 |
| Height Gain | 12,700m | M. J. Field | Skylark 4 | 9. 5.1972 |
| Absolute Height | 13,050m | M. J. Field | Skylark 4 | 9. 5.1972 |
| Goal and Return | 658km | J. S. Williamson (in Australia) | Std Libelle | 20. 1.1973 |
| Goal Flight | 579km | H. C. N. Goodhart | Skylark 3 | 10. 5.1959 |
| 100km Triangle | 126.4km/h | E. P. Hodge (in Rhodesia) | Diamant 16.5 | 1.11.1970 |
| 300km Triangle | 130.9km/h | E. Pearson (in South Africa) | Std Cirrus | 1. 1.1972 |
| 500km Triangle | 121km/h | J. Delafield (in South Africa) | Kestrel 19 | 21.12.1972 |

### MULTI-SEATERS

| | | | | |
|---|---|---|---|---|
| Distance | 421.5km | J. S. Fielden and Vera Fielden | Bergfalke 3 | 14. 8.1970 |
| Height Gain | 6,300m | L. S. Hood and M. V. Slater (in France) | K-7 | 3. 2.1970 |
| Absolute Height | 9.519m | Anne Burns and Janie Oesch, USA (in USA) | SGS 2-32 | 5. 1.1967 |
| Goal and Return | 362km | A. H. Warminger and R. Tucker (in South Africa) | SGS 2-32 | 4. 1.1969 |
| Goal Flight | 421.5km | J. S. Fielden and Vera Fielden | Bergfalke 3 | 14. 8.1970 |
| 100km Triangle | 83.52km/h | E. Pearson and A. Martin (in South Africa) | Kranich 3 | 7. 1.1968 |
| 300km Triangle | 72.3km/h | A. H. Warminger and R. Tucker (in South Africa) | SGS 2-32 | 29.12.1968 |
| 500km Triangle | (not claimed) | | | |

### SINGLE-SEATERS (WOMEN)

| | | | | |
|---|---|---|---|---|
| Distance | 524km | Anne Burns (in South Africa) | Skylark 3B | 31. 1.1961 |
| Height Gain | 9,120m | Anne Burns (in South Africa) | Skylark 3B | 13. 1.1961 |
| Absolute Height | 10,550m | Anne Burns (in South Africa) | Skylark 3B | 13. 1.1961 |
| Goal and Return | 545km | Anne Burns (in South Africa) | Std Austria | 6. 1.1966 |
| Goal Flight | 528km | Ann Welch (in Poland) | Jaskolka | 20. 6.1961 |
| 100km Triangle | 84km/h | Anne Burns (in South Africa) | Skylark 3B | 12. 1.1963 |
| 300km Triangle | 102.16km/h | Angela Smith (in South Africa) | Libelle 301 | 21.12.1972 |
| 500km Triangle | 108.9km/h | Angela Smith (in South Africa) | Libelle 301 | 28.12.1972 |

### MULTI-SEATERS (WOMEN)

| | | | | |
|---|---|---|---|---|
| Absolute Height | 9,519m | Anne Burns and Janie Oesch, USA (in USA) | SGS 2-32 | 5. 1.1967 |

## UNITED KINGDOM RECORDS (correct as at 26.3.1974)

### SINGLE-SEATERS

| | | | | |
|---|---|---|---|---|
| Distance | 579km | H. C. N. Goodhart | Skylark 3 | 10. 5.1959 |
| Height Gain | 12,700m | M. J. Field | Skylark 4 | 9. 5.1972 |
| Absolute Height | 13,050m | M. J. Field | Skylark 4 | 9. 5.1972 |
| Goal and Return | 106.2km | G. Lee | Std Libelle | 18. 7.1971 |
| Goal Flight | 579km | H. C. N. Goodhart | Skylark 3B | 10. 5.1959 |
| 100km Triangle | 105.5km/h | J. Delafield | Kestrel 19 | 10. 8.1973 |
| 200km Triangle | 92.6km/h | G. Lee | Kestrel 19 | 29. 4.1973 |
| 300km Triangle | 90.15km/h | R. Jones | Nimbus 2 | 1. 6.1973 |
| 400km Triangle | 79.3km/h | A. D. Purnell | Nimbus 2 | 11. 5.1973 |
| 500km Triangle | 77.4km/h | S. A. White | Std Cirrus | 28. 4.1971 |
| 100km Goal Speed | 128.4km/h | K. A. Harrison | SHK | 13. 4.1969 |
| 200km Goal Speed | 114.3km/h | I. W. Strachan | Skylark 4 | 2. 6.1963 |
| 300km Goal Speed | 92.1km/h | E. A. Moore | Skylark 2 | 27. 5.1957 |
| 500km Goal Speed | 90.7km/h | H. C. N. Goodhart | Skylark 3 | 10. 5.1959 |

### SINGLE-SEATERS (WOMEN)

| | | | | |
|---|---|---|---|---|
| Distance | 454km | Anne Burns | Skylark 3B | 10. 5.1959 |
| Height Gain | 5,500m | Rhoda Partridge | Std Cirrus | 7.11.1973 |
| Absolute Height | 6,140m | Rhoda Partridge | Std Cirrus | 7.11.1973 |
| Goal and Return | 303km | Angela Smith | K-6E | 14. 8.1970 |
| Goal Flight | 309km | Anne Burns | Skylark 3B | 12. 4.1958 |
| 100km Triangle | 80km/h | Anne Burns | Cirrus | 14. 6.1969 |
| 200km Triangle | 69.3km/h | Anne Burns | Std Austria | 22. 8.1964 |
| 300km Triangle | 60.2km/h | Anne Burns | SHK | 28. 6.1966 |
| 400km Triangle | 60.6km/h | Anne Burns | SHK | 5. 8.1967 |
| 500km Triangle | 67.9km/h | Anne Burns | Cirrus | 28. 4.1971 |
| 100km Goal Speed | 83km/h | Rika Harwood | Olympia 2B | 27. 5.1957 |
| 200km Goal Speed | 85.5km/h | Anne Burns | Olympia 419 | 2. 6.1963 |
| 300km Goal Speed | 63.9km/h | Anne Burns | Skylark 3B | 12. 4.1958 |

### MULTI-SEATERS

| | | | | |
|---|---|---|---|---|
| Distance | 421.5km | J. S. Fielden and Vera Fielden | Bergfalke 3 | 14. 8.1970 |
| Height Gain | 6,705m | J. R. Monteith, USA and M. C. Mahon | Capstan | 2.11.1972 |
| Absolute Height | 7,620m | J. R. Monteith, USA and M. C. Mahon | Capstan | 2.11.1972 |
| Goal and Return | 324km | B. J. Willson and H. Daniels | Blanik | 27. 7.1969 |
| Goal Flight | 421.5km | J. S. Fielden and Vera Fielden | Bergfalke 3 | 14. 8.1970 |
| 100km Triangle | 77.57km/h | B. J. Willson and H. Daniels | Blanik | 19. 4.1969 |
| 200km Triangle | 64.63km/h | B. J. Willson and H. Daniels | Blanik | 20. 4.1969 |
| 300km Triangle | 55.8km/h | B. J. Willson and H. Daniels | Blanik | 15. 5.1966 |
| 100km Goal Speed | 96.5km/h | D. B. James and K. O'Riley | Gull 2 | 27. 5.1957 |
| 200km Goal Speed | 77.8km/h | B. J. Willson and H. Daniels | Blanik | 11. 7.1970 |
| 300km Goal Speed | 69.2km/h | W. A. H. Kahn and J. S. Williamson | Eagle | 14. 4.1958 |

### MOTOR GLIDERS

| | | | | |
|---|---|---|---|---|
| 100km Triangle | 57.3km/h | I. W. Strachan | SF-27M | 13. 6.1971 |
| 100km Goal Speed | 85.7km/h | I. W. Strachan | SF-27M | 16. 7.1971 |

## INTERNATIONAL MOTOR GLIDER RECORDS

| | | | | |
|---|---|---|---|---|
| Distance | 536.96km | W. Collee, West Germany | SF-27M | 28. 7.1968 |
| Goal Flight | 528.8km | F. Klüh, West Germany | ASK-14 | 3. 6.1970 |
| Height Gain* | 6,220m | D. Mayr, West Germany | SF-25B | 19.11.1971 |
| Absolute Height* | 7,536m | D. Mayr, West Germany | SF-25B | 19.11.1971 |
| Distance* | 608km | O. E. Venator, West Germany | SF-27M | 4. 6.1971 |

## INTERNATIONAL 1,000km FAI DIPLOMAS

At the CIVV meeting on March 5, 1971 it was agreed to issue FAI Diplomas to pilots who achieve, or had achieved, 1,000km flights. So far the following pilots have exceeded that distance.

| | | | | | |
|---|---|---|---|---|---|
| 1 | Distance | 1,041.52km | A. H. Parker, USA | Sisu 1A | 31. 7.1964 |
| 2 | Goal Flight | 1,032.02km | H-W. Grosse, West Germany | ASW-12 | 4. 6.1970 |
| 3= | Distance | 1,153.82km | W. A. Scott, USA | ASW-12 | 26. 7.1970 |
| 3= | Distance | 1,153.82km | B. W. Greene, USA | ASW-12 | 26. 7.1970 |
| 5 | Distance | 1,460.80km | H-W. Grosse, West Germany | ASW-12 | 25. 4.1972 |
| 6 | Goal Flight | 1,051.20km | K. Tesch, West Germany | LS-1C | 25. 4.1972 |
| 7 | Distance* | 1,021.94km | W. Scott Jr, USA | ASW-12 | 18. 8.1972 |
| 8 | Goal and Return | 1,001.94km | S. H. Georgeson, New Zealand | Kestrel 19 | 7. 9.1972 |
| 9 | Goal and Return | 1,025.02km | K. H. Striedieck, USA | ASW-15 | 7.10.1972 |
| 10 | Goal and Return | 1,056.64km | J. Smiley, USA | Libelle 301B | 9.10.1972 |
| 11 | Distance* | 1,057.33km | W. C. Holbrook, USA | Libelle 301 | 15.10.1972 |
| 12 | Goal and Return | 1,098.54km | K. H. Striedieck, USA | ASW-15 | 15.10.1972 |
| 13 | Goal and Return | 1,260.44km | W. C. Holbrook, USA | Libelle 301 | 5. 5.1973 |

*Subject to homologation.

New records have to exceed the old ones by:

| | |
|---|---|
| Distances | 10km |
| Heights | 3% |
| Triangles | 2km/h |
| Straight Goals | 5km/h |

Conversion factors:

Multiply km by 0.621 to get statute miles
Multiply km by 0.54 to get nautical miles
Multiply km by 0.54 to get knots
Multiply km/h by 0.621 to get mph
Multiply metres by 3.28 to get feet

No side of a triangle may have a length of less than 28% of the total distance of the course when the flight is made to obtain a record. (FAI Sporting Code, 1.1.1971, paragraph 2.1.5.(d).



# WAIKERIE JAN–1974

## by Rika Harwood

*The general lay-out of the 'domestic' end of the competition site. ... Photo: "River news", Waikerie*

**In this report I have tried to keep to the bare bones of the contest. This means that many items worth mentioning have been left out. However, at a later stage, we hope to cover some other aspects of general interest.**

WITH but few exceptions the teams arrived in Australia well before the practice week. Acclimatisation was the intention and the clubs in the area gave them a great welcome and assistance where needed, and Hans-Werner Grosse, Germany, made several attempts to complete the first 1000km triangle — the nearest being 930km!

But the National New Year holidays in South Australia hampered several pilots. Their gliders were locked up in various ports, and Dick Johnson's, USA, even spent the practice week in a ship's hold. It finally arrived at Waikerie at 7am on the Opening Day! As it happened the practice week weather did not excel itself, and only a couple of good tasks under difficult conditions were flown; the pilots were beginning to think that Australian weather could be as fickle as its European counterpart.

On January 8, an official reception by the Lord Mayor of Adelaide was attended by officials and many team members as well as pilots who had driven through Adelaide in procession in the 45 cars lent, very generously, by the G. M. Holden Car and Motor Company. Needless to say this was one of the better flying days.

By the time the (non-flying) Opening Day arrived the weather really had taken a turn for the worse and it was debatable whether the Ceremonies could be held in the open. Luckily the rain held off long enough to give the Prime Minister, Gough Whitlam, time to welcome everyone to Australia and for Tony Tabart to make a fly past at the "moment critique" just as the Prime Minister was declaring the 14th World Gliding Championships open . . . and that was the last flying we saw for the next couple of days!

A late entry of Jim Carpenter, Canada, Cirrus, and a change for Mexican, Michel Kun, from Open to Standard Class gave a final entry list of 28 pilots in the Open and 39 in the Standard Class.

The Germans, who had entered their Open Class gliders as having alternative wingspans of 19 or 21m had been told by the Director that they could only enter with one wingspan. This led to the unprecedented situation that the contest period started with a protest handed in by the German team manager before the Championships had even got off the ground!

### Sunday — January 13

The weather did not allow a task to be set after a second briefing at 12.30. This was received with mixed feelings — frustration for some, but for Dick Johnson it afforded valuable time to check over his glider, and for Jean-Pierre Cartry, France, more time to recover from a bad attack of tonsillitis which probably would have prevented him flying in any case!

An International Jury meeting was called for 15.00hrs to discuss the German protest. The no-task day gave team managers a little more time to consider the existing rules but in the end the voting did not reach the $\frac{3}{4}$ majority



*Gough Whitlam, the Prime Minister, talking to Bernard Fitchett, GB, on the opening day.*

required to permit both wingspans to be used. The German pilots afterwards selected to fly with the longer wings.

Manfred Reinhardt, the German team manager, felt that the International Jury's thinking had been directed rather to a long-term view as to what might happen in future World Championships whereas his protest was based on the rules in existence at that moment in time as to whether or not his properly certificated gliders, allowing alternative span, should be accepted in the "no special rules" Open Class in this World Championships!

## Monday — January 14

Again two briefings — but no task — and no change in the weather pattern was likely for the next 12hrs either!

Jan Coolhaas, the Australian team manager, asked for an informal team managers meeting to discuss the weighing of gliders. Over the last few days there had been a lot of talk about water ballast, and whether some gliders were carrying more than was allowed in the C of A. The organisers were also aware of this and could of course claim the right to weigh any glider they wished; but such a process would create no end of organisational problems at this late stage.

The final solution reached was simple and straightforward. The Director required all team managers to sign an undertaking that their pilots would fly within the AUW figures stated in their Certificate of Airworthiness.




*Hey Joe you've forgotten your lunch! Courtesy Championships Bulletin.*

The Yugoslav team manager had quite another problem — their flag had disappeared from the flagpole — this was quite serious and obviously he could not let his pilots fly unless it was found or another hoisted. He was also perturbed that some of his glider's instruments had been tampered with — but it was all kept very quiet — another flag was produced, they flew and that was the last we heard of it!

## Day 1 — a depressing start

At last the first task was on the board — a 269km triangle for both Classes. Now that it was set the pilots did not look too pleased, and who could blame them? The Met was also on the board and how depressing it looked! Low cloudbase, weak thermals, stratus, 6/8 cumulus and conditions in general deteriorating early — and first launch not until 1300hrs. Actually, pilots were kept on the grid until 14.15 when Kepka, Poland, had the first launch.

The contest had started — albeit with reluctant pilots, already convinced that with this very late start, completion was out of the question — and they were right, everyone landed out.

Water ballast was dropped right, left and centre — even on top of some of the pilots soon after take-off. Adele Orsi, Italy, the only lady pilot, who hates flying low, never got away, neither did the Calif A-21, the only two-seater in the contest.

Cruising heights were "very British" between 1500 and 2200ft with occasional good bits of lift to 3400, but this was Australia not Europe! It was a battle of survival — pilots tip-toeing carefully amongst those about to land.

John Delafield, GB, who nearly had to give up 15km out, finally got to the first TP (turning point) at 18.40, he was down to 800ft shortly after but now drifting with the wind. An exceedingly slow final climb to the best height of the day, 4000ft, gave him enough height to join six other pilots who had exceeded the 200km mark. He landed just before 8pm.

Despite the difficulties the day was a great success for the whole French team, especially for Open Class winner Cartry, still suffering some after effects of having been ill. Penaud was in fact the only pilot in the Standard Class to cover more than 200km. It was for them a much devalued day with only the required eight pilots over 100km to make it a contest.

As Fred Slingsby used to say — there is no substitute for span, and this was shown in the Open Class. In spite of their later start they still had eight pilots over 200km. Had one asked the organisers beforehand, I doubt whether they would have believed it possible that the whole field of 67 pilots would land out as this is indeed a rare occasion in Australia.

| Leading results Open | | km | pts | Standard | | km | pts |
|---|---|---|---|---|---|---|---|
| 1 Cartry | F | 220 | 925 | 1 Penaud | F | 206 | 108 |
| 2 Ragot | F | 219 | 920 | 2 Mercier | F | 197 | 102 |
| 3=Moffat | USA | 209 | 868 | 3 Bluekens | B | 193 | 99 |
| 3=Zegels | B | 209 | 868 | 12 Fitchett | GB | 70 | 19 |
| 3=Grosse | D | 209 | 868 | 28=Williamson | GB | 45 | 3 |
| 6 Delafield | GB | 208 | 863 | (*asterisk=19m day winner) | | | |
| *7 Carpenter | CAN | 205 | 853 | (3 did not score in Open Class) | | | |
| 17=Burton | GB | 183 | 735 | (7 did not score in Standard) | | | |

(International registration letters used for countries to save space)

## Day 2 — another "European" day

Yesterday's task had been too long; and Schubert, Austria, had been out all night, unlocated by his crew because of darkness. The organisers therefore would not want a repeat performance, and the tasks were accordingly made a little shorter, especially as the forecast promised even more difficult conditions with the added risk of showers in the late afternoon.

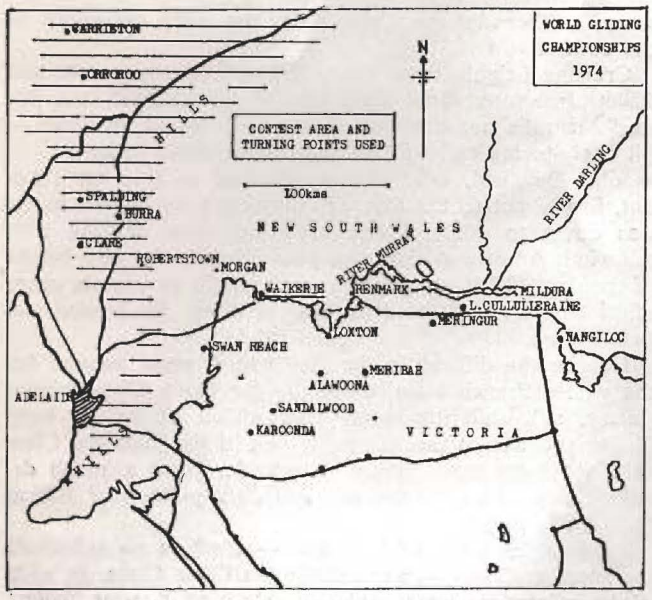
Task Open: 223km triangle — Alawoona 76km, 144°; Morgan 110km, 314°; Waikerie 37km, 116°.

Task Standard: 192km triangle — Renmark 60km, 091°; Morgan 945km, 280°; Waikerie 37km, 116°.

After a difficult and slow start conditions proved slightly better than expected, and all but three pilots completed the course in the Open Class. After the first eight pilots had returned (they all exceeded) 90km/h). there was a large time gap as the rest of them were held up by a shower at the 2TP. This included George Burton, GB, who lost 15min while waiting for it to pass. Also Klaus Holighaus, Germany, rounded the 2TP in rain but took his photo and made for home. Just before final glide 15km out he was having great doubts about this photo and convinced himself that it was no good — so he went back to take another picture, losing 30min. Afterwards he was told that this first shot was OK and thus he had lost some valuable points, it was frustrating, he said.

In the Standard Class only four pilots managed more than 70km/h. The generally slow speeds (16 between 59.6 and 40.3km/h) perhaps shows what a slog it had been for this Class and the pilots had more than earned their points!

Ben Greene, USA, proved that persistence pays: Failing to get away he had a relight, but then still could not get




started. At last at 15.35, during a local improvement, he left when the others were on their way home and scored a creditable 62.9km/h.

Bernard Fitchett, GB, initially was delayed by a startline fumble, but felt afterwards that it had been a blessing in disguise as conditions had improved in the meantime. Trying to save time by not using the weaker thermals to cloudbase he found he made reasonable progress, using the day like any English-type soaring day!

| LEADING RESULTS OPEN | | km/h | pts | 2 DAYS | | pts |
|---|---|---|---|---|---|---|
| 1 Zegels | Belgium | 95.1 | 1000 | 1 Ragot | | 1912 |
| 2 Ragot | France | 94.6 | 994 | 2 Zegels | | 1868 |
| *3 Wiitanen | Finland | 93.1 | 972 | 3 Grosse | | 1819 |
| 9 Delafield | GB | 86.1 | 874 | 4 Moffat | | 1804 |
| 11 Burton | GB | 81.5 | 809 | 6 Delafield | | 1737 |
| (1 pilot did not score) | | | | 16 Burton | | 1544 |

| STANDARD | | km/h | pts | 2 DAYS | | pts |
|---|---|---|---|---|---|---|
| 1 Gordon | NZ | 72.0 | +998 | 1 Mercier | | 1042 |
| 2 Nurminen | Finland | 71.6 | 994 | 2 Gordon | | 1009 |
| 3 d'Orleans | Spain | 71.6 | 993 | 3 Renner | | 997 |
| 4 Renner | Australia | 71.0 | 983 | 4 Nurminen | | 994 |
| 5 Fitchett | GB | 69.5 | 957 | 8 Fitchett | | 976 |
| 34 Williamson | GB | 133km | 224 | 34 Williamson | | 227 |
| (1 pilot did not score) | | | | +sign denotes penalty | | |

## Day 3 — Australian conditions a myth

No winner of he Standard Class was announced at briefing, for a number of pilots, including the provisional winner in that Class, had infringed the recognition time interval rule (This rule is important on tasks where the first leg is a short one). Later a penalty of 2pts each was deducted from the scores of nine pilots. Rory Gordon, NZ, however, remained in first place with 998pts.

The wind had at last changed direction with the passing of a cold front during the night. It now came from a SE direction at about 17kts. A high centred in the Australian Bight was expected to move eastwards which would dry the air over the contest area considerably and improve thermal activity and cloudbase.

Today, however, there would still be plenty of problems with 8/8 cloud cover at first breaking to 4/8 later, base around 4000ft and narrow, broken lift.

TASK OPEN: 333km triangle — Alawoona 76km, 144°; Lake Cullulleraine 112km, 063°; Waikerie 145km, 274°.

TASK STANDARD: 294km triangle — Meringur 122km, 102°; Lake Cullulleraine 27km, 061°; Waikerie 145km, 274°. Again part of the course to be shared by both Classes.

The previous two days had by no means been easy, today was even more difficult. Especially the first into wind leg for the Open Class created problems as thermals were often spaced 15-20kms apart.

Moffat and Johnson left as early as they could and decided to pair fly, which worked well for them. Most pilots got rid of their water ballast in order to stay airborne, and progress was slow; seldom seeing 3000ft, or more than 2-4kts. Once the 1TP was rounded it seemed easier for a while as they no longer had to cope with the headwind. Also the Standard Class were announcing great difficulty and as the two courses would converge shortly it gave the Open boys time to divert south of track.

There was a 12km hole at the 2TP which Moffat rounded at 1000ft, dropping his ballast soon after. And so they struggled home — Moffat gaining about 8min on Johnson and crossing the finish at 18.35. Obviously there would be many outlandings if the first were as late as this! We had already heard, that amongst others, John Delafield had landed, but George Burton was still airborne and needed one more thermal for a marginal final glide. We had just seen how Schubert landed 5km short of the finish, either he had misjudged his final or it had been too marginal! George, however, made it — the 11th pilot to do so and it was now quarter to eight — surely the last one possible! Adele Orsi, one of the 11, was especially pleased with today's effort; she crossed to the sound of loud applause from the many bystanders!

All of a sudden renewed excitement — Klaus Holighaus was still airborne — and in the end made a spectacular finish well after 8.15pm. Down to 400ft and ready to land at Renmark airfield, 60km away, he ran into zero sink; he nursed the Nimbus round and round in this, until at last a thermal started which took him back to nearly 1000ft. The last gaggle of the day was just ahead of him and included the Poles, on joining it they all left leaving Klaus once more in zero sink. Utter patience was rewarded with a 5kt thermal to 2500ft and a final climb to 3000 at 1kt. Enough height to fly carefully along the Murray river with a highly elated Klaus flashing past the finish.




*This very appropriate sign appeared on the road to the airfield on the most difficult day.* *Courtesy Championships Bulletin*

The 15-metre boys had an even worse time trying to cope with the large gaps which was accentuated by the inability to get much higher than 3000ft.

Although they had all thrown speed overboard long ago, only nine pilots made it to the finish. Bernard Fitchett had his best day so far and came in third.

The two Frenchmen, Ragot and Mercier were still in overall lead. Moffat had reduced Ragot's lead to 28pts, while Mercier with his day win was now 80pts ahead.

We now had had three days in very "European" conditions and the pilots were thoroughly brainwashed into thinking that Australian conditions were a myth!

| Leading results Open | | km/h | pts | 3 days | | pts |
|---|---|---|---|---|---|---|
| 1 Moffat | USA | 72.0 | 1000 | 1 Ragot | | 2832 |
| 2 Johnson | USA | 70.0 | 982 | 2 Moffat | | 2804 |
| 3 Cartry | France | 67.3 | 958 | 3 Zegels | | 2788 |
| 4 Ax | Sweden | 67.0 | 956 | 4 Grosse | | 2760 |
| *5 Hämmerle | Austria | 66.9 | 955 | 5 Ax | | 2649 |
| 10 Burton | GB | 58.2 | 877 | 10 Burton | | 2421 |
| 15 Delafield | GB | 270km | 533 | 12 Delafield | | 2270 |

| Standard | | km/h | pts | 3 days | | pts |
|---|---|---|---|---|---|---|
| 1 Mercier | France | 63.8 | 1000 | 1 Mercier | | 2042 |
| 2 Pettersson | Sweden | 61.3 | 979 | 2 Gordon | | 1960 |
| 3 Fitchett | GB | 61.0 | 976 | 3 Fitchett | | 1952 |
| 4=Firth | Canada | 58.0 | 951 | 4 Cameron | | 1894 |
| 4=Gordon | NZ | 57.9 | 951 | 5 Reichmann | | 1853 |
| 30 Williamson | GB | 161km | 575 | 37 Williamson | | 802 |

## Day 4 — better speeds achieved

After spending an uncomfortable night in the cockpit of the PIK 20, Raimo Nurminen, Finland, arrived back after the first briefing at 10.30. Although only 5km separated him from his crew, the inaccessability of the field and darkness made it impossible to locate each other even though re-inforcements and a four-wheel drive car had gone out to rescue the unfortunate pilot. It was not until dawn broke that the retrieve could be effected.

The initial 375 and 353km quadrilaterals set had to be reduced at noon to a more realistic size.

Task Open: 285km triangle — Karoonda 102km, 187°; Renmark 123km, 036°; Waikerie 60km, 271°.

Task Standard: 255km triangle — Karoonda 102km, 187°; Loxton 95km, 042°; Waikerie 58km, 300°.

The reduction came about because the local overcast did not break as early as anticipated. The forecast was for similar conditions as yesterday, but a much lighter wind from the north-east should give better overall soaring weather. Malcolm Jinks, the snifter, felt that the forecast was correct and, if anything, it would be a better day as long as pilots did not leave too soon. Bearing in mind the reduction, and yesterday's difficulties, of course some pilots in the Standard Class did leave too early — including Bernard Fitchett by about 20 minutes.

Malcolm was right, it was the best day so far although not without some risks as here and there dead areas and some overdevelopment were encountered. The startline was kept very busy as pilots came back for later starts. Except the earlier ones, all had left between 14.30 and 15.08 — Grosse being the last as he had found it difficult to get started — but when he did he made excellent time and soon caught up the others. At the end of the day the early starters found that their times were just not good enough for high placings and it cost Bernard dear with a 26th place!

John Firth, Canada, who had his best day yet with 3rd place, found to his chagrin that he was just outside the finish line; his score was changed several times ending up as 3rd with 100 penalty points — dropping him to 21st for the day!

In the Open Class the three most diverse personalities and characters, Ragot, Moffat and Grosse were all flying consistently well. So far none of them had boobed in the difficult weather; could they stand the strain, with improving conditions, and keep on making the right decisions again and again? At this moment in time it was anybody's guess, but it gave the speculators plenty to talk about!

Penalties for infringement of the recognition time rule were discussed at another meeting of the International Jury. While they were at it two more pilots were added to the Day 2 list and lost 2pts each.

Another interesting item on cloud flying aids came under discussion. When cloud flying is banned in a contest no gyro instruments of any sort are allowed to be carried. But the Bohli compass, used by a number of pilots in this contest, apparently gives such accurate information on the glider's attitude that it could conceivably be used as an aid to cloud flying. The organisers therefore ruled that during this contest all gliders fitted with this compass must carry sealed barographs which could be checked on the slightest suspicion of anyone having broken the cloud flying ban.



*Jean-Claude Penaud, France, winner of Day 1 in the Standard Class.*

| Leading results Open | | km/h | pts | 4 days | | pts |
|---|---|---|---|---|---|---|
| 1 Grosse | Germany | 91.9 | 1000 | 1 Ragot | | 3798 |
| 2 Johnson | USA | 91.6 | 996 | 2 Moffat | | 3788 |
| 3 Moffat | USA | 90.7 | 984 | 3 Grosse | | 3760 |
| 4 Ragot | France | 89.3 | 966 | 4 Zegels | | 3679 |
| *9 Burton | GB | 81.2 | 863 | 10 Burton | | 3284 |
| 12 Delafield | GB | 79.1 | 835 | 12 Delafield | | 3105 |

| Standard | | km/h | pts | 4 days | | pts |
|---|---|---|---|---|---|---|
| 1 Renner | Australia | 87.5 | 1000 | 1 Mercier | | 2896 |
| 2 Kepka | Poland | 82.8 | 932 | 2 Gordon | | 2876 |
| 3 Webb | Canada | 82.0 | 920 | 3 Cameron | | 2812 |
| 4 Cameron | NZ | 81.8 | 918 | 4 Reichmann | | 2726 |
| 26 Fitchett | GB | 71.0 | 762 | 5 Renner | | 2715 |
| 29 Williamson | GB | 69.4 | 737 | 6 Fitchett | | 2714 |
| (6 pilots each Class did not complete) | | | | 36 Williamson | | 1320 |

## Day 5 — a taste of better things to come

A north-easterly humid airstream greeted us this morning — the high had moved east of Tasmania and with the moisture and higher temperatures expected there was a risk of thunderstorms in the contest area. Strongish winds of 22kts but with much stronger thermal activity up to 7500ft were forecast with maximum temps at 32°C.

Task Open: 451km triangle — Spalding 152km, 299°; Alawoona 233km, 127°; Waikerie 76km, 324°.

Task Standard: 426km quadrilateral — Spalding 152km, 299°; Robertstown 70km, 141°; Loxton 146km, 111°; Waikerie 58km, 300°. (Note: Waikerie was in fact along the Spalding-Loxton leg, with only 1° difference on the course line — hence the quadrilateral).

Like yesterday the weather turned out much better than expected. It gave pilots a taste of what Aussie conditions could be like and good use was made of it.

The thunderstorms did not materialise but instead some

high patches of cirrus weakened thermal activity. Nevertheless strong lift of up to 13kts indicated was encountered by many and today it was difficult, they said, to keep down to startline crossing height! The first leg, shared by both Classes, turned out a little slower than anticipated, but even so 100km/h along this leg was quite common, and pilots were able to disregard lift less than 6-8kts.

Despite a fumble in opening the startline most Open gliders had departed between 12.38 and 12.49. Five of them went after this with Cartry the latest at 12.58.

In the Standard Class Bernard Fitchett was last to leave at 12.59 and he hit it just right — nearly all the way. He had a few anxious moments at Loxton TP but managed to get out from under the clag back into the sun. A most exciting flight, he remarked, travelling mainly between 5500 and 7500ft and one of his best ever flying days!

According to Dick Johnson today's task was underset although it had been great fun flying it. Hans-Werner Grosse of course, felt that a 1000km would have been possible, although he himself had lost time near Alawoona and then made another mistake by diverting instead of keeping straight on track.

Seven Open Class pilots averaged between 108.7 and 100.2km/h. Ragot being the seventh was very unfortunate — his airbrakes had sucked open during the latter part of the flight thus spoiling the ASW-17's performance. He tried to jam the brake lever with a pencil to prevent further trouble — but it only stopped them opening further. It was the worst possible day for this to happen as each km/h was worth 13pts — and so George Moffat, today's winner, took over the lead with 70pts in hand.

Roberto Sada, and his bride on honeymoon from Mexico, were excited and elated at his having completed the task. One cannot help but feel reassured that World Championships are not only for the top pilots and countries, but also give a lot of pleasure and a sense of achievement to pilots of smaller countries where organised flying is not often possible!

| LEADING RESULTS OPEN | | km/h | pts | 5 DAYS | | pts |
|---|---|---|---|---|---|---|
| 1 Moffat | USA | 108.7 | 1000 | 1 Moffat | | 4788 |
| 2 Cartry | France | 107.7 | 987 | 2 Grosse | | 4718 |
| 3 Ax | Sweden | 107.5 | 984 | 3 Ragot | | 4689 |
| *6 Wiitanen | Finland | 100.6 | 896 | 4 Johnson | | 4557 |
| 15 Delafield | GB | 96.9 | 848 | 5 Cartry | | 4534 |
| 18 Burton | GB | 95.4 | 830 | 10 Burton | | 4114 |
| (2 pilots did not complete) | | | | 12 Delafield | | 3953 |

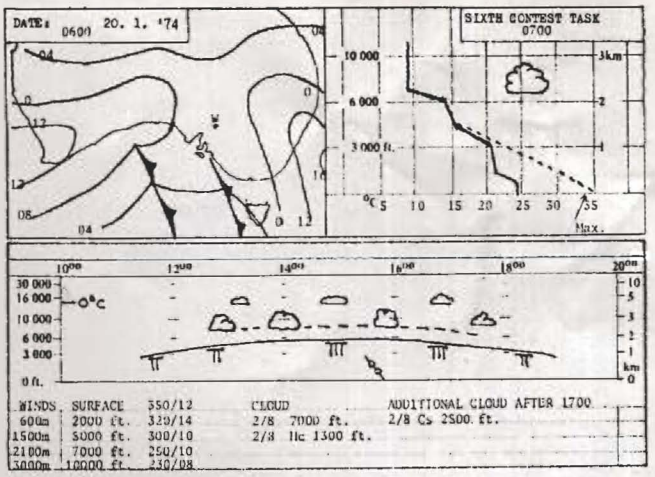
| STANDARD | | km/h | pts | 5 DAYS | | pts |
|---|---|---|---|---|---|---|
| 1 Pettersson | Sweden | 91.6 | 1000 | 1 Mercier | | 3827 |
| 2 Fitchett | GB | 89.7 | 972 | 2 Gordon | | 3815 |
| 3 Kepka | Poland | 89.6 | 969 | 3 Fitchett | | 3694 |
| 4 Beltz | USA | 89.4 | 967 | 4 Reichmann | | 3690 |
| 5 Reichmann | Germany | 88.9 | 959 | 5 Cameron | | 3671 |
| 28 Williamson | GB | 76.6 | 774 | 6 Renner | | 3639 |
| (3 pilots did not complete) | | | | 37 Williamson | | 2094 |

## Dav 6 — a "Boeing 707" day

TASK OPEN: 707km triangle — Clare 138km, 286°; Nangiloc 353km, 101°; Waikerie 216km, 279°.

TASK TANDARD: 308km FAI triangle — Teal Flat 90km, 210°; Meribah 123km, 082°; Waikerie 945km, 307°.

It is a pity one can't describe the facial expressions and reactions as the pilots attended briefing — as it dawned on them that today was going to be something very special one could feel the excitement rising. Outside the sky looked promising and the forecast told of good strong thermals, cloud streets, 2/8 cumulus up to 7000ft with the wind from a west to north-westerly direction at 12kts . . . but to keep things in perspective, there was a front coming in from the WSW.




*The weather information was on display on large blackboards. This one shows the forecast for the 707km triangle.*

It was the longest speed task ever set, and was to take the 28 Open pilots over the hills to begin with and into a narrow valley containing the ITP. The long second leg led away from the hills but across the scrub towards the elbow of the Murray river at Morgan, north of Waikerie, and then along the edge of the scrub passing well-known Renmark and Lake Cullulleraine on towards Nangiloc to start the long haul back to Waikerie.

At least 6 to 7½hrs or more would be needed to complete the task, so as soon as Malcolm, the snifter, remained airborne launching commenced. The first few off found it quite difficult to stay up and several low gaggles built up. The moment, however, the startline was open pilots left as soon as they could manage.

Bert Zegels, Belgium, found the first leg exceedingly difficult and just did not fly well, he said. On the second leg things improved and so did his flying. On the last leg he met up with Johnson. When they parted Dick flew towards a sunny patch, while Bert thought the river was a better bet for an evening thermal — he got back — Dick didn't!

Moffat shared Bert's view as he had an equally poor start to his flight at first never getting much more than 2000ft. With a good second leg cruising between 4000 and 7000ft he increased his average speed considerably, but after Renmark the clouds had disappeared and the lift was narrow and very turbulent. Until then, he reckoned, he had had at least a 15km lead but as the thermals became wider apart he had to slow down again.

Ragot, who had left 4min after Moffat at 12.00hrs had an excellent run to the ITP often getting up to 6500-7500ft. Also the second leg created no problems other than the more widely spaced thermals. Somewhere on the last leg he caught up with Moffat and overtook him but on the final glide the Nimbus, being the heavier ship, caught him again and so these two great pilots shared the honour of crossing the finish line together at 18.45 precisely. 1.2km/h was all that separated them — a historic moment indeed!

Of the ten who completed Andreas Hämmerle, Austria, was the only 'first-entry' and furthermore the only 19m cup pilot (Kestrel 19) to finish. John Delafield was delighted, as he had had great trouble to contact the front and had to use ½kt south of track to do so but the gamble had paid off and so he had a share in the jubilations!

Of course it was very frustrating for those who missed contacting the front, often by only a few hundred feet and thus had to land — but even for some of the outlanders there was reason for rejoice. Jim Carpenter, Canada, who

had covered 597km was greeted by his crew with ice-cold champagne to celebrate his Diamond distance! Also, I believe, Saburo Fujikura, Japan, with 585km claimed his — as well as a National record.

As was hoped a number of National records were broken in the Sandard Class and many interesting flights using the front had been done, but Peter Teunisse, Holland, and Ingo Renner were the only two to exceed 100km/h. The day will be remembered, however, as the 707 day for the Open Class but it did give the Standard boys the rare chance to join the organisers and the many spectators, all standing on tables and chairs peering into the distance, to watch the Open Class finishers come in — and no doubt they too will remember the day as the 707 day!

For the second time Rory Gordon received a penalty for not observing the recognition rule. This time it cost him rather more, 64 pts, and dropped him from 2nd to 5th overall. Thus by default Bernard Fitchett, although he did not know it at the time, was now in 2nd place overall.

| Leading results Open | | | km/h | pts | 6 days | | pts |
|---|---|---|---|---|---|---|---|
| 1 | Ragot | France | 104.5 | 1000 | 1 | Moffat | 5782 |
| 2 | Moffat | USA | 103.3 | 994 | 2 | Ragot | 5689 |
| 3 | Grosse | Germany | 96.4 | 958 | 3 | Grosse | 5676 |
| 4 | Holighaus | Germany | 94.9 | 951 | 4 | Cartry | 5467 |
| 5 | Ax | Sweden | 94.8 | 950 | 5 | Zegels | 5445 |
| 6 | Cartry | France | 91.4 | 933 | 11 | Delafield | 4865 |
| 7 | Zegels | Belgium | 89.9 | 925 | 12 | Burton | 4787 |
| *8 | Hämmerle | Austria | 88.8 | 919 | (We have listed all | | |
| 9 | Delafield | GB | 87.4 | 912 | 10 pilots who | | |
| 10 | Tabart | Australia | 86.8 | 909 | completed the | | |
| 17 | Burton | GB | 653km | 673 | 707km triangle) | | |

| Standard | | | km/h | pts | 6 days | | pts |
|---|---|---|---|---|---|---|---|
| 1 | Teunisse | Holland | 101.0 | 1000 | 1 | Mercier | 4786 |
| 2 | Renner | Australia | 100.9 | 999 | 2 | Fitchett | 4648 |
| 3 | Beltz | USA | 99.5 | 981 | 3 | Renner | 4634 |
| 4 | Strukelj | Yu'slavia | 99.4 | 980 | 4 | Reichmann | 4608 |
| 5 | Mercier | France | 98.5 | 968 | 5 | Gordon | 4604 |
| 6 | Fitchett | GB | 98.0 | 962 | 6 | Cameron | 4534 |
| 14 | Williamson | GB | 91.5 | 881 | 7 | Kepka | 4433 |
| (6 pilots did not complete) | | | | | 33 | Williamson | 2967 |

## Day 7 — back to the grindstone

The passage of the front through Waikerie, which for a time made it look as if the Open Class were going to be defeated on the last few kilometers yesterday, had left a cooler southerly airstream behind. A strong inversion was shown on the chart and patches of cirrus could be seen over the site.

Task Open: 242km triangle — Sandelwood 85km, 174°; Renmark 97km, 031°; Waikerie 60km, 271°.

Task Standard: 213km triangle — Meribah 95km, 127°; Renmark 58km, 344°; Waikerie 60km, 271°.

It was back to the grindstone and water ditching for most. The day turned out as difficult as any they had had so far, and pilots had to resort to gaggle flying to a large extent and had to fly into the inhospitable scrub areas to get better lift.

Especially the final leg created great problems with large dead areas and a much stronger wind than forecast. For John Williamson, GB, however it was an exciting day. On the second leg he found the inversion had suddenly broken and he could climb at 8-10kts to 4800ft. This enabled him to catch up with the leading gaggle, who by now were forced to take a weak thermal. John found another 8kts and this allowed him to divert over the scrub where he contacted 4kts to take him to final glide height to beat most of the gaggle home. Reichmann, on the other hand, was lucky to get back at all. His LS-2 is built for really strong conditions and its high wing loading does not even allow waterballast to be carried. A day like this was thus a great handicap. However, he did make it with 31st place and 781pts enough to stay in the running. Teunisse won for the second day in succession and it gave him, he said, a lot of extra confidence.

It was a disastrous day for Francois Ragot, he had had a last climb from 300 to 1400ft north of Renmark and that was it — as simple as that, he said. The one thing which upset him most was that he did not know where he had gone wrong! Dick Johnson, however, who scored the same distance 182km, said that he had left too late at 15.17 (Ragot at 15.32). Hans-Werner Grosse's (last at 15.38) only comfort was that at least he had made it back — albeit by the skin of his teeth landing long after everyone else at 7.30p.m.

Thus by winning this "miserable day" as Moffat described it he had increased his lead to 253pts, while Ragot now 804pts behind had almost certainly lost his chance to win unless the five pilots ahead of him had an equally bad day! There was more jubilation in the Japanese camp as Fujikura broke the 200km National record.

Owing to the strong cross wind for landing there were several mishaps today, resulting in minor damage for some, and a full blown groundloop for Hämmerle, who was lucky to get away without any damage.



*Youngest competitor at 22, Tom Beltz, USA, finished in the first ten on seven days.*

| Leading results Open | | | km/h | pts | 7 days | | pts |
|---|---|---|---|---|---|---|---|
| 1 | Moffat | USA | 79.7 | 1000 | 1 | Moffat | 6782 |
| *2 | Pozniak | Poland | 76.7 | 955 | 2 | Grosse | 6429 |
| 3 | Schubert | Austria | 76.6 | 954 | 3 | Zegels | 6387 |
| 4 | Holighaus | Germany | 75.8 | 943 | 4 | Cartry | 6348 |
| 8 | Burton | GB | 73.9 | 914 | 5 | Ax | 6285 |
| 15 | Delafield | GB | 68.7 | 837 | 6 | Ragot | 5978 |
| 20 | Grosse | Germany | 63.0 | 753 | *7 | Hämmerle | 5967 |
| 25=Ragot | | France | 182km | 289 | 10 | Delafield | 5702 |
| (6 pilots did not complete) | | | | | 11 | Burton | 5701 |

| Standard | | | km/h | pts | 7 days | | pts |
|---|---|---|---|---|---|---|---|
| 1 | Teunisse | Holland | 77.5 | 1000 | 1 | Mercier | 5606 |
| 2 | d'Orleans | Spain | 75.0 | 959 | 2 | Renner | 5587 |
| 3 | Renner | Australia | 74.6 | 953 | 3 | Fitchett | 5554 |
| 4 | Williamson | GB | 74.0 | 942 | 4 | Reichmann | 5389 |
| 7 | Fitchett | GB | 71.7 | 906 | 5 | Gordon | 5387 |
| (5 pilots did not complete) | | | | | 6 | Kepka | 5346 |
| (1 pilot did not score) | | | | | 31 | Williamson | 3909 |

## January 22

After keeping pilots on the grid until 14.45 the tasks for both Classes had to be cancelled. This was received with acclamation and everyone seemed happy to have this short respite.



*Alvarez d'Orleans-Borbon, Spain, was pleased with a second and third day placing. Photo: Ann Welch.*

## Day 8 — we have lost the Standard Class

The high over Tasmania was maintaining an easterly flow of 12-15kts. A hot and dry day was forecast with a risk of high-level cu-nims north of the 1TP. There would be 3/8 cumulus and good to strong thermals in the mountains to the north.

TASK OPEN: 531km "Boomerang-shaped" quadrilateral — Spalding 152km, 300°; Carrieton 119km, 354°; Burra 143km, 165°; Waikerie 117km, 119°

TASK STANDARD: 462km "Boomerang-shaped" quadrilateral — Spalding 152km, 300°; Orroroo 85km, 001°; Burra 108km, 164°; Waikerie 117km, 119°.

Moffat felt after briefing that the tasks would prove to be too long by about 100km — mainly because launching was late at 13.00hrs.

To safeguard his position he planned his flight to complete the task rather than fly for speed and he left as early as possible at 13.28, crossing the line at 2900ft with Dick Johnson ahead of him at 13.04. For the first 37km to Morgan he was never above launch height and found himself in frustrating gaggles with others who had left early. Conditions remained difficult until well on the second leg when at last progress could be made in the mountains though the wind was a good deal stronger than forecast. Dick Johnson advised him to divert west as there were some good clouds about, this he did, by at least 15km and he lost the gaggles as well!

He now steamed to the 2TP and used the same clouds on the way back. Again a timely warning by Dick gave him a chance to play it safe when everything went dead and he kept as high as possible. The final part of the flight was rather risky, the wind, he estimated, was now NE 25-30kts at flying height, but flying with great care he made it home to cross the finish at 19.09.

Göran Ax, Sweden, defending Champion and today's winner, diverted north of track on the last leg realising that there was a windshear effect which he could use if contacted; when he did, it enabled him to glide for long stretches, once gaining 300ft over a 15km glide. He started his final glide from 6500ft 70km out which was not enough but now the windshear was visible with small wisps of cloud. He tagged on to it, being joined by Dick Johnson, who had been delayed earlier on. They flew along it for the last 20km Göran pushing up his speed all the way to make a fast finish.

Bert Zegels found the same problems as the others but always seems to blame his flying — in fact he is so modest that he is his own hardest taskmaster — probably one of the reasons that he is flying consistently well.

Today was also a good day for Kluk, Poland. So far he had not shown great form, but today he was one of the seven pilots to finish and the winner in the 19m cup.

Time was getting on and made our commentator remark over the tannoy "has anyone seen the Standard Class, we have lost them?", and so we had. The strong wind had made it impossible for them to get back and thus Moffat's observation this morning had proved right!

There were so many pilots in the same fields that only 93pts were shared out between the first 24 pilots in the Standard Class. It gave Reichmann, 4km short, his first 1000pts in this contest.

Trying to avoid a trailer going towards another glider in a field, John Firth overshot into the next field and ground-looped so badly that he broke his fuselage in half and had to retire from the contest.

| LEADING RESULTS OPEN | | km/h | pts | 8 DAYS | | pts |
|---|---|---|---|---|---|---|
| 1 Ax | Sweden | 96.4 | 1000 | 1 Moffat | | 7770 |
| 2=Zegels | Belgium | 94.7 | 993 | 2 Grosse | | 7430 |
| 2=Holighaus | Germany | 94.7 | 993 | 3 Zegels | | 7380 |
| 4 Moffat | USA | 93.2 | 988 | 4 Ax | | 7285 |
| *7 Kluk | Poland | 83.3 | 949 | 5 Cartry | | 7124 |
| 16=Burton | GB | 478km | 725 | 11 Delafield | | 6427 |
| 16=Delafield | GB | 478km | 725 | 12 Burton | | 6426 |
| STANDARD | | kms | pts | 8 DAYS | | pts |
| 1 Reichmann | Germany | 458 | 1000 | 1 Renner | | 6589 |
| 2 Renner | Australia | 455 | 993 | 2 Mercier | | 6539 |
| 3=Fitchett | GB | 440 | 957 | 3 Fitchett | | 6511 |
| 3=Kepka | Poland | 440 | 957 | 4 Reichmann | | 6389 |
| 5 Gordon | NZ | 439 | 955 | 5 Gordon | | 6342 |
| 25=Williamson | GB | 409 | 883 | 31 Williamson | | 4792 |

## Day 9 — slow at 100km/h

With the possibility of a big task tomorrow today's 513km triangle for both Classes had been kept relatively short for the Open Class. Karoonda 102km, 187°; Mildura 222km, 064°; Waikerie 189km, 272°.

The forecast was straightforward with 1/8 cumulus up to 9000ft, strong thermals with plenty of streeting, and the wind decreasing with height.

The two slowest pilots in the Open Class (all completed) averaged 112.3 and 101.3km/h. In the Standard 32 out of 38 averaged over 100km/h and only two pilots failed to complete, which gives some indication as to what sort of day it had been.

It was, especially for the less experienced pilots, a day they will long remember, either it was their first time to complete such a task, or they exceeded their personal best at speeds they would never have dreamt off. For the top pilots it was equally exciting — one mistake or an error of judgment and they would drop out with little chance of recovery.

The finish line was nearly caught napping as pilots came roaring back thick and fast an hour before they were expected. Five Open pilots did the trip in under 4hrs and Göran Ax outshone everyone by topping 140.2km/h.

Bert Zegels, unlucky chap, had been sitting in a pool of water for the duration — his watertank tap had leaked badly. Helmut Reichmann came in exceedingly worried about his camera and spent an agonising half-hour waiting for his film to be checked — and his wife feeling rather guilty for not checking it before take-off, heaved a big sigh of relief when it was passed OK — he was second for the day behind Kepka who won at 125.1km/h.

Renner increased his overall lead from 50 to 108pts while Bernard Fitchett though still in 3rd place had dropped from 122 to only 17pts ahead of Reichmann — and the weather now favoured the LS-2!

In order to keep pilots away from the coast, for there was a risk of seabreeze, the triangle as set, did not comply with the 28% rule. But for this nearly every record in the book would have been broken, several pilots, however, could claim their Diamond distances.

Moffat who came 3rd increased his lead to 439pts and someone asked "does that chap never make a mistake?"!

| Leading results Open | | km/h | pts | 9 days | pts |
|---|---|---|---|---|---|
| 1 Ax | Sweden | 140.2 | 1000 | 1 Moffat | 8734 |
| 2 Cartry | France | 137.6 | 973 | 2 Grosse | 8295 |
| 3 Moffat | USA | 136.8 | 964 | 3 Zegels | 8287 |
| *9 Kluk | Poland | 128.8 | 879 | 4 Ax | 8285 |
| 10 Delafield | GB | 127.6 | 866 | 11 Delafield | 7293 |
| 15 Burton | GB | 126.0 | 848 | 12 Burton | 7274 |
| (8 pilots between 140.2 and 130.3km/h) | | | | (8 pilots between 122.3 and 116.1km/h) | |
| (8 pilots between 128.8 and 125.3km/h) | | | | (4 pilots between 114.4 and 101.3km/h) | |

| Standard | | km/h | pts | 9 days | pts |
|---|---|---|---|---|---|
| 1 Kepka | Poland | 125.1 | 1000 | 1 Renner | 7538 |
| 2 Reichmann | Germany | 123.8 | 985 | 2 Mercier | 7430 |
| 3 Beltz | USA | 121.5 | 959 | 3 Fitchett | 7391 |
| 15 Fitchett | GB | 114.5 | 880 | 4 Reichmann | 7374 |
| 24 Williamson | GB | 111.4 | 844 | 31 Williamson | 5636 |
| (11 pilots between 125.1 and 116.2km/h) | | | | (11 pilots between 110.9 and 86.0km/h) | |
| (14 pilots between 115.2 and 111.1km/h) | | | | (2 pilots did not complete) | |

## Day 10 — not as good but still 10 records

There it was 814 and 612km tasks on the board! I was told even a 1000 had been considered, but with this task they hoped they would get 50% completion.

The high SW of Adelaide would produce hot, humid conditions and the front which had gone through last night had left an easterly airstream behind. With this rather unstable airmass there was a risk of thunderstorms. It was expected that about 9hrs of soaring weather would be available. Pilots to be on the grid at 10am for an early start.

It was obvious very quickly that things were not brewing up as rapidly as they should and so only an hour after briefing the tasks were changed to a 509km FAI triangle for both Classes: Coomandook 146km, 192°; Lake Cullulleraine 218km, 053°; Waikerie 145km, 274°.




*Ben Greene, USA, in, we hope, a comfortable position.*

After a big confusion on the grid because the tasks had been changed, and the Standard had to go first, it was found easier to hold the startline for the Open Class. This meant that the Open were hanging around in gaggles for nearly an hour before they could go.

After all the initial excitement the day did not quite come up to expectations — the wind was rather stronger and from a different direction than forecast. Lift was difficult to work, turbulent and narrow. Thermal strength varied a great deal. Luckily the last leg was downwind and this made it easier for pilots to get back. Of course it was only in relation to yesterday's superb conditions that this task was not so straightforward. At the end of the day 10 National records had been broken — alas at slower speeds, but still very acceptable to the pilots concerned.

Again the Open Class came back complete, the first 14 at over 100km/h and slowest at 82.3km/h. Ragot won with 110.2 with . . . yes you have guessed Moffat in 2nd place with 106.6km/h. Grosse's time of 98.1km/h was not fast enough to maintain his 2nd place overall and he dropped to 4th. Thus Moffat was now leading Zegels with 458pt. The question here was who was going to be 2nd and 3rd?

Reichmann and Kepka were also going all out and took the top two places. Helmut's win put him 2nd overall Mercier dropped to 5th place. Bernard Fitchett, 13th today, only had 19pts over Kepka who was now in 4th while Renner was still in the lead with 109pts — and only one more day to go!

| Leading results Open | | km/h | pts | 10 days | pts |
|---|---|---|---|---|---|
| 1 Ragot | France | 110.2 | 1000 | 1 Moffat | 9685 |
| 2 Moffat | USA | 106.6 | 951 | 2 Zegels | 9227 |
| 3 Holighaus | Germany | 106.0 | 942 | 3 Ax | 9190 |
| *6=Timmermans | NZ | 104.4 | 921 | 4 Grosse | 9129 |
| 10 Delafield | GB | 103.1 | 903 | 5 Cartry | 9018 |
| 13 Burton | GB | 101.4 | 880 | 11 Delafe'd | 8196 |
| 14 Grosse | Germany | 98.1 | 834 | 12 Burton | 8154 |

| Standard | | km/h | pts | 10 days | pts |
|---|---|---|---|---|---|
| 1 Reichmann | Germany | 96.8 | 1000 | 1 Renner | 8483 |
| 2=Kepka | Poland | 93.6 | 963 | 2 Reichmann | 8374 |
| 2=Strukelj | Yu'slavia | 93.6 | 963 | 3 Fitchett | 8285 |
| 7 Renner | Australia | 92.1 | 945 | 4 Kepka | 8266 |
| 13 Fitchett | GB | 87.8 | 894 | 5 Mercier | 8230 |
| 14 Williamson | GB | 89.6 | +890 | 6 Gordon | 8165 |
| (9 pilots did not complete) + penalty | | | | 25 Williamson | 6526 |

## Last contest day — too short

Task Open: 247km triangle — Meribah 95km 127°; Karoonda 92km, 244°; Waikerie 102km, 007°.

Task Standard: 247km triangle — Alawoona 76km, 144°; Karoonda 69km, 235°; Waikerie 102km, 007°

The tasks were kept down to a comparatively modest size because of a strong 27-33kt easterly wind at flying height. Cloud streets and 2/8 cumulus with base around 7000ft should produce strong lift but strong downdraughts were also indicated on the board. Conditions in general would be very turbulent.

Unlike yesterday today's conditions were rather better and both tasks proved to be rather too short and the day was full of surprises!

The locals had turned out in force to watch the take-offs for the last time. There was a gasp from the crowd as Ingo Renner, their favourite, landed back with airbrake trouble and was delayed while this was being sorted out. It was of course a dreadful thing to happen to anyone, but they felt it was a bit much it should happen to him.

The startline was exceedingly busy, partly because pilots not finding good lift after crossing came back to try again. At least 80 or so crossings must have been made between

13.20 and 13.47 — which is roughly 3 per minute for 27 minutes.

Confusion also arose between the start times of No 19 and No 9. No 9, Göran Ax, was given a "negative" after he had left thinking he had been given a "good" start (but the "good" was for No 19) and so he had to come back about 5min after he had left and made another crossing at 14.19.

Renner had also left in the meantime at 13.54 about 6-8min after Kepka and Fitchett. From various radio reports we gathered that despite some difficulties progress was being made and Reichmann, 13.38, was well on his way.

The first shock came when we heard that Ax had landed at the 1TP — either his "negative start" had upset him considerably, or he had flown all out to try and catch the others — but whatever it was he was on the ground and out of the top positions! Later that evening the Swedes put in a protest about this confusion but of course nothing could be done about it and only delayed the results.

Also Pozniak, Poland, had landed back on site just before the first Standard Class gliders finished — but he was Open Class and as he had not crossed the finish line we wondered what had happened to him? Anyway he was launched again quickly and he crossed the startline at 16.15. It was Ake Pettersson, Sweden, who was the first home at 15.15.7 soon followed by Reichmann, Kepka and Wujczak, Poland, — all fast times. Reichmann took off again at once to have another go, and several others followed him later including Bernard Fitchett.

It soon became clear what had happened to Pozniak. He had flown the Standard Class task as a snifter for Kepka and Wujczak — flying ahead of them and keeping in touch on the radio — thus helping to ensure the best possible speeds for his team mates, but especially for Kepka only 19pts behind 3rd place when he took off!

It paid off handsomely because Kepka won the day with 110km/h and overtook Fitchett easily to secure the 3rd place for the fourth time in succession. Also Reichmann profited by this. When Klaus Ahrens, his team mate, obviously surprised by what he saw announced over the radio "there is an Open Pole on our task", Helmut was quick to realise what was happening, and when the Poles overtook him on the second leg he was ready to tag onto the "express train" and use the tactics of the Poles to his own advantage.

In the meantime excitement and despondency was growing rapidly (depending on which pilot you were backing).



*Adele Orsi, Italy, the only lady competitor, discussess the task with fellow country man F. Piludu.*

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Renner's time in hand was running out fast and unless he came in very soon could lose to Reichmann. By now people were doing calculations like mad to establish on how many points per km/h it could possibly give, but by the time Ingo came in most were pretty sure that the points per km/h would be on the high side and Reichmann must have beaten him — and so it proved — a bitter pill to swallow for the Australian supporters. More than likely this morning's trouble had upset him more than one imagines possible, but it shows clearly the enormous stress pilots fly under!

Reichmann was totally unaware of his win until he had landed after his second but slower time round. At first he could not grasp the fact and looked utterly surprised. Of course the German team went wild with joy when the results did not leave any doubt. Also for the bottom of the list there was great cause to celebrate — Michel Kun, Mexico, had for the first time in the 11 days completed the task and, good sport that he is, gave his crew plenty of champagne to celebrate!

Apart from the surprise landing by Ax only one other Open Class pilot landed out. Pozniak, however, with his late start, finished with 103km/h for 16th place having flown the two tasks — a total of 541km! Of course a lot of talk resulted as to the ethics of his first flight. It is well-known that the Poles always fly very much as a Team, either by pair flying or tactics, and Kepka was quite taken aback when it was suggested that what had happened was open to critisism. So far as he was concerned Pozniak's unselfishness was the ultimate in sportmanship and in the best Team spirit possible. It was also within the rules.

Bernard Fitchett came a very creditable 4th in this closely fought, and exciting to the last minute, contest — the highest place a British pilot has yet achieved in the Standard Class.

Moffat's outstanding win came as no surprise and Bert Zegels with his day win was securely in 2nd place followed by Hans-Werner Grosse with a sixth for the day in 3rd.

In 1970 at Marfa, Texas, George Moffat and Helmut Reichmann became World Champions for the first time flying the Nimbus 1 and LS-1. For both of them to win each Class again nearly four years later, in Nimbus 2 and LS-2, is indeed a feat such as one would expect to find in *The Guinness Book of Records.*

LEADING RESULTS OPEN

| | | | km/h | pts |
|---|---|---|---|---|
| 1 | Zegels | B | 118.8 | 1000 |
| 2 | Holighaus | D | 116.3 | 971 |
| 3 | Moffat | USA | 114.6 | 950 |
| *7 | Kluk | PL | 112.8 | 929 |
| 8 | Delafield | GB | 112.4 | 925 |
| 10 | Burton | GB | 111.0 | 909 |

(For final results see p,..)

STANDARD

| | | | km/h | pts |
|---|---|---|---|---|
| 1 | Kepka | PL | 110.0 | 1000 |
| 2 | Wujczak | PL | 107.4 | 966 |
| 3 | Reichmann | D | 106.2 | 951 |
| 4 | Webb | CAN | 103.1 | 910 |
| 11 | Fitchett | GB | 98.7 | 853 |
| 15 | Renner | AUS | 95.6 | 813 |
| 19 | Williamson | GB | 93.8 | 790 |

## Closing day — January 27

Normally the last day is set aside for exchange flying but the weather put an effective stop to this and the rain came down in buckets.

At 18.00hrs Sir Donald Anderson, Chairman of Qantas, gave away the prizes. This simple ceremony had to be carried out in the hangar and was followed later that evening by a final banquet held in the largest packing station in Waikerie. Here the first ten in each Class received their FAI Diplomas and for the last time the beer and wine flowed freely.

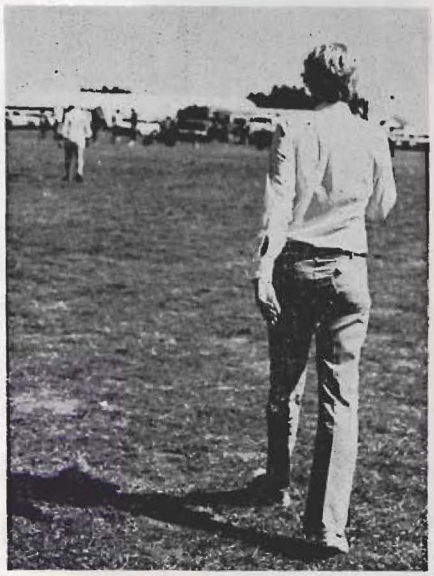
The 14th World Gliding Championships were over and as Pirat Gehriger, President CIVV, said in his speech, ". . . our Australian friends did not only try, they succeeded in organising one of the best, if not the greatest World Gliding Show we ever had . . ." a sentiment which no doubt is endorsed by all who were there!

★ ★ ☆

A total of 239,460km in 3,691.4hrs had been flown in competition by the 67 pilots of 22 countries.

The weather, although not appreciated at times, gave the pilots a variety of conditions in which to test their skills over the 11 contest days. The Met forecasts were not always accurate and therefore the pilots who were better at assessing conditions did best as time of departure was often critical. In the past a pilot who scored on average between 850-900pts a day in the Open Class had a good chance to finish in the top three — here they had to score an average of 900 plus and only the first four did so. (966, 929, 914 and 905).

In the Standard Class (taking the first devalued day into account) the average for the first three was 847, 845 and 844 (Bernard Fitchett 830) — a pretty high standard all round. As George Moffat said "You used to be able to make a few mistakes and get away with it. But not any longer".



*George Moffat, USA, walking towards success! Photo: Ann Welch.*

## LILIENTHAL MEDAL FOR 1973

ANN WELCH is to receive the Lilienthal Medal for 1973 for her outstanding services to gliding. This FAI award is the highest available to Gliding and is awarded annually for a particularly remarkable performance or eminent services to gliding over a long period of time. Anne Burns was the first British lady pilot to receive this award in 1966.




## COMMEMORATIVE COVERS

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At Waikerie each specially designed envelope was flown, and then individually signed, by one of the British team pilots. The Australian 8 cents stamp illustrating Rymill's DH Fox Moth was cancelled with the Championships postmark on the opening day. These covers cost 35p plus 5p postage each.

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A limited number (1250) of envelopes with 20 cents stamps were flown in a two-seater glider at the end of the Championships by the winner of the World 19m Cup, Andy Haemmerle from Austria, and Ann Welch OBE, the only woman ever to fly for Britain in a World Gliding Championships, who has signed each of them. Haemmerle was flying a Kestrel 19 in the competition, the same type of glider that is shown on the covers. This special limited edition costs £1 plus 5p postage each.

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The covers will be available mid-April and all proceeds are shared by the BGA Boomerang Fund and the Royal Air Force Museum. Order now by sending your cheque/PO made payable to 'RAF Museum' to Flt. Lt. J. Williamson, ARS-CSDE, RAE Farnborough, Hants.

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# The cockpit camera

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*The winners — (L to R) Bart Zegels, Belgium, 2nd Open; Hans-Werner Grosse, Germany, 3rd Open; Helmut Reichmann, Germany, Standard Class Champion; George Moffat, USA Open Class Champion; Andreas Hämmerle, Austria, Winner 19m Cup; Ingo Renner, Australia, 2nd Standard and Franciszek Kepka, Poland, 3rd Standard Class.*
*Photo: 'River News', Waikerie.*



*Rex Coates, the President of the Waikerie Club, who amongst his many other jobs was in charge of the irregation project.*



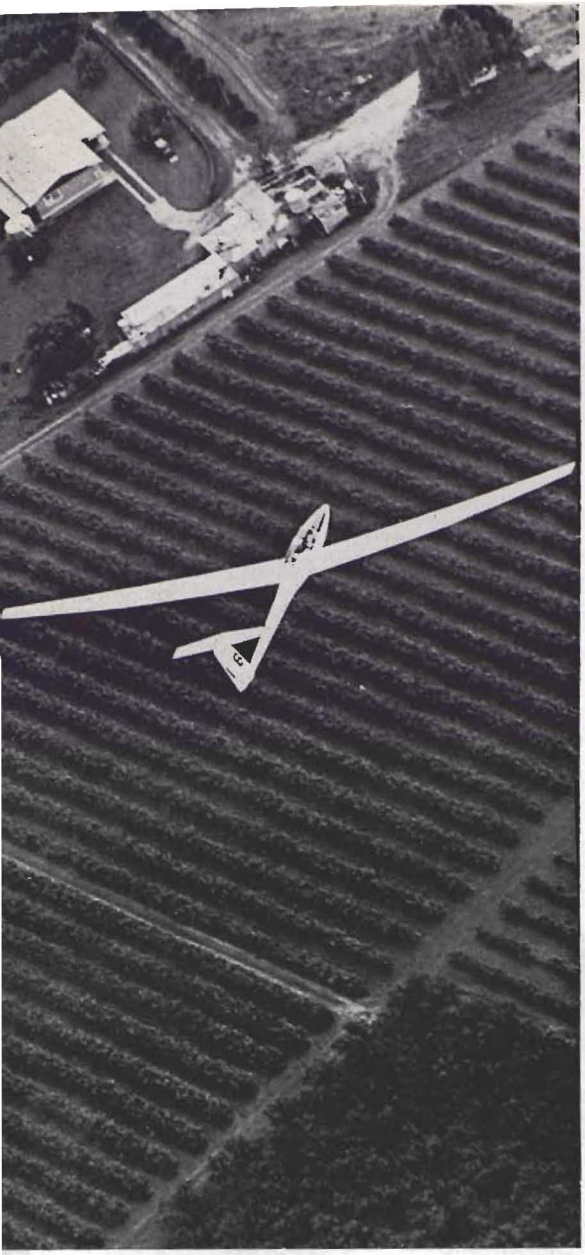
*Max Howland (left) Chief tasksetter talking to Frank Irving, GB.*

***Tommy Thompson, the Championships Registrar (left) shares a joke with Roger Barrett, the British team manager.***
***Photo: River News, Waikerie.***



*Jan Coolhaas, Australian team manager, (in cockpit) surrounded by South Australian police. Harold Salisbury (4th from left) The Commissioner, is an ex-member of the Yorkshire Gliding Club. Photo: South Australian Police.*





*Saburo Fujikura, Japan, flying over the local orange groves in his Kestrel 19.*
*Photo: Courtesy 'The Sun', Melbourne.*




*British team members (L to R) Dee Reeves, Con Greaves, Paddy Clark-Irons, John Wi*
*Delafield, Bernard Fitchett, Frank Irving, Roger Barrett and George Burton.*



*A case of letting sleeping dogs lie!*

# WAIKERIE—1974

*Francois Ragot of France — the winner of the '707' day.*



*ALL PHOTOGRAPHS NOT OTHERWISE ACKNOWLEDGED BY*

*RIKA HARWOOD*



*(L to R*
*Grosse,*
*mooners*

*Ready to go home after a job well done Wally Wallington, the Championships Director, and his wife Joyce.*



*Watching the finishing line was a popula*





illiamson, John



Moss Potter (left) head of the Operations department in discussion before briefing. Photo: Ann Welch



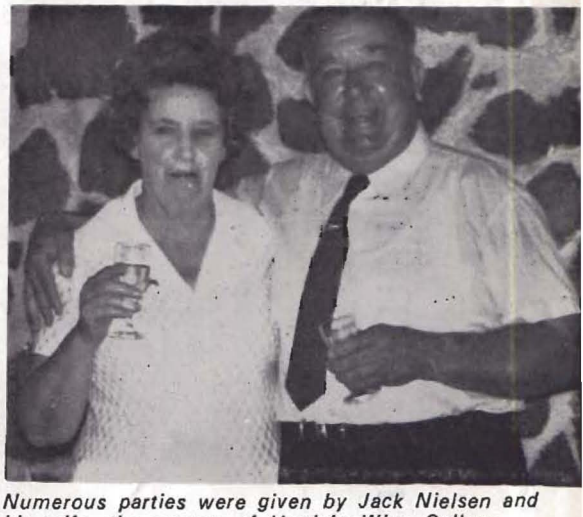
Dee Reeves poses for a picture while (L to R) Bernard Fitchett, Wally Wallington and Michel Mercier, France, have a chat.
Photo: Australian Information Service.



R) Michel Kun, Mexico; Hans-Werner , Germany, and the Mexican honey- rs Roberto Sada and his bride.



Seen at the Mad Hattor's party.



Numerous parties were given by Jack Nielsen and his wife, the owners of Hardy's Wine Cellars.

lar pass-time.

(L to R) Goran Andersson, Sweden; Jan Coolhaas, Australian TM and two of his pilots Paul Mander and Ingo Renner.





# Waikerie — Australia January 12-27

## FINAL RESULTS




| OPEN CLASS No | Pilot | Country | Comp No | Sailplane | Day 1 15.1. | Day 2 16.1. | Day 3 17.1. | Day 4 18.1. | Day 5 19.1. | Day 6 20.1. | Day 7 21.1. | Day 8 23.1. | Day 9 24.1. | Day 10 25.1. | Day 11 26.1. | Total Pts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Moffat | USA | 14 | Nimbus 2 | 863(3=) | 936(6) | 1000(1) | 984(3) | 1000(1) | 994(2) | 1000(1) | 988(4) | 964(3) | 951(2) | 950(3) | 10635 |
| 2 | Zegels | Belgium | 11 | Kestrel 604 | 863(3=) | 1000(1) | 920(7=) | 891(7) | 841(16) | 925(7) | 942(5) | 993(2=) | 907(6) | 940(5) | 1000(1) | 10227 |
| 3 | Grosse | W. Germany | 41 | ASW-17S | 863(3=) | 951(5) | 941(6) | 1000(1) | 958(4) | 958(3) | 753(20) | 971(5) | 895(8) | 834(15) | 930(6) | 10059 |
| 4 | Cartry | France | 4 | Nimbus 2 | 925(1) | 717(16) | 958(3) | 947(5) | 987(2) | 933(6) | 881(9) | 776(10) | 973(2) | 921(6=) | 937(4) | 9955 |
| 5 | Holighaus | W. Germany | 17 | Nimbus 2B | 807(11=) | 605(20) | 860(12) | 924(6) | 834(17) | 951(4) | 943(4) | 993(2=) | 914(5) | 942(3) | 971(2) | 9744 |
| 6 | Ragot | France | 1 | ASW-17 | 920(2) | 992(2) | 920(7=) | 966(4) | 891(7) | 1000(1) | 289(25=) | 746(12) | 852(13) | 1000(1) | 813(17) | 9389 |
| 7 | Ax | Sweden | 9 | Nimbus 2 | 735(17=) | 958(4) | 956(4) | 842(11) | 984(3) | 950(5) | 860(13) | 1000(1) | 1000(1) | 905(9) | 55(28) | 9245 |
| 8 | Johnson | USA | 30 | ASW-17 | 807(11=) | 818(10) | 932(2) | 996(2) | 954(5) | 671(18) | 289(25=) | 952(6) | 928(4) | 883(12) | 932(5) | 9212 |
| 9 | Hämmerle | Austria | 63 | Kestrel 19* | 637(20) | 930(8) | 955(5) | 777(18) | 880(8) | 919(8) | 869(11) | 789(8=) | 779(20) | 907(8) | 737(23) | 9179 |
| 10 | Delafield | Gt. Britain | 19 | Nimbus 2 | 863(6) | 874(9) | 533(15) | 835(12) | 848(15) | 912(9) | 837(15=) | 725(16=) | 866(10=) | 903(10) | 925(8) | 9121 |
| 11 | Wiitanen | Finland | 49 | Kestrel 19* | 786(15) | 970(3) | 892(9) | 803(17) | 896(6) | 698(14) | 863(12) | 745(15) | 776(21) | 804(18) | 847(15) | 9080 |
| 12 | Burton | Gt. Britain | 7 | Kestrel 19* | 735(17=) | 809(11) | 877(10) | 863(9) | 830(18) | 673(17) | 914(8) | 725(16=) | 848(15) | 880(13) | 909(10) | 9063 |
| 13 | Tabart | Australia | 71 | Nimbus 2 | 693(19) | 934(7) | 442(17) | 879(8) | 812(19) | 909(10) | 923(7) | 697(22) | 866(10=) | 941(4) | 921(9) | 9023 |
| 14 | Schubert | Austria | 12 | Nimbus 2 | 766(16) | 792(13) | 665(13) | 858(10) | 850(14) | 717(11) | 954(3) | 789(8=) | 763(23) | 862(14) | 809(18) | 8825 |
| 15 | Pozniak | Poland | 21 | Jantar* | 827(8) | 635(18) | 577(14) | 807(16) | 879(9=) | 681(15=) | 955(2) | 746(13=) | 841(16) | 764(21) | 825(16) | 8537 |
| 16 | Mander | Australia | 70 | Kestrel 19* | 812(9=) | 771(14) | 197(27) | 833(13) | 856(13) | 703(12) | 926(6) | 715(19) | 813(17) | 826(16) | 889(12) | 8341 |
| 17 | Teuling | Holland | 37 | Kestrel 17* | 791(14) | 801(12) | 278(26) | 748(20) | 867(12) | 701(13) | 880(10) | 751(11) | 857(12) | 782(19=) | 799(19) | 8255 |
| 18 | Kluk | Poland | 20 | Jantar* | 807(11=) | 745(15) | 447(16) | 310(27) | 726(21) | 681(15=) | 844(14) | 949(7) | 879(9) | 763(22) | 929(7) | 8030 |
| 19 | Wetli | Switzerland | 45 | Nimbus 2 | 812(9=) | 574(22) | 422(18) | 827(14) | 299(27) | 625(21) | 837(15=) | 725(16=) | 906(7) | 900(11) | 907(11) | 7834 |
| 20 | Timmermans | N. Zealand | 44 | Kestrel 19* | 15(24) | 607(19) | 296(24) | 810(15) | 874(11) | 602(24) | 394(23) | 746(13=) | 851(14) | 921(6=) | 852(14) | 6968 |
| 21 | Carpenter | Canada | 76 | Cirrus | 853(7) | †584(21) | 310(22) | 379(24) | 614(25) | 611(23) | 708(21) | 639(24=) | 773(22) | 620(28) | 635(26) | 6726 |
| 22 | Heginbotham | N. Zealand | 77 | Nimbus 2 | 560(21) | †696(17) | 345(19) | 337(25) | 769(20) | 668(19) | 810(17) | 705(21) | 781(19) | 807(17) | 72(27) | 6550 |
| 23 | Mamine | Canada | 8 | Kestrel 19* | 0 | 294(26) | 317(21) | 719(21) | 879(9=) | 614(22) | 801(19) | 617(27) | 702(27) | 690(26) | 860(13) | 6493 |
| 24 | Adele Orsi | Italy | 32 | Kestrel 604 | 0 | 280(27) | 876(11) | 335(26) | 671(24) | 540(27) | 289(25=) | 690(23) | 787(18) | 709(25) | 781(20) | 5958 |
| 25 | Smet | Belgium | 00 | Nimbus 2 | 5(25) | 370(25) | 338(20) | 381(23) | 683(23) | 577(26) | 804(18) | 639(24=) | 742(24) | 654(27) | 742(22) | 5935 |
| 26 | Wlassics | Sweden | 3 | Kestrel 17* | 26(23) | 559(23) | 306(23) | 758(19) | 707(22) | 640(20) | 364(24) | 281(28) | 584(28) | 782(19=) | 764(21) | 5771 |
| 27 | Fujikura | Japan | 18 | Kestrel 19* | 164(22) | 433(24) | 287(25) | 283(28) | 290(28) | 598(25) | 662(22) | 624(26) | 706(26) | 736(23) | 680(24) | 5463 |
| 28 | Serra and Cattaneo | Italy | 40 | Calif A-21 | 0 | 238(28) | 69(28) | 712(22) | 591(26) | 494(28) | 203(28) | 708(20) | 724(25) | 710(24) | 662(25) | 5111 |

* denotes 19m Cup Class. † denotes penalty.

**FINAL RESULTS**

**STANDARD CLASS**

| No | Pilot | Country | No | Sailplane | Day 1 15.1. | Day 2 16.1. | Day 3 17.1. | Day 4 18.1. | Day 5 19.1. | Day 6 20.1. | Day 7 21.1. | Day 8 23.1. | Day 9 24.1. | Day 10 25.1. | Day 11 26.1. | Total Pts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Reichmann | W. Germany | LS | LS-2 | 6(26) | 903(11) | 944(7) | 873(8) | 959(5) | 923(9) | 781(31) | 1000(1) | 985(2) | 1000(1) | 951(3) | 9325 |
| 2 | Renner | Australia | ZR | Std Cirrus | 14(15=) | 983(4) | 718(15) | 1000(1) | 930(8) | 999(2) | 953(3) | 993(2) | 958(4) | 945(7) | 813(15) | 9296 |
| 3 | Kepka | Poland | FK | Std Jantar | 65(7) | 917(7) | 627(20) | 932(2) | 969(3) | 922(10) | 913(5) | 957(3=) | 1000(1) | 963(2) | 1000(1) | 9266 |
| 4 | Fitchett | Gt. Britain | LF | Std Cirrus | 19(12) | 957(5) | 976(3) | 762(26) | 972(2) | 962(6) | 906(7) | 957(3=) | 880(15=) | 894(13) | 853(11) | 9138 |
| 5 | Gordon | N. Zealand | GB | Libelle 301 | 11(24) | †998(1) | 951(4=) | 916(6=) | 933(7) | †795(22) | 783(28=) | 955(5) | 912(7=) | 911(12) | 891(5) | 9056 |
| 6 | Mercier | France | FM | LS-1D | 102(2) | 940(6) | 1000(1) | 854(14) | 922(9) | 968(5) | 820(19) | 933(17=) | 891(12) | 800(20) | 770(22) | 9000 |
| 7 | Cameron | N. Zealand | RB | Libelle 301 | 70(6) | 914(9) | 910(10) | 918(4) | 848(18) | 874(15) | 783(28=) | 938(7=) | 878(18) | 934(9) | 820(13) | 8887 |
| 8 | Wujczak | Poland | SW | Std Jantar | 0 | 898(12) | 604(21=) | 912(7) | 919(10) | 899(12) | 803(26) | 938(7=) | 920(5=) | 961(4) | 966(2) | 8820 |
| 9 | Greene | USA | TI | Std Cirrus | 14(15=) | 841(14) | 702(16) | 841(18=) | 895(12) | 959(7) | 869(15) | 938(7=) | 886(14) | 798(21=) | 675(29) | 8418 |
| 10 | Ahrens | W. Germany | GA | Std Cirrus | 0 | 814(15) | 604(21=) | 856(12=) | 936(6) | 834(18) | 829(18) | 859(32) | 912(7=) | 951(5) | 795(17) | 8390 |
| 11 | Andersson | Sweden | SL | Std Cirrus | 14(15=) | 736(20=) | 892(11) | 917(5) | 669(35) | 631(32) | 888(11) | 938(7=) | 838(26=) | 935(8) | 859(10) | 8367 |
| 12 | Pettersson | Sweden | YZ | Std Cirrus | 78(5) | 694(27) | 979(2) | 856(12=) | 1000(1) | 94(37) | 836(17) | 938(7=) | 899(11) | 948(6) | 888(6) | 8210 |
| 13 | Nurminen | Finland | FN | PIK 20 | 0 | 994(2) | 213(35) | 842(17) | 881(14) | 885(13) | 899(9) | 861(30=) | 862(20) | 869(15) | 881(7) | 8187 |
| 14 | Paré | Holland | SQ | Std Libelle | 21(11) | 715(25) | 947(6) | 872(9) | 861(17) | 863(16) | 726(33) | 852(33) | 749(32) | 784(23=) | 763(24) | 8153 |
| 15 | Penaud | France | FP | LS-1D | 108(1) | †736(20=) | 593(24) | 859(11) | 841(19) | 800(21) | 806(24) | 933(17=) | 887(13) | 784(23=) | 769(23) | 8121 |
| 16 | d'Orleans | Spain | CT | Std Libelle | 0 | 993(3) | 852(14) | 865(10) | 230(39) | 782(24) | 959(2) | 797(37) | 803(29) | 913(11) | 879(8) | 8074 |
| 17 | Beltz | USA | TB | Std Cirrus | 34(9) | 910(10) | 526(27=) | 707(30) | 967(4) | 931(3) | 256(36) | 938(7=) | 959(3) | 867(16) | 867(9) | 8012 |
| 18 | Webb | Canada | BW | Std Libelle | 14(15=) | †711(26) | 224(34) | 920(3) | 862(16) | 833(19) | 873(12) | 938(7=) | 850(22) | 825(18) | 910(4) | 7960 |
| 19 | Bradney | Australia | GC | Std Cirrus | 84(4) | 783(18) | 934(8) | 767(24) | 889(13) | 839(17) | 329(35) | 868(27=) | 838(26=) | 798(21=) | 810(16) | 7939 |
| 20 | Teunisse | Holland | TT | Std Cirrus | 14(15=) | †811(16) | 204(36) | 841(18=) | 814(23) | 1000(1) | 1000(1) | 938(7=) | 920(5=) | 404(31) | 817(14) | 7760 |
| 21 | Strukelj | Yugoslavia | SF | Std Cirrus | 3(28=) | 916(8) | 552(25=) | 318(35=) | 917(11) | 979(4) | 811(23) | 938(7=) | 907(9) | 963(3) | 246(38) | 7550 |
| 22 | Frehner | Switzerland | ZO | Std Cirrus | 22(10) | 722(24) | 265(32) | 739(28) | 826(22) | 577(33) | 912(6) | 868(27=) | 865(19) | 919(10) | 829(12) | 7544 |
| 23 | Øye | Denmark | XZ | ASW-15 | 5(27) | 630(29) | 633(17=) | 847(15=) | 650(36=) | 945(8) | 872(13) | 933(17=) | 903(10) | 233(37) | 777(21) | 7478 |
| 24 | Nietlispach | Switzerland | CY | Std Libelle | 41(8) | 761(19) | 187(37) | 697(31) | 798(25) | 767(26) | 819(20) | 938(7=) | 846(23) | 801(19) | 688(27) | 7343 |
| 25 | Williamson | Gt. Britain | JW | Std Libelle | 3(23=) | 224(34) | 348(30=) | 737(29) | 774(28) | 881(14) | 942(4) | 883(24=) | 844(24) | †890(14) | 790(19) | 7316 |
| 26 | Sørensen | Denmark | ZE | Std Libelle | 14(15=) | 187(36) | 552(25=) | 804(22) | 684(32) | 910(11) | 893(10) | 811(35=) | 857(21) | 783(25) | 793(18) | 7288 |
| 27 | Bluekens | Belgium | BA | Std Libelle | 99(3) | 691(33) | 604(21=) | 776(23) | 877(15) | 783(23) | 814(21) | 811(35=) | 800(30) | 823(32) | 755(25) | 7243 |
| 28 | Puch | Austria | ER | ASW-15B | 3(23=) | 692(28) | 348(30=) | 591(33) | 833(20) | 749(27) | 790(27) | 950(6) | 681(34) | 778(26) | 718(26) | 7133 |
| 29 | Urbancic | Argentina | BD | Std Libelle | 15(14) | 637(31) | 891(12) | 297(37) | 751(29) | 738(29) | 752(32) | 883(24=) | 703(33) | 743(28) | 622(33) | 7032 |
| 30 | Wödl | Austria | ES | ASW-15B | 18(13) | 725(22) | 633(17=) | 766(25) | 735(30) | 83(39) | 812(22) | 933(17=) | 809(28) | 853(17) | 541(35) | 6914 |
| 31 | Pissoort | Belgium | BV | Std Libelle | 14(15=) | 803(17) | 23(39) | 743(27) | 809(24) | 780(25) | 871(14) | 863(27=) | 879(17) | 422(30) | 685(28) | 6897 |
| 32 | Piludu | Italy | YQ | Std Libelle | 14(15=) | †870(13) | 884(13) | 847(15=) | 650(36=) | 699(30) | 361(34) | 861(30=) | 880(15=) | 315(33) | 782(20) | 6809 |
| 33 | Pintar | Yugoslavia | PJ | Std Cirrus | 0 | 670(30) | 233(33) | 598(32) | 675(33) | 813(20) | 804(25) | 837(34) | 841(25) | 309(34) | 649(31) | 6429 |
| 34 | Rizzi | Argentina | XG | Std Libelle | 14(15=) | 723(23) | 918(9) | 318(35=) | 776(27) | 124(35) | 845(16) | 883(24=) | 566(35) | 763(27) | 275(37) | 6205 |
| 35 | Bulukin | Norway | ET | Std Cirrus | 3(23=) | 614(32) | 417(29) | 350(34) | 785(26) | 697(31) | 783(28=) | 725(39) | 753(31) | 284(36) | 604(34) | 6015 |
| 36 | Perotti | Italy | YR | Std Libelle | 10(25) | 0 | 633(17=) | 833(20) | 671(34) | 108(36) | 900(8) | 907(23) | 166(38) | 305(35) | 636(32) | 5169 |
| 37 | Sada | Mexico | BK | Std Libelle | 3(28=) | 0 | 526(27=) | 243(39) | 699(31) | 739(28) | 0 | 931(21) | 556(36) | 691(29) | 665(30) | 5053 |
| 38 | Firth | Canada | CZ | Std Libelle | 0 | 212(35) | 951(4=) | †323(21) | 828(24) | 337(34) | 114(38) | 911(22) | — | — | — | 4176 |
| 39 | Kun | Mexico | ZS | Std Libelle | 0 | 0 | 46(38) | 245(38) | 256(38) | 91(39) | 249(37) | 727(38) | 266(37) | 163(38) | 483(36) | 2526 |

† denotes penalty.

# A POM IN OZ

ROGER BARRETT

COMING back to gloomy Britain after being able to drive 8-litre cars in lovely Oz sunshine without thinking about petrol consumption gives you a rather guilty feeling. So let's get it over with straightaway — we really are sorry but we couldn't help having a fabulous time! In fact at one stage I had my work cut out to persuade quite a few of our party that it might not be such a good idea to become an immigrant there and then.

Prior to our advance party (Jock Wishart and Al Farmer) arriving in Adelaide in the middle of December, "Our-Man-In-Oz" Hugh Campbell had lined up our accommodation and done 101 other admin jobs for us so there was relatively little for the pilots and their skeleton crews to sort out when they touched down at Adelaide airport just after Christmas.

The week of practice flying at Gawler, just north of Adelaide, was mostly taken up with pilot familiarisation of the TPs being used in the comps. One day was spent painting the fuselages with our sponsor's name and being suitably photographed so that Reed International could get some publicity in return for their help. That was one of the warmer days and after standing around in the sun for so long with the heat being reflected off white wings, George Burton's face, amongst others, was never quite the same again.

The weather during the practice period at Waikerie itself was not exceptional but the temperature got up into the 80s and occasionally the low 90s so by the time the Champs proper started we had got used to the heat, the flies and drinking around a gallon of liquid a day. On the best day for soaring we found ourselves driving in a motor cavalcade to the Lord Mayor's reception at Adelaide City Hall to give some publicity to General Motors — Holden who had kindly provided crew cars for most teams including us. The British dress, courtesy Marks and Spencer, was informal and just right for a really hot day in Adelaide. The outfit for our girls, chosen by two mere males, was striking and only a colour photograph could do proper justice to the vivid red and white striped blouses.

By the day before the first contest it was obvious that the standard of the pilots from countries which might be expected to produce a champion was very high indeed. We retired early that night knowing that our equipment was 100% OK, our pilots were fit and very soon we would discover just what our chances were of bringing back a world champion to Britain. Then came two days of wind and rain and the mood changed: everyone went around making slightly strained jokes about SpLasham, Damphill and Vrsac.

The Met men told John Delafield as they had no previous records of this type of situation it could go on raining for the next 14 days! Team managers had a real problem because, despite the all-pervading gloom, it was critical that when the first task did come — and it might creep up on us unexpectedly after a second briefing — everyone was in top gear, mentally and physically. With the kind of competition at Waikerie a bad mistake on *any* day could mean a pilot was out of the running for a top place. In the end the first contest day turned out to be a too-big triangle that became a devalued distance task for both Classes.

As the weather improved the contest got into top gear and in its second week the distinctive style of the 14th World Championships became clear. A Championships Director, like it or not, largely determines the character of a contest by the decisions he takes, or fails to take, and by the way in which he communicates these. The single most impressive thing about the Waikerie organisation was the care that had been taken to select the heads of all the different sections. Not only had they been chosen with an eye to their job efficiency, which was very good, but they were also, almost without exception, helpful and courteous even when under pressure. The Australians were obviously intent on putting on the best organised World Championships ever and for the first few days they were somewhat over-anxious about how well they were doing. They need not have worried, it turned out a real beaut. The disaster they always feared might turn up the next day never did and the cool, relaxed way Wally Wallington, the Director, dealt with the problems that could have spoilt the excellent atmosphere was very impressive.

## Routine Established

As the organisation and the weather both settled into their routines, so did the British team. We were all staying at Barmera, a township created in the 1920s by a South Australian Government ex-serviceman settlement scheme. Barmera's main attraction is that it overlooks Lake Bonney where you can swim, fish, water-ski or just mess about in a small boat. Each day we had a thirty mile drive to Waikerie alongside the flooded Murray River, timed so that everyone arrived for the 9.30 briefing. While the pilots plotted their tracks and crews worried about water ballast, wing polishing and all the other things a pilot should not have to concern himself with in a World Champs, the base team erected the British Awning. Remembering the advice from medico Pete Saundby — and Noel Coward too — I was determined that no Brit's should be out in the mid-day sun, so our HQ caravan was the first to sport a do-it-yourself annex.

Then came the pull-out to the grid from the glider park (not a rigging area this time as the machines were parked out at night under floodlights and the watchful eye of a security patrol). We had to get used to the day peaking as late as 16.00 which meant starts were usually between 13.00 and 14.00 and finishes around 17.30 — 18.30. While the pilots and crews fitted themselves into the narrow strips of shade provided by our wings, the base team got the radios in our caravan set up ready for the start.

The starting system used by the organisers generally worked well: all pilots called up on the Start and Finish frequency to request permission to approach the start line. If the traffic was heavy they might be told to "Orbit" but usually the reply was "Proceed". When the Start observers identified a glider in their mirror-sighting device (very neat indeed) they were able to give instant confirmation ("Good Start") or otherwise. They had radar as a back-up too, so complaining pilots were usually in the end convinced they had misjudged the timing of their pull-up and this was the reason they got "Negative High" response. To make the system work it was essential that this frequency was limited to the operational calls concerned with starting. If you wanted to complain or query the start time that showed up within a few minutes on the score-board you had to use another frequency ("Waikerie Base") that also broadcast the numbers of those gliders that had got confirmed starts. The British team, like all the others, also had its own discrete frequency for messages between gliders and to crews. Back

at base, therefore, we had to monitor three frequencies at once as well as record the start times of our pilots and the opposition ones they were most interested in. We taped the start frequency too and this enabled us to be positive that critical "Good Starts" had indeed been given to all our team whenever there was an occasional fumble and the organisation contradicated themselves.

With all the start excitement over and the crews on the road, the base team was left to listen to ever-quieter radio messages as our gliders reported their progress over strange-sounding TPs: just try your tongue round Lake Cullulleraine, Nangiloc, Maggea and Orroroo. Thanks to Telecommunications Dublin (Pye in Ireland) we sported an impressive aerial on a 30ft pole and this enabled us to keep an ear on our pilots even when their crews were out of range — added peace of mind when an outlanding in trackless desert scrub was always a possibility.

In the middle of the afternoon, if they were not attending a Jury meeting, you would find team managers wandering round looking for that elusive bit of shade with their portable radios tuned to their own frequencies. Word soon got around about where the leaders of the pack had reached and a certain amount of amusing one-upmanship was indulged in to extract information about how well other teams were doing without divulging anything about your own team that might conceivably help the opposition. As the afternoon wore on the pool proved irresistible. Some of us dozed in the sun and tried not to think about the British winter. Australia does not have everything, but natural resources and most of the material advantages of life are there in abundance: the standard of living is undoubtedly a lot higher than in the UK. And if they are lacking something when it comes to the arts, at what other world comps have they played Handel, Mozart and Vivaldi over the PA? And they *do* have gliding conditions the like of which we shall never see in Europe. If you want to know what frustration really is go all the way out to Australia and be stuck on the ground at a gliding site on a day when 18kts lift is all over the sky up to 8000ft and you hear that some pilots have just completed the second leg of a 500km triangle without throwing a circle!

As the temperature dropped to the lower 90s there would be a movement towards the best vantage point to watch the finishers. As the British team crossed the line there was much instant computing to compare the times with those of their nearest rivals and then we went out to greet a suitably elated or dejected pilot. Covers were put on the wings (Velcro we discovered was ideal for joining them up) and then everyone would go back to the caravan for a natter and a cooling drink of the local orange juice, vino or a glass of beer. Which reminds me that Australian wine in its home country is another of the attractions of the place — if you ever come across a Hardy's St Thomas burgundy or their Old Castle riesling remember it carries the British Team Seal of Approval.

An evening meal at the local school provided by Army cooks was better than it might sound from the description. Then back to the site for some evening entertainment organised by Sally, the organisation's secret weapon who had the kind of personality that could have charmed and cheered us if it *had* rained for all 14 days! Or we might be off to someone's house for a party if we were not hosting one ourselves for other teams and organisers. They eventually gave up asking us in their many and varied accents "Vot iss this Scotch Mist?" when we poured their measure of Justerini and Brooks J&B whisky. And then a general move off to Barmera to get the pilots, if not all the crews, into bed for an early night.

So, for eleven contest days, the pilots flew as well as they knew how, the crews supported them magnificently and the base team tried to ensure that things were organised in such a way that all the pilots had to do was worry about their flying. At the end of it all we still seem to have some money in our bank so — thanks to the Royal Air Force, Reed International, Rolls Royce Ltd, Kodak Ltd and a host of others in industry and in gliding clubs throughout the country who contributed goods, services or money to the Boomerang Fund — it looks as though the BGA will not start with a completely empty exchequer for the next Championships in Finland.

Sometime last year your Ed quoted me as saying we were going to Australia to win. Well, let's face it, we didn't do that so by my reckoning we failed. Just how good or bad a performance the British team put up we must leave others to judge. The important thing now is to start thinking about 1976 straightaway. To my mind the procedure we adopt to select a team which usually causes so much controversy is of far less importance than doing all we can to ensure that our best pilots have every incentive to fly competitively against top class opposition for as long as possible prior to world events. Only if we do this shall we be able to maintain, let alone improve, our standing in World Championships.

*British Team at Waikerie*

George Burton. *Crew*: Con. Greaves, Paddy Clark-Irons.
John Delafield. *Crew*: Dickie Feakes, Jane Delafield.
Bernard Fitchett. *Crew*: Frank Irving, Deirdre Reeves.
John Williamson. *Crew*: Jock Wishart, Boel Williamson.
*Base team*: Roger Barrett (Manager), Al Farmer (Deputy), Hugh Campbell (Treasurer) — plus help from various other current or ex-Poms including Angela Campbell, Mike Cleaver and Rika Harwood.




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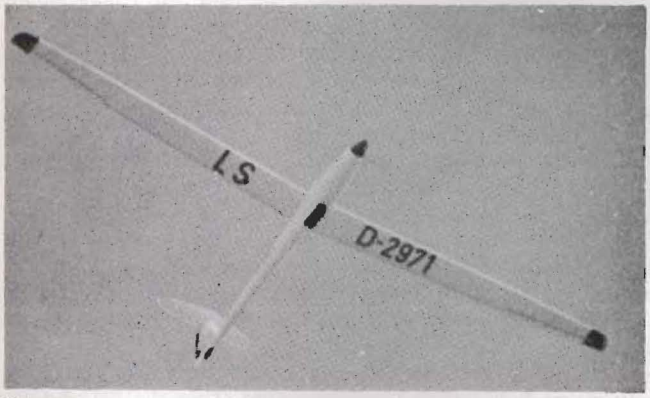
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# The Spy at the Launch Pad

FRANK IRVING




**LS- 2** **Photo: Ann Welch**

THE display of glassware at Waikerie suggests that sailplane design has achieved a plateau of excellence since, with very few exceptions, the machines on display were tried and trusted designs. The table displayed below shows the number of entries of each type, but one must be a little wary of regarding it as an indication of popularity rating: this may be so in the Open Class, but the Standard Class was doubtless biased in the direction of the Libelle by the number of locally-hired machines.

| OPEN CLASS TYPE | No. of entries | STANDARD CLASS TYPE | No. of entries |
|---|---|---|---|
| Nimbus 2 | 10 | Std Libelle | 15 |
| Kestrel 19 | 7 | Std Cirrus | 13 |
| ASW-17 | 3 | ASW-15B | 3 |
| Jantar 1 | 2 | Std Jantar | 2 |
| Kestrel 17 | 2 | Libelle 301** | 2 |
| Kestrel 604 | 2 | LS-1D | 2 |
| Cirrus | 1 | LS-2 | 1 |
| Caproni A-21* | 1 | PIK-20 | 1 |
| Total | 28 | Total | 39 |

*Two-seater, metal structure
**Flown with flaps locked and tail parachutes removed.

The only completely new aircraft entered was the prototype PIK-20, despatched from Finland to Australia immediately after flight testing with no previous championship flying. With a bright yellow gel coat and red letters, it stood out amongst the otherwise universal white like a good deed in a naughty world due, we were told, to the use of a modern epoxy resin which was good for temperatures up to 70°C. (The traditional brew is only good for 54°C).

At a distance, it looks like a slightly paunchy mini-Kestrel. It was one of only two machines present — the other being the LS-2 — which used camber-cum-brake flaps, operated by a great crank on the left side of the cockpit. We were told that it was quite easy to achieve enough flap to meet the German requirement (VNE in a 45° dive), but full flap required a bit more effort. I hope the designers have got the system right, for some of us have unhappy memories of cranking down flaps on the earlier HP-14's.

As prototypes go, this one was expectionally well-finished and had a general air of neatness and competence. It is pretty heavy (518lb empty) and can take rather more waterballast than most standard ships (176lb) so, at its maximum flying weight (880lb) the wing loading is a formidable 8.2lb/ft². There is still a certain amount of tidying-up to be done before production. The front fuselage could, with advantage, look a little less pregnant and the present tailskid is both dragworthy and ugly. It also seems rather curious to see external rudder control horns, albeit nicely faired.

The main attraction of the PIK-20 at the launch pad was the instrumentation. Deprived of gyro instruments, most panels looked distinctly stark: Tango Bravo, Tom Beltz's Std Cirrus, didn't even have a MacCready ring on its vario — "When yuh hit sink, yuh just fly faster . . . .". The PIK, on the other hand, was a riot of electronics. Black box No 1 was associated with an electric vario of fairly conventional aspect and appeared to be a straightforward ADC. Box No 2 occupied much of the panel and would have been more at home in the starship "Enterprise". It ran to sundry buttons for punching-in the weight, knobs for "polar information", more knobs for putting in wind speed and direction, and digital read-out. Across the top was emblazoned F.A.C.T.S., perhaps an acronym to confuse the beholders: one felt tempted to make-up a Dymo tape reading "RUMOURS". More seriously, this was also a prototype device and will be greatly diminished in size and complexity for production. By the next WGC, no doubt on-board computers will be quite commonplace: a Swedish firm will be happy to sell you an analog computer with the unfortunate name BULSAC for an undisclosed amount of gold, and also offer a digital device with the less exuberant title DIGIGLIDE.

Notwithstanding all the electronics, Nurminen of Finland flew the PIK-20 to 13th place in the Standard Class, a very commendable placing for a previously-untried prototype. Little jokes from the Championships Bulletin: (1) "If anyone stole the PIK-20 they would be pik-nickers". (2) "No, no, no! Pik-nickers are the covers that go on the rear end of the PIK-20".

## Feeble Ailerons

Reichmann's LS-2, in which he won the Standard Class, was also comparatively new. The fuselage is much the same as the LS-1 but the wing has slight forward sweep and very long flaps. Indeed, one suspects that the Standard Class rule which prohibits the interconnection of flaps and ailerons is encouraging designers to provide rather feeble ailerons in their desire to put flaps over most of the span. These ailerons were of wide chord and remarkably short span, usually a recipe for high stick forces and a poor roll rate. By way of contrast, the elevator was of quite astonishingly small chord: if you thought the Libelle had a tiny elevator, you ought to see the LS-2's. Presumably, it works on the theory that the flaps are always in the right place. Despite his immense success, Helmut was not entirely overjoyed with his ship mainly, one suspects, due to a reluctance to climb on feeble days.

The Caproni Calif A-21 has been around for some time (see previous S&G's) but was making its first appearance at WGC. It was mainly distinguished by being the only non-glass sailplane present and by fetching-up in bottom place in the Open Class. There is probably little connection be-

tween these two facts, and its sponsors probably did the design a disservice. Whatever its merits, and they are considerable, it could hardly hope to compete on even terms with Nimbi and suchlike.

Other technicalities were of a relatively minor nature: the mass balance on one of the Kestrel 604 rudders, an arc of solid lead running through the rear fuselage, gave one to think. John Delafield was pretty happy with Anne Burns' extended-span (and extended-aileron) Nimbus: rollwise, the ailerons won. Fences at the ends of Std Libelle ailerons, evidently an Australian fetish, seemed to be of dubious merit.

On the operational side, Hans Nietlispach's camera, which also photographs a digital timer, seems to have possibilities for simplifying timing over start and finish lines. Again, it requires more compact electronics, but it certainly seems to work. No doubt it will be the subject of much discussion in many countries, mainly concerned with one obvious problem: how do the scorers deal with a natural tendency of pilots to take the start photograph as late as possible and the finish photo as early as possible, consistent with showing the start and finish lines in the pictures? Unless some means of applying corrections is invented, a crafty chap might steal a few seconds and this could make a difference. (see also p. 84).

In the Open Class, the big ships were clearly at the top. One has to go down to ninth place to find anything as small as a Kestrel 19 (the carbonfibre Kestrel, flown by Hämmerle of Austria). All the more reason for adding three metres to the Kestrel's span. The Standard Class seems to be in a state of almost suspended animation, waiting for CIVV to carve their next edict on tablets of stone. There has been no great rush to indulge in camber-change/airbrake flaps, despite the claims of their proponents and, no doubt, the expense of new moulds has encouraged a wait-and-see attiude. It will be very interesting to see.

# BACK TO THE RULE BOOK

ANN WELCH

COMPETITION gliding progresses in such kangaroo leaps that the Rules have a hard time catching up with new situations. This is probably better, however, than brewing up a restrictive rule book that stifles enterprise and development.

At Waikerie the problems were interesting, the first one involving the question of whether a competing glider should be able to change its wingspan from day to day, by means of different and separate tip components. The arguments for doing so were that a) there were no special rules in the Open Class, and b) that it was safer to be able to fly with less span in really rough conditions. The opposite view was that a) a competing glider was a single finite item, all of which should fly on all flights — as in the case with normal aircraft, and b) that if it became possible for competitors to change component parts of their aircraft at will, this would quickly lead to much more than the use of interchangeable wingtips — glider pilots being as ingenious as they are. At the very least, Championships would become more expensive.

## Instruments Removed

When cloud flying is prohibited in Championships, all instruments enabling the pilot to fly without visual reference to the ground have to be removed. But what about the Bohli compass? This clever device gives information on the attitude of the aircraft in pitch and roll, as well as its direction. Certainly, it would not be easy to use except in small clouds, but the capability is there. At Waikerie, it was ruled that pilots with Bohli compasses should carry sealed barographs as a check of possible cloud flying — not the final answer, but all that could be done at the time, since pilots had not come with other compasses. In any case cloud flying in these Championships was not considered to be much of a benefit.

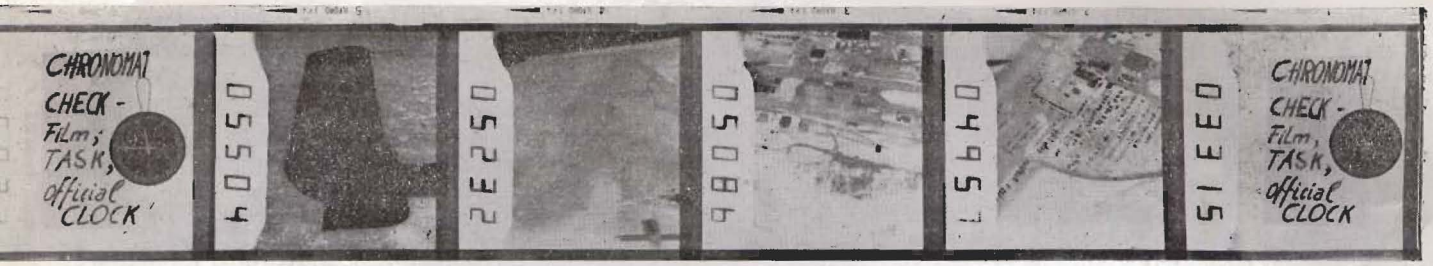
External aid to competing pilots popped up. In its simplest form, large aerials started once again to sprout from the headquarters of teams. This was not the intention when Managers were given the go-ahead to carry small transmitters to deal with local communication, and at Waikerie they were not allowed to hitch their transmitters on to the big aerials, although the rules did not prevent a retrieve car being so connected.

More serious was the use of a glider in the Open Class to lead a competitor in the Standard Class around the course to obtain a better time. When both classes have the same task it is accepted that interaction must exist, but it is the same for all. Further, no one objects to pair flying within the class, or even cross transmissions on the radio from any one competitor to another. What was objectionable was the deliberate use of a glider which itself was not going to win, to fly the separate task of the other class in order to aid a well placed team pilot. In both these areas the rules will have to be tightened up to prevent abuse.

In World Championships the whole area of penalty and disqualification has been left loose, because no two problems (and there are not many of them anyway) seem to be the same. However, it would appear that there is now a need for some more formal thinking in the area of penalties. If the Director gives too light a penalty, pilots who stick correctly to the rules feel aggrieved. On the other hand if the Director keeps fully to the letter of the rules, the erring pilots might get no points at all for the day. He would be effectively out of the Championships for a small failure, which probably had not gained him anything in the first place.

One thought on this is that all technical types of failure should carry a minimum points loss penalty — say 20-25pts. For example, a pilot who crosses the Finish Line, but just wide of the marker, or who takes a photograph of the turning point but from a slightly incorrect position, or who exceeds the recognition time interval by a couple of minutes on a weak lift day, should be given the minimum penalty, automatically and without discretion. However, in cases of a repeat performance or a more serious infringement, the Director would be free to increase the penalty, as he can now.

In World Championships, infringement of the rules is generally not a problem. But Rules are necessary, and after each Championships they need a little tidying up, so that the flying itself can continue to be the primary object of the exercise.

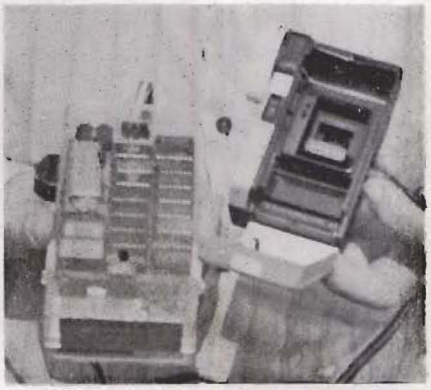



6 5 4 3 2 1

**A print of a demonstration sequence of negatives. Note frame number one is on the far right with number six on the left. Frame 1 Task board with official clock; 2 Starting point, taken according to the same rules as for TPs (hangars at Waikerie); 3 Turning point (silos at Waikerie); 4 Finish line (runway at Waikerie); 5 Glider identficaton marks; 6 Offical clock.**

# CHRONOMAT (Patent Pending)

HANS NIETLISPACH



**Technical description.**
A cartridge-type camera with automatic film transport is equipped with an electronically controlled timer which simultaneously exposes a five-digit number onto the negative when taking each picture. The digital indicator depicting continuously elapsed time in seconds is built-in inside the camera between the lens and film. The separate electronic box contains an operating test light, a device blocking the indicator during film exposure, a counter with film transport control.

**General.**
The elapsed time needed by the competitor for the task is the difference between the indicated time on the start point photo and the finish line photo; thus the time is documented on the same film as the turning point evidence. The two pictures of the official clock permit checking the accuracy of the elapsed time indicated by the Chronomat. Any number of pilots can use the method without a traffic jam at the departure point and each one can choose his own starting time.

The altitude for taking the start point photograph may well be unrestricted since the meteorological conditions allow all pilots to attain the same height before the starting point is opened. The dangerous high speed dashes over a startline are thus eliminated since the pilots will depart at their selected cross-country speed. The starting point may be any well defined object on or outside the airfield which permits the avoiding of restricted airspace. The entire vocal radio traffic as well as the numerous people now needed to operate the start line are eliminated. There is no limitation to the number of competitors using the new method simultanuously which results in a great advantage when compared with the existing method — particularly in weak weather conditions.

The responsibility for proper timing rests with pilots themselves and is no longer with the organisers. The existing problems of close turning points and regular reporting over the start gate become obsolete [Recognition time interval rule Ed]. The high financial and personnel requirements of the present method are eliminated. The ratio of cost versus effectiveness of the proposed system is very favourable.

**Reliability of the system.**
The reliability is at least equal to that of the pure photographic part of the installation.

**Development and Future plans**
A prototype series will be used this year by the Swiss national team to gain practical experience. It will also be used in a Swiss National Championships. It is estimated that the apparatus and the practical experience together with the proposed amendments to the Rules will be available and submitted internationally by the end of 1975. The cost per installation can only be given towards the end of the testing period; it is expected, however, that it will remain on the lower side of the price range of present gliding instruments.

* * *

Developed by Hans Nietlispach, Bern, Switzerland; in cooperation with Stefan Bühler, Rudi Vögeli, Jürg Hofmann, Karl Weber and Fritz Bader.
*Waikerie, January* 12, 1974

WINTER BAROGRAPHS

*MAIN STOCKISTS:*

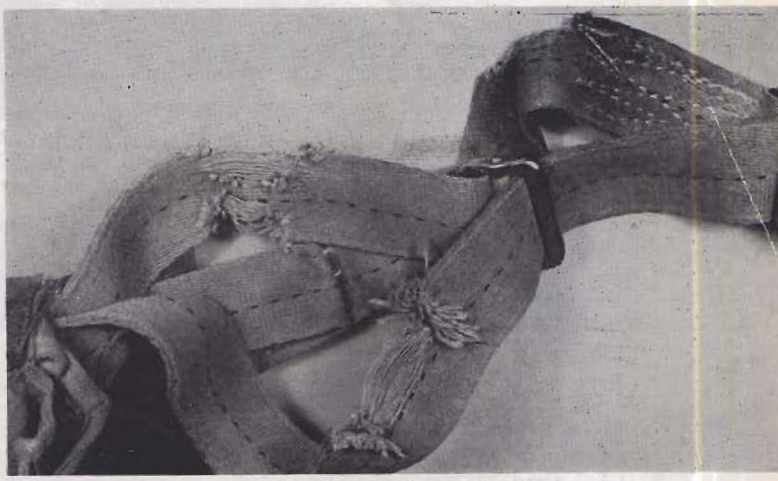
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# Is Your Parachute a Valid Insurance?

IAN WRIGHT
*(Chief Inspector Irvin GB)*



THIS article is not written for you, the discerning and above average glider pilot, but really for the other chaps—that group at the other end of the bar, who never quite get the height you do, or who get lost more often. You know the ones. However, you may just be interested enough to eavesdrop on what one may say to them.

Insurance comes in different packages, some not as easily recognisable as others. All too familiar is the type one grudgingly writes a cheque for then forgets, happy in the thought that if one "writes your gear off" all will still be well due to others having taken care of the details. Another package is a trifle different. It does involve recourse to the old cheque book on occasion, but that is not the end of it as far as you are concerned. After payment, it is up to you this time to keep the small print valid. We are, of course, talking about your parachute.

Not all flying types think of their parachutes as insurance. Often it is regarded as just additional weight which the book decrees one must carry, and at best is often the most uncomfortable cushion one could pick. Now you may be right, well most of the time that is, until a particularly dodgy situation presents itself. It is then quite remarkable how quickly views can change.

## Alarming Condition

Some time ago a parachute assembly was sent to the manufacturers for repair and following its examination some interesting facts came to light. Not least of interest was that in its condition when examined it had been used in flight, not just once but, from the evidence available, often and in a steadily deteriorating state. The photograph shows this very state. Quite odd what the other chap will do, isn't it?

Tests on the harness showed that the tensile strength of the lift webs (the webbing straps to which the parachute rigging lines are attached) had been reduced to about one quarter of the specified amount. Although a very considerable safety factor is built into your parachute assembly design, as may be expected, reduction in strength of this order does not enhance your life insurance cover.

Of course this is, happily, an extreme example, but it serves to show how some types of insurance on a pilot's own life are regarded, perhaps for the sake of a couple of pounds, or even in the view that "it can't happen to me".

However, a more subtle, but equally serious, erosion of the validity of the cushion on your seat can take place.

Increasingly these days, the gliding fraternity find themselves sharing fields and airspace with groups of the sport parachuting community. Now these parachute chaps, in the main, are reasonable types and as they pack their own parachutes (and they must be good at it you may argue as you see them work so often) one can be tempted to get them to do a quick re-pack on yours for the price of a pint or so. This is all very well and reasonable provided the packing instructions of your particular parachute assembly are adhered to and no physical changes are made to your equipment.

The disciplines and design function involved in sport parachute equipment and those assemblies used as emergency packs, such as glider parachutes, can be, and often are, quite different. If one reads across from one to the other without due care, it can be courting trouble.

Citing another case recently, a hitherto standard (and CAA approved) assembly was submitted for a service and repack. On delivery to the works the customer commented that he had had it repacked once or twice before by a "fun jumper". This parachutist had criticised the design of the assembly and, in consequence, changed and "improved" it.

In effect, what the albeit well meaning sport parachutist had done was to put the glider pilot's life at considerable hazard. The changes made to the parachute assembly could have delayed its opening under certain circumstances (not a feature to be recommended if you abandon your craft at low altitude). Also, if the pilot had collided with the glider's tail structure or other debris in the air during escape, and with his parachute already partly deployed, it could have quite successfully tied the pilot to the wreckage instead of allowing for a weak-link breakaway feature, such as is incorporated in the correct design.

You may well ask, how are you to assure yourself that the chap whom you approach, or who offers to repack your 'chute, is properly qualified?

There is no straightforward answer these days as there was some years ago. At one time the ARB used to issue licences to qualified parachute packers, in similar manner to present day civil aircraft engineers' licences, but this was discontinued. The best assurance is to have your parachute checked and packed either by the manufacturer or by a person who holds a manufacturer's packing certificate. Alternatively, a properly trained RAF parachute packer would be quite competent.

None of these people will take offence if you ask to see their credentials or object to you asking to see the packing instructions from which they intend to work.

In effect, you will have to use just plain common sense when deciding who you will permit to service your parachute, fortified with the knowledge of what you expect your chosen individual to know.

As the opening remarks indicated, this is not aimed at you, it was the other chap who needed to read this. You, of course, were regarded as always being aware of the servicing needs of your parachute and just how valid an insurance on your own life it was. Well, you were,—weren't you?

# BGA & general news

## STRUCTURE OF THE BGA

THE membership structure of the BGA is now made up of 74 full members and 143 associate members. The 74 full members include three members which have affiliated clubs as follows: Army Gliding Association, 2 clubs, RAF Gliding and Soaring Association, 14, and Royal Navy Gliding and Soaring Association, 4.

### Operations

DURING the year ending September 30, 1973 (1972 figures in brackets), civilian clubs flew a total of 81629 (62868) hours from club sites from 279835 (268170) launches.

Club owned gliders totalled 273 (261) and privately owned gliders 535 (486). The combined services flew 23612 (17812 hours from 102863 (86181) launches.

### Certificates

CERTIFICATES were issued as follows: A&B endorsements 2320 (2041), C 205 (247), Bronze C 579 (473), Silver C 254 (210), Gold C 47 (25).

Gold C distance 43 (15), Gold C height 123 (42), Diamond goal 43 (18), Diamond height 26 (16), and Diamond distance 14 (3).

A&B certificates were applied for by 1371 (1115) holders of the ATC proficiency certificates.

### Whitbread Bursaries

A REMINDER that Whitbread Bursaries from the BGA of £10 are available on application to pilots who complete their Bronze C before their 19th birthday. Air Training Corps pilots are not eligible.

### Churchill Award

THE Churchill Award of £50 a year is to assist a project organised and carried out by an individual glider pilot. Eligible projects must include flying and could, for example, involve meteorological research by glider, development and flight testing of new instruments, or investigation into some quite new aspect associated with gliding.

Application forms are from the BGA and the closing date is March 31.

## NATIONAL LADDER

THE National Ladder is headed by two members of Imperial College. D. West is in the lead with I. D. Parker second. The next returns for the Ladders should reach the National Steward, Michael Garrod, by April 2.

| *Leading pilot* | *Club* | *Pts* | *Flts* |
|---|---|---|---|
| 1 D. West | Imperial College | 607 | 2 |
| 2 I. D. Parker | Imperial College | 575 | 2 |
| 3 T. J. Bradbury | Bristol & Glos | 565 | 1 |
| 4 C. Nicholas | Essex | 500 | 1 |

## ANNUAL AWARDS — 1973

THE BGA has announced the following awards for 1973:

*DOUGLAS TROPHY* (for club with three flights by three different club members aggregating the greatest cross-country distance): Wycombe Gliding School for flights by L. Beer, A. J. Stone and J. Wills, totalling 1566km.

*CALIFORNIA IN ENGLAND* (longest flight by a woman): Anne Burns, Surrey & Hants, 240km, 2, August 24, Nimbus 2.

*DE HAVILLAND CUP* (best gain of height): George Lee, Four Counties, 23400ft, October 24, Kestrel 19.

*FRANK FOSTER TROPHY* (best speed 100km triangle): John Delafield, Cranwell, 106.2km, August 10, Kestrel 19.

*MANIO CUP* (best speed 300km triangle): Ralph Jones, Inkpen, 90.15km, June 1, Nimbus 2.

*ROBERT PERFECT TROPHY* (to the club with the most instructors per member): Chilterns, seven to 65.

*SEAGER CUP* (best closed circuit in two-seater): Ray Stafford Allen and Miss J. Abrahams, London, 164km, July 7, Capstan.

*VOLK CUP* (longest closed circuit flight Barry Goldsbrough, Yorkshire, 515km out-and-return, June 14, Kestrel 19.

*WAKEFIELD CUP* (longest flight): Justin Wills, Thames Valley, 560km, July 1, Std Libelle.

*NATIONAL LADDER TROPHIES*

*ENIGMA* trophy (winner in any aircraft): Alan Purnell, Surrey & Hants, 3922pts.

*LE DU GARDE PEACH TROPHY* (winner in club aircraft): Guy Butler-Madden, Surrey & Hants, 2143pts.

BGA Diplomas were awarded to Jack Aked, Arthur Doughty and Dr. P. R. Bradwell. Full details in the next issue.

### S&G LATE

*Our apologies for the last issue of S&G being late but, like practically every other Magazine in the country, we were hit by the three-day week. Then we had the set-back of some of the parcels to clubs coming adrift in transit, which caused even longer delays.*

## GLIDING CERTIFICATES

**ALL THREE DIAMONDS**

| No. | Name | Club | 1973 |
|---|---|---|---|
| 35 | G. Garlick | Australia | 18.10 |

**DIAMOND HEIGHT**

| | | | |
|---|---|---|---|
| 3/183 | G. Garlick | Australia | 18.10 |
| 3/184 | T. J. O'Donovan | Fenland | 29.12 |
| 3/185 | P. J. Howgego | Anglia | 27.11 |
| 3/186 | P. M. Kingwill | Fenland | 24.10 |
| 3/187 | K. A. Watson | Cranwell | 7.11 |
| 3/188 | J. F. McAulay | Cranwell | 29.10 |

**GOLD C HEIGHT**

| | | 1973 |
|---|---|---|
| P. D. Bragg | S. W. District | 8.10 |
| W. C. Williams | Essex/Suffolk | 8.10 |
| P. D. Light | Worcester | 6.11 |
| G. C. Grainger | Worcester | 6.11 |
| J. Simkins | Clevelands | 18.11 |
| J. S. W. Tuck | Imperial College | 8.10 |
| G. Garlick | Australia | 15.10 |
| M. C. Mahon | Fenland | 24.10 |
| C. Camp | Fenland | 24.10 |
| T. J. O'Donovan | Fulmar | 29.12 |
| B. E. Evans | Hambletons | 2.9 |
| P. M. Kingwill | Fenland | 24.10 |
| R. H. T. Blackmore | Yorkshire | 1.9 |
| W. A. L. Mitchell | Aberdeen Univ | 24.10 |
| K. A. Watson | Cranwell | 7.11 |
| J. F. McAulay | Cranwell | 29.10 |
| J. F. Crawford | USA | 4.9 |
| A. R. Taylor | Cranwell | 2.9 |
| D. Macphie | E. Midlands | 7.11 |
| J. D. Price | Imperial College | 30.9 |
| J. C. Tait | Highland 1974 | 2.1 |
| G. W. Cline | Ouse | 19.1 |
| T. A. S. Rosie | Fulmar | 19.1 |
| R. Burghall | Hambletons | 19.1 |
| B. W. Davies | Hambletons | 18.1 |
| M. O'Connell | Fulmar | 2.1 |
| J. M. W. Howlett | Fulmar | 4.1 |
| J. D. Burn | Fulmar | 26.1 |

**SILVER C HEIGHT**

| | | | 1973 |
|---|---|---|---|
| 3557 | M. C. Mahon | Fenland | 24.10 |
| 3558 | C. Camp | Fenland | 24.10 |
| 3559 | G. A. Hagger | Cranwell | 31.10 |
| 3560 | J. F. McAulay | Cranwell | 3.11 |

# THE AVIATION COUNCIL

PHILIP WILLS

IN THE issue of S&G June 1971 I outlined the general shape of what has now become, to give it its full name, the Aviation Council of the United Service & Royal Aero Club. In the December 1973 issue Ann Welch outlined the functions and structure of the Fédération Aéronautique Internationale. Gliding people should know how the two are coupled together.

The Aviation Council consists in general of representatives of the different bodies representing the interests of the various sectors of sporting flying. Each individual member is represented on its relative FAI Commission (or Committee); the Gliding Committee is of course CIVV, and the BGA is represented on it by Ann who is a Vice-President.

But the FAI membership is composed of the various National Aero Clubs (in our case the USRAeC), and it is they who pay the FAI membership fees, which are relatively substantial and of course increasing with inflation. Unless the USRAeC was a member of FAI, the BGA could not of course have a member on CIVV, we could not hold or participate in World Championships and British pilots could not win International awards, or Silver, Gold and Diamond badges, and so on.

The FAI General Conference (which annually awards their various medals etc), the FAI Council, Finance Committee and one or two others, carry out general functions which obviously should not and cannot be paid for by any national unit representing a limited field of sporting flying (such as the BGA). Our representative on these bodies must be acting for British sporting aviation as a whole. Hence one major need for the Aviation Council.

The second major function of this Council is to select nominees for the various national medals and awards, to arrange for award ceremonies, and to buy and keep a stock of any medals which are regularly awarded.

The Royal Aero Club used to do both these jobs, and pay for them. But there really seems little reason to expect the United Service & Royal Aero Club to continue to do so — why should the many members of the old United Service Club contribute? But, very generously, they do — the Aviation Council receives a grant of no less than £3200pa from the USRAeC from which the payment of the FAI membership due is first priority. Yet the Club is only one member of the Council, and it is the other members who receive all the benefits!

These other members also make contributions, varying with their size and the comparative affluence of their own sports — in 1973 the BGA contribution was £200.

We have very real reason to feel grateful to the USRAeC, and if any gliding enthusiast wants to join a traditional London club, this is the best one for them.

The Chairman of the Aviation Council is also ex-officio a Vice-Chairman of the Club, and the present Chairman of the Club is Prince Philip, who of course is also BGA patron.

The first Chairman of the Aviation Council was Prince William of Gloucester. After his tragic and disastrous death, I was asked to succeed him.

This is the story up to date. The Council's part-time Secretary is John Blake, its office is in the splendid club building in Pall Mall.


**New for you!**

**5 position flaps on a 15 meter sailplane**



**If you are looking for the obvious advantages of 5–position flaps without the disadvantages of costly 19m sailplanes, be one of the first in the U.K. to buy and fly the new metal IS–29D, a unique aircraft in its class.**

The metal construction of the IS–29D substantially reduces the usually high repair and maintenance costs of fibre glass gliders. Designed to OSTIV requirements, the IS–29D is a 15m standard class air craft, superbly built and finished with first-class handling characteristics and low circling speed.

It features really effective top and bottom air brakes and is delivered complete with ASI, two PZL variometers, altimeter, compass and miniature T&S to Dunstable or Lasham for only **£4,300** + V.A.T.

A demonstrator will be available early in April.

Full details from either:

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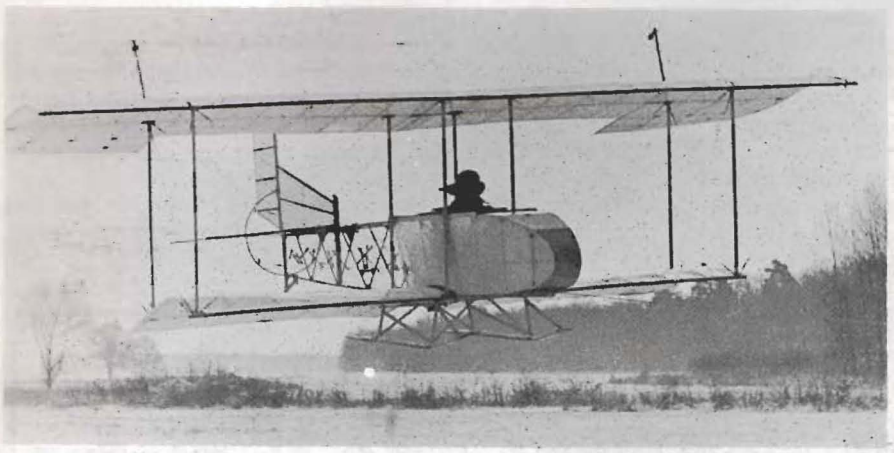
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# overseas news

Cambridge, CB4 2BQ, England.
A. E. Slater, 7 Highworth Avenue, of journals to the Overseas Editor: Please send news and exchange copies

## RHONBABY FLIES AGAIN

YOUNGEST competitor at the first gliding contest held on the Wasserkuppe in 1920 was Peter Riedel, aged 14, who turned up with a small biplane glider of his own design and construction called Rhönbaby with a wing span of 20ft, fuselage enclosed at the front end only, resting on two skids launched by two men holding up the lower wing and running.



It was finished only a few days before the competition and Peter recalls: "I could only play the proud student in the cockpit of my own design on two days. Two men towed me up like a kite, and didn't release me until the flying instructor shouted 'let go'.

"Then a few seconds followed of free flight, leading to a landing at about 100ft ahead of my towing team. All three were panting from the run of about 200 to 300ft — three, because the flying instructor was sprinting along shouting instructions. Once he even prevented a hard landing by grabbing the landing gear, assisting the two tow mates in speeding up the biplane after I had stalled it."

Since then he has held the ambition to build a replica but this wasn't possible until his recent retirement. The new Rhönbaby was test flown in December at the Schweinfurt Aero Club and prompted Peter to comment: "It gave me great satisfaction to find that the little biplane really handled well, an

"Of course," he added, "since the total weight in flight was now 325lbs instead of 242lbs in 1920, with the wing area being equal, the min speed of the replica was about 28km/h instead of 22km/h. It would require a pretty strong wind to tow the replica by hand, while in 1920 impression I had gained as a beginner 53 years before.

only a breeze blew in my face before take-off." A total of 21 tows were made behind a car but as the biplane isn't licenced, the altitude was limited to 10ft.

"It remains to be seen whether the German aviation authorities will grant permission to repeat the experiment of 1920, namely to train absolute beginners on my biplane, in tow by hand or by car at the limited altitude," Peter said.

## BRITAIN WINS IN SOUTH AFRICA

CHRIS FALKENBRIDGE of Great Britain and an ex-member of the Coventry Club, won the Standard Class in the South African Championships at Oranjekraag, Dec 26 — Jan 3, having spent one night sleeping in the cockpit of his Std Cirrus.

He landed near a farmhouse on the last leg of a 525km triangle set on the first day, only to find the farmer away. His crew retrieved him in time for him to fly the next day.

The Open Class Champion was Heini Heiriss (SA) in an ASW-17.

The Championships, which attracted 12 competitors in the Open Class and 13 in the Standard, were split in two parts with the handicapped Team Championships from Dec 18 — 24. The Nationals aren't handicapped although the Open and Standard Classes, which share the same tasks, are scored separately to give individual Champions.

Only two of the nine days were declared no-contest, although the weather pattern was variable throughout the Championships with thunderstorms, high winds and rain intermingled with promising days.

| *Final Leading Results* | | *pts* |
|---|---|---|
| 1 Heiress (SA) | ASW- 17 | 6855 |
| 2 Eckle (Ger) | Nimbus 2 | 6665 |
| 3 Liegner (SA) | Kestrel 19 | 6297 |

| *Standard Class* | | *pts* |
|---|---|---|
| 1 Falkenbridge (GB) | Std Cirrus | 6519 |
| 2 Gantenbrink (Ger) | Std Cirrus | 6499 |
| 3 Clifford (SA) | ASW-15 | 6051 |

## GERMAN STATISTICS

IN the West German decentralized competition for 1973, 530 pilots from seven provinces flew 606929km, according to calculations by Karl-Heinz Rempp, a German Aero Club official, calculating from points earned. He estimates the total cross-countries for the year for the whole country to have exceeded two million kilometres; and in its report of the Annual Gliding Conference held at Schwäbisch Gmünd last November, this is stated by **Aerokurier** in a headline to be "Five Times Round the Earth". But, by definition, a kilometre is one part in 40000 of the earth's circumference, so the figure should be 50 times round the earth.

At the time of the Conference, members of affiliated organisations numbered 48369 plus those who did not send in returns. The number must therefore be over 50000, but of these only 3041 are women. There were 3215 gliders in the country, both club and privately owned. **(Aerokurier)**

## SOVIET CHAMPIONSHIPS

THE 35th Soviet Championships (1973) coincided with the 50th anniversary of the beginning of soaring in the Soviet Union. All 39 entrants flew Blaniks and 15 tugs of Yak-12 types were available. Nine tasks were flown.

Yuri Kusnetzov won with 2916pts; A. Bolgun came second with 2709. Feminine winner was T. Sagainova with 1875pts, and M. Afrikanova second with 1686. Moscow Aeroclub won the team prize with 7003pts.

Bronislaw Navaratil won the 1973 Czechoslovak Championship. (*Flieger Revue*).

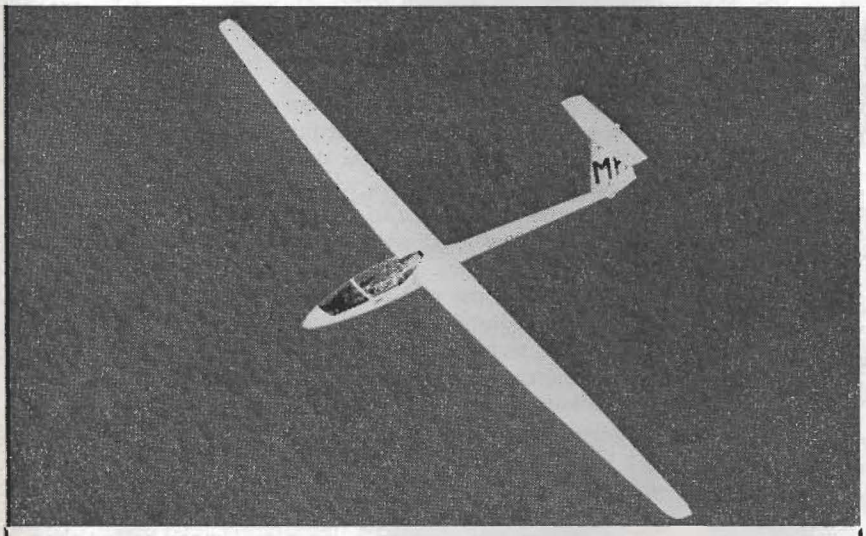
## ELECTRIC MOTOR GLIDER

BELIEVED to be the first of its kind in the world, a motor glider propelled by electricity has been produced in Austria by the firm Brditschka Flugzeugbau, according to Aviasport It is developed from the HB-3 motor glider, the two-cylinder motor being replaced by a Bosch electric motor with an ensemble of four batteries in series, giving 24 volts, weighing 4kg and producing 13hp for eight minutes.

Like ourselves, *Aviasport* has ceased publishing in pocket size and its February issue is enlarged to exactly the same size as S&G.


You could be in his place by Spring 1974

# JANTAR



**JANTAR** 19m Sailplane Winner of 19m Cup at Vrsac 1972—48:1 glide angle at 59 kts. All glass fibre—very easy to rig. £6,600 Ex Works with instruments. Delivery 4 by end of March 1974. Demonstrations now.

**COBRA 15** 15m sailplane 1:38 glide angle—Price with full set of instruments ex altimeter £3,500 Ex Works—Delivery 2-3 months.

**PIRAT** 15m 1:33 glide angle. Price £2,632 Ex Works—Delivery 2-3 months.

**BOCIAN IE** Two-seater £2,662 Ex Works.

All delivered to Booker Airfield, Marlow, Bucks.

Polish Tug Aircraft **WILGA 35.** Full British C of A. Very cheap to operate. Special leasing arrangements. £9,000 Ex Works with spares.

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# your letters

## ENCOURAGEMENT FOR THE 19m

Dear Editor,

Reams have been written on "Class warfare" but in the same way that 15m has a fundamental property, ie Min span for high performance, 19m is the largest practical span for a two-piece wing, quick rigging and routine club operation by average pilots.

Is there any sympathy in the Movement to give the "19m Class" concept long term backing and thus encourage permanent manufacture of this practical size? (Now that the Nimbus is sprouting longer tips and Slingsby's are having to counter with the new 22, one can visualise 24 — 26m being developed in the next few years).

There is now a solid core of Kestrel 19's etc, and the new Jantar should soon sell well, so an engraved teaspoon or something for the 19m placed 1, 2 and 3 in the Nationals might be very well worthwhile.

**Ripon, Yorks.** BARRIE GOLDSBROUGH

## BALLAST CONTROVERSY CONTINUED

Dear Editor,

I read with interest Brennig James' letter (S&G December, p459) concerning ballast carried in competition gliders, and felt it shouldn't pass unanswered. He claims that since "contest gliders are stressed to +6 and −3*g*," and that competition pilots rarely exceed 1.5*g* loads during an average contest flight, it would be feasible to increase the payload by adding more water ballast.

Am I right in supposing that he is proposing to reduce the glider's stress limitation capability during contests? It certainly seems like it, and here is another pilot who reaches for his local Rupert Bear Goes Gliding 5p handbook for reference instead of the appropriate engineering literature which would deal with this subject in the right depth.

Let us get things straight — the +6 −3 stress incorporated in gliders is to conform to OSTIV manoeuvring envelope requirements, and to allow the machine to encounter gusts of considerable strength at speeds up to the rough air limit without sustaining structural damage or distortion — not to account for ham-fisted contest pilots, as Brennig James suggests. Nor is the 50% safety margin added for luck, but to take into account fatigue life of the structure.

If extra ballast is seriously considered, there is only one area in which it could be carried, and that is inside the mainplanes, which are considered self supporting in flight where stress values are concerned. But, nevertheless, there are only the qualified who should permit variations in the use of a glider — the manufacturer and his design team. The task should certainly not be undertaken by the owner, because what Brennig James didn't mention includes the extra load on the undercarriage, control surface load increase due to momentum change, reduced rate of roll, spin charactertistics . . . the problems are nearly endless.

I also hope that readers understand the legal situation should they consider such modification to their aircraft. Extra ballast means exceeding the all up weight as stated on the placard. This in turn means that the C of A isn't in order, which could also render the insurance invalid. An ensuing accident wouldn't amuse the authorities, and would mean serious trouble for the owner pilot.

Finally, contrary to belief, extra ballast results in only one effect, and that is a speed increase overall. The best glide ratio occurs at a higher speed, as does the min sink, stall etc. It doesn't improve performance, as some think. Increasing the weight of the aircraft beyond a wing loading of 10-12 lbs/sq ft results in a noticeable performance reduction, so is it really worth all that extra trouble?

**RAF rize Norton, Oxon.** S. JENNINGS

## WATER BALLAST AND AIRWORTHINESS REQUIREMENTS

Dear Editor,

The papers of Irving and Eppler (S&G and MIT 1973) have adequately demonstrated that a light glider with up to half its own weight in extra disposable ballast will have a very high performance in a wide range of conditions. Personally I would go so far as to suggest that the CIVV restrict the Std Class to water ballast only, and permit no flaps or retractable undercarriages. Manufacturers would then be free to concentrate on the real problems of glider production in a developed industrial society, which are of an economic rather than technical nature.

The increasing use of water ballast, however, throws up an airworthiness problem. The current situation is well summed up in two passages from Brennig James' letter in the Dec. issue; "if better performance is what you are after, fitting larger water ballast bags is the cheapest way of getting it" but "it is becoming increasingly apparent that competition gliders are carrying a great deal more ballast than is permitted by airworthiness requirements". Unfortunately he then goes on to suggest a wholesale reduction in load factor requirements to permit more ballast to be carried.

This last statement shows a lack of understanding of the nature of airworthiness requirements. The whole technique of glider design is inexact. All that can be said with any certainty is that no glider honestly designed to British requirements has ever shown a lack of structural integrity. This means either that the requirements themselves, the methods of load estimation and structural analysis, and the assumed material properties are all conservative, or that the whole system contains self-cancelling errors. If, as I suspect, the latter is true, then anyone suggesting a lower standard in any of the above areas is taking a heavy responsibility upon himself.

Weighing gliders on the start line is a necessary precaution in the present circumstances, but the question we should really be asking is this. Why do pilots who should know better (their necks!) feel obliged to flaunt the maximum weight permitted by the manufacturer? The answer lies in the way existing designs have been retrospectively modified to carry a limited amount of ballast, which is less than is operationally desirable.

Ballast of the order suggested by Irving and Eppler must certainly not be permitted, unless the manufacturer can show that the glider has been designed with this in mind. The attached table shows that all major design cases are critical with maximum ballast, except gust loads which are alleviated by the increased wing loading. I wonder how many current gliders could show full compliance with either British or OSTIV requirements at their maximum ballasted weights?

I would emphasise that new airworthiness requirements are not called for, but merely the honest application of the existing ones. Only then will there be no temptation for the pilot to fly above a weight which is aerodynamically and structurally desirable.

| Design Case | Critical With Wing Ballast |
|---|---|
| Wing bending Manoeuvre loads | Ballast CG usually inboard of centre of lift |
| Gust loads | *Gust alleviated by high wing loading |
| Landing loads | May become critical with high ballast |
| Airbrake size | Must be speed limiting at max weight |
| Undercarriage loads | To allow for aborted take-off |
| Fuselage strength Vertical bending | Tail loads greatest at Max weight |
| Lateral bending | Wing inertia greatest at Max ballast, hence greater proportion of fin load reacted across wing attachments |

***Critical Without Wing Ballast**

**Scarborough, Yorks.** JOHN SELLARS

**Frank Irving comments:**

The papers of Irving and Eppler advocate designing new sailplanes which have a low empty weight but with the ability to carry large amounts of ballast, as in the case of the Schweizer 1-35: I would not advocate adding amounts of ballast to existing machines in excess of that approved by the appropriate airworthiness authorities.

In his third paragraph, John Sellars says: " . . . . .no glider honestly designed to British requirements has ever shown a lack of structural integrity". The truth of this observation really hinges on the interpretation of the word "honestly". In the past certain gliders designed to BCAR have shown a lack of structural integrity due to stress concentrations arising from poor detail design. I would certainly agree that BCAR provide adequate integrity given reasonably good design practice.

Certain existing machines are equipped with ballast tanks which are big enough to enable one to exceed the loading limitations with a heavy pilot on board. For example, the "Libelle" has a capacity of 110lbs water ballast but, in a typical case, the ballast tanks can only be completey filled if the cockpit load is 200lbs or less. With Max cockpit load of 230lbs, the amount of ballast must be correspondingly reduced to 80lbs. In practice, all-up weight is not necessarily of non-lifting parts may also be involved.

The advice to pilots—which is really what John Sellars is saying—is to obey the limitations of the flight manual and/ the only limitation: the forward CG limit or the Max weight or cockpit placards. A particularly undesirable practice is that of adding ballast weights in the cockpit: if the loading limitations are exceeded, the effect on the strength is much more serious than that produced by excessive water ballast in the wings.

## HANDICAP SYSTEM QUESTIONED

Dear Editor,

I am somewhat perturbed to find that the handicap system proposed for 1974 has in no way been revised. Having shown in my article (June, 1973) that the existing system must be unfair, I would have thought that some revisions would have had to have been made, or some explanation given in defence of the existing system. One can only assume there is some reasoning behind the Handicapping Committee's reluctance to change this system.

It must be obvious that in order to enliven competitions a fair chance should be given to all machines competing, and the result should represent the pilot's skill in the air and not the depth of his pocket on the ground.

The existing system can only work when most of the competing gliders are of a similar handicap figure. In many competitions, particularly those held within clubs etc, Kestrel 19s can be competing with such machines as Skylark 4s, and it is under such circumstances that the new handicap system should be used in order to give a more representative assessment of pilot skill. To take these machines as examples under the existing handicap system (Skylark 4 —98%, Kestrel 19 —74%), if they both received 1000pts for a joint win on a day with ¾ speed points, then if the new system were applied (Skylark 4 —98%, Kestrel 19 —68%), the Skylark 4 would be given 1000pts, whereas the Kestrel 19 would be given 888pts. If this difference had been applied in some of the recent competitions, a number of placings would be very different.

Here then is a system which might help the BGA to limit the escalating costs of competing on equal terms. Surely for a great number of pilots this would be a welcome change and perhaps go some way to helping new blood enter our sport?

**Stratford-upon-Avon, Warwickshire.** M. WELLS

## BGA HANDICAP RATING

Dear Editor,

It is important that the official handicap rating figures published by the BGA be as accurate as possible, not only in fairness to competitors in contests, of course, but also to designers and manufacturers because of the impact the list is bound to make upon sales, by virtue of the worldwide readership of S&G. We would be grateful therefore to be permitted to comment upon the BGA handicap list in your December issue, in the light of the recent performance measurements reported by Laursen and Zacher of the DFVLR Munich, in **Swiss Aero Review, No. 10/1973.** Some of these polars have been used to check the ratings in the BGA list, with the following results:—

| Type | Min Sink @ | Max L/D @ | Handicap Calc. | Handicap BGA |
|---|---|---|---|---|
| K-6CR | 1.32/36.5(kts) | 29/42.5(kts) | 100 | 100 |
| Cirrus | 1.16/43.5 | 39/48.5 | 86 | 84 |
| Std Cirrus | 1.26/41 | 36/52 | 86 | 88 |
| *Std Libelle | 1.32/44 | 34.5/50 | 96 | 88 |
| Libelle H-301 | 1.12/45 | v40.5/51 | 84 | (not inc) |
| Pirat | 1.42/39 | 29.5/46 | 104 | 98 |

*Figures coincide with those by Paul Bikle's USA Evaluation, Group except for min sink @ 43kts.

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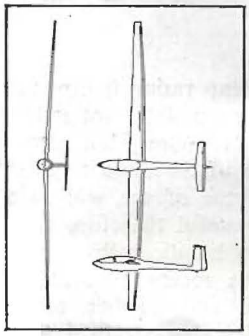
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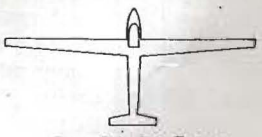
Std. Libelle © R. L. Moore #M-3



Ka-6 © G. Uveges #U-3

**Three views available:**

Blanik, Phoebus A,B,C, Libelle Std/301, Kestrel 17/19, 604, LS1, Std/ Open Cirrus, Ka-6, Ka-8, AS-W 12/15/17, Diamant, Salto, Nimbus II, Pilatus, B4, Caproni



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Happily, as the datum gliders' (K-6CR and Cirrus) figures confirm previous results from the same source and are accepted widely as valid, there seems to be no reason to discount the other results, achieved by pair-flying against one or other of these datum gliders.

Our own interest lies mainly of course in the rating of BG-135. We would like it to be clear that this figure of 102 relates to the prototype from which the much improved production BG-135 is only just released and has yet to be evaluated.

We hope one day to be enlightened as to how this rating of 102 for "Proto 3" was arrived at, since only two widely-varying and inconclusive sets of measurements have ever been made on her and as only two experienced pilots have had enough competitive flying in her to be able to give an acceptable subjective evaluation.

Having so criticised, may we hasten to say how, from the sporting point of view, we admire Ian Strachan and his committee for their temerity and initiative in providing a basis from which the fascination of contest among a field of mixed sailplane types can be staged.

**Sailplane Design Ltd**
**Hereford** L. P. MOORE

## PLEA FOR STANDARD CLASS RECORDS

Dear Editor,

When can we expect to see the introduction of Standard Class records, both in the United Kingdom and British National categories?

For some time now, the performance gap between production Standard and Open Class gliders has been growing. The point has now been reached where a fairly large number of Kestrels and Nimbus's in highly competent hands make it highly unlikely that we shall see any more speed records going to Standard Class aircraft, however skilled their pilots.

This has two results. In a minority of cases a pilot buys an Open Class glider so he can continue to pursue records regardless of cost, but in the majority of cases the pilot shrugs, sadly accepts that records are beyond his pocket, if not his piloting, and stops bothering to make his triangles conform to the 28% rule.

This should not be, and isn't necessary. We have a Standard Class that was designed to ensure that competitions were between pilots and not cheque books — and it can do the same for our National records, if we let it.

There should be no real difficulty in the introduction of these records; it could be done on the same lines as the successful introduction of the motor glider records three years ago.

**Princes Risborough, Bucks.** C. ROLLING

**A reply to the last three letters from Ian Strachan, Flying Committee Chairman.:**

Now that the S&G format has increased in size, it follows that scope for brickbats to be (democratically) thrown at the BGA is also bigger! I regret that I am doubly vulnerable because having recently taken the Chairmanship of the Flying Committee, it has so far been proved difficult to find a volunteer to take over the Handicapping Sub-Committee Chairmanship. (Form an orderly queue at the BGA, please!)

Two letters above deal with handicapping. This is heartening to the Sub-Committee because at Nationals level there is little interest at present, although with 22m exotics and flapped Standard Class this position may change. The position taken in my comment in S&G on Mr Wells's article of last June is still the same. We are looking at a major overhaul of the handicap system to; a) revise the "thermalling factor" in the light of latest meteorological information on UK thermals; b) incorporate a wind factor based on actual UK contest winds; c) change the datum glider and d) invert the list so that handicaps are direct speed indices.

The problem, which is frustrating to all of us and not only Mr Wells, is the time it takes to collect and agree data. We are not yet in a position to make all the above changes. Meanwhile it was decided not to make changes in the policy for the 1974 list when further changes would follow for 1975.

Mr. Moore's point about the Libelle handicap is interesting because it shows the action of the Sub-Committee in filtering many inputs of information. We receive many polar curves from many sources and for one type of glider the results may give variations of handicap of up to 10%. The Libelle is but one example. We may not have been right in keeping all of the common Standard Class machines at 88%, but if we had put the Libelle at 96% as suggested by the polar in question, this would have made it worse than a K6E!

The BG-135 was handicapped as a result of the pilots' evidence after the *Daily Telegraph* contest in 1972.

Mr. Chris Rollings' letter on Standard Class records was anticipated by a Flying Committee minute for our meeting on January 16, 1974 which is quoted here: "A letter had been received some time ago from "Rocky" Stone proposing a separate list for Standard Class records. This was discussed and the following points emerged:

"a) In record breaking conditions and with ballast, there was little difference between the classes. Some world records were held by Standard Class machines. Only in more marginal conditions did large span seem to count.

"b) The extra paperwork would be considerable. We already had women's records, two-seater records and motor glider records to cope with, plus various combinations of these categories.

"c) The CIVV class structure was in a state of flux. More than two classes might result. It was decided by a large majority that the separate class of records for Standard Class gliders could not be recommended."

And that's it (until the next lot of letters!). You may not agree with what we are doing but it is all discussed fairly democratically before decisions are made. Please feel free to send queries to the Flying or Handicap Committees through the BGA, or to contact committee members direct. The BGA have all our addresses and phone numbers. I can be verbally assaulted on Sleaford 3778 (home) or Cranwell 201 ext W236 (work) at almost any time . . . Best wishes to all pilots and Official Observers for a successful 1974 season.

## MORE STANDARDISATION

Dear Editor,

Recently in S&G we have seen pleas for standardisation; may I suggest another area from which we could benefit from standardisation — this concerns the plumbing of instrument panels.

I would like to suggest that as coloured flexible translucent PVC airline is now available, that we adopt a standard colour code for airline connections as follows: Pitot/dynamic pressure—red piping; Static pressure—green piping; Capacity connections—blue piping.

This would certainly make inspections easier, and perhaps help to prevent incorrect airline connections.

**Farnham, Surrey** COLIN STREET

**Correction:** Schempp-Hirth Two-seater Janus, S&G Feb-Mar p16. We should have added that Southern Sailplanes are the sole Agents for UK and details are available from them at Membury Airfield, Lambourn, Berks.

# club news



**Copy and photographs for the June/July issue should be sent to the Editor, S&G, 281, Queen Edith's Way, Cambridge CB1 4NH, tel Cambridge 47725, to arrive not later than April 17 and for the August/September issue to arrive not later than June 12.**
**Gillian Bryce-Smith** **February 15, 1974**

## AVRO

THE club was affected for a few weeks by the Sunday ban on winch launching, although there was an increased turnout and earlier start to flying on Saturdays, one member having a two hour flight to a height of 5700ft.

Many evenings have been spent in C of work on the club's T-21 and there are preparations for C's of A on the rest of the fleet.

The Polish film, "The First Start" was shown at a social evening in December.

D.F.F.

## BRISTOL & GLOUCESTERSHIRE

OUR flying has been badly hit by the fuel crisis, but now that the Sunday ban is over in time for the soaring season, things are looking a lot brighter. With Mike Munday starting work with the club on February 20 as staff instructor, our midweek flying should be more intensive with flying being possible for four days per week until April 1 and then six days per week.

Our long awaited Super Cub is still delayed in Germany but we should take delivery in spring. With Colin Pennicuick's Cruiser still in dock at Staverton airport for repairs to the engine and a C of A, we are down to your old faithful — the Terrier, plus, of course, the winches.

Flying over the Christmas period was hardly outstanding with such poor weather, Bridget Knott had her first solo in the Swallow on December 9 and our chairman reconverted to the winch after much too long on the aerotow. Saturday January 19 showed all the signs of a super wave day but it was elusive for most of us, the exception being Chris Hughes. He flew down to Chepstow and back at around 7900ft in Cirrus 242.

On the social side, our traditional Christmas dinner was a roaring success. During the course of the afternoon, our windsock took on a most non-aviation appearance — in fact at one moment it looked surprisingly like the chairman's trousers.

R.A.R.

## BUCKMINSTER

WE have not appeared in S&G for some time, since before the tragic accident with the tug, in which Mike Dawson and his son were killed. Our sincere condolences go to Ann and the children. We now have a trophy to perpetuate Mike's interests in gliding, to be presented at our first dinner-dance in March.

Last July we added the first production YS-53 to our club fleet and in August a Skylark 2, making a total of four club aircraft The Skylark proved an immediate success with two Silver C distances in the first three weeks. Our first home-brewed Silver C went to Nick Forman-Hardy, our secretary, all in one flight to Enstone.

We now have five syndicate aircraft with the promise of two more in March. Thanks to Four Counties for many happy Saturday nights in the bar this winter and to Dishforth for their hospitality to our YS-53 expedition.

The hanger project is fully planned, but the steel deliveries are another problem. However, we hope to be completed by the autumn.

R.A.A.

## COVENTRY

WE were rather badly hit by the ban on Sunday flying and time has been spent repairing, renewing, recovering and painting everything in sight for the spring season We have all been trying to entice members to HB with various attractions other than flying . . . eating, drinking and film nights being the most popular.

The hangar project is fully planned, but house and the various flying awards to members were made. The T-21 syndicate swept the two-seater awards together with Mike Costin, Ben Rood, Joyce Williams and others all receiving recognition. Congratulations to all. A very fond farewell to John Heath and family who have left for pastures new in South Africa, we wish them much happiness.

V.M.G.

## DEVON & SOMERSET

WE'VE come of age! Twenty-one years ago, in a small room in Taunton, a group met to discuss forming a gliding club. Although it was a few years before they literally "got off the ground", it was the beginning of the Taunton Vale Gliding Club, now the Devon and Somerset Gliding Club.

The event was duly celebrated at the AGM and the party which followed. Taunton Technical College kindly made a splendid cake, complete with a marzipan glider on top and gliding scenes on the sides.

This happy occasion was saddened somewhat by the retirement of our long-standing president, Mr. T. R. N. Whyte. After many years of hard and unobtrusive work on behalf of the club, he has had to retire due to ill-health. Unfortunately "Doctor's Orders" did not allow him to be at the meeting, but he thoughtfully phoned to wish the club well. We hope he will be with us soon, and we will have an opportunity to present him with the engraved silver salver to which members contributed.

His retirement has meant the election of a new president and "Our Sam" (Mr. S. G. Tolman) was unanimously voted in. He is well qualified for the post, since he first began flying in the early thirties — before many of our members were even born! We've all benefited from his vast experience and instruction, and hope we shall continue to do so for many years to come.

1974 began well — despite fuel restrictions and rough weather — with two new solos. The first of these was one of our few lady members.

J.A.H.

## DONCASTER & DISTRICT

THE long awaited Doncaster wave duly presented itself for the lucky few who were able to fly into it, recognise it and stay with it. The winter has seen the usual hard work on the ground — mainly the maintenance and overhauling of the club

fleet and private ships, now joined by a syndicate operating Graham Stone's Oly 2 alongside his Sky.

Congratulations to Bob Collins who has gained his inspector's ticket, and to David 'Dinsdale" Richardson, Peter Young and John Clark for becoming embryo tug pilots.

D.G.W.

## DORSET

THE winter at Tarrant Rushton has been disappointing with flying limited to one day a week when high winds or low cloud have been only too frequent. However Sunday flying has begun again and spring is on the way.

We are adding a Skylark 4 to the club fleet and remain in possession of our facilities at Tarrant under a new landlord. The Dart 17 owned by Allen Palmer is becoming a syndicate machine, and this means an opportunity for the formation of a new syndicate around the Oly 2B whose members are flying in the Dart. The club is limited in the number of private owners it can accept, which makes these matters of considerable significance.

A number of social events from a children's party to a dinner-dance have been arranged during the winter to keep the club spirit alive.

M.L.B.

## ENSTONE EAGLES

I AM sad to report that our chairman Dave Wales has resigned, but welcome Lorne Daniels who was unanimously elected to take his place. Many thanks to Dave for all his efforts in helping to renovate the clubhouse.

Our annual dance, held on December 8, was a great success. Cups were awarded by our CFI to Pete Moss for his "dead stick" field landing after engine failure in the Terrier, to Martin Wells for the best height gain and Richard Perrin for his hard work during the year.

We are pleased to welcome a new syndicate, the Foka 5. The pilots expect to do so well in our task week in mid-April, they have challenged a Cobra 15 syndicate based at our neighbouring club at Hinton-in-the-Hedges airfield.

C.E.H.

## ESSEX

AT the annual dinner-dance, the chairman's trophy was presented to John Bailey for an "in excess of Silver distance" in his Prefect with the Corbett cup for the *ab-initio* of the year going to Tim Healy

Chris Nicholas retired as secretary but thankfully his qualities are not lost to the club as he is to represent us as vice-chairman of the Essex County Sports Associations standing conference.

When the dreaded Sunday ban was lifted, things began to look brighter for 1974. Even the weather has been obliging and many pilots have had thermal soaring flights in January and February — something most rare indeed, for we normally experience North Weald clag at this time of year. Let's hope the weather lasts and gives us all a chance to practise for the Easter task weekend. This club event is now very popular with all members and has become the focal point of all our flying activities.

Several aircraft and many members have journeyed to Shobdon to try and contact wave. Whilst there in December, Chris Nicholas just missed Diamond height in a wave climb to 19000ft. At ground level, he introduced the autotow launching system to what has hitherto been an all aerotow club.

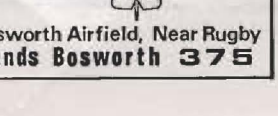
Our launching system is in the throes of an efficiency drive. We are aiming to improve our turn-round by using two launch vehicles on our reverse pulley system. It is hoped that the re-introduction of this technique will produce a record number of launches in 1974. Whilst using the system for the first time in February, we achieved 100 launches in one day — a hopeful sign of encouragement for the team responsible for the operation of the scheme.

P.F.M.


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## ESSEX & SUFFOLK

THE gliding scene has been comparatively quite in our corner of Suffolk this winter. As our only launch method from Whatfield is aerotowing, we were seriously hit by the Sunday restrictions and the shocking weather on many of the Saturdays didn't help. We felt a few wisps of thermal activity in late January but nothing to really call "in the green". Several pilots have recently gone solo and are now looking forward to their first soaring season.

A new syndicate is forming under our CFI Elvin Hibbard and they are busy looking for a machine. Our itinerant tug pilot, Jim French, is continuing his safari in Africa and the latest news is that he's hoping for some gliding in Kenya. No doubt he'll cheer us up with tales of 10kt thermals and cloudbase at 8000ft.

C.C.S.



**Essex & Suffolk's syndicate Swallow landing alongside the club K-7.**

## HEREFORDSHIRE

MANY visitors took advantage of our hospitality during 1973 and those from Booker and Nympsfield don't appear to have been too dissatisfied with the conditions available, some departing with Gold heights.

Hugh Thompson took the Blanik to 15000ft on November 9 during a three hour flight for his first Bronze C leg. Not bad for his eighth glider solo and first soaring flight. The Blanik went to 12000ft twice more that day, each time the climb being broken deliberately.

Our first season has been successful with almost 1000hrs flown in club machines, and visitors and new members deciding that Shobdon is the place to be. The club Pirat has finally arrived and is available to visitors of at least Bronze C standard, so why not pop over and see us?

Despite generally poor weather over the

country, 1974 has already provided 6kt thermals, 4000ft. cloudbase, 20000ft. waves and, if all else fails, even our local ridges seem to be behaving themselves. We look forward to an even more exciting and successful year.

D.L.D.

## HIGHLAND

BY some amazing coincidence, every Saturday bar one during the Sunday flying ban was quite unflyable; however, the Weather Clerk being an Englishman, we were able to take him unawares during the Scottish New Year holiday and do some weekday flying. And what a week! Wave flights up to 20500ft in a south wind, with Jim Tait and Alasdair Raffan getting Gold heights and Shirley Higgins her Silver height. Since then, we have had several good wave days and Sundays on the wire have provided some sorely needed circuit bashing for us whose flying is still at the "Help! "Help! what shall I do next?!" stage.

In our efforts to keep the interest of club members from flagging during the restrictions, we have instituted social evenings on Sundays and Wednesdays, though the proposed talks and discussions of various aspects of gliding have yet to materialise. We also held a Burns Supper, where the Immortal Memory was quickly forgotten in favour of more absorbing topics, such as gliding, and we are now preparing for our annual dinner-dance on February 22.

After Bob Kerr's tragic death in a gliding accident last May, it was decided by the five Northern Clubs — Arbroath, Cairngorm, Deeside, Fulmar and Highland — to raise money for a commemorative trophy. The Bob Kerr trophy will go to the pilot from one of these five clubs who makes the best handicapped cross-country flight during the year.

R.E.T.

## KENT

DESPITE the fuel restrictions, we have managed to do quite a lot of flying so far this year. On January 5, when there was a light south-east wind at ground level, most of the club fleet managed to wave soar to 2000ft just upwind of the site until dark. We are very interested in this because we had not found wave in this wind direction before and not sure where it comes from. January has produced more ridge days than we have had for a long time. On January 25, John Hoye did a 50km out-and-return in his Skylark 4 and then repeated the exercise twice the following week-end. It is good to see the cross-country season getting off to such an early start.

Our twin-drum winch has been modified, serviced and is now working well, ready for the start of the course season in March. We have also made use of some of the non-flying Sundays to clear stones from the new part of our airfield.

On the social side we have had a very good Christmas party, quite the noisiest ever at Challock. Many thanks to Jane Excel, the organiser.

C.B.

## LONDON

THE current fuel crisis has brought about a change of our normal operations, and aerotowing is now only permitted where safety is paramount. The soaring price of fuel, and lack of it, has meant that winch launching has once again become the primary method of launching.

We have done some bungey launching, particularly one Sunday in December when over 20 were from the emergency strip the club has kept at the top of the hill. This for the foresight of Tom Zealley, who has kept the grass and thorn bushes down to manageable proportions during the last couple of years. Both K-8's and K-13's were catapulted from the top, and landed back on the hill, but so far we have not tried a glass-fibre ship. Some progress has been made towards clearing the thorn bushes right down to the bottom, but it is a major operation. One of these days we may bring gliders up to the top on an endless belt, just as was done in the thirties.

Apart from the rash of Kestrels, Libelles, Std Cirrus and the like, an exciting newcomer is almost on our doorstep — a Calif A-21 two-seater. This has been purchased by a syndicate including John Jeffries, who has flown one on the continent, and speaks glowingly of both handling and performance. It is John's intention to enter this formidable ship in the Nationals at Dunstable.




This is the time of year for annual awards. Frank Pozerskis claims two trophies, one for the longest flight of the year with a 500km triangle, the other for the furthest out-and-return flight. Dilys Yates was awarded the Dunstable trophy for the best flight in a club aircraft, while Malcom Dunkeld was deemed the best *ab initio* pilot for the year.

M.P.G.

## MIDLAND

NEVER mind your multi-thousand feet aerotows into wave. On Saturday, January 19 we bungeyed into good wave for most of the day. Just a few 100ft of hill lift, then quite sudden transition to smoothness, and up above cloud through the gap which obligingly stayed put in front of the hill. The immediate locality gave 5500 to 7500 ASL, but those who pressed forward into Wales did better. John Brenner flew highest and furthest — 18000ft ASL in the course of a tour which included Lake Vyrnwy and the Bristol Channel. Some pilots landed out — three in the same field a few miles north of the site.

There have, in fact, been a number of good soaring days this winter — some of them fortunately during the ban on Sunday winching. It has certainly been one of the best winters we can remember for trouble-free access to the hill, and for *ab-initios* and early-solo people to keep in regular practice.

We hear of (but haven't actually as yet seen) a newly acquired launch-point van, bungey crews for the cosseting of Primus stove, seats and similar sybaritic fittings . . . Gad sir, what is the present generation coming to!

W.J.T.

## NORFOLK




BEING an all-aerotow club, the restric- on Sunday flying seriously curtailed our activities, but we are thankful that the ban has been lifted before the soaring season begins.

C.E.H.

## NORTHUMBRIA

OUR thanks to the retiring officers of the management committee for the vast amount of work carried out during their term. The new treasurer is trying to give himself the sack by utilising an IBM

366/67 computer. Seriously though, using this fiendish machine is saving the club a lot of money and time. Each month club members are presented with information regarding the state of their account and the amount of flying done. It also tells us, monthly, the amount of flying for the club as a whole. If any club is interested in this system please contact our treasurer, John Givens.

We have recently purchased a Chipmunk which is undergoing mods., self starter, tow hook etc. It is understood that Prince Charles trained on this aircraft, so no doubt it will be approached with due respect by members.

The Auster is now fully operational following its mishap at the Northern Regionals, and just in time for the lifting of the Sunday ban. It is, of course, now for sale. The T-21, by the time this is printed, should be back on the line. Whilst work on the Capstan major (now complete) was in progress plus the ban, we had the frustrating experience of witnessing incredible wave over the site. No doubt this was in common with other clubs.

A.J.I.

## OUSE

THE optimists have always said that there is good wave at Rufforth, but even with a resident tug for nearly two years we didn't find it — that is until January 19 with the tug away for its C of A.

Geoff Cline, in the club Skylark, achieved over 13000ft from a 1500ft winch launch for his Gold height. The K-13, with duty instructor Derek Moore, hovered around the 10000ft mark on a number of occasions. This one day did a lot to dispell the economic and climatic gloom of winter.

G.M.

## SCOTTISH GLIDING UNION

THE Sunday ban was a cruel blow since we can have some really good flying weather in December and January. And as many of our members can only fly on Sunday, there were a great many pilots out of practice when the ban was lifted.

However, some have been able to fly during the week and have managed good wave flights, among them the dual 300km described on an earlier page.

On one really good day in October, 22 pilots climbed to between 7000 and 16000ft. As recently as the first week in February we had some excellent days and already this year have notched up two Silver C heights and one Silver C distance. Several people have been to Gold C heights, but there will be no claims as the pilots involved already have this leg.

Alan Milne, our chairman, is leaving Scotland to work in England. We are sorry but wish him luck and thank him for all the work he has done for SGU. The tug hangar doors are a worthy momento.

K.E.B.



**Geoff Cline, photographed with his son Michael, after his wave flight at Rufforth to 13000ft. Photo: Geoff Mitchell.**

## SHROPSHIRE

IAN Paul saw 1973 out in fine style by climbing in wave to 15800ft in his Cirrus on December 29. Having found a hole in the 2000ft cloudbase, he released shortly afterwards and spent most of the next three hours riding a stiffish south-westerly above cloud. Several other wave flights were made during December and January.

D.V.

## SOUTHDOWN

AT LAST we can formally announce that we shall be moving the Southdown club from Firle to Parham Airfield, Storrington, Sussex, sometime in late spring or early summer, depending on the progress of the builders. We have had setbacks and hold-ups, but now we can look forward to improved flying and a secure long term lease.

We have had a very good response to our appeal for funds, both from members and friends and are grateful for their support. Anyone who has been contemplating a donation or loan can rest assured that it's never too late. Those who have in any way been involved with building know how costs soar. We expect to do quite a lot of practical work ourselves and have already had some working parties on the site.

Finn Kennedy was the last person to solo in 1973 and the writer converted to the Swallow on February 5. I was quite happy about it, rather more so than the winch driver I didn't pull back enough on the first launch and he had visions of me heading straight for him.

S.E.

## SOUTH WALES

1973 closed with many pilots practising instrument flying in the K-13, much to the chagrin of the long-suffering instructors and the sadistic delight of the crick-necked onlookers. Fuel restrictions have limited this of late.

A very successful New Year's Eve party was held in the clubhouse and winter flying received a boost with Ian Kennedy setting the paper glider duration record at 3.5secs-indoors.

The club fleet was recently expanded by the addition of a second K-13, thanks to the brinkmanship of treasurer Andrew David and club members' monetary help. But to fly gliders you need an airfield and recently field conditions deteriorated to the stage where the only gliders were wearing feathers and perched in trees. However, all was not lost in winter's muddy grip. On Saturday, January 19, Ivor Shattock wave-soared his Cirrus to over 18000ft, Peter France was limited to 12000ft with no oxygen and both K-13s were kept busy


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with wave flying. Deciding to share all this wave, Ivor is organising a wave week beginning March 24 and welcomes visitors.

B.J.E.

## STAFFORDSHIRE

THE club's first year on its new site at Morridge near Leek had its share of problems and the flying statistics were not exactly our best. The early part of the year saw the Swallow put out of action, while shortly afterwards the K-4 demonstrated its ruggedness in an argument with a dry stone wall. The summer months seemed to have a disproportionate number of nil-wind or north wind weekends, the north wind take-off run being the least developed on the site at present.

Flying received a welcome boost when the Swallow returned in October and it has been in great demand since. February saw the first weekend when our hill was really working well. New members had their first experience of soaring and at one time the K-4, Swallow, Dart and BG-135 were all in the air, and there was nothing left to launch. Soaring was halted only by approaching darkness.

Our retrieve winch system has been giving some good launches lately, 1500ft being not uncommon. We are looking forward to a much better season this year.

The AGM resulted in the following elections: chairman, Brian Cutts; vice-chairman, Charles Webb; treasurer, John Graham; secretary, Tony Boyce and ordinary members, Alan Cliffe, John Howle and Len Kirkham.

After many years of sterling work as CFI Doc Bradwell has stood down and Arthur Lowens has taken over the reins. We offer our congratulations to Doc on the award of a BGA Diploma for his services to gliding.

The club fleet now consists of K-4, Swallow, Capstan and Olympia 2B. Privately owned gliders comprise Dart 15, Olympia 2B, Olympia 403, Skylark 4 and BG-135.

F.B.

## SURREY & HANTS

CONTRARY to our earlier doubts concerning fuel difficulties, enthusiasm for winter flying has been very encouraging helped by the odd thermal day. On the whole though the weather has done its best to keep members away, bringing gusts in squalls over 80kts causing trailer damage and even tearing lead off the clubhouse roof, crumpling it up after blowing it about like newspaper.

The canteen arrangements have had a complete overhaul and a new team has taken over — glider pilots no less. The bar is to be redecorated and if the weather can be redecorated too, we'll be in for a bumper year.

The Kestrel 19 will be released for cross-country flying this year as more members get used to the knobbery in the cockpit.

C.L.

## TRENT VALLEY

VINCENT Fillingham, who became a member shortly after we started at Sturgate, is our new CFI. He has always taken a keen interest in the club and helped to bring us from a one glider operation to our present form. Peter Gasgoune, and congratulations to him on gaining his full category, becomes Vin's deputy.

It is regretted that flying was suspended while all the necessary documents were obtained to permit us to start at Kirton-in-Lindsey. However, after a great deal of work by our committee, we are now on site. With George Nelson in charge, the hangar base is down and the clubhouse is taking shape. Our new twin drum winch will soon be in use and then it's "site checks" all round.

"Blue John", Olympia 2, has been acquired by a syndicate, Bob Parket, Dave Benstead, Neville Wilson and Peter Sykes, and this brings our private owner fleet up to four with the Pilatus B-4, Pirat and Skylark 3B. The club fleet now comprises a T-21, Swallow and Blanik.

P.F.S.

## VINTAGE

PREPARATIONS are being made to visit the Wasserkuppe meeting from June 1-9, but many of the owners of vintage gliders can't afford the long journey. So if any experienced glider pilots (even if not members) would like to attend this nostalgic meeting, fly a vintage glider and share in the cost of the journey, please contact our secretary, Frances Furlong, Otford House, Otford, Nr Sevenoaks, Kent. Also apply to her if wanting to become a member of the Vintage Gliding Club or to receive the news sheets.

The next vintage glider meeting will be at the Long Mynd on May 24-27 and the Devon & Somerset Club is allowing us to hold a rally at North Hill during Competition Enterprise from June 22-30. Entry forms and further information from Frances.

Our club now has more than 60 members and the Movement has started in USA where the Baby Bowlus, Super Albatross and three examples (one 50% damaged) of the legendary Bowlus Dupont 60ft span sailplane of 1930, still exist.

C.W.

## WOLDS

OUR new hangar is now completed and occupied and we are finding that it enables us to work with improved efficiency, giving us up to an hour's extra flying time each operational day.

At the AGM John Durman, Les Cooper and Mary Dixon joined the committee as chairman, secretary and treasurer respectively, and thanks are due to the retiring officers for their past labours.

R.H.D.

## YORKSHIRE

THE first Diamond of 1974 was notched up on January 19 when Mike Carter, in the K-6E, worked 25 miles upwind in wave to gain a height of 17000ft over Pateley Bridge — a very commendable effort. The frequent westerlies has meant enough wave and ridge soaring to keep the club fleet busy, and February thermals — four knots even — are here again.

It has been a winter involving extra special fettling. The K-4 emerged from the "Doktor's" surgery resplendent in new fabric and paint, the Super Cub has been recovered, the Falke fitted with a new engine and the club's new Pirat put in a tardy appearance around Christmas.

There has been further drainage to eliminate the few remaining boggy patches on the airfield and at last the end of the hangar packers' nightmare is in sight with the new hangar taking shape. It is hoped it will be completed within a few months.

The Northern Regionals are to be held at Sutton Bank from August 3 to 11, so book now for your week's enjoyment at our beautiful hill site.

An impressive collection of trophies were presented by our chairman, Fred Knipe, at the annual dinner-dance on February 1 to the following: David Lilburn, gain of height (17000ft); Barrie Goldsbrough, distance (515km out-and-return, a club record), speed round a triangle (100km at 103km/h) and ladder (private aircraft); Lindsay McLane, ladder (club aircraft) and Fiona Gregson, best novice. The new award this year for the best Silver C distance went to Richard Blackmore for his flight of 150km to Spitalgate.

S.V.G.

# SERVICE NEWS

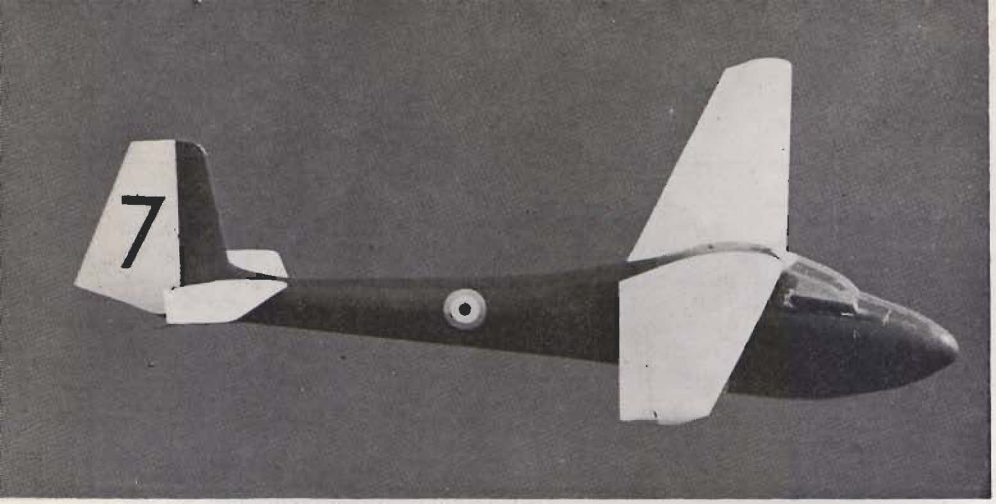
## BANNERDOWN (RAF Colerne)

THE winter servicing programme is just about over with C's of A for the entire fleet and majors for the Bocian, K-6E and K-6CR. The K-6E has become the new flagship, resplendent in its blue and white colour scheme, thanks to hours of hard work by Ron Gaunt.

The club is fielding a good team for the Inter-services, Roy Gaunt, Ken Hartley and Dave Williams, with Trevor Allsopp as reserve.

Socially the club is booming which we proved at a farewell party for Roy and Eve Gaunt, Bruce Coutts and Mick Elsom. We wish them all the best for the future, thank them for their help and welcome Eddie Edwards as our new CFI in place of Roy.

P.B.C.




**The Crusaders "hot ship" — the Olympia 401 being flown by Cliff Spink high over the Mediterranean coast at Cyprus.**

## CHILTERNS (RAF Weston-on-the-Green)

THE winter at Chilterns always seems to bring an influx of new members and newcomers include two instructors from Germany, Frank Wilson and Tony Clare. Frank's wife Linda is doing a grand job supplying curry during the cold winter days.

The Sunday ban finished in time for the start of our soaring season. Saturday January 19 provided good low level wave which was contacted by several club pilots from winch launches. Our colleagues from Bicester were being acrotowed into the same system and at one stage there were at least eight gliders at 5000ft over Weston.

Short landing practice continues on the Kestrel — sometimes with amusing results, in preparation for the season. We also have to do major on the K-4 and K-6E and C's of A on the Cobra, K-8 and K-13, which means a busy two months ahead. The hanger lost part of its side wall in the January gales but luckily the aircraft escaped damage.

G.M.

## CRANWELL

WE are alive and well — and flourishing. A very successful year has been rewarded by the presentation of the RAFGSA Bicester Cup and Aspirants Trophy and John Delafield's John Martin Memorial Trophy for his 100km triangle. The club will continue to be well represented with five pilots flying in forthcoming competitions.

Apart from numerous A&B, Bronze and Silver legs, we have gained five Gold and three Diamond heights mostly at — yes, you've guessed — Aboyne. Nine members visited that site again in October and the expedition was enjoyable and successful, despite several days of bad weather.

The club "hot-ship" up to now has been the K-8 but we have lately acquired a SF-26 and are hoping for a suitable 300km machine. During October a visitor to Cranwell would have seen only two gliders on the line — a T-21 and a stretched Nimbus!

At the AGM in February, Norman Irvine was awarded our trophy for his five hour flight in very difficult conditions. Keith Watson received the *ab-inito* trophy for progressing from solo in May to a Diamond leg in October, while Grahaeme Haggar qualified for the wooden spoon for a Gold height with a barograph at Sutton Bank. A presentation was also made to to Jim Bond for his work in the hangar.

Talking of Sutton Bank, our K-7 and K-8 flew there for a total of 24hrs during a weekend last September. Can any other club beat that?

S.T.E.W.

## CRUSADERS (Cyprus)

THE warmer weather is just beginning, bringing with it better soaring and plenty of new members. The last two months have been reasonably quiet with mostly local soaring due to the relatively low cloudbase of 3000ft and the difficulty in organising retrieve crews — petrol has taken an astronomical leap to an equivalent of 62½p a gallon.

Needless to say, the club Landrover is now rarely used and our diesal tractor was quickly overhauled and brought back on line. Diesel fuel remains at 12p. *Ab-initio* training still continues on the K-13, but both T-21's should soon be back in action with the K-13 rejoining the Blanik on aerotow conversions and advanced soaring. Congratulations to Alan Owbridge on going solo, the first member to do so in the K-13, and to George Lowe for his Silver height.

The adventure training courses, run by Bill Dickson in the Motor Falke, are going well with all four course members solo by the end of the first session. The second two-week course is half way through and promises another 100% success rate.

The AGM was followed by an enjoyable chicken and pineapple supper. The husband and wife team of Gus and Carole Paterson are leaving us and will be greatly missed. We wish them luck at their new club, RAF Colerne.

J.R.O.

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## EAGLE (Detmold)

LAST year was very successful. We achieved 930hrs flying, almost 130 up on our previous year. It was interesting that our two-seaters claimed 62.5% of the launches, whereas the single-seaters claimed 62.5% of the hours.

This winter members have flown more than normal. This is mainly due to the German aerotow facility, but on occasions we have managed to winch, although generally the airfield surface is too soggy to retrieve the cable without ground damage.

Two prizes were awarded to members at the AGM. The first was to Alan Somerville, our CFI, for the longest flight by any serving person in BAOR. He made a 508km flight during last year to complete his three Diamonds. The second prize, for the *ab-initio* making the most progress during the year, went to Chris Bowley, now a Bronze C pilot.

Pete Williams will again be chairman, taking over from Jeremy Wheeler who is leaving. Jeremy has done a great deal for the club and we are sorry he is going. Howard Jarvis becomes the deputy CFI, with Ray Washer as ground equipment member in place of Brian Bowler, also leaving shortly.

With the soaring season just around the corner, plans are being made for expenditions to Aosta, Norway and Zell Am See.

H.R.J.

## FENLAND

FENLANDERS had a very enjoyable expedition to Aboyne in November where one Diamond height was achieved, the recipient transmitting that famous radio message, "I'm at 23000ft, is that enough for a Diamond?". Also gained were seven Gold and three Silver heights.

Colin Elliott, our former CFI, has been awarded a BEM. He hasn't admitted what it is for, but we are sure it is for sterling work in the gliding Movement.

M.S.H.

## FOUR COUNTIES

WE made our annual pilgrimage to Sutton Bank in October with five hour flights for all except Ron Curtis who missed the weather by a day.

Air Commodore John Bronwlow presented the prizes at the AGM in December, the Baldwin trophy going to CFI Harry Orme; the Pilots' trophy to John Bugden and the Merriman trophy to Trevor Gorely. The club won the Founders trophy, having once again clocked up an impressive number of launches and hours.

Harry Orme has been posted to Lossiemouth — our loss is Milltown's gain — and this has meant a "cabinet reshuffle". Albert Johnson becomes CFI, Al Fox secretary and "Stew" Muldon assistant treasurer.

Members are now looking forward to expeditions in March and the Junior Inter-Services at Cosford.

D.B.

## PHOENIX (RAF Brüggen)

DESPITE the energy crisis, we recorded 300 launches from December 22 to January 1. Our CFI decreed December 23 should be Children's Day and the gliding field was turned into a scene from *Gulliver's Travels*, the Lilliputians logging a phenomenal number of launches.

At the AGM on December 1, Neil Stagg, our new CFI, had many plans for the future, the immediate one being an international club competition. It is to take place throughout the summer, and results calculated on a handicap basis.

Derek Cowley, treasurer, made the point that we needed to raise extra cash to move into the hot ship class and our president, Grp Capt Harcourt-Smith, suggested an Open Day to swell funds. He offered his help and already a sub-committee has been formed to plan this event.

Pat Warne, a raw recruit last February who gained two Silver C legs by July, was awarded the *ab-initio* trophy. Tom Jones was presented with the CFIs trophy for outstanding contributions made by a club member. Congratulations to Peter Brian who gained his full rating on December 8.

A.M.

## WREKIN (RAF Cosford)

SINCE our AGM in November, several changes have taken place. Neil East is now CFI and our thanks are due to Pete Sturdgess and Sqd Ldr Jones for their work as CFI and chairman. Our new chairman, Sqd Ldr Eva, has proved to be a driving force both on and off the field.

At the AGM Andy Bould and Dave Butt were both given tokens of appreciation for their club work. Andy's main award though was in taking the first Silver height of the year with a wave climb over 5000ft from a 1500ft aerotow. Since November the 1000 launch mark has been passed and with a full quota of *ab-initios*, a refurbished Bocian, the K-8B, K-6E and a brand new Pilatus lining up, we really seem to be flying high.

The only sad note is that nothing has as yet matured from our hopes of a new tug, so the "best looking Auster in the business" still flies over Cosford.

K.M.R.


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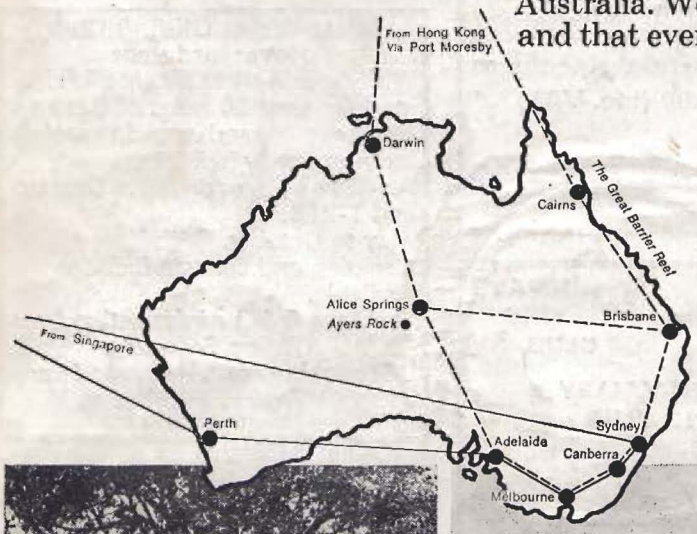
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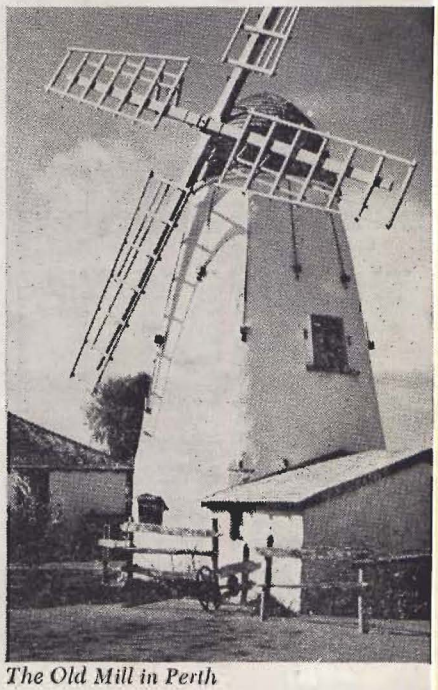
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