

Wings!

The Official Magazine of the BHGA

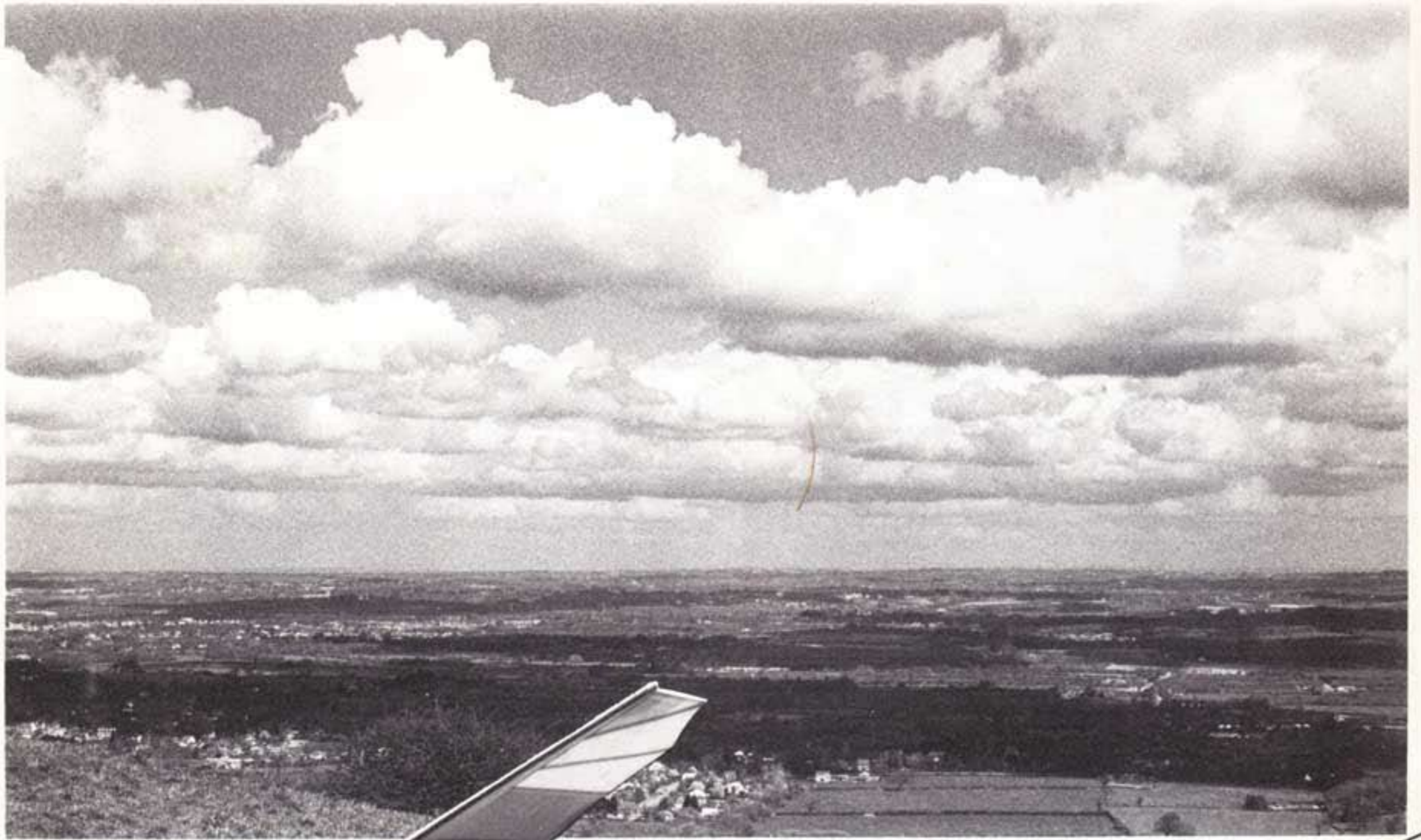
October 79

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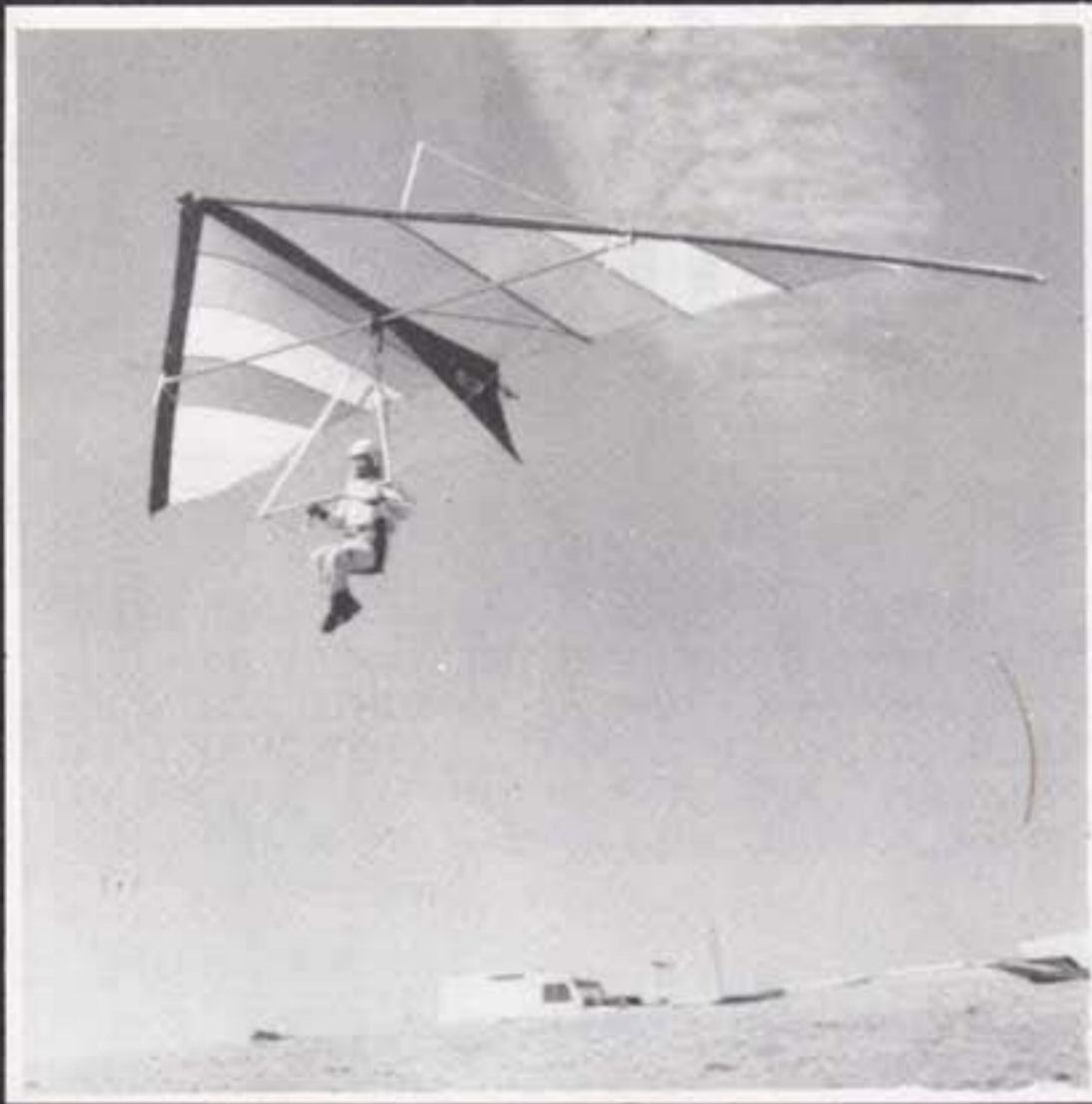
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wings!

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EDITORIAL

A word about *Wings!* I think it's time you all had a share in the housekeeping problems involved in producing the magazine — particularly after the odd moans I had about issue No.7 being thinner than usual.

That particular issue was 28 pages thick (which I hasten to remind you was the usual size you were getting throughout 1978) and the size was dictated by economic necessity and not by lack of editorial material.

At the outset of the year, *Wings!* was given a budget of £12,500 net for 1979. The net cost is arrived at by deducting any income (such as advertising, sales of back issues and subscriptions to the magazine only) from the cost of issuing the magazine (printing, typesetting, postage, envelopes, labels, editorial and artwork fees).

To give you an idea of the cost involved, the first issue I edited this year (No.3) cost £1,438 net for 4,100 copies. That particular issue was 40 pages thick. Obviously it is impossible to produce 12 issues of that standard on the given budget, and some have therefore to be smaller.

More problems have arisen in the last few weeks. Printers' costs have been increased to keep up with inflation and that has added an average £100 per issue on to the bills. Now postage rates have increased and additionally, BHGA has a financial crisis at present.

Originally the intention was to regain the 12 issues of *Wings!* for this year (you may remember we were one behind when I took over editorship). This could quite easily be done, since the magazines have been published on a schedule aimed at that, often a day or two early.

However, because of the present crisis in BHGA funds, we have been asked to keep down to eleven issues instead. As a compromise, what I propose to do is to give you a bumper Christmas edition, due out on December 1st, so that everyone has it well before Christmas, to combine issues 11 and 12. It will help BHGA cash flow and since we shall be back on a normal schedule for 1980, with *Wings!* out on the first of each month, you should not miss too much.

Regaining a fixed monthly publication date will give us regular deadlines for copy and advertising material, so that everyone can remember them without difficulty.

On the present system, you all pay approximately £3.50 of your membership fee for *Wings!* each year. The subscription rate to anyone outside the association is £7 per year, which is still absurdly cheap by comparison with, say, Vol Libre.

Suggestions have been made that *Wings!* should be paid for by members as a separate item from their membership fee, giving a more realistic price. This would undoubtedly give an even better magazine than we have at present and it is the sort of idea that could be discussed at the AGM. I would be interested to have any comments on this.

We have costed other sources of printing the magazine and feel that the present system is about the best we could hope to have. There is reasonable flexibility for late material, whereas some of the cheaper printers demand a finished product at least a month before. Imagine how out of date material would be then!

Meanwhile, though there might be variations in thickness, we intend to maintain a good standard for the magazine, which from January onwards should be plopping on to your doormats early each month - the date varied only by the particular idiosyncrasies of your local GPO!

JEANNIE KNIGHT

THE 500 CLUB

The initial response has not been too good, so we are starting with something like a 200 club! We need the money so we shall persevere and, with every new member getting the opportunity to join, the Lottery prizes will hopefully grow. Here are the results of the first draw on 10th September.

- 1st prize — D.A. Edwardson £33.20
- 2nd prize — R. Clegg £16.60
- 3rd prize — S. Kemp £8.30
- 4th prize — T. Tate £4.98
- 5th prize — D.A. Edwardson £4.15
- 6th prize — E. Armstrong £4.15
- 7th prize — R.E.D. Bailey £3.32
- 8th prize — E.J. Weaver £3.32
- 9th prize — P.G. Moss £2.49
- 10th prize — M.C. Niven £2.49

The sum of £83-00p was transferred into the BHGA's bank account and will be used for general purposes.

DEREK EVANS

THE INTRODUCTION OF ANTI-HANG GLIDING BYE LAWS?

by Chris Corston

The freedom to fly that we currently enjoy could be seriously curtailed if the High Court rule in favour of the Adur District Council and against Frank Tarjanyi at a hearing that is due shortly.

Here is the background history.

Mill Hill, a Southern HGC site, is public open space and owned by the Adur District Council. The Council would not even discuss an agreement with the Club over flying there and in 1975 announced their intention to bring in a bye-law to ban us. Pressure from the Southern Club and the BHGA resulted in a Public Inquiry in 1976. Legal costs, including those of our Barrister, came to approximately £2,200. The BHGA paid £755 and the Southern Club paid the balance. The Home Office allowed the very persistent local Council to bring in their bye-law.

To "test" the bye-law flying continued as in this particular case our solicitor, Anthony Maclaren, felt it conflicted with General Law. Frank Tarjanyi was prosecuted under the bye-law in 1978.

The result was that the local magistrates would not convict, because they found the Adur District Bye-Law was "repugnant to the General Law and unreasonable".

Flying has continued at Mill Hill ever since.

Shortly after the bye-law was introduced, and before the magistrates judgement, about a dozen other local authorities wrote to the Home Office for details of the new law (for reasons that are fairly obvious). I wrote to the Clubs in the areas involved during 1978 to give advance warning of this.

The Adur District Council appealed to the High Court against the Magistrates' decision and the hearing is due in the very near future. We have been advised against asking Frank Tarjanyi to seek legal aid because we don't want just any Barrister. We want the best.

A ruling in favour of Adur District Council could open the flood gates to bye-laws affecting many other sites being introduced. WE MUST STOP THE ROT BEFORE IT HAS A CHANCE TO SPREAD, IF POSSIBLE.

If we win the overall costs are estimated at £700, and if we lose £2,000. The Southern Club can afford to pay half.

Recently the BHGA in conjunction with the Welsh Federation spent £1,100 on legal expertise to avoid the introduction of another sort of banning bye-law that the Welsh Office had been asked to approve in relation to Mynydd Maen Common. We were successful and have a valuable precedent for the future if similar problems occur in Wales. Opposition to the Dartmoor Commons Bill with its references to hang gliding continues to consume administrative time and expense.

The BHGA is run on a very tight budget, and inflation is seriously affecting us. It will only be possible to continue to fight legal battles on behalf of the sport if we can raise additional funds.

IF YOU VALUE OUR RELATIVE FREEDOM AND WANT US TO KEEP FIGHTING WE NEED FINANCIAL HELP FROM ALL COUNCIL FEEL THAT ALL CLUBS EXCEPT THE VERY SMALL ONES SHOULD EACH BE ABLE TO CONTRIBUTE AT LEAST £50 TO THE NEWLY CREATED CENTRAL FIGHTING FUND - which will be used to finance our efforts in cases such as those outlined above. We also expect that many individual members, in Clubs or otherwise, will want to contribute. No amount is too large. Think about the amount the Southern Club has already paid. Their efforts have benefited us all and we must help them with Frank Tarjanyi's High Court legal costs and have a LARGE FUND READY TO HELP THE NEXT CLUB THAT GETS INTO DIFFICULTIES.

Please make cheques payable to BHGA CENTRAL FIGHTING FUND, and let's have them as soon as possible. Remember — we can only keep fighting as long as we have the cash to pay legal costs.

Editor's comment: Anyone spending £500 on a glider, must surely be able to afford £5 to ensure there is a site left to fly it on?

THE SOUTH DOWNS CHAMPIONSHIP 1979



The South Downs Hang Gliding Championship, held at Steyning Bowl, Sussex over the three days of August Bank Holiday produced some exciting tasks and a close-run finish for the overall champion's title.

Intermediate flyer, Andrew Wilson from Southampton, won the Knight Hang Gliding Trophy for the overall winner on his Super Scorpion. Advanced pilot, Doug Maynard from Bracknell, was less than three points behind on his Cyclone.

Andrew Wilson receives his intermediate salver from Jeannie Knight. His overall champion award, the Knight Hang Gliding Trophy is at the front of the table.



Flying took place on all three days and one particular task will be long remembered for the excitement that it produced. On the second day the competition was transferred to Devil's Dyke, where the wind direction was more favourable. An epic four-mile run to Truleigh Hill and back for the advanced section resulted in a breathtaking finish, with Geoff Shine from Hiway sweeping the board on his Super Scorpion with an incredible time of 11 minutes 06 seconds.

Hot on his heels was Keith Cronshaw on an Emu, finishing in 12 minutes 38 seconds, while Doug Maynard pipped Johnny Carr (both flying Cyclones) by 3 minutes 18 seconds with a time of 13 minutes 40 seconds.

They were the only four advanced pilots to complete the task.

Equally memorable that day was a flight by Australian John Hall, on a Vortex. Flying in the intermediate section, on a task that involved one minute to gain height, and the longest time clocked through a gate to landing on a target in the field below, John eventually landed with a winning time of 5 minutes 49.41 seconds.

Bob Mackay was at the competition as a guest marshal and viewed the entire competition, which he describes here. B



THE SOUTH DOWNS CHAMPIONSHIPS — or bits of it As seen by Bob Mackay

Isn't Geoff Shine a nice person, I was thinking. Tom Knight was thinking so too, and so was Tony Fuell. We were on our third glass of vintage cider from the flagon Geoff had brought over to Terry Prendergast's caravan. The rain thrashed against the windows as the south east wind tore up Steyning Bowl. Our pleasant sojourn was rudely shattered by the appearance of Jeannie Knight in the doorway.

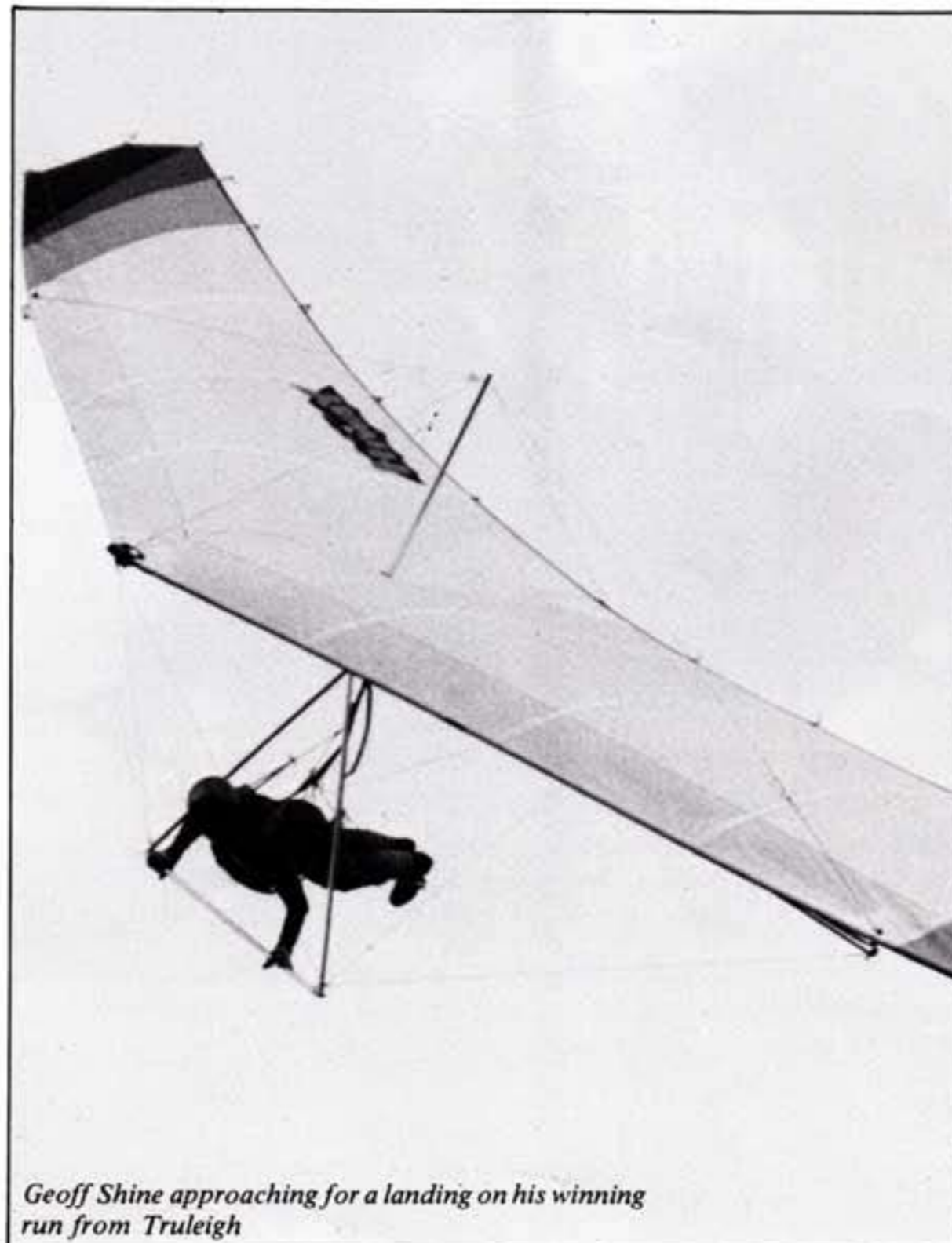
"It's stopped raining and the wind has improved. When are you and Graham going to start laying some courses and getting things started?" It wasn't a question and it wasn't just addressed to Tom.

We slunk out and sloshed forth. The rain wasn't coming **down** so much as coming **along**!

We set three pylons in the upper arm of the bowl and a spot landing in the elbow. From time to time the distinctive cry of the Great Crested Carr could be heard from the overcast above as he soared his Cyclone - 'evil, evil, evil'.

It was still raining. The paper I was trying to write on turned to pulp so I can only record admiration for all the intermediate flyers and let the results speak for themselves. I had to admire the girls, Mary Birchall and Natalie Wilson, for having more guts than I've got and handling the turbulence well. Ian Rawson on his Atlas was impressive.

Dave Temple-Murray's flight was



Geoff Shine approaching for a landing on his winning run from Truleigh

remarkably gymnastic with some heart stopping opposite corrections ending on the side of the hill adjacent to where Graham Slater and I were standing. He didn't land - he arrived!

It was still raining for the advanced task and we set out four pylons. Keith Cronshaw's Emu was first to go and he managed to miss his stirrup three (or was it four) times - kept high on the first and therefore missed the 'sink hole' on the second. "Evil" he shouted to Graham Slater, and floated down for a perfect stand-up landing just two feet beyond the target.

Vince Hallam did not get height but he did get the first pylon in a hairy and very busy charge down the centre of the bowl. Geoff Shine broke right and soared the trees, got the first pylon and then hit the sink hole at the second, hurtled low towards me at the third, wooshed inside at 20 feet, missed the fourth and did a 'drag toe up and drop landing', five yards short.

John Pendry got away very low. It looked impossible from the second onwards and yet he made it round the third only six feet up, going straight for the target, overshooting by five yards.

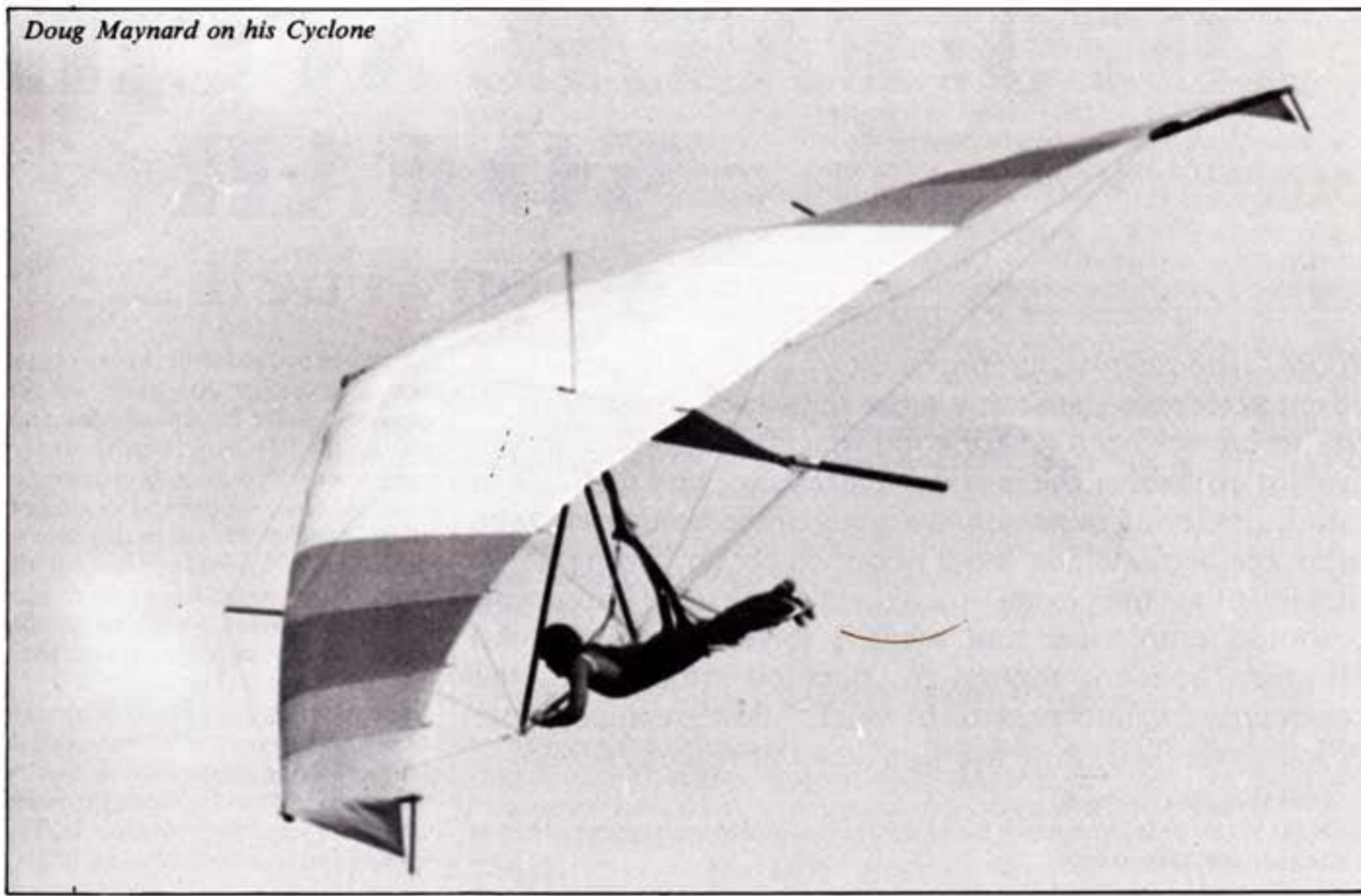
Dave Batter, on his supine Eclipse, got a lot of height but no luck and was absolutely buried at the second. It was sink, sink, sink all the way down the bowl.

Doug Maynard on his Cyclone got the best height gain on take-off and was well above the critical level at the

You could recognise the marshalls by their funny hats.
 a. Tom Knight b. Tony Fuell
 c. Bob Mackay.



Doug Maynard on his Cyclone



second, rounded the third and fourth with height to spare but could not burn it off and overshot by 10 yards. Johnny Carr shot skywards and soared the tree, flying back up to 'Sink City' at the second. It lived up to its name and he came back to round the third at 20 feet, strangely quiet. At the fourth he was cutting daisies and fell ten yards short of the target. "Oi, give up son!" - The Bowl was filled with the sound of Carr!

After the first task Doug Maynard was in the lead with 90 points, Johnny Carr a close second with the same points, but beaten on time, and Keith Cronshaw third with 80 points.

On the Sunday we went to the Dyke, part of the serrated north face of the South Downs, a 400-600 ft escarpment. Just two miles to the west is Truleigh Bowl, which was to feature prominently in one task that day.

For the intermediates, a gate was set in the big 400 yard square field to bring the gliders out of ridge lift, then stay up as long as possible within the field boundaries, finishing on the spot.

The wind was 18-20 mph northerly and the most memorable flight was that of Australian John Hall who got incredible height and held it for minute after minute. It was undoubtedly going to be impossible to beat.

After landing, he rushed over to ask Tom for his time. "Dunno", says Tom.

"They're coming down to fetch you", I add.

"What was my time?" he screamed.

"You'll have to go again", I said.

"You missed the gate", says Tom.

"Like hell I did", says John.

"Don't worry", says I. "You can go again".

He cracked. "Aw hell."

Then we started laughing and he realised it was all a wind-up.

RESULTS: OVERALL WINNER: Andrew Wilson. Runner Up: Doug Maynard. Andrew received the Knight Hang Gliding Trophy and Doug the Sussex Trophy donated by Vince Hallam.

INDIVIDUAL CLASS RESULTS: First, second and third in each class receiving trophies.

INTERMEDIATE: (Pilots scoring above 100 points):

1. Andrew Wilson, Southampton (Super Scorpion), 348.87 points.
2. John Hall, Australia (Vortex), 320.50.
3. David Wood, Dyfed (Vortex), 317.10.
4. Damon Robinson, Hythe, 301.27.
5. Paul Green, 286.16.
6. Ian Rawson, Burnley, 279.73.
7. Dan Clark, Herne Bay, 254.56.
8. John Rutledge, London, 253.60.
9. Mary Burchall, Brighton, 253.57.
10. Natalie Wilson, Southampton, 242.88.
11. Peter Harris, Hastings, 234.95.
12. Paul Coidan, Haywards Heath, 133.35.
13. Joe Anderson, Littlehampton, 125.99.

ADVANCED SECTION (Pilots scoring above 100 points):

1. Doug Maynard, Bracknell (Cyclone), 346.26.
2. Geoff Shine, Brynmawr (Super Scorpion), 295.00.
3. Keith Cronshaw, Macclesfield (Emu), 277.00.
4. Johnny Carr, Burgess Hill (Cyclone), 263.07.
5. Vince Hallam, Brighton (Super Scorpion), 160.00.

Keith Cronshaw comes in to land his Emu on the cross-country



The advanced course was Truleigh Hill and back to the spot on top of the hill - a four-mile round trip. Tony Fuell and I manned the transit line just short of Truleigh Bowl. Johnny Carr appeared first, scratching all the way in a 12-14 mph wind. He went into the bowl to gain height for the flight back. It didn't work and Doug Maynard picked up valuable seconds by turning sooner.

It wasn't easy and Vince Hallam lost it. Keith Cronshaw made it better and gave a cheery wave of the legs to acknowledge our dipped flag as he crossed the transit. Geoff Shine had more height than anyone and he went back like a bat out of hell in an incredible time that meant he must have held an airspeed over 25 mph for most of the flight.

Monday was nil wind take offs at Steyning with a wind of 0-1 gusting to 3 mph! One pilot, who shall remain nameless for obvious reasons, was threatened with annihilation by his girl friend if he didn't stop crashing on take-off and was dragged off to the Dyke (some girl-friend)!

If you want to know how to do nil wind take-offs properly you should watch Natalie Wilson. Up kite - tight straps - head and shoulders through the control frame and run like hell. Great to watch.

It's hard to fly in nil wind and even harder in 3-4 mph and deep sink which operated at the centre of the bowl at that windspeed. The pilots coped well and completed two tasks, with advanced flyers having an exciting finish as Geoff Shine moved up into second place with some precise flying.

Photos by Keith Cronshaw

1979: FATAL ACCIDENTS

-SO FAR

By Tony Fuell

People who read *Wings!* regularly get quite a lot of material about accidents - probably more than enough really. 1979 has so far not been a very good year: it seems that people are not absorbing the lessons of last year. And with this in mind, I'm trying to present a slightly different article on the fatal accidents which have occurred so far during 1979, picking out some points which seem to me to be important. I should emphasise that while I have drawn on John Hunter's accident reports for detailed information, the comments and interpretations which follow are mine alone.

Firstly, the list: there are five fatalities to report as follows:

1. **Paul Maratos (7th April)**

Killed at Mam Tor in Derbyshire, flying an experimental bowsprit glider. (He was a designer and sailmaker).

Pilot initiated a high-speed dive, kite developed divergent tendencies and speed increased to the point at which the glider folded up. Pilot then deployed a parachute (a Bennet Mk I) which failed to deploy correctly and tangled in the rear rigging. The 'chute had not been repacked for several months, and pilot was apparently carrying a spanner inside the outer parachute bag. He fell 800 ft and was killed instantly.

2. **Mark Hammond (28th April)**

Killed at Coombe Gibbett, Wiltshire, flying a production Chargus Vortex 120 glider.

Inexperienced pilot: stalled on take-off, turned back into hill and received serious injuries from which he died later in hospital. Had had only five previous prone flights.

3. **James Payne (16th June)**

Killed at Devil's Dyke, Brighton, flying a production Vulturelite Emu (bowsprit-type), prone harness.

Flyer of moderate experience, borrowed his friend's new glider. Was in the air 10-15 minutes: was seen to execute a series of progressively deeper whipstalls, after which the glider inverted and broke up (bowsprit collapsed). Pilot fell 200 ft (no parachute), was killed instantly. Inquest not yet complete.

4. **Peter Clostermann (25th June)**

Killed at Rhossili Down, South Wales, flying a home-built bowsprit glider, with a home-sewn prone harness. Not a BHGA member. Age 27.

Inexperienced pilot, borrowed glider and harness for his first prone flight. Owners of the glider had several times been warned by Club officials that glider was not safe, accident happened on a weekday. Pilot took off from 800 ft hill, had obvious severe control difficulties, descended to within 80° of beach, then turned 180° and nosedived into sand. Died instantly.

5. **Les Osbaldston (1st July)**

Killed at Combe Gibbett Hill, Wiltshire, flying a production Birdman Firebird 'S' glider, prone harness.

Inexperienced pilot, third prone flight in good weather, stalled on take-off, turned back into hill. Died half an hour later.

The summaries are necessarily incomplete, and therefore a more detailed explanation of various points might be helpful.

GLIDER INTEGRITY/STRUCTURAL STRENGTH/ HANDLING CHARACTERISTICS

Two fatalities (Maratos and Payne) involved the break-up of the glider while in the air. In addition, in both the Clostermann and Payne accidents there could be said to be grounds for reasonable belief that the pilot's lack of experience in handling highly pitched sensitive gliders contributed directly to the accident. All three of the above-mentioned accidents happened to gliders of the 'bowsprit' type, but this isn't necessarily significant.

One point for other pilots to consider, particularly those converting from older types to ultra-modern, high aspect gliders, is that these will have completely different pitch and roll characteristics from the second generation machines. They are faster and lighter in control and the possibilities for the pilot to induce unsafe airspeed at both ends of the scale is correspondingly greater. It is worth recording that the only 'production' glider involved in a break-up, the Vulturelite

Emu flown by Jim Payne, broke because the pilot inverted it from a whipstall and then on to the sail. Any glider will break under those circumstances.

Maratos' glider was an experimental model which was being put through dive tests for the BHGA airworthiness certificate. At the time of its collapse, it was being flown well outside its operating envelope: the speed necessary to induce the structural failures observed was something in excess of 60 mph. It is thought that the deflation of the sail in this dive applied excessive pressure to the tip struts which thereby induced a rotational force, which caused a failure of the starboard leading edge: something to be considered by other designers who rely on such devices to provide a positive-pitching moment at low angles of attack: their effectiveness at high speed is limited by the ability of the leading edge tubes to resist the rotational force.

In considering the factors involved in Clostermann's accident, it is difficult to know where to start. Here we have a low-time, inexperienced pilot, not a BHGA member, flying prone for the first time from a bigish hill (Rhossili) with a borrowed glider and equipment: a combination of factors which could easily have been anticipated to cause trouble. The glider, which was a home-built bowsprit type, had serious shortcomings in both design and manufacturing practice. The owners had previously been requested by Welsh Hang Gliding Club officials not to fly it at Rhossili because of their concern over its safety. The coroner, recording a verdict of 'accidental death' on Mr. Clostermann, emphasised the importance of adherence to the BHGA's Code of Practice while hang gliding.

John Hunter has recommended that a registration scheme for home-built gliders be started, possibly by the formation of a specialist club, like the Powered Hang Gliding Club, so that independent inspection and advice can be given to those who wish to build their own gliders. This recommendation is currently with BHGA Council — perhaps all the vocal minority of the BHGA who are into home-building would consider this suggestion and let *Wings!* know what they think.

PARACHUTES

Paul Maratos was wearing an emergency parachute and deployed it. It failed to deploy properly and tangled with the wreckage. The failure mode of the parachute is believed to be the sequence illustrated:

To quote from John Hunter's report:-

"After the structural failure the hang glider pitched up into a position where a considerable area of the hang glider was directly above the pilot, falling almost vertically down. It would have been necessary for the pilot to have thrown the container with the canopy in it at least 6-8 feet to the side to clear the rigging. This would have probably made the pilot hesitate after detaching the container to decide the most suitable place to throw it. In my opinion it is at this point the prime cause of the accident occurred.

The sequence of the events here can be split into three areas and any one or combination of these could have caused the premature deployment of the parachute.

1. *When the pilot removed the container the rigging lines fell out into the airflow, and were taken back with sufficient force to break the lock and prematurely deploy the canopy into the rigging.*

2. *That the lock was not in position and that on pulling the container the parachute deployed.*

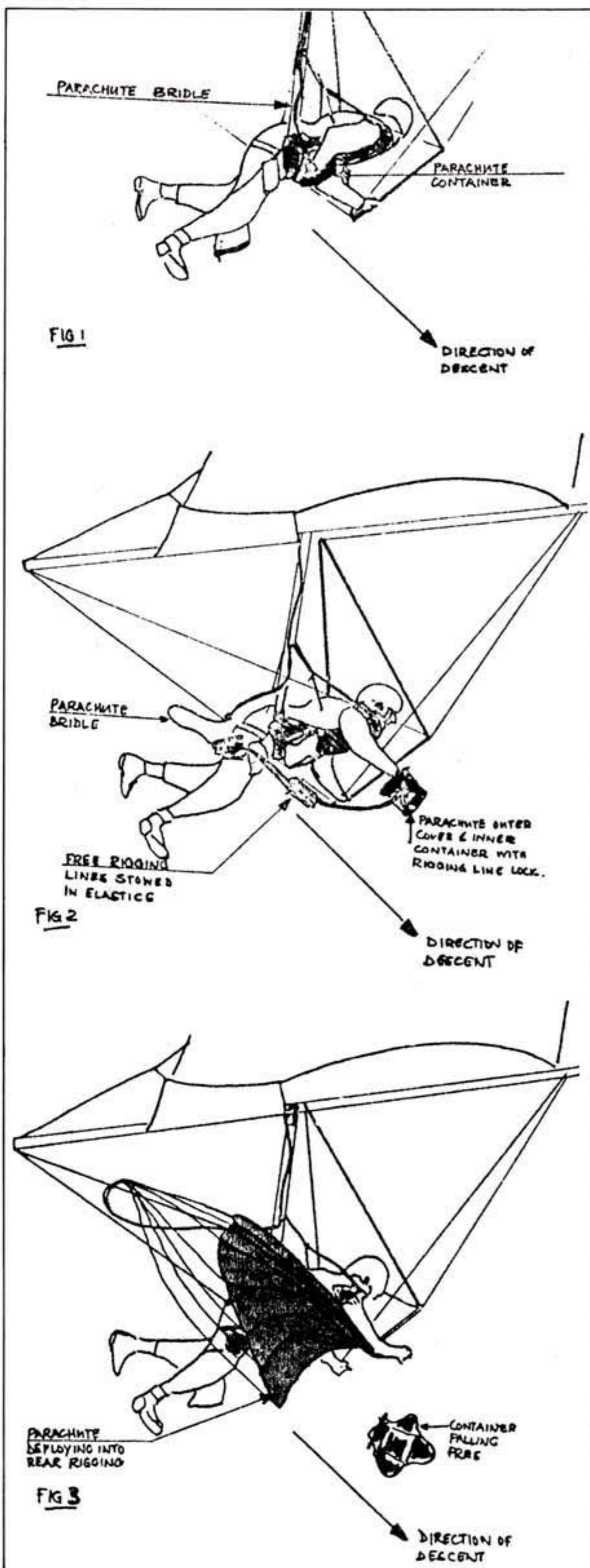
3. *That a foreign body within the parachute pack fouled the rigging, causing it to prematurely deploy.*

There is no doubt in my mind that the canopy deployed whilst the pilot was holding the outer container and inner bag and from witnesses' statements there was a probability that at least one spanner was in the parachute pack. On reflection and through tests made it is my opinion that the parachute malfunctioning was caused by the breaking of the inner bag lock due to the deployment in the airflow of the rigging lines and bridle, allowing the canopy to deploy and become entangled in the rigging of the hang glider.

It must also be noted that the hang glider, when falling, could have been in excess of the 50 knots limitation set by the manufacturer of the parachute."

It is for consideration whether it is realistic for the designers of back-up parachute systems to use a terminal velocity as low as 50 mph as a basis for calculation. John's assessment of the terminal velocity reached by the pilot plus wreckage has in several of the British fatalities been in excess of this. Perhaps some comment from the parachute manufacturers is called for.

John has recommended that the particular parachute manufacturer should consider modifying his Mark I system so that the rigging lines cannot cause a premature deployment of the canopy.



A few more words about this accident might seem appropriate. The fact that one unfortunate person experienced a malfunction does not in any way affect the rationale behind carrying an emergency parachute. Many pilots owe their lives to the fact that a parachute was carried. Just before the recent U.S. Cross Country championships, at least three pilots were saved by deploying back-up parachutes after encountering extreme turbulence - the one pilot who was not wearing a 'chute was killed. Our advice remains the same: **Buy** a parachute as soon as you can, and once you've got one, **never** fly without it. **Practice** deploying it, whenever you can (see *August Wings!*) and **mentally rehearse** what you would do while you are flying. Finally, **keep your parachute and its pack in good condition** - you may **never** need it, but when you do, you need it badly!

Another point to consider is that a quick deployment, if something unexpected is encountered, might just make the difference between a good deployment, and an entanglement. Wearing a parachute is particularly important when you're venturing into your personal unknowns - flying a new glider, or a new site. How desperately sad for the relatives to realise that had a back-up parachute been worn - and used - at least two of the 1979 UK fatalities might have been avoided (three if you count Lorraine Evans' tragedy in France).

I look forward to the day when no harness is sold without its back-up parachute **designed into the system**. Sure, it will cost more, but as Bob Mackay says, attend one, just one, accident investigation into a hang gliding fatality and cost ceases to become a factor.

LEARNING TO FLY PRONE

In three of the fatalities (Hammon, Clostermann and Osbaldstone), the pilots had limited experience of prone flying. There is an obvious risk involved in conversion from seated to prone flight which it would be stupid to minimise. It would be unfortunate, however, if the existence of this risk were to put people off making the change. Most gliders flying today were designed for prone flight - they fly better, and the pilot can exercise much better control in the prone mode than he can in either the seated or the supine mode.

Firstly, achieve a degree of familiarity with the feeling. You might look like some new kind of sexual deviant hung up in your garage for hours at a time, but this is an essential part of the conversion. Don't just lie there listening to the radio, though. Practice the transition between body-vertical and body-horizontal and back. Practice turning manoeuvres. Practice finding the stirrup without looking, and adjust the harness so that it is comfortable.

Then, when you got out to fly with your prone harness, check every time that you've got it on properly. And remember, the first aim is to fly. Don't worry if you can't get prone on your first flights - all prone harnesses allow you to control the glider quite adequately in the upright position.

Concentrate on making a clean take-off and flying the glider. Then, only when you are well away from the hill and other gliders, try and go horizontal. And when you come into land, leave the prone position well in advance, and set up your landing approach flying 'upright'.

And all pilots, beginners and experts alike, are reminded to keep their airspeed up. Modern gliders are better than the second generation models, in that most of them retain some roll control up to the point of stalling. Flying a high-aspect wing does nevertheless require careful attention to control in pitch, and it is best not to try and max-out lift in marginal conditions until you are thoroughly familiar with its flying characteristics.

Please! Let us have no more of these silly stall-into-the-hill-after-take-off fatalities.

For the Novice Hang Glider Pilot?

The best way to learn is the hard way, the way that entails a stiff climb. Nothing worth doing is easy. There's a price to be paid every time . . . Experience teaches its lessons - whatever the subject may be - if you can learn from your blunders, if you are able to see just where you took the wrong turnings and broke under pressure and strain - you will be wiser and stronger for starting all over again.

There isn't a short cut to wisdom. There isn't an easier way. No book ever written can teach you what living can teach in a day . . . Your head may be brimming with knowledge - your wits may be sharp as a knife - but until you have learnt it the hard way, you don't know a thing about life!

Verse by Patience Strong
Submitted by Tim Taft

RECOMMENDATIONS FROM FATAL ACCIDENT REPORTS

The following recommendations have been made in respect of some of the 1979 fatal accidents:

PAUL MARATOS

Further to the Preliminary Report (*Wings!* No.3/79, p.29):-

John Hunter's Interim Report concludes that -

(a) The glider had some design deficiencies.

(b) There were parachute deployment problems.

At the inquest on 6th July there was a verdict of Accidental Death. The jury added five riders, namely:-

1. The BHGA should compile a test programme for emergency parachutes.

2. All pilots should be made aware of any limitation put on an emergency parachute. (It is my personal opinion that if a parachute is sold as an emergency system it should be capable of responding to all emergencies and not

have restrictions placed upon it).

3. No modifications should be made to any emergency system without prior written consent of the designer/manufacturer or his agent.

4. The agent/manufacturer of the Bennett B.U.S. Mark I parachute should consider modifying the parachute system so that the rigging lines cannot cause a premature deployment of the canopy.

5. That the Manufacturers' Association should have a central pool of information on hang glider design and should form an independent panel to inspect prototype hang gliders and assist the designer where there is a possibility of design failure.

MARK HAMMOND

Further to the Preliminary Report (*Wings!* No.4/79, p.28):-

John Hunter's Interim Report adds that the sling point trim was one hole from the rear, which is abnormally far

back. His recommendation is:-

'Pilots who have recently converted to prone should be aware that the change in attitude could be deceiving and that they should not attempt to fly close to the stall until they have had sufficient experience to recognise the onset of a stall.'

PETER CLOSTERMANN (Not a BHGA Member)

Experience: Previous experience unknown. Had probably not flown prone before.

Glider: Borrowed crossboomless home-built.

Date: 25th June, 1979.

Site: Rhossili.

Injuries: Multiple.

John Hunter's Report states that after an uncontrolled flight down the Pilot hit the beach in a high speed diving turn. The glider and harness were both poorly made, but the primary cause of the accident was the inexperience of

the Pilot. His recommendation is:-

'That the BHGA enforces, by some means, registration of home-built hang gliders, possibly by forming a club similar to that of the Powered Hang Gliding Association, so that independent inspection and advice can be given to those who desire to build their own hang gliders.'

Members are reminded that there is a perfectly good Registration scheme for non-standard gliders, run by Terry Dibden.

The Coroner recorded a verdict of Accidental Death.

I am taking action to see that the above recommendations are dealt with.

MIKE COLLIS

Chairman designate,
BHGA Accident Committee

INSURANCE

NEW INSURANCE RATES

THE FOLLOWING INSURANCES ARE THE NEW RATES, EFFECTIVE 1st MAY 1979, ALL PLACED AT LLOYD'S AND APPLICABLE TO UNITED KINGDOM BASED BHGA MEMBERS - AND ARE EFFECTIVE THROUGHOUT EUROPE

PERSONAL ACCIDENT BENEFITS IN THE EVENT OF A HANG GLIDING ACCIDENT

CAPITAL SUM

IN EVENT OF DEATH, LOSS OF EYE/LIMB (OR USE THEREOF) OR PERMANENT TOTAL DISABLEMENT

Code	Capital Sum Benefit	Premium
A2	£ 2,000	£ 4.00
A3	£ 3,000	£ 6.00
A4	£ 4,000	£ 8.00
A5	£ 5,000	£10.00
A6	£ 6,000	£12.00
A10	£10,000	£30.00
A15	£15,000	£60.00
A20	£20,000	£80.00

WEEKLY BENEFIT

PAID UP TO 104 WEEKS (EXCLUDING FIRST 14 DAYS) FOR SO LONG AS DOCTOR CERTIFIES YOU TOTALLY UNABLE TO FOLLOW NORMAL OCCUPATION

Code	Weekly Benefit	Premium
D20	£20 per week	£12.00
D30	£30 per week	£18.00
D40	£40 per week	£24.00
D50	£50 per week	£30.00
D60	£60 per week	£36.00

FOR COMPETITION PILOTS i.e. THOSE WHO TAKE PART IN NATIONAL OR INTERNATIONAL COMPETITIONS OR IN THE LEAGUE -, OR IN ANY COMPETITIONS ABOVE CLUB LEVEL, UNDERWRITERS HAVE INSISTED ON THE ABOVE RATES PLUS 25%

FOR MANUFACTURERS, THEIR EMPLOYEES AND INSTRUCTORS PLEASE ADD 50% TO THE ABOVE PREMIUMS

No Proposal Form required, provided you are between 16 and 65, warrant you are fit and declare any serious accidents or illnesses during past five years, we can normally give cover immediately we receive your NAME, ADDRESS, AGE, OCCUPATION, GLIDER DETAILS, BHGA OR CLUB MEMBERSHIP NUMBER AND CHEQUE.

GLIDER ALL RISKS (GROUND) COVER

Policy excludes Flight Accidents but covers every accidental ground risk that we have yet thought of, e.g. Theft, Damage resulting from Car Accident, etc. (Excluding first £5.00 each claim). Includes 30 days in Europe each year.

GLIDER VALUE	£300	PREMIUM	£8.00	GLIDER VALUE	£400	PREMIUM	£10.00
GLIDER VALUE	£350	PREMIUM	£9.00	GLIDER VALUE	£450	PREMIUM	£11.00

EACH ADDITIONAL £50 VALUE - ADD £1.00 PREMIUM

RATES FOR CLUBS, MANUFACTURERS, SYNDICATES AND WORLDWIDE COVER ON APPLICATION

LIFE & ENDOWMENT & HOUSE PURCHASE ASSURANCE

There need be no Premium loading to cover the Hang Gliding Risk. We have arranged Special terms for BHGA Members. Please outline your requirements.

CLUB LIABILITY POLICY

The BHGA Master Policy provides £500,000 Public Liability Cover for all Clubs, their Officers, Committee Members, Members, Wives, Girl-friends, Associate Members - and does meet all notified National Trust, Landowner and Local Authority requirements. That cover is valid throughout Europe.

NOTE NONE OF THE ABOVE COVERS THE TOWING OR MOTORISED HANG GLIDER RISK. QUOTATIONS FOR THOSE RISKS WILL HOWEVER BE GIVEN IF YOU WILL SEND DETAILS.

HOLIDAY COVER - INCLUDING THE HANG GLIDING RISK - DETAILS ON APPLICATION.

REGGIE SPOONER INSURANCE BROKER FOR THE BHGA, CLIFTON HOUSE, BATH RD., COWES, I.O.W. PO31 7RH.
TELEPHONE: (0983 292305)

*Brian Wood taking-off at Dales League
Photo Mark Junak*



*Jan Ketelaar at Dales League
Photo Mark Junak*



*Bob Harrison winner of Dales League
landing on spot
Photo Mark Junak*



WORLD HANG GLIDING CHAMPIONSHIPS, GRENOBLE, 1979

View of take-off on the far left from the north site.

Landing area on the right.

BY ROY HILL

PHOTOS BY DEREK AND JUDI EVANS



There was no doubt the team was tired before we started. They had only just returned from the Bishop Cross Country in America and the Bleriot Cup in France. It was going to be a problem raising morale to the point where they justified their position as odds-on favourites.

The journey to Grenoble was mostly an uneventful sixteen hours, although the one and a half hours spent in a tunnel outside Paris, shared with lorries belching fumes, a lorry full of stinking pigs, and the heaters going full blast as the vans were overheating, did little to ease the frayed nerves of our British team.

The team: Johnny Carr, Bob Calvert, Mick Maher, Keith Reynolds, Dave Garrison, Brian Wood, Graham Slater, Bob Bailey, Lester Cruse, Bob England, Geoff Snape, Trevor Birkbeck.

Team leader: Roy Hill.

Managers: Derek Evans and Chris Johnson.

The site was magnificent. There was 2,300 ft of almost sheer rock face from take-off to landing. Take-off itself was an ideal grassy bank, on a plateau half-way up the mountain in St Hilaire du Touvet. The landing area was a field on the valley floor, surrounded by fields of sweetcorn. Even a sled ride to the bottom was fairly impressive.

Launching was easy, for after clearing a line of trees about 100 ft below, you could float out over a sheer drop with 2,000 ft clearance to the village of Lumbin. The drive up was 10 kilometres of beautiful mountain roads with usual hairpin bends and tunnels — though once the competition had started the pilots went up via the steepest funicular railway in Europe and their gliders were transported by army lorry.

The team was accommodated in chalets — picturesque ski-ing type, which were well equipped and situated only half a mile from take-off. Our first job was to fly the site and gain experience. We certainly had good weather and plenty of opportunity of this before the main body of competitors arrived. These practice sessions are vital to any team and contribute enormously to its ultimate success or failure.

Training sessions were designed round likely tasks. They had been published in the regulations, so we had some idea of what to expect. They consisted of duration, deviation, set figures, mini cross countries, precision landings and cross countries in various combinations. We knew that cross-country tasks would be run whenever possible.

It was no fault of the organisers that this did not work out in practice. The thermal activity tended to be confined to the rock faces and the ridge, with very little usable lift over the valley. Cross country, therefore, meant down the ridge and back.

We ran five tasks in practice and it soon became obvious who was on form and would definitely make the team. The difficult part was deciding on the reserves; the lot fell to Trevor and Geoff. Johnny was clearly on form and heading the list at this stage. Trevor became very useful as a Judge on the landing field and was invited most nights to dine out with the organisers.

The teams started to arrive. One hundred and seventy-six pilots from 27 nations, ranging from Poland to Fiji. All the big names were there. The United States had a very strong team and this time looked as though they intended to win. They stole some of our Kossen ideas and seemed well organized with Bill Bennett, Team Leader and Keith Nicholls, Stirling Stoll, Chris Price, Tom Haddon, Mike Arambide, Joe Greblo, Rich Grigsby, Tom Peghiny,



Johnny Carr on his Cyclone at take-off



A unique picture of the two men to whom hang gliding owes so much — Bill Moyes and Bill Bennett.

etc. There was Steve Moyes for Australia, Gerard Thevenot, European and French Champion, Terry Delore, New Zealand, the reigning champ.

The opposition was strong and we were not psychologically prepared for it. However, some really good flying in the few days before the start proper had done a lot to improve things and it wasn't long before Johnny's sense of humour had raised team spirits to a reasonable level. "Who do you turn to? — Who do you go and see?" being his latest saying.

After the usual opening ceremony, in team uniforms (ours being grey trousers, navy jackets and white T-shirts) at the Alpes Congres and the inevitable team leaders meetings, we were off. The Norwegians wore Viking hats!

The organisation was excellent. Results were swiftly compiled by computers and there were very few grouses. The team was well supported by visitors from the U.K., which was a tremendous help. We started well, but the promised X C did not materialise and the tasks were "downers" based on deviation to pylon, duration and spot. The biggest opposition was the Atlas; we couldn't touch it for L/D and sink. Our pilots were beating the others on skill but unless they could show their handling and thermalling abilities we were going to be in trouble.

On the third day, Johnny Carr and Bob Calvert were lying 4th and 2nd, a X C task was set. It consisted of a race down the ridge with 4 turning point pylons. The furthest 6 k from take off. To score you had to get back to the landing field. The choice was the fastest time round 1 or more pylons, than anyone else in your group. Johnny went for 2. We were jubilant, he had more than anyone else in his group. It was short-lived — he'd gone the wrong side of the pylon! This cost him dear. From 4th he dropped to 63rd. Our fortunes waxed and waned with the tasks; glide angle, sink we dropped back; XC, thermal we crept up. After one week the competitors were chopped by half. We lost Brian Wood. He was just unlucky, he flew well and was geared up to the champs, but it didn't go his way. We were sorry to lose him but the rest of the team were through to the second round.

Task 13. Johnny right on form climbed back to 2nd, Bob Calvert 3rd, Ren 22nd, Dave G. 31st, Graham 32nd, Bob Bailey 43rd, Mick 47th, Bob England 10th Class 2, and Lester 12th.

The next big chop was to 20 pilots Class 1, and 10 Class 2 for the final. Only Johnny and Bob Calvert survived in Class 1 and Bob England Class 2. The USA team only got Joe Greblo through in Class 1 and Rex Miller, eventual winner of Class 2.

On the last day Johnny was leading. Bob C blew his last two tasks in an all-out attempt which pushed him back out of the medals.

One final task was scheduled to be run. The wind in the landing area was really strong and we were convinced the task would be abandoned but no! Johnny was put to the test. He had a lead of 100 points, Joseph Guggenmoos, Germany, was chasing him. The slightest error or variation in conditions would mean the difference between first and second. An outer on the spot decided it and we got a magnificent 2nd. Vive Japan and another chance at the title!

REFLECTIONS

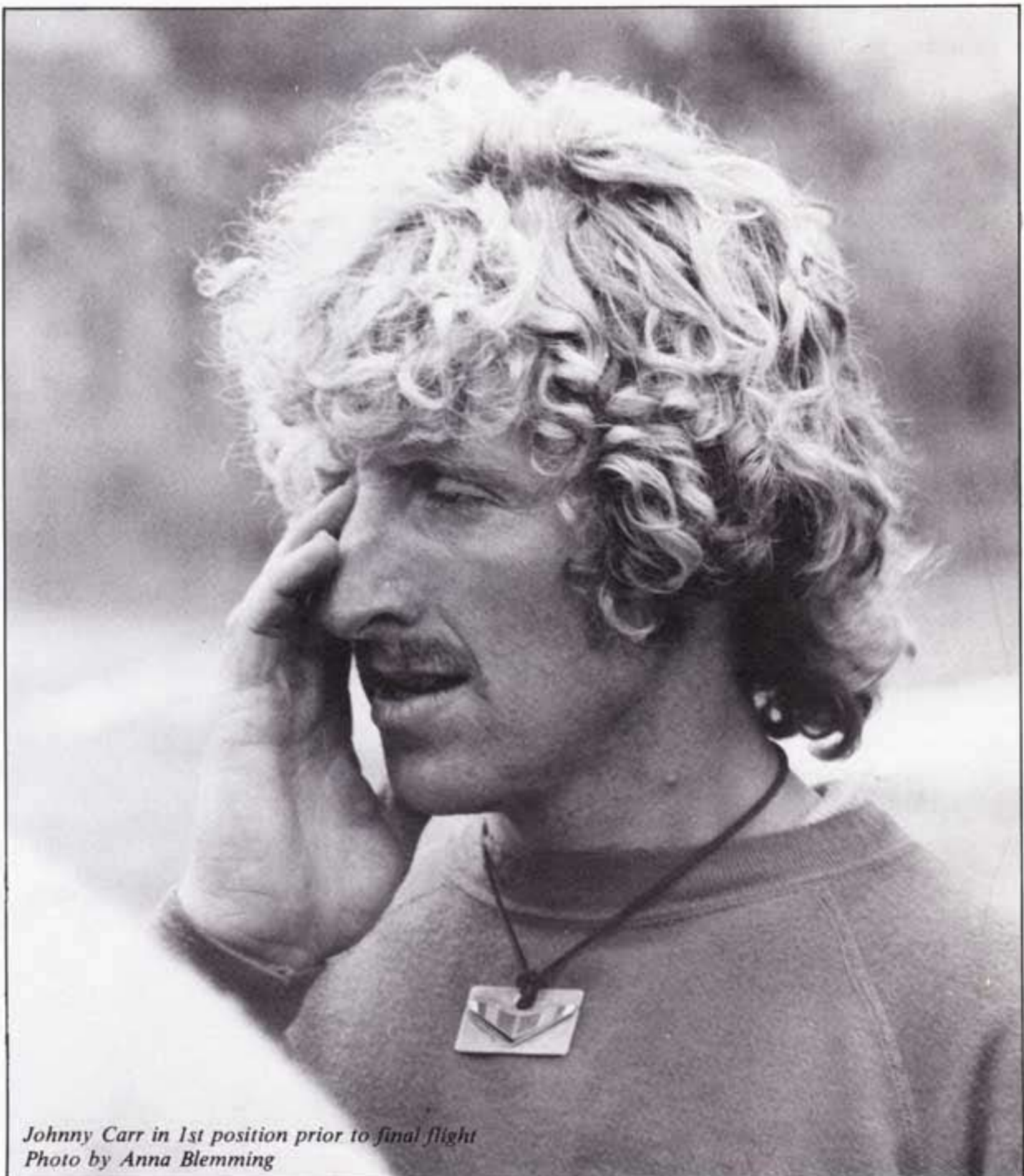
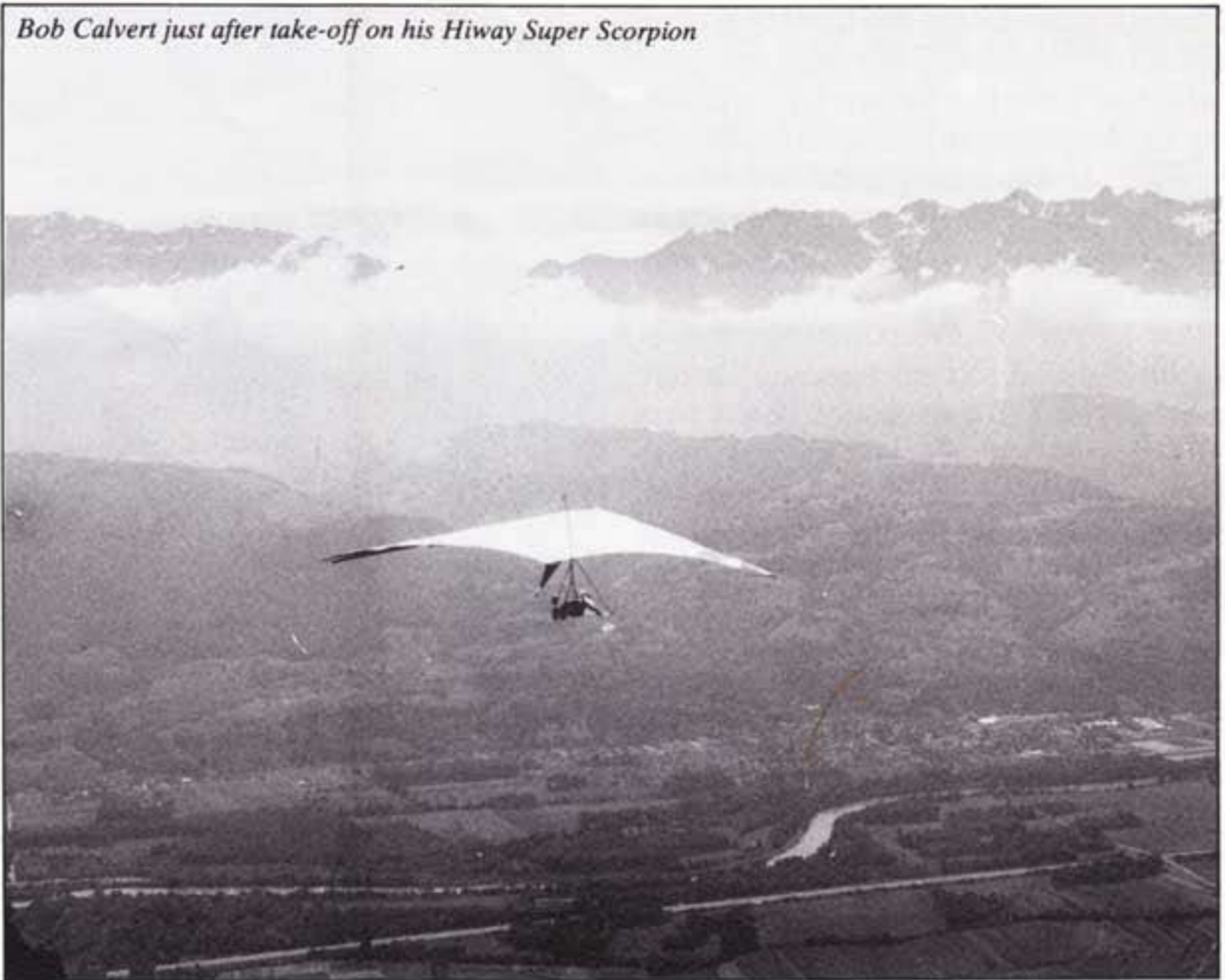
The Swiss Canard put in an appearance. I have only one thing to say — "I want one!"

I hope Chris and Alison "enjoyed" their honeymoon. They shared their chalet with Lester, Trevor, Geoff and Dave and various others who passed through in the night. Still, it will be more peaceful down in Wales.

Dual flights were £25 a go and there were plenty of takers. Chris took Louise Evans off. What a magnificent sight for your 2nd flight.

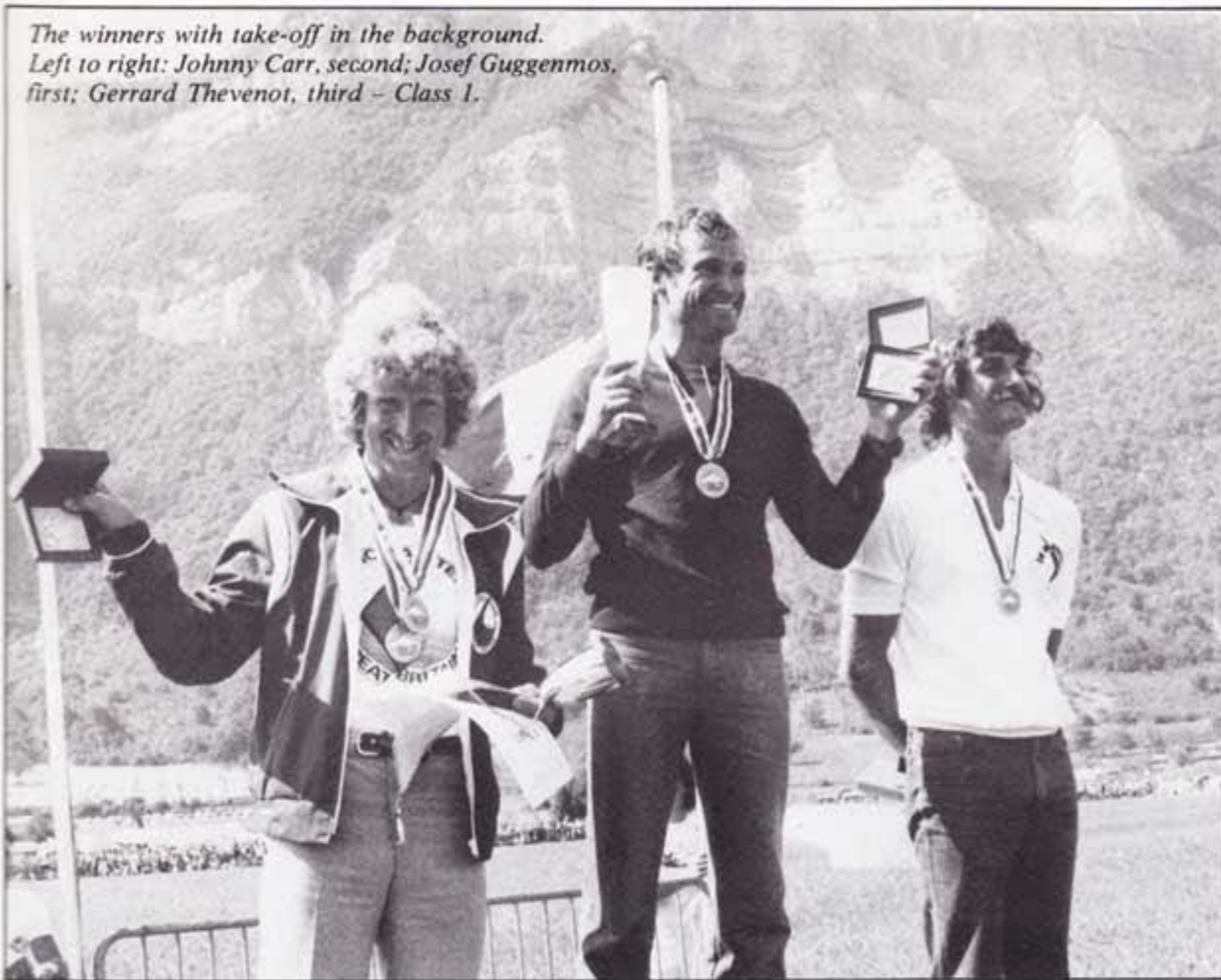
Derek sussed out an excellent restaurant for us — "Le Petite Nice", and did a really good frog impression to "The Patron", so that we ate frogs legs on two occasions. Dining-in night we invited our Colonial friends from the States, plus Anne Welch, Bill

Bob Calvert just after take-off on his Hiway Super Scorpion



*Johnny Carr in 1st position prior to final flight
Photo by Anna Blemming*

The winners with take-off in the background.
 Left to right: Johnny Carr, second; Josef Guggenmos,
 first; Gerrard Thevenot, third - Class 1.



Moyes, Irwin from Sweden, and Michel the Organiser. Bill Bennett will be remembered for starting the second war of independence with a well-aimed chip and Bettina Gray followed with a wet serviette. All hell was let loose for a few minutes till Rich Gribby's wife held up a white plate and called "truce".

Johnny had his 30th birthday party and at midnight it was Brian Woods' wife Fran's birthday. Celebrations went on till the small hours, about 80-100 people all crowded into the chalet from various teams, it was really great; all friends together.

Danis from France — demonstrating his powered flying ability 'through' the crowd, we were sure he was high on Pernod half the time.

Most teams including ours caught a local bug which left them speechless and with a sore throat — we called it multiple laryngitis.

Jerzy Wolf — a top Polish aerodynamicist, flew (seated) what looked like an oversized gryphon, but with a 60 square foot rudder. The glider proved unhandleable as Wolf terminated every flight by either sinking into the popcorn, hence the title "The Popcorn Kid" or crashing into the first aid tent.

The alternative take-off ramp, over 1,000 ft vertical drop — Ughhh!!! A full parachute deployment and "rapid" descent with glider.

All Team Members had identity passes, a "mug shot" to get up the funicular, the New Zealanders who called themselves the Brown Eye Boys had a different picture, of their "DERRIERES".

There was Bernard Gray, a Paris hairdresser, black hair streaked blonde, flying down with his tiny Yorkshire Terrier, Maybelline, in a special little harness and red goggles.

Lightweight American pilot, Joe Greblo, was obviously worried when a speed task was rumoured on take-off; however, when a duration was subsequently announced, he was seen frantically emptying sand and rocks from the parachute container on his harness.

Conclusions

A good championship, well organised, in which we did well. The tasks favoured L/D and sink. These were not our strongest points. On general flying skill there was nothing to touch us. We live and learn. Next time - Japan.

Results

Class 1 Team Placings

France 268373
 Germany 222395
 G.Brit. 214460
 Austria 208165
 U.S.A. 206259

Class 2 Team Placings

Switzerland 102512
 U.S.A. 63810
 Germany 61538
 Austria 50803
 G.Brit. 43807

Individual Class 1

1. Josef Guggenmos-Germany - Wings Scirocco
2. Johnny Carr-Gt.Brit. - Cyclone
3. Gerard Thevonot-France - Atlas
4. Heinz Doerler-Austria - Cyclone
5. Steve Moyes-Australia - Moyes Maxi
16. Bob Calvert-Gt.Brit. - Super Scorpion
18. Joe Greblo-U.S.A. - Seagull 10 metre

Individual Class 2

1. Rex Miller-U.S.A. - fledge
2. W. Hartle-Austria - fledge
3. H. Olchewsky-Germany - fledge

Johnny Carr and Josef Guggenmos (in sexy harness) two days before the final.

SNIPPETS FROM MANUFACTURERS

NEWS FROM MITCHELL WING

Mitchell Wing have produced their latest development. Their new concept is the Mitchell Super Wing, which is a powered system where the aircraft has been designed round the engine. The result is a super light, high performance sail plane which incorporates a 10 horsepower engine with an aircraft that is car toppable, or can be handled by one person on a trailer!

Their calculated performance figures show a top speed of 80 mph, stall speed 20 mph, a glide ratio of 29-1, minimum sink rate of 24 mph, maximum glide of 35 mph. All this in a 34 ft span with an empty weight of 145 lbs. The recommended take-off is 200 ft.

IAN GRAYLAND AND VULTURELITE

Ian Grayland wishes to make it clear that he has no longer any connection whatsoever in any form with Vulturelite.

SCOT-KITES CHANGE

With support from the Scottish Development Agency, Scot-Kites, have now moved into a new factory unit in East Kilbride, near Glasgow. Edinburgh flyer Paul Coppola is now a partner in the company, the name of which has been changed to 'Euro-Wing'.

During the past four years Scot-Kites has concentrated mainly on building and exporting Electra flyer gliders to Europe. However, increased production now means that a more active interest will be taken in British markets, and the Electra Flyer Dove and floater will be available shortly — British certification being currently undertaken.

A Catto powered rigid wing is under construction, and a static hydraulically driven tow winch is about to be completed.

The new address is as follows:-

Euro-Wing,
Unit 20,
Dixon Place,
College Milton North,
East Kilbride, G74 5JF.

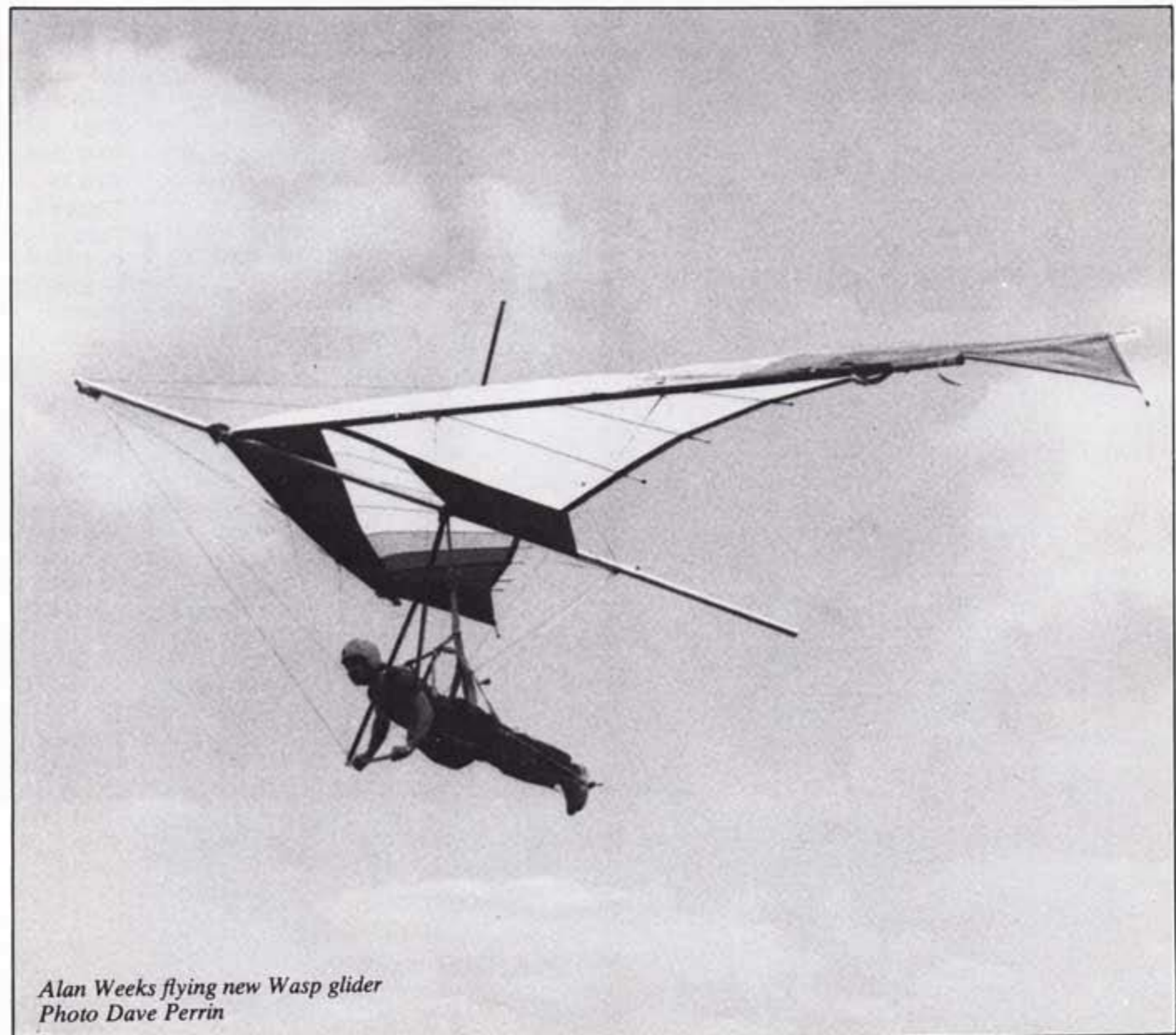
Telephone No. 035 52 46498

SOLAR WINGS LTD.

October heralds a new hang glider manufacturing company headed by designer Dave Raymond with Mark Southall and Cliff Ingram.

Full details of this new company, Solar Wings Ltd., and more information will appear in the next issue of *Wings!*

Mitchell Super Wing



*Alan Weeks flying new Wasp glider
Photo Dave Perrin*

FLIGHT REPORT AND ANALYSIS OF CONDITIONS

By Ivor John

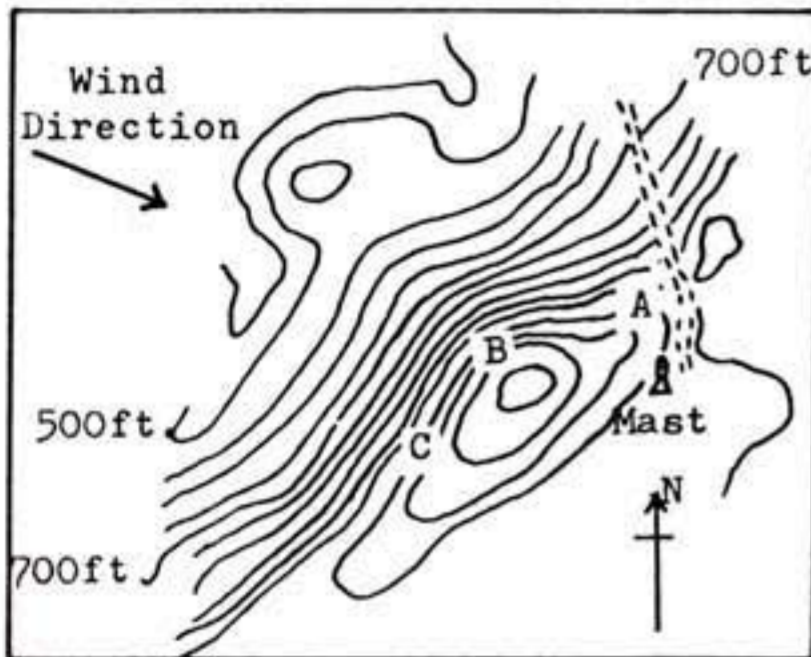


Fig. 1 Durriss Hill
(contours in 50 ft. intervals)

A DAY AT DURRIS

On 7th July this year, I enjoyed a rather special flight of about 40 minutes at Durriss, the site used regularly by the Aberdeen Club for NW winds. The hill is unimpressive to look at (by Scottish standards anyway!), 450 ft high, not particularly steep, but very good for learning with vast landing space at the bottom. There is a road on the east side of the hill leading up to the IBA transmitter mast on top, but walking across the top to the best take-off area is often more difficult than climbing up from the bottom.

There were four of us out on this particular day, and when we arrived at about 1100 hr the wind was light WNW'y (8-10 kt) just slightly off the hill, and the cumulus clouds indicated promising conditions as their vertical development seemed to be quite limited. With the sun shining, the hills are a delightful place to be even when you're as far north as this.

Bill Strachan did some top to bottom flights in his old standard and he was making good progress. I gave him a hand before giving it a try myself with the Safari. By the time I was ready, the wind had dropped to a dispiriting 5-8 kt, and being a bit reluctant to trek right across the hill, I had chosen to take-off from the easterly end at A, Fig. 1, and chance my luck at crabbing across the hill to get into the best lift, at B.

With the hill being so shallow at take-off, I found myself in prone and cruising out from the hill about 2 feet above the ground. There's something quite thrilling about zipping along very close to the ground — you know, the type of feeling you get when you manage to extend a flight to the limit by using 'ground effect' before landing. Anyway, I was moving steadily off to the left and, as expected, I was losing height, but not too badly. When I eventually got round the corner, I had precious little height to play with, maybe 50-60 ft, but I wasn't too optimistic about my chances of holding on. I found myself scraping along the best part of the hill (B-C), with short beats and flat turns. I must admit I've never been happy about scraping since I turned in a year ago, but I was pretty pleased with myself as I made slow progress upwards. (It's funny how many of the more memorable flights transpire out of seemingly hopeless positions).

Then, to my great relief, in comes my flight-saving

thermal — as if ordered for this timely arrival. Bar out, no room to 360 just yet, up we go, level with the top, then round and round. I lose this one shortly after, but I'm up soaring the better lift above the crest now. Soon, though, I'm off again, up and up in steady surges of good smooth lift. Within 10 minutes of take-off I'm bobbing about near the top of the transmitter mast. I don't have an altimeter, but the mast reaches 1,040 ft above the hill top so I'm not doing so badly.

The really unusual feature of the flight is the ease with which I am able to maintain this height, and in occasional thermals I get well above the mast, probably 1,500 ft ATO. For over half an hour I enjoy coasting around in delightfully even conditions. I'm now beginning to get really used to my newly acquired Safari, and flying it is very satisfying. After a quick scan over the back, I quickly dismiss going downwind as there is extensive woodland for a good few miles all round, and the coast is not too far away anyway. However, looking around I enjoy seeing Aberdeen and Stonehaven clearly to the east on the coast, and although visibility is not too good, I can see Banchory to the northwest and there's a rare panorama of the mountains to the west. I'm still amazed at how indistinct hills begin to look from high up — it's difficult to make out any edge to the top of Durriss.

After about 30 minutes, one or two heavy bumps hasten me to re-assess conditions. There are now quite a few showers out in front of me, and the clouds above me are suddenly getting a lot bigger. I assure myself that convection is getting to the 'over-development' stage and I consider going down. With this type of weather sequence it is quite usual for the larger, more ragged shower-type clouds to last for an hour or two, but then as the surface heating is cut off they gradually disperse to be replaced once again by nice friendly little cumuli. I'm confident that within an hour or two conditions should get good again, so I make my way down.

At this stage the lift was getting much stronger, and it was getting markedly bumpy. Even so, it hurts a little to be burning off all this well-worked altitude. I land at 1345 hr after about 40 mins feeling quietly elated and well-pleased with myself. I'm looking forward to another flight in an hour or two.

However, that was not to be. Only 5 minutes after I'd landed, Bill's parked kite unexpectedly turned over — as is often the case, the first sign of a wind change. With a SE'y now coming from over the hill I

begin to realise that a sea breeze front could be passing through. Looking upwards the speed at which clouds are developing now is frightening, a good indication of a sea breeze front. There are quite a few cumulonimbus clouds spaced along what I make out to be the front, lying NE-SW across the hill, parallel to the nearby coastline. It seems I'd been flying in the convergence zone ahead of the front; and I must have landed only minutes before it crossed the hill. (See last section). Within 10 minutes it began to rain fairly steadily under the passing front.

SEA BREEZES

Sea breezes are very common in coastal areas in the summer months, and although not noticed so often, sea breeze fronts can propagate inland from the coast. The sea breeze is initiated as the air over the land warms and starts to rise, Fig. 2 stage (i). Since more air moves above the level h_0-h_0 the local pressure at C is increased. The air over the sea is not warmed to the same extent so the increased pressure at C creates a pressure difference between C and D, and as a result, air moves from the area of high pressure, C to the relatively low pressure area at D, stage (ii).

With more air entering the vertical column above B, there is a sinking motion between D and B (iii), and as the pressure at B becomes greater than at A, a breeze blows onshore from B to A, (iv). The sea breeze circulation is set up simply by a difference in surface heating over the land and sea.

Sea breezes are likely to occur on any summer's day when there is plenty of sunshine and the 'normal' wind is not too strong. Cloudy skies will prevent the land from warming, and the wind exceeds about 15 kt the coastal air is disturbed too much for sea breezes to be set up. On the south coast of England, over 70 sea breezes occur each year between April and September. They usually start between 1000 hr and 1200 hr on fine days and are strongest in the early afternoon. The wind speed produced can reach 14-15 kt at this time, but it is likely to be gusty, and as the day goes on the direction gradually veers round so that by 1800 hr it blows along the coast, that is, coming from the right if you're looking out to sea. (This strange habit is due to the rotation of the earth — the Coriolis effect.) A surprising feature of sea breezes is that they occur far more often if high tide is near midday rather than in the morning or evening.

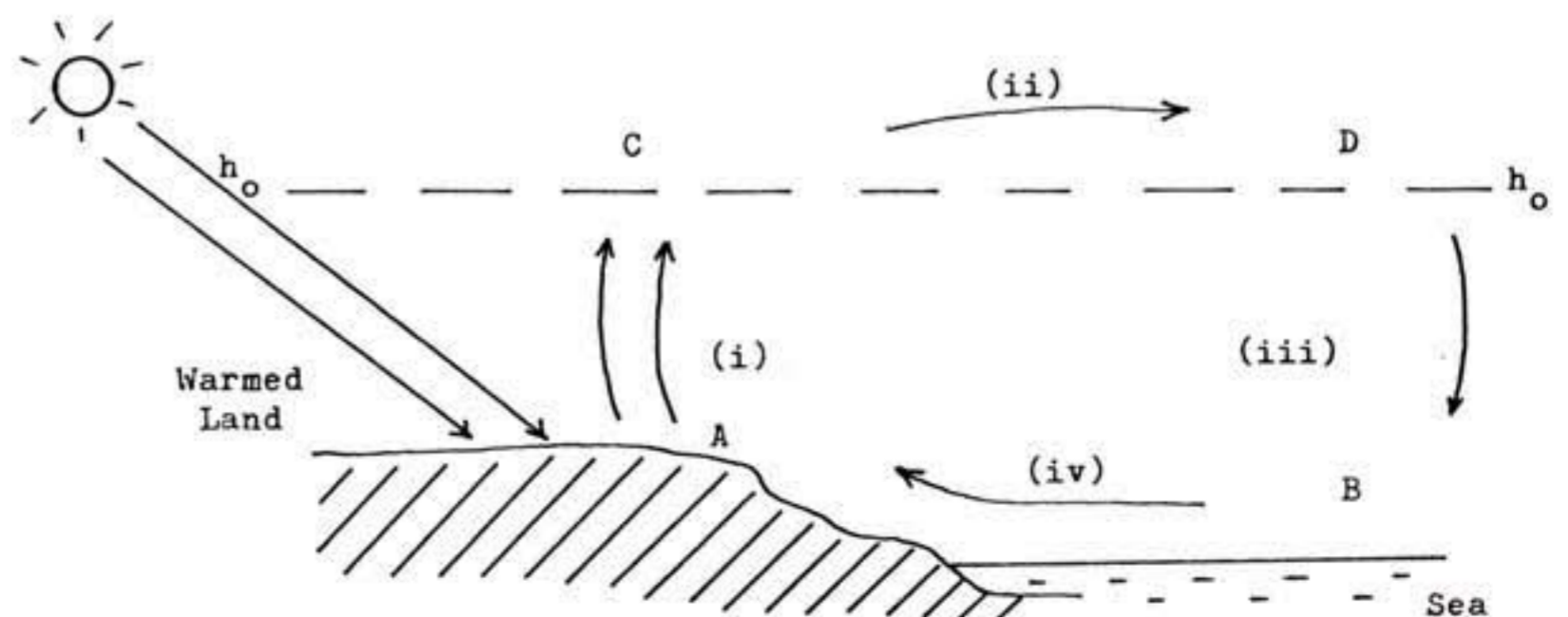


Fig. 2 The sea breeze circulation

SEA BREEZE FRONTS

From Fig. 2 it should be apparent that somewhere near the coastline there will be a boundary between the cool, moist sea air and the warmer, drier air inland. On the seaward side of this boundary, winds are determined by the sea breeze, but inland the winds are as they were previously. The boundary is often well-defined, and it is analogous to a front separating two different air masses. As such it is called the Sea Breeze Front (SBF), and just like a normal cold front it can progress forwards if conditions are right. Whether or not it moves inland depends on the temperature difference between the two air masses, and the speed and direction of the initial wind.

The sea breeze front is likely to move inland if the winds are onshore and less than about 5 kt, or whenever the wind is along the coast or blowing offshore with speeds up to about 15 kt. With light offshore winds, the frontal progress is slow over the first 20-30 km (about 1.5ms^{-1}), but further inland it may increase to $3-4\text{ms}^{-1}$. Once on its way it is possible for the SBF to reach as far as 100 km. Fig. 3 shows the progress of a typical SBF inland with a light offshore wind. If the offshore wind is about 15kt, sometimes the SBF gets held up and becomes stationary about 20 km inland. Onshore winds above about 5 kt tend to disrupt the boundary and a front as such does not form so easily.

The SBF can be thought of as a nose of cold air about 1,500 ft deep pushing under the warmer air as it moves inland. There is rising air ahead of the nose and the width of the rising band of air is about 1-2 km on average, but is considerably less at times. Maximum lift will be about 2ms^{-1} (400 ft/min) — again on the average — occurring between 1,000-2,000 ft just ahead of the nose. Swifts are known to chase insects swept up in the rising air, so if they are around they will give a good indication of where the lift band is. The boundary might also be marked by visibility differences between the hazy sea air and the clearer land air. As the front passes at the surface measurements of temperature, humidity, wind speed and direction all show abrupt changes.

SITUATION AT DURRIS, 7th JULY

On the day of the flight described above, the sea breeze front arrived at the hill (12 km from the coast) at precisely 1400 hr. (This agrees well with other observed SBF's). Fig. 4 is a WNW-ESE cross-section

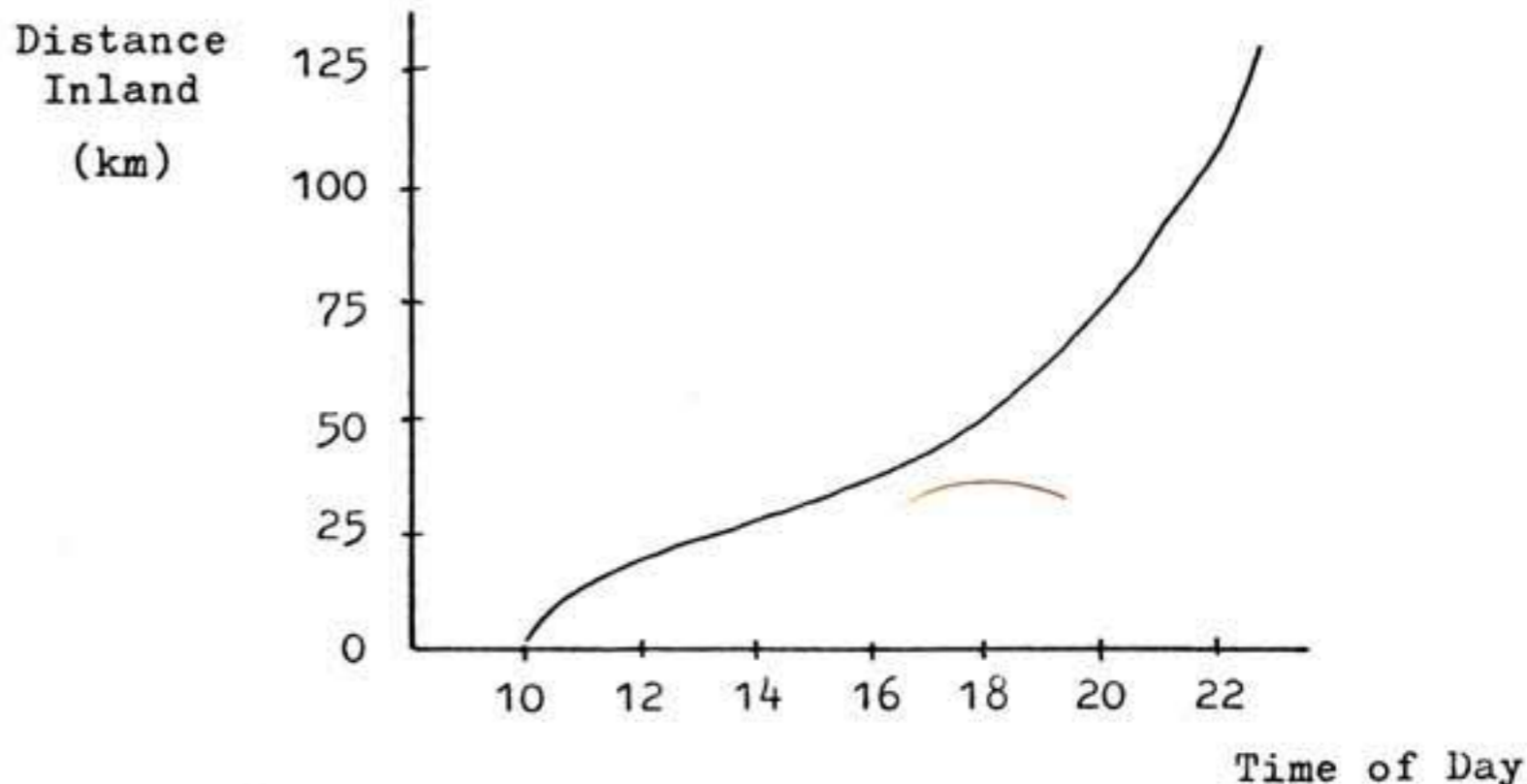


Fig. 3 Progress of a sea breeze front inland with offshore wind

of the site showing the open fetch upwind, and the gradual decrease in height to Stonehaven on the coast. The circulation pattern which was probably present during the flight is drawn in, with the SBF just behind the hill. It seems that it effectively acted as an upward extension to the ridge at this particular time, so the WNW'y wind was generating lift to heights in excess of 1,500 ft ATO. As the front got nearer, the stronger lift was probably due to the increased convergence nearer to the front.

As it turns out, the WNW'y airstream was fairly moist and unstable. The strong upcurrent formed by the convergence was causing rapid condensation and subsequent formation of cumulonimbus clouds. With these unfriendly customers around it is not surprising the turbulence began to increase later in the flight. Once formed, the cu-nimb's continued downwind to the coast in the offshore winds above, and on this occasion Aberdeen and Stonehaven got heavy rainfalls as a result.

Looking back at the conditions, I believe I was fortunate in deciding to come down when I did. It would have spoiled a beautiful flight if I'd been sucked up into the cu-nimb's and thrown out in bits and pieces after a record cross-country. With less moisture in the rising air and more stable conditions, such clouds would not form, and the more moderate

lift could be searched out in safety. But when towering cu's are developing so rapidly, it is wise to keep well away from them.

The other danger which I was not aware of at the time (not realising it was a sea breeze convergence zone) is one which was described in detail in *Glider Rider Vol 2, No 12 (Jan 1978)*. As the front progresses beyond the hill bringing in SE'y winds, the normal landing area (to the lee of the ridge now) could develop a rotor, especially if the hill is steep and the wind is strong. This proved fatal in the case mentioned above.

More often than not, features like this occur completely unexpectedly. They can present us with unprecedented flying experiences in almost perfect conditions, but a wary look-out is always recommended to avoid any pitfalls which might arise whenever unusual conditions do occur.

(Much of the technical information in this article is extracted from a detailed research study on sea breezes made by J.E. Simpson, D.A. Mansfield, and J.R. Milford, published in the *Quarterly Journal of the Royal Meteorological Society, Vol 103, p. 47*).

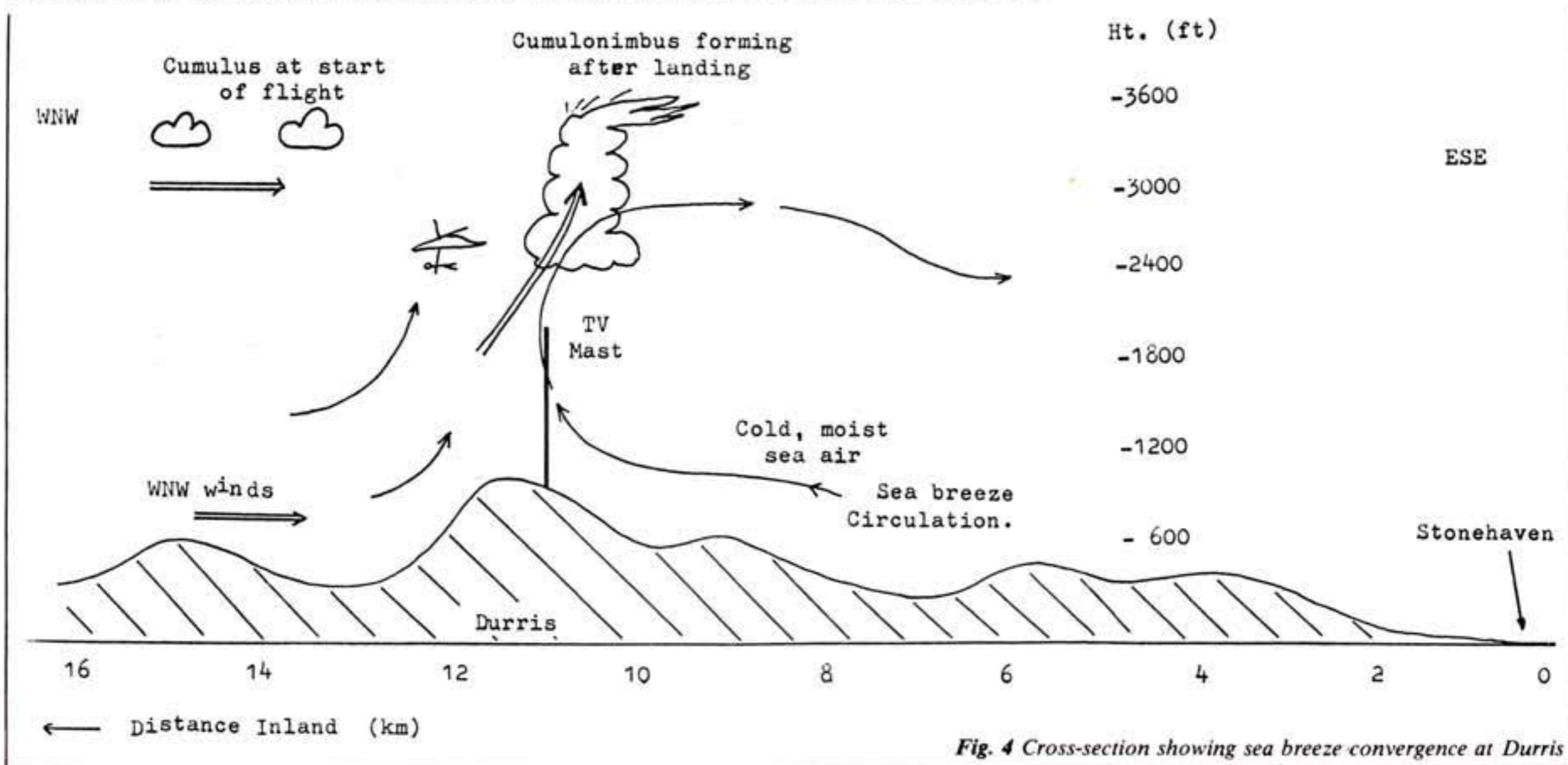
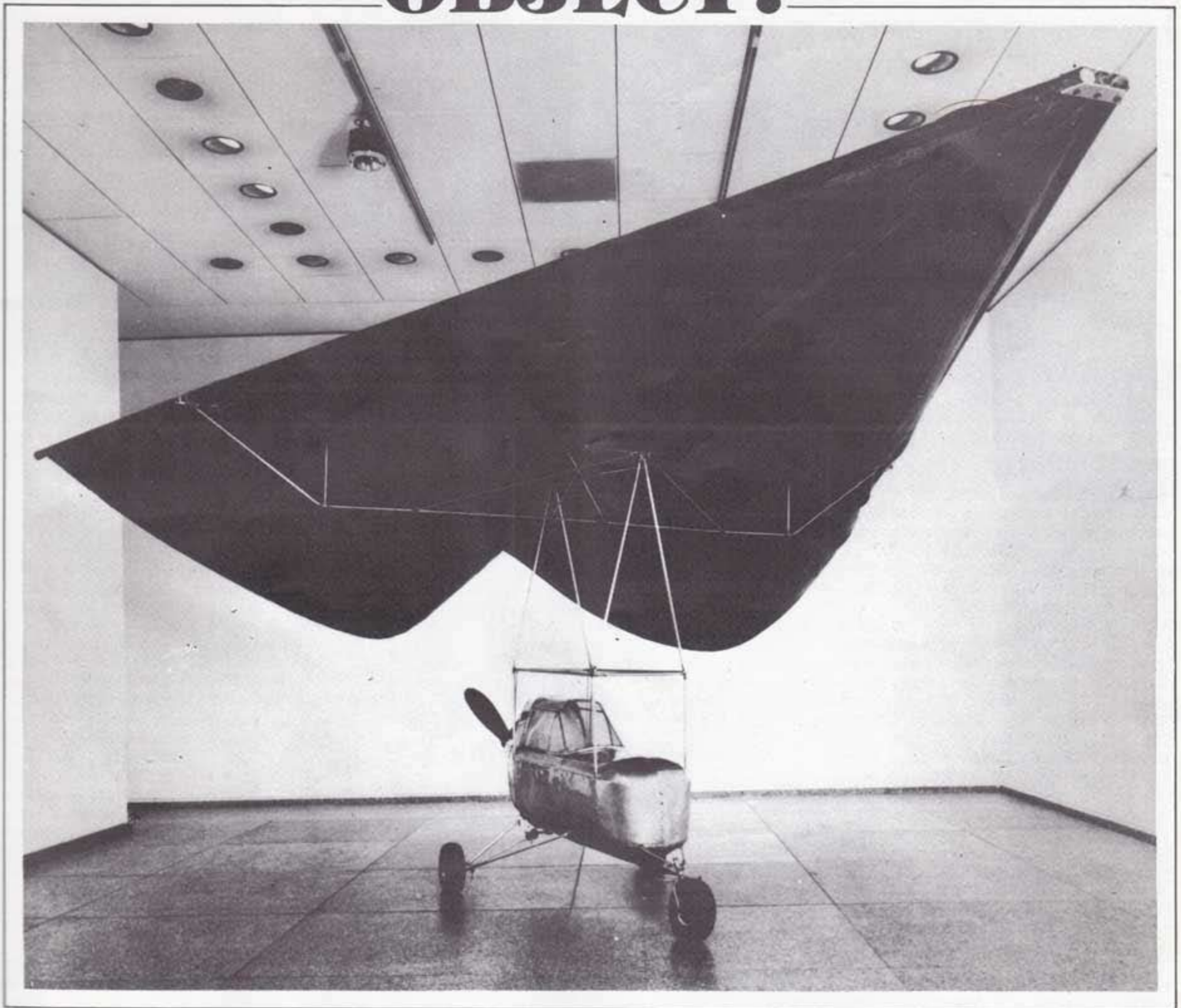


Fig. 4 Cross-section showing sea breeze convergence at Durriss

CAN YOU NAME THIS OBJECT?



This strange object, the lines of which might seem vaguely familiar, was sighted in the West Berlin Art Museum by Frank Wright. Frank, who lives at Warminster, Wilts, first saw the machine at the end of last year when it was part of a special exhibition to celebrate the museum's sixtieth anniversary.

Frank comments: "It would seem to me that the concept was quite advanced for the time (1971) and perhaps the main reason for its failure was the state of the art. Control was to have been effected via two levers in the cockpit, one for fore and aft and one for lateral control. These were attached to wires, some of which can be seen in the photograph. Two wires are attached to the keel, one in front of the crossboom and one behind, the idea being to try and rotate the wing around the crossboom presumably, although the cockpit levers are quite small, I would imagine that the mechanical advantage would have been insufficient to overcome aerodynamic load. In the same way, two other wires ran out to the crossboom on either side to give roll control.

It is perhaps as well that the project failed as the leading edges were attached to the crossboom by one, large twisted jubilee clip on each side. Had he ever become airborne, I suspect that his chance of landing safely may not have been all that great!"

Artist: Panamarenko, born 1940.
Exhibit: 'Thundercloud' 1971.

Flying apparatus of metal, rubberised fabric, plexiglass, wood and felt.

12ft. — 17ft. — 17ft.

Originally from the Wide White Space Gallery, Antwerp.

In 1971 Panamarenko conceived the idea of building 'Thundercloud', an enclosed flight cabin driven by a pusher propeller and supported on a framework underneath a rubberised sail after the fashion of NASA's Rogallo flexwing. This sail would inflate during the

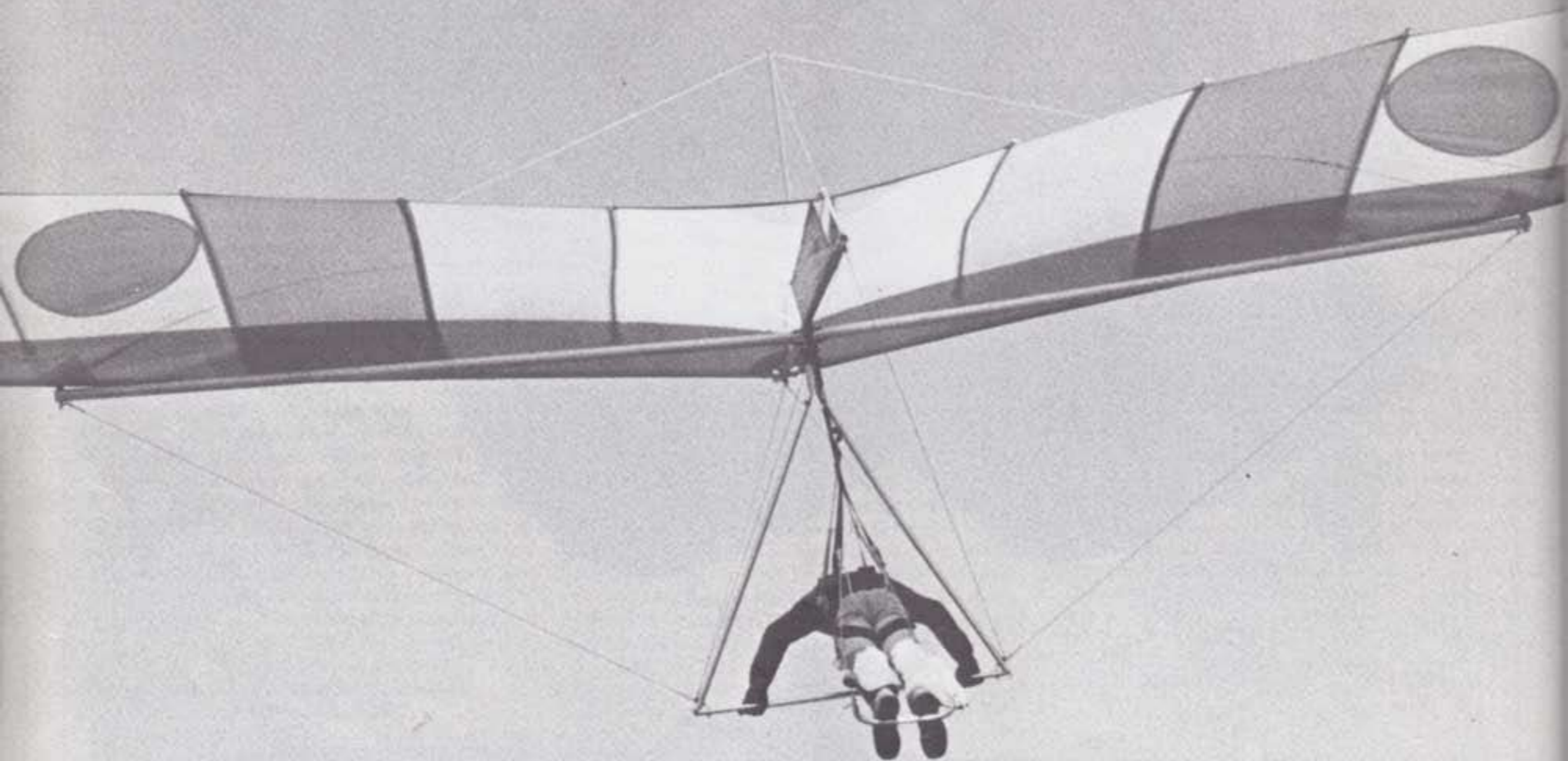
initial acceleration, so enabling the craft to become gently airborne from level ground.

There was never any doubt that the machine was intended to meet the requirements of flight performance, and this dedicated craftsman never allowed himself to say 'that will do'. Eventually he was satisfied, and the problem that now occupied him was whether the machine could match the poetical and technical idea. Did this fragile machine hold the key to man's mastery over his age-old, primitive dream; to control the craft from the weight suspended below — to fly? This idea is so credible when looking at the model, but the secrets of flight are not easily relinquished. The model exists, but to lay claim to the reality is another matter; for Panamarenko the realisation of these principles is still in the realms of fantasy.

EXPEDITION EX DRACHEN LOCKSMITH

BY JIM TAGGART

photo: J.B. McMenemy



Robin Pattenden away!



Ex Drachen Locksmith had its roots in the first International Triangular Competition between BRIFORGE HGC, the Trier HGC and the Dover Folkestone HGC. It was held between 30 Sept-1 Oct 78 at Trier on two high semi-mountain sites, one of which had a difficult take-off area.

The tasks included duration (min sink) and spot landing and it was evident that the standard of flying of the BRIFORGE contingent, though brave, was lower than the British or German pilots, who both had good sites close at hand on which to practise.

What we needed was more extensive flying experience but the opportunities for this was limited on our sites. Each pilot already attended as many weekend 'fly ins' as he could between his service duties; the most frequent wind speeds over the Westfalen landscape lie between 6 and 10 mph with calm conditions being almost as frequent, thus soaring is difficult if you are not already experienced at it; our sites do not face NW whence cometh the mighty thermals; the sites are mostly low with many obstructions on or before them, causing rotors and turbulence, the pattern of which alters as the wind speed rises.

To get the best from our sites you have to be a good pilot or you will have only short flights during which you can do little other than concentrate on a good take off and then set yourself up for a good landing in the prescribed landing area.

To fly safely, you need to know your own limitations and those of your glider. You also need to be able to look at a new site and assess its limitations without having flown it. All these require considerable flying experience, not merely a large number of launches but many flights lasting at least 10 minutes, during which you can relax and settle down to put into practice all those techniques you had read about and had been told about.

From a safety point of view the beginner generally isn't a problem; he knows he doesn't know much and will invariably try to do exactly what his instructor tells him. This is one reason for the good safety record of the hang gliding schools. It is the pilot who has been taught to fly, has bought a glider and is 'loose on the hill', who is the problem. He sees other pilots doing all sorts of advanced manoeuvres and unless he joins a club where they can channel his enthusiasm into a progressive learning or training scheme, he will take off and attempt to emulate them, discovering for himself the pitfalls found by others before him.

The BHGA Accident Investigation Officer, John Hunter, said in Committee in Jan 79:

"... (The recommendations (I have) made resulting from (the 10) fatal accidents investigated during 1978 (have) not been acted upon except for one.

For example (My) recommendation 'That clubs and schools should be encouraged to introduce a system of Intermediate Training' that has resulted from (my) investigation into the

death of John Humphreys."

The chairman of BHGA, Wing Commander (Ret'd) R. Spooner agreed that Council has a duty to act on the recommendations but had failed to do so.

Evidently, each club and its more experienced pilots have thrust upon them a duty to ensure that their less experienced pilots are taught properly and fly safely within their own limitations.

Being so far from UK and the considerable diversity of experience available there, we in BRIFORGE have an even greater responsibility to ensure that our members, who are spread throughout BAOR, get as much fresh information about HG as we can provide.

It was obvious that the only way we could get together for a suitable period of intensive flying regardless of wind would be to organise a proper Expedition in an area likely to provide good flying regardless of wind direction. Instructors would be needed and the Aim of the Expedition was obvious: to uprate BRIFORGE pilots from HGA Pilot 1 Certificate to Pilot 2.

This outline was put to the Dover Folkestone pilots before they left Trier. They were enthusiastic and suggested an area 150 km north of Marseilles which they had visited a short while previously.

A detailed plan was drawn up during Ex Keystone Oct 78 in accordance with Annex E to BAOR Standing Orders Part 11, Chap 4, Sect 2 and submitted to Lt Col. M.T.A. Lord,

REME, CREME 2 Armd Div. He approved it and agreed to sponsor the Expedition.

Everything proceeded from that moment . . .

"And 15 of them turn me on", says SAC Frank Tamblin of RAF Gutersloh'. Within a day of the start of Exercise Drachen Locksmith 79, the term '360' started to appear in the most unlikely phrases and sentences.

To the casual non-hang gliding observer, the jargon and frequent peals of laughter would have appeared nonsensical and puzzling. To the 10 students and 4 instructors gathered in the Hautes Alpes 150 Km north of Marseilles to uprate themselves from BHGA Pilot 1 Certificate to Pilot 2, they were part and parcel of the stuff of the best sport yet produced by man's ingenuity.

The first day's flying near Gap by the instructors, saw them flying at the prime site in circuit with the local gliding club's sailplanes and at times 500 ft above them.

The last day's flying saw student Frank Tamblin pirouetting and doing wing overs in concert with another of these sailplanes. When the sailplane did 2 consecutive loops, Frank quite sensibly just grinned and shook his head at the other pilot! After 15 mins of this aerial ballet, the sailplane courteously waggled his wings in slow salute and returned to his home base, bearing with him an observer who had been gaily waving to Frank and to the four envious pilots who had been watching and frantically photographing the event from the ridge top,

unable to fly themselves because of the severe turbulence at the take-off point.

Between these 2 events, high spots of the Expedition, all Students, 5 Army and 5 RAF put in a lot of hard work trying to get all 11 tasks for the Pilot 2 rating signed off in the 8 flyable days. The instructors worked equally hard forcing the students to concentrate on them and not just enjoy themselves with flights having no aim in mind.

From the UK, to observe and sign off tasks, were Detective Inspector Ted Battersea, detached from the Kent Police to the Army for the Expedition; Robin Pattenden, a GPO Computer System Supervisor and Peter Cook, all members of the Dover Folkestone Hang Gliding Club; and Commander Mike Collis MBE RN from HM Dockyard, Portsmouth, making it a Tri-Service Expedition.

As the BHGA Pilot Certificate Scheme has recently been amended, the instructors and the Expedition Organiser, Capt. Jim Taggart, took the opportunity to complete the 2 extra tasks required of the veteran holders of the old 'Pilot Badge' and sign off several Pilot 3 tasks, too.

One of the students' Pilot 2 tasks requires 6 top landings, but the Mistral blew up at the end of the first week and put a stop to the sort of smooth wind needed to do that manoeuvre safely. Because Frank Tamblin had done top landing before in Cornwall, he was the only student to completely qualify for his Pilot 2 Certificate. CPL Mick Appleby, also of RAF Gutersloh, now only needs this top landing task to qualify and so, straight after the Expedition ended, he took off for the French coast for a fortnight's holiday, just to try to get them in. His long suffering wife Chris said "But you've just done a fortnight's flying. You'll find me on the beach!"

On the third day of the Expedition, Mick and Lt. Dick Trickey, a helicopter pilot with 3 Regt. AAC, took off from the 4000 ft Montagne de Chabrey and, using the ridge lift and thermals, gained 2000 ft above take-off and together headed off over the top of the ridge to land 9½ Km downwind near Montrond. They were really cock-a-hoop at their achievement and the local paper, "Le Dauphine Libre", published an account and photograph of it the next day.

The FAI, the controlling body of world aviation, award the FAI Delta Bronze, Silver and Gold Badges, based on tasks similar to those set the sailplane pilots. For instance, the Delta Silver requires a flight of 5 hours duration, a height gain of 1000 metres and a point to point flight of 50 Km. Eight of us qualified for the Delta Bronze and, had they carried barographs, the hang gliding 'Black Box', Robin Pattenden and Peter Cook could have cracked the first 2 Delta Silver tasks when they encountered wave or convergence lift which carried them up an estimated 3,500 ft above the ridge. Said Robin, "It was utterly fantastic; the 4,000 ft Chabrey ridge just seemed to be at the same level as

Ted Battersea of Dover & Folkestone Club tells Frank Tamblin about cliff launching photo: J.B. McMenemy



the landing field and we could even see over the mountains of the Hautes Alpes to the snow-capped peaks of far away Switzerland. We were both glad of the other's company because we talked to each other and bolstered our confidence; it's really quite frightening being that high, with just a few square metres of Dacron sail cloth, some aluminium tubes and steel wire being your only support".

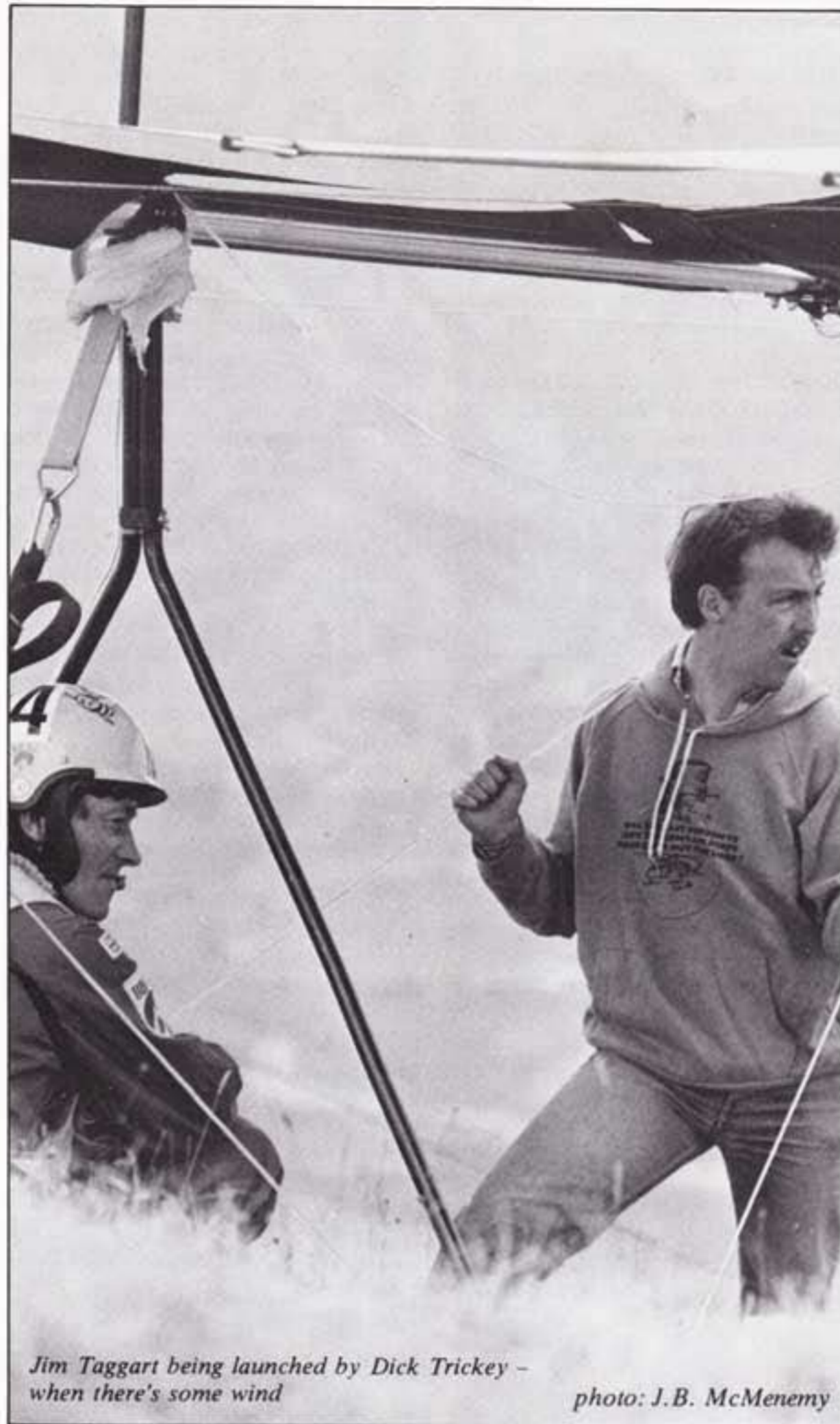
CPLs Dave Blinkhorn and Chris Perkins, both of RAF Bruggen, had varying luck. Dave had problems getting his Hustler tuned to fly properly but 4 days testing, theorising and drilling his machine in strategic places solved the problems, taught us all a thing or two about glider design and tuning and got him soaring with everyone else.

Chris Perkins demonstrated his excellent flying ability and potential during the first 3 days, then during a rest period an unruly gust of wind flung his glider and the 150 lb of rocks holding it down into the air, damaging a leading edge. Even the resources of a local hang gliding manufacturer could not help so Chris was earthbound for the rest of the Expedition. However, he expressed his talents as a valuable ground crew; 'flying' the Rover the hour-long journey up and down the mountain and being the photographer for us all.

Flt.Lt. Al Boulden of RAF Gutersloh only managed 3 flying days before duty recalled him (and this despite his being the RAF Contingent's leader). Even so, he showed the way with the accuracy of his landings, natural in a helicopter pilot you might say, getting 5 spot landings. He also logged 1½ hours flying time and got the best of the thermal activity we had during the whole 2 weeks, using them to get up and over the Chabrey ridge to land on its far side.

On Day 3, the organiser allowed himself to be persuaded to let the camp run itself and fly a glider new to him, from a site off the top of a fearsome looking mountain. Knowing that the students had already flown from there earlier in the day, he put on his bravest face, his brown corduroy slacks and bicycle clips. He tightened his helmet straps to quiet his chattering teeth, gave a quick grin and was off. And he stayed there, floating around the ridge and radio mast seeing every one else off. They all kindly buzzed off, leaving the air space totally to him; a memorable, thrilling experience. Seven 360s, 2 wing overs, 6 Km and 55 mins later he stepped to earth, grinning from 'ere to 'ere, quite willing to pay the 4 franc Ausladung fine which proved he was, after all, only human. The gilt on the lily was the cup of tea and biscuits provided by a holidaying Madame and her husband, civilised behaviour indeed!

Pte. Shaun Dean of 1 DWR only got his Pilot 1 Certificate in Jan 79 on a course in UK organised by Cpl. John Cockshott. After some days taking off the training slopes Shaun moved to the high mountain take-offs. On the 20 April he made his first flight off a 1200 metre, sheer mountain site, soared for



Jim Taggart being launched by Dick Trickey - when there's some wind

photo: J.B. McMenemy

Too turbulent to fly so a theory lesson from Ted towards the pilot 2 written exam

Photo: D. J. Taggart

Clockwise from Ted Battersea standing: Robin Pattenden, Peter Cook, Dave Taylor, James McMenemy, Mick Appleby, Shaun Dean, Dick Trickey (by landrover), Mal Lumsden, Frank Tamblyn (Phoenix Hat), Chris Perkins, Dave Blinkhorn



the first time for ½ hour, flew in company with other gliders for the first time and executed his first 360. He completed this excellent and exciting flight with a good landing and said "That were bloody marvellous".

SGT. Mal Lumsden took delivery of his new Vortex 120 in France and started his hang gliding career there and then! The training slopes were not particularly suitable, being covered in a form of heather and subject to very odd gusts of wind from most peculiar directions. However, he did fairly well on the relatively few occasions he was able to fly. All he needs now is some more experience on cleaner slopes and a little cash to repair the damage to his glider, sustained when a tree leapt into his flight path.

Enough of these high-flying egotistical males: who provided them with hot meals, hot water, food on the hills, ground crews, photographic, medical, recording, timing, radio contact, driving and creche services? Who also listened patiently whilst they raved on about their flying?

As always, it was the ladies of the Expedition: Rita Taggart, Paula Trickey, Chris Appleby and Jane Creasey of Enger School, Herford. Two of them now want to fly too but whether it's just a sneaky way of getting out of the washing up we're not sure!

Seriously though, had it not been for their solid support, the hang gliding activities would have been severely curtailed and the men did show their appreciation when they presented the ladies with mementoes in the form of porcelain birds, during the last night's farewell dinner.

CONCLUSIONS

We now have in BRIFORGE, four members with BHGA Pilot 2 Certificates, three with just two tasks to complete and four more within easy reach of Pilot 2. With just twenty members having their own gliders, this is an excellent ratio and augurs well for the future of BRIFORGE and for newcomers to it.

Thus the question to be asked now is, why don't we have a BRIFORGE member in the UK Team. It is possible: there are two easily discernible people who have the necessary competitive spirit and competence to get into the League. The problems include getting sufficient leave, transport and funds to firstly qualify for the League entry and then to get to every one of the nine League Competitions from which the UK Team is chosen.

It is a long haul and would need to be planned, funded and supported for some two years, the third year seeing our member in the UK Team.

What we cannot do — the question has already been asked — is to get a BAOR Services Team to the World Championship, we can only take part within the UK Team. However, Ann Welch has said that a place could be 'reserved' in the Team for a Services member who demonstrated that he was worthy of the position.

TOWING

Dear Jeannie,

I believe that towing rather than power is the way to go for those enthusiasts who don't have any suitable hills. The recent tow meet in Norfolk demonstrated the quite dramatic improvements in the available equipment. Congratulations to Brian Wood, who recorded what we think was the first cross country achieved from a tow launch. Brian only managed about 5 miles in the indifferent conditions but it proved conclusively that the potential is there. Towing has a great future and could revolutionise many aspects of the sport.

But as with most things it is not perfect and should be approached in a professional manner. It is vital that towed launches are done proven equipment and with experienced advice. One thing that was being done wrongly and was setting a bad example was the early releases of the upper line at far too low an altitude. This was done in an attempt to gain maximum height. The glider assumes an angle of around 45° to horizontal on release of the top line. At anything less than 150ft/200ft a malfunction of the tow vehicle, winch, line or glider release would leave insufficient room for recovery not to mention the dreaded "lock out". Any potential tow competition organisers will have to think hard on this one because a competitive pilot will be cutting the safety margins dramatically with this manoeuvre.

Congratulations to the people who have put so much work into the development of towing in the UK and to Brian for showing us the way.

Ken Messenger
Marlborough

CRITICISM OF TOW MEET

Dear Editor,

Having recently attended a hang gliding-towing demonstration at a Norfolk airfield, I was perturbed, to say the least, at the apparent lack of safety consciousness.

Among the more blatant contraventions of basic airmanship were:-

Attempted starting of powered hang glider engine, with persons (children) in dangerous proximity to the propeller. Propellers can, and of course do, kill.

A 'pilot' demonstrating his rigid wing powered machine with a series of low level manoeuvres directly overhead of a crowd of spectators. This really is very dangerous, and not fair on the spectator, who may well be unaware of the dangers involved.

This is not intended as blunt criticism, for that would serve no purpose, but to ask pilots in this sort of situation to make a real effort to think safety, particularly where non-participating members of the public are present.

Mrs. D.G. James,
Boston,
Lincs.

CRITICISM OF FILM

Dear Editor,

Having watched fifty minutes of Mike Harker in 'The Hang Glider Man' on BBC on August 23rd, I would like to say how angry I was after seeing it.

Although some of the flying sequences were beautiful to watch, the main impression one got was that of nausea, seeing a so-called expert use such a slapdash approach to flying. At least 90 per cent of the shots showed that no protection was worn on the feet or the head by the pilots. Also, I have never seen so many bad, and in one case a near fatal, take-offs and shoddy landings.

The training methods of Mr. Harker's flying school left much to be desired. I am glad I am doing my training at a good school. Both my wife

and I are mid-way to Pilot One and we look up to experienced pilots for guidance and advice. There are many others like us and this was not a good example of hang gliding at its best.

I must say that although Mr. Harker gave British pilots a big dig, every pilot I have met in this country has been professionally minded and has not taken silly chances. The Americans may fly haphazardly, but let's not make the same mistakes.

A. Abberley
Oxford.

Editor's comment: The film in question was made in 1975 and, like other hang gliding films of similar age, does not reflect the standards of the sport today. Efforts are being made to persuade television companies to show more up-to-date films.

AIRMAIL



WANTED — HANG GLIDING MARJORIE PROOPS

Dear Jeannie,

I am writing to suggest a question and answer column. From time to time, people have ideas or problems which they would like to have resolved. You might say try your local club. This is the first step but sometimes advice is conflicting and if it is a design query, there may be no designers locally to supply the answer.

It seems to me there might have been some comments about the interesting letter proposing tapering leading edges, sprung deflexors and bottom rigging, elastic sail material etc.

If a charge was made for the service,

no-one would lose by it and it could help spread knowledge and get people out of difficulties.

First question: The L-shaped type of nose pin which is used to secure the bottom rigging to the front of gliders and which is secured to the nose plate with a spring, washer and split pin, has come apart on two gliders recently in this area. The split pin has failed on each occasion and the nose pin is then free to slide out. Is there a fail-safe solution to this problem?

G.L.M. Jones
Bramhope,
Leeds.

Editor's comment: You have your first question. How about someone providing an answer (and more questions) for a free information column?

LACK OF FRIENDSHIP

Dear Madam,

A few quotes from your previous issues concerning the Dover and Folkestone Hang Gliding Club. "There exists a friendship on the Dover and Folkestone Club which ensures that flying is always enjoyable." - or - "You'll be welcome to come and fly with the Dover and Folkestone, just give Ted Battersea a ring beforehand and let him know you are coming." (*Wings!* September 1978). "Visitors are extremely welcome . . ." - "both visitors and club members and any pilots wishing to use the sites should contact Phil Hart." (*Wings!* No.6, 1979).

I arrived at their Crete Road Site on Sunday, August 12th (having tried unsuccessfully to contact either Ted Battersea or Phil Hart on Friday, Saturday and Sunday), to find about five other flyers there. By the time I had my glider rigged they were all in the bottom landing field, so I took off, soared the ridge for about 15 minutes and landed on top.

Shortly afterwards, a club officer told me that visitors were not allowed and I was not to fly again. I showed him the articles in *Wings!* - which totally contradicted his statement, but he insisted that no visitors were allowed at that site, although I could fly at the Warren (A SE cliff in a SW wind - great!). As there were only five other gliders there, none of them attempting to soar the ridges, I was not interfering with their flying in any way. I find this person's attitude selfish and shortsighted, and in fact just the type of person hang gliding can do without.

Having driven down from near Canterbury (about 40 miles) for one (illegal) flight, I was a bit fed up with the friendship of the Dover and Folkestone Hang Gliding Club!

Paul Henry,
Berkhamsted,
Herts.

Editor's comment: Unfortunately Crete Road West is a particularly sensitive site at present and current flying has to be restricted to club members only because of insurance reasons and stipulations of land agents. BHGA members are always welcome to fly all other club sites in the area, but are requested to telephone beforehand.

It was unusual on the weekend in question that none of the club officials could be contacted - they were in France for the Briforge expedition. Their lack of availability was a rarity.

IDEAS FOR INVERTED GLIDERS

Dear Editor,

I have read with considerable interest in various magazines, including *Wings!* what normally happens to an inverted kite: the results are almost invariably fatal and this manoeuvre is definitely not recommended.

Nevertheless, and especially here in the tropics, we fly in constant fear of the big thermal which could turn the kite over through a whip stall or a wing up or whatever.

I am not an engineer and I probably talk a lot of nonsense, but it seems to me that if the bottom rigging was duplicated at the top, the kite might not fold up: in other words, why can't the kingpost be substituted by a 'king frame' (another A fram)? Also, to avoid the pilot falling into the sail, couldn't the present flexible straps holding the harness be substituted by a rigid tubular pendulum which still allows weight shifting in all directions? With built-in reflexes the kite would then right itself under any circumstances and what the pilot has to do is to hang on for dear life.

G. Campori,
P.O. Box 14051,
Nairobi.

TOWING IDEA FROM HOLLAND

Dear Editor,

There has been a lot of writing in *Wings!* about tow launching. Though living in flat Holland, most of our pilots are only remotely interested, since tow launching has been officially prohibited above fifty metres - any hang gliding is forbidden above a hundred metres. This is mostly because the people who make air laws are mainly airplane pilots, and they doubt the aerodynamic stability of our kites. And, in fact, we cannot yet say bluntly they are mistaken.

Still, I have some hope that one day we will tow launch happily in this country - if, before that day, no volcanic eruption will create a hill of several hundreds of metres in one of our polders. Until either of these, we will soar our twenty-metre dunes.

As you see, any creative ideas of mine on tow launching aren't worth trying out at fifty metres. But maybe one of your readers may give his opinion on the following.

The two main risk factors in tow launching are lock out and too high angle of attack. Against lock out, as far as I know, nobody has developed any alternative towing system except trying existing methods and concluding that lock out happened more or less often.

To fix the maximum angle of attack, most commonly, a two- or three-point bridle is used. In *Wings!* No.6 Paul Baker states the three-point bridle would mean risks regarding pitch and yaw stability. (Page 30). He hangs on to the two-point system and states this enables control of pitch near the ground. I find this doubtful, and I will explain why.

The top leg of the bridle, fixed at the top of the control frame, may be seen as the main towing line since its attachment point is quite exactly also the centre of drag and lift. So all we need further is a security on pitch stability that does not negatively affect yaw stability. . . The bottom leg of the V-bridge is considered to fit this means.

I think it does not. It fixes the *minimum* angle of attack all right - but it does not prohibit a pilot to push out, slacken the bottom line, and stall - or break his kite due to overloading. On the other hand, as long as the bottom line is tense, it will *favour lock out*. Given a deviation from the towing path, a tensed bottom line will pull the control bar closer to the towing path while you would want it on the other side, to correct the deviation.

For pitch as well as yaw stability a second line on the king post seems aerodynamically all right - only I don't like the idea of what happens if its release fails, or the line gets stuck in the wires . . . Wouldn't get high either. Next comes my suggestion, which I hope will be criticized or accepted thoughtfully - I expect it to be rejected because it seems so simple.

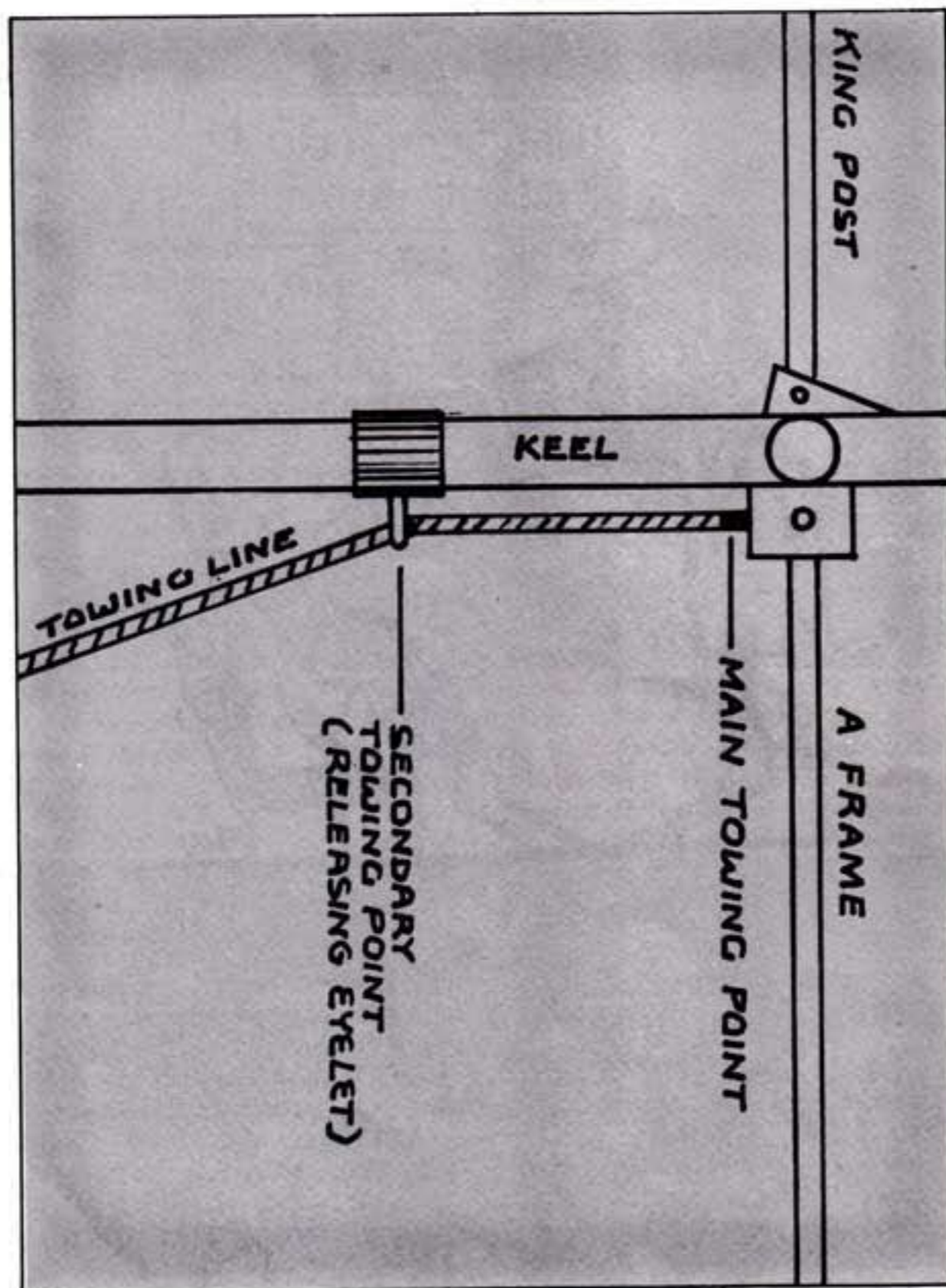
Let's stick to the main towing point at the top of the control frame. My only towing experience until now taught that, at the top of the line, just this attachment enabled easy control of the kite, even when the boat turned a wide 180°.

I suggest to make a second attachment, which may be just a releasable eyelet that the one bridle line runs through, on the forward part of the keel, at a point preferably worked out by some hang gliding mathematician. For an idea, let's say twenty centimetres (eight inch) in front of the top of the control frame.

This point, which would be the main towing point until released at a towing line angle of say 40°, would need a severe pushing action by the pilot to climb, while it would be impossible for him to stall or overload. Besides, being well in front of the centre of drag, it will secure him pretty well against lock out. Above a certain height, it may be released to climb the full length of the line, towed by the top of the control frame, as maniable as with any other bridle system.

Dear towing experts, please explain to me why this idea won't work; or either use it and refer to it as the Bart Bridle . . . Thank you.

Bart Doets,
Van Hoornstraat 17,
Hilversum, Holland.



RESPONSIBILITY — A dirty word?

Dear Editor,
A number of incidents in our hang gliding activities has recently brought home to me a very disturbing attitude amongst many pilots of recognised experience and ability.

If a child is seen to be wandering about with a loaded Colt .45, anyone with commonsense would ensure that the two parted company, using any means necessary. Not that the gun in itself is any more dangerous than the child. The gun is dangerous because it is possessed by the inexperienced.

In the same way, hang gliders can fall

into the hands of the inexperienced, who attempt to copy the experienced. I'm not talking about experimental work carried out by competent people, following a carefully planned programme, resulting in safe equipment and proven methods.

If a competent pilot observes an individual attempting a flight operation, whether on the hill, towing, power or anything else, which is obviously suspect by reason of the pilot's ability, unsuitable equipment, method or general conditions, what should the pilot of 'recognised ability' do about it, if anything?

Well it seems, if the mass populace are correct, that one should complacently and quietly ignore this potential accident and hope that someone else will offer advice, or if you are really forced to interrupt your valuable flying time, go and advise him yourself at the risk of being told to 'go away'. But if he doesn't heed the advice then what the heck, its a free world, there is nothing else you can do about it. He can kill himself if he wants to, responsibility has been absolved by telling him and any further action would be a violation of the individual's freedom. Don't want to be a spoilsport, do we? We're all mates together. Could make yourself unpopular.

Idealistic drivell. Remember the child with the gun.

So what if the accident happens? You suspected it might, maybe you told him but he did it wrong anyway, and as a result the worst has happened. I'm sure the relatives of the dead pilot will be deeply grateful for the action you took.

The question of responsibility is apparently a difficult one. However, in my view it is quite clear, that if the situation arises and that you can see the probable outcome to be an accident, it is your responsibility and moral duty to stop it by any means necessary, even by incapacitating him or his equipment. If you don't, and you knew the probable outcome, because of your superior knowledge, then by God it's your fault. The child had shot himself.

Ahh! I hear already the cries of 'you've no right', 'you just can't do that', 'assault', 'criminal damage', etc...

You may or may not be indifferent to whether our poor pilot lives or dies, but I, along with about 3,500 other members of the BHGA have a right to protect our politically delicate sport by preventing accidents and trying to make John Hunter redundant. Make no mistake about it, if flying is taking place on a recognised site or a function is taking place involving our members, then any adverse incident is a direct reflection upon us as an organised body, and rightly so. Where else can the buck stop?

So it's down to you — yes, you — the reader. The competent pilot is not some mythical being coring his way across the countryside, it is more than likely you. Is it so difficult to have the conviction to take a positive line and effectively prevent accidents occurring in this way, by saying 'don't do it' - and mean it.

I believe in the freedom of the individual, - as many individuals as possible in fact, which means governing our sport whether we like it or not.

Cliff A. Ingram
Marlborough

AIR-WORTHINESS — IT'S HERE

BY BRIAN MILTON

BHGA Council has been struggling with the problem of air worthiness since the middle of 1976. Periodically someone, usually Reggie Spooner, would manfully drag the subject to the conference table where we would all gaze at it, some with distaste, some incomprehension, me personally with a sinking heart. After hours of discussion, in which I joined as little as possible, we would come to a decision and hope that was air-worthiness dealt with. Jeannie Knight and me, in particular, often prone to have a good punch-up on any other subject, used to unite on air-worthiness and heave a collective sigh of relief when we made (what we thought were) the final decisions on the subject.

Well, we had'nt. Three years later, we're just beginning to see where we are.

Things happen with hang gliders that the original genius behind the BHGA's air-worthiness document, Miles Handley, writing back in 1974, just could envisage. In those days, the big fear was a *luffing dive* (there's a phrase from the past!)/ Nowadays, it's *tucking*. Painfully, tests have been devised for hang gliders so we know what they'll do *before they're sold to the membership*.

Paul Maratos, testing his hang glider, killed himself near the limits, in a hang glider that wasn't on sale to the general public. But if there were no rules, and a manufacturer wanted to market something that hadn't gone through the tests Paul was taking his machine through, then that could have been you on an aircraft with a broken wing. One hang glider on the Continent is reputed to have killed 16 pilots last year because of its *tucking* characteristics before the manufacturer - and not the Country's National Association - did something about it (like withdraw it).

Air-worthiness testing is now a fact. Hang glider manufacturers, selling kites in this country through channels controlled by the BHGA, must - first of all - be in the BHGMF. The same applies if they're agents for foreign gliders. Every glider type has to have gone through a series of rigorous tests - with proof \times to satisfy the BHGA of its flying characteristics.

Barry Blore, the BHGA's Development Officer, appointed this March, has tackled four basic areas in air-worthiness.

1. He's made sure that hang gliders, currently being manufactured in Britain, meet the BHGA's standards. So the Skyhook Safari has to meet the standards, and the 3A doesn't.
2. A defined system for the repair of hang gliders.
3. A BHGA "seal of approval" system.

These three were agreed at the last AGM.

Like anyone else in hang gliding, I don't like rules. I know some rules can be justified - "they're for my own good" - but it's the thin line between enough rules for safety, and so many rules I'm strangling, that bothers me. It probably bothers you.

The paradox is, I've probably written as many rules in hang gliding as anyone else in the country. Some of them have been written easily - "oh, let's make this a rule, OK?" - while others I've struggled with for weeks before agreeing. If you're going to do anything, sooner or later you have to write the rules of doing it.

Run a competition, and the first problem that comes along, if you haven't a rule covering it, you're really sunk . . .

Go and see an underwriter, try and persuade him hang gliding is a well-run sport, and he'll want to see your code of practice . . .

Say hang gliders are aircraft and other aircraft users, sharing the air with you, want to know you're not going to tumble out of the sky . . .

Part of the process of growing up is to accept rules (it's also to reject silly rules, or rules written for the right reasons but which just don't work).

There is a fourth area Barry has been coping with, basically a duty imposed on the BHGA in August, 1976, by the CAA, which still hasn't come into force. There's been opposition, and I've been one of the fiercest opponents to the whole scheme:

4. The implementation of a glider registration system.

Air Worthiness

Any hang glider, sold through *Wings!* even just advertised, has to get BHGA Approval. The bones of the BHGA approval scheme were laid down by the BHGMF, the manufacturers themselves, though some of them are having a grumble or two about the paperwork.



What happens is, a manufacturer with a new hang glider - that's a prototype - registers it with the BHGA. This is very simple. A planform picture of the kite is sent in, along with a basic description of how it is built. Obviously, a prototype is going to be mucked around with, but this won't affect its registration. Any British-built registered hang glider can fly in the League, which is one way it is going to be developed.

However, *approval* is needed before it can be advertised, and to get that, a manufacturer puts in for a CofA with a lot of documents, photographs and supporting evidence about the kite's air-worthiness.

These documents are vetted by the Air-Worthiness Technical Officers - Alan Barnard and John Hunter - who sign a form to the effect that they accept or reject the application. Obviously, they're not faceless bureaucrats, and if any questions come up they're going to go back to the manufacturer informally first to get an answer, rather than just turning the application down.

Providing they're happy, the Chief Air-Worthiness Officer counter-signs their air-worthiness document; that used to be Rob Stokes, who's been instrumental in setting the scheme up, but he's just resigned (NOT in protest at the scheme).

If the document is accepted, the manufacturer is now asked to pay his CofA fee (£90) to cover the direct costs associated with certification, and to indemnify the BHGA for any claim against it, for both design and construction of the hang glider type.

The CofA is granted only when the BHGA is indemnified, because it is a BHGA approval that is being granted.

Authorised Repairs

A CofA could be made invalid by a bad repair. If the wrong type of leading edge is used on a repair job, and the kite crashes, and the repair is found to have caused the crash, then the original manufacturer can't be liable, can he?

That means authorised repairers, appointed by manufacturers. How far repairs need to be done by an authorised repairer is - I hope - a matter of common sense. If, for example, I change my leading edge for another built by the same manufacturer, have dinged my original, one believes the system to be flexible enough not to invalidate the C of A. (It had better be!).

BHGA Approval

When you buy a hang glider in future, you should be able to buy a CofA with it, which applies to *that particular hang glider*. This hasn't been fully thrashed out yet, but it is likely to involve a fee of £5 a hang glider. The money pays for making the air-worthiness system work, including admin, tests of hang

gliders, the committees dealing with air worthiness, part of the Development Officer's salary, insurance and indirect running costs associated with the BHGA (CAA capital funded) Test Rig.

Registration

What pulls it all together is a Registration document, in effect, a log book.

The way we're working at the moment, by January 1st, 1980, *all new factory* produced hang gliders must be registered, or they won't qualify under the BHGA public liability and personal accident schemes.

Advantages:

(a) To BHGA

(i) Meets responsibilities to members.
 (ii) Ensures that BHGA runs hang gliding, all aspects of it, with credibility from similar bodies, like the BGA, and recognition from CAA, A.I.B., Sports Council and others, with whom we must deal.

(b) To Manufacturers

(i) They have the backing of a responsible organisation, the BHGA, and can claim to meet standards as high as anywhere in the world.
 (ii) They have some control on standard of repairs carried out on their hang gliders.
 (iii) The "Approved Logo" would be a big selling point, here and overseas, in advertising.
 (iv) Their hang gliders would be acceptable in all international competitions.

Advantages:

(c) To Members:

(i) They *know* their hang gliders were air-worthy, with somewhere to go to discover independently a kite's characteristics.

(ii) They'll be able to enter competitions, and fly anywhere abroad.

(iii) They'd qualify for public liability and personal accident schemes.

(iv) The initial £5 cost will be recouped in the re-sale value of their hang glider, if it has a CofA.

(v) High standards of air-worthiness will lead to more research into hang gliders and therefore better machines.

Disadvantages:

It's a pain in the arse.

If we climbed mountains, instead of flew hang gliders, maybe it would be different. An MP once stood up in the Commons and seriously suggested all mountaineers should have a licence to climb! Imagine enforcing that!

But flying hang gliders, we put ourselves, our lives, in the hands of others, every time we fly a machine someone else has built. The odds against falling on someone and hurting them are immense, but . . . possible. The odds against hurting or killing ourselves are still very high, but . . . more possible. If we are going to farmers to use their land to take-off, we have to show we have taken some trouble to ensure we're not going to break our neck all over his land. If he thinks we might, he won't let us fly.

That means insurance.

That means re-assuring the insurers we're not going to bankrupt them.

(Jonathan Livingstone Seagull never had to face this . . .)

This is a scheme we are going to make to work in your name.

We've looked at the alternatives, we've dodged the issues all over the place for years, and - however reluctantly - we've decided to push to make this scheme work.

APPLICATIONS FOR CERTIFICATES OF AIRWORTHINESS

MANUFACTURER	MODEL	NOT YET SUBMITTED	PARTIALLY SUBMITTED	SUBMITTED	BEING PROCESSED	PROCESSED	C OF A
BIRDMAN SPORTS LTD	CHEROKEE S	✓	✓	✓	✓		
	CHEROKEE M	✓	✓	✓	✓		
	CHEROKEE L	✓	✓	✓	✓		
	MOONRAKER TS	✓					
CHARGUS GLIDING COMPANY	CYCLONE 180	✓					
	CYCLONE 165	✓					
	VORTEX 120	✓					
ECLIPSE	EAGLE II S	✓					
	EAGLE II L	✓					
	SUPER EAGLE	✓					
HAWKWAY HANG GLIDERS LTD	SUPER SCORPION B C C+	✓	✓	✓	✓	✓	✓
	SPECTRUM	✓					
SCOT-KITES	DOVE	✓					
	CIRRUS V	✓					
	OLYMPUS	✓					
	FLOATER	✓					
SKYHOOKS SAILWINGS LTD	SAFARI	✓	✓				
	SUNSPOT	✓	✓				
VULTURELITE	EMU S	✓	✓	✓	✓	✓	✓
	EMU L	✓	✓	✓	✓	✓	✓
WASPAIR LTD	LASER	✓					
	FALCON	✓					
	GRYPHON	✓					
FLEXIFORM	SKYLINE	✓					
	VECTOR	✓					

However much a pain in the arse it is, it shouldn't actually affect *you* as a pilot, except that, one way or another, you'll be paying for it.

The price of the glider will reflect the manufacturer's costs of getting his CofA. It'll reflect the £5 cost of an individual certificate.

Spread over a year's sales - as long as every manufacturer who sells in this country has to face the same costs - it shouldn't add very much to the cost of a glider.

What you're buying is safety.

(I know every rule is justified by the homily . . . "it's for your own good" . . . but I know also of one very serious accident that has happened this year that would not have happened if I'd been stricter about rules, and the hang glider had been air-worthy . . . the man's still seriously injured).

Chew it all over. Work on the alternatives. I think we're looking for a balance between trusting each other blindly, and Rules for everything. If you have a workable alternative that satisfies some of the problems we face, let's hear from you.



INFORMATION

PENNINE HANG GLIDING CLUB

The new secretary is: Keith Cronshaw, 8 Crompton Road, Macclesfield, Cheshire. Tel: Macclesfield 614351.

Visiting flyers please contact any of the following for details of our club sites.

Phil Robinson, 580 Bolton Road, Blackburn, Lancs. Tel: 0254 58924 (Home), 0254 56641 (Work).

John Wadsworth, 62 Grosvenor Road, Urmston, Manchester, M31 3AQ. Tel: 061 747 9191.

Cliff Poole, 94 Kelbrook Court, Offer-ton, Stockport, Cheshire, SK2 5NT. Tel: 061 456 4114.

THAMES VALLEY RULES O.K.!

On Saturday 25th August, The Thames Valley Hang Gliding Club held a competition against the Dunstable Club, at Combe Gibbett. The weather co-operated nicely and many cross-country flights were made during the free-flying. T.V.H.G.C. were victorious after a two task time-precision and spot top landing comp. enjoyed by everyone.

One week later at Spencer's Bowl, Mere, the T.V.H.G.C. and the Avon H.G.C. met for their annual battle. Another winning day for the lads from the Thames Valley. They are now looking for challenges from other Clubs!! — Home or Away.

BRITISH HANG GLIDING ASSOCIATION

Registered Pilot 2's August 1979

1. R.D. Freeman
2. R.A. Rathbone
3. Bill Anderson
4. Eric Woods
5. Derek Bond
6. John Rankin
7. Gustav Fischnaller
8. David Loxley
9. Mac Lane
10. D.M. Lusby-Taylor
11. E. Rowley
12. Robin Laidlaw
13. Angus Keith
14. R.E. Worth
15. Peter Robinson
16. Pete Stevens
17. Vince Hallam
18. David Ball
19. J.T. Meager
20. Jamie McSweeney
21. John Sharp
22. A.R. Williams
23. E.K. Battersea
24. D.F. Yule
25. B. Kell
26. Alf Rogers
27. Jan Ketelaar
28. Michael Ramsey
29. Clive Brewitt
30. Steve Bond
31. Ronald Green
32. J.P. Gibson

33. Thomas Ryder
34. Richard Wilson
35. Kelvin Wilson
36. David Perrin
37. Barry Puckey
38. C.J. Hopkinson
39. A. Geldart
40. Bill Huyton
41. John Clarke
42. Pat King
43. G. Loyns
44. Dave Nickells
45. P.A. Mounce
46. J. Croll
47. R.J. Pattinson
48. M. Appleby
49. P. Johnson
50. R. Pattenden
51. M.B. Gladwyn
52. M. Mugridge
53. John Sharpe
54. Roger Black
55. Derek Austen
56. M.K. Hann
57. K. Oram
58. M.G. Shaw
59. B.K. James
60. Rob Symbolist
61. Ken Barker
62. Peter Harding
63. Alan James
64. Peter Sutton
65. Paul Donald
66. J.A. King
67. P.J. Day
68. Mark Woodhams
69. R.P. Bonks
70. M. Powell
71. D. Woolford
72. P. Taylor

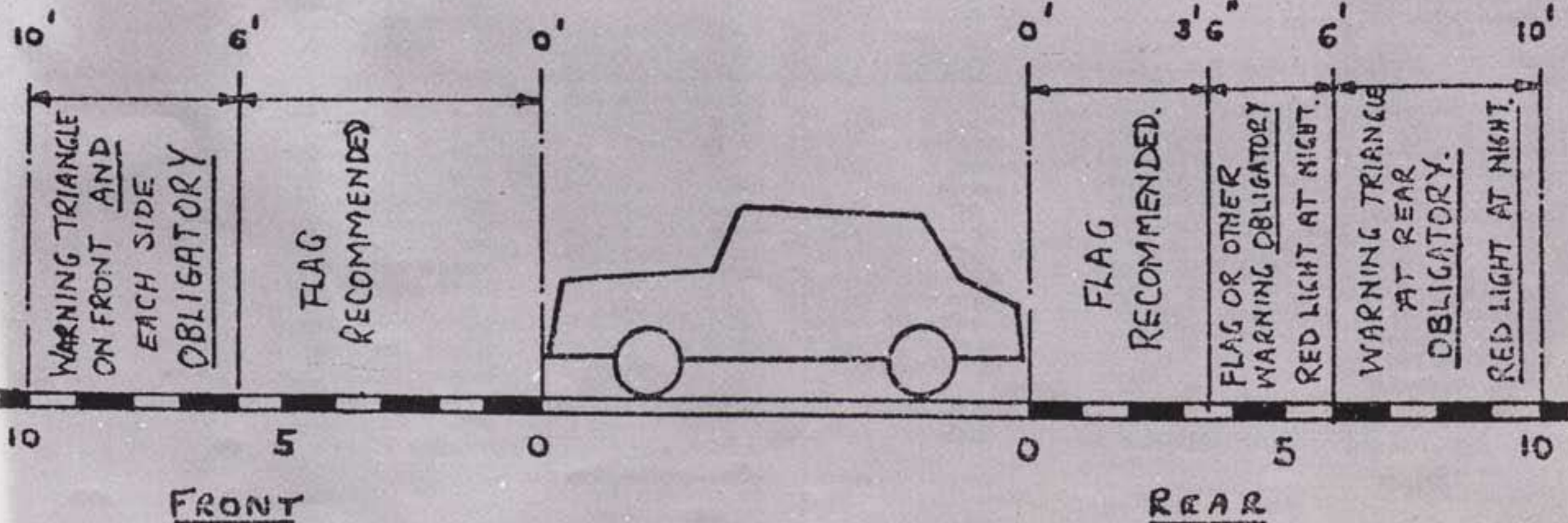
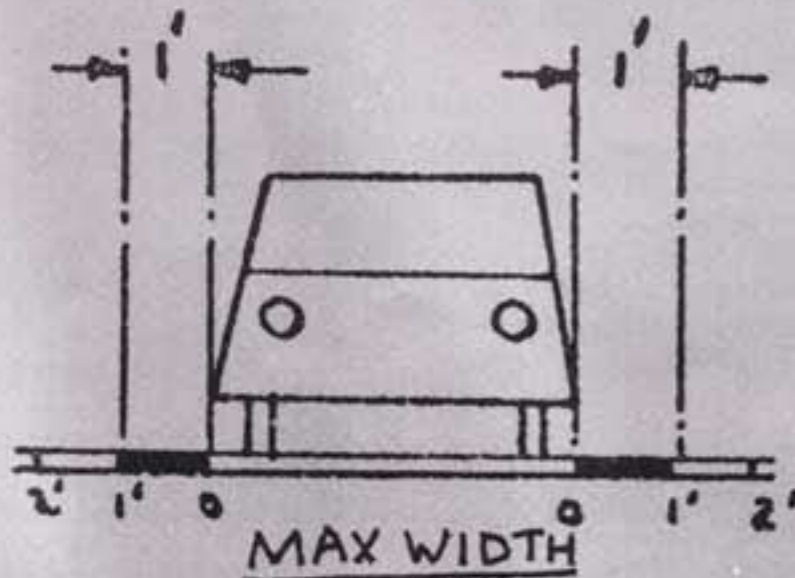
73. Diane Hanlon
74. D. Targett
75. Leonard Hull
76. Ray Wheeler
77. J.R. Ware
78. Ken Snail
79. J. Hunt
80. D. Scates
81. N. Stansford
82. D. Marlow
83. C. Hawkes
84. Tom Yeomans
85. A.H. Trapp
86. C.A. Ingram
87. Keith Cronshaw
88. F. Tamblyn
89. D.J. Cotanach
90. D.S. Raymond
91. T.P. Hartnman
92. Pete Anstey
93. Mark Southall
94. A. Benn
95. Ian Trotter
97. Tibor Peto
98. T. Taft
99. Trevor Birkbeck
100. J.D. Bridge
101. J. Turner
102. A.T. Fletcher
103. M.J. Batchelor
104. T.F. Cashmore
105. T. Knowles
106. A. Munro
107. R. Richards
108. R.W. Elsdon
109. B. Calvert
110. Tony Tate
111. Dave Weeks
112. C.W. Lark
113. R. Iddon
114. P. Cook
115. R.N. Whittall
116. J. Whitfield

ADDITIONS TO OBSERVERS

- 245 Rankin, John
- 286 Rogers, A.L.
- 343 Zarowski, Ronnie
- 370 Williams, A.R.R.
- 388 Farley, Paul
- 389 Frain, Paul
- 390 Frater, Edward V.
- 391 Ketelaar, Jan
- 395 Lane, Mac
- 396 Stapleton, Gerald
- 397 Stokes, John
- 398 Cutting, Philip
- 399 Jones, Ewart
- 400 Cashmore, Thomas
- 401 Hunt, Stephen
- 402 Taylor, D.M. Lusby
- 403 Hallam, Vince
- 404 Middleton, Roger
- 405 Cook, Peter
- 406 Hanlon, Diane
- 407 Hurst, Malcolm W.
- 408 Bayes, Barrie
- 409 Allen, Roger J.
- 410 Mantle, John
- 411 Bell, Graham
- 412 Holt, Andy
- 413 Mounce, Peter
- 414 Geary, Sam

LOST A HANG GLIDER?

At the time of going to press, Cardiff Police were holding a hang glider which had been found behind some dustbins in a Cardiff Street by two young boys. The glider had been unclaimed for a week. Anyone who has lost one or had one stolen should contact the police.



IS YOUR LOAD SAFE AND LEGAL?

By Terry Flower

Fly Better with a New Kite

Contact us for the best trade in, and delivery time and after sales service.

Consider these advantages!

1. Free trial flights on the kite of your choice.
2. Four days free tuition (prone conversion, soaring etc).
3. If not completely satisfied with your kite, we will take it back (if undamaged) within one month of purchase. (Full credit given).
4. Good secondhand kites available, harness, altimeters etc.

(Send for free price list)

Our hills are unexcelled for initial training or for converting to more advanced machines.

Our hills are within a few minutes walk — we are at the foot of our main soaring ridge Penylan (1,000 feet up) — in fact you can fly right over the centre!

Don't waste time travelling around looking for hills — we have them on our doorstep.

(Bed/Breakfast and packed lunch £4)

IF YOU WANT TO LEARN TO FLY — write or telephone for our free 32 page handbook and find why we consider your time and money will not be wasted with us.

Self catering holiday accommodation at Rhossili, Rhigos and Merthyr — from £2 per person per day. Telephone Mike Adam between 10 a.m. - 11 a.m. or 6 p.m. - 10 p.m. or leave your message on Ansaphone.

IBIS, South Wales Hang Gliding School

67 Cardiff Road, Troedryhiw, CF48 4JZ
Tel YNYSOWEN (0443) 690787 or Rhossili (044-120) 460

Learn to hang glide in England's most beautiful county at *Roger Middleton's Cumbrian Hang Gliding Centre*. Open 7 days per week for 2 and 4 day courses to Pilot One standard. Books and second-hand gliders for sale. Hiway and Flexiform Agencies. Want a Skyline? Come and fly before you buy! Pony trekking also available. Contact: The Cumbrian Hang Gliding Centre, Rookin House Farm, Troutbeck, Penrith. Tel: Lazonby (076883) 610.

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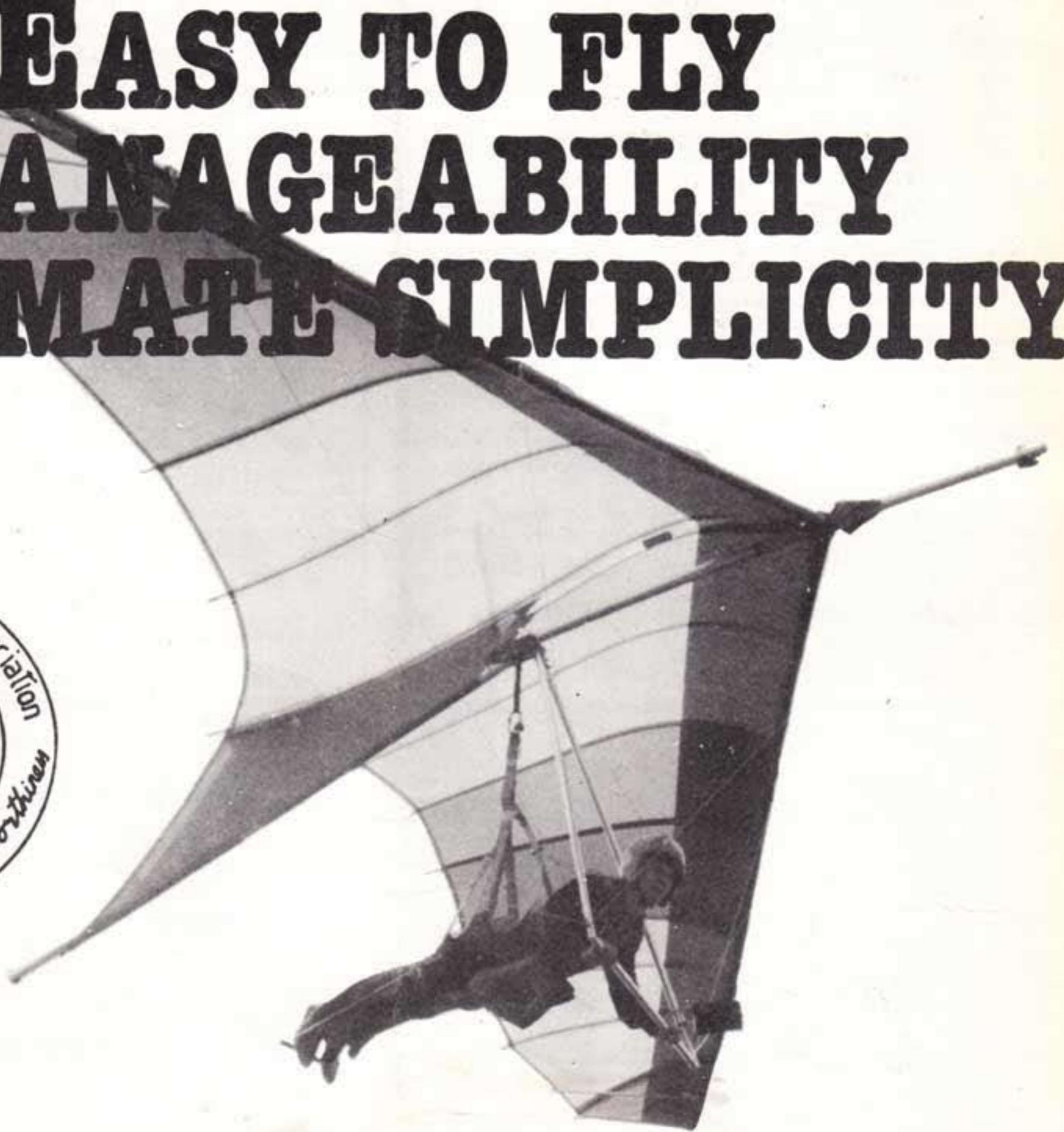
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