

WINGS!

JULY 1978

MAGAZINE



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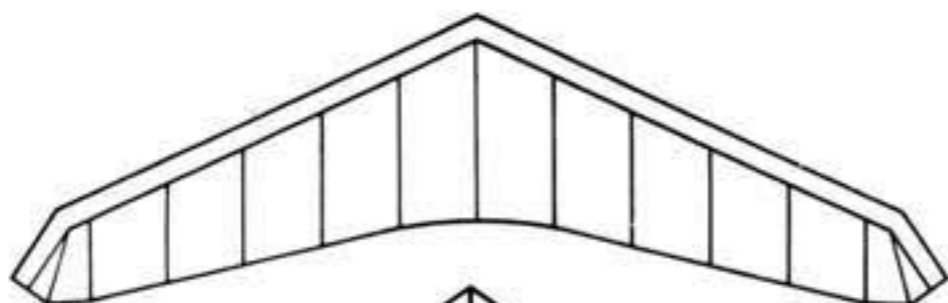
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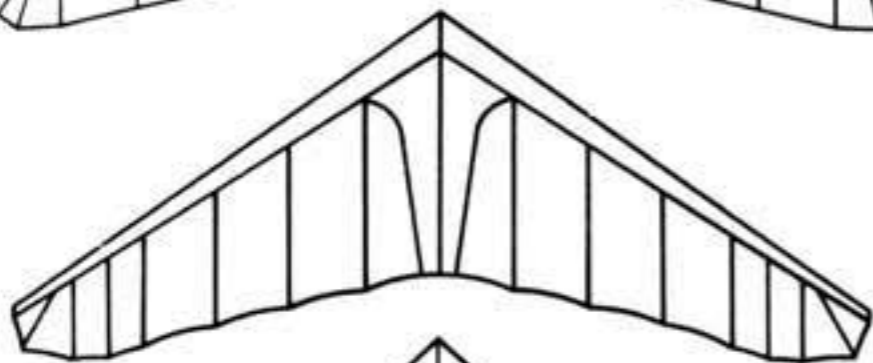
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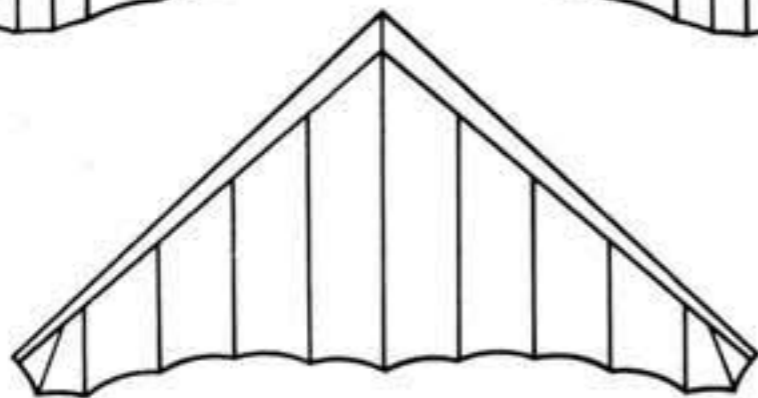
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WINGS!

The official magazine of the BHGA

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Cover: British Wings 1978 — The Hiway Super Scorpion seen here getting a little help from Steve Hunt's power unit.
Photographer: Mark Woodhams.

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 **BRITISH
HANG GLIDING
ASSOCIATION**
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Wings! is published by the British Hang Gliding Association. The views expressed are not necessarily those of the BHGA Council, its officers, members or the editor. Contributions are welcome. Articles should be typewritten if possible; photographs and cartoons should be accompanied by appropriate captions and any material which is to be returned should be accompanied by a stamped and self-addressed envelope. The editor reserves the right to edit contributions where necessary. The magazine can be obtained by joining the BHGA. **BHGA:** President: Ann Welch, Chairman: Reggie Spooner, Treasurer: Derek Evans, Council: Brian Milton (Press Officer) Ashley Doubtfire, Garth Thomas, John Hunter, Jeff Marvin, Jeannie Knight, Malcolm Hawksworth, Will Jones. Flight Training Officer: Keith Cockroft, Accident Investigation Officers: John Hunter and Tony Fuell, Registration Officer: Terry Dibden, Solicitor: Anthony McLaren, Medical Adviser: Dunstan Hadley, Radio Communications Officer: John Westcott, Secretary: Chris Corston. **All enquiries other than to members of the magazine staff should be sent to the Taunton address.**

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CHAIRMAN'S LETTER

Since writing my last note for *Wings!* two more deaths have occurred as a result of hang gliding; there has come to light an attempt by various local Authorities to ban hang gliding by means of Bye-laws; several pilots, power conventional, have distributed either the Authorities (CAA, Police, Local Authorities, etc.) or their fellow fliers to the degree that there has been a call for action to be taken against them.

How does all this affect you—when the vast majority of us simply want to fly, unmolested from our own particular hill.

It affects us, because the events outlined in the first paragraph — disturb the Authorities who own or control the land we need to fly from or land in — disturb those who control the air space through which some of us fly (which they

have a statutory duty to protect). It tends to disturb those whose leisure activities take place over the same ground, or in the same air as our own, and it does disturb some of us who are prepared to accept a degree of discipline in our own flying in the interest of safety and the promotion of the ideal of our own freedom to fly when and where we want — having had due consideration for others.

Within that context we must decide what we really seek to achieve for hang gliding. Do we seek the freedom to fly from any hills of our choosing in this country? Do we seek to develop the sport so that it can operate from the flat lands? What is (or should be) the relationship between power and conventional hang gliding? Do we want to govern our own sport?

In considering these questions let us all remember that BHGA is *you* — 3,400 members and 73 clubs — not some remote Council which meets each month. Those 10 Council members have no monopoly of wisdom and there may well be a case for government of hang gliding, more directly by the members, and the clubs, into which the great majority of members are already organised.

Recent events have caused more 'Establishment' reverberations than I can remember, even in NHGA and BKSA days. There would appear to be an influential lobby suggesting that the BHGA cannot control its own sport. It is up to you to demonstrate that the BHGA can look after itself, to the benefit of its members, but without harm to others. Your Council, which has the eventual

responsibility, does however need your help and I believe there are two principal ways in which you can help directly to create the sort of hang gliding environment we would all like to see.

(a) Make up your own mind on where you want hang gliding to be in five years time and put that to your club as a policy statement for the club to adopt and to put formal proposals to council.

(b) Consider whether there is a case for government of the BHGA to be exercised through the clubs — and the form it might take so we can ensure that all shades of opinion, ability, interest and region can be represented.

Consider! It is your sport. Do not complain about how it is. Say how you want it to be.

Reggie Spooner

Council Matters

by Chris Corston

Council Meeting of 11th June, 1978

In view of the large amounts of correspondence handled by the Chairman and the need to co-ordinate action with other Council Members and the Secretary, it was agreed to allocate up to £250 per annum to pay Reggie Spooner's part-time secretary.

Most of John Hunter's spare time is taken up with work and travel in connection with accident investigations. The load has been particularly heavy recently due to fatal accidents. John has therefore not been able to devote the time he would wish to airworthiness matters. For this reason a role reversal was agreed, Will Jones became Chairman of the Airworthiness Committee and John Hunter became Chairman of the Accident Prevention Committee.

In view of the two local authorities attempting to bring in bye-laws to ban hang gliding and other problems connected with the anti-hang gliding attitude of some land-owning bodies, Council discussed ways and means of dealing with the problem. Anthony Maclaren, our Solicitor, was present to give his views. The Chairman summed up by stating that we must influence major land-owners and Government bodies to be in favour of hang gliding as long as it is carried out under BHGA Club control.

It was reported that the CAA were

considering prosecuting Gerry Breen for possible violations of Air Law while flying a powered hang glider. It was agreed that, provided the facts were established and there was a case to answer, the BHGA would be associated with the prosecution. It was also agreed to press for an accident report from Gerry covering the recent powered hang gliding accident when he injured his foot, so as not to endanger the comparative freedom delegated to the BHGA to control hang gliding.

The Briforge Club for the Forces of the BAOR in Germany was accepted as a BHGA Member Club.

The de Havilland Flying Foundation had offered £1,000 to the Association for the training of Flying Instructors within Clubs. It was agreed to accept and to express our thanks to the Foundation Trustees. Council decided to allocate £1,000 of BHGA reserves for the same purpose.

Garth Thomas agreed to act as the Mere Event Organiser and enlisted the help of Gordon Wyse, Keith Cockroft, Bob Mackay and the Secretary to plan and run the event. Roy Hill gave an account of the BHGA team's preparations for the European Championships. He had been appointed Team Manager. All fliers in British teams must be BHGA members.

Malcolm Hawksworth was given the job of looking after Air Traffic liaison matters to investigate and propose to Council measures to safely integrate hang gliding with other aviation activities. He became our representative on NATMAC (National Air Traffic Management Advisory Committee). In connection with site notification to NATO the Secretary had been in touch with Club Secretaries to update soaring site information.

Any information resulting from Accident Investigation is to be published, sub judice or otherwise, if life can be saved by so doing. The Chairman said he would take full responsibility.

Brian Milton resigned as Chairman of the Powered Hang Gliding Committee. He had taken on the formation and Chairmanship of this Committee earlier this year on the understanding that he would serve for a short term only. He proposed that Ashley Doubtfire take over the Chairmanship. Ashley agreed and was elected.

Council then considered a letter from the Kernow Club Secretary complaining of dangerous and inconsiderate flying by S. Fensome at the recent UK Hang Gliding Rally. His flying was witnessed by many people taking part and gave rise to

complaints from flyers and spectators. Council decided to call him to the next Council meeting to give an explanation of his misconduct. This is normal when the expulsion of a member is under consideration.

Jeannie Knight explained an Editorial Committee report and Dave Worth gave cost details for the production of *Wings* since it had been produced in the larger A4 size. Discussion on the magazine followed and the following decisions were made. That *Wings* will be available on a subscription basis to non-Members at the rate of £7 per annum and this should be widely publicised. The editor is to be allocated a budget for the year and be given a free hand to produce 12 issues of *Wings* instead of working on a monthly basis. The new budget was to be decided by Derek Evans, Dave Worth and Jeannie Knight. Officers and Council Members are to categorise their contributions for inclusion in the magazine to indicate their importance. Any queries on matter to be published are to be made to the person chairing the Editorial Committee.

Authority was delegated to the Chairman and Treasurer to pay our Royal Aero Club subscription in full if the basis for assessment is judged by them to be fair and provided the benefit to Members justified the cost.

PILOT RATING

Dear Sir, So, the enlarged Rating System is now upon us, complete with more bits of "bumph" for the aviator, and (one might imagine) contrary to the wishes of a majority of members. Of course the Council stress, as before, that the Rating System does not of itself debar anyone from any particular site. But of what value is that statement? Is it merely a "politician's assurance"?

I still await clarification of the matter as requested in my letter of September *Wings!* as to what action, if any, the Council propose to take, or may have already taken, against the increasing number of clubs and site operators who impose such conditions. Also, in addition to BHGA members who prefer not to subscribe to the Rating Certificates, there will undoubtedly be a number of fliers who are not Association Members, and therefore not entitled to any Certificates. Research has shown that it is unconstitutional and illegal to require users of Public Land to join any particular sect, club, or association. In such case, the lack of a certificate cannot prevent such a flier from using Public Land used by other fliers.

Is the new Rating System to be the thin end of the wedge? What guarantee is there that the new certificates will not be used as a demarcation on insurance limitations for flying particular gliders, as has already happened with That Other Gliding Association and Insurers.

Tommy Thomson
Middlesex

INFORMATION WANTED

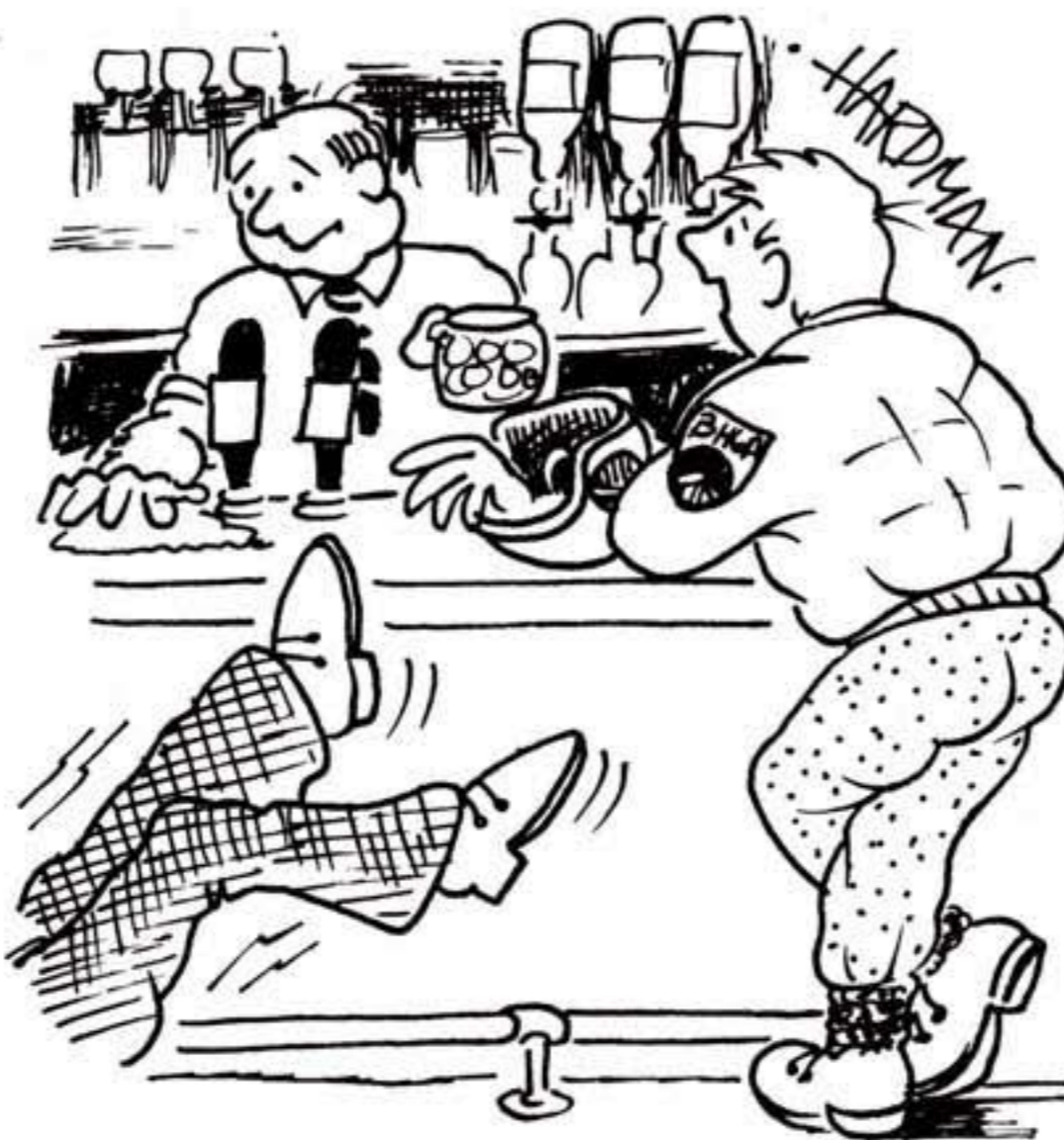
Dear Sir, We are two aeronautical engineering students at the University of Salford that have become interested in hang-gliding and we gained our EPC in December last year. We are now trying to get off the ground a final years project on handling characteristics of a hang-glider by wind-tunnel testing, computer running and test flying.

We do not know whether it will work or not, but if anybody has been involved in anything similar or have any information that could help us. We would be pleased to hear from you.

Dag O. Askheim and
Sverre Schrotz
25 Vernon Street,
Salford, M7 9LU

CRASH LANDINGS

Dear Sir, Dennis Pagen states that in mild crashes the prone harness affords the most protection. This may be true if, as he suggests, the control bar hits first. There are several other possibilities. In a dive the control bar and nose may hit together, in a steep dive the nose may hit first, or if the pilot is recovering from a dive and is pushing the bar right forward he may hit the ground in the prone position before the glider. In either case, except possibly the last, he is likely to



No more for me mate Jim . . . He's gone prone!

AIRMAIL

swing through the control bar and hit the keel boom. In a mild crash it probably matters very little either way.

In a severe crash there are several other things to consider. A person who jumps from a table to the floor, holding an accelerometer, will find that it registers about 12G. This is because the legs absorb a good deal of the shock. If he landed on the buttocks instead, the deceleration would be much more rapid and he would experience a much higher G reading. If he was dropped from the same height in a prone position the deceleration would be similarly fierce. A fighter pilot sitting correctly on an ejector seat will experience up to 25G, usually without injury. Subjects on rocket-propelled sledges have occasionally been decelerated at up to about 40G, without injury. There is however a strong possibility of injury between 25G and 40G and almost certainly above 40G. Whether or not a person survives depends on the type of injury.

As Dennis Pagen also says, injuries tend to be concentrated in the upper half of the body. When the crash occurs with the pilot in the prone position. This means that the head, neck and chest and arms take the brunt of the force. The upper half of the body is however much less able to withstand injuries than the lower half. The legs are designed for, and will

absorb a lot of the shock, which would otherwise be imposed on the body. Even if the legs are severely fracture, this is far less serious than fractures of the skull, spine or chest or damage to the lungs or abdominal organs by the high G forces imposed by a prone landing.

A pilot flying prone will probably black out, or more correctly red out, at about 9 or 10 G in a turn, whereas the seated pilot under the same conditions would probably only stand about 3 G. But it is not true that a prone pilot can 'withstand 10 times the impact when hitting flat as opposed to upright'.

A pilot hitting the ground prone may not hit very hard, especially if he has simply been a bit late resuming the upright position during a normal landing.

Should a hard landing be inevitable it is better to take the shock on the legs rather than risk damage to the lungs or other organs by hitting hard, prone. Should it be possible to arrange for the glider to hit first it will absorb a lot of the shock. If a wing tip touches and the glider cartwheels a lot of energy may be absorbed by the ends of the booms before the pilot hits the ground. There may be some advantage in folding the body into a ball before impact. This depends on which part of the body hits first, and on what.

It is scarcely possible to lay down

rules about what is the best thing to do in a crash, but bearing in mind the forces involved it seems wiser not to risk the more important parts of the body.

Dunston Hadley
BHGA Medical Advisor

POWERED FLYING

Dear Sir,
There seems to be some disquiet in the sport at the moment with regard to powered hang gliding. Mike Adam expressed many flier's feelings in his letter to last month's *Wings!* and I have noted similar feelings amongst the fliers that I have been in contact with. Would not the simplest and quickest way to alleviate these fears be for the BHGA to instruct all member clubs to ask powered fliers to fly from sites other than those normally used by conventional hang gliders. This should cause no inconvenience to those flying powered gliders and would also relieve any possible pressures on sites already in use.

Ken Messenger
Birdman Sports

VINCENT HANG GOGH

Dear Sir, Can anyone tell me how to paint a sail — what inks etc.?

Mick Hanson
Ayrshire

VISITORS WELCOME

Dear Sir, two matters are currently topics of conversation amongst Malvern members, and I should be pleased to have both the 'official' BHGA view and the view of the other Clubs on the following points.

The first concerns the trend for Clubs or groups of Clubs to require flyers to pay a 'visiting membership' fee before they can fly in that Club's area. To take two random examples, the SWWHGC require a £5 annual fee for the facility of Rhossili and other hills, and the Devon and Somerset Condors ask £3 for 6 months for access to their hills. There are probably many other examples in other areas, and it does not require higher mathematics to realise that any flyer who is prepared to travel — or even go on holiday — will need to invest a sizeable sum of money in order to be able to 'fly around'.

On a reciprocal basis, the Malvern Club who have over the years negotiated the use of the Castlemorton site — who have to provide Officers to control the site on a busy weekend — and who have to answer to the Malvern Hills Conservators for any mishaps, charge nothing to visiting flyers. On a good day in summer, flyers from the Clubs that charge us to fly their hills, far outnumber our own members. In the light of these developments in other areas, it would appear that the Malvern Club is slow in not jumping on the bandwagon.

Add to the above the fact that ground cover insurance is being duplicated every time you join another Club. If people are being covered

several times over, this is a pointless waste of money.

Clubs who feel it necessary to ask flyers from outside their area to pay should be prepared to print in 'Wings' what they require for money for, as any flyer will pay for a good cause, but not for a free booze up for the inner few of that hang gliding club. We have recently learned that the BHGA has more money than it knows how to spend: 'Wings' April 1978, page 21.

A suggested remedy might be that all insurance, flying and ground, should be included in the BHGA fee. If clubs wished to register flyers using their sites all they need is a letter from that flyer's Club signed by (say) the Chairman and Secretary to the effect that he is competent and ground and flying insured, and if they then wish to issue a sticker such as the Rhossili sticker, they could request a registration fee of not more than £1 to cover the cost. I do not see the clubs need to ask more of visiting flyers, who after all may only use their sites once a year.

We are a National Association, and I would have hoped that it should be the aim in the not too distant future to arrive at a situation where membership of the BHGA itself would be sufficient to allow a flyer access to any Club hill. In this situation, removal of BHGA membership for persistent violation of site rules would in theory prevent 'anti-social' flyers from using the best hills before we lose them.

Has anyone ever had BHGA membership refused or withdrawn I wonder?

Lets have others views on these subjects.

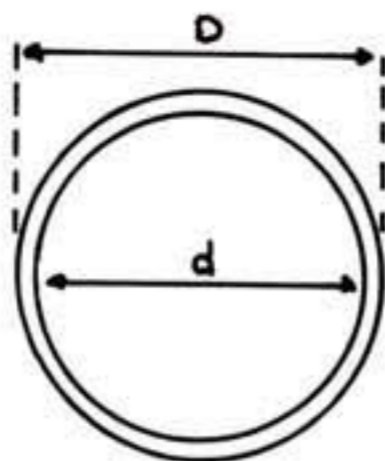
Theo Wilford
Malvern HGC

HOME BUILDERS BEWARE

Dear Sir, In the May issue of *Wings!* Dave Cook wrote about home building of hang gliders, which he has done with success. But I think a word of caution is necessary about the empirical rule of thumb that he advocates for substituting thicker gauge for larger diameter tubing. Although he stated that this method will err on the safe side, I decided to check for myself, and I found that this is not so.

We have to be conscious of safety, so aspiring do-it-yourself designers

should beware of reducing their factors of safety.



Section through tube

If the tube dimensions are as shown in the section, the condition for equal design stress in two tubes (using subscripts 1 and 2) is:

$$\frac{(D_1^4 - d_1^4)}{D_1} = \frac{(D_2^4 - d_2^4)}{D_2}$$

For the tube sizes and gauges quoted by Dave Cook, the comparative strengths may be calculated from the above equation.

Comparison of stress in tubes of different sizes under similar loading

Gauge	Tube outer diameter (inches)		
	2	1¾	1½
20	1.000	1.316	1.809
18	0.763	1.007	1.390
16	0.587	0.777	1.077

Gauge thickness:
20G = 0.036in.
18G = 0.048in.
16G = 0.064in.

The table shows the results, relative to the stress in a 2in. x 20G tube, for similar loads on a given tube diameter and gauge. For 1½in. x 16G, the maximum stress is 7.7% higher, which represents a significant safety reduction.

There is no substitute for careful design, so don't throw your safety factors to the wind!

Robin R. Smith

WINGS! MAGAZINE

David Worth is resigning as editor of *Wings!* after publication of the October issue.

Applications are invited for the following posts with *Wings!* to take effect from that date:

1. Editor — who must have some editorial experience and a high standard of English.
2. Layout artist — experience of artwork essential and must be prepared to work in conjunction with Blackburn Printers, Brighton.
3. Circulation manager — to be in charge of promoting circulation of *Wings!* by subscription in Britain and overseas.

Please send applications and details of experience, reasons for applying, and personal hang gliding history, to chairman of BHGA Editorial committee:

Jeannie Knight
10 Spring Gardens
Washington
West Sussex
Tel. Ashington 892770

Closing date for applications is 15th August 1978.

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WING TIPS

Competance on the Nosewires

by Sandra Jones and Edmond Hui

We feel that a good nosewire person can greatly contribute to a pilot's safety and that the following points should be of interest to all flyers, since we are all called upon to act in this capacity.

1. Flyers should cultivate confident ground handling. This means that when asked to help someone off, you should be able to take the kite to the launch point, without help on the wing wires if need be. If you find this difficult, especially in strong or gusty winds, you will probably find it easier to move nearer the A frame. This leaves the pilot free to put his gear on, check the wind, etc.

2. On reaching the launch point, hold the kite at zero angle of attack, directly into wind. Learn to read the wind direction from the bulges in the slack sail. Be aware of other kites in the air, so that you can advise the pilot of their positions and movement.

3. When the pilot clips in, suggest that you check his harness in flying position if he is flying prone. If he is seated, at least check that his arms are on the outside of the straps. All this time, take advantage of your position to do a visual check of the kite — you can see all the wire junctions, nuts, bolts, etc. Check especially that de-

flexors are out, and that he has clipped in properly.

4. When he is ready to launch, tell the pilot if either wing is trying to lift. You should not be supporting the kite in any way when you let go. Don't launch until he gives you a verbal go-ahead (release). Don't try to read his mind. After you launch, get out of the way fast. Pilots have enough on their hands without having to avoid you as well.

5. If the pilot asks to be launched in

prone, make sure there is sufficient windspeed for this. It is your responsibility to ensure that he has sufficient airspeed at take-off, and if you don't think you can, you should insist that he does a conventional take-off. Stumbling, backward pulling take-offs are a horror to watch.

6. Cliff launches. Here your safety is dependent on the launch point, so you have a say in its choice. Make sure that you have a safe position to stand, and a safe place to retreat at launch.

Remember that a rotor can push both kite and you towards the edge. If you cannot find a safe launch point, insist on the use of 2 wing wire persons and a keel person, instead of a nosewire person.

Take-off would certainly be a safer procedure if all these points were observed. Remember, however, that a pilot is solely responsible for his own safety and should therefore not rely on the nosewire person having carried all this out. ☺



What do you do when you can't get down?

by Roy Hill

For years we've searched for lift and, joy of joys, occasionally we find it, but have you ever been in real trouble because you can't get down? Ridiculous? Not on your life.

At the last league Andrew and I set off cross-country from the Dyke to Brighton. Winds were 15-20 and lift was strong but rough — typically good cross-country conditions (don't expect thermals to be smooth; they rarely are). Nosing out from the ridge, I picked up a thermal giving 2-400ft. per min. up and I arrived over the ridge at 350ft. Not much height but enough if you're nicely centred and the lift is consistent. Half a mile downwind at 600ft. the lift dropped off. A quick search brought the right wing up with a jolt. Sharp right turn and the vario. shot up to 1000ft. per min. up — on the stop. Great! Should do well on this one. Ears popping and the gentle, hushed sigh of a strong thermal soon saw my Moonraker at

2000ft. over Brighton. BUT, it's cold and hail is battering my face. My glider training tells me this is a big one — better left alone. Hello! there's Andrew his usual 250ft. above. Time we left, full dive into wind, funny vario. hasn't moved, altimeter still slowly winding 'up'. Hold it, five, ten minutes, you'll soon be out. No such luck, turbulence now getting bad, accentuated by the speed. Daren't ease off, just makes the altimeter wind up like the vario.

Don't panic. Use your head. Must be flying along a cloud street. A quick look up soon confirms this and a change of course across wind finds a friendly 600ft. per min. 'down'. Circle in sink and land next to the by-pass. Andrew follows two minutes later. It had taken us 20 minutes to get down from 2000ft. plus.

Be warned, with cross-country's an almost weekly occurrence you are going to meet some big ones on good

days. They have broken up stronger things than hang gliders.

How can you avoid them?

1. Get the forecast — cu-nimbs and thunderstorms mean trouble.
2. Watch the weather build-up all the time — big black ones and rain squalls should be avoided.
3. When the vario. sticks on the top make sure you know what's above

and get out in plenty of time.

4. If you get caught:
 - (a) dive out, but remember turbulence at high speed puts a lot of g on your kite.
 - (b) a diving turn will increase your sink rate enormously.
 - (c) a parachute is a last resort.

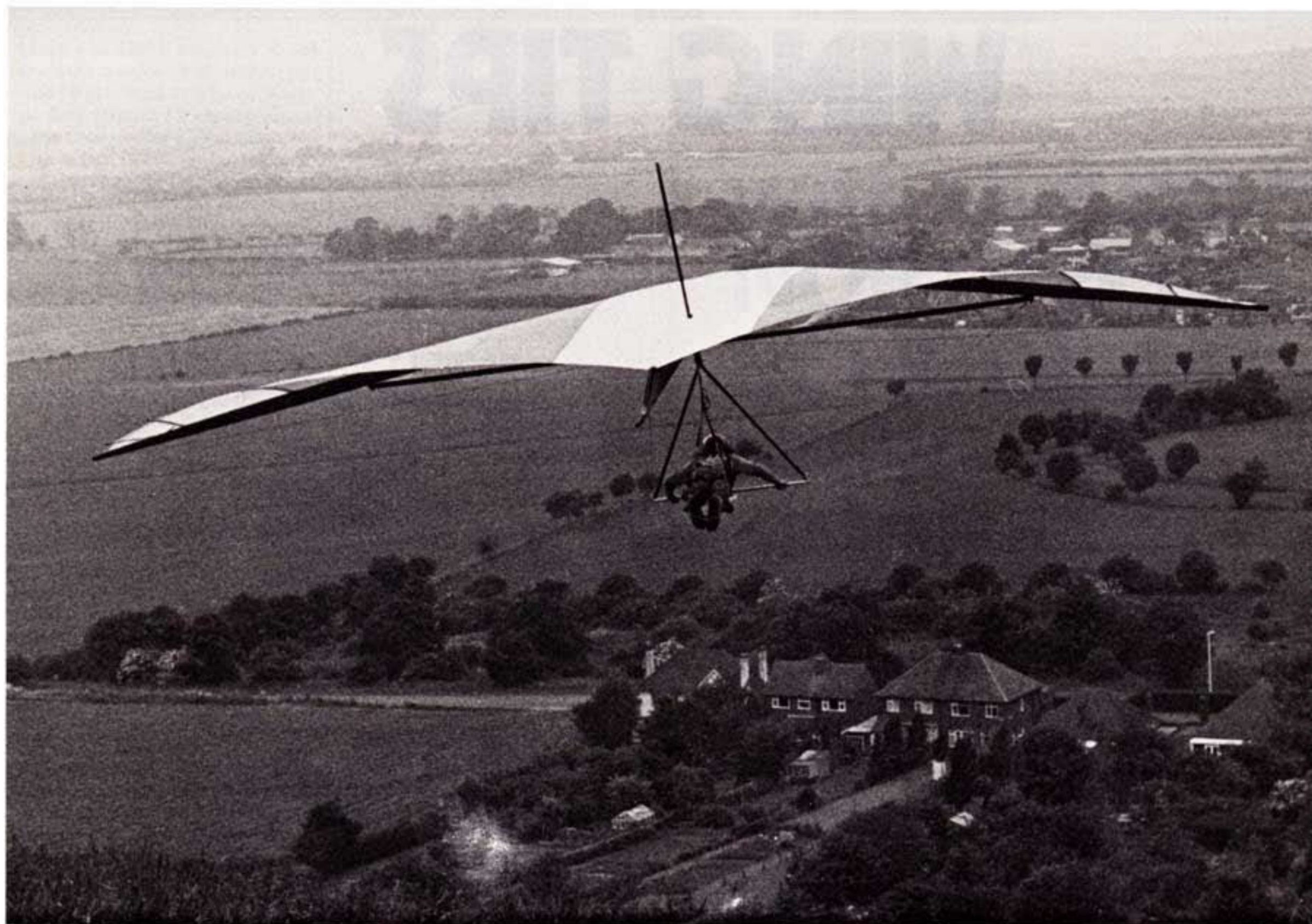
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Vortex 110 and 120

The 'VORTEX' 110 and 120 herald the advent of a new breed of high performance hang gliders and incorporates two totally unique features, 'VORTEX' generators and a permanently attached minimum washout control, known as the 'Bow String'. The 'VORTEX' takes a step up in performance and a step down in cost/complexity. No wing wires mean no tuning problems, the tuning is built into the sail and stays there.

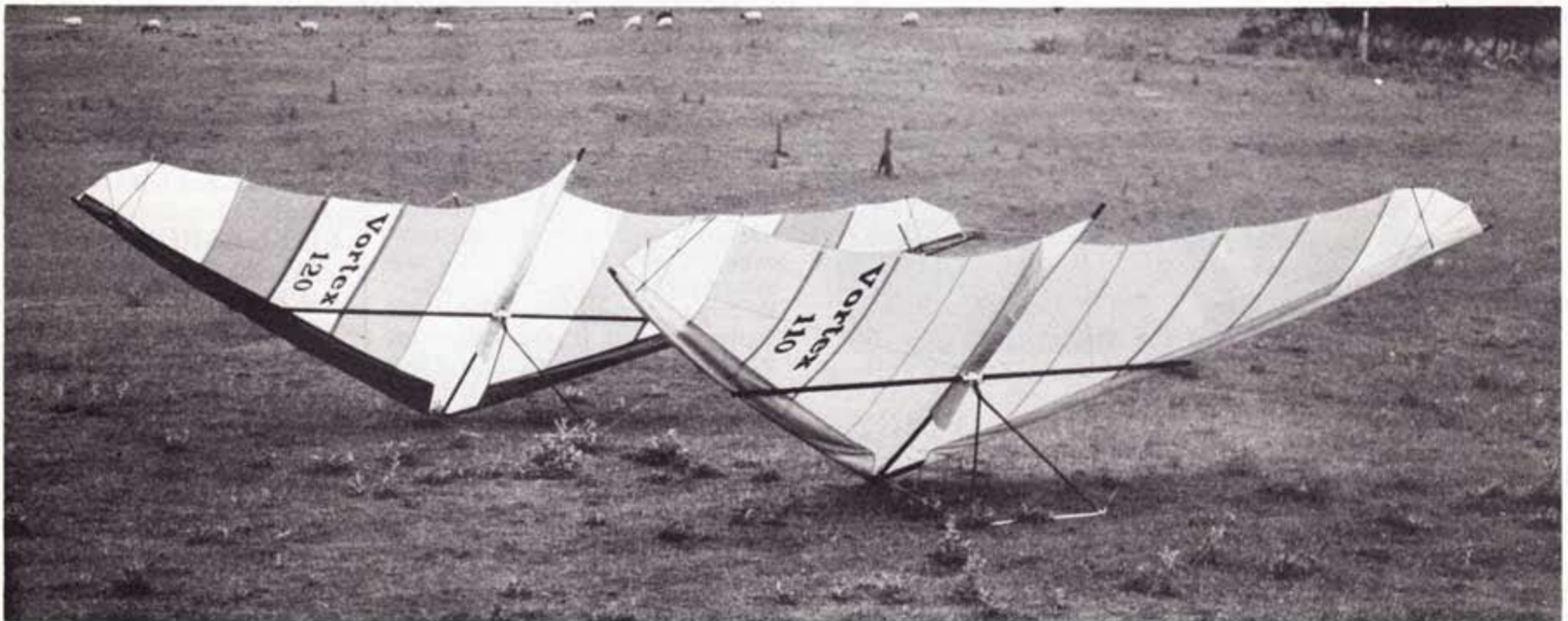
Although aimed at the intermediate/advanced market, EPC holders will readily take to the 'VORTEX' 110 with its light/coordinated pitch/roll control, stable slow landings (one of the benefits of 'VORTEX' generators) superb sink rate and a very wide speed range ('VORTEX' generators make possible the use of an efficient elliptical plan/form with its inherent low induced drag).

The 'VORTEX' 120 couples a higher aspect ratio and a larger wing area, giving the advanced pilot the performance he needs. The 'VORTEX' 120 has been soared in up to 40mph winds at Dunstable, a site not known for its gentle behaviour and yet at the lower end of the wind scale it will 'out sink' the best of the 'superships'. With the state of the art as it stands in 'simplified' gliders the 'VORTEX' has without doubt the best high wind and low wind performances available today.

Advances in design simplicity and sail manufacturing techniques allow CHARGUS to offer you the chance to own one of the most economical intermediate and high performance hang gliders on the market today.

'VORTEX' Generators

CHARGUS have been researching into high/lift devices for well over a year now. The idea of slots, flaps, etc being discarded because of their vulnerability and cost. Our design team then heard of present work being done in America involving a series of holes being cut into the sails of boats giving substantial increases of performance, CHARGUS obtained all the information available and then modified it to suit the requirements of the 'VORTEX'. The attraction being an increase of performance with what amounts to a decrease in weight. To give an example of the performance gained we built the prototype with the 'VORTEX' generators cut in but taped up. For its initial flights the glider was trimmed neutral and flown several times by one pilot. During landings it displayed definite tip stall tendencies due to the low wash out employed. We then removed the tapes and the C of G needed to be shifted two inches rearwards to compensate for the extra lift created being at the tips. Tip stalling at low speeds has also completely disappeared.



Benefits are then 1) Excellent low speed, high lift/handling characteristics and 2) low induced inherent tip stall problems.

'Bow String'

The main design parameter of the 'VORTEX' was high performance with simplicity, this means throwing away the wing wires, which in themselves are an easy way of controlling L/E T/E shape, but introduce a lot of extra drag; weight and constant adjustment. Doing without wing wires requires a carefully cut sail matched exactly to the flex rate of the leading edge. Having done this it is then obvious that any change in the optimum pilot weight is going to introduce either more or less flex in the leading edge and therefore lighter pilots can suffer from tip stall and heavier pilots induce too much wash out and hence drag. CHARGUS neatly overcame this problem by increasing the wing stiffness to extend beyond its normal pilot weight range and then impose a permanently attached wire from the wing tip to heart bolt area, that holds in the correct minimum wash out.

Materials

Howe and Bainbridge Dacron	Stainless steel rigging
Fibre glass battens	Fully zipped bag
Fully anodised air frame	

Dimensions

	110	120
Span	30 feet rigged	32 feet 8 inches rigged
L/E	19 feet	19 feet
Root Chord	11 feet	11 feet
A/R	4.6	5.23
Billow	.68	.68
Area	196 square feet	204 square feet
Knock Down length	13 feet 4 inches	13 feet 4 inches
Normal packed length	19 feet 1 inch	19 feet 1 inch

Cost

'VORTEX' 110 — £397.00 including bag and VAT
 'VORTEX' 120 — £415.00 including bag and VAT

Delivery

2-3 weeks upon receipt of £100 deposit.

The following items are supplied at no extra cost

Fully anodised Air Frame — Quick knock down facility —
 Push Pins — Fibre glass tapered battens — Howe and
 Bainbridge sail material.

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 Gawcott, Buckingham, Buckinghamshire.
 Telephone Buckingham 028 02 4321

The George Worthington Column

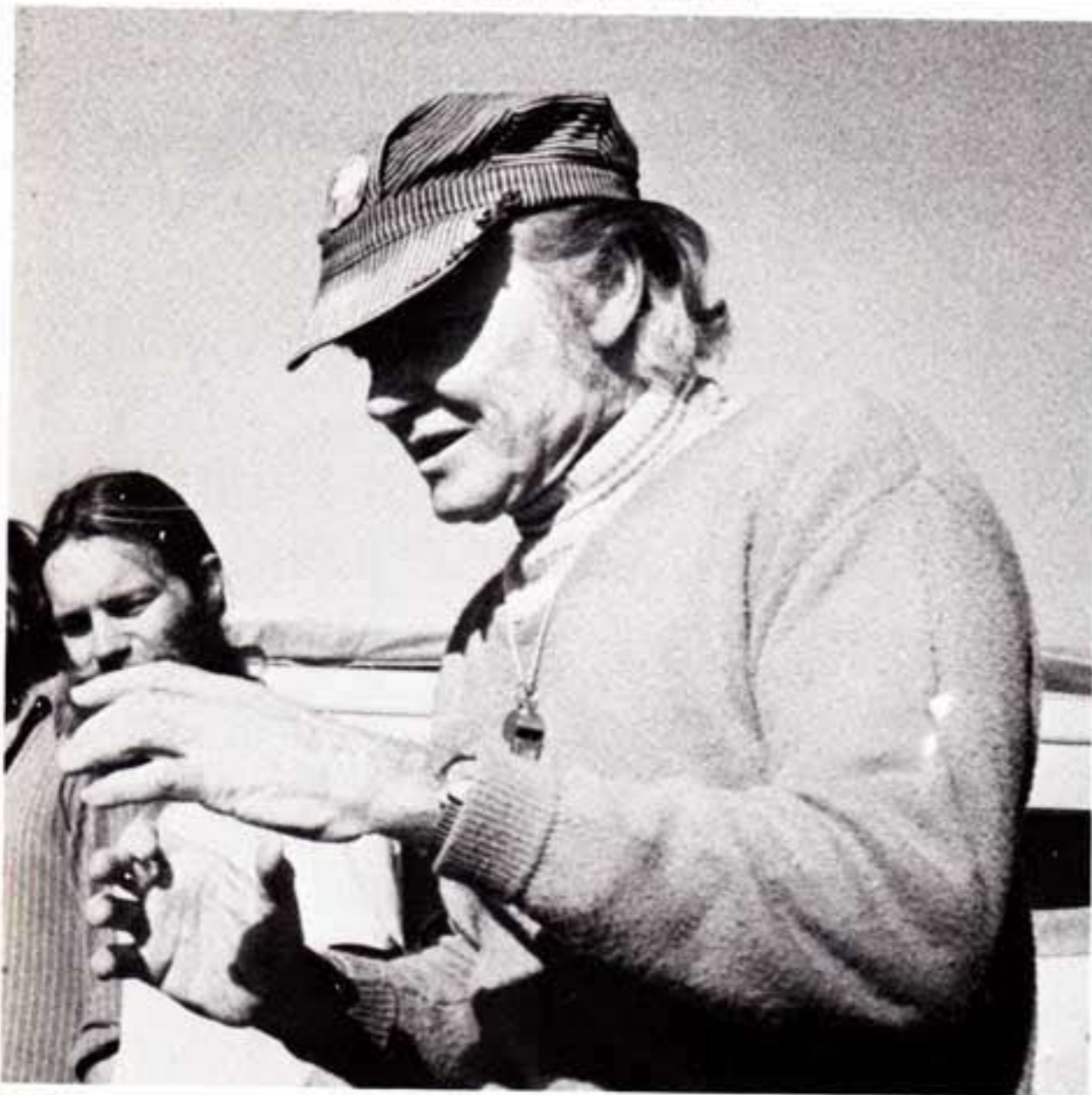


Photo © Bettina Gray

This month George Worthington starts the first of his columns in which he will reflect on the world of ultra-light flying, his own experiences in hang gliding and flying in the USA, his home. Despite coming to hang gliding later on in life, George has quickly accumulated an impressive list of achievements to follow his considerable success in the world of gliding. We print the more notable of his achievements below.

1. Present California Soaring Record holder, Goal and Return Distance. 505 Miles.
2. Present California Soaring Record holder, Goal Distance. 440 Miles.
3. Former California Soaring Record holder, Distance 440 miles (Held for 5 years).
4. Present World Record holder; Hang Gliding; Distance. 95 miles.
5. Present World Record holder; Hang Gliding; Goal Distance. 95 miles.
6. Present World Record holder; Hang Gliding; Goal and Return Distance. 48 miles.
7. Former World Record holder; Hang Gliding; Altitude Gain (from low point to highest subsequent altitude during one flight) 8900ft.
8. Holder International Soaring Diamond Badge #912.
9. 2nd in the United States with most long soaring flights (over 400 miles — 13 flights).
10. Over 10,000 logged hours in Jets, propeller airplanes, sailplanes, and hang gliders.
11. Over 39 years of intensive experience in flying machines.
12. The only pilot in the World with records in both sailplanes and hang gliders.

THE REAL WORLD

The title "The Real World" seeks to express the essence of my flying philosophy. I'm not a dreamer, designer, aerodynamicist, nor a builder or a politician, although I respect each of those categories immensely. I am a pilot. I'm 58 years old and of strictly average co-ordination and ability. And one of my main aims in my writings (and flying) is

to find and discuss as much truth as possible.

Fibre-glass Sailplanes and Hang Gliders:

In America, the sailplane pilots, and their magazine (Soaring), are not at all at ease with this crazy new method of flight called hang gliding. To them, it is dangerous, unacceptably new, and somehow a threat to their pre-eminence in that glamorous area of flying where motors are not used. They look down on us as being wild, irresponsible, and suicidal. We in hang gliding are thought of as the unwanted step child, forever consigned to the closet. This does not make me unhappy. I like it. I like us more than I do them. They are wonderful people, but have allowed themselves to become a bit rigid and unbending. And certainly they are opinionated, prejudiced and terribly unknowledgeable about hang gliding. I have a hunch that your British situation in these respects is very similar to ours.

I have done a great deal of Soaring (sailplanes) and a great deal of hang gliding. I believe I prefer the latter, because it seems much more filled with sociability. We can load 10 pilots and 10 gliders on one vehicle, drive up the mountain, socialize while assembling our machines, watch each other fly, land and socialize again while disassembling. Whereas 'they' come to the airport, get off in a corner and with a grim face extract their machine from its trailer, assemble it, buy a tow ticket, wait in line for a tow, and then fly out of sight. Or if lift conditions are poor, they land and grimly face the decision of whether to wait for better lift or to painstakingly put their beautiful fibreglass bird back in its trailer. There is, at times, some socializing, to be sure, but not usually of the free and easy uninhibited quality that we are used to. Of the actual flying itself, I feel that the two types are very, very similar. It is a lovely challenge and a real reward to fly 500 miles in a 44 to 1 sailplane. It is every bit as challenging and rewarding to fly 100 miles in a rogallo hang glider. So, in that respect, I feel sailplanes and hang gliders are just about identical.

Most of us cannot simply choose the one that suits us the best, because of finances. Sailplane flying, I would guess, costs about 2000% more than does the flying of Hang gliders. I happen to have a freedom of choice. The financial aspect is of no importance to me. I have *chosen* hang gliding.

Freedom of operation in all categories of motorless flight:

I think it is interesting to think about the various degrees of operational freedom which Rogallo hang gliders have as compared to fibreglass sailplanes. The rogallo has an L/D of approximately 8. The Super sailplane has an L/D of about 48. We can land the rogallo, undamaged, on sagebrush covered hillsides, small parking lots, narrow beaches, in fact, almost anywhere. The sailplane must land

Continued page 30

HANG GLIDING DONT'S AND DONT'S

by
Bob
Mackay
and
Bill
Lehan

THE FUN BOOK
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YARANA or friendship —
Ken Barker describes how he, Graham Slater, Simon Wooton
and Jo Binns learnt the meaning of this Indian word
when they visited what must be one of
the worlds last frontiers for hang gliding.
Photography by Ken Barker

In February I returned from the most interesting flying I have ever had — not the highest or the longest, but the most fascinating — in India. I had been asked, in my professional capacity as an actor and film stuntman to arrange some hang gliding sequences for an Indian film. They had seen 'Sky Riders' and wanted to copy it. So, I set off to Bombay with an arm full of inoculations and a new Midas Super E. The kite took four and a half hours to get through Bombay customs. But that is a long and exasperatingly unfunny story.

I found India a fascinating country with beautiful weather and lovely people, although the poverty side was very disturbing.

We spent many days driving around and being driven by the worlds most horrifyingly bad drivers looking for a suitable location. We eventually found it at Panchgani (near Poona), in among the mountainous holiday resort. A flat top 1,100ft. high mountain with a road to the bottom and a hotel within five minutes' drive from the top.

The wind was west between 3mph and 10mph. There was a strange uncanny silence from my disbelieving audience — most of them had not seen a white man, let alone one that jumps off mountains — I stood waiting for a little more wind — it didn't come so I went anyway. What a flight — I flew downwind for a mile or so to a village and 360'd over it. As I turned back I got a small thermal which kept me up a little longer. The scenery took my breath away. A mountainous valley with a beautiful blue lake — apparently full of crocodiles!

As I touched down on a dry rice



field I could not believe my eyes!! There were people coming at me from all angles, hundreds of them, old men on sticks, women with babies and children by the dozen. What a reception. They just stood and stared utterly bewildered.

They insisted on carrying the de-rigged kite about half a mile to the road — and I insisted on letting

them! I was then presented with half a pint of buffalo milk by the villagers, which I had to drink. I dared not refuse — as much as I wanted to, as, apparently it was an honour to be given this treatment.

The flight had lasted five minutes, but it is one I shall never forget. On returning I then had the difficult task of selecting three

good fliers for the job — difficult, because I have made a lot of friends in hang gliding — most of whom would love the chance to go. As we were using Midas Super E's we simplified it by cutting it down to Midas fliers and finally selected Graham Slater, Simon Wooton and Joe Binns who not only got on well together and with the Indians but did some pretty fantastic flying. I can now honestly say that providing they don't spoil it in the cutting room, the flying sequences will be some of the best yet put on film. The title is 'Yarana' and when it is released in England I will put a note in *Wings!* so you may dash to your local Indian cinema in Southall — or wherever!

The noise of the excited film crew was deafening as they filmed Graham (known there as Mr. Gram) diving with the bar down to his ankles, from 100ft. narrowly missing the jeeps driving along the top. They were full of "very vicked Willains" with guns! This was done during one of the only three soarable half-hour periods we had. But then with the thermals, even straight down "nil winder" could take three to ten minutes. There were more screams of delight as Joe and "Mr. Simons" 360'd and dived from around 300ft. remaining inches apart to within a few feet of ten lovely water-pot-carrying ladies making them duck to the ground like skittles.

Whenever any aerobatics were required we were asked to do "Maximum jugglery with PLENTY circles!"

We had to be careful around midday as the thermals were fairly strong at times. A glider pilot we met there said that they go up to



22,000ft. at times.

On the first day after about three hours of nil wind flying the wind increased to 20mph with thermals coming through. Joe delighted them by staying up for fifteen minutes doing "jugglery". When he shouted down for instructions, an amazed film technician said — "It is like God is talking to us from the skies". He then top landed to a fantastic round of applause, as by this time hundreds of people had gathered on top to watch.

It was then time for Graham to do some "jugglery" but by now the thermals were stronger and he spent twenty minutes trying to get down! We then decided — as we had previously thought that the middle of the day was out unless it was very light or nil wind. We all went out armed with parachutes but did not want to have to try them at 22,000ft.!

The location is 5,000ft. above

sea level and the hot thin air — in the 80's and 90's — made for some pretty hairy nil wind take-offs. Most of the take-off points had 200ft.-300ft. rock face sheer drops. Simon Wooton will confirm this — he actually ran half way down during one take-off!!

Possibly one of the most impressive flights I saw from below was with Joe and Graham, one above the other 360-ing in opposite directions over the camera from 1,000ft. pulling out 20 to 25ft. from the ground and landing next to the camera — they must have done fifteen 360's each continuously.

As soon as we landed a servant would run to us with a lemonade, cup of tea or glass of water (boiled, of course) — how about it site marshalls! Any other time it was just a case of asking or snapping a finger and you would have at least two servants by your side. We were certainly spoiled as the only

work we had to do was rig and derig. A lorry was kept permanently at the bottom ready to bring us and kites back up. We could not even put a harness on without at least two helpers.

But then it was not all easy — Graham Slater travelled on an annual passport which, we found out, does not admit to India. So he was detained in customs for twenty-two hours and with C.I.D. and British High Commission for two days. They did in fact want to send him back on the next flight. We celebrated his release with a big meal at the hotel . . . and he spent the next two days in bed with food poisoning! By this time he wished they had sent him back!

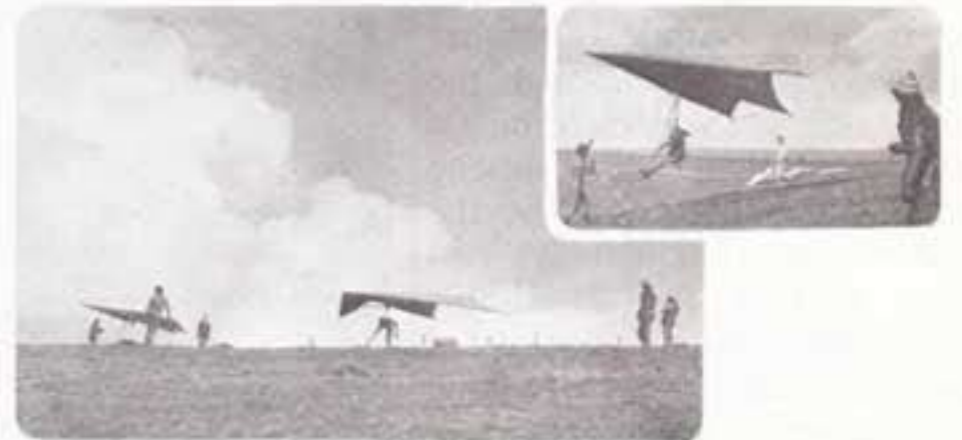
Also for various reasons, the Indians did not want to release the gliders from the plane, so I eventually persuaded the pilot to take them off as his personal effects — then the battle commenced to get them out of customs, you have never seen so many rubber stamps, forms and signatures.

That little process took two days. I also had to get them back — another long boring story. We were in India for sixteen days — eight of those we spent flying and the rest were shared between customs and drinking cold beer by the swimming pool under the palm trees — hard life show business!



Top left: Graham Slater dives at the 'Vicked Williams'. Bottom left: Camera crew on bus waits for Jo Binns to take off. Above: The 'Four daredevil Bombay triangle divers' with the director and camera crew. L. to r. Jo Binns, Simon Wooton, Ken Barker and Graham Slater.

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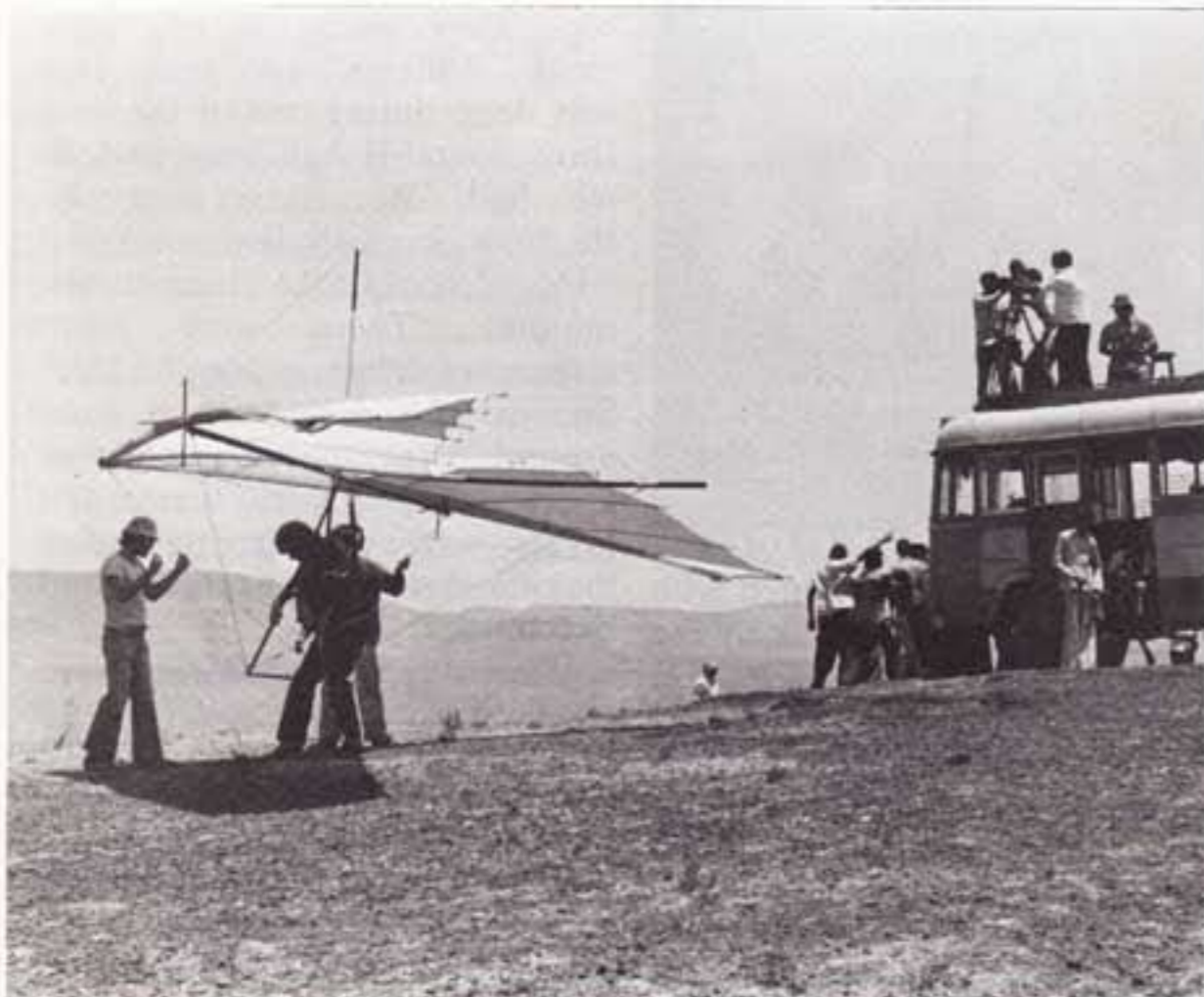
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NEWS ROUNDUP

Brian Wright . . . The man behind Eclipse by Simon Murphy

Readers of the Consumer Issue of *Wings!* will have read the name 'Eclipse' in the section devoted to the BHGMF and many of them will have done a double-take. Eclipse may be one of the smaller manufacturers, but in the South West they have long been well-established, and their area of influence is steadily expanding.

The man who started Eclipse has been deeply involved in the sport since it first arrived on these shores. Brian Wright bought one of the first British Rogallos and taught himself to fly. Once he had attained the basic skills he began to seek the limits of his machine, and was disappointed that he found them very quickly! On one fateful occasion he over-estimated his glide angle and ended up perched upon a high tension power line. A few seconds later, surrounded by a smouldering mixture of alloy and ripstop, Brian decided he would have to build himself a more efficient glider.

Soon, he arrived on site with a neat design which he had christened the SK90. It sported a wider nose angle, reduced billow and radial tip battens, and after minimal sorting out Brian was out-soaring the mass-produced kites. Everyone who flew the SK90 was impressed by its light and

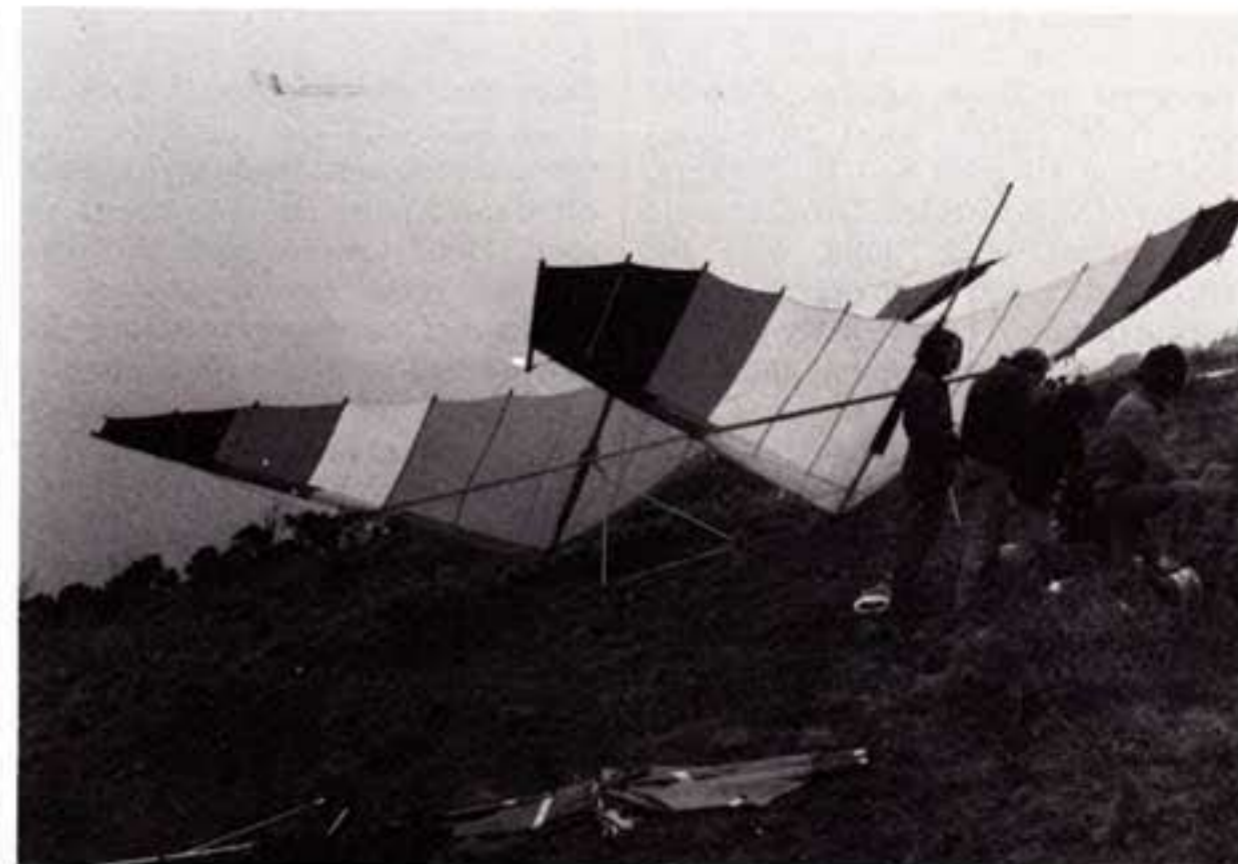


Above: Brian Wright. Right: The Eagle 2M in the background and the ESE in the foreground.

responsive handling, and so the demand had to be satisfied. Eclipse was born.

Almost every glider Brian built incorporated some improvement and the SK90 developed into a machine with chordwise battens, triple deflexors, preformed keel and wider nose angles. Indeed, the Eclipse 210 is the direct result of this continuous development process, although the only similarity between it and the original SK90 is that they both have sweet handling.

With a good all-rounder as the basis



of the range Brian widened his scope to design and build a series of more advanced kites. The end result is the Eagle 11, a super floater in the larger size option. The most recent developments are the E.S.E. which sports truncated tips, and a cross-boomless aircraft featuring very ingenious tips that are still on the secret list. The E.S.E. has undergone very thorough testing in the hands of Will Mills and is now ready for production, while the sparless prototype is still very new, but should become the top-of-the-range model if all goes well.

Quite apart from his manufacturing activities Brian Wright is the leader of a band with a strong local following. For such an active individual he seems remarkably quiet, and at times could be described as withdrawn. He has an unbelievably generous nature, and it was probably this aspect of his character which led to his teaching many people to fly in the early days. Even pilots who do not fly his gliders can be assured of his help and advice whenever necessary, which is but one reason why his friendship is a highly valued commodity in the South West.

FLEXIFORM FIND NEW MARKETS

Flexiform Skysails recently received an export order for 10 Spirit hang glider kits for a hang gliding club in the Canary Islands. The Spirits are going to a holiday company which has arranged hire purchase facilities to allow the gliders to be paid for over a period of time.

Flexiform are also sharing a contract to supply the soft drink manufacturer Seven Up with a team of 10 competition gliders with full equipment.

This means gliders, harnesses, parachutes, helmets etc. etc., and since the contract is a publicity venture each glider sail is to have a full Sunburst pattern sewn in.

The contract is share with Waspair Ltd. and is for 4 Vectors, 4 Gryphons and Olympus 160 and a Falcon 4. These gliders were chosen in order to present a strong team for International Competition.

Waspair are currently manufacturing the sample sail which will be a masterpiece in sail art work. Over 7 colours will be used and the



A Vector takes off at a misty league.

design features clouds, flowers, sun rays etc and will probably use over 60 separate pieces of cloth. Designed by Barry Bourne of Waspair, these glider sails will be seen world wide, as part of promotional publicity by the 7 Up Corporation.

British Gliders and equipment were chosen for the team, owing to the excellent performance, competitive

price and above all the service offered by British manufacturers — quotations were sent out on a World Wide basis and the order was won against strong American competition.

The contracts were negotiated by John Hudson of the Main Welding Co. whose contacts with the Canary Islands eventually led him to the business.

MILL HILL

After a test case in which Frank Tarjanyi was charged with various contraventions of the Mill Hill By-law, local magistrates rejected the case against Frank and awarded £200 costs. The Magistrates also adjudged the law to be "unreasonable and repugnant in law."

This victory is the most welcome piece of news we have had in a long time, but it will be a costly victory if we regard it as anything but a battle in a larger campaign.

Tony McLaren will advise us on the law (and he is Chairman of the Southern Hang Gliding Club, who led us in the fight against the Authority). Authority may well appeal, moreover they and perhaps other Authorities — will not give up in their attempt to ban or seriously restrict hang gliding — if they think it justified. It is up to us, not to raise two fingers, but to demonstrate our responsibility and our wish to enjoy the freedom of hang gliding — but not to interfere seriously with the wishes of others. Let us be magnanimous in this small victory and show just how responsible we are.

NEW PARACHUTE SYSTEM

Odyssey sails of New Hampshire have just released a new emergency parachute system for hang gliders. It is designed by Dave Aguilar, a master parachute rigger, sport parachutist and hang III pilot and Ed Vickery, owner of Skysports Inc. Drop tests and live jumps were done with the triconical shaped chute opening in 1.8 secs at 60mph. The system weighs 6lbs. has a one step deployment and a rate of descent of 17ft per sec. at 225lbs. The parachute is available through Odyssey Sail, P.O. Box 60, Dept BR, Wilton, NH 03086, USA, at a cost of \$290 US with container included. The chute is also available through Sky Sports. Odyssey are asking for dealership enquiries, so availability may become more widespread.

TREADING GRAPES IN TRIER

HANG GLIDERS — mad fools, stop 'em at any price. You've all met this mentality haven't you? How about a place that says welcome!! Take the main autobahn out of Trier (SW Germany) towards Koblenz, and turn off about 5 miles out at Longuich slip road. Head towards Riol and there you have it, set amid the vineyards in the heart of the Mosel valley. The local lads wanted to fly, so the authorities watched them for a bit, saw they were serious and set about helping them. A take-off area was cleared by the simple expedient of chopping down a few dozen trees on the top of the 750ft hill. One of the broad meadows way down below offered itself as a landing area, but the trees and piles of stacked logs that had lain there for years presented

a problem. Ah! But this is Germany, so down came the trees, and away went the piles of logs. The road to the top soon became a morass, churned into an almost impassable gulley by scores of cars. No problem, now there's a tarmac surface right to the top, and an assembly area too. Visiting fliers can't find the area very well. No? Soon sort that one out, and signs appeared in the village pointing the way. Accommodation is plentiful, very cheap and luxurious by any standards. OK lads? Right, now you must show us that you are organised, and that means a Pilot's licence, a parachute, a helmet, now carry on. Go there any weekend, and you will meet a couple of dozen of the happiest lads in the sport anywhere, helpful,

cheerful and friendly. Nobody is rated as an outstanding crack flier, nor seems to want to be. Few of them seem inclined to soar, and top-to-bottom with maybe a pass or two seems to keep everyone delighted. Competitions — more for laughs than anything else take place every once in a while — and the razor edge that prevails elsewhere just doesn't exist there. If you enjoy flying, can handle thermals, like nice scenery and good company, try Trier for a holiday visit. You won't want to leave the place.

P.S. If you don't have a head for booze, keep away in autumn, for the air itself is enough to get you half sozzled when grape treading time comes round. Smashing!

Bill Cowell

CALENDAR

- July**
 1-4 *1st Motor Hang Glider Open, Perry Airport, Perry, Florida
 7-15 *1st X-C Hang Gliding Classic, Bishop, California
 19-29 *6th Annual USHGA US Nationals, Hyner View, Pennsylvania
 28-30 1st Motor Hang Glider Open, Boris Popov, St. Paul, Minnesota
- August**
 1-6 *EAA Fly-In and Motor Hang Glider Activities, Oshkosh, Wisconsin
 3-7 *Grouse Mountain Open, Grouse Mt. Vancouver, British Columbia
 4-6 *4th Annual Mt. Swansea, Invermere, British Columbia, Canada
 6-13 *5th World Boat Tow Meet, Cypress Gardens, Florida — Cash Prizes
 17-19 *4th Annual Boat Tow Meet, Chicago, Illinois — Cash Prizes
 24-27 *4th Annual Telluride (Manufacturers Invitational) Telluride, Colorado
 26-28 *Great Britain Open
- September**
 3-10 *European Championships, Kossen, Austria
 12-14 *4th Annual CIVL Meeting, Kossen, Austria
 14-17 1st Boat Tow Meet, Kossen, Austria
 22-24 *3rd US Masters Invitational, Grandfather Mt. Linville, North Carolina
 29-30 *3rd Annual Great Race X-C, Crystal Flight Resort, Chattanooga, Tennessee
- October**
 19-22 *America vs Australia vs Canada vs England Team Meet The Americas Cup, Lookout Mountain, Chattanooga, Tennessee

KOSSEN 1978

The British Hang Gliding Team has been chosen for the Kossen World Championships. The team is: (in no particular order)

Brian Wood
 Johnny Carr
 Bob Calvert
 Bob Bailey
 Graham Slater
 Bob England
 Tony Beresford
 Mick Atkinson
 Mick Evans
 Keith Reynolds
 Lester Cruse
 Norman Millhouse
 Reserve: Mick Maher

It should be noted that John and Jeremy Fack could not be considered for selection, having flown for Holland in an earlier world championship.

WELSH AREA LEAGUE

The Welsh Area League Competition was completed on 17/18th June at Aberystwyth. Saturday was blown out, but Sunday was a beautiful day with a sea breeze. Carl Ford won the Area League on his Moyes. Just as well, he brought his bottle of champagne with him! Dave Thomas chased him all the way, and finished in second place. Carl and Dave shared the champagne.

Thanks are due to the marshalls, including Paul Bridges, and Rod Lees who also organised the barbeque on Saturday evening.

Lesley Bridges
 Welsh Area League Organiser.

NORTH WALES LEAGUE

The fourth league competition to be held in the North Wales area was rained off. Only half of one task was completed in the three days of the event.

NATIONAL LEAGUE, Position (true) after 3 competitions

June 1st, 1978

Pos	Name	Machine	Birdman	Southern	Scottish	Total
1	L Cruse	Moonraker 78	131.02	400	400	800
2	K Reynolds	Gryphon	399.61	398.15	297.60	797.76
3	M Maher	Gryphon	400	263.22	338.99	738.99
4	Jmy Fack	Phoenix 8	294.63	344.32	385.71	730.03
5	J Fack	Phoenix 8	331.31	308.72	395.87	727.18
6	B Calvert	Hiway	350.40	372.35	251.95	722.75
7	M Evans	Gryphon	327.81	318.91	390.87	718.68
8	G Slater	Midas	324.33	366.74	270.65	691.07
9	B Wood	Moyes Maxi	366.50	317.57	274.19	684.07
10	B Bailey	Wills XC	350.22	264.84	308.80	659.02
11	G Snape	Vector	314.57	331.96	289.88	646.53
12	R Close-Smith	Gryphon	269.75	368.09	274.71	642.80
13	N Millhouse	Superlynx	346.65	289.64	211.26	636.29
14	T Beresford	Gryphon	139.64	336.10	299.83	635.93
15	M Atkinson	Moonraker 78	303.78	330.84	237.40	634.62
16	B England	Phoenix 8	275.31	352.27	198.52	627.58
17	J Carr	Moonraker 78	228.64	376.05	346.98	623.03
18	J Ketelaar	Moonraker 78	290.35	204.79	327.13	617.48
19	T Birkbeck	Gryphon	301.06	247.65	313.19	614.25
20	B Hudson	Hiway	352.62	194.92	261.27	613.89
21	A Weeks	Gryphon	286.93	289.70	311.86	601.56
22	P Baker	Moyes Maxi	225.46	356.18	240.60	596.78
23	R Wates	Gryphon	223.63	263.94	318.46	582.40
24	P Day	Cirrus 3	195.03	235.34	343.71	579.05
25	I Thomas	Hiway	62.33	294.62	282.70	577.32
26	R Brown	Vector	240.12	296.58	271.18	567.76
27	J Hudson	Vector	258.11	302.07	251.12	560.18
28	C Betts	Hiway	253.73	301.98	144.01	555.71
29	J North	Vector	319.28	235.18	227.31	554.46
30	M Southall	Moonraker 78	232.12	318.35	105.10	550.47
31	D Clothier	Hiway	231.71	317.57	229.67	549.28
32	F Taryjani	Hiway	274.56	241.87	179.86	516.43
33	G Leason	Moonraker 77	241.65	270.43	237.73	512.08
34	C Johnson	Hiway	184.21	285.45	217.95	503.40
35	D Goepel	Hiway	262.27	237.18	—	499.45
36	A Doubtfire	Moonraker 78	230.65	148.93	248.68	479.03
37	BJ Harrison	Hiway	146.71	294.57	170.93	465.50
38	R Black	Gryphon	226.51	230.71	215.75	457.22
39	R Walder	Gryphon	195.03	257.24	—	452.27
40	G Hobson	Skyhook	179.57	265.17	—	444.74
41	T Taylor	SST	177.81	140.06	266.62	444.43
42	J Bond	SST	204.35	131.19	237.56	441.91
43	B Chaplin	Olympus	206.80	225.12	214.69	439.81
44	L Gabriels	Skyhook	194.38	232.89	—	427.27
45	D Heffer	Moonraker 77	162.54	257.16	—	419.70
46	K Cockroft	Hiway	205.31	110.81	156.78	362.09
47	J Thomas	Homebuilt	234.10	127.83	—	361.93
48	K Messenger	Moonraker 78	256.67	76.30	81.88	338.55
49	R Middleton	Wills XC	147.40	181.92	124.37	329.32
50	B Milton	Moonraker 77	154.33	151.08	151.89	306.22
51	D Worth	Hiway	130.15	172.80	—	302.95
52	S Marshall	Cirrus 3	150.09	135.64	—	285.73
53	J Bowyer	—	182.70	92.13	—	274.83
54	R Ware	Midas	137.70	119.04	136.49	274.19
55	T Fuell	Hiway	117.15	138.23	—	255.38
56	J Millburn	—	140.37	41.07	—	181.44
57	K Jordan	Hiway	—	177.80	—	177.80
58	D Weedon	Moonraker 77	168.98	—	—	168.98
59	C Coleman	Homebuilt	160.02	—	—	160.02
60	D Lyne	—	—	—	—	0

FLYING IN THE MORAY FIRTH AREA

Pete Milward soars his Osprey



The Moray Firth area is flown by the Osprey club based in Inverness, and suffers from the opposite problem affecting the Southern clubs. Too few members and sites are widely spread, up to 60 miles N.E. and 60 miles E. of Inverness. This often means that during the week there is no one to fly with and in deserted areas lone flying is not advised.

The club has at present four fairly experienced pilots and a total of fifteen members. We welcome visitors to this northern part of Scotland. If you would like to come and fly in this area there is a payment of £3 for temporary membership to cover insurance for our sites. The club will supply a site guide, and list of people to contact before flying.

Our flying areas are varied, and have needed a good deal of research to find and gain permission to fly. Many potentially good sites are not used, either because we always lose to the Grouse shooting interests, we would be flying into a deep narrow valley, or they are totally inaccessible.

The best hill site in the area is a S.W. facing hill about ¾ mile long and a height from take-off to landing area of 700ft. It is smooth, and ideal for learning and top landings. This hill is also a good cross-country starting point, a potential we hope to realise this summer. We have a number of other hill sites which will take N.E., N., N.W., S., and S.E. wind directions. Few have roads to the top!

We have a fair variety of cliff sites in the area but unfortunately not facing the best wind directions. We can cover S.E., E., N.W., and N.E. There is a line of S.E. facing cliffs north of Inverness which stretch for about seven miles rising at their highest point to 600ft. but along much of them there is no beach or landing area, so flying there is not for the inexperienced. Most of the cliff sites have rounded tops making for easy take-offs and in some areas, top landings.

There are a large range of weather conditions ranging from days on end of

50mph gales with horizontal rain, sleet or snow to the well known still air. In summer there is quite often a sea breeze which begins in the North and works round to the east during the day. We are hoping to take advantage of this on some of our newly obtained cliff sites.

To end with, as an inexperienced Scottish nonk who will not fly in winds of 40mph, please do not come up here and try it. The turbulence generated by the Scottish mountains will provide a nasty fright. They are not the Alps but are still pretty rugged and over 4000ft. high. Club members have experienced negative 'G' (helmet against keel) in wind speeds of 20mph.

If you are interested in flying in the Moray Firth area write with S.A.E. to the Club Secretary, Osprey Hang Gliding Club, 22 Murray Road, Smithton, Inverness, Scotland.

Pete Milward

WILL JONES RETIRES FROM COUNCIL

Will Jones has retired from his position on council. It will be a serious blow to lose his services, but it is an opportunity and a challenge for someone else to come forward. Will, has worked very hard and it is a measure of his understanding of the amount of work that has to be done, that he should decide to hand over to someone with the time and dedication to do the work demanded of a council member.

All clubs, particularly those in the North, (so that we can maintain a regional balance) should look around and find one of their members who has the good of hang gliding at heart, and is prepared to work his heart out for it, to nominate him to the council vacancy. Council does have power to co-opt a new member and it is hoped that he will then seek formal nomination at the AGM next year.



IRISH HANG GLIDING ASSOCIATION MAG.

The IHGA have started to publish a hang gliding journal at a cost of 25p an issue. The magazine is available from

its editor, Roy Hammond, 40 Beaumont Crescent, Cork. It is full of anecdotes, stories and true Irish wit.

If the Seagulls can do it

by David Bell

During the Easter Period Robin Laidlaw, Matt Jayne and myself went over to Ireland for the Cork-Achill Island Fly-Ins.

On the first day of the Cork fly-in, the wind was an uncomfortable 30-40mph. People moped around watching the wind, someone took a Gryphon off the roof, walked it up the road then put it back. After an hour the meet was called off — we headed for the pub.

There, I sampled my diet for the next ten days. I really didn't like the stuff before going across, but it's all true, Irish Guinness is beautiful! Soon we were talking about flying again — some sand dune flying was suggested Mark Leslie (the Irish Hang Gliding Site Map Man) showed us on the map a two mile finger of dunes sticking into the Atlantic over on the west coast. He said they were 30 or 40 miles away, but as we were to learn later Irish miles convert to English miles on a ratio of about 2 to 1!

About this time Bob Bailey, Bob Calvert and a couple of other fliers arrived in a transit van. They were keen to go straight out and do some flying, so followed us along with a

group from the Cumbria Club in a VW.

We took turns at getting lost, and after a couple of hours or so we arrived at the dunes looking out over a windy Atlantic. It was a bit of an anti-climax, sure they were two miles long, but we had hoped for something a little taller. The dunes were, on average, 20ft. high and broken with some large gaps all the way along. Mutterings of dissent were noted when someone watching the seagulls said, "Well, if they can do it!" Kites were taken off the vans and harnesses put on — don't think anyone bothered with their altimeters though.

Although the site was top driveable I didn't think it was really worth my while rigging so I decided just to watch.

Trevor Birbeck rigged up first with his Gryphon and was itching to go. Bob C. helped Trevor with a cliff-type wire launch. Excitement rose, and with the command 'Release' the Gryphon was off. Before you could say, "It isn't soarable" Trevor had flared hard, landing on the beach. A clear three-second flight — fast machines these Gryphons.

Dave Weeks from the Cumbria

Club was next to give it a go with his Vector. The wind was much the same, 16mph slightly from the right. Taking a different approach he took a short run from a few feet behind the lip, and he faired slightly better. I think he managed to hit the stirrup and turn a bit left before the flare for landing.

Bob C. was next to give it a try and really did quite well, a good wire launch, followed by a right turn, making a beat of 30 or 40ft. and back to the take-off before the slightly off wind conditions got the better of his downwind leg and he too landed.

A couple of people decided to derig. I was thinking of the Guinness I was missing, when suddenly someone yelled, "He's soaring it".

We stared down the beach and about a mile away, a kite was bobbing and floating just above the marram grass, but definitely soaring.

We ran down the beach to watch. We were amazed. Sometimes the wing tip just brushed the grass, sometimes 20ft. above it. At one point the kite dropped within a couple of A-frames of the beach and flying on half of nothing the kite climbed and floated back up to the top. A larger gap in the dunes beat him and a grinning Bob Bailey set down on the beach. Not bad

for the first flight on that kite — he was test flying it for a chap who had just bought it.

Not to be beaten by the seagulls or Bob B. — Bob C. asked a couple of us to help float his kite along to the far end, where Bob B. had launched from. It was a slightly higher point than the rest of the dunes, but you could still have just about jumped onto the beach from it.

The wind was still 14-16mph slightly off the face. Bob C. was quick to launch and getting good height by dune standards, headed up the beach. The extra height helped and Bob C. jumped the gaps arriving at the cars after about ten minutes.

Bob B. tried again and did well until the same gap proved too wide and he floated down onto the beach. Apparently the lift band was so narrow in places that only one wing was lifting while the other was in dead air.

Getting back to the cars Bob C. dug jokingly at Bob B. "Conditions must have been better when I was flying Bob". Bob Bailey laughed. Maybe if he'd been flying his own XC . . .

As the evening drew on we headed back to our Hotel in Cork. Maybe I'll fly tomorrow. ☺



Top left: Trevor Birkbeck prepares to launch aided by Bob Calvert. Top right: Bob Calvert is off. Bottom left: Bob Bailey lands. Bottom right: Calvert finally soars.

CLOSE ENCOUNTERS OF THE TWENTY FOURTH KIND

by Bob Calvert



Wednesday 19th April dawned overcast and S-SE. By 11.45am most of the cloud had burned off so after much pondering as to where to go I finally arrived at Parlick South Face. To those who knew it, it is 600ft. shallow and it seems almost impossible to get 100ft. over the top. Hence I have in the past, avoided the place. Feeling I had made a classic error I reluctantly set off up the hill (base 1000ft. ASL). A minibus full of school children kindly carried my kite half way up the hill and I rigged in about 25-30mph. I took off in a lull expecting horrific horizontal winds but fortunately it was

not too bad and I cruised forwards. I climbed into wind without turning up to 1750ft. ASL. Still in lift I circled back level with the top and then struggled to penetrate back upwind. I again climbed and arrived at 1000ft. above my car. Circling again I rapidly climbed and went over the back of the hill at 2500ft. ASL. Continuing to climb I continued downwind up to 4650ft. or 4150ft. ASL. I remember wishing I had my barograph on but alas there were no official witnesses. It was very smooth and I was 500-1000ft. below the heavy cumulus clouds. Continuing downwind I found zero sink so I circled and drifted. At last small fluffy cumulus was developing in the blue sky so I glided across to them. As soon as lift was encountered I circled but it was violently turbulent. Clinging to the bottom bar, the vario varying from 2 down to 6 up I assumed I must be on the edge of the powerful lift. Wrong. It was turbulent all over and after five to ten minutes of deflation and coming out of the harness I was very glad to leave (although only 100ft. higher at 3500ft. ASL). The visibility was very poor (six miles) but I flew by compass due downwind. Managing only the odd circle in zero lift, I arrived just short of Lancaster at 1700ft. ASL. I saw some seagulls circling nearby and joined in on our mutual interest lift! Back at 2500ft. I crossed the motorway and Lancaster with ease and directed my thoughts towards the problem of Morecambe Bay. Only when I had

returned to 3000ft. did I dare decide to fly straight across. The far side was only barely visible in the haze. Fortunately the tide was out and I was flying mainly over the sands and hoping for lift. As there was no chance of gliding to Barrow in Furness I aimed for Silverdale which was considerably crosswind and the Lakes ahead but with cloud cover everywhere. After several mini-thermals and a lot of ear popping 9 down, I followed what looked like a road but turned out to be a railway and flew past Silverdale. Even at 500ft. I still circled in little thermals but alas landed near Arnside at Carr Close (as in Johnny). Unclipping I dashed towards two observant locals who supplied me with a map, ruler, telephone, tea, cake — in that order. I measured the distance several times — 23-24 miles. A personal best and only inches off Bob Bailey's record.

CLOSE ENCOUNTER No. 2

Take-off: 4.20pm

Landing: 6.35pm

Take-off wind: Nil

Max altitude: 5550ft. ASL

Max height gain: 4100ft. ASL

Duration: 2 hours 15 minutes

Total point to point distance: 21 miles

Equipment: Hiway Super Scorpion

Instruments: Colver Vario, Sunto Compass, Flying Suit, boots, gloves!

Background Information: Sea breeze — NW-East at good level

In summer '77 I launched in still air — climbed 2000ft. heading for the coast and after 5 miles encountered a sea breeze front (little did I know it at the time). After circling for ten minutes in zero lift (which was the front) I made

the mistake of flying out of the back heading for the coast (max. distance). I fell out of the sky in little over one minute. Straight to the gliding club I learned the errors of my ways!

Tuesday 9th May was a superb day. No cloud, a crystal clear blue sky. I arrived at the Blackpool Gliding Club site to be met by rapidly diminishing easterly winds. Rigging part way up the hill I managed to struggle to the top. I expected the day to be a high pressure, stable sort of day with no real thermals but I was very wrong and it was mightily turbulent. I flew another four times finding thermals each time to get back on top and to gain perhaps 1000ft.

In what were now almost calm conditions I noticed a small fire toward the coast and the smoke was on shore — the opposite direction to the wind on the hill (offshore). I knew that if I could get airborne in a thermal I could fly into the convergence. It could mean a long cross country. I informed the others of my intentions and planned, with Jeff Ball, formation flying to look for lift. As the slight easterly (1-2mph) ceased and the air felt warm I yelled that I was convinced it was now time to go. Bodies rushed for helmets and kites as I launched into still air straight into a 4up and circled. Jeff Ball landed immediately below. Drifting over the back of the hill climbing I began to feel relieved (no walk this flight) and then I noticed I was drifting back the other way and still climbing fast! By now Jeff Snape had taken off the south face and was chasing after Jeff Ball.

I had connected with strong 6-8up and circled tightly all the way up to 5550ft. vertically over take-off. Meanwhile Jeff Snape had flown into the west face and was soaring there. The Lancaster fliers, Ian, Trevor,

Pete and Chris were walking over to the other side of the hill (west). The Front was moving inland and as soon as I realised I followed it. My intention was to go along the coast to the Lakes but progress this way was slow so I chose to go the other way south over familiar ground. I continued south noting that the wind direction was as much as 90° different in the same field! Whenever out of lift I searched for a source of lift and did not just go for distance as I knew that one mistake and I would be grounded. Feeling certain that the lift was sea breeze front, I felt that I was flying a knife edge which was easy to fall off. Whenever I lost the lift I weaved towards and away from the coast to look for lift. Any good lift and I circled. Behind Longridge Fell, dark fells produced good thermals which I spent a long time with but did not gain much height. On the way to Ribchester I descended to 1600ft. but climbed away again to 2000ft. then 3000ft.

Every few minutes a seagull would glide by in a straight line without flapping, heading along the sea breeze. Sometimes they would be slightly across from me and I would adjust my path accordingly. I trundled along at a very slow pace ignoring lift. I could now see some of the local features near my house and a feat I had only dreamed about seemed about to become reality.

I was conscious of Salmesbury Airfield and soon I was sitting over the end of the main runway 25 but fortunately with enough height to be above their airspace. I kept a sharp lookout for aircraft. My route was exactly the same as if I was driving home.

The lift was becoming easier and more frequent as I approached Blackburn and soon I had climbed back to 4500ft. I looked down and saw my house (which was very difficult to

find) and still staying with the sea breeze flew across the bus station to Phil Robinson's. Shouting and screaming, I hoped he might hear but alas he'd gone flying. It was now that I knew speed to be important as it was 6pm and the lift must soon diminish.

Now came an awkward decision. I was at 4500ft. and approaching Manchester TMA (3000ft.-22000ft.). I decided if the record was worth having then I would do it properly and pulling speed along 160° I expected to descend as well as going very fast I was still in 0-2up so I pulled in hard. I knew time was running out and this extra speed, as I began losing height, was some comfort. At 3800ft. I lost lift and continued descending at a slower cruising speed. Arriving on the outskirts of Bolton some eight miles later and a lot lower searching for lift, I flew over Bromley Cross and climbed slowly but not consistently enough and soon the inevitable landing occurred at Dunsar, just past 'the Last Drop' Inn. After 2 hours fifteen minutes my legs were stiff but I was not at all tired and within minutes my luck lasted long enough to get me a lift home.

Conclusion: Not only is Thermal and Wave flying feasible for cross country flying but so are sea breeze Fronts. I learned not to circle in lift but to fly along it.

Next time I will have a proper map strapped to the Vario.

I recommend *'The Story of Gliding'* by Ann Welch. Hang gliding is following gliding in every way. Next to come will be higher speeds to achieve greater distances in daylight hours.

As I gain experience I become more confident. For example, on this last flight when I lost the lift and entered heavy sink I turned back and went and found the lift, gaining height. When I continued downwind I was higher and the sink was not as severe. ☺

THREE QUARTERS OF A MILE OVER BRIGHTON

by Johnny Carr



Date: Monday 10th April, 1978 at Devils Dyke, Southern League.
Kite — Moonraker '78.

Monday arrived looking a promising day, clear skies, cold, and thermal activity beginning to make the clear sky look speckled with white cloud. Like many pilots I was indulging in some free flying, the wind was quite strong at times, I would say 30mph. About 10 o'clock the lift was followed by sink (the bad variety) and many pilots were complaining about sink coupled with penetration difficulties. The air by now was occupied by about fifteen pilots, I decided to fly down to Truleigh, 2½ miles further down the ridge. This wasn't easy but I was rewarded when I got there by good lift and the hill to myself. I stayed at Truleigh for about twenty minutes wondering if I would be missing the

briefing but looking back to the Dyke I could see a lot of fliers still in the air, anyway, I was getting cold now, so I headed back to the Dyke. With about 700ft. above T/O, just before the Dyke, I picked up a blob, by now the thermals were much more frequent and consistent. I looked up and saw Kevin Cowie climbing out into this real big one. Ray Sigriest and I saw this and we both had the same idea, let's get over there! Which we did. We arrived at the spot about 200ft. below Kevin (it hurt saying that) when suddenly, with 1000ft. a minute up, both Ray and myself shot up in hot pursuit of Kevin. Although we never caught him, we reached about 1,200ft. above T/O. Twenty minutes ago I was going to land because of the cold, but you know how it is — you just have to wait for one more blob. By now I could see all the pilots gathered below so I landed to be told about the next task. A down wind glide to cross-roads 2½ miles down wind, easy if you use thermals, virtually impossible without good height which could only be obtained by thermal lift. The task sounded peachy. Before I finished talking about it, Chris Johnson was about 1000ft. above T/O and about ¼ mile behind the ridge. (time to go, time). Checked in with Roy Hill. Sniffed around for ten minutes 500ft. up, peachy. Pushed out fully, still reading 600ft. up, waited about eight seconds, still climbing. Contrary to other beliefs, I personally like to turn when I have been climbing steadily for at least eight seconds and whilst still climbing. I then watch my Vario out of the corner of my eye and if it's still reading 5 or 600ft. up that's when I go for it. I was about 700ft. up above T/O and doing gentle 360's. Soon I was 1000ft. and climbing 600ft. a minute. Behind the ridge I was 1600ft. above the landing field and had to lose it to land and score the task. As any X.C. orientated pilot will tell you, it is wicked to even consider that. After about five minutes 360-ing and generally throwing the Moony all over the sky, I was still 700ft. above the landing field. I thought I would slow down and see what the air was doing, (you won't believe this) 500ft. a minute up on Vario, more 360's, will I ever come down? Eventually I did come down.

Meanwhile, back at take-off, there were still a lot of fliers to go, but for me the Southern League was over (my comeback campaign was not a brilliant success). I decided then to go for a big flight as the conditions that day were the best I had known. While rigging I could see everyone was up at about 800ft. above T/O. I knew I had missed that one but there were plenty more. I took off when a few were well down and waited my chance. I flew over the north bowl and registered a magic 500ft. up. I climbed with it upwind and in no time had 800ft. above T/O, looking down on all the fliers I had just been with, I didn't hang about. I had made my mind up this was the one. I stayed with it climbing to 1500ft. and still not far behind the ridge. I had

obviously stayed too long because the Vario was now reading 200ft. up at this stage. I pointed my kite down wind and watching the Vario let it drift. Still nothing much, so I moved over to the left. Worse, no lift, oh dear! Moved right still down wind, back up to 200ft. up, moved further right now parallel to the ridge ½ mile down wind of it and reading 500ft. up. My usual procedure follows: Push out, wait to see if it's constant, start to 360, watch Vario, yes still climbing, turn into wind. Push out, wait, another 360, turn into wind, push out and wait, 360 and so on. The secret is to judge it just right, how long to wait and how far to drift with the 360s. I was now well and truly in this one for keeps. I looked down to the field I had just landed in 2000ft. below, I could see kites there, but they were very small. My Vario was still reading 600ft. up. I kept circling, and as I reached the edge of Brighton I was approximately 2500ft. above T/O. Looking down I could see many houses and blocks of flats over a massive area of the centre of Brighton. My altimeter peaked at 3900ft. and then it started to drop but not drastically. I lost about 1000ft. going down at 400ft. a minute. By now there is nowhere to go down wind, nothing but water. So I turned eastwards along the coast and as I went over Woodingdene with the wind north-west I had to glide a long way. A few spots of snow came past my face from the edge of a squall that had been following me all the way from the Dyke. Along the coast I could see all the towns drenched in sunlight. I was hoping, if I could ride it out long enough, I might pick up something from it but no such luck. The best I got at times was 0 lift and the worst was 700 down, but I was pleased with the flight so far, so I wasn't complaining. I could see the T.V. mast at Newhaven and it wasn't far away. I knew by now that the Southern Hang Gliding X.C. record held by Dave Roberts on a Phoenix 8 would be broken definitely if I reached Newhaven. The mast was just ahead now and I would estimate 200ft. above the ground. My rate of descent was now looking much faster than it had in the last half hour or so. I looked ahead at the harbour, could I make the other side? I had about ten seconds to make up my mind before being committed — too many houses between me and the harbour to risk it (no landing area), so I immediately turned right in front of the T.V. mast and landed in a school playing field where I met two groundsmen who witnessed my landing in writing. I then phoned my friend in Brighton, Roy Page, who was good enough to pick me up. We went back to his place for a cup of tea and cheese rolls (I was starving). and to find out how I had done in the League (not brilliant, but I had improved on the first league). So my comeback is slow but in the right direction. ☺

Distance: approximately 11 miles

DAVE COOK

I was ready to take my PPL at the age of 15, but couldn't because I wasn't old enough to solo. I went into the airforce and trained at Cranwell and went on to fly V bombers. Since then I have flown practically everything there is to fly including conventional gliders, but there is nothing which gets any where near flying a hang glider. I've always thought and lived flying but the funny thing is that it took hang gliding to make realise the pure essence of it. I didn't buy a rogallo way back in 1973 because there wasn't one capable of flying the 30ft sand dune — our one and only site. So I built a rigid which had the performance to do it.

I wouldn't fly my VJ under power if I had the opportunity to soar regularly. Our sand dune faces East, and we rarely get easterly winds. The nearest reasonable soaring site is over 70 miles away, goodness knows how far the next one is. In fact, I agree with Mike Adam's letter in a recent *Wings!*, powered hang gliders should be kept away from beautiful places and hills. They should be restricted to open areas where they can be used to search for thermals. I only ever fly under power when trying out something new, like a different propellor design. I don't bother otherwise — it's like driving a bus round. There is a skill but no art.

Flying the channel was something new. Technically we were ready to cross the channel at the end of 1977, but we were told that you didn't stand a chance if you went in the water at that time of year, so the attempt was postponed until April. We spent days and days waiting in Kent for the right weather. It was costing us a fortune and I was very worried that we were going to use up all the sponsorship money without completing the trip. It cost over £100 alone to take the car and trailer over to pick up the VJ. I felt it was all drifting away and we weren't getting on. We all have to live and sitting in Dover was a dream, but it couldn't go on and on. There were at least four other people lined up ready for an attempt, an American, Gerry Breen turned up, Brian Milton was ready and Steve Hunt was also technically ready.

It was a great logistics exercise. You need a ground crew and you need a boat. The boat has to be capable of thirty knots and there aren't many of those about which are suitable as chase boats. We did find the African Queen

Dave Worth went to Suffolk to talk to Dave Cook about his successful Channel crossing by powered hang glider and his outlook on the world of hang gliding. He found there a quiet self effacing man who actively shuns the publicity from his recent escapade. He also found there a landscape, so flat that the sky seemed to rest on it like lead. Not the place to find a hang gliding devotee, but then Dave Cook is no ordinary enthusiast.



Photo: David Worth

eventually and they only went ahead with the trip because they thought we were a bunch of nutters and would pick up the £100 fee for doing nothing. In the event, the boat was half destroyed trying to keep up with me. The doors went, the mast went, the engine covers went, simply because they were going too fast for the sea that was running. The crew, Les Warren and Martin Langham, were superb, I don't think anyone else would have seen it through.

On Tuesday, May 9th the moment came. With the VJ-23 donned in splendid sponsors colouring it was rigged on a flat shingle beach and the McCulloch 101B fitted and warmed up. Fuel capacity was 10-litres (2.2 gallons) and the two 5-litre tanks are fitted in the 'D' section of the wing. I had run endurance tests, and 35 minutes/gallon consumption was determined. A total running time of 77 minutes should be available. The wind was force 5 from the North, and I was to fly to the South East. Drift angles were calculated.

At 10.40 a.m. with five miles visibility, the chase boat was three

miles out and radio'd back that they were hitting 28-30 knots. The VJ-23 lifted off from near Walmer Castle, Deal, and took up the chase to the boat. I settled for 100ft. altitude and within 6-7 miles I had caught up with the African Queen. We eased round south of the Goodwin Sands where in places I could see through the water. It was a chilling thought that over 30,000 sailors have lost their lives on those Sands. Visibility was closing in, and I could see less than one mile ahead of me although the chase boat was clear enough below. After 20 minutes or so the African Queen suddenly stopped dead and I figured it had some small problem so elected to 360 around until it was fixed. After five minutes or so away we went again . . . at least I would hold the record for the most 360's in the English Channel, I thought! I felt a bit like God sitting up there at about 300ft. (gained since the waiting about), watching the African Queen, deciding whether to go in front or astern of the super tankers. Passing over these monsters was less God-like or serene. They are longer than I was

high, and I recall looking down between my legs and seeing nothing but tanker — the turbulence caused by these was frightening, but I made it.

The Shipping up-wind was also causing much turbulence. The channel is not a nice place . . . I could not look down without seeing a shipwreck — sometimes more than a dozen or more at any one time. The water wells up on a wreck and causes the water to appear strange. I tried not to look too much.

After one hour of flying and with the McCulloch screaming merrily away, I thought that we should soon see the coast. The wind was now about Force 6 and North East — I could tell from the water and my compass reading. The African Queen suddenly stopped again. I was left with the agonising decision of whether to go on or do the 360 bit again. I'd no idea where I was or how far off the coast but thought it must be close. I flew on as far as I could with the African Queen still within my sight, and then waited. I was cold — the air temperature was only 10°C — there was no sign of France. The problem with the



African Queen was that they were travelling too fast for the conditions. There was about a 4ft. high chop on the sea and the boat was airborne almost as much as myself. She was hitting waves so hard that oil was being forced through the distributor onto the points of the 140 hp Mercruiser power unit. After a few minutes of frantic work on the boat we were away again. I figured I had just over eight minutes of fuel left. At one hour and ten minutes I saw the coast of France through the foggy haze. Due to our course and drift angle it was to my right and back. I banked very quickly to starboard and thundered into a long power dive at the coast which was about 3½ miles away. The speed was tremendous; it was down wind and I reckoned my 'groundspeed' as I passed over a Calais/Dover ferry at right angles, to be about 60 mph. I was filled with urgency getting this close and with so little fuel left. I'd been totally impassionate about the whole venture and had planned the whole thing as if I was to go into water. Now that I was this close to success I found myself fired right up. I'd used up 200ft. or so in the power dive and crossed

the shore around 150ft. high. Banking around northwards I eased the throttle back and made a normal five step landing, 1 hour 15 minutes after leaving England.

The warm sand and sun and sudden quiet slowly sank into me and I realised I had the taste of success around and within me.

I didn't think we were going to get there at all, and it was to my great surprise when we did. Sod's law intervenes on these things.

The real significance to aviation of this flight was that it was done with less power than the Wright brothers had when they first flew and it was done with one quarter of the power that Bleriot had when he first crossed the channel in 1909.

It was interesting that Duckhams, one of my sponsors had quite a connection with Bleriot. Alexander Duckham, their founder was a great friend of Bleriot. They didn't sponsor him on the cross channel flight, but did sponsor him on various world altitude attempts. It was fitting that I had landed within one kilometre of Bleriot Plage, although at the time I had no idea where I was.

At this point I should mention

my other sponsors, Revells aeroplane kits and lots of local people who sponsored me for 10p a mile or something. Of all the many letters of congratulations I received, the one I endeared most was from the Royal Aeronautical Society.

I haven't any more plans for further ventures — you can't fly the atlantic in hang glider, can you? I still have different projects in various states of completion. We are building a new rigid. Now, we have the knowledge to test it gently under power, rather than running down slopes continually, to see if it will fly. I am trying to get rid of the trailer, so it had to be car toppable. I want it so that it can be launched under power from flat ground, flown to 2000ft. and thermalled. This is where all the advantages of a rigid will come in — low sink and a high L/D. This one we are developing should have a glide angle of 22-1, according to Neil Moran who does the calculations.

I still think you will always get hill fliers. The performance of flexwings is now adequate, probably for all time. I can't see them getting much better. I could be wrong, I think flexwings are

holding up the development of hang gliders. They are okay for the pilot who flies for enjoyment, but if you want to fly 100 miles in this country we are going to need something much better in flexwings or the rigids we have. If I could produce a rigid which would beat all the gliders in the British League, every one would want one and the rigid versus flexwing argument would disappear over night. In the end all competition pilots will end up flying rigids as well as the people who want to go places. Most of the technology has been screwed out of the flexwing. You might get a few quirks like reducing drag on the tips, there may be better streamlining, but it won't give us great bounds like the Aussies showed us in 1976. At the moment pilots are sacrificing a lot of performance for the sake of being able to fold a kite up and carry it on the shoulder.

If fifty people in the league flew VJ's, I've no doubt some of them would be a lot better than I am and we would really see something happen with rigids. Weight shift hang gliders are unnatural anyway. No bird weight shifts does it?

REFLECTIONS IN THE FRENCH SAND

I was very lucky — with less than 5 minutes of fuel left.

I wouldn't attempt the trip again — ever.

I couldn't have attempted the Channel flight without a lot of help.

Sincerest wishes to:

Launch and Retrieve Crew

John Wells

Brian Pattenden

Catherine Cook

Boat Crew

Les Wallen

Martin Lanham

Chris Tansley

Harry Potter

Liaison

Dover/Folkstone HGC

Paula Lewis

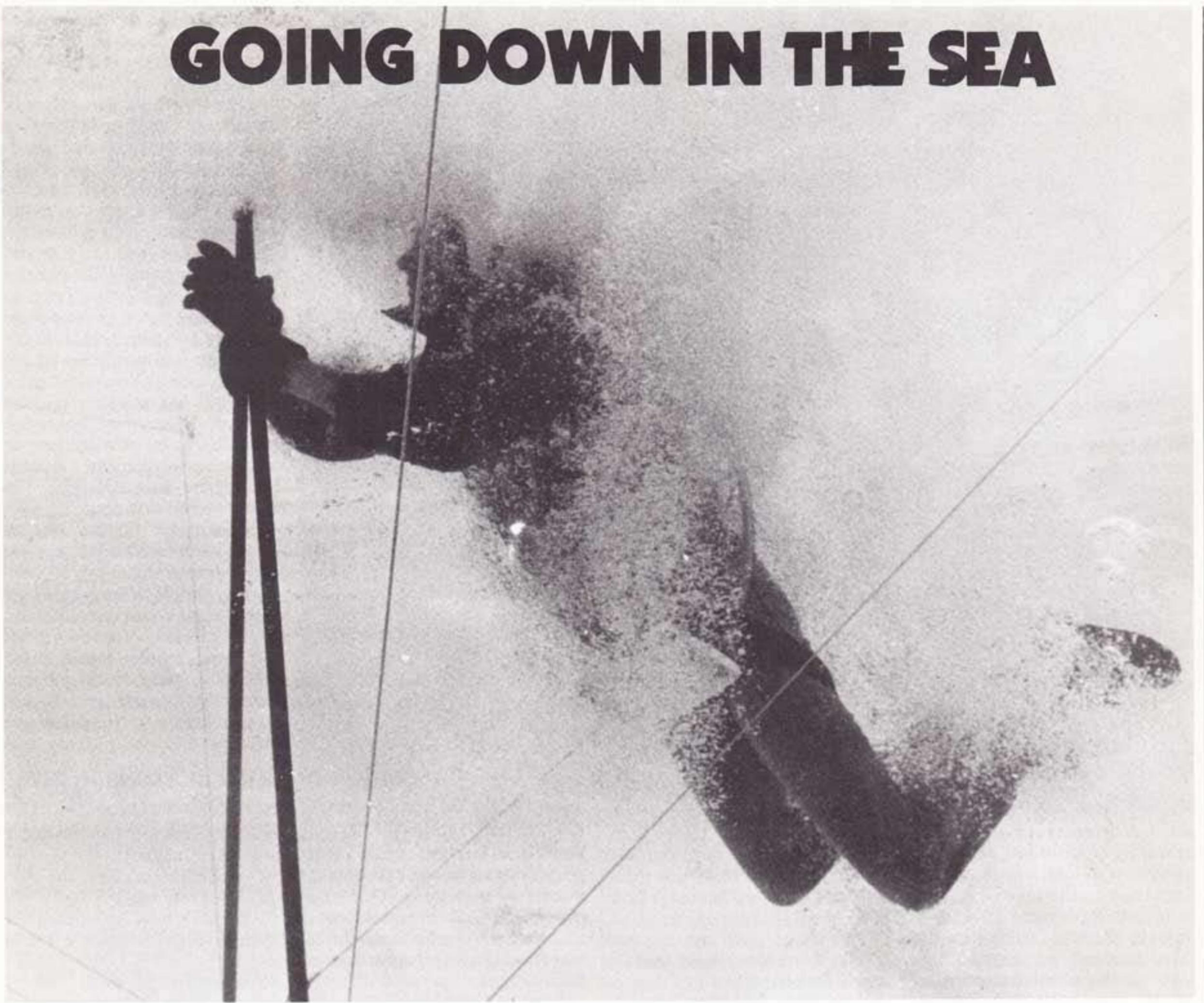
Ted Battersea

England takes a lot of stick nowadays but there's some of us that still won't lie down.

Bleriot hung it on English aviation in 1909. Cook hangs it back with ¼ of Bleriot's power in 1978.

The three German Social Workers who were the first people to greet me enquired from where I had come. Their reply after I told them "England" was — "All zer English are crazy!"

GOING DOWN IN THE SEA



After the recent drowning accident, it became apparent that sea landings were not uncommon occurrences. John Lythgoe simulated sea landings at his local swimming pool in an effort to gain an insight into those vital seconds which can take a life so unnecessarily.

I am writing this two weeks after the tragic death of Paul Renouff. He went down in the sea, couldn't unclip and drowned. It is incredibly lucky that more pilots have not drowned. Those who have gone down in the sea in British conditions say it is a thousand times worse than they had ever imagined. Don't be misled by stories of pilots in warmer climates who go down and swim away from it. First, they are more likely to be experienced underwater swimmers and surfers. Secondly, they wear light clothing; thirdly, the water is warm; fourthly, they may have a quick-release system.

Why is it so dangerous going down in the sea? The real test would be to deliberately "land" in the sea, but somehow we didn't

fancy it. Instead, we sought the help of two experienced divers from Sussex University. The University lent us their outdoor pool for the morning, and my wife, Gilly, took the photos. In the water was Alan Young wearing one aqualung and carrying one for me if I needed it. On the side was Cliff Robinson, launch man and standby diver. Gilly was also wearing complete diving equipment.

There were three trials using the following:

1. Hiway 240 Standard with seated harness.

2. Vega IIB, no life jacket, prone harness.

3. Vega IIB, as above but with a life jacket.

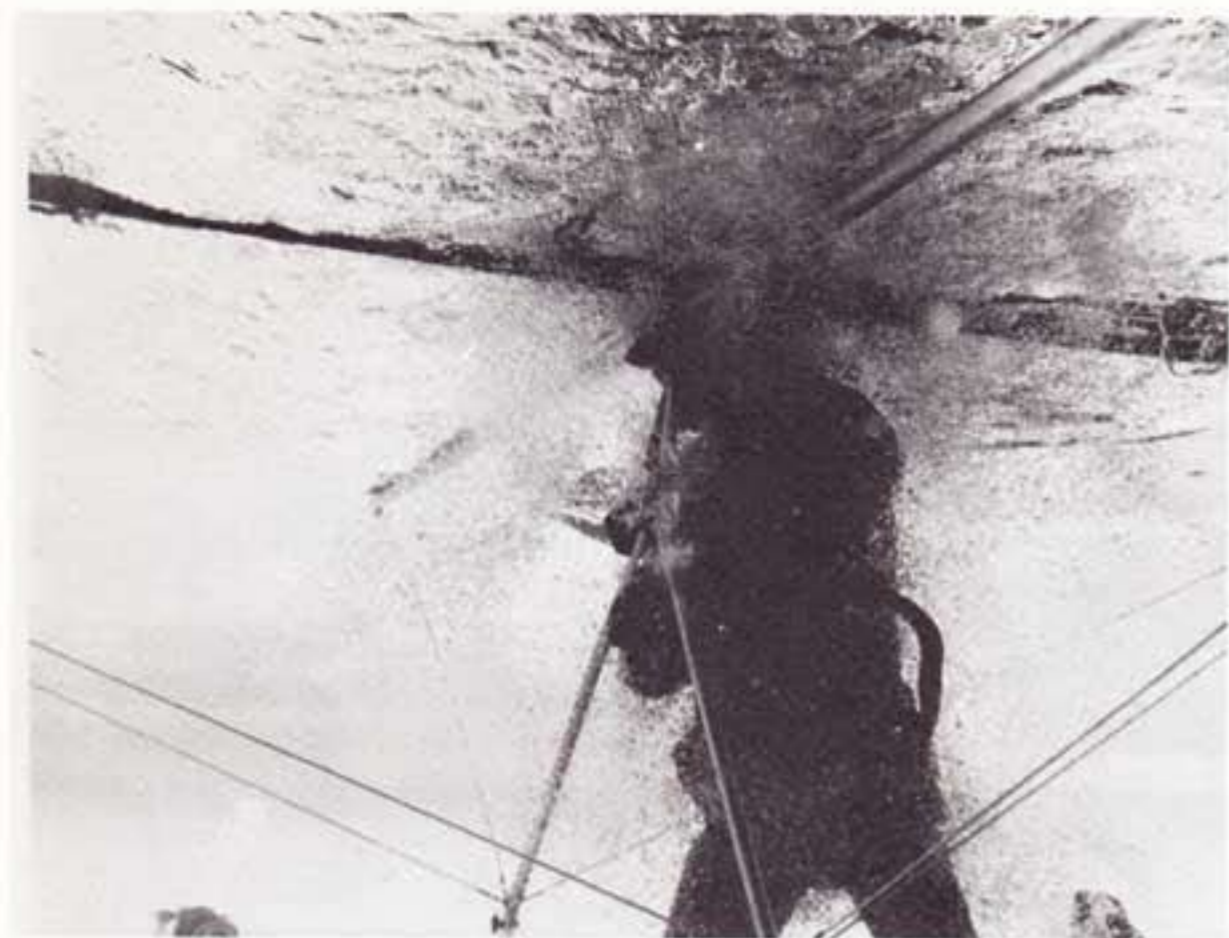
In each case I was fully kitted out for flying. Helmet, boots, sweat shirt, anorak, jeans. In the first two trials I had gloves.

Trial 1 was different for two important reasons: (a) the hang point is rigidly fixed to the glider; (b) the billow in the sail trapped a breathable air pocket along the keel. There was NO air pocket under the Vega. I doubt if any kite with little billow and with sail battens traps air.

In trial 3 the life jacket was an inflated "Fenzy" designed for aqualung divers. It is more cumbersome than one a pilot would wear. Wearing a life jacket did not hinder escape from the glider.

The conditions for the test were ideal with the water calm and warm, and two aqualung divers in the pool, one having a spare aqualung for me if things went wrong.

With the help of a shove from the back, I was able to fly the glider clearing the edges with one hand on the control bar, the other on an upright. In the first trial with a seated harness and Hiway standard I very nearly didn't get out. Deliberately, I went in fully kitted for flying and completely dry. The weight of the kite pushes your head under immediately.



One moment you are flying; the next you are completely underwater, clipped in, and no chance of getting a breath. Because your clothes hold air for a few seconds, and because you are holding your breath, your head will be pressed up under the sail. The karabiner is not above you as usual, but at almost eye level, or even below it.

Unclipping cleanly is death or life to you. When you clipped in on land, you probably crouched under the control frame and clipped in above your head. Under water your body is in a different position and is being rolled around by water movement. The karabiner may be a pig to unclip. If the hang point is flexible, you can use two hands, one to twist the hang point loop into position, the other to release the karabiner. On the Hiway standard, the hang point is rigid, being a hole bored in a thick metal strip. The socket that takes the spring bar on the karabiner snags on the edge of the hole. Any difficulty in releasing, even one taking seconds to solve on land, will cause anyone, no matter how cool-headed they usually are, to panic. If you do panic before you unclip, no way do you get out. The length of time you can hold your breath against a stopwatch is no

guide to how long you can go without gasping for air in the water. I probably got out under controlled conditions in 5-15 seconds. I guess that you would have to be unclipped within 25 seconds before you panic.

Once unclipped I found it simplest to pull myself backwards along the keel. You will feel the rigging wires touch your shoulder. Grasp the wire and pull yourself down and out.

You are now wearing sodden clothes, harness, helmet and boots. Your glider will be sinking, and swimming to the side of the pool is hard enough. Swimming to shore where you can scramble to safety may be impossible. Wear a life jacket or a buoyancy aid of some kind. They don't make getting out any more difficult because when you first go in the air in your clothes makes you float anyway. When you have got out it will hold your head above water long enough for help to reach you.

Next time I fly over water where there is no bottom landing site, I shall make sure of the following:

1. The hang point is flexible. Under no circumstances can the karabiner snag the loop.
2. I am wearing a life jacket. This should not interfere with flying

Trial 1 left to right, top to bottom
 (a) Immediately after entering the water on Hiway 240 with seated harness. The head is pressed against the keel and the hands have slid to the top of the upright.
 (b) A second or two after entering the water. The karabiner is attached in such a way that releasing it means that the tension on the harness straps must be reduced by forcing the body down into the water before the karabiner can be released.
 (c) Releasing the karabiner. Note

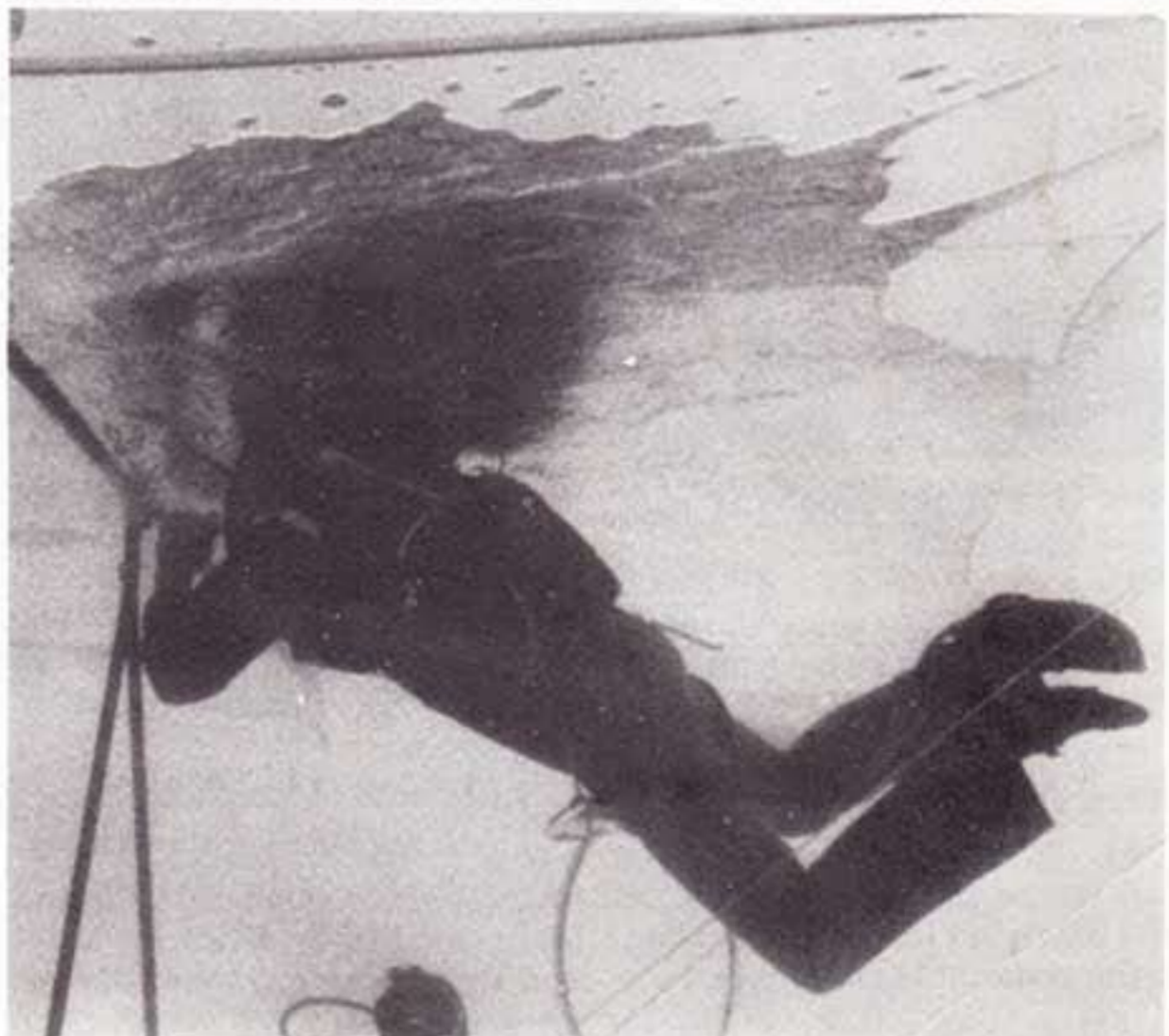
bubbles have stopped rising, which means that the clothing is now water-logged.

(d) Working backwards along the keel after release.

(e) Escape now complete, but the glider is beginning to sink.

Trial 3 below

(a) This time an inflated life jacket is worn. It seemed to make little difference to the ease of escape, but makes keeping afloat after escape possible.





Trial 2 top to bottom, left and right. (a) A split second after impact on Vega IIB with seated harness. Bubbles rising fast. Again the hands have moved to the top of the upright.

(b) Releasing the karabiner. (c) The karabiner is now released. (d) Working back along the keel. (e) Just before escape. (f) Escape.

even if it is the kind that may accidentally inflate.

If I know I am going down in the sea I hope I shall have the cool to do the following:

1. Discard my gloves whilst still flying, except when the sea is very cold.
2. Breathe deeply in and out a few times and just before landing in the water hold my breath.
3. Concentrate on a good

landing, don't allow myself to swing through the control frame, or to stall in backwards. Go in holding at least one upright. This will allow me to orientate as quickly as possible when submerged.

4. Keep hold of the glider.
5. Open my eyes — one can see enough to locate the carabiner.
6. Locate the carabiner, by sight and by moving my hands up the uprights

7. Use both hands to unclip.
8. Pull myself backwards along the keel. When I feel the rear rigging wires, grasp them and pull myself under and out.
9. Breathe!
10. Inflate life jacket if it is not already inflated.

In Britain we do not seem nearly as aware of the danger of drowning as we ought to be.

Obviously a screw-gate karabiner or any clip-in system that is awkward to release on land is a potential killer. Australian and New Zealand flyers have a quick release system to drop out of the kite just before ditching. Personally, I would not like to trust to any quick release by itself. But there is no doubt the hang gliding community should develop a safe and easy release system. ☘



NIGHT FLYING

Personally I never really enjoyed night flying. It always seemed to me that it had all the dangers of day flying and in addition a few extra hazards. Moreover there was nothing much to look at, in fact most times you could not see a thing, and it was instrument flying all the time, which became exceedingly boring. However, there have been a few enquiries from hang glider pilots who wish to try it, and one or two have actually done so. It must therefore be a good idea to know a little about it.

To begin with it is usually cold and lonely. Except on a moonlight night you cannot see the ground unless it happens to be illuminated by street lamps for example. This means that you must only fly in a place where you know what is underneath. You cannot see the trees. Electricity pylons do not carry obstruction lights unless they are over 200ft. high, neither do churches, nor other buildings. Wires are invisible anyway. You must therefore examine your night flying area very carefully in day light first.

Next you must have some way of knowing where the ground is. An altimeter helps if it is

Night flying is as yet a very unknown quantity in hang gliding. It is certainly not recommended for the inexperienced or for that matter the experienced, without careful planning on familiar ground.

However there may come a time when night flying is possible safely, such as in the Alps where ground obstructions are minimal and the landing area is clearly lit. Dunstan Hadley outlines the possible complications and hazards of night flying.

correctly adjusted, but it is not sufficiently sensitive, the sort we use anyway, and you need something better. In any case you cannot land while watching the altimeter in a hang glider. There are two possibilities. One is to use car headlights to illuminate the ground. They must be directed into wind from the downwind end so as not to dazzle the pilot. It only works if the ground is fairly level and does not have too many hollows which will be in shadow. It is not practical to carry a landing light in a hang glider unless a sufficiently powerful light can be found, which is not too heavy.

The best method is likely to be to lay out a flare path. Decide during day time flying where is the safest place to land, during a

normal approach, and make this point the downwind end of your flare path. Then putting your first flare here, lay out a set of five or six directly into the wind. The flares can be any sort of lamps electric or otherwise so long as they are clearly visible from several hundred yards away but not so bright as to dazzle. This will show you not only exactly where the ground is but also any slope it may have. It also shows exactly the wind direction. The apparent distance apart of the flares, viewed from the air, will give you your glide angle so that you can tell if your approach angle is correct or whether you are over or under-shooting. For this reason always set your flares the same distance apart, once you have found the best distance. I

suggest one every 50ft. for a start but you may find some other interval better. The purpose of the flare path is to give an accurate impression of the position and shape of the ground in the direction in which you wish to land.

It is advisable to try it out in conditions of dusk when you can still see the ground because it requires a lot of confidence to level out and land on a flare path when the ground is totally invisible. For top landing, which takes place in a comparatively small and localised area, direct illumination with headlamps would be best.

There are one or two advantages to night flying. The air is always much smoother, there is far less turbulence, and the wind is steadier and much less gusty. It will probably also be much less crowded as night flying enthusiasts are not very numerous, most fliers preferring to be seated cosily around a bar or boasting to their girlfriends. However in case you are not alone you must carry lights because a hang glider in the dark is just as invisible as anything else.

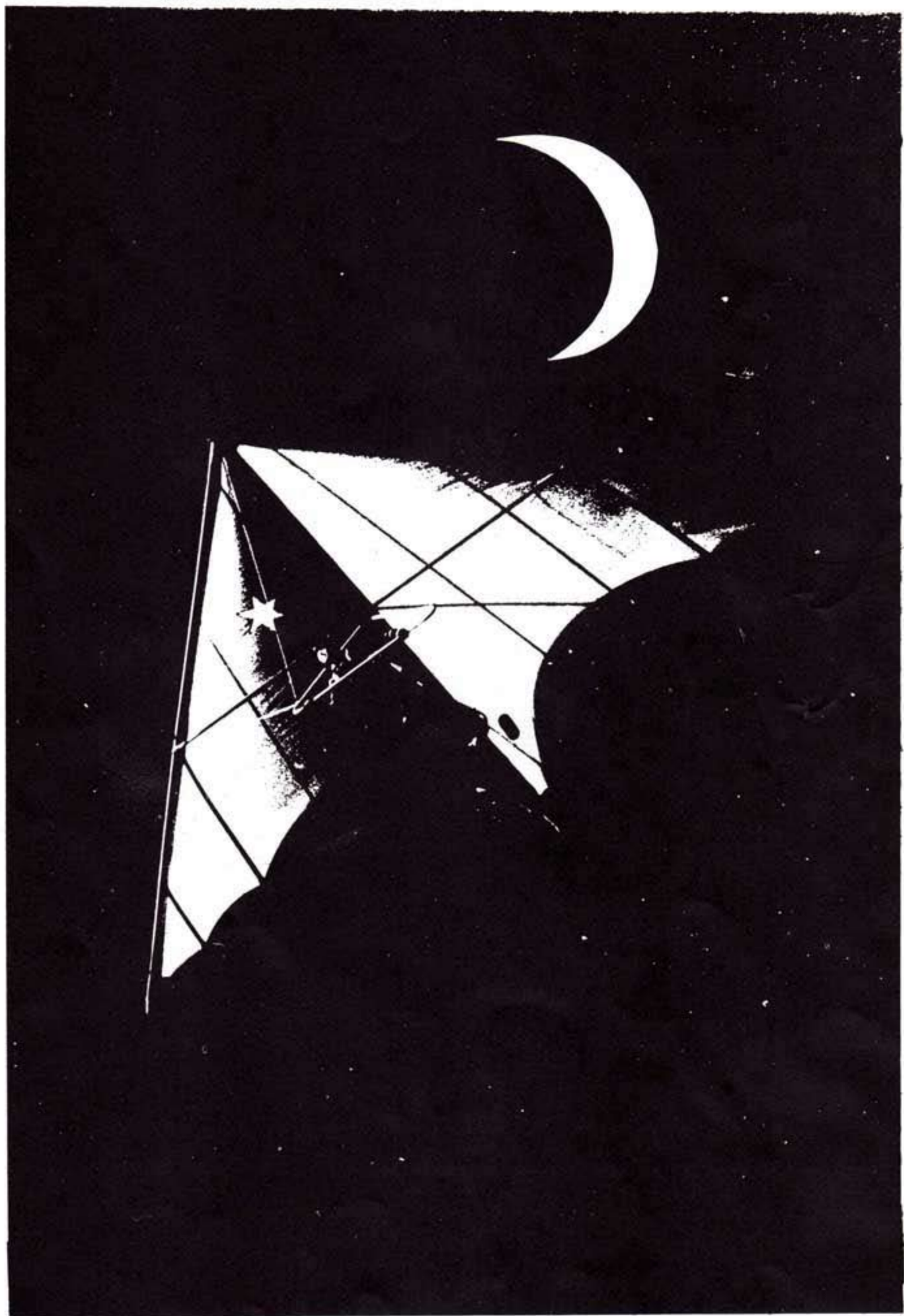
As you will realise from your knowledge of orientation in flight

you must have a horizon. This will limit your flying to bright moonlight or starlit nights. If there is no visible horizon due to haze or any other reason don't try it.

Now a bit about night vision. During darkness a chemical change occurs in the eyes allowing us to see at night. This normally takes about 30 minutes, the normal time from sunset to darkness, although slight improvement for a further fifteen minutes or so after this takes place. The cells at the back of the eye are of two kinds, known as rods and cones. The cones are clustered near the centre of the eye and pick up colours. The rods are situated more towards the edges and pick up only black and white. They are also more sensitive to movement. At night time when the illumination is poor the cones do not operate and apart from being able to see coloured lights night time vision is all done by the rods, in black and white. As the cones occupy the centre of the eye it also means that in order to see something at night it is necessary to look a little to one side of it, so that the rods, which are used for night vision, can pick up the image.

The chemical change required for night vision occurs only in the rods and depends on the body having a plentiful supply of Vitamin 'A', so that a person who lacks Vitamin 'A' is blind at night. Although the chemical process takes about 30-45 minutes to come about it is rapidly destroyed by light. If a white light is flashed into the eye for one second, 30 minutes dark adaptation is destroyed. Red light, if it is not too bright, does not have this effect, so that by wearing red goggles or using only red light in which to assemble your glider, dark adaptation may be preserved. Otherwise you will have to wait 30 minutes in the dark before you take off. The eyes work independently in this respect, so should you find it necessary to use a white light keep one eye covered and at least the dark adaptation in that eye will be preserved. Remember also that many danger areas in a map are marked in red and will be invisible under red light.

Oxygen too makes a big difference. Now you may not think this matters very much, because even at 4,000ft. the lowered partial pressure of oxygen only cause a loss of visual acuity of about 5%. However, if



you smoke think again. The carbon monoxide inhaled with cigarette smoke combines with the blood about 250 times more easily than the oxygen, which it displaces. It also combines much more firmly, and is less easily displaced. A heavy smoker may in fact be wasting 10% of the available oxygen space in his blood. This has the effect of diminishing his visual acuity at

night considerably below what it should be. As it is difficult to see very much at night anyway it is better not to smoke shortly before you fly at night.

Night flying of course is not the sort of thing you do on the way home from the pub, however lovely the night is, and however brilliant a flier you are. One final point. Due to the restricted range of vision at night speed close to

the ground seems greater than during daytime, because only close objects are visible. This means that you will appear to approach and touch down at a faster speed when landing. Do not be fooled by this illusion into making an approach too close to stalling speed. The stall while approaching landing is always a hazard to be carefully avoided.

Accident Investigation Report: The First Six Months of 1978

by Tony Fuell

This article was written in the last week of June, and therefore we haven't quite covered a full six months.

1978 has so far been a very bad year for hang gliding safety. There has been a vast increase both in the number of people in the sport, and in the number of flights made, and it is perhaps inevitable that there should have been an increase in the number of serious and fatal accidents.

There have been five fatal accidents in 1978 and several particularly nasty non-fatals. During the last couple of weeks, we have been able to close the files on several of the fatals, and the summary reports are given below. I would once again like to repeat my plea for assistance with accident investigations — the BHGA Accident Investigation team consists at the moment of two people — John Hunter and I. If members aren't happy about the amount of information that's coming out of the system, that's tough — we are worked to the limits and we'd appreciate offers of help much more than snippy letters to *Wings!* The system particularly needs someone who can sort and classify reported accidents, distribute full details to member clubs and summarise reports for publication. This will be time-consuming, and largely unrewarding, but it *does* need to be done and neither of us have the time to do it.

Volunteers should contact John at the address below. We would also like to start building up a list of names of people around the country who would be willing to help out on investigations. A high level of hang-gliding expertise is not necessary for this, but the essential requirements are:-

- (i) Provable personal integrity, and no commercial involvement with hang gliding manufacturers or schools.
- (ii) Familiarity with the preparation of technical reports: ability to write basic English, read maps, diagrams etc.
- (iii) On telephone; mobile.

Other desirable, but not essential characteristics include a working knowledge of how

bureaucratic procedures operate; experience of committee work; ability to type, (or access to typing facilities); a knowledge of photography. Having a thick skin helps too, since whatever you do is bound to be criticised!

As John has now taken over the Council responsibility for Accident Prevention from Will Jones, we are going to try and get Club Safety Officers more geared up. The investigation of 'serious non-fatal' accidents on a local basis, with local reporting in Club Magazines would also be helpful. John Hunter's address (for reporting ALL serious or fatal accidents) is: 2 Martin Close, Hatfield, Herts. Tel: Hatfield 71027. We would particularly like to hear from all those who have had accidents involving powered gliders — we know of at least four serious ones which have not yet been reported by the pilots concerned.

1978 ACCIDENT INVESTIGATIONS

1. **Colin Bisett** — Fatal, 8th March 1978. (Cairngorm, Inverness-shire).

Extract from report:

The hang glider was launched from the north west slope of the mountain into a west north-westerly wind with a mean speed of 29 knots. After launching it ascended rapidly and almost vertically to a height of about 350ft. above the launch point. At a height of about 150ft. the pilot appeared to have his folded arms over the control bar of the 'A' frame and at the top of the ascent was seen apparently trying to get the upper half of his body over the control bar. During the ascent the hang glider drifted slightly downwind and veered towards the south west for about 100 yards. It then drifted about the same distance in the opposite direction before the pilot separated from it and fell to the ground.

The pilot, who was flying in the seated position, was wearing skis and a sit-sling harness fitted with lap strap restraint. It was established that prior to the flight he had fitted an extension section,

made with a length of used cotton cord of the window sash type, between the hang point and his harness.

Examination of the hang glider revealed that part of the cord was attached at one end of the swaged eyelet of the hang point whilst the other end showed clear evidence of a new break. The remainder of the cord, with a new break at one end, was found near the accident site.

(AIB Bulletin)

2. **A.D. Bennett** — Fatal, 12th March 1978. (Brown Wardle Moor).

Extracts from report:

Mr. Bennett was taking part in a Pennine Hang Gliding Club competition at Brown Wardle Moor. He was attempting the second task of the day which was a roll-rate task, i.e. doing a series of 180° turns across a fixed distance line facing into wind as many times as possible within a two minute time limit. He took off and had completed two crossings of the line when he was seen to stall, turn left and impact into the hill.

The conditions in which the task was initially started were ideal but as in several of the witness' statements, the wind had changed following a rain squall. This could have been a contributory factor to the accident as the pilot was flying almost down wind at the point of the stall. It must be pointed out that one pilot had flown immediately before Mr. Bennett and had experienced some turbulence, but had achieved an average score (7 passes), on a similar type of hang glider.

It is John Hunter's opinion that the following factors contributed to the accident:-

1. The pilot was under pressure to achieve a task under very difficult circumstances and the stall, which occurred whilst flying down wind was probably encouraged by this pressure.
2. After the stall occurred it was the opinion of several of the witnesses that the pilot had time to recover but he made very little or no effort to correct the stall.
3. With this type of hang glider

(Hiway Scorpion 'B') it is quite possible to stall and without any correction the hang glider will recover in approximately 15 metres of height loss. Not only was there insufficient height for the glider to recover itself, the glider was also in a left hand turn. It was inevitable that without positive correction the hang glider would have struck the ground, as it did at approximately 40° to the slope, impacting the left wing, nose and the left side of the 'A' frame at the same time.

3. **Paul Renouf** — Fatal, 18th May 1978. (Penveor Point, Cornwall).

Extracts from the report:-

At approximately 13.15 Mr. Renouf took off from a field at the top of the cliff 500 metres north of Penveor Point and turned right to fly parallel to the cliff and out toward Dodman Point. He did not gain height as would be expected with the wind conditions at the time of take-off, and gradually lost height. 400 metres south of Penveor Point he turned 180° and attempted to make for Vault Beach which was the only available landing site at the bottom of the cliffs. He lost more height and was seen to land in the sea between two outcrops of rock near Penveor Point.

The hang glider (a Hiway Scorpion 'B') and pilot were recovered from the sea at 18.25 hours. Death was due to drowning.

There is no evidence that the pilot was incapacitated in any way during the flight. The landing that he made appeared to be accurate and under the circumstances performed with a great degree of skill.

Assuming that the hang glider was air-worthy and that a possible ditching had taken place, it was obvious that the harness clip and hang glider hang point should be examined in detail.

It became obvious that under normal conditions the clip on the harness could easily become locked in the closed position by the position of the webbing of the hang point, and even when using two hands to do these tests it was found that a considerable amount

of effort was required to unclip.

Comment from T. Fuell

It is considered that the old-type Hiway harness clip and the webbing hang point used on current production Hiway gliders are incompatible. Apart from ditching, there are other circumstances where it could be in the pilot's interest to detach himself from the glider without delay. We would repeat our previous observations that the only really secure method of attachment is a good-sized screw gate caribiner. If flying over water, it is advisable to leave the screw gate undone, to wear flotation gear, and to carry a suitable knife in a secure position in order to cut oneself free, if necessary. A more detailed report on ditching procedure is to be printed in *Wings!*

Accidents Still Under Investigation

1. **N.P. Lawler** — (see June *Wings!*), (Wasp Falcon/Soar-master power unit)

A few more facts have come to light during the course of this investigation. It would certainly seem from a film of the incident that it was caused by a thrust line/pitch interaction. The sequence of events would appear to have been as follows:-

After a normal power-on take-off, and a few minutes flying, the pilot approached the hill at a height of 60-80ft. to pass the camera. Flying prone, he is seen to pull the bar back quite considerably. Possibly he applied power to the motor at this time as well, but this cannot be verified. On the film, the glider hesitates a moment, and then is seen to pitch violently nose-down, with the pilot then pushing out to the limits of his ability. At this point, he is probably being 'left-behind' by the glider. The film ends here, but witnesses report that the glider continued in its dive until it struck the ground.

The photographs show, that there is considerable deformation of the sail and airframe as it pitches down, and the tips are deflated.

(Comment by T. Fuell)

Calculations made by AIB and the manufacturers with relation to this accident carry some important implications for all pilots of powered hang gliders.

(i) **Reduction of pitch control:-** The addition of 30-40lb of engine mass significantly reduces the control power which can be applied by the pilot — in pitch, by

up to 25% in level flight, 27% in a dive.

(ii) **Destabilisation:-** The power generated by the Soar-master unit (a nominal 80lb) is in itself a significantly destabilising factor. Dive recovery with power on will take considerably longer than with power off.

(iii) **Throttle set-up:-** It is vital that the throttle arrangement is so set up that the pilot can dump ALL power quickly — a "kill" arrangement should be fitted where it can be reached FAST. In any control emergency the correct response should be to dump power, and fly the glider out of trouble. Gliders which do not have a system of positive support to prevent the tips collapsing are probably not suitable for power applications.

2. **Garnett Taylor** — Fatal, 7th June 1978, (Merthyr Common).

Mr. Taylor was flying a Cirrus II glider. He was seen to disappear into cloud in turbulent weather conditions. It is known that structural failure of the glider took place at some point in the subsequent flight; for reasons which are not yet clear.

3. **Pat Turner** — Critically Ill, 25th June 1978, Woolacombe Bay.

This pilot who at the time of writing this had very serious internal injuries was seen to make a normal take-off at approximately 14.00 hrs in a Breen Hi-Fli glider. After one beat, the glider folded up and the pilot fell to the ground. Following the accident, two wingnuts from the central structure box were found in the pilot's pocket. A film of the accident exists, and is being studied. An obvious precaution which suggests itself to owners of this, and similar machines is to permanently attach the wingnuts to the appropriate area of the glider, with wire.

4. **Mr. Jacob** — Critically Ill, Tinto Hill, Scotland.

This pilot was seen to hit the hill in a dive after flying in highly turbulent conditions. Glider was a Cirrus III. Further details will follow.

4. **Michael Brankin** — Internal and External Injuries, 18th June 1978.

Falcon 4, modified by the pilot with pre-formed battens was soaring Coombe Gibbett in turbulent conditions; was seen to be turned into the hill. The pilot impacted through a barbed-wire

fence and onto a public highway — which is why it is being investigated. The pilot is considered to have been very lucky indeed.

IN CONCLUSION

BISCUITS KILL PEOPLE!

BRAVADO (or bad advice)

IGNORANCE

STUPIDITY

CLOWNING

UNHELPLEFULNESS

INCORRECT RIGGING and

TOTAL LACK OF

SENSE

Please read the above accident reports carefully, and modify your flying habits! EVERY ONE could have been avoided; almost every one resulted from the pilot concerned failing to heed good advice which had already been issued by BHGA. Hang gliding cannot survive for long as a sport if experienced pilots are seen to be prepared to take chances with their own lives and other people's properties. An accident is bad news, not only for the victim and his family, but also for the many responsible and conscientious people, ambulance workers, police, coastguards, and local Club officials who must labour to repair the damage. Never modify your glider without advice from the manufacturer. Keep it in good repair, and don't every neglect basic maintenance. Don't fly in

marginal conditions and always fly so that you have an escape route. Always seek advice if you are in any doubt about aspects of your flying. And remember:-

"He who packs, and walks away lives to FLY another day."

OBITUARIES

Ray Clements — well known on club sites and partner in a local school of hang gliding, Ray was killed tragically in a road accident on Tuesday 6th June, leaving wife Rosemary to whom we all extend our deepest sympathy.

Garnet Taylor — another awful happening involving a club flier on Wednesday 7th June, Garnet was killed in a hang gliding accident at Merthyr Common. It is difficult to express how desperately sorry we all are that such a dreadful thing should happen to him and his family.

South East Wales Hang GLiding Club

PERSONAL TRIBUTES

Ray Clements — Back in the winter I was flying on one of our highest sites, which is some 1500ft. above sea level. Snow was in the air and my tattered gloves were not keeping the cold out. I landed and walked over to Ray who was instructing one of his pupils "Do you think you could lend me your gloves Ray, mine..." His gloves were off and thrust into my hands before I finished the sentence. That sums Ray up for me, always willing to help, ready with advice and someone who would go out of his way for you, as many local flyers know well. We shall miss him.

Garnet Taylor — One of the faithfuls, that's how I thought of Garnet, always there with his wide grin. Rarely did I go to a local site without seeing him and one or both of his brothers, Lindsay and Ray. I have a picture of him holding the front wires of my kite just before my first flight off a big hill — a fine looking man, radiating strength and good health. A tragic loss. The sites won't be the same around here without him.

Hugh Hutchinson

WINGS! INDEX —

February 1974 to May 1978

1. Items are listed in alphabetical order with sufficient cross-references to be useful without overdoing it.
2. Items have been chosen on the basis of their value as a guide or source of information to readers. General descriptions of meetings, competitions or flights have generally been omitted unless they contained lessons for others.
3. The locating numbers 1.2/75 mean the item is on page 1 of month 2 (February) 1975.
4. Items marked * are considered to be of particular interest to beginners looking for advice.
5. If you do spot any errors or omissions, tell the Editor and the Index next year will be amended?

This index was compiled by Major D.G. Dudley presently residing in Montreal. We thank him for his considerable effort in compiling it.

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Hang Gliding Handbook	J.B. Desfayes	4.11/75	
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Hang Gliders Bible	M. Markowski	22.9/77	
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INFORMATION



AVON SITES

All the Mere sites are restricted to Top Landings only, until further notice. There is a £2 fine for contravention. This includes Selsey Common.

CLUB TRAINING

A meeting of the Training Committee of the BHGA Council will be held in the near future, under the chairmanship of Garth Thomas, to discuss the application of professional training standards (i.e. those used in hang gliding schools) to in-Club Training. The Committee will consider verbal and written representations from Clubs and individuals before making formal policy recommendations to Council. If you wish to have your views considered please contact Garth Thomas, 'Bole Hall Cottage', 15 Amington Road, Tamworth, Staffs. with a brief resume of the points you would wish to make.

Garth Thomas

MERE '78

Advance Information

A BHGA "members only" meeting will be held at Mere on 2nd/3rd September. The flying programme, under the direction of Bob Mackay, will cater for fliers of all abilities from E.P.C. to League. Events will include:

- (1) Knock Out Distance
- (2) Timed Precision Flying
- (3) Cross Country
- (4) Free Flying
- (5) Club Team Events.

We also hope to include manufacturers' demonstration flights, demonstration of parachutes, stunt and power flying. There will *not* be a League contest. Participants will be able to sign on for each event on the day.

On the ground there will be manufacturers' displays, a mock Training School, and a "Kite Mart" where you will be able to offer your old glider for sale. "Mere '78" will not be open to the general public so facilities will be more spartan than in the past — come prepared to cater for yourselves! The only access to the site will be up the hilly road from the West so members with caravans are advised to go to the campsite at Wincanton Race Course (advance booking not required, Camping will be available on site but facilities will be minimal so you may prefer to use Dr. Hart's site at the eastern end of the Mere by-pass. Book by letter (Dr. Hart, Willeybrook, Ashwell, Mere) or by phone (Mere 697).

Mere '78 is being planned as a fun event. Success depends not only on the flyers but on Marshalls. If you would be prepared to help Bob Mackay make this the best flying event of the year by acting as a Marshall contact him at 83 Wern Road, Skewen, West Glamorgan with details of when you will be available.

For details of guest houses, B and B and hotel accommodation in the Mere

area send 25p (stamps or postal order) and a large stamped and self-addressed envelope (7p or 9p stamp) to: Salisbury District Tourist Information Centre, The Square, Mere, Warminster, Wilts. Telephone: Mere 341.

Because the Mere site is restricted by standing crops to the westerly-facing ridges arrangements are being made, in the event of unsuitable weather, to "fall back" to 9th/10th September, and at the last resort, to 16th/17th September. Your local Club will be assisting in disseminating the last minute information.

Garth Thomas

WASSERKUPPE CLASS III MEET 12th, 13th August

An international Hang Glider Meet is to be held on the Wasserkuppe/Rhone, Western Germany for Class III Hang Gliders (FAI category) and all other three axis controlled hang gliders.

There will be announcers from most European countries. Sunday, 13th August will be devoted to an airshow with the participation of Canard, VJ-23, Mitchell Wing, Easy Riser, Windspiel, ULF-1 and the historic SG-38 as well as other new German constructions.

Anyone wishing to attend this free meet should write to Gesellschaft zur Forderung des Segelflugs auf der Wasserkuppe e.V. 6412 Gersfeld/Rhone, Western Germany.

CLUB INSTRUCTORS

Have you within your Club members who wish to be trained to qualify as BHGA instructors? If so, send their names and addresses and details of the amount of instruction they have given to date. Please also give details of equipment that your Club has available for instruction. Send to the Training Officer.

PTERON ELECTRONICS

Pat King has resigned as a director of Pteron Electronics Limited and is no longer associated with that company.



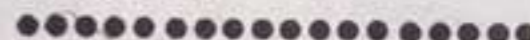
Your old glider taken in part exchange for a new XC, Falcon, Scorpion, Sunspot Gryphon, or Midas.

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MEMBERSHIP RENEWAL

Memberships numbered 7798-8117 are due for renewal on 1st August 1978.

Members of the Pennine and Cumbria Clubs are not involved. Will anybody who flies at this site or knows who does please contact the Secretary as soon as possible.

BYE-LAWS TO BAN HANG GLIDING

Keep your eyes wide open and watch out for notices posted in the vicinity of hang gliding sites and in your local press. These will be notices as required by law and give the dates by which objections to (proposed bye-laws) must be received. In the two cases recently bye-laws to ban hang gliding have been notified as one of a number and therefore hidden in a long list. If you spot anything with reference to hang gliding let your Club Secretary and the BHGA Secretary know *at once* with as many details as possible.

THE CLOUD, CONGLETON

Please note that The Cloud is governed by special regulations issued by the Civil Aviation Authority. Maximum altitude at this site is 1500ft. (300ft. above the hill top). Hang gliders to remain clear of cloud and in sight of the surface. Minimum visibility 5 km. Notices are being erected at the site giving full details of the conditions laid down. Failure to comply will almost certainly lead to prosecution of the offenders and also loss of the site.

PANDY

The site is still very sensitive, and must not be further jeopardised by indiscriminate parking. Do not park on the approach road, the turning area, by the gate or anywhere on the common. When crossing the common stay strictly to the access road. Do not leave it, even to unload kites. Park in the farmyard behind the common. Until further notice bottom landings are in the square field containing the barn.

South East Wales
Hang Gliding Club

FARLETON KNOTT, NEAR CARNFORTH, LANCS

The NFU have written to us on behalf of farmers in this area. Flying is taking place from the above ridge with landings being made in fields adjacent to the M6 motorway. The farmers complain that they have not been approached for the use of their fields and that cattle are being frightened.

THE GEORGE WORTHINGTON COLUMN

Contd. from page 12.

mostly at large flat areas which have been specially surfaced by man (or nature, in the case of dry lakes). Everytime we get a significant increase in L/D we must give up a substantial hunk of our operational freedom. For instance, the L/D of my Mitchell Wing is about 13. There is no doubt about its ability to make greater cross country distances, and to "penetrate" against stronger winds, than the rogallo. But the Mitchell Wing cannot be safely landed on those hillsides, or deep brush, like the rogallo. The range and choice of landing areas for the Mitchell Wing is smaller and more scarce, although the take-off areas are very similar for the Mitchell Wing and the rogallo. Now, designers are wooing us with claims of much higher L/D's. Some (Swiss) are talking about 30 to 1. Do not clap your hands with glee until you have carefully weighed what you have to give up in "Operational Freedom" when you dream of flying one of these Super Ultralights. Take-off areas will have to be very special, and landing areas even more special. In fact, the ship is unlikely to be so heavy and so "hot" that the pilot will no longer be able to land on his feet. A wheel will be required, and the same special areas that sailplanes land on, will be mandatory. You will in fact be flying a sailplane, but they will call it something else — maybe even a hang glider. The point is this: if you really do want an L/D of 30, why not forget hang gliders, and go for the sailplanes. We have one very nice sailplane weighing 160lbs., with an L/D of 27, and costing only \$2700.00, if you build it yourself. It has the virtue of being rather thoroughly tested. But why stop there? For about \$5000, you can build a machine with an L/D of 37. My advice is to think carefully about this idea of "Operational Freedom". Before you decide to fly faster and farther than those slow-poke rogallos, before you choose to dazzle all your flying buddies by zooming past them in the air, think it through, and count up your losses of "Operational Freedoms". Also, I might add here that major L/D increases are only possible in rigid wings with their

moveable control surfaces, and rigid wings are much more expensive and far more difficult to transport than the rogallo.

We have made amazing progress in L/D with the rogallo design, in the past three years. From an L/D of 3-1/2 we are now at about 8 in our high performance models (please subtract at least 20% from all the claims of the manufacturers). And the best of it is that most of the new rogallos are more manoeuvrable, easier to fly, safer, and they have preserved all of that wonderful "Operational Freedom". From now on, though, I fear, we must expect a slowing up of the fabulous performance increases we've had over the past three years. We doubled the L/D in the past three years; I feel we'll be lucky to increase the performance 40% in the next three years. I am talking about machines where weight shift is the only control (no moveable control surfaces). If we start going in the direction of moveable control surfaces (i.e. rudders, ailerons, elevators, etc.) we run the risk of adding weight, expense, and complexity while also losing some degree of operational freedom.

When I look for a rogallo to buy, assuming that they are all strong and airworthy, I look for ease of handling, time required to assemble and disassemble, ease of ground handling, weight, and L/D. Then I fly the top candidates, in thermal conditions, and if I feel the machine is nimble, easy to control, untiring to fly while working minimum lift conditions, then I buy it. I purposely put L/D last, not because it is unimportant, but because other considerations are relatively more important at this time. I believe that all of the top high performance rogallos that I've flown (50 different types) are very, very close in L/D. Those pilots who believe that the L/D performance of one is far superior to another should wonder how subjective and objective they have been in their analysis. The innovations such as "the new keel pocket", "the pulley system", "greater aspect ratio", and others, have, I feel, been very good for the rogallo. I am far less enthusiastic about "double surface" and "strutted" (no wires or king post) changes. I have at this time (June '78) flown all the latest, popular double-surface rogallos. I

BHGA SUBSCRIPTIONS AND SUNDRIES

Individual Membership: £7.50 pa (plus £1.00 entry fee for new members).

Family Membership: £10.50 pa (plus £1.00 entry fee for new Members).
2 adult members of same family and household. Existing members can extend to family category on payment of additional £3.00

Both types of membership include 12 monthly copies of "Wings!"

"WINGS!" a year's subscription (12 copies) £7.00

ADDITIONAL COST FOR AIRMAIL DESPATCH OF "WINGS!"
Overseas members and subscribers £5.00

ITEMS AVAILABLE FROM MEMBERSHIP DEPARTMENT:

- Windscreen Badge 25p
- Helmet Badge 25p
- Cloth Badge (flying suit) 60p
- Pin on lapel badge..... 30p
- Keyring and fob with BHGA Badge 60p
- Keyring and chain with BHGA Badge in acrylic "teardrop"..... 60p
(can be used as a pendant)
- "HANG GLIDER PILOT"— by Ann Welch and Gerry Breen.....£2.75
An excellent up-to-date book for beginners and advanced pilots
(Plus p. & p. on this item) 15p
- "HANG GLIDING"— by Bob Mackay. An informative book
mainly for those who have just entered the sport 50p
(Plus p. & p. on this item) 10p
- Log Book £1.00
- The BHGA leaflet "An Introduction to Hang Gliding"
(with a list of major clubs) Free to members
- List of British Hang Glider Manufacturers Free to members
- List of Schools on Current Register Free to members
(Send s.a.e. if only ordering free items)
- "WINGS!" BACK NUMBERS: Single copies to members 55p, to others 65p.

BHGA 167a Cheddon Road, Taunton, Somerset. TA2 7AH

have found them to be hard to turn, tiring to control, and also that their sink rate is measurably inferior to the single surface variety. In addition, they take longer to assemble and often are quite a bit heavier. So far, the strutted rogallos have not seemed to gain any measurable advantages in performance against those with the standard king post and wires.

Sink rate advantages are nice, especially in ridge lift, where the difference becomes readily apparent. But, unless a pilot can own two or three brand-new rogallos, at the same time, I would suggest that he does not buy a rogallo purely because it has the best sink rate. At the famous cliffs of

Torrey Pines, two miles from my home in San Diego, California, the honour of being "top of the pack" has shifted from one brand to another many times over the past three years. The latest "king" is the 224sq.ft. (sail area) Condor made by U.P. Other things being equal, the lighter the wing loading the lower the sink rate. And 224sq.ft. is a large kite, especially for my weight (160lbs). But it is easy to control, as are others like the Wills 265sq.ft. 110 G, and this is a marvellous breakthrough for light pilots with large rogallos. It's nice to have all those "other fellows" down below you, but if you can afford only one new rogallo, and if you are at all interested in thermal flying, penetration, and cross country, then rate of sink should be a few notches down the list of requirements for your new machine. (Incidentally, I don't usually name brands. I have no financial connection with U.P. — I just thought you might be interested).

The rigid wing hang gliders have not, as would be expected, dominated the rogallos in the area of "rate of sink". For instance, when I fly my Mitchell Wing with a group of, say, 30 rogallos, at Torrey Pines, and if we assume that each pilot is trying to get as high as possible, the Mitchell Wing will have about 10 rogallos above it and about 20 rogallos below it. But it will normally be travelling about 40% faster than the fastest rogallo. ☺

Peachy

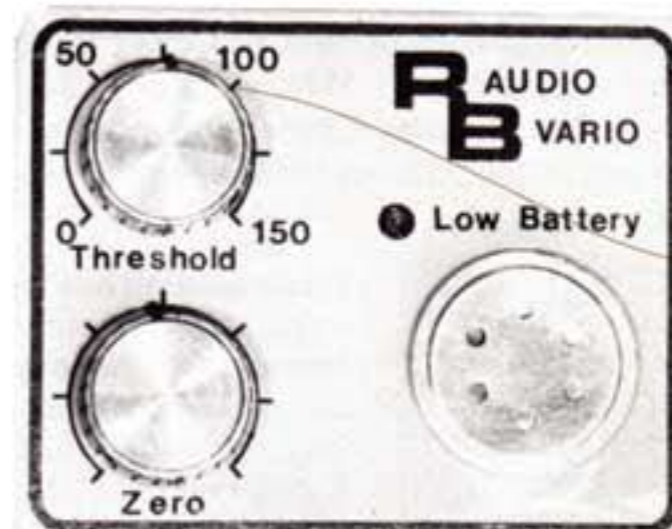
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BEEN SPECIALLY NEGOTIATED FOR
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PERSONAL ACCIDENT WHILST HANG GLIDING WITHIN THE U.K. AND EUROPE

CAPITAL SUM IN THE EVENT OF:
DEATH, LOSS OF LIMB, (OR USE
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TOTAL DISABLEMENT

Code	Cover	Premium
A10	£10,000	£13.00
A15	£15,000	£19.50
A20	£20,000	£26.00

WEEKLY BENEFIT IN THE EVENT OF TEMPORARY TOTAL DISABLEMENT
(Totally unable to follow occupation - maximum 104 weeks
excluding first 14 days).

Code	Capital Sum Benefit	Weekly Benefit	Premium
D20	£2,000	£20/Week	£10.00
D30	£3,000	£30/Week	£15.00
D40	£4,000	£40/Week	£20.00
D50	£5,000	£50/Week	£25.00
D60	£6,000	£60/Week	£30.00

NOTE: A10 can be added to any of the D Series.

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

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

GLIDER ALL RISKS - INCLUDING THE AIRBORNE RISK

As notified in last months *WINGS!*, it is now possible to cover Hang Gliders for the airborne risk as well at a premium of £10 for each £100 of value, but with a £25 excess. Please send details of your Glider for quotation.

GLIDER ALL RISKS - EXCLUDING THE AIRBORNE RISK

Full Ground Risks but excluding flight risks and first £5 each claim (£10 whilst Glider is rigged). Includes 30 days use in Europe each year.

£300	£ 7.00
£350	£ 8.00
£400	£ 9.00
£450	£10.00

EACH ADDITIONAL £50 VALUE - ADD £1 PREMIUM

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There need be no premium loading to cover the Hang Gliding risk for your Life Policy, your Endowment Policy or House Purchase Policy. Just tell me your requirements.

CLUB LIABILITY POLICY

B.H.G.A. Master Policy provides £500,000 Public Liability Cover for the flying activity of every B.H.G.A. Member. However Clubs are required to have their own Policy to cover Club Committee and Members, Wives, Girl Friends, Associate Members etc. and to meet National Trust, Landowners and Local Authority requirements. Cover is valid throughout Europe.

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small ads

For your own safety, if you are purchasing a second hand glider, check that it is a registered BHGA model, see it test flown, test fly it, and inspect it thoroughly for damage or wear to critical parts. If in doubt seek advice from the Club Safety Officer.

All small ads should be sent to Lesley Bridges, Commercial Editor, Wings, Yard House, Wentnor, Nr. Bishops Castle, Shropshire. Ads sent to any other address will be redirected and therefore delayed.

Wasp C4 221, excellent condition, seated harness, can be test flown at Dunstable. Less than 2 years old. £140. Tel: Glyn Kilsby 01 360-4352.

20ft. Cloudbase, radial, light blue Bainbridge sail. Available mid to end June. £250 ono. Contact Tony Maclaren. Halnaker 457 (home) or Chichester 86111 (work).

Birdman Special. Moonraker Prototype II, modified Firebird 'S' Airframe, up Dragonfly sail. Constructed by

Birdman. Full history available. Red, blue sal. Prone, seated rigging. Good intermediate kite. Bag included £220. Tel: Kevin Emery, Totton 3757.

Bill's Goat, Becky, has had twins — a boy and a girl. Send congratulations to: Bill Lehan, Neale House, Moat Road, East Grinstead, West Sussex.

Vector — Large (12st. plus) up-dated prototype, very clear sail. Good high performance glider, flown in League — reasonable price of

£385. Tel: Richard Brown Coppull 792417 (home) or Preston 725943 (work).

Come Fly Caton Bay — Bed and breakfast available, one mile from Cayton Cliffs, six miles from Scarborough, Yorks. Tel: 0723 582385.

"Dragon Hotel" Crickhowell. Central for all South Wales best soaring sites. Already popular with hang glider pilots. Tel: Crickhowell 810362.

Argus 19ft. Rogallo Hang Glider, suit 10st. upwards. Attractive red, white, blue scheme. Little used. As new condition. £150. Legge. Aberdeen 723441.

Propeller making for the amateur. The complete do-it-yourself book for propellers of all types. £2.50 inc. post. Eric Clutton, 92 Newlands Street, Stoke-on-Trent, ST4 2RF.

T Shirts, Clearance sale. Sky-riding hang gliding motif around picture of hang glider.

Printed in royal blue on white shirt. Small/Medium/Large £1.85 inc. p. & p. Judson, 28 Hawthorn Road, Woking, Surrey.

Instrumount — vario mounting stalks — fully anodised — "kick up" feature — secure instant fixing. Send sae. for information or £8 inc. p. & p. and VAT. Money back guarantee. Main Welding Co. Ltd. Shawclough, Rochdale, Lancs.

Skyhook Canard 140° nose, 38½ft. wing span, 3 months old, suitable for 9½/12½ stone pilot. £450. Choice of second hand large Sunspots and Scorpion C from £350. Pete Jackson, Sheffield, (0742) 585644.

Vectors — clearance of mint condition Vectors. Part exchange invited. Cheap prices asked. Ring Graham Hobson, 061 973 4085.

Swift — brand new, only test flown, with bag and seated harness. Ideal for beginner or intermediate. Folds down to 11ft. approx.

Quick rig, seated or prone. Bargain at £330. Phone Roger Full, St. Ives 7651 (Day).

Hustler — brand new. Test flown, with bag, folds down to 12ft. Quick rig, seated or prone. Comes with pre-formed battens. Absolute superb performance and handling. Suit up to 10½ stone pilot. Intermediate upwards. Only £400. Phone Roger Full, St. Ives 7651 (Day).

Wanted — assistant instructor. Accommodation, salary and training given. Phone Mike Adam, Merthyr Tydfil (0685) 3780.

Galaxy-Flyer Helmet now with the new British Standard 5361. Price £16 inc. p. & p. Frank Acton, 53 Royston Park Road, Pinner, Middx, HA5 4AB. Tel: 01 428 2686.

Pellet Variometer. We are the UK agents for MAKIKI ELECTRONICS. Self-contained variometer model 2 is only 4 in. x 5½ in. and weighs 15

ozs. Just as sensitive as electronic variometers. £36 inc. p. & p. and VAT. Dealer enquiries invited. Main Welding Co. Ltd. Shawclough, Rochdale.

Quality binders for Wings — handsomely bound walnut simulated leather binder with distinctive gold block design. Sizes: A4 at £2.95 and A5 at £2.50. Takes 12 issues. Cheques payable to Livingstone Promotions, 2 Timberyard Cottage, Herstmonceaux, Sussex.

For sale — several old standards. No reasonable offer refused. M. Adam, Merthyr Tydfil (0685) 3780.

Windhaven parachutes in stock — July. Also agents for Wills Wing instruments and accessories — Colver and Chad AVT variometers shortly in stock — New Altitechnic dual scale vario. Send stamp for details. Main Air Sports, Shawclough, Rochdale, Lancs.

THE NORTH WALES BRANCH OF THE WELSH HANG GLIDING CENTRE IS NOW OPEN

RUTHIN, SITUATED IN THE SCENIC CLWYDIAN RANGE IS EASILY ACCESSIBLE FROM LIVERPOOL, BIRMINGHAM, MANCHESTER, AND VIA THE M62, THE NORTH EAST. FULL DETAILS FROM THE CFI MR. JIM BOWYER, N. WALES BRANCH OF THE WELSH HANG GLIDING CENTRE, 17 WELL ST, RUTHIN, CLWYD.
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NOVICE TO ADVANCED COURSES

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FLIGHT DIRECTOR: GERRY BREEN

Hiway Standard 200 in good condition, blue, seated and prone. Harness and bag. £150. Please contact Linda Thompson. Tel. 061 434 3135 or Christine Leach 061 796 8385.

Gryphon III, multi-coloured sail, very good condition, genuine reason for sale. £600 ono. Phone Tony Fletcher, (0685) 875630 (Home) 874221 (Work).

17ft. Argus Red/yellow/blue, ideal for beginner up to 11 stone, anodised cross boom complete with bag and seated harness £80 ono. Ring Neil Minehead 2392 (Evenings).

Gryphon III latest model. Multi-coloured sail. 4 months old. £570 o.n.o. Tel: Preston (Dorset) (0305) 832758 evenings.

Phoenix 6B (sail pocket). Multi-colour sail, bag, £350. Tel: Abson 2144.

A long climb to the top of your favourite hill? Our lightweight, go-anywhere, hill-climbing vehicle is the answer. Low gearing, glider rack and trailer. £220. David Ball, 6 Hill Park Way, Edinburgh (031 336 4148).

Hiway 220 — white/green with bag. Rugged for seated or prone. Plus seated harness. £150. Tel: Newhaven 4757 after 6 p.m.

Kelling Heath — caravan and camp site — 8 miles from gliding site at Cromer. Modern 6 berth frame tent to let. All utensils and equipment except sleeping bags and linen supplied. Inner tent sub-divided 3 bedrooms. Rent £42 weekly, July and August, £35 in September, inclusive of all except Gaz replacement. Excellent site, shop, showers, bar, tv, buffet. Contact J. Mattocks, 19 Chisnall Road, River, Dover. Tel: (03047) 2315.

Kestrel Windhover II — hardly used. Red/gold sail, with bag,

seated harness and some spares. £90 ono. Pat Ryan, 54 Pittmore Road, Burton, Christchurch, Dorset.

Avon Hustler, large size, flown four times only; buying smaller kite so £395 for quick sale, including bag. Tel. Shipston on Stour 61539.

Moonraker, 9 months old £375. In my terms 'as new'. Mick Lamb, Frampton Mansell (028 576) 370.

Icarus V rigid wing, complete with trailer, plus extras. Exchange considered. Offers. Tel. Rossendale (07062) 27797 after 6 p.m.

Phoenix 6. Excellent universal kite. Two-tone blue and white. Converts prone/seated. Only £225 including carrying bag. Tony Burgan, Shrewsbury 61791.

Midas Super E. The latest Chargus — as new. White, red and yellow sail. £460. Tel. Paul Bullock, Church Stretton 2884.

Spirit Medium size. Good condition £265. Doncaster 855700.

Chargus Vegaia (white). Spare A frame, harness, excellent condition, beautiful to fly, regularly on top of the stack, yet forgiving enough for beginners. Bargain £295 ono. Phone 0621 891098 (Maldon) evenings, weekends.

Skyhook Cloud Nine. Really good condition, seated harness and carrying bag. Very good for soaring, excellent for beginner, 10 to 13 stone. £230. Preston 21591.

Scorpion B, this superb machine has several 10m + flights behind it. Red to white spectrum sail. Purchase of Super Scorpion forces sale, a snip at £300. Any trial. Ring Geoff Ball, Bolton (0204) 385746.

For sale — seated harness for Spirit or similar large A frame. Used twice, — as new. Tony Newall, Tel. Rossendale 3716 any time.

Hiway 200 with seated harness, in good condition. Bargain at

£100. Contact I. Jones, 10 Heol Herbert, Resolven, Neath, Glamorgan.

McBroom Argus. 230 sq. ft. nylon sail. Seated harness. Red, blue and white. Carrying bag. £110 ono quick sail. Jim Giles, Devizes 2767.

Scorpion B for sale with seven bright colours, also a Canadian Maple Leaf sewn in the fin. £400. Tel. West Kingsdown 2724.

15 stone pilot seeks larger kite for ridge soaring. £260 or similar. No thermals please. Redcar 73501 after 5 p.m.

For sale Wasp 229. Good condition, spares, ideal for beginner, inspection invited. £80 ono High Wycombe 444537.

Wasp Gryphon III in A1 condition, including bag and Hiway stirrup prone harness, colours dark blue, white, yellow, orange, dark blue absolute give away at £560. Tel. Vic 0463 791522 any evening.

Scorpion B with prone and seated rigging. Good condition. £390. Tel. Greg Burgess, Swansea 66438.

Hiway Scorpion C. Yellow, blue and white. Must have quick sale. Bargain. £350 ono. Ring Ted Battersea, Littbourne, 614.

Cobra 188 with seat and factory bag, in good condition. No prangs or modifications. Office hours, Gloucester 29717.

Hiway 240 and seat harness, heavy duty bag and spares. Good condition, red, green and yellow sail. £120. Jim Whitworth, Rose Cottage, Low Wray, Ambleside, Cumbria. Tel. Ambleside 2543.

22ft. Spirit. 1 year old, never crashed. £300. Keith Cronshaw. Phone work: 061 338 3611 or call 8 Crompton Road, Macclesfield.

1 year old SST Special. All red sail. Large size. Prone only. Good condition. First to fly will buy. £275 with zip bag. Owner buying something more hairy.

Phone Ian Hayes, Basingstoke 62536 evenings.

Cloudbase 20ft. Super de Luxe. Beautiful purple, gold and orange and black sail. Fine example of a great aircraft. Flies high and handles like a dream. Scorpion forces sail. £290 ono. Tel. Manston (Kent) 546, ask for Les.

Hiway 21ft De Luxe Cloudbase with seated harness and bag. £210. Phone Newquay 3394 (Cornwall) evenings.

Flexiform Spirit. Very good condition 22ft. Six colours with slide rig for very fast rigging. Loves thermals, a real super floater. Complete with zip bag and prone harness. £300. Phone Kettering (Northants) 711636.

Wanted. Good condition 2nd generation rogallo suitable for pilot 126 to 147 lbs. Up to £250 paid. Tel. A. Walton, Newcastle-upon-Tyne) 667536.

If you can't hack the handling on your beast, buy my Scorpion B. What a beautiful flying machine! Bainbridge Dacron throughout £390 ono. Phone Dave Worth, Editor Wings! 01-659-2270 (London).

'Windmaster' Scorpion C, white, gold and red sail. Pilot weight range 11-14 st. Must sell as buying new kite. A bargain at £300. Phone Salisbury (0722) 3746 daytime and ask for Dave Shaw.

Moonraker in excellent condition, with bag. 10 months old. Red, white and blue sail. Superb all round kite. £400 ono. Hiway prone harness £30. Tel. 01-283-3671 (day) or 01-736-5628 (evenings). Roger Willbourn.

Large black Swift. Fully tunable, quick rigging, seated or prone. Good sink rate and excellent soarer. C/w bag and seated harness. £260 ono. Tel. Didmaston 688 or write — Steve Moss, Pool House, Hawkesbury Upton, Badmington, Avon.

1978 Hustler (210 ft) four coloured sail, excellent condition and

flies beautifully £390. Ring Leigh Sinton 32880.

1850 Breen Custom Kite. Seat, bag. Flown five times from new. £110 ono. Leigh Sinton 32880.

New kite yes new 229 Wasp. Ideal for anyone who knows a bargain. £100. Apply Mr. A. Pitkin, 21 Brunel Court, Westfields Avenue, Barnes, London, S.W.13.

Cloudbase 20 (chord) immaculate, 7 months old, never pranged. Bag but no harness. £290 owner going up market. Crowborough 61011 evenings.

Wasp 221 C4. Good condition. Red, white, blue sail. Bag and seated harness. £130 ono Barnstaple 5276.

Firebird S, suit 9-11 stone pilot. Very good condition, beautiful multicoloured sail. Excellent intermediate/soaring machine, seated or prone. £300 including bag and seated harness. Tel. Leigh on Swindon 32339.

Birdman Moonraker 1 year old. Red, orange, yellow, purple and white. £365. Tony Champion, Blandford (Dorset) 51505 evenings.

Birdman Hawk with seat and bag. Wasp 229 sail (never used). Offers to Alistair Munro, 26 Regent Terrace, Edinburgh. (031 556 1651).

For Sale — **Lancer 2B**, Ideal for pilots interested in aerobatics. Floating truncations, anti-luffing wires. No faster kite around. Mark Woodhams, 60 Compton Road, Brighton 501043. ~~£390~~ o.n.o.

Skyhook Super Sunspot. Blue and White, only 8 flights. 10 hours flying, no prangs. Alan Firth Guildford 6816, £470 ono.

Moyes — My own Stingray Class I £595, and my '77 league winning Maxi Mk II. £550. Many wins to their credit. Contact Brian Wood, 27 Lennard Road, Bromley, Kent. 01 462-5212

Gryphon III 3 months old, excellent condition, as new. £550 ono. Tel. Rossendale (07062) 4625 (day) or 5808 (evenings).

Chargus Vega II complete with bag and seated harness. Good condition. £400. Ring Burley Gate 346, weekday evenings, Near Hereford.

Hiway Cloudbase De Luxe. All white Bainbridge dacron sail, seated/prone rigging, immaculate condition, protection bag, brilliant flier. £250 Tony Toole, Brighton 606755 Ext. 151 (work).

Scorpion B in gold, yellow, white tips, black trimming and fin. £445. Tel: Robin Pattenden, Herne Bay (02273) 61207.

Wills XC 185 (Small) Cruise past your friends and out-thermal them on this well tuned machine. 6 months old. I am underweight for the glider, it would work well with 10-12 stone pilot. £540. Phone Mike Robertson, Brighton 553286.

Cobra 200, orange with black and white tips. Seated or prone, two seated harnesses, one being the new webbed harness. Good beginner to intermediate kite. £260 ono. Phone Tunbridge Wells (Kent) 22458.

Scorpion B 3 months old, dacron sail, triple deflexors, breaks down to 12 ft. Best offer. Swansea (0792) 21076.

Skyhook Bighook, ex Miles Handley, all white sail, ideal first timer. £100 ono. Swansea (0792) 21076.

Midas E desperate to fly. Flown only 15 minutes in 8 months. If you can help contact Simon Johnston 01-399-6584 (at home) or 01-954-2311 ext 135 (at work) with cash £360 cash.

Wasp Gryphon III, six months old, excellent machine in first class condition. Best offer secures. Tel: Reading (0734) 864543.



Hiway Hang Gliders, 27/35 Bernard Road, Brighton BN2 3ER. Telephone : Brighton (0273) 681278.

SUPER SCORPION

A worthy successor to the existing Scorpion, this is the machine for the serious cross-country and competition flyer. The 120° nose angle and low twist values of the wing make the Super scorpion a highly efficient glider.

Incredible min sink performance coupled with an ability to flat 360 in very tight spaces, make the Super scorpion the ultimate thermal eater.

Pitch is light but positive: A new aerofoil section allows extended glides at high speed – ideal for getting out of sink or hopping from thermal to thermal.

Super scorpion is equipped with two small tip struts. These struts allow the sail to ride as high as it likes when flying at low speeds, but ensure that at high speeds or radical attitudes the keel always has a higher angle of attack than the tips, thus providing quick dive recovery.



Super scorpion (and Spectrum) have all exposed tubes bright anodised. Unlike the Spectrum, this glider is only available rigged for prone, so a 'B' bar is necessary if you want to fly seated.

Advantages

The simplified structure allows you to rig in about the same time as a Hiway standard!

Because the tips of the wing are not connected by wire to the front of the machine (no wing wires) the frame can release excess loads by flexing. This also makes for a smoother ride in turbulent conditions.

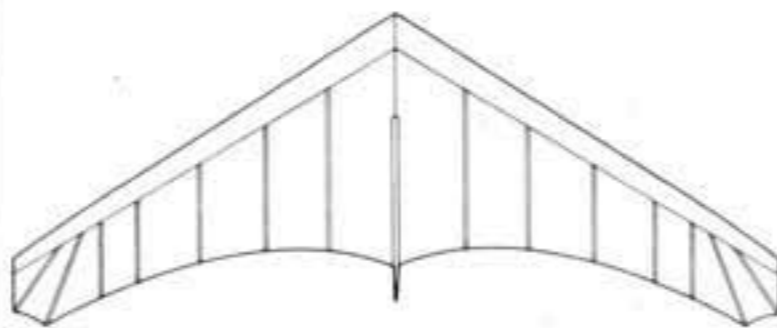
The whole frame structure is lighter



because the removal of deflexors, bottle screws and cables also means removal of the sleeving at the attachment points. Also, Super scorpion is lighter than its older brother because the short keel pocket is less cumbersome than the fin, full pocket and related hardware.

No wing wires and bottle screws means you don't have to be continually tweaking the cables to keep in tune. It's all in the sail, fully tuned and permanently tuned. No wing wires means there's less to go wrong, and the removal of all that clutter from the leading edges pays huge dividends in drag reduction.

The variety reduction of components is also reflected in the price of the machine. A supership at a reasonable price is now a reality.



Super scorpion	Leading Edge	Keel	Length packed	Knockdown length	Area	
A	16'5" (5m)	11'2" (3.4m)	16'9" (5.1m)	12'3" (3.75m)	150ft ² (13.6m ²)	
B	18' (5.5m)	12'1" (3.7m)	18'4" (5.6m)	13'3" (4.05m)	173ft ² (16m ²)	
C	19'8" (6m)	13'3" (4m)	20' (6.1m)	14'3" (4.35m)	198ft ² (18.4m ²)	
	Aspect ratio	Nose angle	Weight	Pilot weight range	Strength rating	Span
A	5.5	120°	40lbs (18kg)	8-11st (50-70kg)	1200lbs (545kg)	27'10" (8.5m)
B	5.6	120°	46lbs (21kg)	9-13st (57-82kg)	1260lbs (571kg)	30'7" (9.35m)
C	5.7	120°	52lbs (23.5kg)	11-14st (70-90kg)	1290lbs (585kg)	33'6" (10.2m)