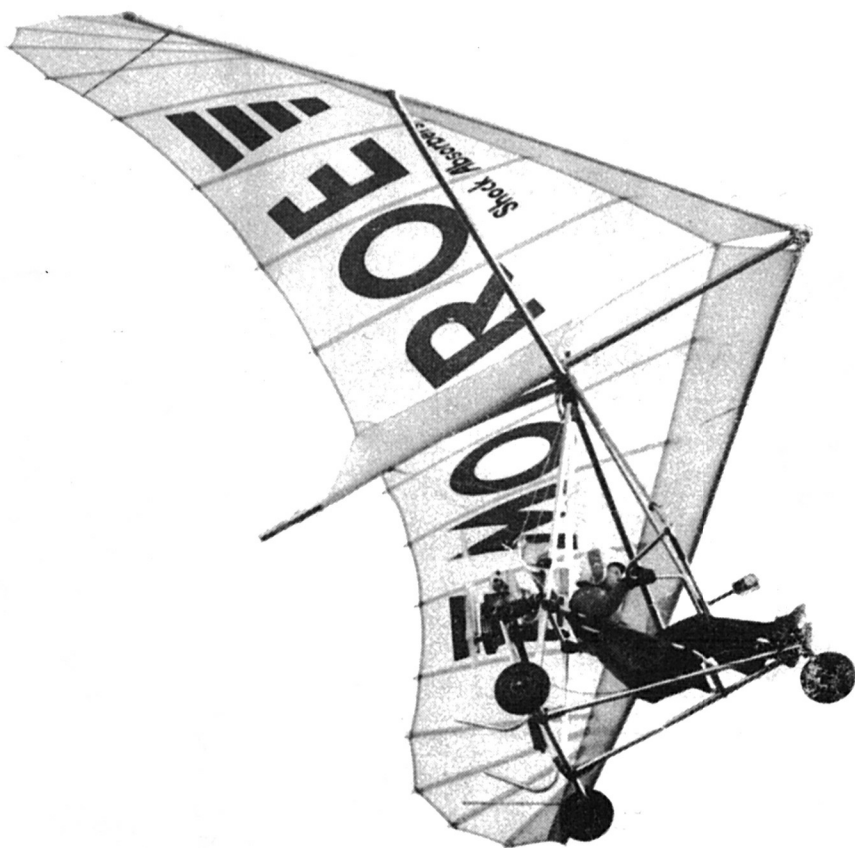


# FLIGHT LINE

magazine of the

BMAA



No 5 Sept-Oct 1980

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# FLIGHT LINE

FRONT COVER: Monroe Shock Absorbers - the sponsored Solar Storm glider with Hiway Skytrike at the Popham Fly-In, August Bank Holiday weekend.

(Photo: Katey Thomas)

## TO ALL SCHOOLS AND FLYING CLUBS!

If you run a flying school or have formed a Club (proprietary or otherwise), the BMAA Committee is very keen to be in contact with you. Please write initially to:

The Training Officer

BMAA

80 St George's Road

Aldershot Hants

Please include as many details as possible as to how you run any training activities, together with an outline syllabus.

## EDITORIAL

The BMAA's Annual General Meeting will be held on Sunday 30 November 1980 at the Matrix Hall, Fletchamstead Highway, Coventry. Do make every effort to come if you possibly can. It is your chance to put your points of view, air your grievances and, above all, vote for the Committee you want.

The Persons-to-blame department is at present desperately undermanned. We need keen, knowledgeable, energetic people who wish to help with the administration of the BMAA.

The Association has, I believe, achieved much in its first year. We have a sound foundation on which to build, we are established as an independent body which enjoys a good working relationship with

## FLIGHT LINE No 5 - CONTENTS

Contact - letters, information	4
Chairman's Airwaves (Steve Hunt)	6
Quicksilver Commemorates 1910 Flight (Ernie Patterson)	10
Paul Baker's Training Column	7
The Great Trike Race (Les Ward)	14
Popham Fly-In (Bill Edwards, Jim Espin)	16
Dave Cook at Farnborough	19
Pterodactyl - a Pilot's View (Bruce Giddings)	22
Nomad Story (Allen Craft)	28
Kweerie Korner	31

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the CAA and other interested parties, including insurance underwriters (the latter thanks largely to Reggie Spooner). Our record, so far, is good for a new sport; there have been a few interesting incidents but no-one has suffered personal injury and neither has any third party, save possibly a few eardrums. NOISE - alright, I can already hear the groans. The plain fact is that this is the only area in which we have a problem. If we are to survive and expand, we must make our machines as quiet as possible. Indeed, it will be necessary to include a maximum acceptable noise level in our airworthiness requirements.

See you at the AGM!

Dave Thomas

Opinions expressed by the authors and correspondents are not necessarily those of the Editors or the Committee of the British Minimum Aircraft Association.

# CONTACT!

## SMALL AD

**FOR SALE:** Registered EAGLE with Twin-pak, Arbee vario/altimeter, Arbee ASI, spare prop and 1980 Pooley's Flight Guide. £2075. 01-546 1630.

## SHANKLIN SHOW - MINIMUM AIRCRAFT SECTION

*A message from Pete Scott, Secretary, Minimum Aircraft Section, Shanklin Show*

It is now our firm intention to hold the Shanklin Show 1981, supported and sponsored by the Shanklin Hotel and Guest House Association.

The dates are May 2nd to May 9th, 1981, inclusive, and the event will commence with an official reception from the Mayor and representatives of South Wight Borough Council and will conclude with a Grand Ball put on by the Hotel and Guest House Association.

The official display area will be the sea front at Shanklin for which a large area of beach will be available, together with car park for static display, rigging and pilots' use etc.

It is planned that official flying tasks and displays will take place on the first weekend, the mid-week Wednesday and the following Friday, with carry-over arrangements should the weather dictate. The in-between times we hope will be used for free flying and relaxation with possible visits to places of interest and entertainment etc. Flying tasks are to be based on pleasure for the pilots and visual impact for the public.

We have been offered the use of the Isle of Wight Airport at Sandown and details of the arrangements agreed will be announced as soon as they are completed.

Concessions on the ferries are being sought and accommodation at preferential rates can be arranged through the accommodation officers Pete Scott on Seaview 2334 or Angela George on Ryde 66493.

Any profits derived from the promotion will go to the Cheshire Home (Shanklin) and RAF Charities.

We are still in the very early stages of planning but we want to make the Shanklin Show the biggest so far so please come in force and we will do our best to make you welcome and comfortable.

Pete Scott

## LETTERS

Dear Dave

In reply to Mr John H Wadsworth's letter concerning the problems of a trike/hang glider set-up becoming detached in the air, I have given this matter much thought as I am designing my own trike. The main problem I see with Mr Wadsworth's idea is that the harness would have to be very long to allow the pilot to sit in the seat in what is really a fairly supine position. (I am thinking of my own trike here, so it may not apply exactly to other trikes). So should the trike drop away, the pilot would be suspended by his harness, with the bottom bar level with his eyeballs.

Also, my mind tends to boggle at the thought of the damage that could be done by a trike falling 5,000 ft!

I believe that a better solution would be to have a back-up system, in case the universal joint/coupling should break. This back-up could take the form of a steel cable attaching the trike to the keel tube of the glider - by separate mounting bolts, of course. So - should the unthinkable happen and the universal joint break, the trike would still be attached, and enable the pilot to make some sort of forced landing.

If anyone has any better ideas, please let me know!

Mark Crew  
Llanyrafon, Gwent

Dear Mr Thomas

I was flattered to be classed as a civil servant by David Kirke (whichever way he spells it) but I hold no such exalted position and my original letter on page 21 (May-June) was simply an attempt to protect the public image of minimum aircraft. Any implied association with 'dangerous sports' is in nobody's interest, least of all members of the BMAA, and could possibly hinder the Committee's negotiations with the CAA.

Mr Kirke's over-reaction to my letter is the indirect result of sensational reporting in the daily press which made little mention of the painstaking pre-flight preparations. Like others I jumped to the conclusion that the affair had been mismanaged. The first complete report seems to have been that contained in Mr Kirke's letter.

However I must take issue with Mr Kirke on his choice of landing sites. I learned to fly in 1942 on RAF Tiger Moths, then Stearmans and Harvards. At that time we were taught to use runways or at least suitable fields. People who landed in trees were accused of damaging government property.

Being halfway through the assembly of a Weedhopper I should be hopping mad if anything interfered with the BMAA's carefully thought-out negotiations, and there must be many members who have spent a lot of hard-earned cash and time on their flying machines and feel strongly about the matter.

In any case let's encourage record attempts so long as they are properly prepared - like Mr Kirke's - but also properly publicised. At the same time let's fly minimum aircraft well within their capacity. For example, John Chotia says in his last newsletter: "Aerobatics are a no-no. These aren't the 1920s. Barnstorming is out-of-date." He was referring to pilots who looped and barrel-rolled their Weedhoppers, but his remarks could apply to new pilots - less experienced than Mr Kirke - who might attempt ambitious manoeuvres and overstress their aircraft.

P W Grange  
St Leonards-on-Sea

Dear Editor

Is there no limit to the number of rods David Kirke will make for his own back? His attempt at dishing out a flashy verbal thrashing to Mr Grange (Flight Line No 3) with a French phrase whose meaning is lost on a English readership is a classic example of the device of literary obfuscation so beloved of petits fonctionnaires themselves. As if this was not enough to hoist Mr Kirke with his own petard, Fate - or a printer - clinched it for him by mis-spelling the conceited nonsense.

But never mind all that. It's time we all gave credit where credit's due: a brilliant landing, Mr Kirke (now that we know you did it on purpose). I'd be grateful for a few hints on how best to develop the technique. Start with flower beds and progress via hedges and bushes to trees? And how will I be able to tell, from a pre-flight check of the target tree, that its branches will do less damage than its trunk? Is a tree-landing feasible in winter? Only on evergreens? And how do I know that my microlite, having flared brilliantly onto the crows' nests, won't fall off and break my neck as it hits the ground?

I would commend your bravery, Mr Kirke, except that you say such landings are devoid of the slightest danger. Unlike dangling by elastic from a bridge? Fings in the Dangerous Sports Club sure ain't what they used to be! Don't rest too long on your laurels (there are some eminently suitable oaks in Norfolk, and the odd larch). It really was a courageous attempt. Personally I haven't got the bottle for it. More power to your Pterodactyl.

Spectacular landings,

Christian Maréchal  
Norfolk Microlite Centre Ltd  
Field Dalling, Norfolk

*On this note we had intended to conclude the David Kirke saga, but in October he made a further attempt and got to Paris this time! Congratulations, and how about a report for Flight Line, Dave?*  
- ED

# CHAIRMAN'S

air waves  
air waves

## FORTHCOMING AGM

As announced elsewhere in this issue, the Association's Annual General Meeting is happening on Sunday 30 November. The Matrix Hall in Coventry has been chosen as the venue because of its central location and because of the Committee's strong desire for as many members as possible to come.

## WHY DO YOU NEED TO COME?

Every person, whatever their level of interest in the sport, has a vision of how they would like to see the sport develop. Major policy decisions are sometimes made at AGMs and the officers who are elected at such Meetings shape to a very great degree the development and actions over the next year. Without being there, you won't feel to the same degree that the sport is progressing in the direction you want.

## NEW OFFICERS

Most of this year's Committee have worked hard and some are standing for re-election, but the Committee needs a little expansion. If you can do a lot of work reliably in return for little thanks and possibly some abuse, while knowing that you're doing a worthwhile job, you could find the overall experience most rewarding.

## YOUR COUNTRY NEEDS YOU

Seriously now, at present too much

work has been done by too few people and we need volunteers, in particular an EDITOR, plus others, because all these jobs below have to be done:

Chairman  
Secretary  
Treasurer  
Editor  
Training Officer  
Safety Officer  
Chairman of a Technical Sub-Committee

## SPORT AT A CROSS-ROADS - MEMBERSHIP FEES

The sport is growing and at the moment your Committee is putting before the CAA a set of draft proposals for the organisation of flying minimum aircraft (see elsewhere to obtain copies). If we don't organise ourselves, someone else will - and to do this we need administration and office facilities - THIS YEAR! This will cost money and we hope that the reward will be a smooth-running organisation. To cover this overdue and much-needed expansion, together with improvements in the production of the magazine, the Committee is recommending an annual membership fee of £12 - a sum much more in line with similar national associations.

So come along to the AGM - it's your real chance to find out and influence the future of your sport.

Steve Hunt

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## DRAFT PROPOSALS FOR THE ORGANISATION OF MINIMUM AIRCRAFT FLYING ACTIVITIES - COMMENTS NEEDED!

The Committee has produced draft proposals for the organisation of minimum aircraft flying activities and we are very keen to receive constructive comments on these proposals. The package includes draft procedures on:

Training programme  
Certificates of competence  
Airworthiness standards

Aircraft Permit to Fly application  
Aircraft Identification Number application.

Unfortunately there is far too much to print in the magazine, and all this paperwork costs money to produce (same old story!) SO - to obtain your proposals pack, please send your request with your name and address and 6 x 12p stamps to BMAA, 80 St George's Road, Aldershot, Hants. The packs are in preparation now but please be patient if you don't get one back by return of post.

# PAUL BAKER ON TRAINING

This time I am going to write about the stages of learning and the need to define the level at which the student becomes a safe pilot.

## THE FIVE STAGES OF LEARNING

- 1 On the ground
- 2 Landing ahead after short hops
- 3 Circuits
- 4 Local flying
- 5 Cross-country

### 1: ON THE GROUND

This first stage takes the pupil up to fast taxiing, ie just short of take-off.

**Objectives:** Familiarisation with the aircraft and power plant, including rigging and pre-flight checks.

**Learning:** how to operate the controls and what they do; how to park and unpark the aircraft; how to move the aircraft around, where to hold on and where not; how to get in and out; how

to keep the wings level; how to start and stop.

**Appreciation of the danger of the propeller.**

**Knowledge of where to go and what permission or clearance is necessary.**

### 2: LANDING AHEAD AFTER SHORT HOPS

At the end of the second stage the pupil is flying the length of the strip, getting quite high (50 ft), doing gentle S-turns and landing properly.

**Objectives:** Learning: how to make a clean take-off; how to control airspeed and height and convert one to the other; how to land with various power settings; to develop the ability to judge the height above the ground; how to keep the wings level; how to correct for drift so as to be able to land into wind; how to steer the aircraft in the desired direction (straight, gentle turns or corrections); how to compensate automatically for pitch changes caused by the conditions or by changes in the power setting.

### 3: CIRCUITS

At the end of the third stage the pupil can do circuits in both directions.

**Objectives:** Learning: how to fly a well-judged circuit in a variety of weather conditions; to position oneself in order to keep as many options as possible open in the event of problems occurring; how to cope with being too low or too high in the circuit; how to land at the intended spot.

Becoming more familiar with the co-ordination required for steeper turns.

### 4: LOCAL FLYING

By the end of this stage the pupil has become a reasonably competent pilot. He now handles his machine well and is ready to start flying cross-country.

**Objectives:** Development of the student pilot's judgement and skill so that he is able to look after himself safely. The judgement is the harder of the two to develop. He should be able to (a) climb several thousand feet without becoming disorientated or going inadvertently into cloud; (b) fly away



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from the circuit without getting lost; (c) make extended flights without running out of fuel; (d) fly in poorer visibility and gustier winds; (e) land in strange fields (with permission); (f) do good medium steep 360s; (g) use thermals to climb faster; (h) do dead-stick (engine off) landings from 1,000 ft to a spot (the most valuable exercise). Learning about stalling and the feel of the aircraft at slow speeds.

#### 5: CROSS-COUNTRY

Going cruising! Enormous fun, but also very demanding.

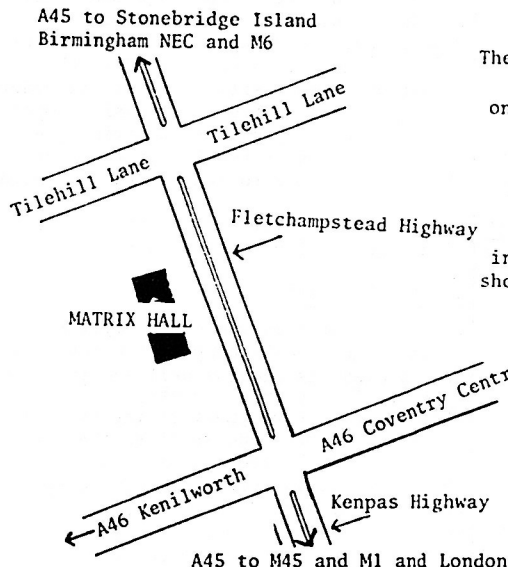
Objectives: Learning to: plan a flight; work out fuel requirements; work out likely groundspeed; navigate effectively; assess the weather correctly before and during the flight.

As the stages progress, they become increasingly complex and demanding. They require as a prerequisite that the skills from the previous stage have been successfully mastered; if this has not been done, the student pilot is liable to find himself in a situation that requires more skill to cope with than he has. It is possible to get away without learning logically stage by stage, but this attitude does not display the judgement that one would expect from a responsible pilot.

We have reached a stage of our development where it is most important that our pilots are seen to be qualified to be sharing the airspace with other air users. If these other air users are not satisfied that we are qualified and that we are not endangering them or other third parties, they will bring pressure to bear to ensure that we are controlled (by the CAA). Externally-based control almost certainly will not be the control that we need or want.

I feel that we must have a pilot certificate of competence and that we should start to implement it very soon. It should have two levels: the first level is when Stage 4 (local flying skills) has been mastered; the pilot will then be required to remain within, say, 4 kms of his home airfield, in order to build up his experience. If the pilot wants to fly cross-country, he must pass examinations in Air Law, Meteorology and Navigation and then satisfactorily complete a number of authorised cross-countries. He will then gain his full Certificate of Competence and will be qualified to share airspace with others.

Paul Baker  
Training Officer



The British Minimum Aircraft Association's Annual General Meeting will be held on Sunday 30 November 1980 at Matrix Hall, Fletchampstead Highway, Coventry.

The Meeting will begin at 2.00 pm but the Hall will be open from 10.00 am to permit trade displays and viewing. Please bring any films which may be of interest so that, time permitting, we can show them after the business is completed.

We cannot guarantee how warm the Hall will be but we are hoping that it will be possible to have a bar at 6.00 pm (but no promises!) There will NOT be any facilities for lunch and afternoon tea and you should make your own arrangements.

**A.G.M.**

"Orv, we gotta have a canard."

"Jeez, you and your frog cuisine, Wilb. I'm sick to death of duck and orange sauce. I have nightmares: quacking oranges attack me."

"A canard WING."

"Wing, breast, leg - what the hell. No *thanks*."

"For f...sake Orv, a canard wing on the flying machine."

"Look. You wanted two wings, I said okay we'll *have* two wings. Now you want more. Whadda we want with *another* one?"

"SO THE FLYING MACHINE DON'T STALL ONTO YOUR FAT HEAD, FATHEAD!"

"Okay, it's cool with me. I like my head the way it is."

"Great. Get yourself some long johns. Next week we fly."

"Er, Wilb - we ain't got no flying machine to fly."

"Nitpicker."

"And even if we did, we don't know *how* to fly one."

"Mere details, dear brother. Pick up the dog and bone. No, Orv, the thing with the dial. Now call the Norfolk Microlite Centre. *They* got flying machines. With canards. Flying machines of the future."

"But we still don't know how to fly them."

"THEY'LL TEACH US TO FLY THEM, NINCOMPOOP! THEN WE CAN GO AND MAKE AVIATION HISTORY!"

"Wilb, you're a man of vision. Any more ideas?"

"Yes, Orv . . . DUCK!"

"I *told* you. No thanks. How about a salt beef on *OOF!* *OWEEE!*"

"Oh dear. Gimme the phone . . . Hullo Doc, can you get this F-111 outa my brother's head?"

It is with justifiable pride that we reveal one of Aviation's best-kept secrets: it was us who taught Wilbur and Orville Gruntfuttock to fly. If it wasn't for us and our fast-climbing, slow-sinking, stall-resistant canard configuration Eagles, the legendary brothers would still be making orange sauce. Now they're making history. Their latest achievement: first-ever landing in the car park of The Jolly Farmers (3 October 1980). We'd like to help you make it too.

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# QUICKSILVER COMMEMORATES 1910 FLIGHT

Ernie Patterson

Each year our Club, the Ulster Hang Gliding Club, puts on a demonstration at Newcastle, one of our biggest seaside resorts. The town is remembered in the song, "Where the Mountains of Mourne Sweep Down to the Sea". Slieve Donard, the highest peak, is 2796 feet above sea level and provides a beautiful backdrop. The climb to the top is a blood, sweat and tears job; vehicles have to be left at the 700 ft level, just above the tree line, and pilots coax their gliders up the other 2000 ft. The flight from the top, however, is a thrilling experience, arriving over the town at 2000 ft with lots of time and space to enjoy. On landing on the beach last year, Bill Martin, Chairman of the Town Committee, approached me with his camera clicking. He told me of his plans for the 1980 Festival. It would be known as the Ferguson Festival after Harry Ferguson, Ireland's first aviator.

Harry Ferguson began building aircraft in 1909. His first successful hop was on 31 December 1909 at Hillsborough Park. He built several versions but crashed frequently, eventually writing them all off. Newcastle Town Committee of the day offered a prize of £100 for the first person to fly a distance of three miles and Harry Ferguson was the only contender. He made his first attempt to fly along the three mile stretch of sand from Dundrum Bay to Newcastle on 23 July 1910. He was unsuccessful at first - hindered by mechanical problems, adverse weather conditions and several crashes. But success came

on 8 August 1910 - he won the prize and found a place in the record books.

He gave up flying in 1912 after a bad crash but went on to even greater fame by inventing the hydraulic three-point linkage system for tractors, which is fitted to most tractors on the market today. He began building tractors and moved to America where he became Henry Ford's only partner. The name Ferguson is still seen on tractors today (Massey-Ferguson). The Ferguson-Formula four-wheel drive system for cars was another of Ferguson's inventions.

The Ferguson Festival was therefore planned to commemorate the historic three-mile flight, and the other achievements of the County Down farmer's son. Bill Martin had hopes of involving the Farmers, the Vintage Tractor enthusiasts, the local Flying Club and the Ulster Hang Gliding Club. I had already been at work building a microlite aircraft, a powered Quicksilver, which in some ways resembled the 1910 craft. Could I re-enact the prize-winning flight of 1910 by flying over the same course? Seemed fascinating! I contacted my sponsors, Ross Cochran (who produce mineral waters) and they were interested. All I had to do was finish the microlite. The undercarriage was no problem but I built five different engine units using a Mac 101B with different drive systems and layouts before arriving at a good power unit. The final result is an underslung shaft-driven job. The engine hangs right above my head making starting, adjustments etc easy to



do from the seat.

When the time came to commit aviation, we loaded the wing and undercarriage onto the roof of the Daihatsu jeep and crammed engine, tools and spares inside. The site was Tyrella beach, chosen because at low tide, there are miles of flat obstacle-free runway. I was hoping to pop off a few feet and hold it there as I flew the length of the beach to see how she handled. It rained. The already damp sand became a slurry. The front wheel spewed sand and water directly into my face and the Quicksilver wasn't pulling herself up out of it. Enough of this sand-yachting. We packed up and went home in the rain. At the next attempt we arrived at the beach, assembled the machine, and sure enough the rain came on. However the microlite was now sporting a

large mudguard on the nosewheel. At least I would see where I was going. After several attempts Chris 'Bodger' Simmons, our Safety Officer, who had been following me on each run in the jeep checking speed and making observations, decided that we should raise the nose to increase the angle of attack. This we proceeded to do, one degree at a time, by shortening the lower undercarriage cables. When we ran out of adjustment on these, Chris invented an 'auxiliary tensioning device' - using some rope. The Quicksilver would fly off smoothly at 28 mph. Sweet success! ELATION! The Wright Brothers must have felt this way. It was a beautiful feeling, flying along in the rain with the sand passing slowly underneath. I landed about a mile down the beach. There was no wind so we just turned around and flew back, and turned around and . . . .

*Ernie Patterson lands on the beach at  
Newcastle after flying over the famous  
flight path*



Darkness began to fall. We stood under the wing, sheltering from the rain, discussing the flights. The dream had come true.

As the opening day of the Ferguson Festival (5 July) drew near, there were interviews for newspapers and radio and photos to be taken. Ross's employed a PR man to maximise publicity. Newcastle Town Committee organised a Press Conference on the 4th at the Slieve Donard Hotel. The Committee had commissioned a local boat-builder to build a full-size replica of the Ferguson aircraft, and this was on display along with the Quicksilver. The replica was a beautiful machine, superbly finished. Many people commented on the similarity between the Quicksilver and the 1910 machine: both were cable-braced structures using a kingpost; they had a similar wing-span; but the major difference was weight. Total

*Harry Ferguson's daughter, Mrs Sheldon, presents Ernie with a cheque for £100, the same prize her father had won in 1910 for his flight*

weight of the Quicksilver - 112 lbs - was less than half the weight of the engine fitted to the replica (JAP engine, V8 35 HP, 320 lbs thrust). The Quicksilver has one bottlescrew and the replica has fifty. The Quicksilver is covered with Dacron - the replica has best Irish linen. The atmosphere was 1910 vintage.

I slept like a log that night. The weather forecast for the next day indicated that it would be unflyable at least in the early part of the day. I was scheduled to fly at 12.30, the first event of the day. Next morning was as predicted - 25 mph north-west - all wrong. We went through the motions, however, just in case things would improve in time. On arriving in Newcastle, I met Bill Martin on the beach and told him that the weather was not favourable for the flight. We drove leisurely down to Dundrum Bay in



the jeep and assembled the Quicksilver right at the water's edge. Still just going through the motions. The wind was coming off the land over the dunes which are 50-75 ft high. This meant a crosswind plus turbulence. Impossible! When we finished our preparations, Bertie Kennedy, our Club Coach and Technical Officer, was standing on the front of the jeep giving a continuous commentary on wind speed and variations thereof. Martin (Bionic) Bates (in our early towing days he performed the function of quick release and automatic line tensioner better than any mechanical device) stood on the nosewheel of the microlite to prevent her flying. Martin Green (Club Comedian) was helping too. Our one and only spectator commented, "I wouldn't like to be going up there in that thing." Says Martin, "I wouldn't like to be up there without it!"

The Bertiemeter was giving us 10-12-14-12-10. Sounds reasonable. But of course we were in the shadow of the dunes. Nevertheless, the wind was decreasing. The engine was warmed up and ready to fly so I pulled on the white overalls (as worn by Harry Ferguson) and climbed into the seat. I was planning to do a short hop to see how bumpy it was. Take-off was smooth, but sure enough there was turbulence around. Hoping to climb above it, I flew on. The turbulence was roller-coaster variety but the Quicksilver was controllable and reassuring. I pointed her towards Newcastle. The sun was shining, for a change, and the sea was blue with white ribbons. I wished I had more time to take in the view. I didn't even notice the statue of Lord Erskine on the beach, gazing intently skyward through his 10x50s. I did see the jeep bouncing along underneath trying to keep up. When I set course for Newcastle, the ground crew had scrambled aboard in a hurry, my wife Phyllis driving, the two Martins hanging on the back and Bertie in the front holding onto

the grab rail, weight-shifting in sympathy with me. Newcastle appeared. I flew along to Central Promenade, I was supposed to land on the beach there. A crowd had gathered. I closed the throttle at 100 ft and glided down, touching the sand as gently as sliding into bed. Taxying toward the spectators, I thought, what now? I had prepared thoroughly for the flight, but hadn't given much thought as to what was to happen afterwards. The loudspeakers seemed like a central point so I headed there, cut the engine and rolled to a halt. As the crowd applauded, Bill Martin appeared with Harry Ferguson's daughter (who now lives on the Isle of Wight). She had come over to Newcastle for the Festival. Her comment was, "That was the most exciting thing I have seen in a long time!" and she presented me with a cheque for £100 just as her father was, seventy years before. Five light aircraft flew in and landed on the beach. A Tiger Moth gave a superb aerobatic display and then they all flew off as the tide began to encroach on their runway.

The Quicksilver was mounted on a lorry, provided and decorated by Ross's for the Festival Parade. The Ferguson Replica led the Parade through the streets of Newcastle with wings outstretched over the thousands of spectators lining the route. The Quicksilver followed behind. The Ross's girls and I threw balloons to the crowd almost causing a riot as people clamoured to get a souvenir.

Soon it was all over. As we dismantled the float and de-rigged the microlite, people came to look, to ask questions and to wonder. The ancient dream of flying stirred the imaginations of many, just as it has been doing for centuries. But at last the day of the lightweight, low-cost, personal aircraft has come. Dreams do come true!

Ernie Patterson

*Before I recount the amazing flight from Land's End to John O'Groats I would like to congratulate all concerned, especially Gerry Breen, who flew an incredible last two legs just to stay in front, and to my ground crew, without whom the whole thing would have been impossible.*

*I will have to write in diary form as like most pilots, I am totally illiterate. (BOO, MOAN etc!)*

#### FRIDAY 8 AUGUST 1980

Found ourselves (Nick Wrigley, Helen

airport to prepare for tomorrow. We had some problems with the exhausts on the buggy which were fairly easily fixed. The weather was really bad and no flying was possible.

Paul and Ian were rushing to put extra fuel tanks on not realising that everybody was carrying at least twice as much as them. They ended up with quite a good system (well done, their ground crew!)

Went to Land's End Hotel for briefing and met up with all the pilots and

## THE GREAT TRIKE RACE

Rogers and myself) at Solar Wings' factory in Marlborough. We had been trying to get sponsors to help us with the expenses but to no avail. Suddenly contact was made with Good Year and things started moving. Dave, Cliff and Mark (of Solar Wings) made all the beefing-up alterations which were necessary for powering the Storm with a UAS buggy. We went to a local site to test it, got everything rigged and ready to go, then Catastrophe Number 1 happened. The recoil starter broke. We had brought quite a few spares but as you can guess, nothing like a starter.

I phoned Steve Barbier, a work mate, who was good enough to drive to Anglesey, pick up the spares and meet us on the motorway at Cannock. We then drove all the way down to Plymouth that evening and slept in the caravanette.

#### SATURDAY 9 AUGUST 1980

Went to Nick's auntie's for breakfast and a wash (magic). Drove to Bodmin Moor airfield to test kite, found that we had left the bottom A-frame bar and B-bar underneath the camper on Plymouth Hoe.

Had a good day's flying, very helpful people. The machine performs beautifully. Drove down to Land's End.

#### SUNDAY 10 AUGUST 1980

Met up with Paul and Ian and their ground crews. Went to Penzance to do some shopping then back to St Just

ground crews.

#### MONDAY 11 AUGUST 1980

Early start, final preparations, breakfast at St Just airport. Weather bad again to the race was postponed and the Press went home. All the big wind-up was for nothing. Sky cleared in the afternoon but the Press couldn't come back so the race was still off until Tuesday.

Did a fair bit of flying in the afternoon. Everything looks and feels great.

#### TUESDAY 12 AUGUST 1980

Take-off set for 8.30 am, weather fine, quite a stiff breeze. The atmosphere at the start was electric. All seven kites lined up revving merrily. A quick thumbs-up to the starter to let him know we were ready, the flag dropped and we were away. It was fantastic, just like the start of a Grand Prix.

I was first to turn downwind back over the airport closely followed by Gerry. Everything went really well until I got to St Austell, then tragedy struck.

It ran out of petrol. I couldn't believe it. One tank had an airlock and would not empty, but the other tanks were bone dry after only one hour flying. I landed in a field on top of a hill above St Austell and realised what had happened. There was a fuel leak which I fixed. Got a lift down to the local garage, fuelled up and went to take off. I

climbed to about 50 feet and then hit the most enormous turbulence which cartwheeled the whole thing and smashed it into the ground. I was lucky to get away with nothing more than a sore wrist and leg. All four main tubes were broken, the propeller had cut through the rear wires and smashed to pieces. Luckily, Reg, the chap who had given me a lift to the garage, owned a shop called Charlestown Divers and we took all the gear back to his place and stripped it down. I made contact with Helen and Nick, who were, by this time, somewhere near Exeter. They came dashing back and stood open-mouthed surveying the wreckage. For the next part Nick deserves more than full marks. By 1.30 am the next morning we had a prototype buggy built which we towed up to the same take-off field. We got to bed at about 2.30 am.

#### WEDNESDAY 13 AUGUST 1980

By 5.30 am we were rigged and ready to fly. Took off, did a few hoolies to check the kite and then shot off towards Plymouth. By this time Gerry was near Scarborough.

I was forced to land in a place called Gunnislake due to thick fog and cloud. I met a man who took me home to use the phone and had tea and toast (Thanks!) Met ground crew in Gunnislake and had more breakfast waiting for the fog to clear. Then came the embarrassing part. I lost the kite. We all searched for about two hours. We had to go back to the man's house and ask his daughter to show us where it was.

The take-off there was a downhill, downwind run with trees and power lines everywhere. The rest of the day went really well, apart from a plug lead falling off and having to ditch it in Red Rum's training field. Took off again and met up with Ashley at Wellesbourne Airfield.

#### THURSDAY 14 AUGUST 1980

This is one day's flying I shall never forget. I took off from Wellesbourne at 7.00 am and everything went really smoothly. I had got used to refuelling myself. I was at Scampston near Scarborough at 12.00 noon. There I met Ian's parents, Mr & Mrs Hoad, who pampered, fed and watered me, and even garaged my

kite. (I'm sure they were going to lock it up until Ian arrived). Took off at 2.00 pm, refuelled at a golf course in Co Durham. The last hour of this flight was in a horrific storm, but as I was flying on the lee side of some mountains (who picked this route??), I thought it safer to carry on than to try to land. Finally I saw the airfield at Dunbar. It was such a relief that I just slumped back in the seat, then, wouldn't you know it, I ran out of petrol. No landing fields, still raining, would it glide to the airstrip? It seemed to take an eternity. I remembered putting it into a dive at the perimeter fence which, after pushing out, I cleared by about five feet, then touched down on a footpath downwind, and shot across the runway into a barley field. Terra firma at last, thank goodness.

That day I covered nearly 350 miles. The race was still on, Gerry was only 30 miles ahead at this time.

#### FRIDAY 15 AUGUST 1980

Up at 5 am; a horrible morning. Sat until 2.30 pm waiting for the rain and mist to clear. I flew towards Edinburgh and held just outside the control zone while my ground crew phoned for permission to cross the Firth of Forth near the bridge. Permission was given but I had to keep below 500 feet. The rest of the flight went fairly smoothly to Aviemore.

Gerry had arrived at John O'Groats. Damn and blast.

#### SATURDAY 16 AUGUST 1980

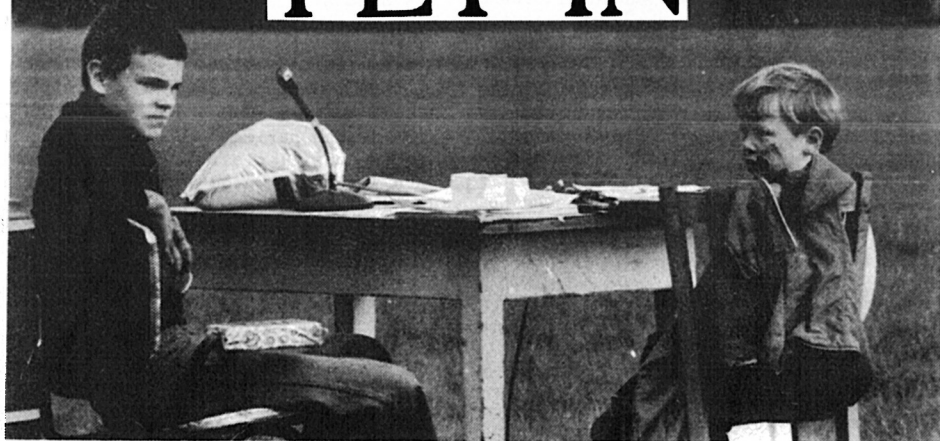
Woke up to mist and all sorts of clag. Decided to take off at 9.30 am. Shot up through a hole in the clouds and went across the Cairngorms with just the peaks sticking up through the clouds (epic!).

Arrived at John O'Groats at 2 pm after flying across the most desolate area of moorland you could imagine. Gerry flew out to meet me and we had a good afternoon taking pictures and flying.

Summing up the flight - EPIC! Even better next year.

Les Ward

# POPHAM FLY-IN



*Well-staffed BMAA stand! ATC Cadet  
with Richard Thomas manning the fort*

*(Photo: Katey Thomas)*

EXTRACT FROM POPHAM AIR CENTRE'S  
SEPT 80 Newsletter

## Microlight Fly-In:

Now that was really something! It commenced early on Saturday 23 August (before the airfield really awoke!) and continued until sunset on Monday 25th, with a brief but hilarious barbeque Saturday night. Never have so many been catered for by so few! BILL EDWARDS takes up the story:

People who watch light aircraft generally assume that they contain a man, or a woman, but the Bank Holiday weekend at Popham Airfield left nothing to the imagination. This time men were actually seen, suspended in the air, beneath gaily-coloured wings or sails, some of these bearing commercial advertising slogans, others fully occupied in bearing the pilot and

the motor cycle engine that propelled him through the air at pedal cycle speed.

The event was the Popham Micro-light Fly-In organised by the British Minimum Aircraft Association. Some aircraft were more minimum than others (one was so minimum that it didn't fly at all), but a microlight is defined as an aircraft with a dry weight of less than 100 kg which means that it will weigh little more than the average fully-clothed man.

Most designs take the form of the powered hang gliders from which they were derived, but four basic shapes were seen among the twenty machines or more that visited Popham. These were the "Eagle" with its tail in front, the "Rally" with its tail behind, the "Pterodactyl" with no tail at all, and the "Skytrike" with its triangular sail-like wing.



Throughout the sunny long weekend of August 23rd-25th, such aircraft continually took off and landed on the same grass runway as normal light aircraft which have nearly ten times the weight and speed. The event was an important step for the BMAA, in being the first event which has proved that microlights and conventional aircraft can operate safely together in one airfield circuit. This type of operation means applying a new safety-conscious discipline to both parties. The pilots of normal aircraft must learn to be aware of the microlights and respect their limitations; as a motorist must respect and be aware of bicycles on the road. On the other hand the microlight flyers, who generally have a bird-like freedom to fly wherever they wish, must learn to respect and comply strictly with airfield procedure and the recognised "rules of the air".

The fact that no hairs were raised (or lost) during these busy three days is a reflection of the responsible attitude of the BMAA, and the rigorous attention to safety and noise abatement that must make Popham one of the most disciplined small airfields in the country. An interesting illustration of this fact is that the microlight that gained publicity by crossing the English Channel, and which may represent the movement at the Farnborough Air Show, was not permitted to fly at Popham because it is too noisy.

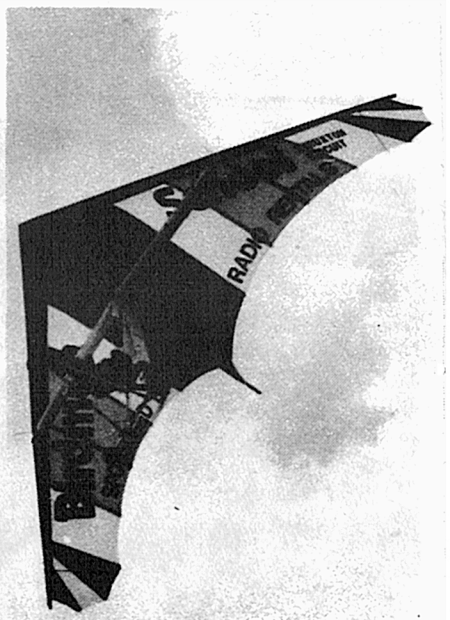
The visitors arrived from all four points of the compass - namely Scotland, Wales, East Anglia and the Isle of Wight. Most of them arrived on the roof racks of cars (this being their V<sub>max</sub> condition), and were assembled like family tents on the site, but some flew in including one from the Isle of Wight. The general impression was that of stepping back into the pioneering days of aviation, but in fact the oldest aircraft present was probably the Tiger Moth, said to have

survived the retreat of the BEF from France in 1940, and now restored to its wartime training colours. The "stick and string" microlights were of much more recent origin despite the impression created by bracing wires and bicycle wheel.

The safety, success and enjoyment of the weekend owed a great deal to the sterling service provided by the Newbury ATC Squadron, who directed all aircraft and car movements on the field, including the particularly important entry and exit of cars to and from the very busy A30. For disciplined efficiency and enthusiasm these boys and their officer in charge, John Baker, earned the respect and gratitude of everybody at Popham during this fascinating Bank Holiday weekend.

Bill Edwards

(Photo: Katey Thomas)



Dear Friends

In addition to all Bill Edwards has said in the Newsletter (and the local papers all printed the whole of it as written), I offer the following comments for your use in Flight Line if you wish.

As owner and operator of the Airfield I would like to say how impressed I was with the responsibility shown by some of the BMAA Committee members and others. If this concern for safety and discipline can prevail in the BMAA leadership it will go a long way towards reassuring other airfield and private strip owners if they have microlights in their area. For myself and on behalf of the RFC Committee, may we say how pleased we were to make available to the BMAA members this Recreational Flying facility we have created at Popham. It is our intention to offer the use of our Flying for Fun facility to the BMAA again next year on that same August weekend, and that, I suppose, is the best commendation.

All the best,

Jim Espin  
Recreational Flying Centre  
(Popham) Ltd, Nr Winchester

*Right: Committee member Brian Harrison (Euro Wing). Below: Running repairs at Popham!*

## THANKS...

On behalf of the BMAA, I should like to thank Jim Espin and all at Popham for their hospitality and understanding towards our minimum aircraft and hope that the event has marked the beginning of a new era of recognition for us!

Steve Hunt  
Chairman



(Photo: Katey Thomas)





## Glider 'not so modern'

A POWERED hang glider being displayed at this week's Farnborough air show has raised the hackles of Aldershot flight pioneer Dave Thomas.

Mr. Thomas, who recently competed in the first ever powered hang glider race from Lands End to John O'Groats, claims the model on show at Farnborough is nothing like the craft being used by most enthusiasts today.

He says that the model being displayed by Mr. David Cook of Norfolk is out of date and does not reflect the improvements made to powered hang gliders in recent years.

"Mr. Cook's craft has a rigid wing and is foot launched and, in addition, makes much more noise than almost any other

powered hang glider in the air today," claimed Mr. Thomas, from St. George's Road, who is the secretary of the British Minimum Aircraft Association.

"It is unfortunate that this is the model that is going to be on show to the world," he added.

"He has a small propeller rotating at high speed which makes a lot of noise, despite the fact that a lot of work has been done to reduce noise.

"Mr. Cook is a very good pilot but it is just unfortunate that his machine has not moved with the times."

Mr. Thomas's view was

backed up by the chairman of the BMAA, Mr. Steve Hunt, who has designed the Skystrike.

He agreed that Mr. Cook's "swing-wing" is not representative of the models in common use but he defended the Norfolk pilot's right to enter the show.

"It is extremely difficult to get a slot at the show and Mr. Cook has managed to obtain sponsorship from Duckham's Oil, so the best of luck to him," he told the "News."

Neither Mr. Cook nor a spokesman from Duckham's were available to comment on the matter.

## DAVE COOK AT FARNBOROUGH

### ALDERSHOT NEWS REPORT MISUNDERSTANDING

Dear Mr Thomas

I was extremely upset to see that you have found it necessary to write uncalled-for and un knowledgeable remarks about my powered hang glider in your local newspaper just prior to its taking part in the Farnborough Air Show.

For a start, if you are a 'flight pioneer' as printed in this newspaper, having not scored a 'first' in anything as far as I am aware, what does that grade-myself, with a massive list of 'firsts'? All my achievements have been with the VJ-23.

You claim that the VJ-23 is "out of date and does not reflect the improvements made to powered hang gliders over the last few years". The VJ-23 is so far ahead of other micro aeroplanes at present that it will be years before any of them catch up.

1: None of your micro aircraft can take off from a shingle beach or land safely in a newly-ploughed field so I claim higher versatility for take-offs and landings.

2: With full aerodynamic controls

the VJ-23 is much more controllable than any other flying micro aeroplane. This attribute makes it safer and superior.

The only improvement that can be claimed for the majority of powered hang gliders in the past few years is that of noise levels.

My VJ-23 displays at air shows only. The level of noise attracts viewers to my display routine and at the 53 major air displays completed over the last three years I have not received a single complaint.

You know this is the role of this particular hang glider, Mr Thomas. Presumably you have not witnessed my hang glider when fully silenced but would rather pass comment on it out of context.

It is not "unfortunate" that this model is on show to the world. It is fully justified. Qualifying as one of the very first powered hang gliders; first to fly across the English Channel; first to be recognised by the Royal Aero Club and awarded the Bronze Medal of Aviation Achievement. It is an historic aircraft and is in due

course to enter the exclusive Shuttleworth Collection at the close of this year.

The presence of this aircraft at Farnborough justified the 'Flight Operations Committee' to award it most outstanding display of the day on the 5.9.80. I just cannot see what is "unfortunate" about that!

You are so wrong about everything that I am inclined to think of words like "sour grapes". You cannot even get me resident in the correct county. I live in Suffolk not Norfolk as your article claims twice.

The newspaper says I and my sponsor, Duckhams Oils, were "not available for comment". This was of course because nobody made any effort to contact either!

My VJ-23 has "not moved with the times". I would like to take issue with you upon this point Mr Thomas - in the form of a challenge. It will be upon the aspect of controllability. You may choose any current micro aeroplane you wish

except a Volmer Jensen type and I would very much like to see you prove your point about my out-of-date VJ-23. The flight course is enclosed; you are challenged.

Mr Thomas, when you have achieved what myself and my VJ-23 have achieved you may be qualified to comment, until then, with your current experience and knowledge I think you should be advised to remain silent.

Yours faithfully  
David Cook

Dear Mr Cook

Firstly, may I offer you my heartfelt and sincere apology. The whole matter appears to have blown up out of all proportion.

The Aldershot News article was not written by myself, it was the result of an interview during which I was asked to comment. I am, to a degree, victim of journalistic distortion; I know you have, yourself, experienced this kind of problem.

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*Ashley Doubtfire's*

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- \* Sole Hiway Skytrike Agents responsible for using the European cross-country record holding wing - the Birdman Cherokee as a powered trike combination.

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You can do it! - BUT we'd like you to do it right!

"Mr Cook is a very good pilot" is the reporter's summary of a lengthy conversation during which, amongst other things, I pointed out your past admirable achievements. Further, my belief that both a hefty entrance fee and heavy insurance premium are paid for ALL aircraft appearing at the Farnborough Air Show is a direct result of the organisers informing me that this was a fact. This became apparent when I was negotiating on behalf of the BMAA in the hope of being able to erect a general information and

membership stand. I had wished that a quieter minimum aircraft more typical of those in common use today could have been shown to the public. Surely, I can be forgiven for honestly believing that a silencer, comfortable seat, the provision of wheels, ease of transport, simplicity of construction and availability IS progress and many people at Farnborough would have loved to have known about it. The plain fact is that the noise issue is the only area where we appear to have a problem. Do not think that I am singling your machine out for special attention.

Incidentally, you may not realise that yours was not the only one that was grounded by the airfield's owner at Popham; that

event was a Fly-In and NOT a display. Sorry about the apparently serious geographical error, whoever made it. Your challenge looks fun. See you at dawn on Little Snoring: then, I hope, we can bury this hatchet over a pint in a local pub.

Yours sincerely  
Dave Thomas

On the same subject, the following (unsolicited) letter was also received:

Dear Dave

Please find enclosed my application to join the BMAA together with its membership fee.

By the way, I went to the Airshow at Farnborough especially to see the powered hang glider that was flown there. What a shock to see it was one I had seen two years ago, very noisy and nothing like as good as the modern folding wing ones. Why could they not have represented powered hang gliding a little better?

Ian Hayes  
Basingstoke

FOOTNOTE: Dave Thomas now has a new badge sewn on his flying gear beneath his P2 wings; it reads: "O Lord, please help me to keep my big mouth shut, at least until I know what I am talking about".



# PTERODACTYL...

## A PILOT'S VIEW

Microlights have been with us (in wheel-launch form) for just on a year now, and of the various machines available, each seems to have developed its own "image" - through advertising, cult groups, performance, and pilot feedback.

The Eagle has been very energetically advertised in both displays and articles in 'real' aeroplane periodicals - it needs to be! In my experience, it is underpowered, even with the twin powerpack; it lacks penetration in any sort of wind over 15 mph; being "easy-to-fly" it also lacks challenge after the first week; and it is certainly not stallproof. For all that, a very useful trainer.

The Skystrike is a great machine to get off the ground with under power - all but instantly flyable by most competent hang glider pilots and as vice-free as any all-weight-shift control wing can be (what happens in zero or negative G?). Relatively inexpensive too - but again not sufficient performance to turn me on.

The Catto, Weedhopper and Quick-silver all look interesting machines, but I haven't seen enough flying to form an opinion - except, once again, they appear to be rather marginally powered.

I looked long and hard before parting with my hard-earned cash (particularly since I had to sacrifice my Lotus) but eventually came back to the Pterodactyl Fledge; the first time I saw one flying I knew this had to be the ship for me.

Due to the rather roundabout route of acquiring my chosen steed, because of the appallingly unreliable 'summer' weather and because of the transport problems

involved in living on the Isle of Wight, I also taught myself to fly it.

The Pledge seems to have acquired a reputation for being incredibly difficult to fly, with all sorts of ill-informed types darkly muttering into their beards about horrendous stall characteristics, poor roll control (!) and general "twitchiness" - whatever that means.

In my experience, this is unmitigated garbage.

Let me recount my story, from fair-to-rubbish hang glider pilot to fair-to-rubbish Pterodactyl pilot.

I spent an hour or so taxying around, learning to use the twist grips, running in the engine, and familiarising myself with the supine position.

Stage II, my book told me, was short hops, kill the engine, and land. Now in the wide-open spaces of California (or Wellesbourne?) this is no problem - minimal throttle setting, long take-off roll, gentle fly-it-on landing. Unfortunately, this technique does not lend itself to minute Isle of Wight farm fields. Accordingly, I had to use lots of power for a short take-off, and when I found myself catapulted into the air, and killed the engine in a blind panic, not surprisingly the machine stalled onto the ground. It takes some people longer to learn than others, but after breaking four back axles in this way, I perceived that I was doing something wrong!

I was getting pretty despondent by now. Because of the awful weather (nil winds are a prerequisite) I had been up and rigged at dawn, and into dusk; I had bent the ears and twisted the arms of numerous farmers looking for a field more than 200 yards long; had been thrown off Bembridge airfield; and had a rigging-to-airtime ratio of about a million to one!

It was at this point that Don Ellis of Sandown Airport came to

my emotional rescue. A veteran aviator of 35 years' experience, the Pterodactyl appealed to him, and he offered me the use of the airfield outside the CAA operating hours. What bliss to sit in that casual hammock seat, warming up the engine, and be confronted with over a thousand yards of billiard-green grass! This time I taxied up to 20 mph, gently leaned back and my beautiful machine lifted me up into the still evening air.

Now it seemed to me that all my problems occurred on the ground - ie, hitting it - so I thought, sod this, I'm going to get a little height, a little airtime, and then break the back axle. Which I did. (Being anxious not to stall, this time I dived into the ground - much more satisfying!)

The following evening I returned, and did a couple of straight and S-bend passes at about 50 ft. Having a bit of height, the pitch control problem was quickly brought under control - I was moving far too much before, just gentle, together movements are all that is required.

The logical next step was circuits, so I took her up to around 800 ft (wow! it really did fly!) and did an incredibly gentle circuit, muffed my final approach, went round again and did a nice three-point (well, 2½ point) landing, keeping on plenty of airspeed.

Being now totally hooked on adrenalin, but still flying very cautiously, I did several 'circuits' that evening, flying at 2000 ft over Sandown Bay, Niton and Godshell (about 10 miles apart).

The third evening, having thoroughly revised my flight manual, and wearing my brown underpants, I rigged, took off and climbed to 2000 ft, and did a stall test. Magic! The wing buffets a bit, the nose gently drops, the machine almost instantly regains flying speed, and puts you firmly back in the driving seat, with a height loss of maybe

50 ft on a full stall. There is no tendency to drop a wing - probably due to the very generous 60° dihedral, and I never once felt out of control. The very gentle stall characteristics are achieved by the wing having a built-in washout of some 30° which coupled to 180° of sweep means that the nose stalls first leaving the outer wings still flying, so that pilot input to recover from a stall need be nil. Incidentally, I have watched one Pffledge pilot, apparently flying above his (then) level of competence, performing at very low level - maybe 75 ft - in turbulent conditions, who did not seem to be aware of the fact that he was flying continually on the point of stall. The machine is so forgiving, however, that he continued his circuits in an ongoing porpoising mode of progression, not even losing height. So much for the vicious stall myth.

Again that evening, I rather cautiously lined up on my base leg, and killed the engine at 800 ft. Although one loses height much more quickly than on an engine-idling approach, the Pffledge is eminently flyable in a deadstick condition, and I landed quite safely, though a little short. I now often land deadstick, as I rather enjoy the fast, quiet glide and easy controllability of the aircraft.

So it was that I felt ready to forsake the long smooth airstrip for my ploughed stubble fields back home. I was going to break the machine down, but after a chat with Don Ellis (who by now had a hankering to pfly himself), I decided the proper method of transporting an aeroplane home was not as an ignominious bundle on the roof of a tatty Ford, but gracefully in its designed element. So it was that after three evenings at Sandown airport, I took off in ideal conditions, into a cloudless sky just as the sun was sinking into the Solent.

I will never forget that first cross-country, some 14 miles across the Island. The air was glassy smooth, the machine was

flying sweetly, and all my confidence in both the aircraft and myself was growing all the time. I circled 2500 ft over Carisbrooke Castle, seemingly hanging motionless in space, whilst the picture-book scenery rotated slowly beneath me. What a wonderful sport, and what a superb machine!

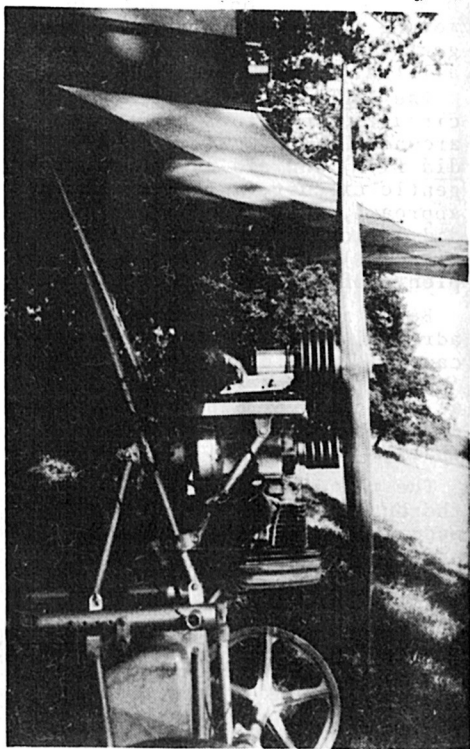
I landed in a field just across the road from my house, to be met by a string of people all running down the road (mostly from the local pub) who had watched in amazement as I burnt off height in a series of 360s and gentle, gentle wingovers. It was a late session at the pub that night, for I felt I had earned my wings.

Since then I have flown on every available opportunity (being blessed with a very understanding wife!) in as broad a range of conditions as possible, including two weekends over the mountains of Wales (where I watched another self-taught Pffledge pilot do a 45-minute XC after his first serious take-off), numerous flights in my own territory, in wind speeds on the ground of 20+ mph, done accurate deadstick landings from 1000 ft, and flown into the odd hedge. I can honestly say that I have found the Pffledge to be an almost unbelievably stable, forgiving, and idiot-proof machine - not the least because of its ample washout, reflex and dihedral made possible by the big, lazy engine, and because of the massive featherlight control surfaces - it really is an effortless machine to fly, and inspires so much confidence in its predictability.

My longest flight to date was just over 2½ hours to Popham from the Island (70 miles). This was a lot of fun, but quite bottle-testing in that it included a 45-minute crossing over the Solent, punching a strong north-west wind at 3500 ft. However, I did have ample buoyancy in the wing in the form of a purpose-built vulcanised rubber air bag, and the only real problem was that of cold. This was overcome when I landed in a

field by the A3 north of Portsmouth and put on some extra clothes carried in the wing - along with tools, rope, Thermos and large lunch box! The only other stop was when I got totally lost after leaving Alton - my half-million air map wasn't too hot on detail - but this was overcome when I found a pub with a nearby field. It also rather freaked out the locals - but people seem really to respond to these little aeroplanes: let us hope they continue to do so. I was also glad to have fitted a nine-gallon aluminium fuel tank for that trip, leaving me plenty of flying time in hand when I landed (the wrong way!) at Popham. Although I must have had a pretty heavy all-up weight on take-off the machine still handled beautifully.

The most picturesque flight to date was a recent round-the-Wight circumnavigation, for which I fitted my propeller reduction gear





and 52" prop, and dispensed with the earplugs.

I have some 15 hours in now, and can only say that each time I take off I feel I know the machine a little better, and push it a little harder. I still have lots to learn, and the machine still has a lot to offer. Quite simply, I regard the Pterodactyl as being the safest, most exciting, and most serious cross-country machine currently available. (And if Paul would like to credit my bank account with the amount we agreed . . . !!)

There are two main problems with the Pterodactyl in standard form, both interrelated. One is its excessive noise, the other its high fuel consumption (around 2 gallons per hour). I believe I have overcome both of these in developing a reduction gear to replace the crude and inefficient small high-revving prop with a more aeroplane-like version of 52" diameter revving at 2500 rpm max. This makes the machine much, much quieter, and as a bonus gives a vastly increased thrust. This endows an already top performing machine with improved climb rate and cruise speed (I have an indicated 55 mph). It also appears to have halved the fuel consumption - and I haven't had the throttle full open yet! I am currently



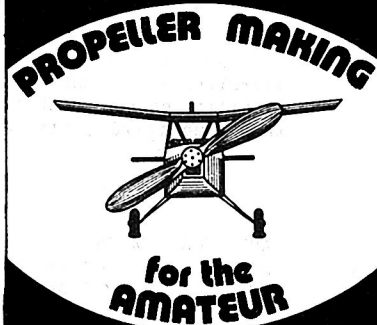
flying with the engine inverted and the thrust line in its original position, which seems to work well, and hope to offer this system as a retrofit to all you noisy Pterrors! Finally on the Solcair commercial, if you really want to go places, I have available 9-gallon ally tanks, buoyancy bags, and am working on floats for next summer.

In conclusion, then. I feel the Pterodactyl to be a superb, safe XC machine. I would not necessarily recommend the "open the throttle and go for it" approach that I adopted, but would make the observation that the stability of the machine does allow it.

Get Pflyng - you'll love it!

Bruce Giddings  
Isle of Wight

Editor's Note: Readers should note that we agreed with the CAA a maximum fuel capacity of 5 gallons (imperial). Bruce Giddings' tanks are, at the time of writing, not allowed.



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# THE NOMAD STORY

## THE STORY BEHIND THE NOMAD STORY

(Reprinted from Weekend Wings)

by Allen Craft, President, Delta Sailplane Corporation

Three years ago, in the Spring of 1977, we decided that there would be a strong and positive market for a truly serious Ultralight Aircraft. It was obvious that the fuel crunch was coming! It was also obvious that the costs of ownership and operation of a conventional light airplane were rapidly overwhelming the average private citizen's financial situation.

Power-converted hang gliders had established an interest in the potential of a minimum airplane, but were a bit too minimum for most, and fall short in stability, controllability, and structural integrity.

What will be needed, we reasoned, is a minimum but truly conventional aircraft. It must have all the normal aircraft control surfaces of ailerons, elevator and rudder, operated in the normal way with a conventional control stick and rudder pedals. The flight surfaces should be in conventional layout, and follow proven sailplane practice to provide low power requirements, minimum fuel use, and safe, slow glide speeds.

The design must provide for quick, simple, but positive field assembly or disassembly, and easy transport for home storage. The use of unsightly wire or cable exterior rigging would be a no-no! The pilot must be provided a sturdy, comfortable seat, a complete structural enclosure and the provision for lap and shoulder belts for absolute personal body protection. Although fully functional wheel landing gear is a must, the design must meet both the letter and spirit of the FAA criteria of "foot launchability".

The concept was clear, but the path to fulfillment was to be a difficult and expensive one. Several basic designs and many variations in structural methods were studied. Although many airfoils were evaluated, we elected very early in the process to go with our own sailplane-proven modification of the NACA 4415 airfoil, modified slightly again to match the effective speed range of the ultralight. Here, as in every decision that was to follow, the final choice was to be the time-proven method or concept. We would not experiment with the customer's investment and safety at stake. Our effort was to be concentrated on cost effective ways to produce a craft that could be customer-assembled with 'Erector Set' simplicity, with a result up to true aircraft industry and FAA standards.

A basic design with two variations in flight surface internal structure was finalised upon by the Spring of '78. Both were all metal, used the same fuselage, and were nearly identical in outward appearance. Number 1 made use of aluminium tubing for many primary elements and was simpler to assemble, while Number 2 was all formed sheet-metal and though much more complex, appeared to offer lower cost. The costs of tubing were rising fast during 1978 and this proved the deciding factor. We moved ahead with design Number 2 which had now been dubbed the 'Flatlander'.

Meanwhile, as the popularity of the old wooden structure 'Swing-wing' was on the decline as it was not structurally suitable for a good power conversion, we decided to produce a wooden structure twin to the 'Flatlander' as the replacement. We did not expect it to be a high volume seller, but the new 'Drifter' would use nearly all the same metal parts as the Flatlander, and make available a kit-type project for those who enjoyed

working with wood. Because it was a twin design, the Drifter is the most advanced 'in wood' ultralight available. Production Drifters were released in early '79.

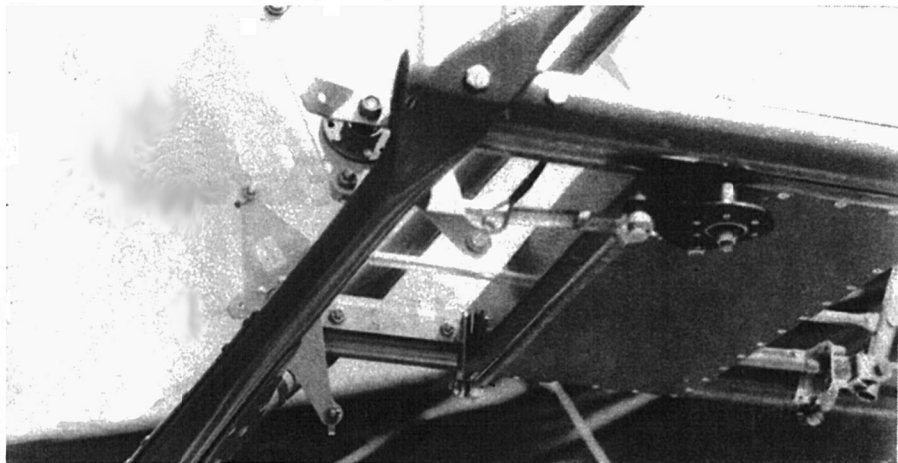
From the very beginning, the tooling program for the Flatlander had been a nightmare, and grew to an impossible situation. We were never able to get enough qualified die makers to speed up the pace. Most of all of our large problems centred around the 'Erector Set' concept. We were to learn why Lockheed and Boeing still match drill on assembly, why Detroit uses slop in bolt holes, jig-welded assembly, and rubber mallets on the assembly on car doors etc. Hundreds on interactive fit parts, each pre-punched with a great many mate-fit holes, in thin aluminium, is a real undertaking. Every estimated completion date, though thought to be realistic, came and went, unfortunately with little more accomplished.

During the Thanksgiving Holiday of '79, meetings were held to resolve the tooling dilemma. Someone, no-one remembers who, asked the most irritating of all questions: "Why are we locked to Design Number 2?" It was too late to think about that now, we were committed to Design Number 2, weren't we - or were we?

What if we were to utilise the simpler concepts of Design Number 1, make use of the accomplished tooling and know-how thus far gained in the project, and produce a composite utilising the best of both? Could it be done? Would the result be as good? Could we beat the tubing cost factor? All of these aspects were evaluated carefully, and the results were all YES! The new program was approved and set in motion. The new version was renamed the NOMAD, perhaps because we had wandered getting to this point, or more optimistically, because we expected NOMAD to really go places!

From Day One, the NOMAD project has been blessed, tooling moved ahead well now, production parts were mounding up, and they fit! The 'Erector Set' concept was becoming a reality. Production deliveries started on March 17th, 1980, and are on a steady, continuous flow basis, with the rate increasing steadily also! Early customers report back that they have assembled the entire tail section in the first evening, with no problems and no mind-benders. Most rewarding to us has been the universal feedback from everyone, "The Nomad was well worth waiting for, there is just nothing like it, it is fantastic!"

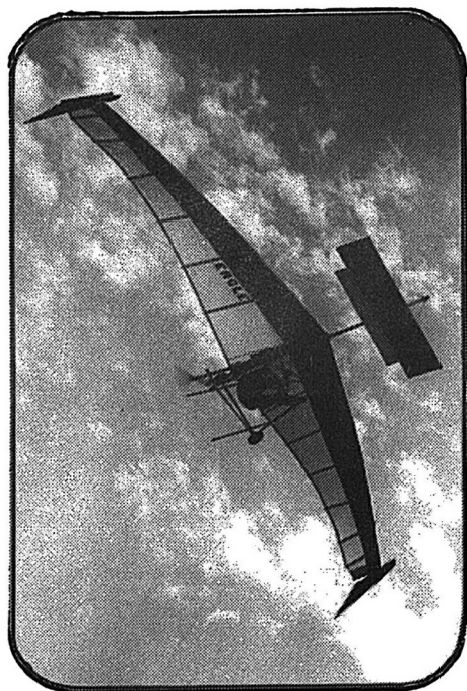
*Illustration shows superb fittings and detail construction of the Nomad*



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## KWEERIE KORNER

So some of you out there are still alive! Highly gratifying to have had nine entries for the last Kweerie, all with the correct answer. The first one out of the helmet was from Mr Tom Bradley of Cheltenham. As we've had such a cheap time on prizes recently, we decided to give two this time, the second one to Mr Des Brighton, of Qadby, for his ingenious presentation of the answer as follows:

A QUICKSILVER was certainly a menace, When flown by 29-year-old DENNIS: From TELFORD he came, In an attempt to achieve fame, But he'd be safer back home playing tennis!

This time's kweerie -£2 prize for first correct answer to Dave Thomas at 80 St Georges Road, Aldershot, Hants:

## NEW BRITISH MINIMUM AIRCRAFT COMPANY FORMED

As many people will already be aware, BMAA Chairman Steve Hunt has left Hiway Hang Gliders Limited, of which he has been co-director and half-owner with John Ievers for nearly nine years since the early days of Hiway Engineering in Brighton. Until recently, Steve had been responsible for all Hiway's designs.

Steve has long been interested in powered flight, and since Hiway's move to Wales has developed several successful powered machines but realised that he would be happier concentrating on more advanced power research and manufacture based again in the south.

Steve plans to manufacture a full three-axis control minimum aircraft owing more in its design philosophy to an ultralight Piper Cub than to a powered flexwing. His new company, Huntair, will probably be based in the Brighton area, and work is already well advanced on the first prototype.

## ADVERTISING RATES

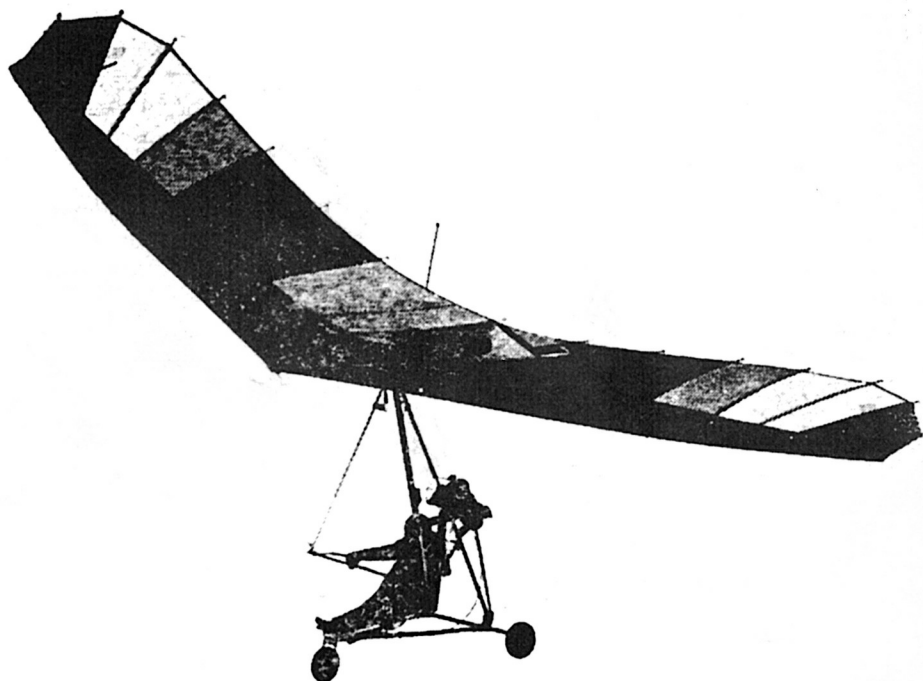
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